Wilmington Area Planning Council

The Tower at STAR Campus
100 Discovery Blvd, Suite 800
Newark DE 19713
302-737-6205; Fax 302-286-7131
e-mail: wilmapco@wilmapco.org
website: www.wilmapco.org

DRAFT

RESOLUTION

BY THE WILMINGTON AREA PLANNING COUNCIL (WILMAPCO) TO ENDORSE THE CONCORD PIKE CORRIDOR MASTER PLAN

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 WILMAPCO Council recognizes that comprehensive planning for future land use, transportation, sustainable economic development, environmental protection and enhancement, and community health and livability are necessary actions to implement the goals and objectives in the 2050 Regional Transportation Plan (RTP); and

WHEREAS, the New Castle County Department of Land Use and DelDOT requested that WILMAPCO coordinate with them to develop a land use and transportation master plan for the Concord Pike/US 202 Corridor; and

WHEREAS, the Concord Pike Corridor Master Plan assessed existing demographic, land use, environmental, traffic, and market conditions; and

WHEREAS, the Concord Pike Corridor Master Plan employed continuous and rigorous public engagement throughout the planning process; and

WHEREAS, the Concord Pike Corridor Master Plan puts forth recommendations which will spur economic development, mitigate community health concerns, improve the multimodal transportation network, preserve community character, and, generally, spur mixed-use and mixed income reinvestment and redevelopment opportunities;

NOW, THEREFORE, BE IT RESOLVED that the Wilmington Area Planning Council does hereby endorse the final report and recommendations of the Concord Pike Corridor Master Plan.

Date: _____

_____
John Sisson, Chairperson
Wilmington Area Planning Council

CONCORD PIKE (US 202) CORRIDOR MASTER PLAN

Draft Plan
September 2020

WILMAPCO
www.wilmapco.org
Wilmington Area Planning Council

DelDOT

Table of Contents

WILMAPCO Council Resolution

- John Sisson, Council Chair, Delaware Transit Corporation Chief Executive Officer
- Jennifer Cohan, Delaware Department of Transportation Secretary
- Connie C. Holland, Delaware Office of State Planning Coordination, Director
- Alan McCarthy, Cecil County Executive
- Matthew Meyer, New Castle County Executive
- Heather Murphy, Maryland Department of Transportation Director, Office of Planning and Capital Programming
- Michael S. Purzycki, Mayor of Wilmington
- Michael Spencer, Mayor of Newport
- Dave Warnick, Rising Sun Commissioner
- Tigist Zegeye, WILMAPCO Executive Director

Executive Summary

The Concord Pike (US 202) Corridor Master Plan represents the opportunity to define the future of this important corridor in New Castle County, Delaware. Stretching from Wilmington to the Pennsylvania State Line, this master planning effort focuses on a six-mile stretch that consists of mostly auto-oriented retail, service, and shopping-related development, with some office and institutional uses. Bordered by diverse neighborhoods to the east and single-family neighborhoods and open space to the west, Concord Pike (U.S. 202) is an important arterial for the area.

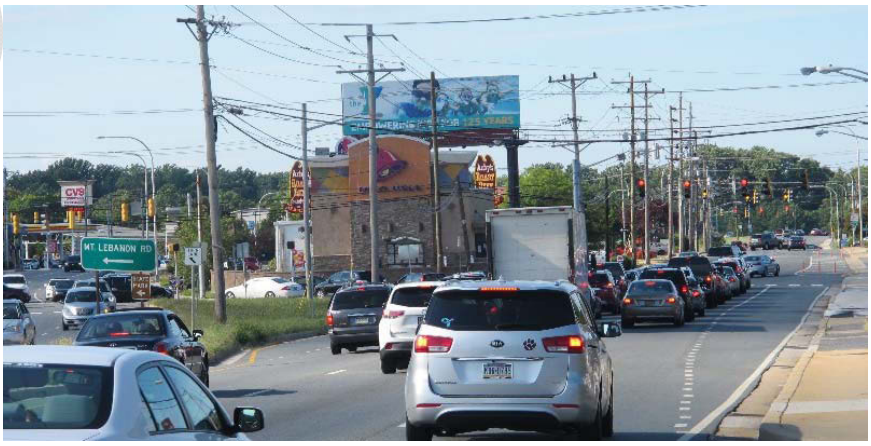
Concord Pike is primarily designed for vehicular traffic and is not inclusive of pedestrians, bicyclists, or transit riders. Consisting of a mostly six-lane street section, the corridor acts as a barrier disconnecting the east and west sides. Basic facilities, such as continuous sidewalks, crosswalks, and landscaped areas are lacking in many areas. The streetscape is fragmented by numerous curb cuts, making Concord Pike an unsafe environment for pedestrians. The study area is also characterized by suburban development patterns that create large amounts of underutilized land.

While Concord Pike is a vital connection for vehicles, the corridor has the potential to transform in a way that better accommodates all modes of travel while also serving as an attractive, multi-modal street that supports the broader economic and development objectives of the surrounding areas.

In an effort to promote economic growth, diverse land uses, access to jobs, public transit ridership, bicycle and pedestrian access and safety, environmental sustainability, and community vitality, the Wilmington Area Planning Council (WILMAPCO) joined with the Delaware Department of Transportation (DelDOT) and New Castle County's Department of Land Use to develop the Concord Pike (US 202) Corridor Master Plan.

EXISTING CONDITIONS

- Approximately 97,000 people live along this stretch of the US 202 corridor. About 10,000 work here. If current trends continue, these numbers will significantly increase.
- Properties zoned for commercial uses form the core of the study area, with residential areas along the east and west boundaries. Parks and open space directly adjoin many residential developments on the west side.
- The corridor averages 45,500 to 55,550 vehicles per day.
- The corridor is auto-centric with limited pedestrian and bicycle infrastructure.
- East-west transportation connections are lacking between communities, forcing vehicular and pedestrian traffic onto Concord Pike. Currently, the primary routes are north-south between the PA state line and Wilmington.
- A wide range of community centers, schools, and various institutions are located within the study area. Notably, these include the Brandywine YMCA, Siegel Jewish Community Center, Wilmington University, Widener University, and Nemours/Alfred I. duPont Hospital for Children.



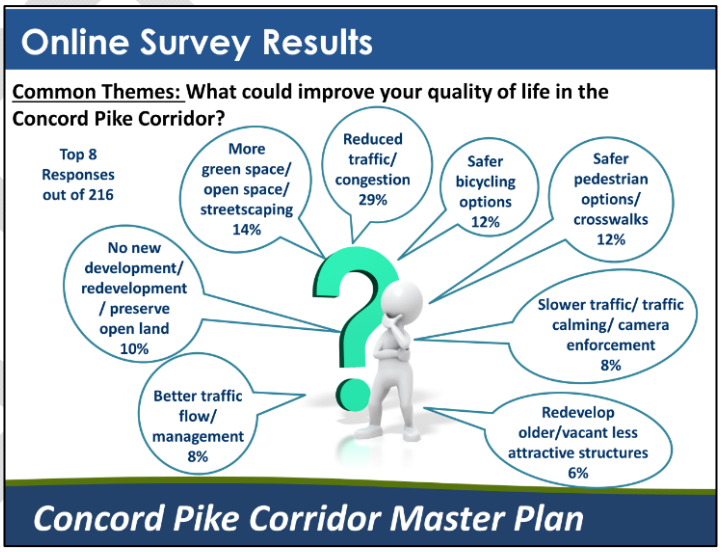
REAL ESTATE AND MARKET ANALYSIS

- Future housing growth, particularly in multi-family rental and for sale, mixed-income housing, and senior housing is projected given underlying demographics and socioeconomics.
- The retail sector is stable with no net new development projected.
- Future development of the Astra Zeneca site, expansion of Wilmington University's campus, and the development of Brandywine Country Club will drive small tenant retail, office, and housing development.

COMMUNITY ENGAGEMENT

The project partners employed robust and continuous community engagement throughout the planning process, which began with small group discussions with key stakeholders. This included faith leaders, business owners, civic organizations, and county and state officials.

The broader public visioning and feedback process included five well-attended public workshops, as well as an online outreach campaign that included two online surveys and two virtual public workshops. We spoke with hundreds of individuals throughout the process who shared their vision and concerns for the corridor, which are reflected throughout the plan.



The community engagement process, paired with the site analysis, established the master plan's vision, identified and prioritized the primary community needs, and provided guidance in developing and refining the plan's recommendations.

Community needs identified, in order of importance, include:

- Reduced congestion on Concord Pike, especially during peak periods and weekend shopping periods
- Safer pedestrian and bicycle crossings on Concord Pike
- Preservation of green/open spaces within the study area
- Protection from overdevelopment along the corridor
- Improved pedestrian and bicycle connections between neighborhoods and shopping areas
- Improved pedestrian and bicycle connections to open space and parks
- Preservation of existing neighborhoods from new development
- Redevelopment of older, poorly maintained commercial areas along the corridor

RECOMMENDATIONS

For transportation, the overall vision is to take a multi-modal approach to consider all modes: walking, taking the bus, biking, and driving. This approach will help to create a more walkable environment, developing connections between the businesses along Concord Pike and the surrounding neighborhoods. Incorporating additional bicycle & pedestrian facilities will enhance connectivity to surrounding land uses and support economic vitality. In addition, one of the key challenges for the corridor is to strike a balance between creating better east/west pedestrian movement while maintaining safe speeds and vehicular traffic flow.

No major bicycle facilities are planned on Concord Pike, as the traffic volumes and speeds make it unsuitable for bike lanes and the right of way (ROW) is too constrained to create buffered bike lanes or separate sidepaths on most segments. Numerous sidewalk/sidepath recommendations have been suggested throughout the study area which will need to be prioritized in greater detail after endorsement of the plan. The capacity or value of a street is more than the number of cars it can handle; it can also encourage pedestrian activity, enhance connections to surrounding land uses, and support economic vitality.
Some other key initiatives include:

- Create more walkable environments, both between the businesses on Concord Pike and to/within surrounding neighborhoods
- Establish strategies to reduce speeding and relieve heavy traffic
- The pedestrian/bicycle trail system should be expanded to effectively serve and connect neighborhoods with both recreational and commercial areas providing safe and more efficient connections throughout the corridor. Evaluate potential projects to ensure that less complex and expensive concepts can be designed for early implementation.
- A wide range of intersection improvement options which provide a range of alternatives should be provided for Concord Pike.
- Pursuing the feasibility of multiway development (which separate through traffic from local traffic) at four locations along the corridor, as well as potential local connector roads which would be recommended at several potential redevelopment areas to improve safety and local circulation.

