ROUTE 9 CORRIDOR COMMUNITIES
TRANSIT IMPROVEMENT PLAN

OCTOBER 2025

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ABBREVIATIONS

ADA	Americans with Disabilities Act
AoPP	Areas of Persistent Poverty
BG	Block Group
DelDOT	Delaware Department of Transportation
DMV	Department of Motor Vehicles
DTC	Delaware Transit Corporation
FTA	Federal Transit Administration
HDC	Historically Disadvantaged Communities
LEHD	Longitudinal Employer-Household Dynamics
O&M	Operating and Maintenance
POI	Places of Interest
RAISE	Rebuilding American Infrastructure with Sustainability and Equity
TAZ	Traffic Analysis Zone
U.S.	United States
VRH	Vehicle Revenue Hours
VRM	Vehicle Revenue Miles

1. EXECUTIVE SUMMARY

The Route 9 Corridor Communities Transit Improvement Plan identifies key transit service and infrastructure investments for communities along New Castle Avenue. The study area included the Christina River to the north, Delaware River to the east, I-295 to the south, and DuPont Highway to the west. This transit plan was funded through a Federal Transit Administration (FTA) grant awarded to Delaware Transit Corporation (DTC), a division of the Delaware Department of Transportation (DelDOT) that operates as DART. RK&K collaborated with DTC to help produce this report.

While past and current planning efforts have focused on land use and transportation network improvements along New Castle Avenue, this plan primarily focuses on transit and transit access. The following types of recommendations in collaboration with the public and stakeholders are provided in this report:

- Bus Route Improvements
- Bus Stop Improvements
- Transit Innovations
- Pedestrian Enhancements to Transit Stops

This plan included short-, medium-, and long-term recommendations to improve mobility and safety across and along the corridor. Building upon past planning efforts (see section 2.3), including a close examination of resident priorities, this plan's purpose was to support ongoing neighborhood-led advocacy and serve as a seed for a broader transit planning process.

2. INTRODUCTION

2.1 FTA Areas of Persistent Poverty Grant

In 2021, FTA awarded DTC an Areas of Persistent Poverty (AoPP) grant, which provides funding to support planning and technical development for projects that aim to assist and improve transit service and facilities for AoPP or Historically Disadvantaged Communities (HDC).

AoPP and HDC communities are areas in the U.S. that have experienced high poverty rates over an extended period. These areas often face significant barriers to economic growth, infrastructure development, and access to essential needs. The AoPP grant awarded to DTC enabled the project team to explore improvements to bus services and stops, microtransit feasibility, and pedestrian infrastructure to enhance community access to essential services and opportunities. This plan prioritized equity, access, and mobility, aiming to create a built environment that showcases the resilience and potential of Route 9 communities.

2.2 Route 9 Monitoring Committee

A Route 9 Corridor Transportation and Land Use Master Plan Monitoring Committee was established to oversee and advance the recommendations of the Route 9 Corridor Transportation and Land Use Master Plan, which outlines a shared vision for the corridor's redevelopment. Completed in 2017 by the Wilmington Area Planning Council, the Master Plan serves as a foundational guide for coordinated transportation and land use improvements. This mission is further supported by the **Route 9 Corridor Communities Transit Improvement Plan priorities**, which translates the Master Plan's priorities into actionable strategies that promote equitable mobility along the corridor.

2.3 Background

For the purposes of this plan, the study area, known as the Route 9 Communities Corridor, is bounded by the Christina River to the north, Delaware River to the east, I-295 to the south, and DuPont Highway to the west (Figure 1). The project focuses on New Castle Avenue from the Southbridge neighborhood in the City of Wilmington to I-295 in the unincorporated areas of New Castle County. Much of New Castle Avenue south of Wilmington is 4 to 5 lanes, a high-speed roadway with wide shoulders, lined with commercial and industrial developments. Many distinct residential communities sit behind commercial uses, such as surface parking lots, industrial sites, motels, auto repair shops, and warehouses.

OVERLAPPING PROJECTS

Both the Rebuilding American Infrastructure with Sustainability and Equity (RAISE) grant, awarded to DelDOT in 2022 by Federal Highway Administration (FHWA), and the AoPP grant targets transportation improvements along New Castle Avenue, which lead to some geographic and thematic overlap (Figure 2). However, their objectives, scopes, and implementation strategies differ significantly (see Table 1).

While both AoPP and RAISE grants have some key differences in their objectives, their principles are complementary. This overlap presents an opportunity for alignment, ensuring that community voices and equity considerations from the AoPP process inform the long-term infrastructure investments being prepared under the RAISE grant. The recommendations in this plan are designed to be flexible, allowing for short-, medium-, and long- term implementation. They may be carried out before the construction of RAISE-funded designs or integrated into those designs in the future. Recommendations can stand alone as actionable items or serve as complementary components of the broader long-term vision for safe and accessible mobility along New Castle Avenue.

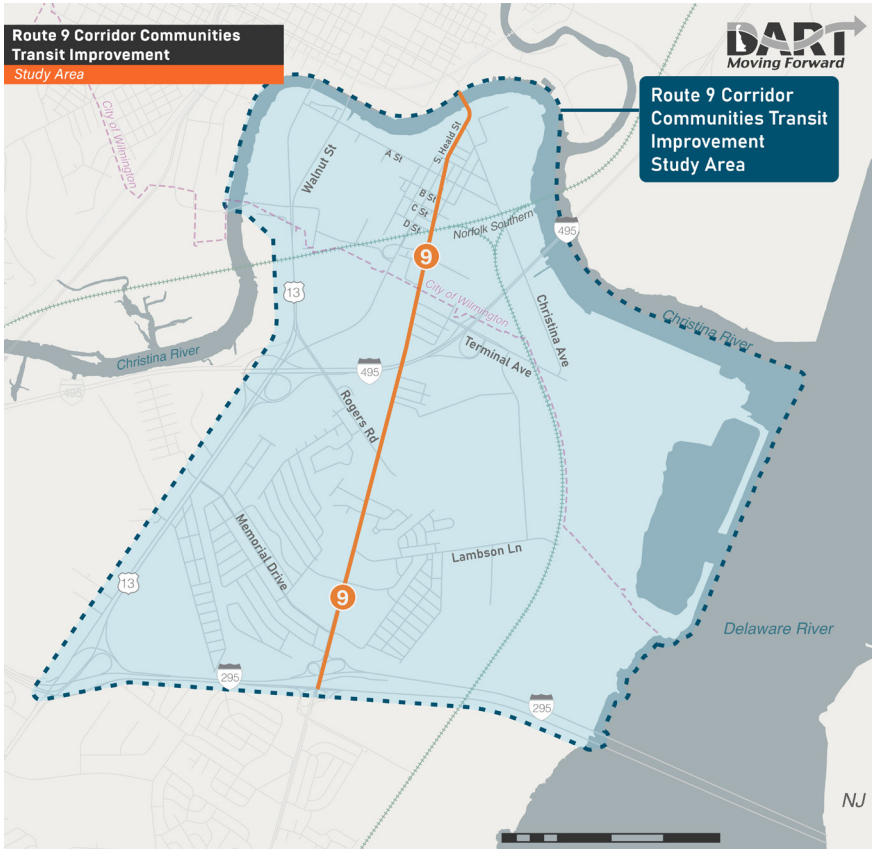

Figure 1: Study Area

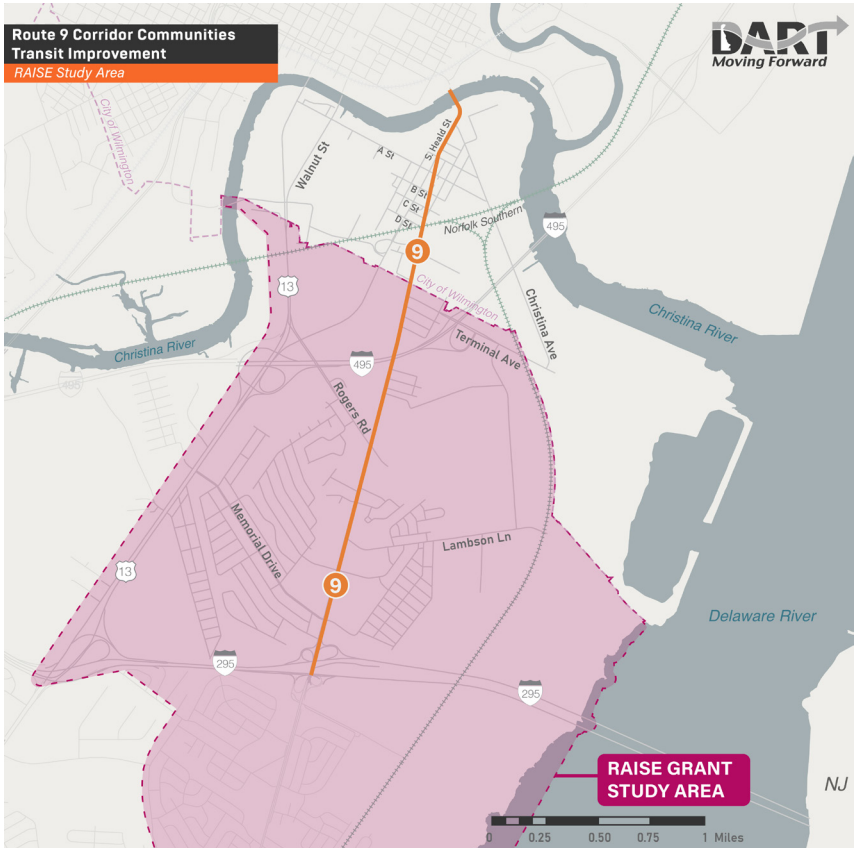

Figure 2: AoPP & RAISE Grant Study Areas

Table 1: Key Differences Between AoPP Grant and RAISE Grant

	Grant Type	
	FTA AoPP Grant	FHWA RAISE Grant
Scope	Engagement, equity, planning	Planning, engineering, surveying, design
Time Horizon	Short- to medium-term planning	Long-term capital projects
Grant Amount	$670,000	$6 Million
Lead Agency	DTC	DelDOT

PREVIOUS STUDIES

Several planning studies completed in recent years informed this Transit Improvement Plan. While none of the previous studies solely focused on transit mobility and access, they provided valuable context and were used to collate public and stakeholder priorities. These priorities were later heavily considered to inform improvement recommendations. The following planning documents were evaluated as part of this study:

- The **Route 9 Corridor Land Use and Transportation Master Plan (2017)** focuses on community revitalization and development along State Route 9/New Castle Avenue between the Cities of Wilmington and New Castle. The plan calls for coordinated land use and transportation improvements to enhance mobility and safety, incentivize economic development, and enhance health and quality of life for residents. It also outlines strategies to engage communities, preserve neighborhood character, and support sustainable growth along the corridor.
- The **Route 9 Paths Plan (2021)** proposes enhancements to bicycle and pedestrian facilities to build a network between the Cities of Wilmington and New Castle and increase connectivity. The plan's recommendations are informed by public outreach and a gap analysis of existing conditions, which helped identify and prioritize the areas along the corridor that would benefit most from these improvements.
- The **Southbridge Neighborhood Action Plan (2021)** outlines strategies for equitable growth in Southbridge by addressing key challenges faced by the community, including poverty, pollution, flooding, and underinvestment. Its recommendations focus on community empowerment, economic revitalization, youth and education, affordable housing, accessible healthcare, improved mobility, and climate change resilience. These action items are based on extensive community engagement efforts, including digital surveys, door-to-door visits, phone interviews, and public workshops.
- The **Southbridge Transportation Action Plan (2023)** is a community-led plan that analyzes key mobility aspects in Wilmington's Southbridge neighborhood, including vehicular speed, freight traffic, bicycle and pedestrian safety, and bus connectivity. The study resulted in various recommendations with varying short-term, mid-term, and long-term implementation periods.
- The **DART Reimagined (2024)** study provides a comprehensive review of Delaware's statewide transit system, evaluating current service levels, rider demographics, and market conditions. It identifies key challenges, such as limited weekend service, driver shortages, and outdated service designs, while highlighting opportunities to expand microtransit and respond to changing travel patterns. The report recommends redesigning the transit network to better align services with rider needs and build a more efficient system across the State.

3. EXISTING CONDITIONS

New Castle Avenue functions as a commercial corridor serving the City of Wilmington and unincorporated areas of New Castle County. The corridor reflects a mid-20th century development pattern focused on vehicle access with limited pedestrian amenities. However, there are several community-oriented uses that are dispersed throughout the corridor, such as places of worship, non-profit service centers, community recreation centers, parks, and large civic institutions such as the Route 9 Library & Innovation Center. These buildings and institutions contribute to the corridor's local-serving character, which is flanked by discrete residential neighborhoods and single-family residential homes. In Southbridge, a vast majority of the housing typologies are rowhomes, with newer development apartment buildings on the western side of the neighborhood. South of the City of the Wilmington municipal boundary, much of the housing typology consists of detached single-family homes on small to medium-sized lots.

3.1 Demographics

POPULATION DENSITY

As illustrated in Figure 3, the study area encompasses eight Census Block Groups (BG), including two within Wilmington and six within unincorporated areas of New Castle County. The highest population densities are in the southern portion of the study area, particularly the Dunleith neighborhood (BG 2, Tract 154, New Castle, DE), which has the highest population density, ranging between 24 to 38 people per acre. Dunleith is south of Rogers Road, west of New Castle Avenue, north of Morehouse Drive, and east of Bunche Boulevard. Garfield Park (BG 2, Tract 156, New Castle, DE) has the second highest density within the study area, with a population density ranging from 6 to 12 people per acre. Garfield Park is located south of Memorial Drive, west of New Castle Avenue, north of I-295, and east of DuPont Highway. The remaining BGs within the study area fall within the 0 to 5 people per acre range. Overall, population density across the study area ranges from 0 to approximately 38 people per acre.

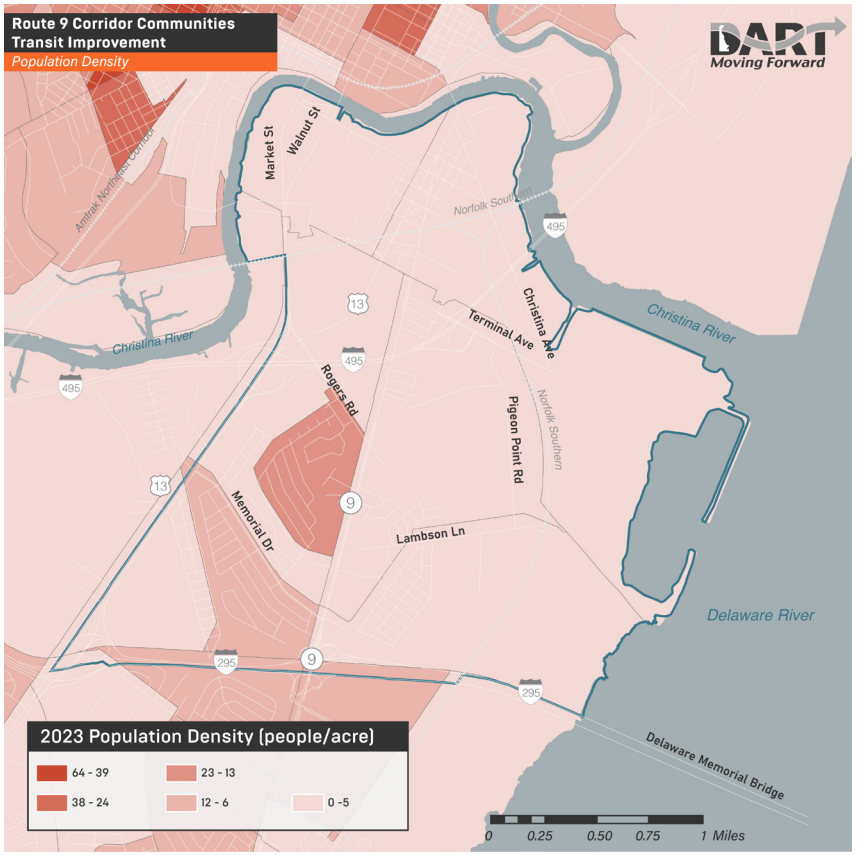

Figure 3: Population Density
Source: American Community Survey 2023 5-Year (2018-2023)

EMPLOYMENT

Figure 4 shows that the highest job totals in the study area are located east of New Castle Avenue, particularly in the BGs that encompass the Port of Wilmington. These areas account for between 1,000 and 2,500 total jobs. In contrast, areas west of New Castle Avenue, where land use is primarily residential, have between 0 and 1,000 jobs total. The area with the highest employment levels is predominantly industrial, with many jobs related to shipping and industrial uses near the Port of Wilmington. Although the area west of New Castle Avenue is characterized by mainly residential uses, its location between high-density jobs areas, including Downtown Wilmington and the Port of Wilmington, offers a high level of job accessibility for its residents.

Projected employment changes were collected for the period between 2020 and 2050 (Figure 5). The largest amount of growth is concentrated east of New Castle Avenue in Riverside and at the Port of Wilmington. Within the study area, some Traffic Analysis Zones (TAZ) may double in employment, with growth rates between 61% to 100%. In contrast, other TAZs may remain flat or decline by more than half by as much as 137%. Employment within the study area is generally growing at a faster rate than in the surrounding TAZs immediately outside of the study area, with the exception of areas in Wilmington along the Christina River and Brandywine Creek, where employment is also projected to increase. Within the study area, high employment growth is concentrated in zones with industrial land uses, while areas with lower projected growth are primarily residential.

Figure 4: Total Jobs
Source: Delaware Population Consortium 2020

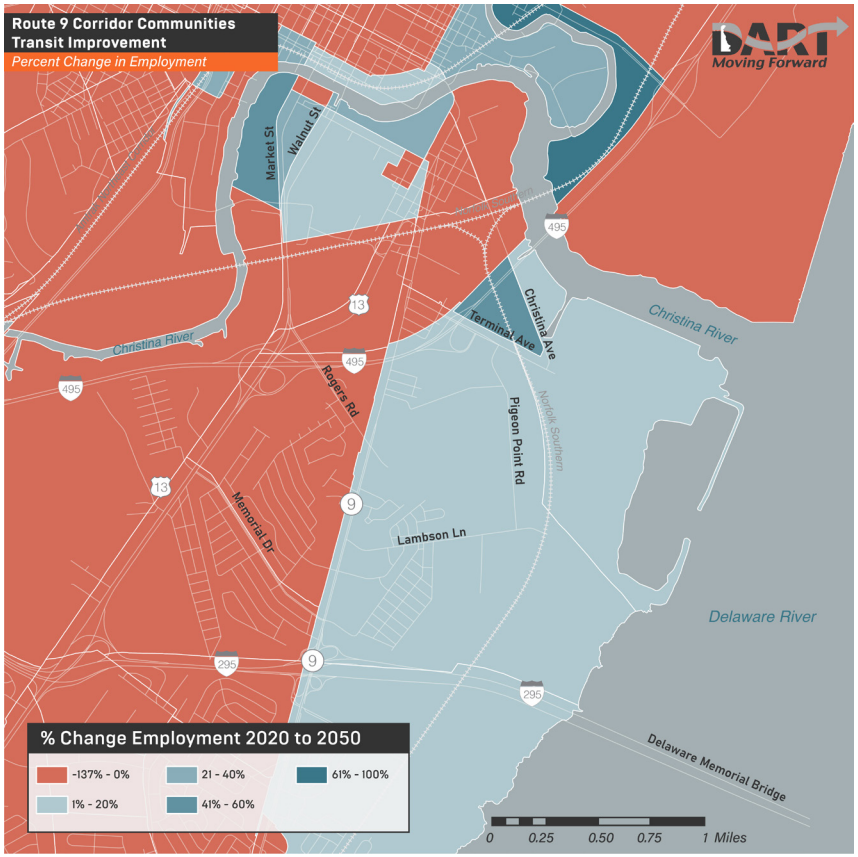

Figure 5: Projected Employment Change 2020 to 2050
Source: Delaware Population Consortium (2020 and 2050)

A five-year analysis of commuting patterns from 2017 to 2022 reveals that the study area demonstrates a higher reliance on public transportation compared to the State average. Specifically, 6% of workers in the study area commute by public transit, which is double the statewide average of 3% (Figure 6). This suggests that residents in the study area are more likely to utilize transit services than the broader Delaware population.

Based on Longitudinal Employer-Household Dynamics (LEHD) data, approximately 4,460 working individuals live in the study area. Approximately 302 individuals both live and work within the study area and 4,158 individuals commute to jobs outside the area. The most common work destinations outside the study area include Wilmington, New Castle, Newark, and Dover in Delaware, as well as Philadelphia in Pennsylvania. Other notable destinations include Census Designated Places, which are a statistical geography representing closely settled, unincorporated communities that are locally recognized and identified by name (census.gov). These include Brookside, Glasgow, and Bear, which are located along the I-95 and U.S. 40 corridors southwest of the study area, and Edgemoor, located northeast of Wilmington along DuPont Highway/Philadelphia Pike.

As shown in Figure 7, 624 of study area residents (15%) commute to Wilmington for work, making it the most common destination. In contrast, 5,749 individuals commute to the study area for employment, including 920 (16%) from Wilmington. This results in a total of 6,051 workers who commute into the study area for work or who live and work in the study area. The job-to-population ratio of 1.36 suggests a net inflow of workers, underscoring the study area's role as a regional employment center. This imbalance highlights the area's significance and its concentration of industrial and commercial land uses, particularly around the Port of Wilmington.

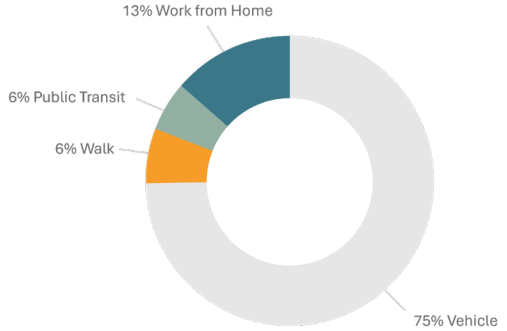

Figure 6: Commute Mode
Source: American Community Survey 2022 5-Year (2017-2022)

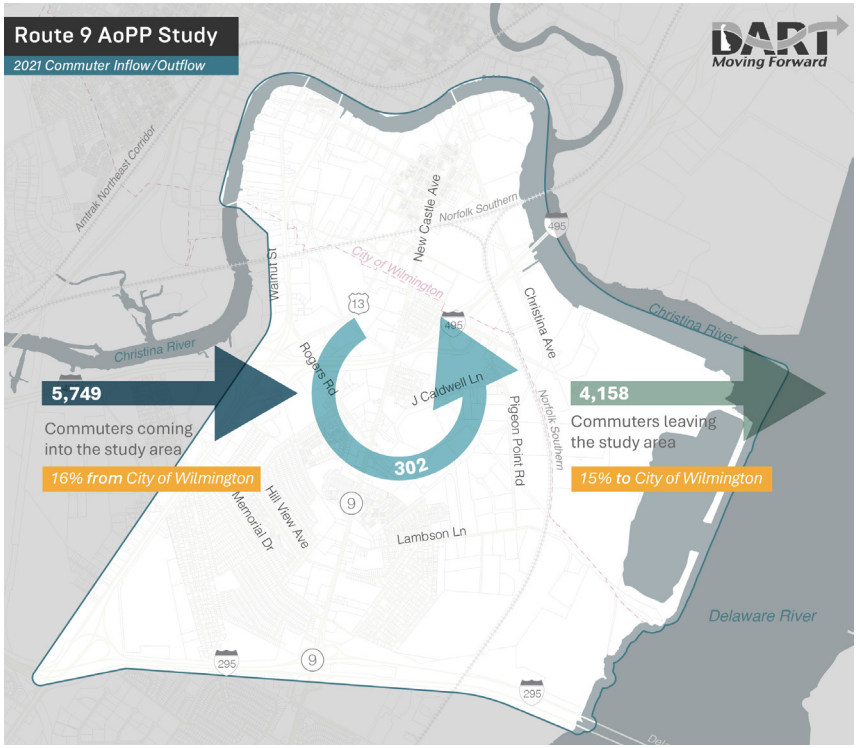

Figure 7: 2021 Commuter Inflow/Outflow
Source: LEHD Data

ACTIVITY CENTERS

Figure 8 and Figure 9 illustrate the locations of open space assets and Places of Interest (POI) within the New Castle Avenue corridor study area. These destinations include schools, a library, a grocery store, health and social services facilities, and community institutions such as the Wilmington Parks & Recreation Center and the Route 9 Library. The study area also features key regional assets like the Port of Wilmington, Chase Fieldhouse, ShopRite, and the Wilmington Amtrak Station located just outside of the study area contributes to regional connectivity. Parks and recreation facilities offer amenities, such as walking trails, playgrounds, and sports fields. Collectively, these POI support the community by enhancing access to education, employment, social services, recreation, and transportation.

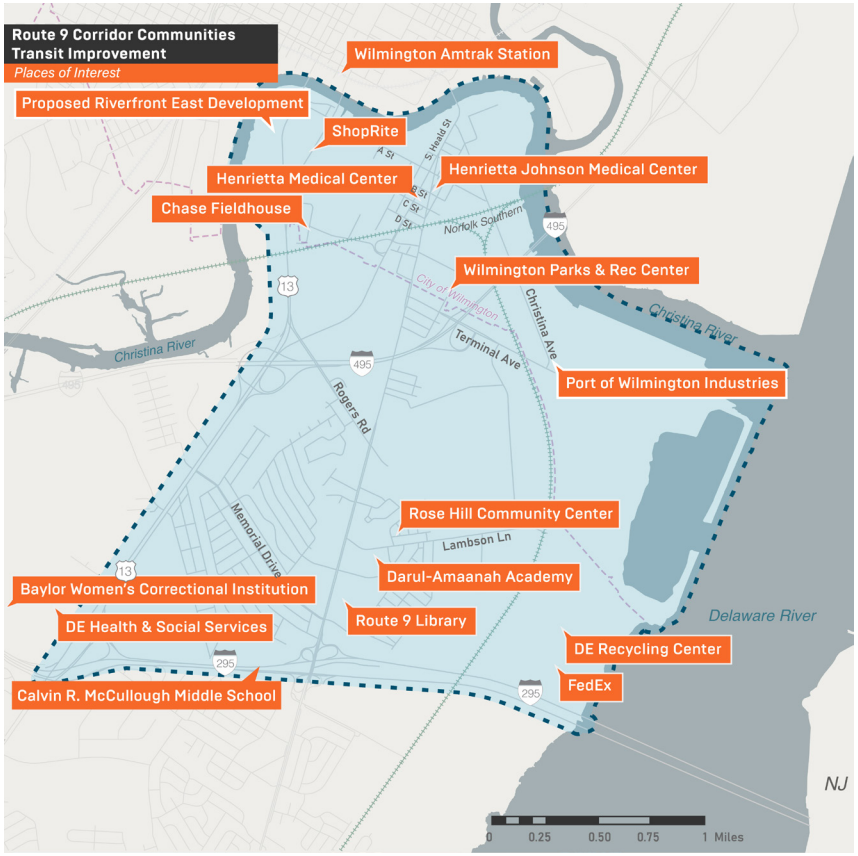

Figure 8: Places of Interest

Figure 9: Open Space

3.2 Existing Transit Service

The study area is served by nine existing fixed-route bus services operating along two major corridors and several local streets (Figure 10). The key arterial routes on which buses operate include U.S. Route 13 (Dupont Highway) and New Castle Avenue. In addition, bus service is provided on Memorial Drive, Hillview Avenue, Rogers Road, and Heald Street, as well as Market Street and Walnut Street which, are a one-way pair in Southbridge. The fixed-route bus services operating within the study area include DART Routes 8, 10, 13, 14, 15, 25, 28, 40, and 51. Most of these routes operate primarily along DuPont Highway. On New Castle Avenue, the routes providing service include DART Routes 8, 14, 15, and 51.

- Route 8 (8th Street/9th Street)
- Route 10 (Wilmington/University Plaza/Newark)
- Route 13 (Philadelphia Pike/DuPont Highway)
- Route 14 (Baylor/Delaware Health and Social Services (DHSS) Campus/Miller Road Shopping Center)
- Route 15 (New Castle Avenue/Basin Rd/Christiana Mall)
- Route 25 (Miller Road Shopping Center/Wilmington/DuPont Highway/Wrangle Hill)
- Route 28 (Nemours Children's Hospital/Wilmington Department of Motor Vehicles (DMV)/Probation & Parole/Riveredge Industrial Park)
- Route 40 (Glasgow/U.S. Routes 13 & 40/Wilmington)
- Route 51 (New Castle Ave/DE 273/Christiana Mall)

3.3 Ridership

While many customers currently board buses along DuPont Highway—where four to five routes operate concurrently throughout the corridor—the higher ridership observed is largely a byproduct of the greater number of routes and resulting service frequency (Figure 11). In contrast, New Castle Avenue is served by only two to three routes yet still maintains ridership levels that are only slightly lower than those on DuPont Highway. When evaluating ridership relative to the number of routes serving each corridor, New Castle Avenue demonstrates a notably higher ridership rate per route (Figure 12). This suggests strong demand and potential for growth, especially in light of the Bus Route Recommendations discussed in Section 5 of this report.

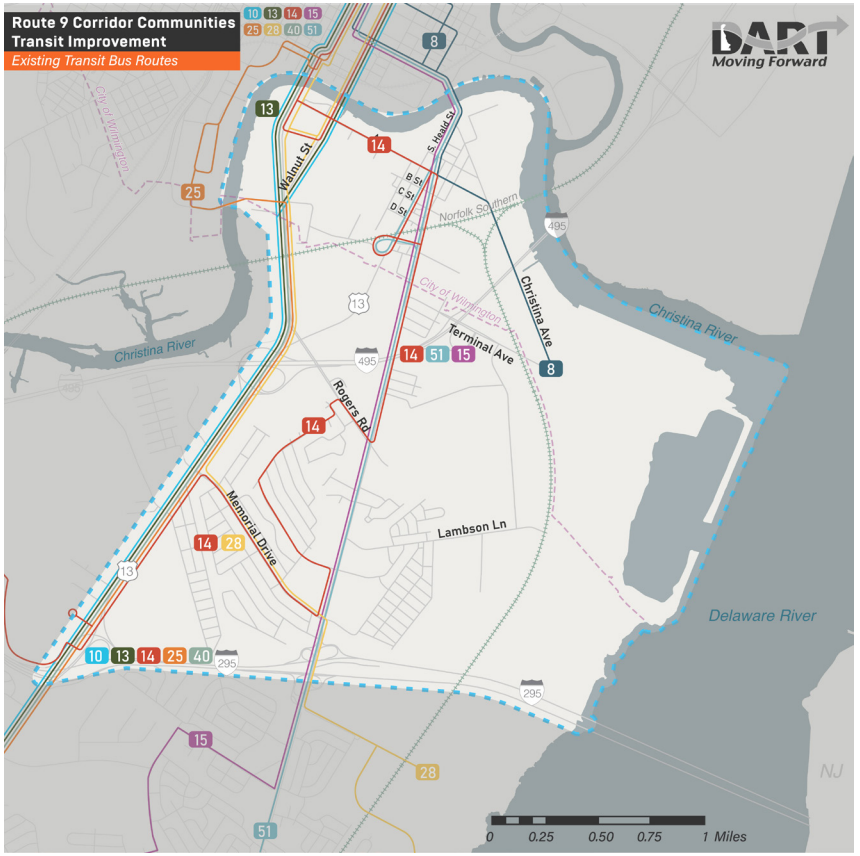

Figure 10: Existing Transit Bus Routes
Source: DTC (October 2023)