For transit, the overall goal is to make transit easier to use and more efficient during the peak periods during the week, and to extend service later into the evenings and on the weekends. Some key initiatives include:

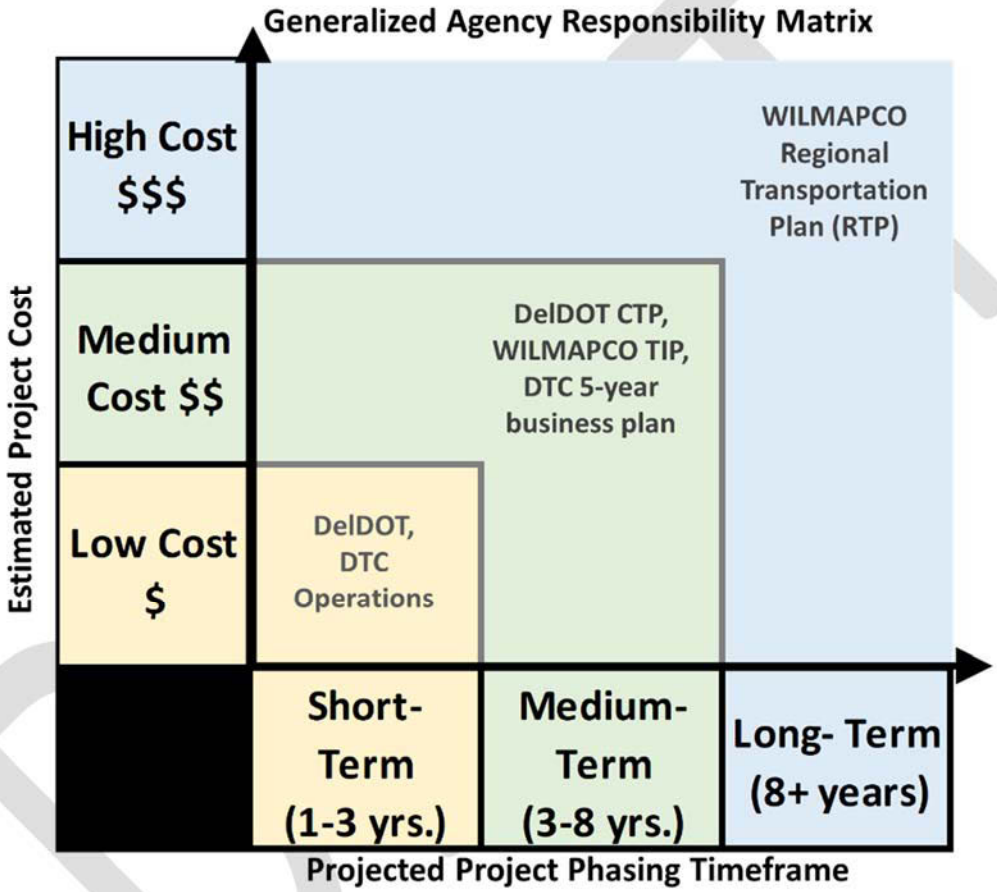
- Keep buses on Route 202, avoiding circuitous routing into retail areas, and improving commute times
- Improvements to bike/pedestrian environment near transit stops
- Better east-west pedestrian connections between heavily used stops
- Explore service extension into lower Chester/Delaware Counties

The land use recommendations are organized under the Guiding Principles which identify overarching, best practices for achieving a more successful and sustainably built environment on the 202 corridor. More detail on these concepts on transportation and land use can be found in Chapter 3: Concepts & Recommendations.

NEXT STEPS

The proposed recommendations will be implemented individually, with different timeframes, dependent on the cost and complexity of the project. More details on implementation are provided in Chapter 4. Currently, no funding has yet been apportioned to implement recommendations and some of the recommendations will require further, more detailed, study.

The community has voiced concerns that a 30-year plan may not bring needed improvements soon enough to serve the aging population. An important goal of this plan is to focus on implementing lower cost, short-term improvements that have strong community support. DelDOT has been a valuable partner in this planning process and their staff have helped to evaluate potential projects to assure that less complex and expensive concepts can be designed for early implementation.



This Master Plan is based on careful analysis and a robust public oureach process. It is an essential first step to achieve implementation of the community's vision. Continued public outreach and support is necessary to accomplish these goals. WILMAPCO recommends that a Corridor Monitoring Committee be established to aid with the prioritization and implementation of of projects, and to continue coordination with the community that will ensure a true partnership.

PROJECT OVERVIEW AND PROCESS

In an effort to envision future land use and transportation needs along Concord Pike (US 202), the Wilmington Area Planning Council (WILMAPCO) undertook a corridor study and long-range master plan. Stretching approximately 6 miles from the City of Wilmington to the Pennsylvania border, the study area included the adjacent lands east to Talley Road and west to Brandywine Creek. The master planning effort was led by WILMAPCO and its agency partners, the Delaware Department of Transportation (DelDOT) and the New Castle County Department of Land Use (NCC LU) with the consultant team of Design Collective and Toole Design Group.

The Master Plan, and Transportation and Traffic Analysis efforts involved an extensive, multi-phase public process that engaged the community and key stakeholders to establish a shared vision. The final recommendations outlined in this document will help guide the corridor's long-term growth by evaluating the potential for redevelopment. Implementation of these recommendations will leverage opportunities to promote economic growth, diverse land uses, access to jobs, public transit ridership, bicycle and pedestrian access and safety, environmental sustainability, and community vitality.

The Concord Pike Corridor functions as the area's main thoroughfare, providing a crucial arterial link between Pennsylvania and Wilmington. The corridor is a job center hosting a variety of commercial business types. Concord Pike is also the community's "main street" with a variety of restaurants, retail, and major institutions. Concord Pike is surrounded by a wide- range of residential neighborhoods and serves as a focal point for these communities as well as a regional commercial draw. A variety of schools, churches, community centers, park and recreational amenities exist along the corridor. The area is challenged by dated retail development, large areas of impervious pavement, and underutilized properties. Currently, this segment of Concord Pike is auto- oriented, with limited capacity for pedestrians and cyclists, and forms a barrier between the land uses to the east and west.

The US 202 Study Area Market Assessment (2017), produced by W-ZHA, is a document previously produced for the corridor and provides information regarding existing corridor conditions; trends and future market dynamics; and the strength of future markets for office, retail, and residential uses. The Concord Pike (US 202) Corridor Master Plan references this study and develops a set of analyses and recommendations to guide roadway improvements, address the streetscape within the public right-of-way, inform the market feasibility of future development, and implement a common vision for the Concord Pike corridor and adjacent properties. The full Market Assessment report can be found in Appendix E.

The Master Plan has been endorsed by WILMAPCO and New Castle County as a guide for future redevelopment along the corridor. The recommendations provide guidance for future land uses and conceptual improvements that will benefit all modes of transportation. Implementation will require more careful consideration and will be phased as funding becomes available.

The planning partners and project team began this master plan with some fundamental goals.

PROJECT GOALS & OBJECTIVES

- Build upon Market Assessment to create a sustainable commercial environment and an attractive multi-modal corridor
- Incentivize economic development, including mixed-use and mixed-income development
- Examine land uses and recommend zoning adjustments
- Recommend roadway improvements that organize vehicular traffic and promote and enhance the use of alternative transportation
- Improve accessibility and safety for pedestrians and bicyclists
- Consider environmental impacts due to physical land use and transportation improvements
- Provide a voice for community concerns and desires for the area

SCOPE OF WORK

In June 2018, the consultant team, WILMAPCO, New Castle County, and DelDOT began the development of this Master Plan. The Master Plan development process approach was based on tasks to effectively examine, envision, and create a set of recommendations for the study area.

TASK 1: IDENTIFY ISSUES, OPPORTUNITIES AND CONSTRAINTS

A series of analysis maps were compiled and used to review the existing and planned land use, transportation, and demographic conditions and constraints for Concord Pike. In July of 2018, the project team launched the public engagement process by hosting a public information session to provide an overview of the analysis that had been completed. Approximately 200 community members attended. In August of 2018, the analysis diagrams, GIS data, and aerial imagery were cross-referenced by the consultant team through various site visits to explore and better understand the existing conditions of the study area.

TASK 2: COMMUNITY VISIONING

In November 2018, the project team held a public visioning workshop, with approximately 100 attendees, to outline a vision for the future of Concord Pike. Following the Workshop, the project team conducted focused stakeholder interviews with agency representatives, county and state representatives, developers, business owners, residents, and other stakeholders to further understand their viewpoints. Additionally, a WikiMap (an online mapping tool) was launched to provide an opportunity for the community to provide additional input.

TASK 3: DEFINE ASSUMPTIONS AND POTENTIAL SCENARIOS FOR ANALYSIS

A second public workshop was conducted in March of 2019 to collect valuable insights from those who live, work, and visit the corridor. At this workshop, one goal was to present and receive feedback on conceptual network plans that addressed pedestrian, bicycle, and vehicular connections across and beyond the study area. The project team also presented and received feedback on a range of land use and transportation alternatives for the likely redevelopment areas and key intersections identified as Focus Areas. The network and focus area alternative plans were based on land use, zoning, transportation, and environmental analysis; economic analysis review; opportunities and constraints; and agency and stakeholder input.

TASK 4: MODEL SCENARIOS AND COMPARE RESULTS

Short and long-term redevelopment scenario concepts were developed based on the aspirations expressed by the community and stakeholders. This was balanced with the market analysis, job forecasts and land use regulations.

Toole Design Group, the traffic and transportation consultant for the project, completed a traffic analysis of Concord Pike that examined hourly speed and volume data, intersection data, turning movements, traffic signal information, and road geometry information received from WILMAPCO and DelDOT. This data was used to model traffic operations of existing and proposed lane configurations. Modeling scenarios included existing, baseline traffic conditions for the morning and evening peak periods and projected traffic growth to 2050. Transportation Scenarios included:

- "Existing Conditions" with no design changes
- "Enhanced Vehicle Network"
- "Enhanced Pedestrian & Bicycle Network"
- "Multi-modal Improvements"

Using information from the public workshops and the traffic analysis modeling, various transportation concepts for the corridor were developed. Corridor-wide initiatives proposed to improve safety and access for everyone, with attention given to two important topics: the need to improve walkability and to enhance access to and from bus stops. All signalized intersections along Concord Pike were studied. (The complete analysis results are included in Appendix B.) Draft analysis results were reviewed at a third public workshop held in December 2019. A workshop held on April 1, 2020 was used to present the full results of the traffic analysis, and the bicycle and pedestrian network analysis, as well as to solicit community feedback.

TASK 5: FINALIZE PREFERRED ALTERNATIVE AND FINAL SCENARIOS

Based on community input and technical analysis, recommendations for corridor-wide multimodal improvements and land use policy were formalized in this report. The steps needed for implementation of the master plan elements are documented and all technical analysis are included in the Apendices. The Concord Pike (US 202) Master Plan is a highly visual report detailing the tasks completed throughout 2019, the goals identified by the community, and implementation strategies for improving the corridor.

PAGE
INTENTIONALLY LEFT
BLANK

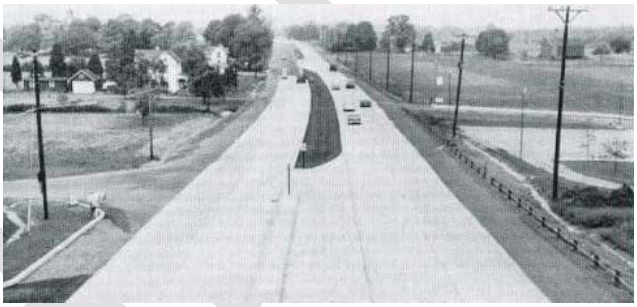
2.0 EXISTING CONDITIONS

History and Background

Historically constructed as a private toll road in the early 1800's, Concord Pike was a major route that provided access to a number of farms and smaller factories that developed along Brandywine Creek. Completed as a state highway in the early 1920's, Concord Pike was a two-lane road surrounded by a patchwork of farms. It was designated as US-202 in 1934, running from the town of New Castle, DE to Maine. This section of the roadway in Delaware was subsequently widened to a 6-lane major thoroughfare.

Today, Concord Pike (US 202) Corridor is primarily a 6-lane north/south commercial arterial connecting Wilmington, Delaware to the Pennsylvania state line. The 6-mile stretch that is included in the master plan study boundary is mostly auto-oriented retail, service, and shopping-related uses, with some commercial, office, and institutional uses.