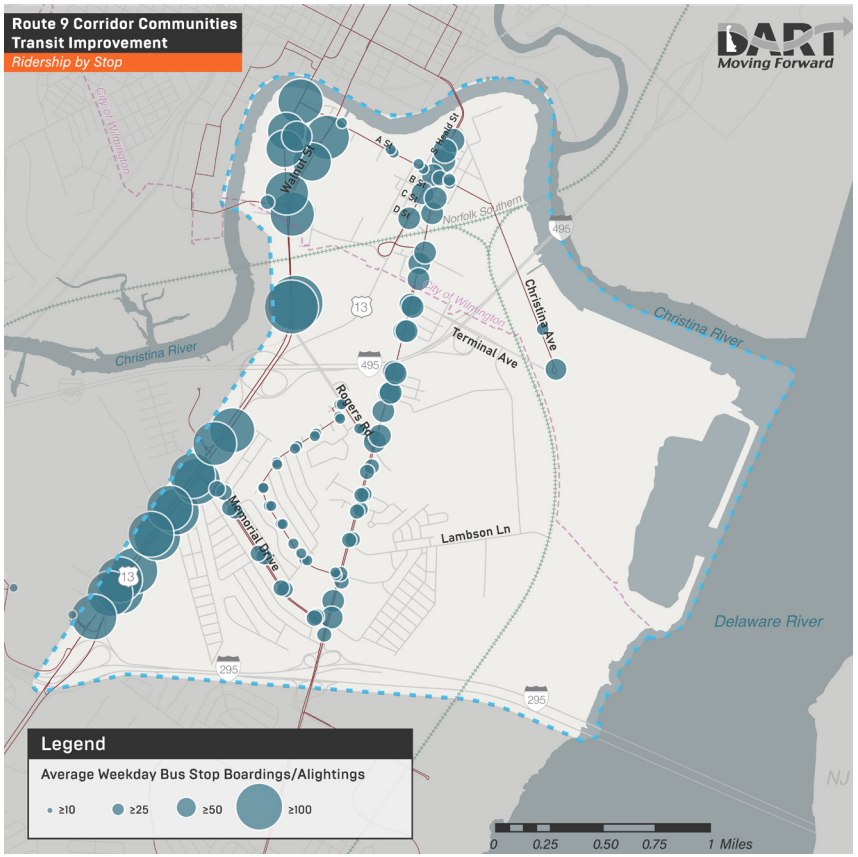

Figure 11: Existing Ridership (Average Weekday Boarding and Alighting)
Source: DTC (October 2023)

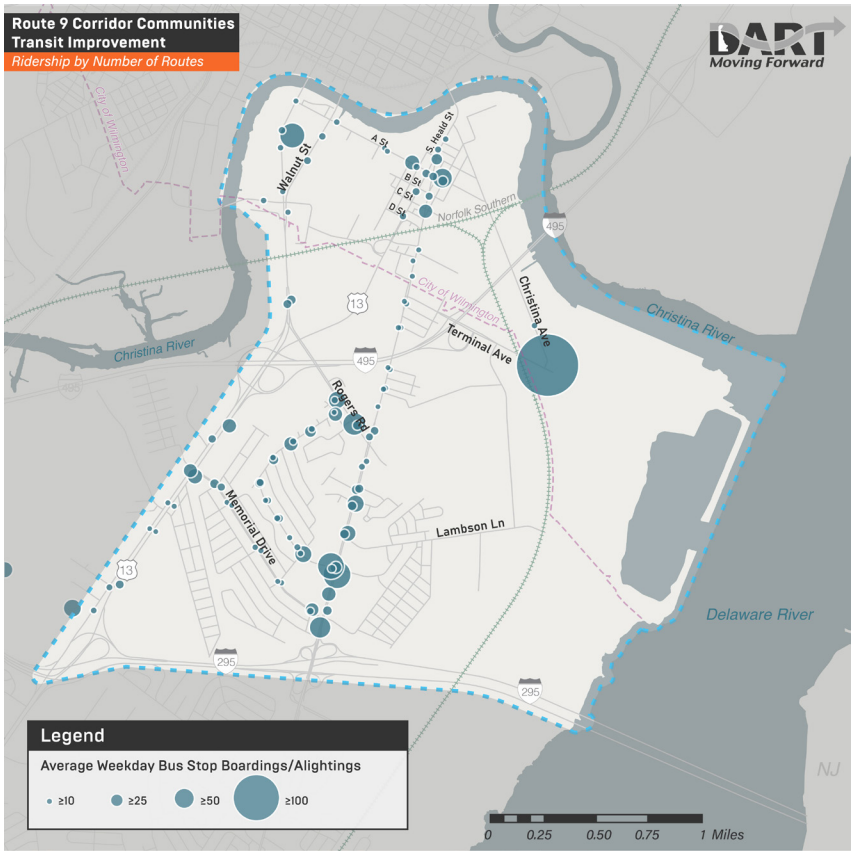

Figure 12: Existing Ridership by Number of Routes Serving Bus Stop (Average Weekday Boarding and Alighting)
Source: DTC (October 2023)

4. PUBLIC AND STAKEHOLDER OUTREACH

4.1 Introduction

A survey was conducted for individuals who work, live, and commute in the project study area to assist the project team in providing recommendations for transit. The online survey began on April 23, 2025, and concluded on June 6, 2025. A total of 73 completed surveys were received (53 via an online platform and 36 paper). A compiled list of outreach material developed for this project is located in Appendix D.

4.2 Methodology

The survey was primarily conducted online. In addition to the survey questions, a map-based activity was created to allow participants to provide input regarding transportation, pedestrian, and bicycle challenges or opportunities for improvement. The survey was also translated into Spanish to ensure that all those wishing to provide input could do so.

To promote the survey, the project team created bilingual postcards, 11" x 17" posters, flyers, and drop boxes for distribution and placement with community partners. The team also posted a laminated poster at 14 high-ridership bus stops, allowing customers to scan the QR code and enter their responses.

The project team attended two online community meetings virtually to introduce the survey and encourage participation from various influential groups in the study area. On April 17, 2025, and April 22, 2025, the team attended the Route 9 Monitoring Committee Meeting and the South Wilmington Planning Network meeting, respectively. Both meetings were held via Zoom. Additionally, DTC project team shared outreach material and a paper verison of the survey at Open Streets Wilmington (hosted in the Southbridge community) on May 31st, 2025.

During both meetings, the team provided a brief overview of the study and the survey, as well as a "stakeholder toolkit" that included a compilation of email and newsletter text; social media posts for Instagram, Facebook, and Twitter; as well as images for each platform. These resources were

Figure 13: DTC at Open Streets Wilmington May 31, 2025

Figure 14: Postcard in Spanish

provided in both English and Spanish. During the meetings, the project team encouraged the members from each organization to utilize the toolkit to encourage their constituents to take the survey. Additionally, the team offered to drop off postcards, posters, and paper surveys for anyone who wished to distribute them.

On April 29, 2025, the team distributed postcards, 11" x 17" posters, and printed paper surveys in both English and Spanish at the following locations:

- Neighborhood House
- Route 9 Library,
- Henrietta Johnson Medical Center
- Rose Hill Community Center.

Boxes were left at each location for survey collection. The team also posted a laminated poster at 14 high-ridership bus stops, allowing customers to scan the QR code and enter their responses.

The toolkit was also provided to elected officials in the study area to further promote the survey to their constituents. Officials included New Castle County Council members Jea Street, George Smiley, and Penrose Hollins, as well as Senator Darius J. Brown and Representative Franklin D. Cooke.

Figure 15: Route 9 Monitoring Committee Meeting on Zoom

Figure 16: Outreach Poster

DEMOGRAPHICS

The project team evaluated and summarized the data from the surveys:

- A total of 70 survey reponses were recieved.
- Regular DART customers accounted for 58% of survey respondents.
- The majority of survey respondents are female (57%).
- Non-riders were mostly male (63%), with the majority being 65 and older (22%); followed by 25–34 (19%) and 35-44 (19%).
- The largest age group of customers is between 35-44 (29%), followed by 25-34 (17%) and 18-24 (14%).
- Additionally, 66% of the respondents identified as black and 94% of the respondents speak English.

Most customers indicated that their household income is less than $50,000 per year. Those who do not ride DART are evenly spread between the $0-$14,999 and $50,000–$89,999 ranges. A large number, 37%, also preferred not to answer the question. The majority of respondents use DART services to commute to work, school, shopping centers, and medical appointments or to visit family, friends, and recreational locations.

More than 50% of those who use fixed-route service use DART every day (Figure 19). Most customers use the service midday from 9 a.m. to 3 p.m this indicates that the study is a non-commuter travelling community, where demand is consistent throughout the day. On weekends, the times of use are more evenly distributed throughout the day. Figure XX illustrates that a majority respondents use transit everday; indicating DART transit service is an essential resource in the community.

DART users rely on fixed-route or paratransit services to reach a variety of destinations in the community. More than 25% use DART to travel to work, 24% for shopping, and 20% for medical appointments. Smaller percentages use it for recreation (18%) and for school (5%).

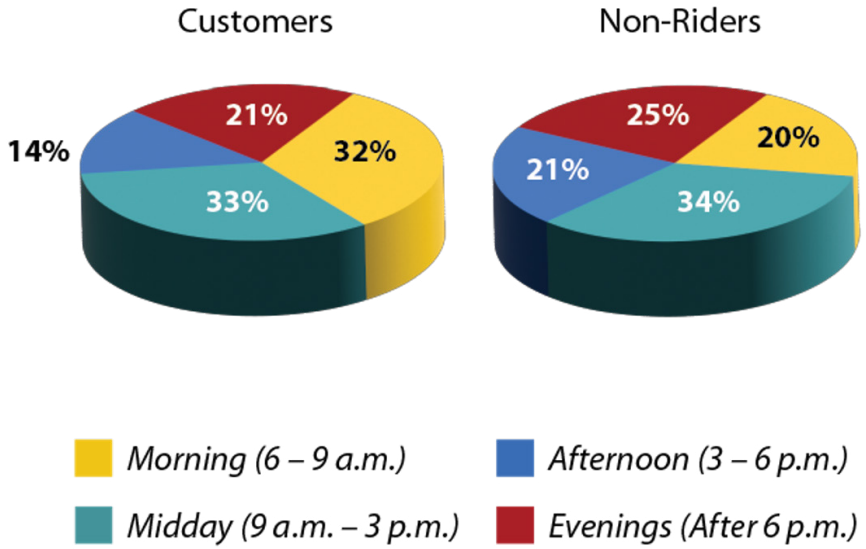

Figure 17: Travel Habit - Time of Day Travel

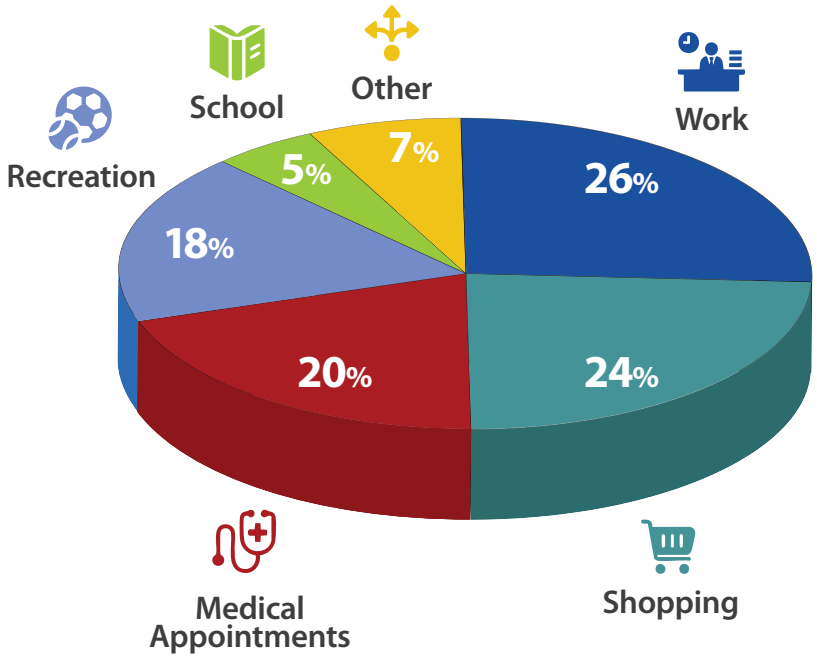

Figure 18: Travel Habits - Where Do You Take Transit?

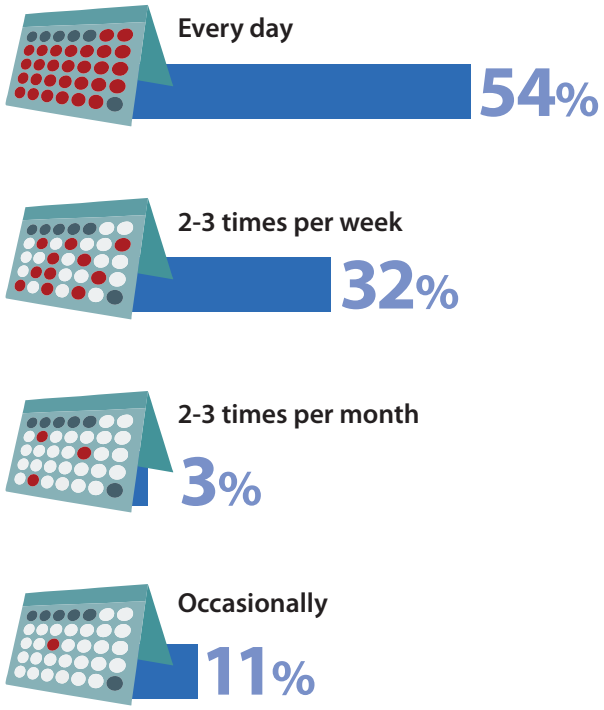

Figure 19: Travel Habits - How Often Do You Use DART?

BARRIERS TO ACCESS

The Team asked respondents what prevents them from using DART on a regular basis. Current DART customers indicated the (Figure 20) bus stops are too far away, the routes don't go where they need them to go, service times aren't convenient, or the service isn't frequent enough. Non-riders had similar reasons for not riding DART, including the distance to bus stops (too far), the routes' starting and ending locations (not convenient), and the infrequency of service. Most non-riders also indicated that they prefer to drive.

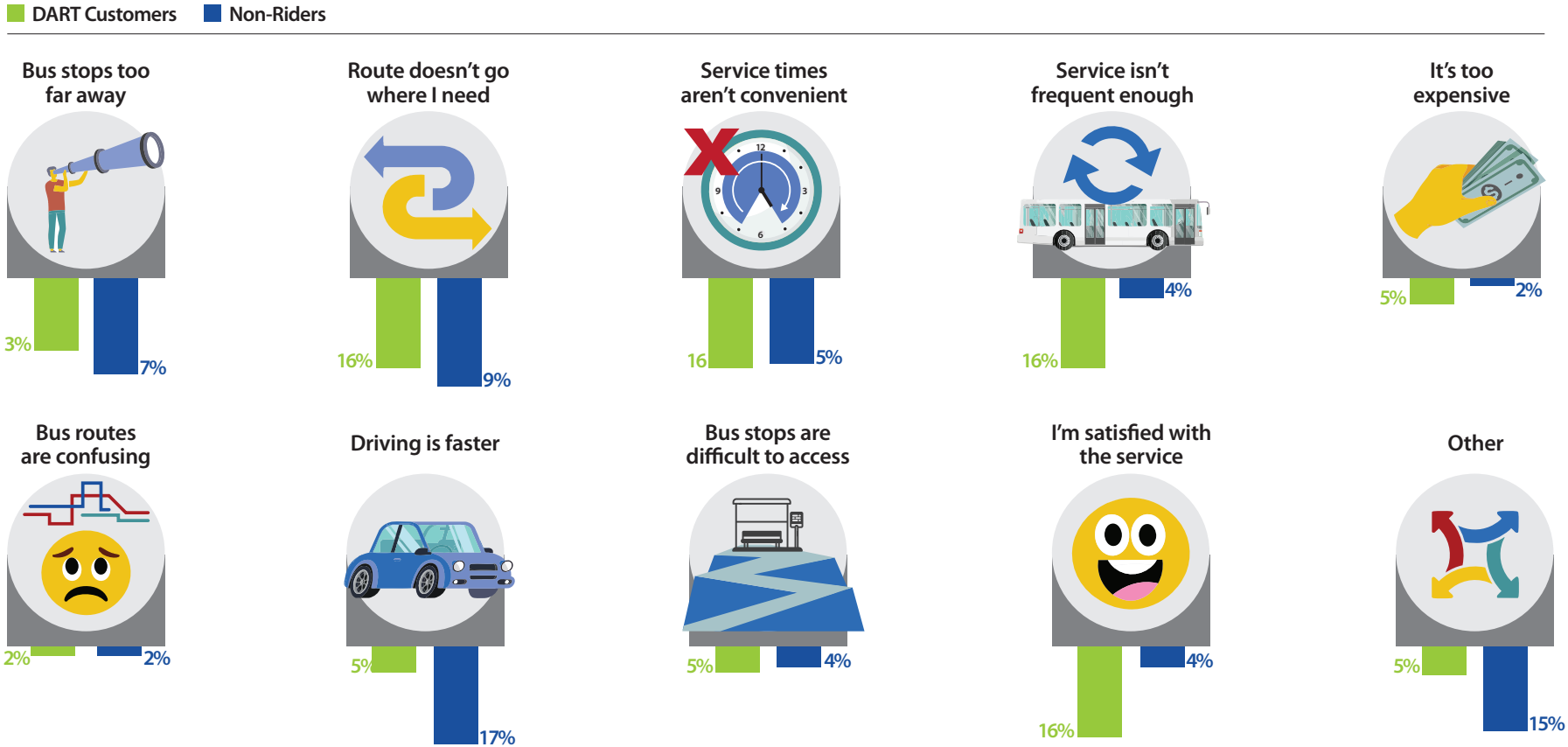

Figure 20: Barrier to Access Transit

MICROTRANSIT IN THE AREA

Both fixed-route riders and non-riders (Figure 21) believe that microtransit would benefit the Route 9 community. Microtransit is described in more detail in Section 6 of this report.

Customers and non-riders alike indicated they would use the service to connect from residential areas to medical appointments and their workplaces that DART does not currently service, such as FedEx Ground in New Castle.

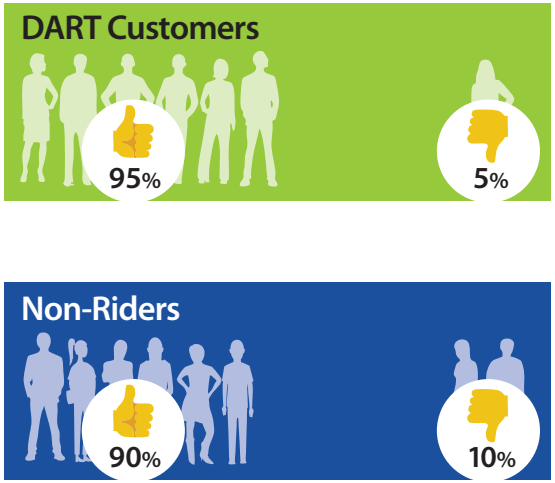

Figure 21: Support for Microtransit in the Study Area

DART SUGGESTED IMPROVEMENTS

The survey asked all respondents, through an open-ended question, how DART could improve service. Both current DART customers and non-riders gave a variety of responses.

The most significant number of comments received from both customers and non-riders pertained to expanding the system's coverage to workplaces, such as those on Lambson Lane, Davidson Lane, and other industrial areas, specifically FedEx. Customers mentioned this 11 times, while non-riders mentioned the same need eight times. In addition to expanding to these locations, customers have commented that they would like to see service hours, including those on weekends, extended to accommodate overnight shift workers at the warehouses.

> **"There are many businesses in Lambson Lane and Pigeon Point Road that are almost impossible to get to with any bus. Even a transfer from a central bus line would be incredibly helpful. At a minimum, clear pedestrian walkways would be great on Lambson Lane."**

Both customers and non-riders would also like improved frequency and reliability of fixed-route services. Many customers indicated that the schedule on some routes is too infrequent, and buses frequently arrive behind schedule.

Non-riders also indicated that they do not use the service due to the lack of reliability and long waiting times. They also reported avoiding DART due to safety concerns at certain stops in the study area—especially at night—citing poor lighting and a lack of pedestrian infrastructure like sidewalks, which makes accessing the stops difficult and unsafe.

Of the current customers, seven had comments regarding the bus operators. Comments ranged from staff being rude, while others indicated that they sometimes skipped stops and drove past waiting passengers.

5. BUS STOP ANALYSIS

5.1 Bus Tiers

As part of the study, the project team developed a numerical tiered system to standardize the assessment and characterization of the existing conditions of the 105 bus stops in the study area. This approach was used to assess current bus stop conditions and inform recommended improvements. The following figures are examples of bus stop tiers, indicating the types of amenities present at each tier level. A summary of tiers are shown in Table 2.

TIER 1

A Tier 1 bus stop, also known as a "Super Stop," is designed for areas with high passenger volumes and is strategically placed in select locations within the study area (Figure 22). These stops are equipped with enhanced amenities to improve the rider experience, including extra-large shelters, clear signage, trash receptacles, bike racks, and full Americans with Disabilities Act (ADA) accessibility. Additional features may include real-time information displays, solar-powered lighting, audio information devices, and design elements that enhance safety and visibility, such as translucent walls and UV-filtered roof panels.

Figure 22: Example of a Tier 1 Stop

TIER 2

A Tier 2 bus stop is designed for areas with existing and potentially high large civic institutions (Figure 23). These stops are equipped with enhanced amenities to improve rider experience, including single shelters, clear signage, trash receptacles, bike racks, and full ADA accessibility.

Figure 23: Example of a Tier 2 Stop

TIER 3

A Tier 3 bus stop is designed for areas with some passenger volume and are equipped with benches, clear signage, trash receptacles, and full ADA accessibility (Figure 24).

Figure 24: Example of a Tier 3 Stop

TIER 4

A tier 4 bus is a location with low ridership and no additional amenities (Figure 25). However, at a minimum, it is accessible and provides a solid/hardened waiting surface for passengers. The waiting pad area is at least 5 feet wide by 8 feet deep to allow for wheelchair use, including an accessible pathway to the bus stop.

Figure 25: Example of a Tier 4 Stop

TIER 5

A Tier 5 bus stop represents the lowest level of service and typically lacks essential features such as ADA accessibility and proper signage (Figure 26). Of the 105 existing bus stops evaluated in the study, 36 were classified as Tier 5. However, in the proposed future bus stop tiers, no stops fall into this category. This is because it is assumes that DTC will work toward making all bus stops ADA-accessible, ensuring that every bus stop in the study area meets basic accessibility and service standards moving forward.

Figure 26: Example of a Tier 5 Stop

Table 2: Summary of Existing and Proposed Bus Tiers in the Study Area

Tier Number	Existing Bus Stop Tier	Proposed Bus Stop Tier
Tier 1 (Super Stop)	N/A (None currently exist)	Extra-large shelter, signage, trash bin, bike rack, ADA accessible
Tier 2	Standard shelter, signage, trash bin, bike rack, ADA accessible	Standard shelter, signage, trash bin, bike rack, ADA accessible
Tier 3	Bench, signage, trash bin, ADA accessible	Bench, signage, trash bin, ADA accessible
Tier 4	Signage, ADA accessible	Signage, ADA accessible
Tier 5	Bus stop does not meet ADA accessibility	None

5.2 Application of Bus Tiers

Using the tiered system, the project team developed a tier methodology to bus stops in the study area to assess existing conditions and determine proposed improvements. The bus stop tier methodology involved a structured three-step evaluation process to assess and determine transit access improvements.

STEP 1: Determine level of accessibility and amenities at each existing bus stop.

STEP 2: Identify whether existing bus stop is new, doesn't require changes, needs improvement, needs monitoring, or recommend discontinuation.

STEP 3: Determine proposed improvements based on ridership, land use, development patterns, and public input.

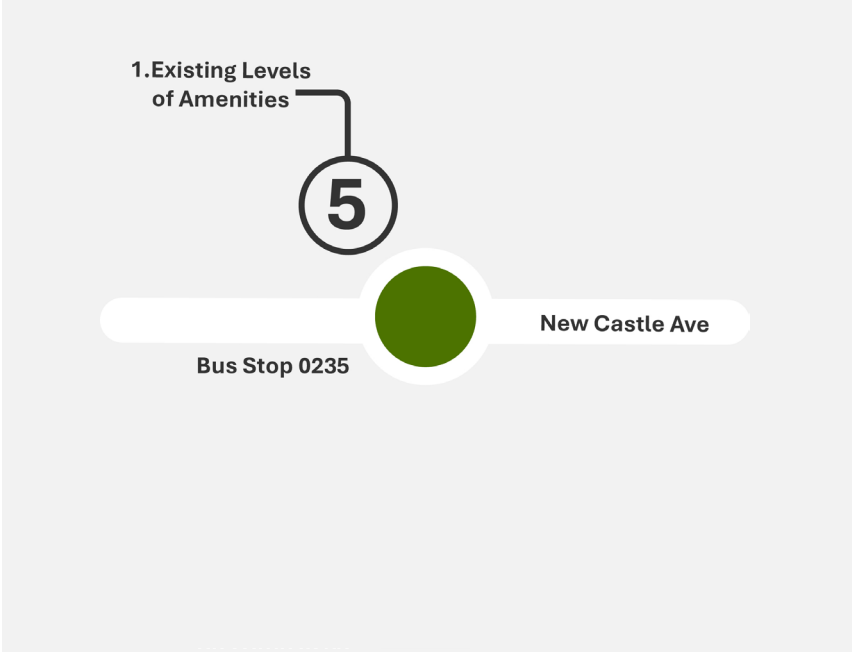

Figure 27: Step 1

In **step 1**, each bus stop in the study area was categorized based on the established numerical designation (1-5) associated with existing conditions and amenities (Figure 27).

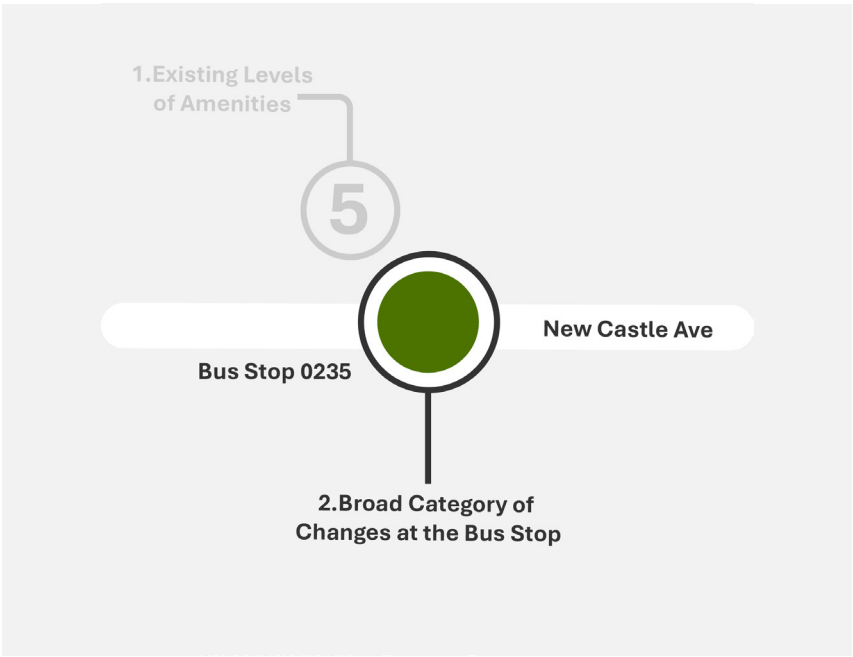

Figure 28: Step 2

In **step 2**, bus stops were labeled as either new (proposed additions), requiring no change, needing improvements, to be monitored by DART for future consideration, or recommended for discontinuation (Figure 28).

Figure 29: Step 3

In **step 3**, the stops were reassessed and assigned a number (1-4) for future improvements based on the existing and proposed ridership, land use, development patterns, and previous and current public input. This classification system was designed to support strategic investment and planning by identifying which bus stops should be prioritized for upgrades and determining the appropriate level of amenities needed to better serve both current and future DTC riders (Figure 29).

5.3 Existing Bus Stop Tiers

The analysis of existing bus stop tiers (Figure 30 and Table 3) within the Route 9 Corridor study area reveals a significant concentration of lower tier stops, particularly Tier 5 and Tier 4. Tier 5 stops those lacking ADA accessibility are primarily located along New Castle Avenue just south of the Norfolk Southern rail line and extend to I-295. Tier 4 stops, which offer minimal amenities, such as signage and ADA accessibility, are spread throughout the study area but often found in nearby residential neighborhoods with very low ridership. Only a small number of stops in the study area are categorized as Tier 2 and 3 offering more substantial amenities. Tiers 2 and 3 are more often located near key destinations, such as the ShopRite, Route 9 Library, and the Port of Wilmington. Notably, there are currently no Tier 1 "Super Stops" in the study area. The proposed improvements aim to eliminate all bus stops within the study area categorized as Tier 5, reflecting DTC's commitment to accessibility and enhanced transit infrastructure.

Table 3: Number of Existing Bus Stop Tiers

	# Of Tiers in Existing
1 = Super Stop	0
2 = Single shelter, signage, trash bin, bike rack, ADA accessible	14
3 = Bench, signage, trash bin, ADA accessible	2
4 = Signage and ADA accessible	53
5 = Not ADA Accessible	36
Total	**105**

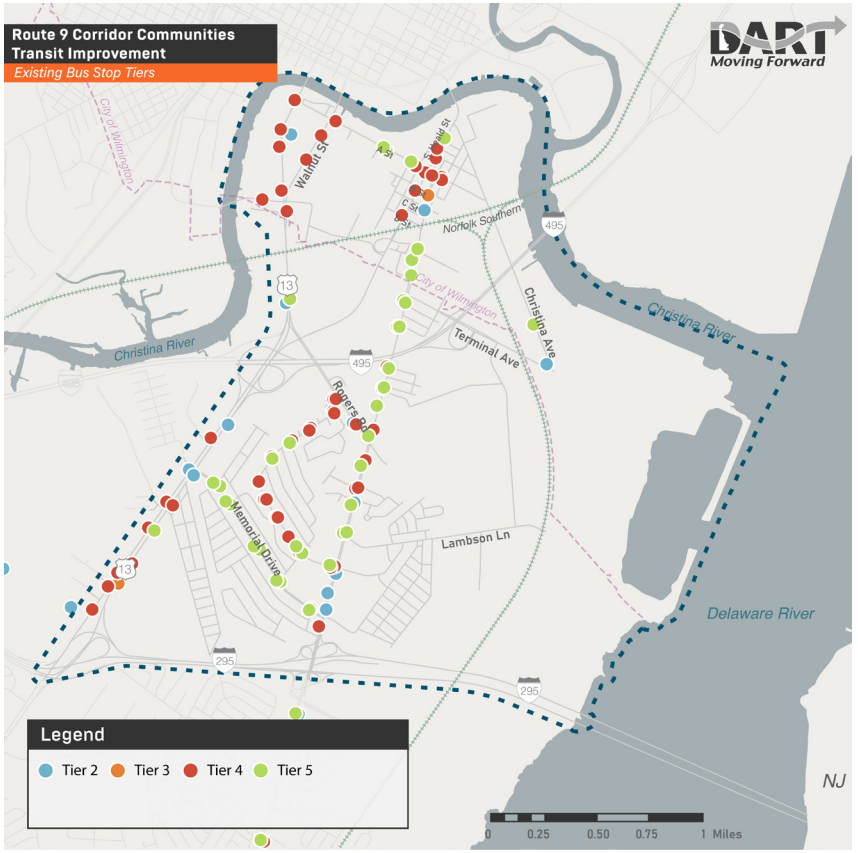

Figure 30: Existing Bus Stop Tiers

5.4 Proposed Bus Stop Tiers

Figure 31 and Table 4 present the proposed recommendations for bus stop tiers throughout the study area. Two sets of bus stops are designated as Tier 1 "Super Stops" at high ridership locations. Tier 2 stops are typically proposed in areas where there is existing and planned commercial development and in close proximity to downtown Wilmington, such as the ShopRite on Walnut Street. Tier 2 stops are typically located in areas where there is a strong need for enhanced transit infrastructure. The project team propose to increase the number of Tier 3 stops from just 2 existing stops to 17 proposed stops. These upgrades are distributed across the study area to improve rider comfort and accessibility. Many of the existing Tier 5 stops, which lack ADA accessibility, are recommended to be upgraded to Tier 4, which includes basic amenities and ADA compliance. The project team proposes to discontinue the bus stops shown in gray on the map.