The eastern side of the study area primarily consists of diverse and stable residential neighborhoods, while the west includes single-family residential neighborhoods, undeveloped open space, natural amenities, and farmland.

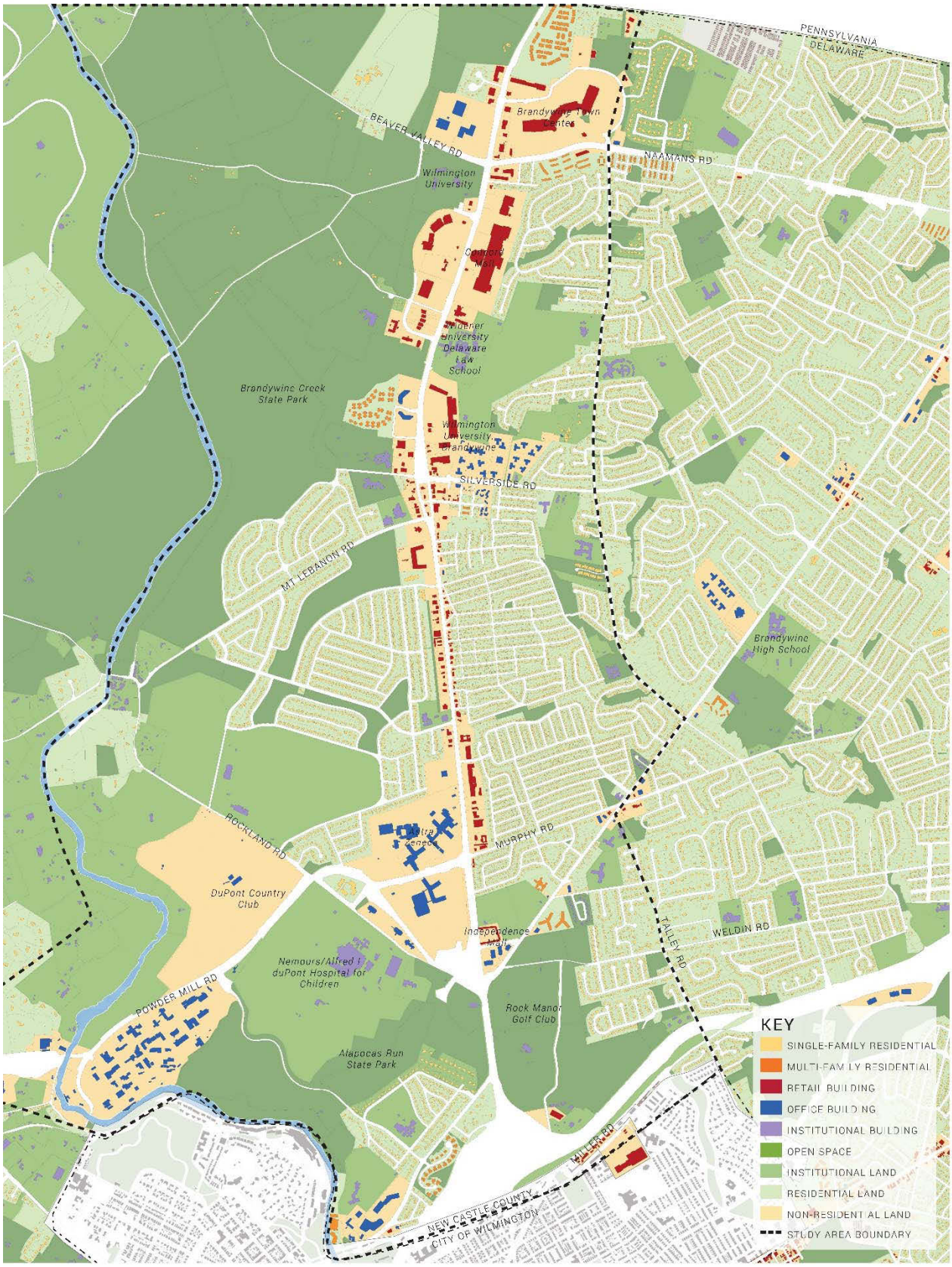


1957: Concord Pike (US 202) is widened and repaved

1966: Concord Pike (US 202) is divided around Talleyville

1962: Overhead signage installed along Concord Pike (US 202)

Figure 1: Concord Pike



DEVELOPMENT PATTERNS

The development patterns in the study area are defined by larger commercial and institutional parcels that line Concord Pike, with suburban, residential development primarily east of the corridor and large, undeveloped land areas consisting of parks and other recreational amenities to the west. Over the last 5 years, redevelopment of older commercial properties has added density and, in some areas, mixed-use development to the corridor.

The Charcoal Pit is an example of a small retail parcel with surface parking that lines Concord Pike

Concord Mall is an example of a large, commerical parcel that lines the corridor

Wilmington University is one of multiple institutions that directly fronts Concord Pike

Typical residential housing located East of Concord Pike

EXISTING ZONING OVERVIEW

LAND USE

Concord Pike (US 202) is primarily a commercial corridor, starting at Murphy Road and ending at the Pennsylvania State line. Smaller parcels line a majority of the corridor's right-of-way with larger, big box and mall development to the north. South of Murphy Road is primarily office, institutional, and open space. The primary existing zoning designations that line Concord Pike (US 202) and promote commercial services and employment centers are Commercial Regional (CR), Commercial Neighborhood (CN), and Office Regional (OR). A range of Neighborhood Conservation (NC) districts that encourage neighborhoods and planned residential communities are along the east side of the study area. The west side includes a large percentage of land dedicated to Suburban Estate (SE), intended to encourage large, single-family lots and preserve natural views that are characteristic to northern New Castle County.

The large commercial and institutional properties within the study area include Brandywine Town Center, Concord Mall, Wilmington University, Widener University Delaware Law School, Astra Zeneca, Nemours/Alfred I. duPont Hospital for Children, and Independence Mall.

To the south and west, the parks and recreational amenities include First State National Park, Brandywine Creek State Park, Alapocas Run State Park, DuPont Country Club, and Rock Manor Golf Club.

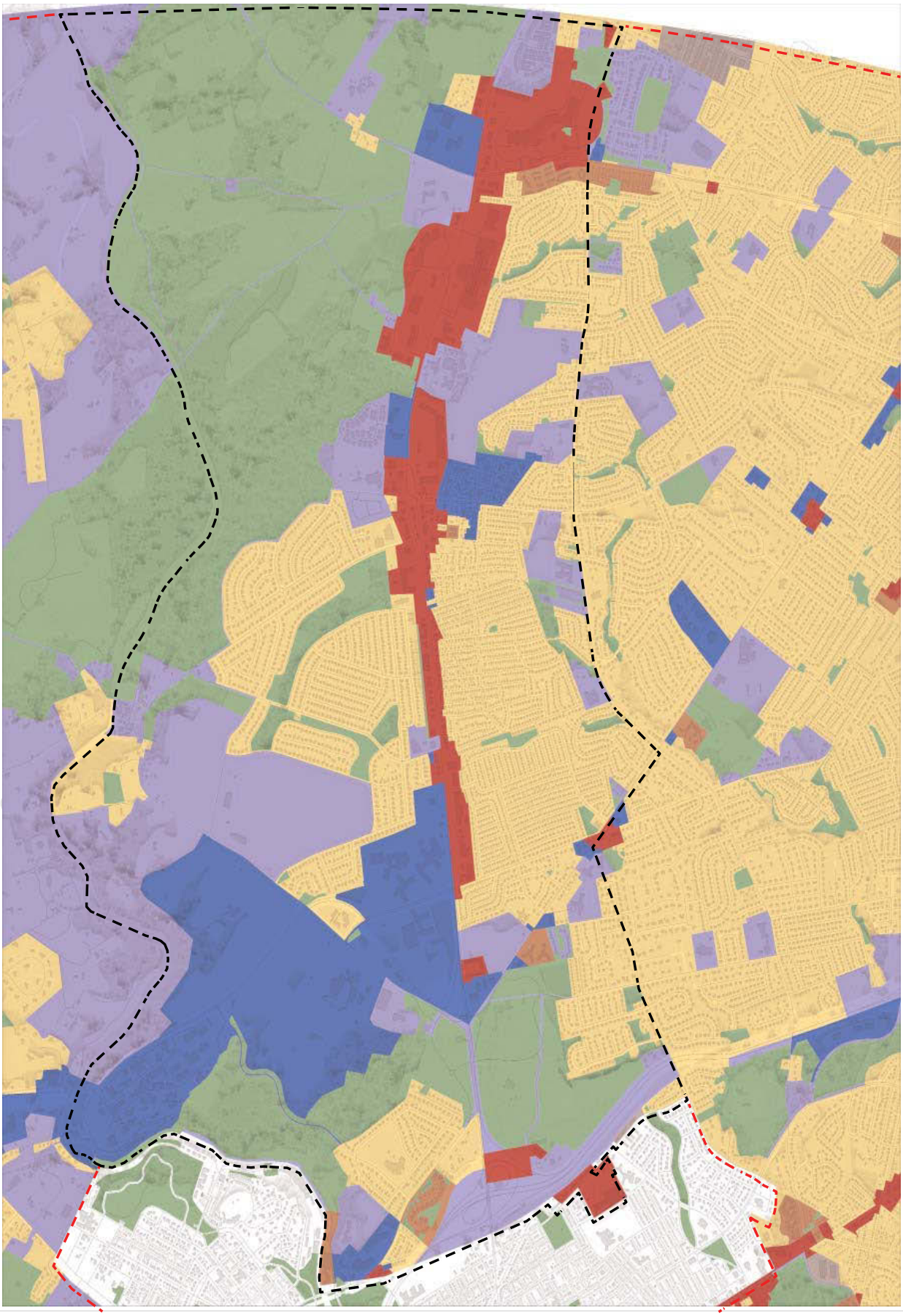
Just off the corridor, north of Silverside Road, the Brandywine Country Club golf course closed in 2015 and was purchased by a developer with the intent to redevelop. As of the adoption of this plan, no final plan has been approved by New Castle County Land Use.

Astra Zeneca Site

Nemours/ Alfred duPont Hospital for Children

Brandywine Town Center

Figure 2: Existing Concord Pike General Zoning



STREET NETWORK

Interstate 95 forms the southern end of the study area boundary at the City-County line. Concord Pike (US 202) is a US Highway that runs north and south, perpendicular to Interstate 95, between Wilmington and the Pennsylvania state line.

Beaver Valley Road, Naamans Road, Powder Mill Road, and Murphy Road are state highways that run east and west connecting Concord Pike (US 202) to surrounding neighborhoods and amenities.

Mt. Lebanon Road and Silverside Road are two major collector roads at the heart of the study area that run east and west.