Figure 32 illustrates a summary of bus stop recommendations. Bus stops shown in green are bus stops that would be improved. Bus stops shown in purple require no change. Bus stops in blue are proposed new bus stops. Finally, bus stops in yellow, "DART to Monitor" indicates that DTC should closely evaluate ridership trends to determine whether the stop should be retained or discontinued. A list of existing and proposed bus stop tiers for all bus stops in the study area are listed in Appendix A. Detailed cost estimates for each bus stop proposed for improvement are listed in Appendix C.

Table 4: Number of Proposed Bus Stop Tiers

	# Of Tiers in Proposed
1 = Super Stop	4
2 = Single shelter, signage, trash bin, bike rack, ADA accessible	15
3 = Bench, signage, trash bin, ADA accessible	17
4 = Signage and ADA accessible	44
5 = Not ADA Accessible	-
Discontinue	25
DART to Monitor	1
Total	**106***

**Additional stop was added*

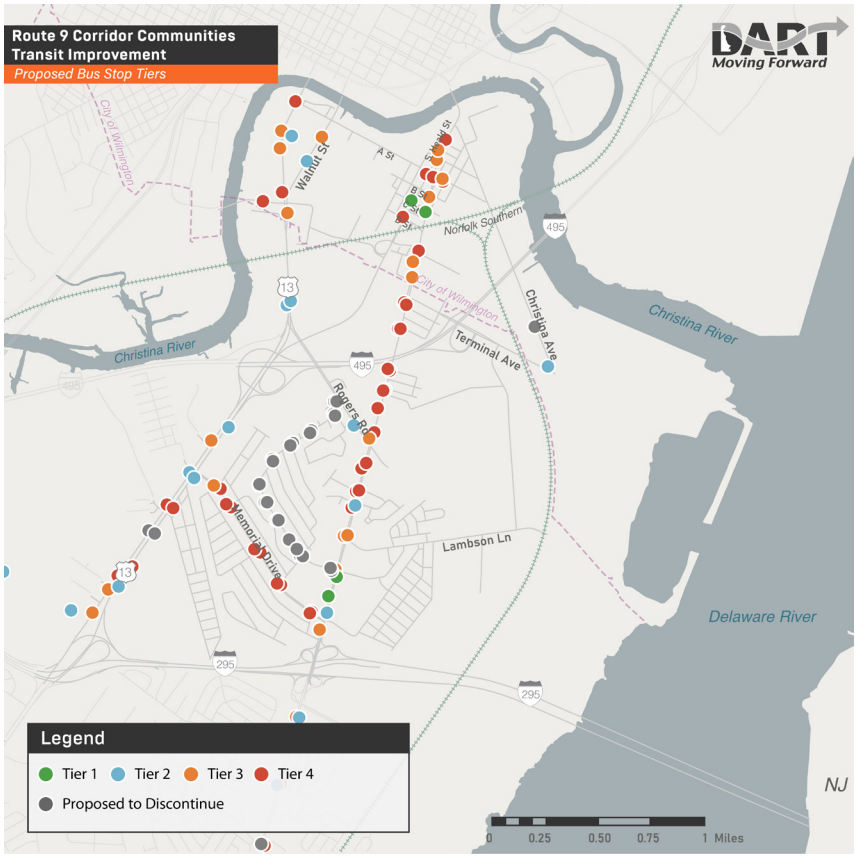

Figure 31: Proposed Bus Stop Tiers

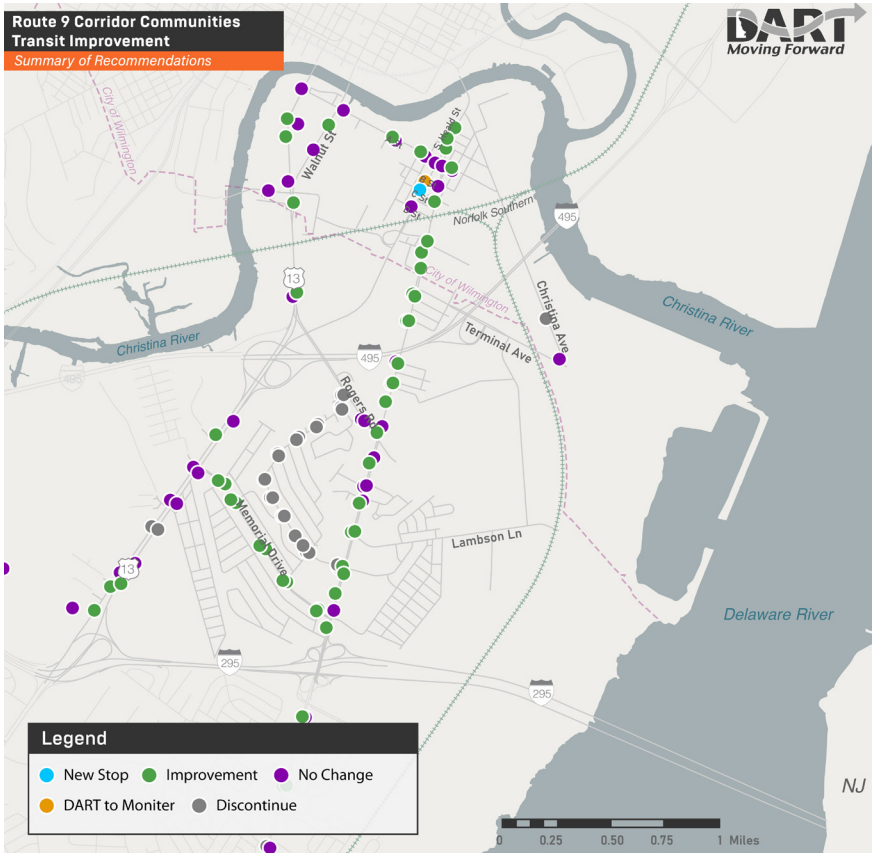

Figure 32: Bus Stop Recommendations

5.5 Tier 1 "Super Stop" Locations

Tier 1 locations were considered throughout the project study area. As noted above, a Tier 1 covers a much larger footprint for a shelter location. The Tier 1 stop could also be a community focal point meeting place. Taking those factors into account, as well as surrounding land uses, ridership, and pedestrian activity, four super stop locations were identified. There are two super stops on the northern end of the study area in Southbridge and two located at the southern end of the study area – identified in green in Figure 31. When evaluating potential super stop locations, the team identified complimentary pairs that align with established travel patterns.

In the Southbridge community, both proposed super stop locations would be at C Street. Since there is one-way directional travel through the community, the stops would be on Heald Street at C Street for southbound travel and on New Castle Avenue at C Street for northbound travel. These stops would be next to the Henrietta Johnson Medical Center and Southbridge Community Center and near the Neighborhood House. The two other proposed super stops would be on New Castle Avenue near Hillview Avenue and Memorial Drive. This segment has the highest ridership and pedestrian activity in the study area. The stops would be at the Route 9 Library & Innovation Center and the Bowlerama and Canaan Baptist Church. These four Tier 1 locations will serve the south Wilmington communities well.

5.6 Bus Stop Conclusions & Next Steps

The study undertook a thorough and iterative bus stop condition assessment process that combined data analysis, in-person field observations, and valuable input gathered through public outreach efforts. The project team developed a tiered methodology to assess existing and proposed bus stop tiers and shared the findings with DTC. One of the key milestones in assigning the bus stop tiers was a collaborative, half-day work session with DTC staff from Planning, Operations, Safety, and Facilities. This session was a critical step that went beyond analyzing data; it allowed the project team and DTC to incorporate firsthand experiences from staff who engage with these stops daily. This input, based on real-world experience and operational challenges, was instrumental in shaping the final tier recommendations. Feedback from the session was integrated into the recommendations, which were then reviewed with DTC senior leadership.

DTC will initiate bus stop improvements based on available funding and the implementation priorities outlined in Section 9. In addition, DTC will coordinate with other local transportation projects to align and enhance bus stop upgrades.


College AVE
STUDENT LOANS
ONE WAY
DART
Moving Forward

6. MICROTRANSIT ANALYSIS

Unlike fixed-route buses, microtransit is a flexible, demand-response transit service. Instead of planning a trip around a bus schedule, customers can instead book a trip within minutes through the DART Transit app. This agile approach provides customer more direct, convenient and frequent trips.

The project team completed an existing conditions analysis to identify whether microtransit would be a suitable and feasible transit service in the New Castle Avenue corridor. Understanding the potential markets for different types of transit service is a fundamental element of identifying where and what type of transit will best serve the community. Transit levels of service must be well matched to market demand to be the most effective. While fixed-transit service is suitable for the urban and more dense suburban areas of the region, microtransit is a versatile service type that typically involves app-based booking and dynamic routing, which makes it a good option for areas where fixed-route transit is underperforming or not currently offered.

Currently, DTC operates a microtransit service, known as DART Connect, in Newark, Georgetown, and Millsboro. Additionally, as a part of DART Reimagined, eight new microtransit zones are proposed in the near future. However, the plan did not identify the Route 9 study area as a feasible microtransit area because the it was anticipated for this study to provide a more focused and comprehensive assessment of microtransit feasibility. This section outlines existing conditions that inform the microtransit service planning process. To fully understand operational and resource requirements, further detailed feasibility studies are recommended.

6.1 Methodology

The project team completed a market transit propensity analysis to identify where microtransit could potentially be implemented successfully throughout Delaware. Inset maps of the study area were included in Figure 33 and Figure 37 to compare how the study area performed in relation to the rest of the State. The project team completed a microtransit suitability analysis in five steps, detailed in Figure 33 through Figure 37.

STEP 1 TRANSIT POTENTIAL INDEX: Population and employment densities were calculated throughout New Castle County in order to create the Transit Potential Index. Figure 33 provides a regional view of transit potential. BGs in Wilmington generally have population densities to support fixed-route transit. The figure shows areas in light peach with lower densities that could be more suitable for microtransit service. For the New Castle Avenue study area, BGs included in the Port of Wilmington and parts of Southbridge have low transit potential.

STEP 2 TRANSIT NEED INDEX: Transit Need Index was created to measure socioeconomic characteristics that are indicative of higher uses of transit, such as seniors (65+), youths (under 18), individuals with disabilities, non-white populations, households with one or no vehicles, and households below the federal poverty level. These indicators were combined into a Transit Need Index (Figure 34). Within the study area, the highest Transit Oriented Population Index values (approximately 22 to 28) are found in Dunleith (BG 2, Tract 154), Simonds Gardens (BG 1, Tract 155.02), New Castle Industrial Park (BG 2, Tract 155.02), and Southbridge. Minquadale (BG1, Tract 156) has the lowest Transit Oriented Population Index, with index values ranging from 15 to 17.

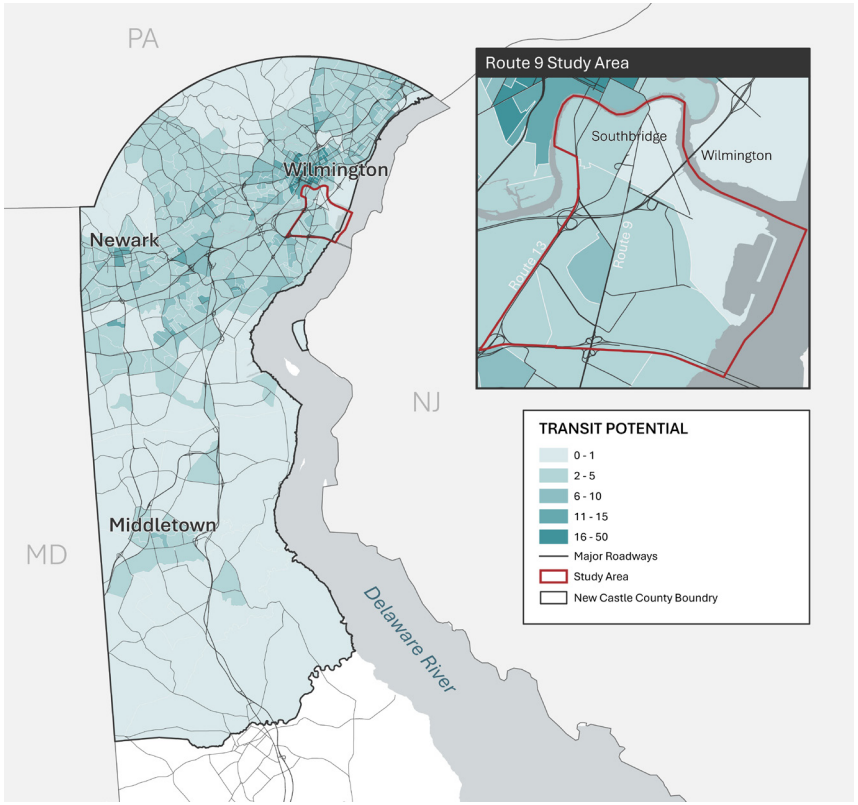

Figure 33: Transit Potential Index
Source: American Community Survey 2023 5-Year (2018-2023)

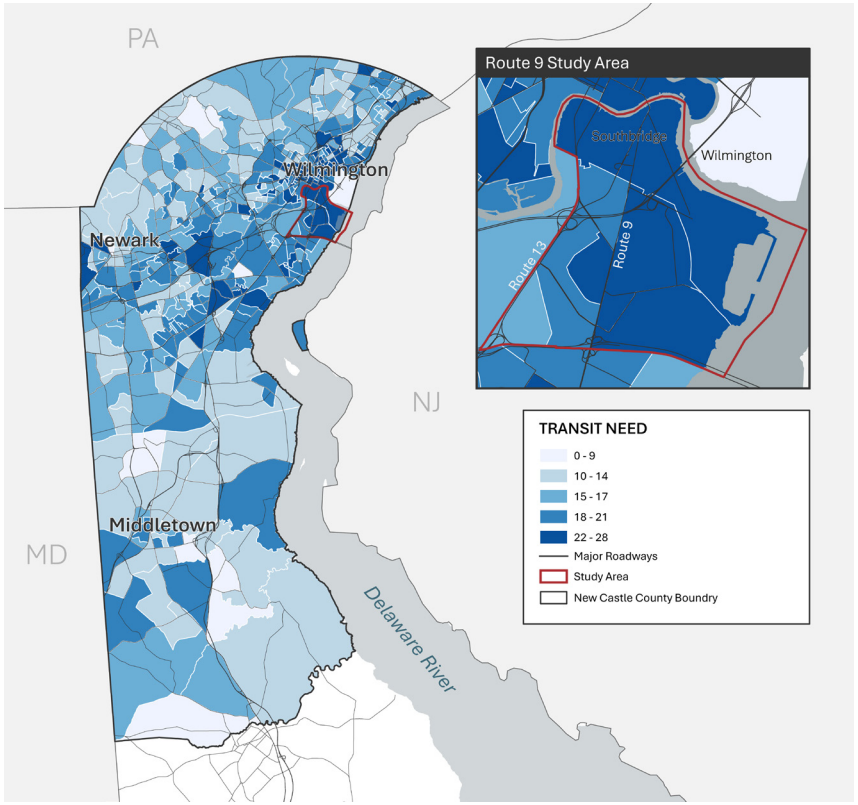

Figure 34: Transit Need Index
Source: American Community Survey 2023 5-Year (2018-2023)

STEP 3 MICROTRANSIT SUITABILITY ANALYSIS: To identify areas that would benefit most from microtransit service, the project team conducted a bivariate analysis, which combined the Transit Needs and Transit Potential indexes, and mapped the results across the State. Figure 35 visualizes areas higher in transit need and lower in transit potential, the ideal combination needed for microtransit service to be successful. The areas in dark green and green are most suitable for microtransit with appropriate levels and combinations of transit need and potential.

STEP 4 FIXED-ROUTE WEEKDAY HEADWAYS: The project team identified existing and fixed-route weekday peak headways throughout the State and calculated the average peak headways for each route. Figure 36 depicts weekday peak headway for fixed-route service throughout the State. The darkest purple represents areas with the most frequent service, while light blue indicates lower frequencies. Within the study area, routes servicing DuPont Highway have many route options with relatively high frequencies, while New Castle Avenue has relatively fewer routes with lower frequencies.

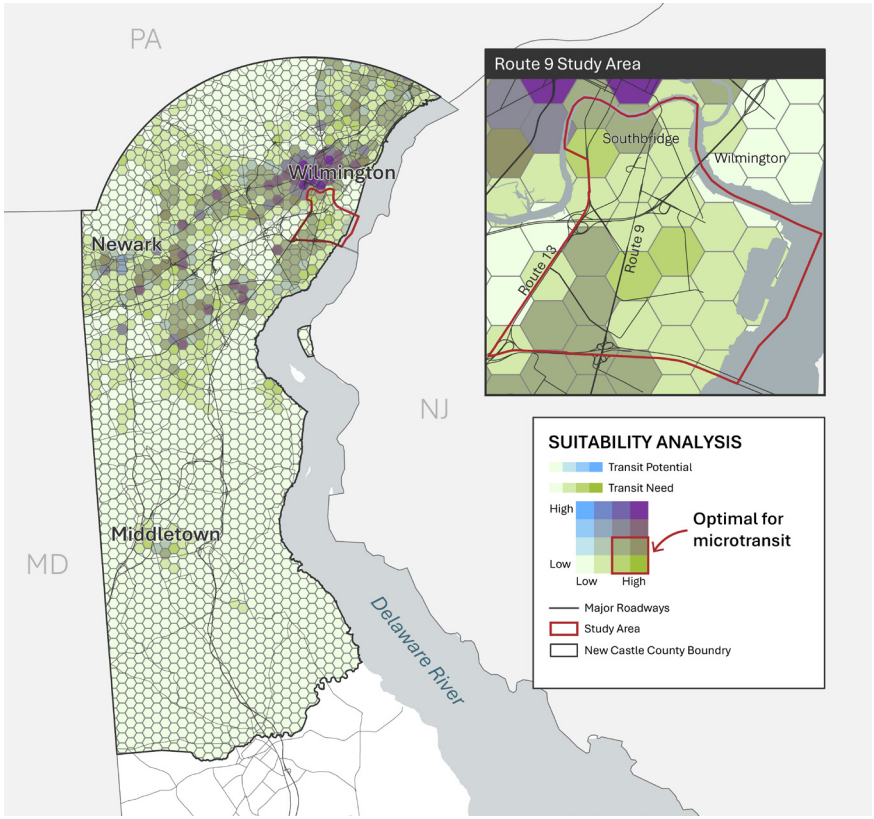

Figure 35: Figure: Microtransit Suitability Analysis

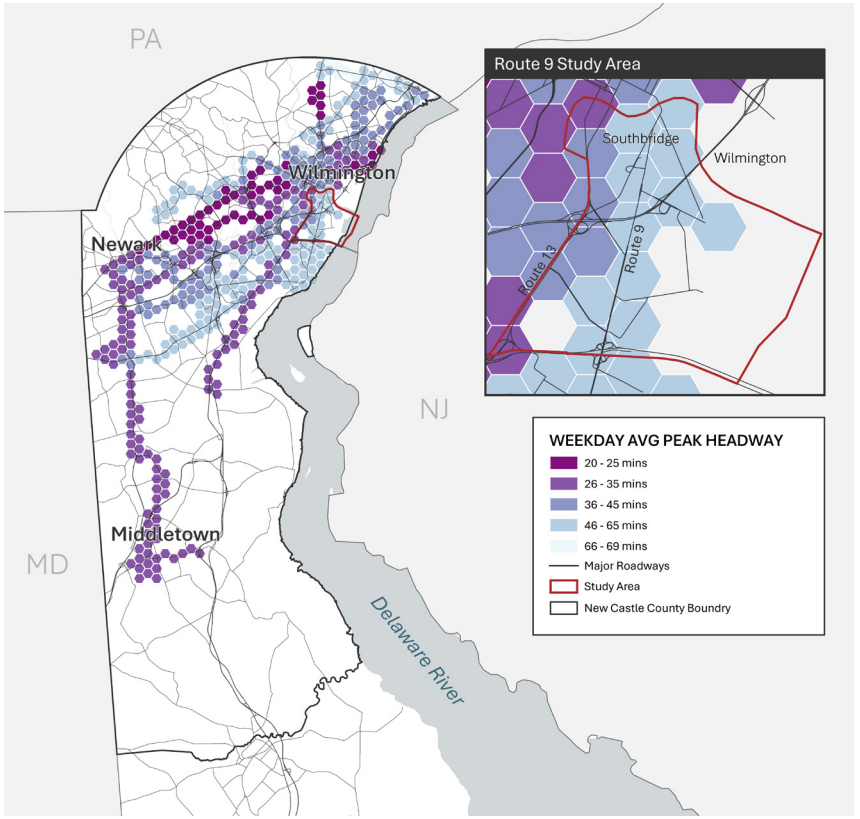

Figure 36: Fixed-Route Weekday Average Peak Headways

STEP 5 FINAL MICROTRANSIT SUITABILITY ANALYSIS: The final step in the microtransit suitability analysis involved overlaying microtransit suitability scores with areas currently served by high-frequency fixed-route transit (Figure 37). This comparison helps identify locations where microtransit could complement or enhance existing services. Areas already served by productive fixed-route transit are generally less suitable for microtransit unless those services exhibit low performance. However, microtransit can play a valuable role in bridging service gaps by providing first- and last-mile connections to fixed-route networks. In the study area, this analysis revealed ideal conditions for microtransit implementation. Specifically, communities along New Castle Avenue demonstrate low population and employment densities, making them less viable for fixed-route service—but also show high-transit dependency based on sociodemographic indicators. The proximity to high-frequency transit along DuPont Highway presents an opportunity for microtransit to serve as a connector, improving access and mobility for underserved populations. The proposed microtransit zone is a little less than six square miles and would have a connection to the Wilmington Transit Center (Figure 38), making transit more accessible and allowing for more transit connections throughout the county.

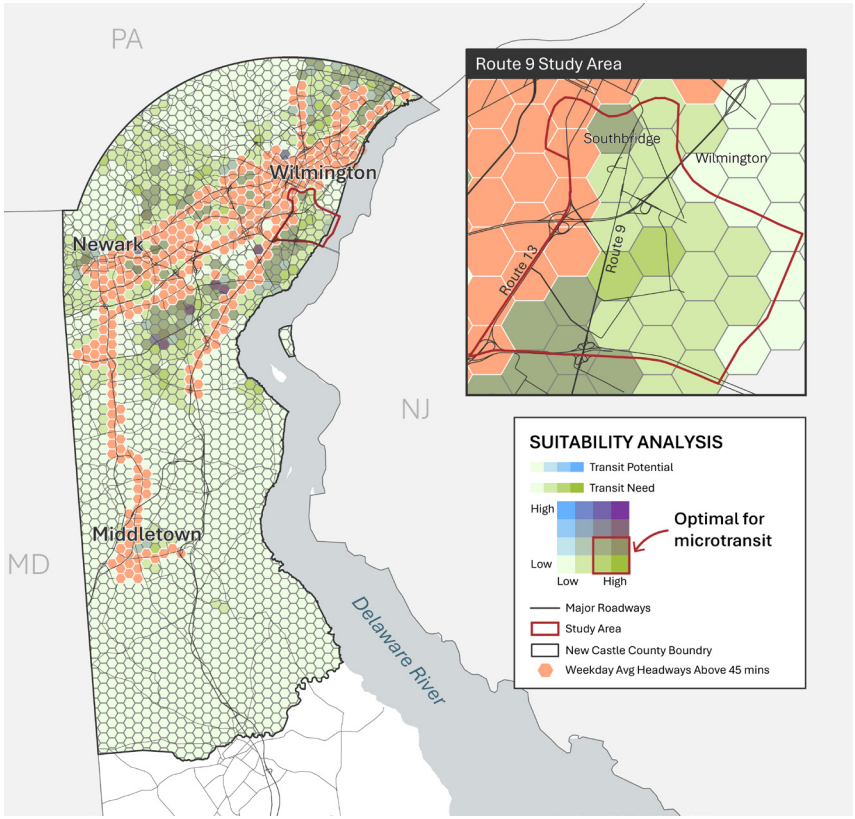

Figure 37: Microtransit Suitability Analysis Overlay with High Frequency Fixed Transit

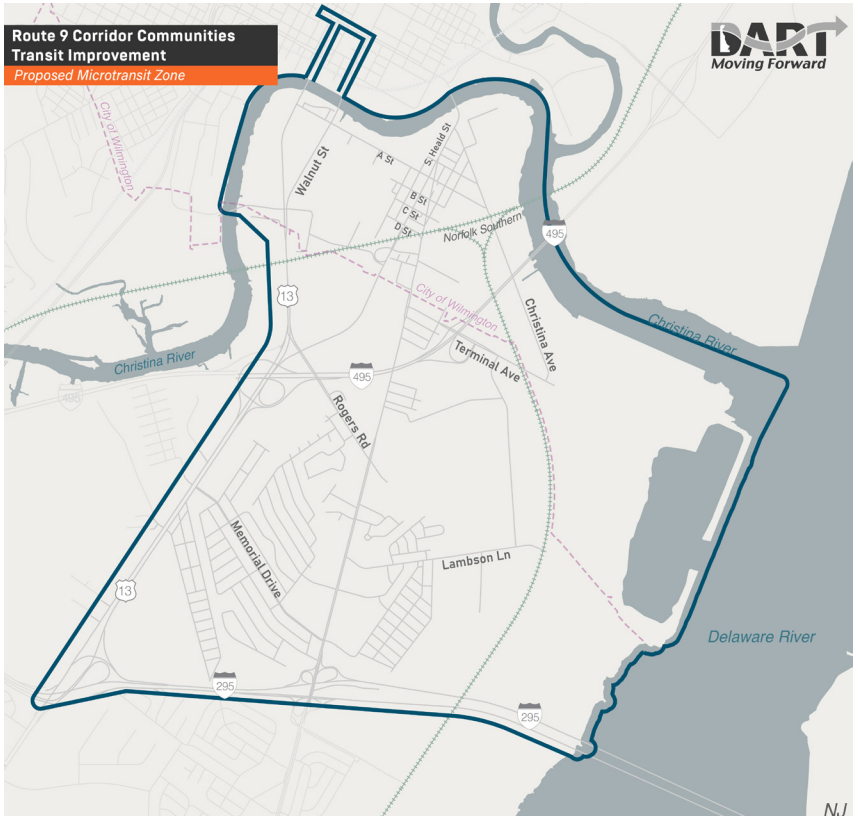

Figure 38: Proposed Microtransit Zone

6.2 Demand Scenarios

As part of the Route 9 Corridor Communities Transit Improvement Plan, the project team developed high-level demand scenarios to assess the potential ridership and resource requirements for implementing microtransit service within the study area. These scenarios—categorized as low, medium, and high—provided insight into expected ridership levels and the operational needs associated with each (Table 5).

RIDERSHIP ESTIMATES: Estimating ridership for microtransit services presents unique challenges due to the relatively new and flexible nature of these systems. To develop preliminary estimates, the project team considered both existing transit usage and potential new demand. Existing ridership was based on average weekday boardings at transit stops within the proposed service zone, totaling approximately 475 daily boardings (October 2023, DTC Ridership) . To estimate new ridership, the project team identified residents and jobs located outside the fixed-route transit walkshed (quarter mile from each bus stop), approximately 3,507 residents and 1,936 jobs. Applying a 4.61% transit mode share to these populations resulted in an estimated 162 new resident riders and 89 job-related riders.

For each demand scenario, the team applied different elasticity assumptions to the potential new customer base and combined these numbers with the existing ridership to generate annual ridership projections. The resulting estimates ranged from 9,400 rides annually under the low scenario to 13,327 rides under the high scenario.

COST ESTIMATES: The project team developed cost projections using estimated ridership figures and anticipated peak vehicle requirements. These inputs guided the calculation of annual operating and maintenance (O&M) costs, revenue hours, and key performance metrics such as cost per passenger and cost per service hour. Unit costs are from DTC fiscal year 2025. Table 6 presents Medium A and Medium B scenarios, which were designed to evaluate how variations in peak vehicle requirements (one versus two vehicles) impact annual cost.

Table 5: Ridership Estimates

Goal	Metric	Anticipated Riders
Preserving and enhancing mobility for current customers	Ridership at existing transit stop within the zone (Average Ons Weekday)	475
Expand coverage to areas not served by fixed transit	# of additional residents outside fixed-route walkshed	3,507
	# of additional jobs outside fixed-route walkshed	1,936
	# of additional residents outside fixed-route walkshed that would take transit (4.61% modal split)	162
	# of additional jobs outside fixed-route walkshed that would take transit (4.61% modal split)	89

Table 6: Microtransit Demand Scenarios

Demand Scenario	Low	Medium A (2 vehicle)	Medium B (1 vehicles)	High
Estimated Annual Rides	9,401	11,364	11,364	13,327
Peak Vehicle Requirement	1	2	1	2
Annual Cost (O&M)	$252,418	$504,837	252,418	$504,837
Annual Revenue Hours	3,654	7,308	3,654	7,308
Passenger/hour	2.6	1.6	3.1	1.8
Cost/Passenger	$26.85	$44.42	$22.21	$37.88
Cost/Hour	$69.08	$138.16	$69.08	$138.16

Source: Unit cost are from DTC Fical Year 2025

These findings provide a foundational understanding of the potential scale and cost of microtransit service in the study area. While further refinement and detailed operational planning are necessary, the analysis suggests that microtransit could serve as a cost-effective and responsive mobility solution for underserved areas within the study area. The project team recommends further exploration of microtransit solutions in the corridor. Finally, based on the public outreach survey, an overwhelmingly number of people in the community (90%) support the implementation of microtransit in the study area.

7. FIXED-ROUTE BUS SERVICE RECOMMENDATIONS

The project team reviewed all bus routes through the study area and selected DART routes for modification to enhance transit access. Table 7 summarizes recommended changes by route.

Table 7: Summary of Bus Route Recommendations

DART Route	Recommendation	Service Span (Proposed)	Operating Expenditure (Annualized)	
			Vehicle Revenue Hours (VRH)	Vehicle Revenue Miles (VRM)
Route 8	Add Sunday Service Route Realignment	Weekdays: 5:45 AM to 11:28 PM Weekends: 7:30 AM to 8:25 PM	$161,069	$229,528
Route 14	Discontinue Service	N/A	-$1,672,187	-$2,228,751
Route 15	Alternate with Route 51 to provide 30-minute frequency on SR-9	Weekdays: 4:59 AM to 10:39 PM Saturday: 6:30 AM to 10:45 PM (no change) Sunday: 7:05 AM to 8:47 PM (no change)	N/A	N/A
Route 51	Alternate with Route 51 to provide 30-minute frequency on SR-9	Weekdays: 5:29 AM to 11:19 PM Saturday: N/A (no change) Sunday: N/A (no change)	N/A	N/A
Route 28	Divert Service to SR-9	Weekdays: 5:15 AM to 7:53 PM Weekends: 6:48 AM to 7:30 PM	$126,725	$159,711

7.1 Route 8

The proposed recommendation for DART Route 8 is to expand the existing weekend service to operate on Sundays in addition to Saturdays and to realign the route to and from the Port of Wilmington along New Castle Avenue and Terminal Avenue instead of Christina Avenue (Figure 39). Under the proposed service, Route 8 would continue to operate between the Port of Wilmington and to 9th Street at Grant Avenue, from 5:45 a.m. to 12:02 a.m. on weekdays and from 7:30 a.m. to 8:56 p.m. on weekends, accounting for increases in travel time due to the realignment. The recommendation would support expanded weekend service, increasing connectivity to major employment centers that operate during off-peak hours and improving access to jobs and services for transit-dependent populations. Additional considerations for DART Route 8 realignment through Terminal Avenue are detailed in Appendix E.

Realigning Route 8 through the residential portion of Southbridge would improve transit accessibility by reducing walking distances to bus stops. Based on the fully loaded 2025 statewide fixed-route operating costs of $8.74 per mile and $151.32 per hour, the estimated annual operating cost for the proposed service is $161,069 based on cost per mile or $229,528 based on cost per hour.