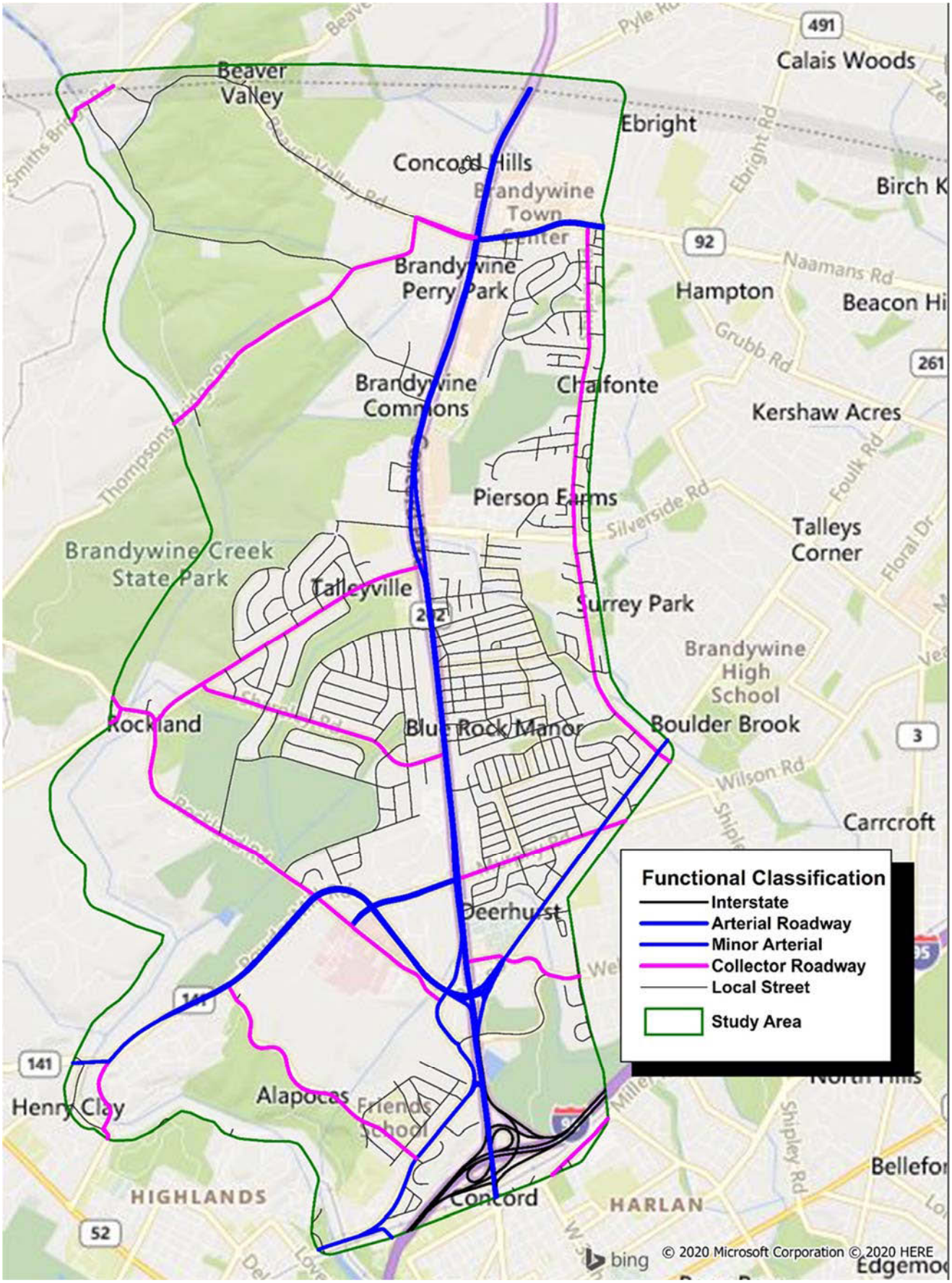
Neighborhood streets are characterized by patterns of suburban, residential development, with smaller lots to the east and larger lots to the west. A greater number of neighborhood streets connect to Concord Pike between Murphy Road and Silverside Road on the east side.

Concord Pike's right-of-way predominantly consists of 6-8 travel lanes (top image) and numerous curb cuts throughout the length of the corridor to provide driveway access for individual businesses (bottom image)

Local Connector Streets such as Beaver Valley Road, Mt. Lebanon Road, and Shipley Road (top image), are two lanes. Shipley Road is one of the few streets that provides dedicated bicycle right-of-way. Naamans Road, Silverside Road, Powder Mill Road, and Foulk Road (bottom image) are four lanes and typically include a median.

Typical Neighborhood Streets are two lanes and accommodate parallel parking when right-of-way is wide enough. Pedestrian sidewalks are not always present on both sides of the cartway.

Figure 3: Roadway Functional Classifications



CONCORD PIKE CHARACTERISTICS

The corridor can be roughly broken into three segments, each with distinct characterics in both land use and transportation.

Segment 1 - Naamans Rd to Silverside Rd

Segment 1 of Concord Pike is the northernmost section and is characterized by large, retail and institutional frontage with expansive surface parking lots on both sides. This results in a limited number of curb cuts. The average spacing between these access points ranges from 500 to 1,000 feet. Extensive open space and park land exists beyond the frontage along the western side.

Section 1: Intersection of Righter Parkway and Concord Pike (Looking North)

Segment 2 - Silverside Rd to Murphy Rd

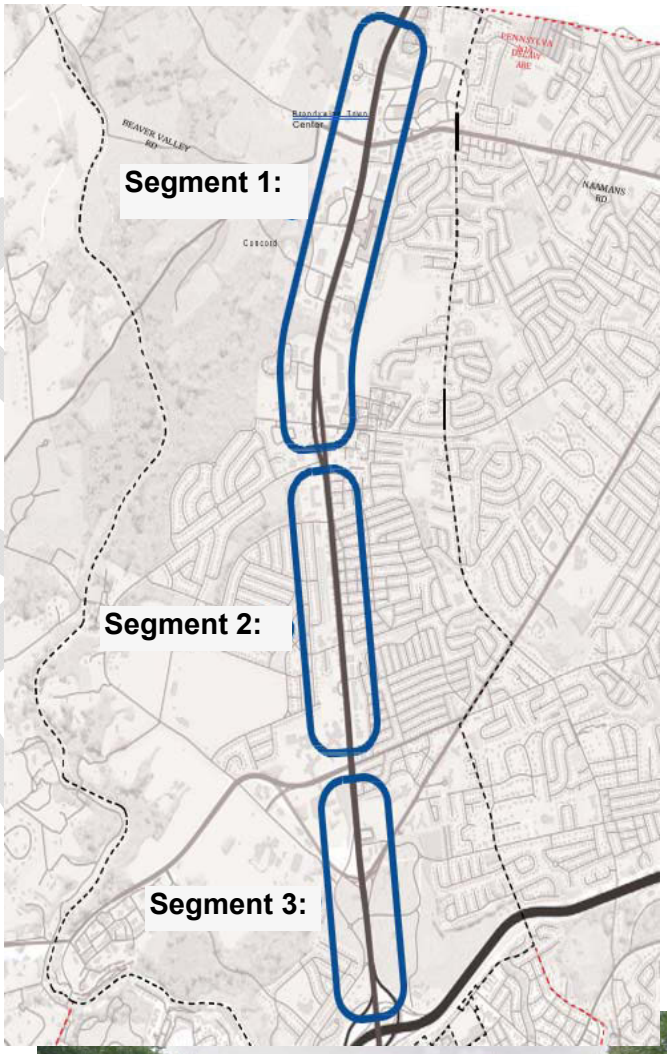
Segment 2 of Concord Pike is characterized by small, retail frontage on both sides with a significant number of curb cuts and access to surface parking. The average spacing between these access points ranges from 100 to 150 feet.

Section 2: Intersection of Prospect Drive and Concord Pike (Looking North)

Segment 3 - Murphy Rd to Interstate 95

Segment 3 of Concord Pike is at the southern end characterized by large open space, recreational, office, and institutional parcels on both sides. There is minimal retail presence and, as a result, a limited number of curb cuts.

Figure 4: Concord Pike Segments



Segment 3: Intersection of Pierce Road and Concord Pike (Looking North)

OPEN SPACE

The Concord Pike (US 202) corridor is characterized by an expansive, green network that primarily exists along the west side and southern end of the study area boundary. Brandywine Creek runs along the western boundary bisecting Brandywine Creek State Park and First State National Park in the north and the Alapocas Run State Park in the south. DuPont Country Club and Rock Manor Golf Club are recreational amenities that are adjacent to the state parks.

Brandywine State Park

Alapocas Run State Park

Rock Manor Golf Club

This system of open space offers a wide range of passive and active amenities throughout. However, connectivity and visibility from the corridor is limited to the northern and southern ends. Concord Pike forms a barrier to pedestrians and cyclists on the east side of the corridor.

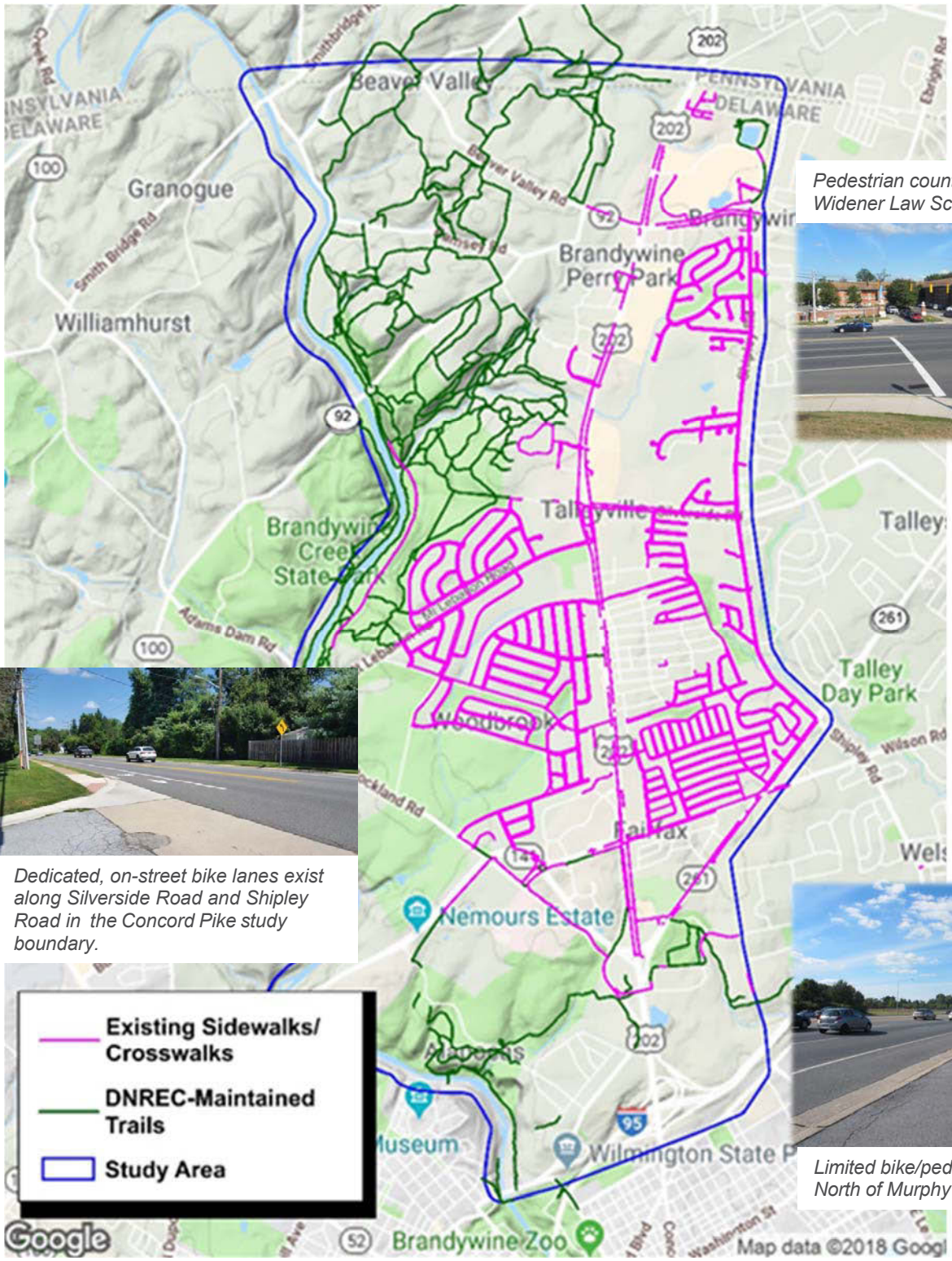
First State National Park

Figure 5: Open Space

PEDESTRIAN AND BICYCLE FACILITIES

The Concord Pike study area has on-street pedestrian and bicycle facilities which are located within the neighborhoods and the open space network along the western side and southern end of the study area. Currently, safe and accessible pedestrian and bicycle facilities along Concord Pike (US 202) are limited and disconnected.