7.2 Route 14

A review of the DART Reimagined Plan recommended discontinuing DART Route 14. The project teams supports this recommendation paired with the introduction of microtransit service in the study area (see Section 6). Route 14 currently operates along segments that overlap with portions of the proposed routes, particularly along New Castle Avenue. The proposed adjustments to DART Routes 15, 51, and 28 are designed to maintain coverage in these areas, ensuring continued access for customers while improving frequency along the shared corridors. The proposed adjustments would provide DART with approximately $1,672,186.88 in reallocated costs.

Figure 39: Existing and Proposed Route 8

7.3 Route 15 and Route 51

The proposed service recommendation is to alternate DART Routes 15 and 51 to provide consistent 30-minute frequencies along New Castle Avenue (Figure 40). Currently, each route operates hourly with uneven spacing between departures. To achieve even 30-minute intervals, departure times at the shared Rogers Road timepoint were adjusted to occur every 30 minutes. The proportional shifts in departure times across all times points is detailed in Appendix B. For example, a value of +4 indicates the proposed departure time is four minutes later than the existing time for all stops. While some departure time shifts exceed 40 minutes, the overall result is more consistent service on the shared portion of the corridor. By aligning departures to regular intervals, the proposed schedule reduces wait times and improves reliability.

The project team expects the proposed recommendations to be budget neutral, as they do not include any additional trips. However, final operating impacts will depend on how the adjusted schedules affect layover time, bus requirements, VRH, and VRM once tested in Trapeze or other scheduling software that accounts for system wide impacts. Additional adjustments may be required to ensure adequate recovery time, manage operator breaks, and minimize bus bunching. Final validation in Trapeze will confirm whether changes to departure times, travel times, interlining, or layovers are needed to implement the recommended service pattern cost-effective manner without reducing quality.

Figure 40: Existing and Proposed Route 15 and 51

7.4 Route 28

The proposed service recommendation for DART Route 28 is to divert the existing travel pattern from South Walnut Street to New Castle Avenue north of I-495/Delaware Turnpike (Figure 41). In the northbound direction, buses departing from the Wilmington DMV will serve existing bus stops on Dupont Highway, then turn right onto Rogers Road to head east toward New Castle Avenue. At the intersection of Rogers Road and New Castle Avenue, buses will turn left onto New Castle Avenue and continue north toward Southbridge. Buses will then turn left to head west on A Street to serve the Howard Street ShopRite before continuing to serve existing bus stops north of the Christina River. Southbound buses will follow the same alignment in reverse, using the South Heald Street segment of the one-way pair to access New Castle Avenue.

The proposed route diversion does not change the location of existing time points. However, it will increase in-vehicle travel time by approximately four minutes northbound and six minutes southbound between the Wilmington DMV and Howard Street ShopRite time points. These travel time adjustments should be consistent on both weekdays and Saturdays. Additionally, existing travel times between unaffected time points will remain unchanged. The team's recommendation for Route 28 will improve transit access by diverting service through a corridor with higher residential density. While travel times may increase slightly, the shorter walking distances to bus stops are expected to encourage higher ridership.

The proposed service recommendation will increase VRH by approximately 2 hours and 58 minutes and VRM by 64.8 miles on each weekday. Additionally, the service recommendation will result in approximately 1 hour and 30 minutes of increased VRH and 32.4 increased VRM on each Saturday. Given the fully-loaded 2025 statewide operating costs for fixed-route service, the estimated operating cost for the proposed service recommendation is approximately $126,725.46 based on cost per hour and $159,711.26 based on cost per mile. Cost annualization is based on the number of weekdays and Saturdays in 2026, excluding holidays.

Figure 41: Existing and Proposed Route 28

8. PEDESTRIAN ACCESS TO TRANSIT

8.1 Introduction

It is widely understood that every transit rider is a pedestrian for at least part of their journey. This section presents concept plans and strategies aimed at enhancing pedestrian safety to improve access to transit stops. Given the significant freight activity and industrial uses in the study area, the roadways must accommodate a diverse mix of users. The project team focused on improving the pedestrian environment along New Castle Avenue, particularly in areas that provide access to key transit stops such as proposed Super Stops.

Because the RAISE project overlaps with the study area and includes long-term plans for multimodal improvements along the corridor, the team recommends short-, medium-, and long-term interventions. In select cases, the project team recommends long-term pedestrian improvements, particularly where they enhance access to key transit stops.

While many parts of Southbridge have had several planning studies conducted over the years, the unincorporated areas of New Castle County in the study area have had less attention. Recommendations generally focused on (1) improvements to slow vehicles down and encourage larger designated spaces for pedestrians and (2) identifying challenging intersections that disrupt pedestrian flow. The following section categorizes the types of recommendations as point, line, and polygon interventions.

8.2 Point Recommendations

These are targeted interventions, such as the installation of crosswalks, pedestrian refuge islands, or curb extensions at key transit locations in the study area. The goal is to decrease vehicle speeds in areas with high pedestrian activity and key activity centers. The following are visual examples of point-based recommendations, along with the intended pedestrian benefits.

GATEWAY TREATMENT – A visual cue to inform drivers that they are about to enter a neighborhood and should lower their speed, increase their awareness, and pay greater attention to pedestrians (Figure 42).

Figure 42: Gateway Treatment Example

CURB EXTENSIONS – An approach to slow down vehicle speeds and enhance pedestrian safety is by shortening the crossing distance, providing better visibility, and encouraging slower speeds by reducing the turning radii (Figure 43).

Figure 43: Curb Extension Example in Southbridge

PEDESTRIAN REFUGE ISLAND – A raised section of pavement located in the center of a roadway, designed to provide a safe place for pedestrians to pause while crossing the street (Figure 44).

Figure 44: Pedestrian Refuge Island

PEDESTRIAN COUNT DOWN SIGNAL – A digital display at crosswalks that shows the number of seconds remaining for pedestrians to safely cross the street (Figure 45).

Figure 45: Pedestrian Count Down Signal Example

PEDESTRIAN LEAD – Gives pedestrians a head start, typically 3 to 7 seconds, to begin crossing the street before vehicles get a green light to turn (Figure 46).

Figure 46: Pedestrian Lead Example

CROSSWALK – Marks where pedestrians should cross on a vehicle roadway and signals to drivers to expect pedestrians, thus encouraging slower speeds and more cautious behaviors (Figure 47).

Figure 47: Crosswalk Example

Figure 48 and Figure 49 highlight several point-based recommendations, with a primary focus on repainting existing crosswalks and ensuring ADA-compliant curb treatments. At key intersections—Lobdell Street, Heald Street, and New Castle Avenue—a gateway treatment is proposed to provide drivers with a visual cue that they are entering a neighborhood where lower speeds and heightened pedestrian awareness are expected. Curb extensions recommended at Super Stop locations help reduce curb radii, slow vehicle speeds, shorten crosswalk distances, and reduce pedestrian exposure to traffic. Photo simulations of these interventions are shown in section 8.5.

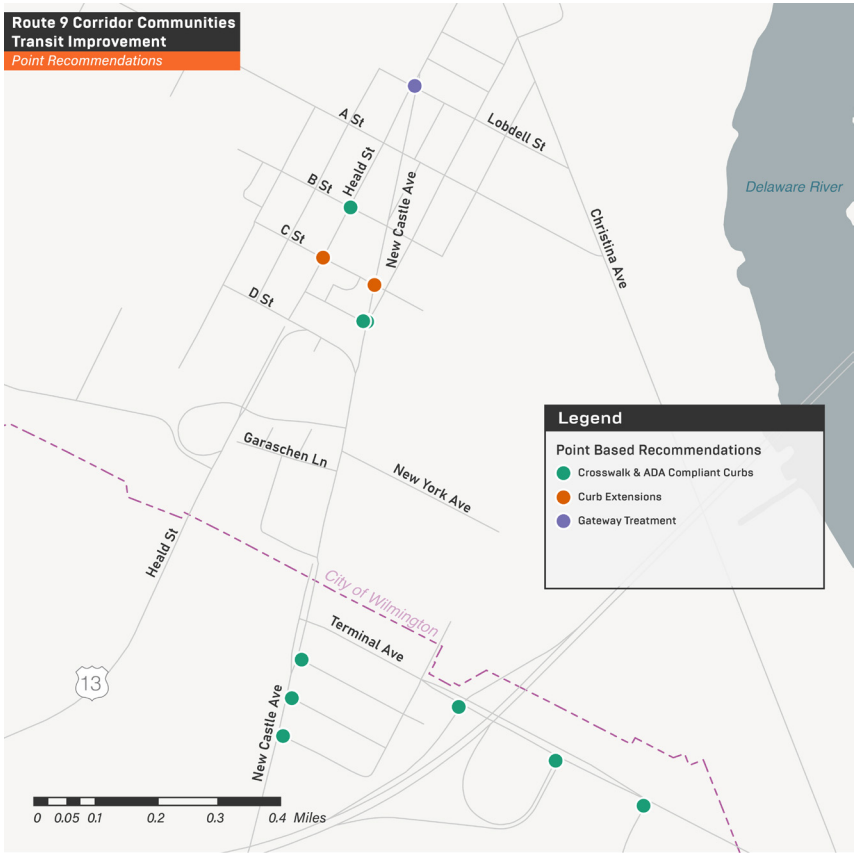

Figure 48: South Wilmington Point Recommendations

Figure 49: New Castle County (Unincorporated Areas) Point Recommendations

8.3 Line Recommendations

Apply to linear segments of the corridor, such as sidewalk installations or curb cut mitigation efforts, to improve pedestrian connectivity along defined stretches of roadway (Figure 50). This section includes visual examples of line-based recommendations, each illustrating the intended benefits for pedestrian safety and experience.

SIDEWALK – A designated path for pedestrians.

Figure 50: Sidewalk Example

CURB CUT MITIGATION – Strategies to reduce the negative impacts of excessive or poorly design curb cuts on the pedestrian environment. Many business curb cuts in the study area blur the lines between pedestrian and vehicle spaces. This creates more opportunities for modal conflicts and safety challenges. Mitigation efforts could include the installation of crosswalks, stamped crosswalks, or colored brick that visually distinguish pedestrian and vehicle space (Figure 51).

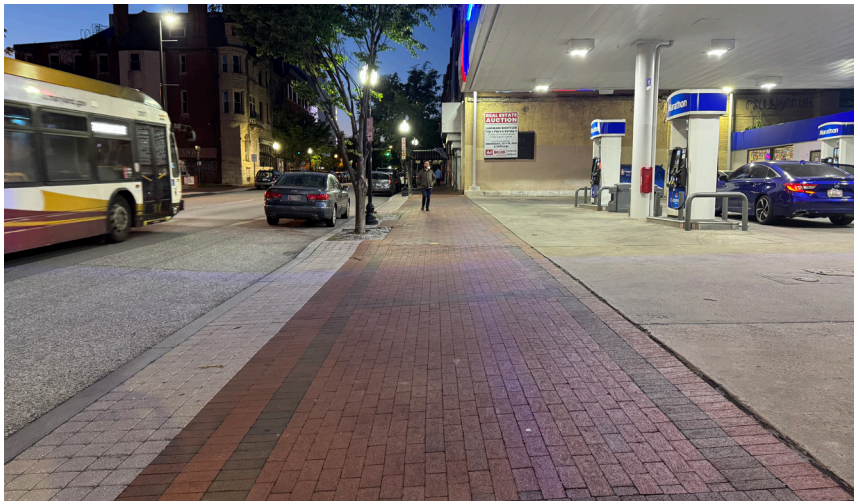

Figure 51: Curb Cut Mitigation Technique

Figure 52 and Figure 53 illustrate the line-based recommendations, which primarily address sidewalk gaps at key locations within the study area that affect access to transit. While the Southbridge neighborhood has a relatively well-established sidewalk network, the unincorporated areas of New Castle County lack consistent sidewalk connectivity and often feature large curb cuts that disrupt the pedestrian path. Although not every curb cut is individually identified, a general recommendation is to reduce the width of existing curb cuts and/or incorporate marked crosswalks across them. These measures aim to minimize potential conflict points between vehicles and pedestrians and improve the overall continuity and safety of the pedestrian environment.

The public survey indicated that the lack of sidewalk access on the eastern side of Lambson Lane impedes bus stop access. As a part of the line recommendation, sidewalks are recommended on Lambson Lane from East Avenue to the terminus of Lambson Lane to better connect pedestrians from the recycling plant and other businesses to New Castle Avenue.

Figure 52: South Wilmington Line Recommendations

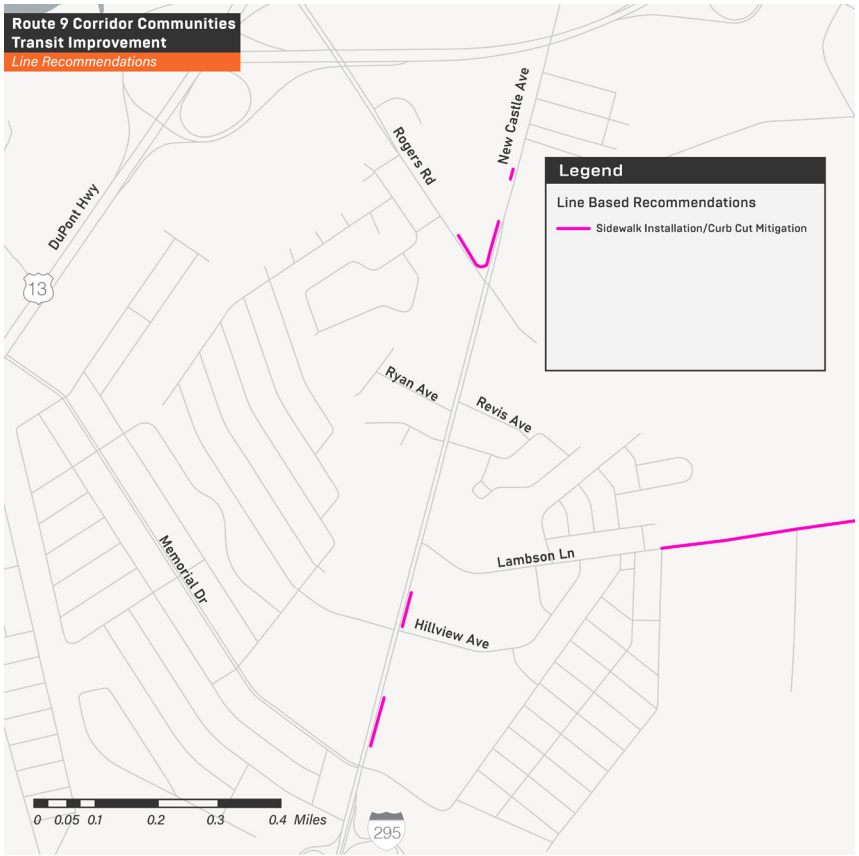

Figure 53: New Castle County (Unincorporated Areas) Line Recommendations

8.4 Polygon Recommendations

These recommendations address broader areas that require more substantial improvements. They may be implemented independently or as part of the RAISE project. Examples include intersection upgrades to improve pedestrian access to transit stops, as well as the installation stamped concrete treatments. In some cases, specific intersections were identified due to their disruption of pedestrian flow; however, these locations would require more significant interventions that could be pursued through RAISE or future projects in the study area. The following visuals illustrate examples of polygon-based recommendations and their intended benefits for pedestrians. Collectively, these strategies offer a menu of options aimed at clearly defining pedestrian spaces and encouraging drivers to reduce their speed.

STAMPED CROSSWALK – Similar effects to a crosswalk, but a stamped concrete includes a stain that imitates brick crosswalks at intersections (Figure 54). This elevated visual intervention encourages drivers to stay alert at key intersections where pedestrian activity is high.

Figure 54: Stamped Concrete Example

MID-BLOCK CROSSWALK – A pedestrian crosswalk located between signalized intersections, rather than at a corner where streets meet (Figure 55). These crossings are designed to provide safer, more direct routes for pedestrians in areas where walking to the nearest intersection would be inconvenient or unsafe.