Figure 6: Existing Bike/Ped Facilities



Pedestrian countdown signal at Widener Law School

Dedicated, on-street bike lanes exist along Silverside Road and Shipley Road in the Concord Pike study boundary.

Limited bike/ped amenities just North of Murphy Rd.

Pedestrian and bicycle facilities are primarily located off-road within and/or adjacent to parks, open spaces, and institutional land. The only segment of Concord Pike with a dedicated multi-use path is adjacent to Wilmington University at the intersection of Beaver Valley Road.

Newly built multi-use path near Wilmingotn University

Rockland Road and Children's Drive

Unimproved trail leading into First State National Park near US 202.

Sidepath entrance into Devonshire County Park.

LEVEL OF TRAFFIC STRESS ANALYSIS

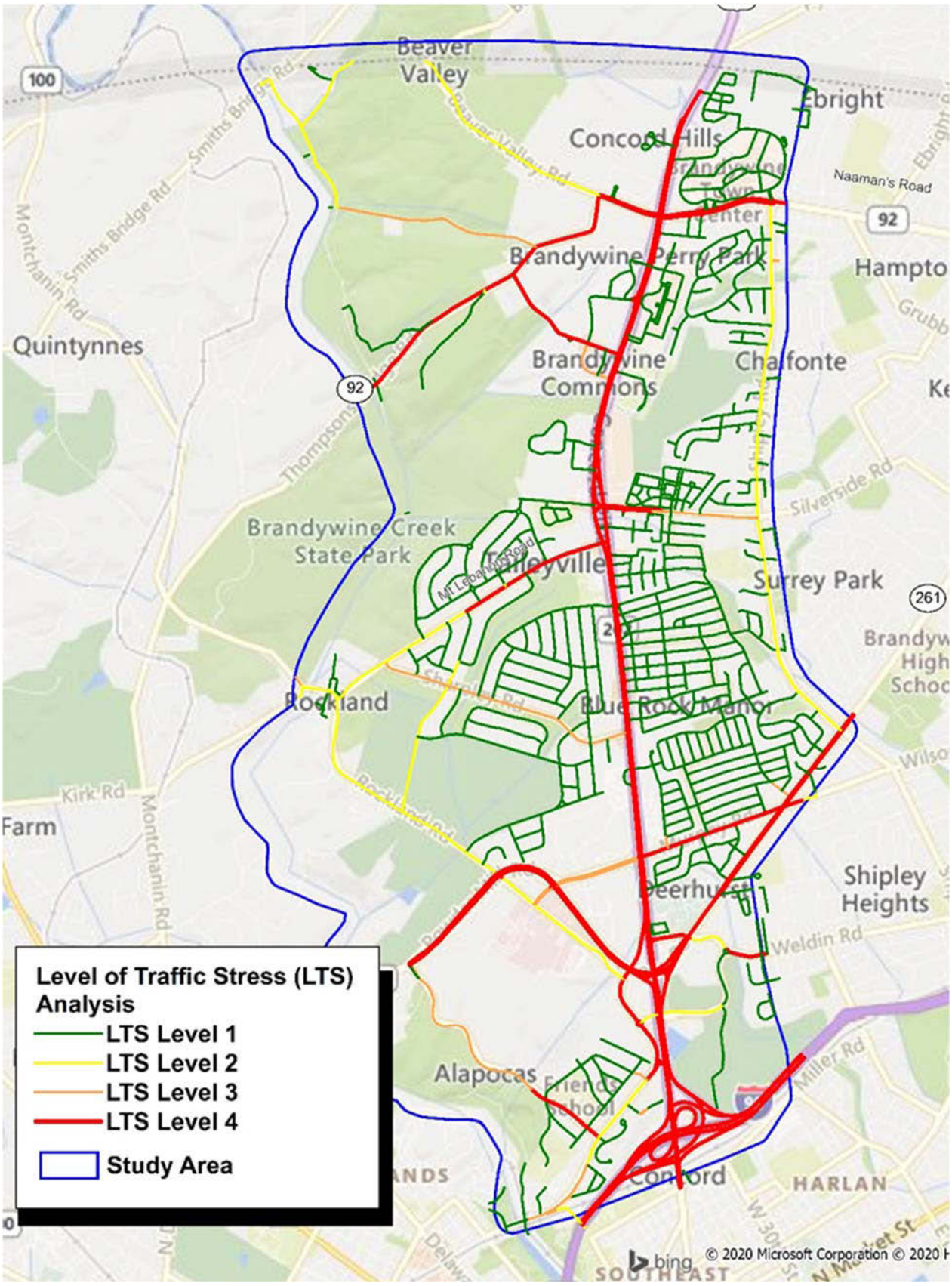
A new analysis tool that was applied to this corridor was Level of Traffic Stress (LTS). This measure is being used by DelDOT to better understand how comfortable streets are for bicycle riding. As traffic speed, traffic volumes, lane configurations, and space for cycling become more intense, the LTS increases, representing a more dangerous or higher stress experience, and reducing the proportion of people that may be comfortable riding a bicycle on that street. Level 1 is the best level, presenting little traffic stress, demanding little attention from cyclists, and attractive enough for a relaxing bike ride. Level 4, on the other hand, represents the most difficult conditions for riders.

A key component in the selection of types of multi modal improvements and their locations will be the use of the LTS analysis to help prioritize improvements that will be most beneficial to achieving the vision of the corridor. Ongoing engagement with stakeholders after plan adoption will be one of the early steps in moving these to implementation.

Table 1 Level of Traffic Stress

Level of Traffic Stress	Description	Example
1	Safe for children to use; Usually completely separated from auto traffic	
2	Tolerated by most mainstream adult populations of cyclists; Roads with low volume and low speed auto traffic	
3	Tolerated by riders who are enthused and confident; Heavy traffic with separated bike facility	
4	Only tolerated by strong and fearless riders; cyclists must interact with high volumes or speeds of auto traffic.	

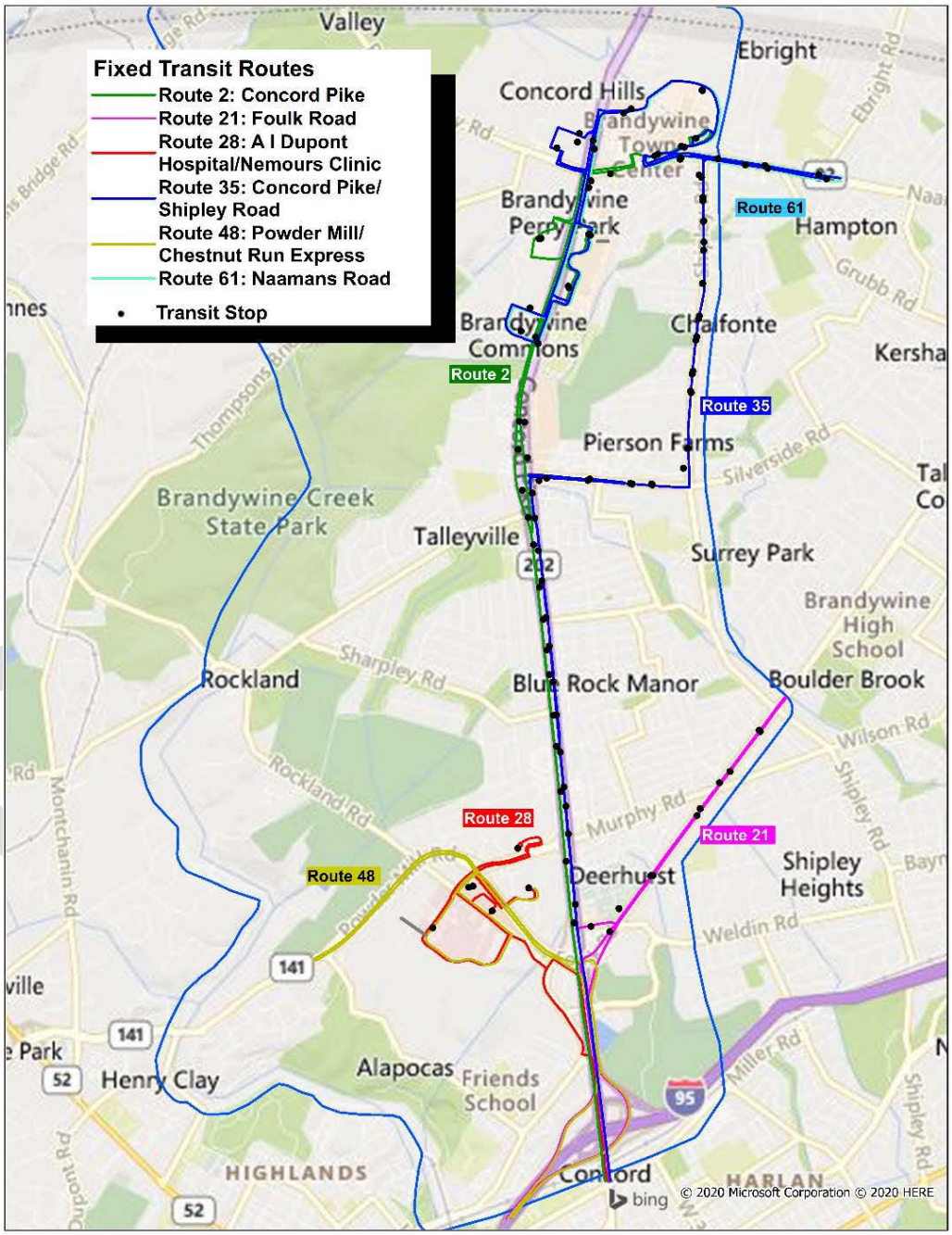
Figure 7: Current Level of Traffic Stress (LTS)



TRANSIT

Currently, the corridor is served by six transit routes. Routes 2 and 35 are the most popular. They also provide service to nearly the entire corridor. Many of the corridor's bus stops do not provide shelter, seating, signage, or bike accommodations. They are fairly nondescript and there is no buffer provided from Concord Pike. Many of the bus stops are not located near a safe point to cross Concord Pike, which makes access to these stops a challenge and deters first-time transit users.