Figure 55: Mid-Block Crosswalk

Figure 56 and Figure 57 highlight three types of polygon-based recommendations: Intersections Improvement (red), Raised Intersection/stamped crosswalk (blue), and Raised Midblock Crossing (green). Intersections marked in red indicate locations that require more complex, long-term interventions. These sites were identified as major barriers to pedestrian connectivity within the study area. For example, at the New Castle Avenue interchange, the sidewalk ends abruptly at the southern end of the median, with no crosswalks connecting to either the eastern or western sides of New Castle Avenue. The combination of high vehicle speeds, multiple travel lanes, existing freight rail lines, and a lack of pedestrian infrastructure makes this location a significant barrier—effectively disconnecting Southbridge from nearby resources and amenities just outside the city limits and vice versa.

Stamped crosswalks have been proposed at select critical transit stops to enhance pedestrian visibility and safety. While raised intersections offer strong visual and physical cues to drivers, the project team acknowledges potential challenges related to maintenance and drainage. As an alternative, permanent stamped crosswalks are recommended in some locations. These provide a clear visual indication of pedestrian pathways with fewer long-term maintenance concerns, making them a practical and effective solution in areas where raised treatments may not be feasible.

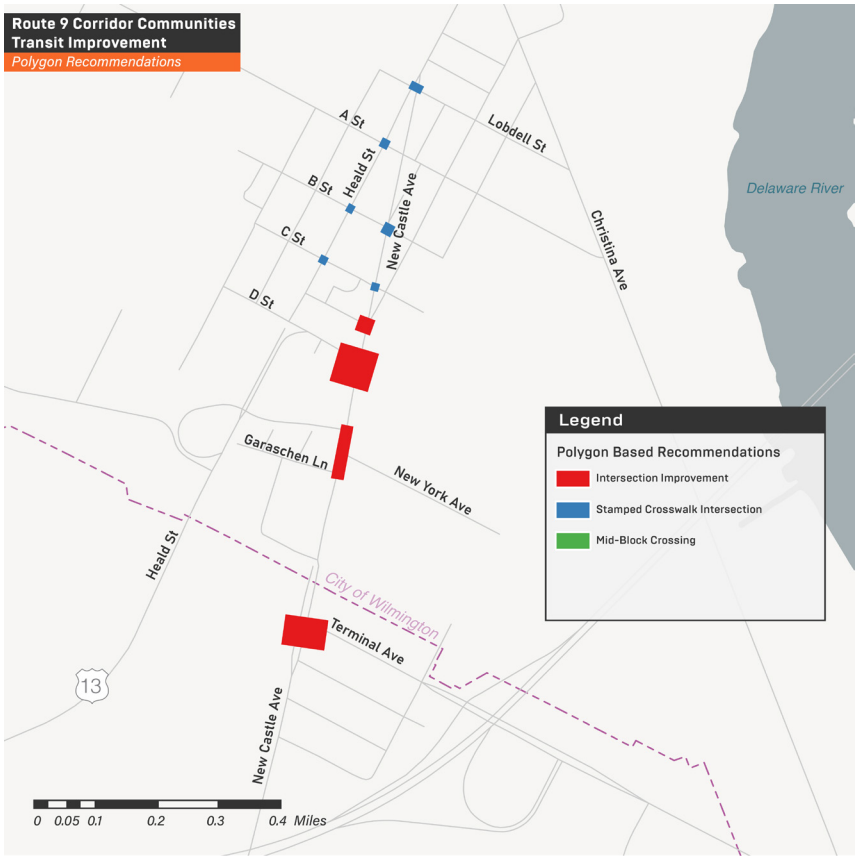

Figure 56: South Wilmington Polygon Recommendations

Figure 57: New Castle County (Unincorporated Areas) Polygon Recommendations

8.5 Photo Simulation Examples

Photo simulations were developed for key locations to visually represent the range of proposed issues and/or pedestrian and bus stop tier improvements needed in the study area. These simulations were intended as high-level conceptual illustrations to help stakeholders and the public visualize potential changes. They are not final designs and do not need to be implemented simultaneously or exactly as depicted. Instead, they serve as a flexible tool to guide further discussion and planning.

EXISTING HEALD STREET AND APPLE STREET

This intersection experiences high transit activity and has a history of crashes near the BP gas station (Figure 58). Multiple wide curb cuts and deteriorating sidewalks disrupt pedestrian flow and increase safety risks.

Figure 58: Existing Stop at Heald St and Apple St

PROPOSED HEALD STREET AND LOBDELL STREET

Heald Street and Apple Street are proposed to be a Tier 3 stop, and relocated to Heald Street and Lobdell Street (Figure 59). This relocation encourages pedestrians to wait in an area that is protected with a concrete backing and raised curb add a clearly defined pedestrian path and can reduce conflicts with vehicles turning in and out of the BP gas station. Additionally, the transit stop is brought closer to the crosswalk.

Figure 59: Rendering of Proposed Bus Stop Improvements (Relocation to Nearside Heald St and Lobdell St)

EXISTING HEALD STREET AND C STREET

The existing intersection features a vacant lot at the northwest corner which is identified as a potential site for a new super stop (Figure 60). The intersection includes a daycare and has recently constructed the Southbridge Community Services building. The building offers affordable housing for seniors and senior veterans experiencing homelessness.

Figure 60: Existing Stop at Heald St and C St

PROPOSED HEALD STREET AND C STREET

Concrete curb extensions narrow the roadway and reduce pedestrian crossing distances. While the establishment of a super stop is a long-term endeavor, concrete curb extensions and sidewalk expansions are a complementary opportunity, making access to the Super Stop easier for transit riders. The team recommends installing a super stop with amenities, including a double shelter, bike rack, trash bin, and bus stop signage (Figure 61). These recommendations build upon the D Street and C street recommendations in the Southbridge Transportation Action Plan.

Figure 61: Rendering of Proposed Bus Stop Improvements at Heald St and C St

EXISTING NEW CASTLE AVENUE AND C STREET

New Castle Avenue and C Street is one of Southbridge's busiest bus stops and located across from the Henrietta Johnson Medical Center. Crosswalks and lane markings are severely deteriorated. A super stop is proposed, with the shelter being relocated closer to the northern intersection (Figure 62).

Figure 62: Existing Stop at New Castle Ave and C St

PROPOSED NEW CASTLE STREET AND C STREET

Relocate the shelter and introduce concrete curb extensions to improve pedestrian safety and easy access to the bus stop. Develop a super stop with enhanced amenities, such as a double shelter, bike rack, trash bin, and signage (Figure 63). These recommendations build upon the D Street and C street recommendations in the Southbridge Transportation Action Plan.

Figure 63: Rendering of Proposed Bus Stop Improvements New Castle Ave and C St

EXISTING NEW CASTLE AVENUE AND HILLVIEW AVENUE

The intersection of New Castle Avenue and Hillview Avenue has long pedestrian crossing distances (Figure 64). Both directions include a parking lane, two through lanes, a left-turn lane, and extra shoulder space. The intersection is located near the Route 9 Library, Rosehill Community Center, New Castle County Head Start school, and several other community-oriented organizations.

Figure 64: Existing Intersection at New Castle Ave and Hillview Ave

PROPOSED NEW CASTLE STREET AND HILLVIEW AVENUE

The proposed recommendations introduced concrete curb extensions to shorten crossing distances. Additionally, a pedestrian refuge island is proposed at the southern side of the intersection to provide a waiting area for pedestrians in a protected median (Figure 65). The addition of stamped concrete at the crosswalk aims to improve visibility and reinforce pedestrian priority.

Figure 65: Rendering of Proposed Bus Stop Improvements at New Castle Ave and Hillview Ave

EXISTING NEW CASTLE AVENUE AND ROGERS ROAD

The intersection of New Castle Avenue and Rogers Road, located near the Dunleith neighborhood, has a high number of boardings despite the lack of sidewalks and crosswalk. A desire path along the grass are located along the north side of the bus stop, indicated a need for sidewalk access (Figure 66).

Figure 66: Existing Stop at New Castle Ave and Rogers Rd

PROPOSED NEW CASTLE AVENUE AND ROGERS ROAD

The proposed recommendations include the installation of sidewalks and Tier 3 bus stop amenities to improve comfort and accessibility in the short term (Figure 67), while long-term intersection improvements should be considered under future RAISE design efforts.

Figure 67: Rendering of Proposed Bus Stop Improvements New Castle Ave and Rogers Rd

EXISTING NEW CASTLE AVENUE AND BOWLERAMA BUS STOP

New Castle Avenue near the Bowlerama bus stop has the highest ridership in the study area, located across from the Route 9 Library. Although this bus stop currently features a single bus stop shelter, the shelter is in poor condition and lacks lighting (Figure 68).

Figure 68: Existing Bus Stop Near Bowlarama (Opposite of Route 9 Library)

PROPOSED NEW CASTLE AVENUE AND BOWLERAMA BUS STOP

The proposed recommendations include the installation of a raised mid-block crossing near the New Castle Avenue access road, featuring Rectangular Rapid Flashing Beacons, bollards, striping, and signage to enhance pedestrian safety. Additional amenities could include a landscaped median to further support safe crossings and narrowing of the roadway (Figure 69).

Figure 69: Rendering of Proposed Bus Stop Improvements Near Bowlarama (Opposite of Route 9 Library)

EXISTING NEW CASTLE AVENUE AND LAMBSON LANE

The intersection of New Castle Avenue and Lambson Lane is the closest transit stop to the FedEx, Delaware Recycling Center, and Rose Hill Community Center. Sidewalk gaps on Lambson Lane, missing crosswalks, and an inaccessible pedestrian push button on the northwest corner of the intersection make accessing this bus stop difficult (Figure 70).

Figure 70: Existing Stop at Lambson Lane and New Castle Ave

PROPOSED NEW CASTLE AVENUE AND LAMBSON LANE

The proposed recommendations include the installation of sidewalks on Lambson Lane between the Delaware Recycling Center and the transit stop, stamped crosswalks, and curb extensions to improve the pedestrian ease and access to and from the stop (Figure 71).

Figure 71: Rendering of Proposed Bus Stop Improvements Lambson Lane and New Castle Ave

9. IMPROVEMENT PRIORITIZATION

9.1 Implementation Matrix

Together, these bus stop improvements and pedestrian-focused recommendations offer a flexible set of options aimed at clearly defining pedestrian spaces, improving access to transit, and encouraging drivers to reduce their speed. The implementation matrix (Figure 72) categorizes bus stops between Priority 1, bus stops that should be updated immediately, and Priority 7, bus stops that can be updated in the future (long-term). The implementation matrix prioritizes bus stops by considering factors such as ridership, bus service tier, and other planned capital projects in the study area. Bus stops identified as "Discontinue" are bus stop that would have minimal cost associated with the change. Bus stops identified as "No Change" are bus stops that are performing appropriately for its context.

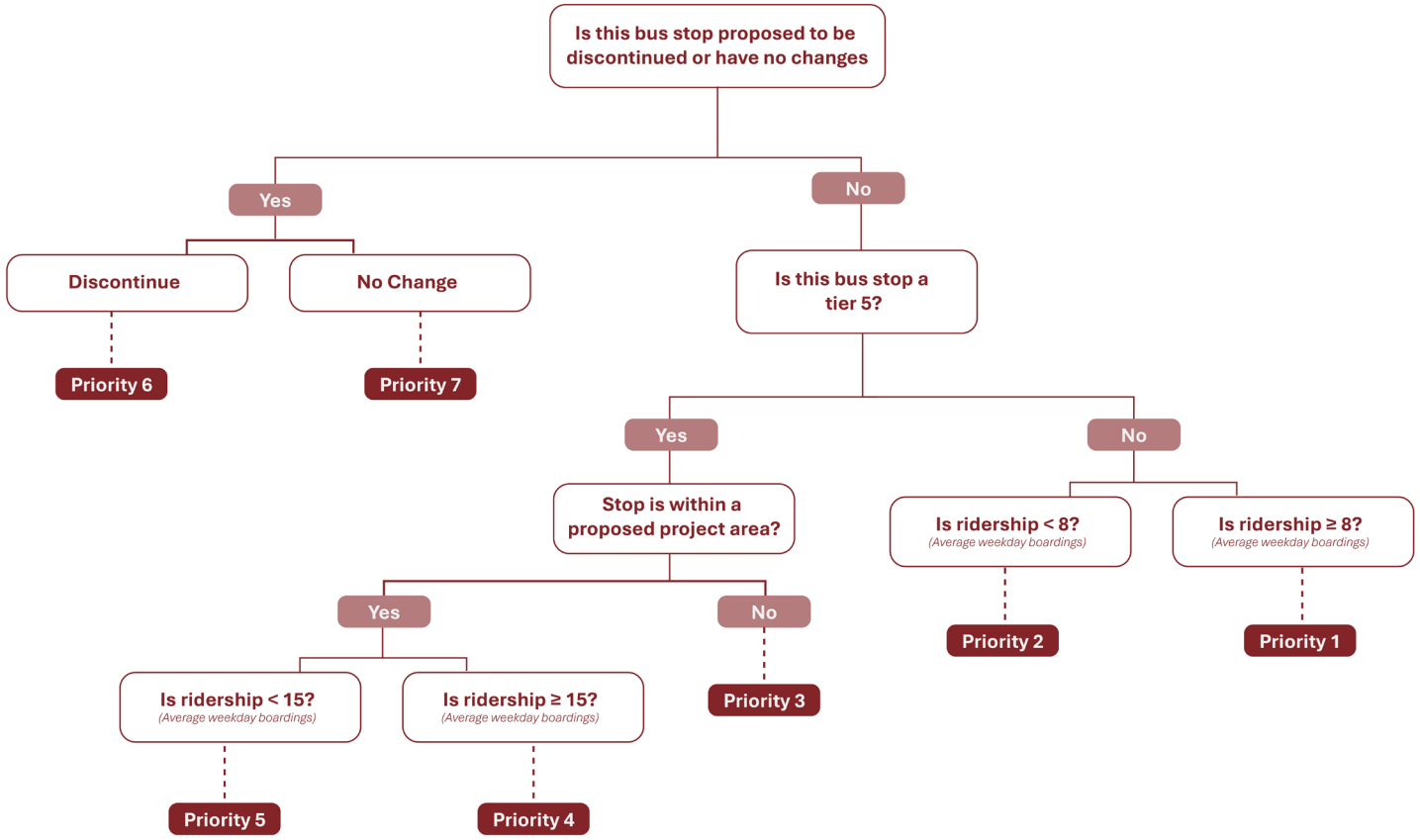

Figure 72: Prioritization Matrix Decision Tree

Table 8: Implementation Matrix for Bus Stops

PRIORITY	TOTAL COST	NUMBER OF BUS STOPS
1	$ 888,465	10
2	$ 395,096	8
3	$ 571,311	7
4	$ 304,889	2
5	$ 1,345,955	20
6 (DISCONTINUE)	$ -	25
7 (NO CHANGES)	$ -	34
TOTAL	$ 3,3505,716	106

Table 8 illustrates the total capital cost by each priority and the number of bus stops that would be improved. This plan offers a mixture of short-term (priority 1-2), medium-term (priority 3-4), and long-term (priority 5) improvements. A list of priority and bus stops improvements can be found in Appendix A.

Items identified as a long-term priority may have complex implementation challenges, funding, and may require coordination with other capital project such as RAISE.

10. CONCLUSION

The Route 9 Corridor Communities Transit Improvement Plan represents a comprehensive and equity-driven approach to enhancing mobility, safety, and access for historically underserved communities in South Wilmington and unincorporated areas of New Castle County, Delaware. This plan details analysis of existing conditions, coordination with the RAISE grant project team, and offers actionable recommendations for enhancing transit infrastructure, improving routes, and creating a more pedestrian-friendly environment. The proposed upgrades to bus stop tiers, route adjustments, and microtransit feasibility analysis demonstrate a commitment to addressing the diverse needs of corridor residents and workers, with a focus on improving accessibility and supporting long-term sustainability.

As implementation progresses, the plan offers a flexible framework for phased improvements that align with community priorities and available funding. Short-term interventions such as painted curb extensions and service adjustments can be piloted and evaluated for effectiveness, while medium- and long-term strategies—including Super Stops and microtransit expansion—can be integrated into broader capital projects. Ultimately, this plan lays the groundwork for a more connected, inclusive, and resilient transit network that supports the vitality of Route 9 communities.