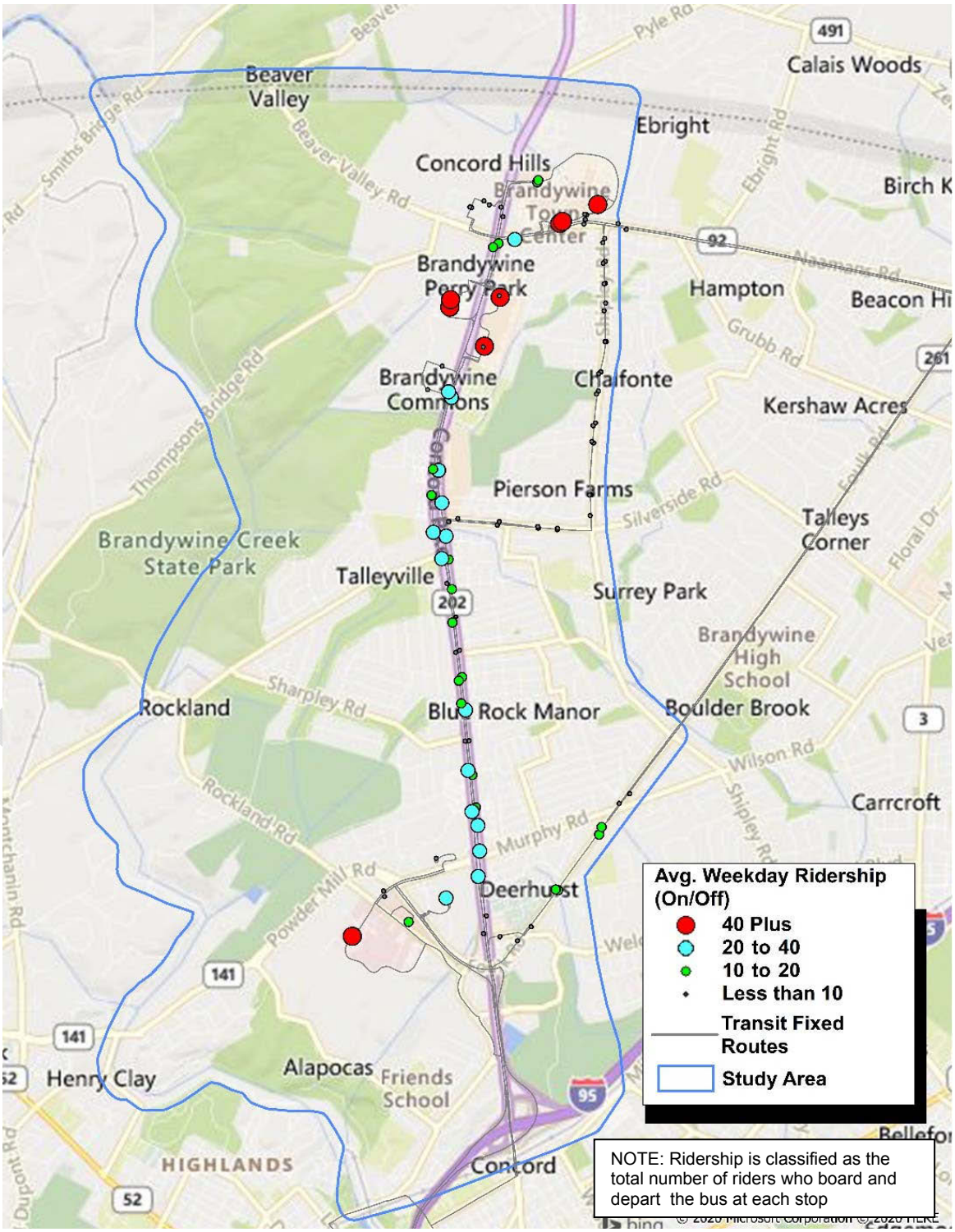
Figure 8: Existing Transit Routes



TRANSIT RIDERSHIP

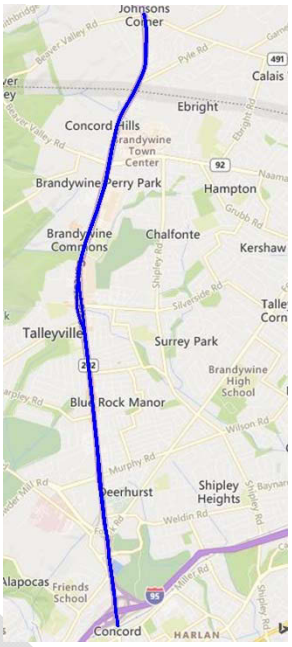
Using ridership data provided by DART, a sampling of ridership data from May 2018 of Weekday Inbound riders, we see that most of the activity takes place in the Northern portion of the corridor. Locations with the highest clusters of ridership are concentrated around Brandywine Town Center, Brandywine Commons, and the Concord Mall.

Figure 9: Existing Transit Routes



TRAFFIC

Travel Time Limits



The 202 corridor is typical of many major corridors in the area, experiencing a regular morning and afternoon "rush hour" period. Based on the Fall 2017 travel time data collected through INRIX, travel along the corridor during off peak hours (11pm-5am) takes roughly 8 minutes to travel the 6.4-mile section from I-95 to PA 491. This travel time increases during the AM/PM peaks, with some time periods more than twice that of the off-peak travel times.

From this, we can determine that the AM peak hour is from 7:45-8:45am and the PM peak hour is from 5-6pm. Directionally speaking, the Northbound direction experiences a greater amount of delay particularly in the PM period. Travel times are over 20 minutes from I-95 to PA 491 during the peak period.

Figure 10: Average Corridor Travel Times - Northbound

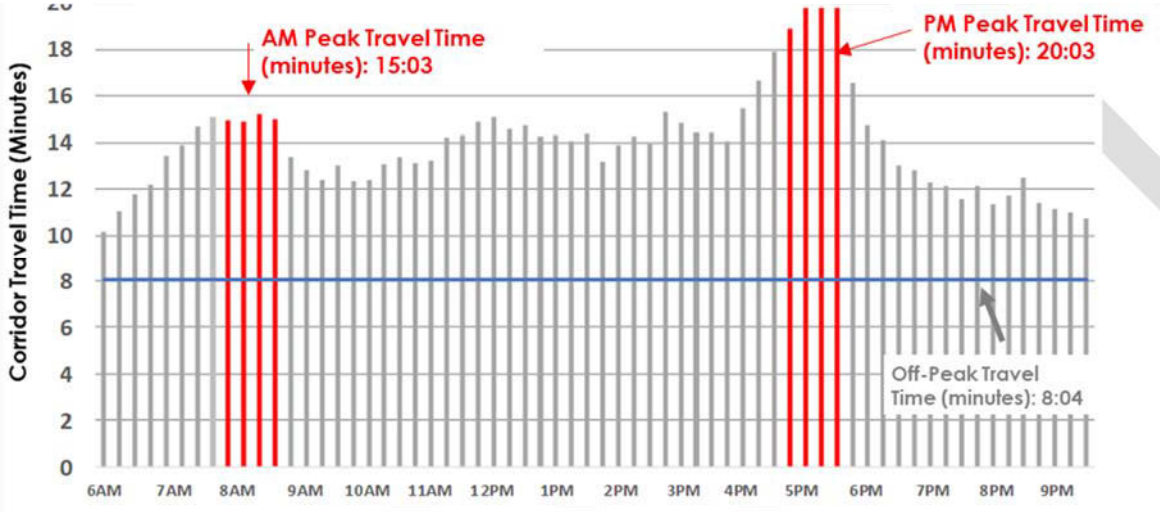
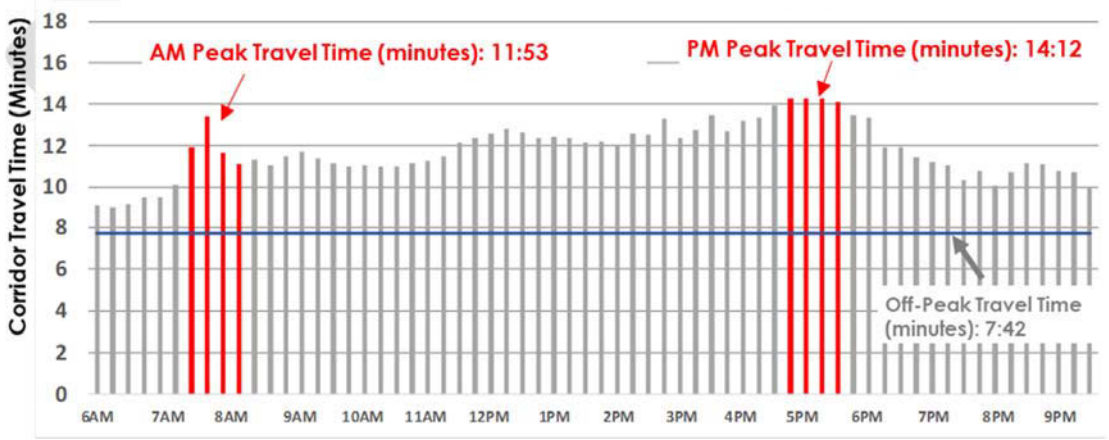


Figure 12: Average Corridor Travel Times - Southbound



Source: NPMRDS, INRIX. *Note: Fall 2017 period is an aggregation of data from every Monday-Thursday from 9/11/17 to 11/16/17

Looking more closely at the two peak periods, the probe data reveals in greater detail where the deficient areas are found along the corridor. During the AM peak (7:45-8:45am), the main area of delay is concentrated in the Northbound direction from Murphy Road to Silverside. For the PM Peak period (5-6pm) the same location (Murphy to Silverside Rd.) experiences delay, in addition to the segment north of Naaman's Road into Pennsylvania.

Figure 12: AM Peak Hour Travel Time Reliability

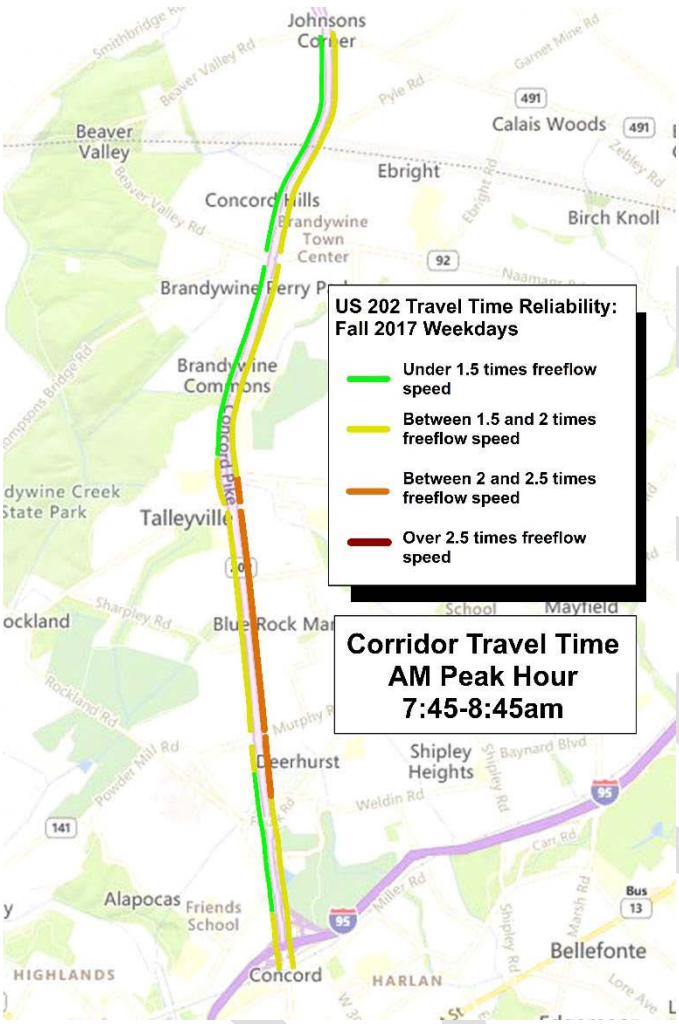
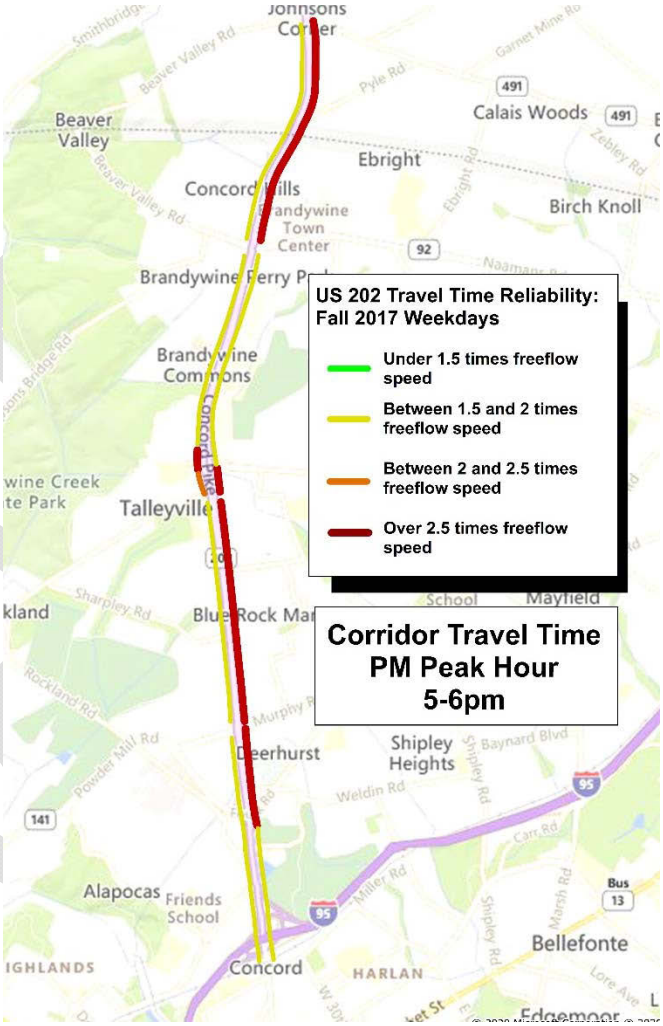


Figure 13: PM Peak Hour Travel Time Reliability



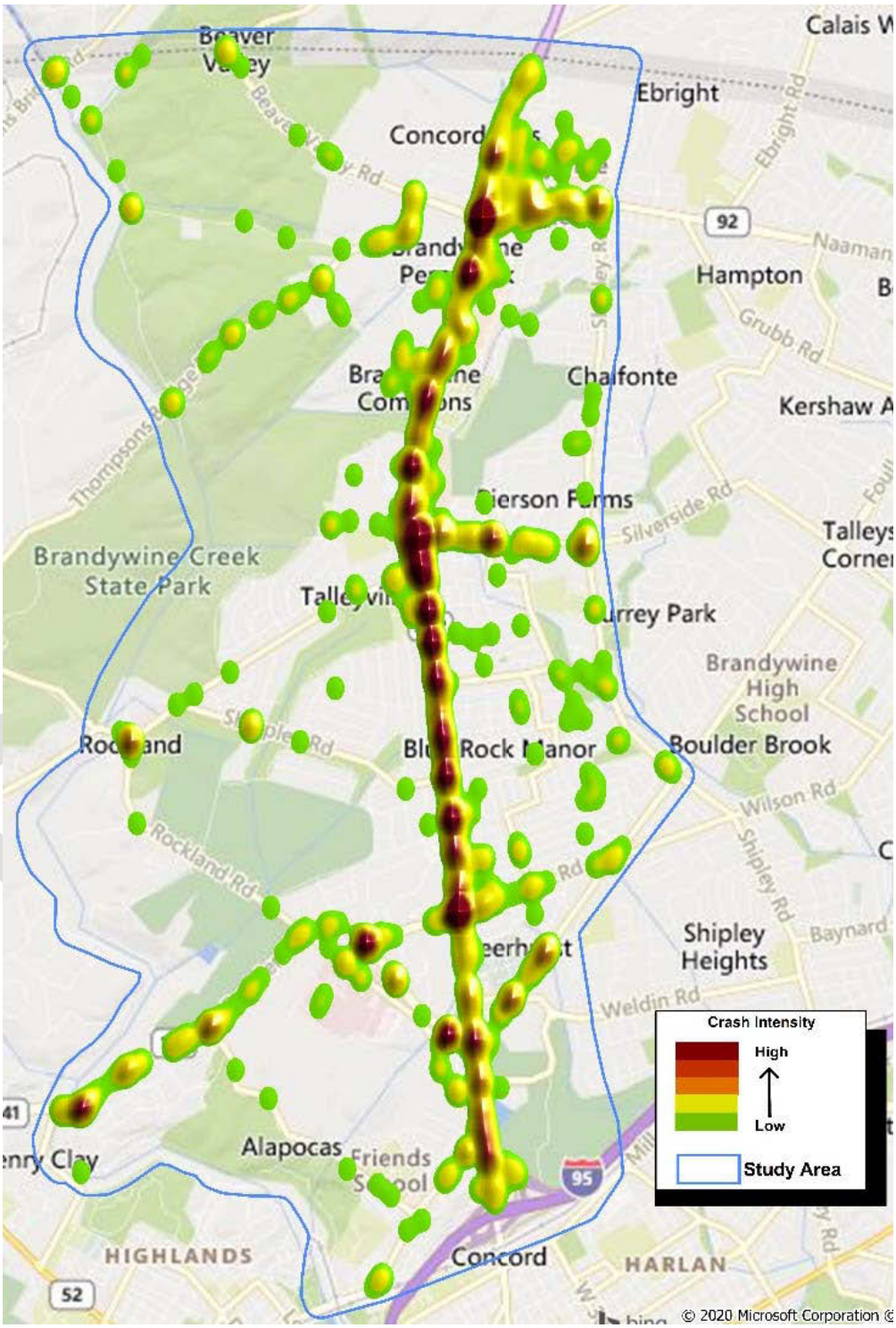
Source: NPMRDS, INRIX.

*Note: Fall 2017 period is an aggregation of data from every Monday-Thursday from 9/11/17 to 11/16/17

SAFETY

Approximately 330-350 crashes occur along the US 202 corridor, annually. This figure has remained relatively consistent over the time period from 2013-2017. Examining all of the crashes that have occurred within the boundary of the Concord Pike study area through a cluster analysis shows that the highest concentrations of crashes along US 202 occur around the intersections of Naaman's, Silverside and Murphy Roads.

Figure 14: Crash Clusers 2013-2017



Crashes by Type

The corridor had nearly 1,700 reported crashes that occurred over the 5-year period from 2013-2017. Within the total crashes, slightly more that half (53%) were rear-end crashes. Overall, this is comparable to other Urban Arterials within New Castle County. Other observations include:

- 13% of the crashes resulted in injuries
- 4 crashes were fatal
- More than 90% of the crashes occured at signalized intersections

Figure 15: Crashes by Type 2013-2017

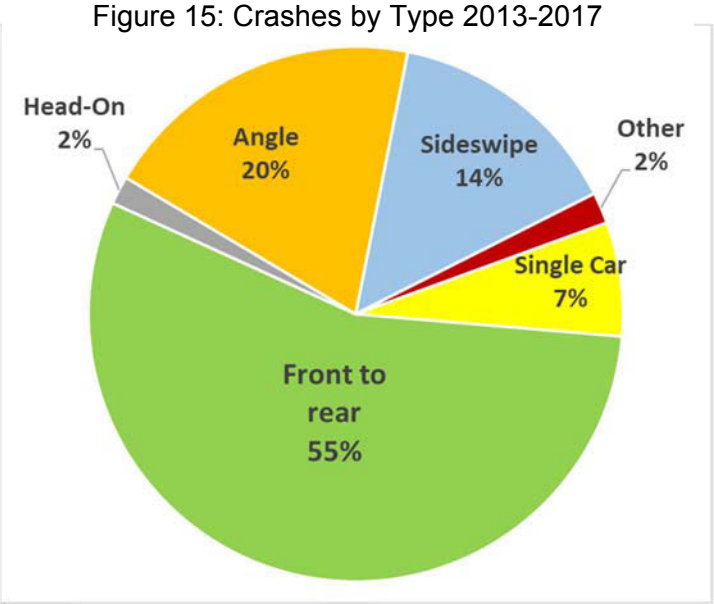
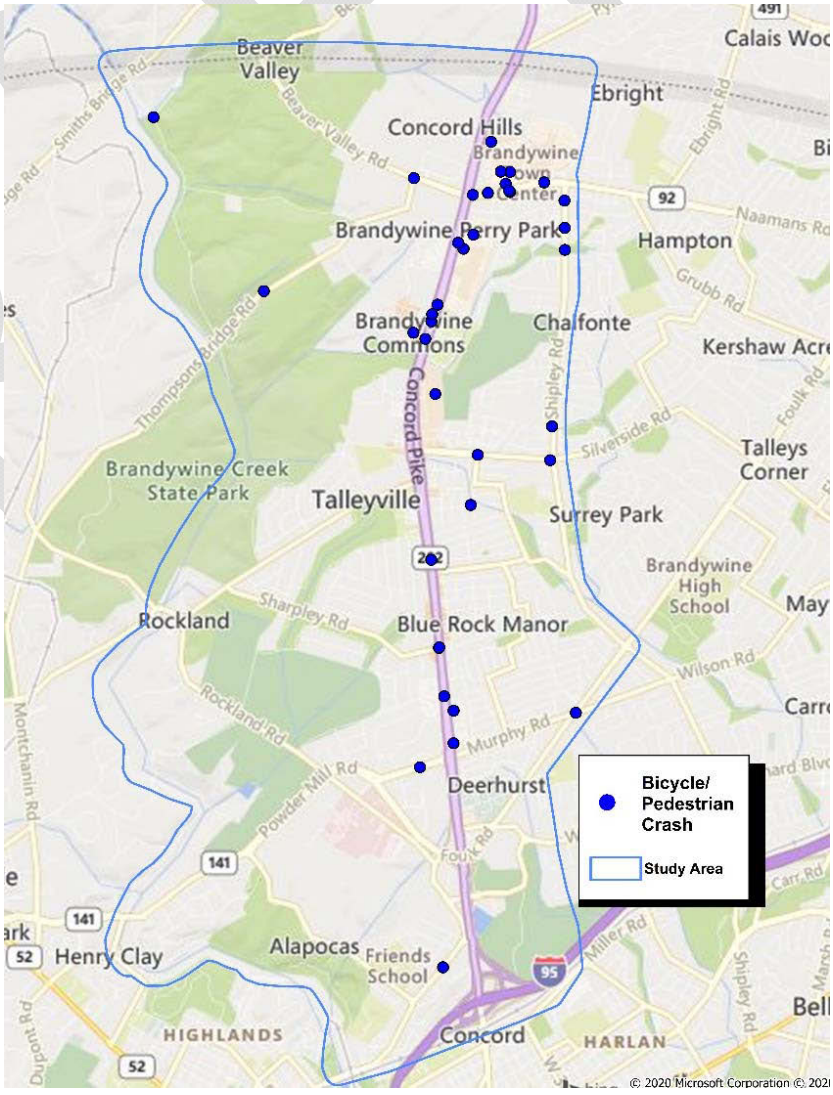
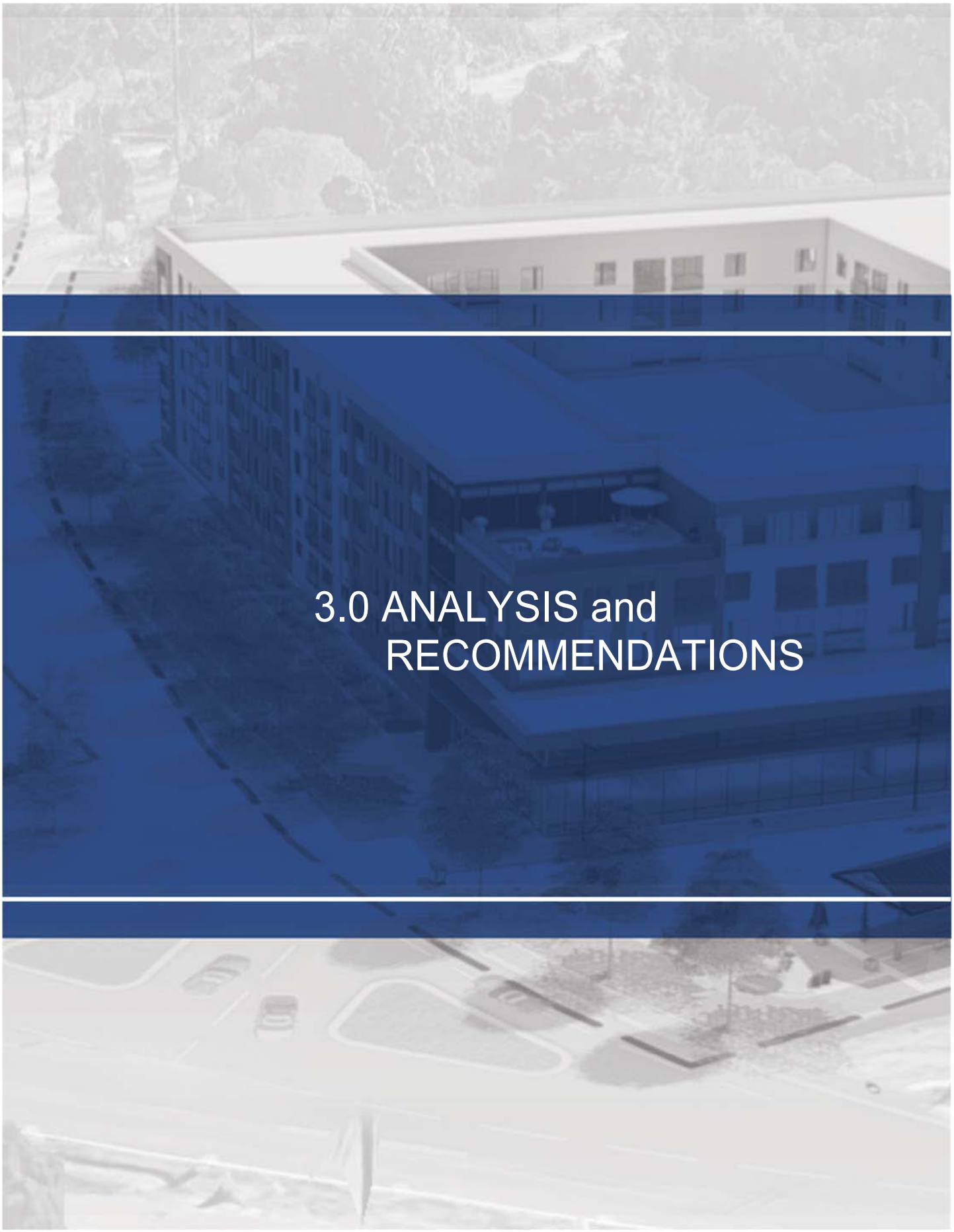


Figure 16: Crashes Involving Bicycles and Pedestrians 2013-2017

Crashes Involving Bicycles and Pedestrians

A total of 37 crashes in the study area involved a bicyclist or pedestrian between 2013 and 2017. Most the these have occurred in the area between the Brandywine Town Center and the Concord Mall.





3.0 ANALYSIS and RECOMMENDATIONS

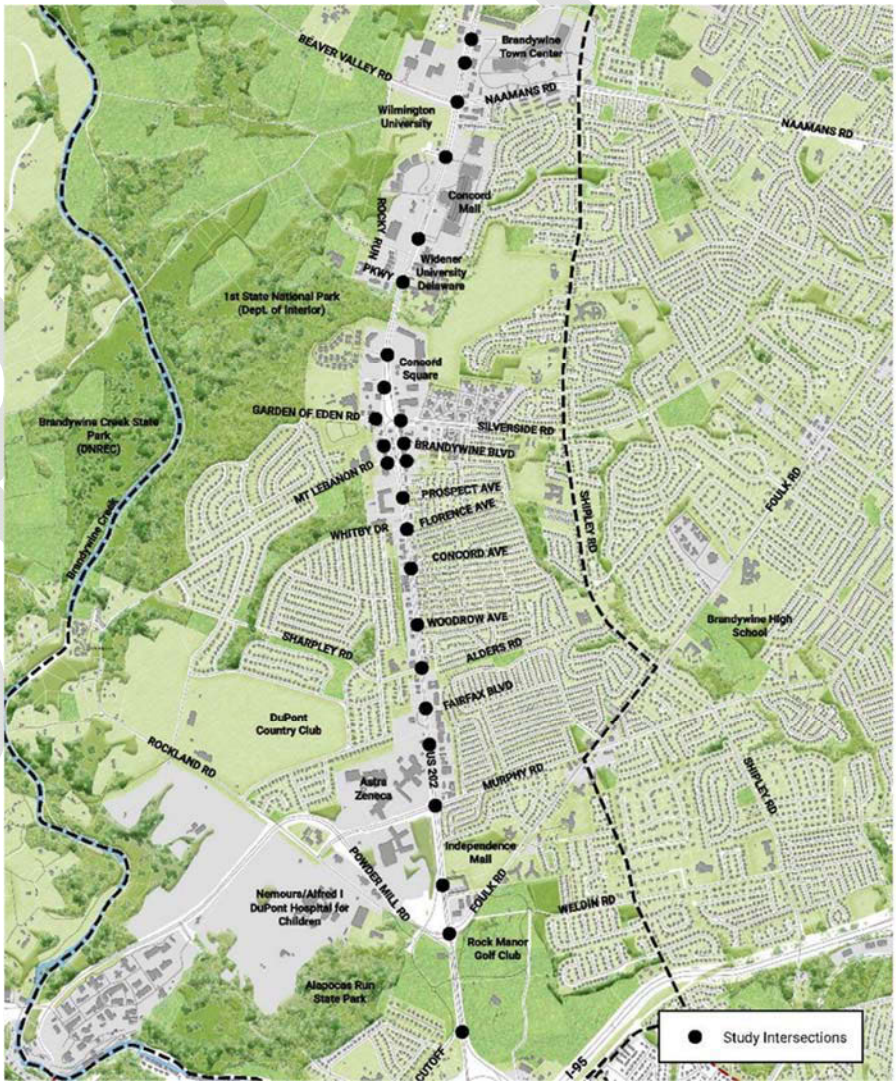
Transportation Analysis

In accordance with the community vision, the traffic analysis was conducted with a multimodal approach including walking, biking, transit use, and driving. Based on this vision for the corridor, the traffic analysis was conducted to serve as a sensitivity analysis to review how the corridor would react to varying levels of development if it were to occur. The traffic analysis was used to answer three primary questions about motor vehicle operations on Concord Pike, looking ahead 30 years. These include:

1. How will intersections along the corridor operate for motor vehicles with development?
   - With current approved development
   - With current approved development and a modest amount of additional activity
   - With current approved development and a larger amount of additional activity
2. How will the addition of roadway connections and pedestrian/bike connections affect delay for motor vehicles?
3. How can we improve intersections to provide access for all users, whether they are walking, taking the bus, biking, or driving?

The motor vehicle traffic analysis was conducted with the goal of answering the three questions listed above. The traffic analysis was carried out with close coordination with staff from the Delaware Department of Transportation (DelDOT), NCC, and WILMAPCO. The full breakdown of the traffic analysis can be found in Appendix B.

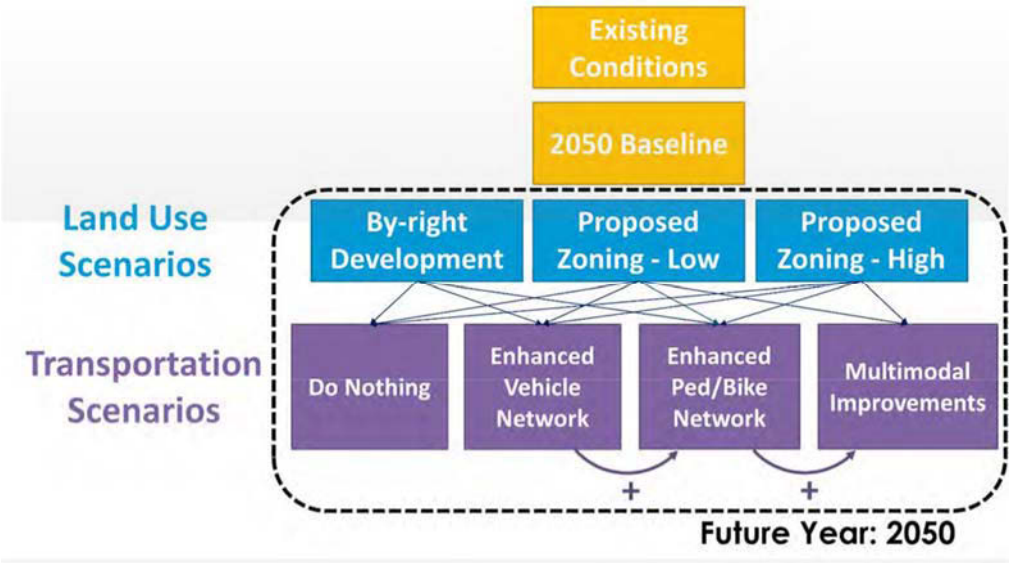
Figure 18: Intersection included in Traffic Analysis



LAND USE & TRANSPORTATION SCENARIOS

In order to answer the three motor vehicle analysis questions listed above, a combination of various land use and transportation scenarios were studied. Each land use scenario was analyzed with multiple transportation scenarios. These scenarios are described below.

Each land use scenario will result in a different number of person trips on Concord Pike. The land use scenarios were combined with transportation scenarios to determine how intersections would function for motorists with the combined scenarios. The figure to the right shows how the land use scenarios and transportation scenarios were combined in the analysis.



The Land Use Scenarios:

1. Scenario 1 Existing Zoning: A Land Use Scenario with by-right development projected for the Focus Areas' parcels, along with the current/approved development
2. Scenario 2 Proposed Zoning – Low: A Land Use Scenario with low-intensity (conservative) development projected for the Focus Areas' parcels under the proposed mixed-use zoning, along with the current/approved development
3. Scenario 3 Proposed Zoning – High: A Land Use Scenario with higher-intensity development projected for Focus Areas' parcels under the proposed mixed-use zoning, along with the current/approved development

Table 2: Land Use and Transportation Scenario Summary

	Do Nothing	*Enhanced Vehicle Network*	*Enhanced Vehicle Network + Enhanced Ped/Bike*	*Enhanced Vehicle Network + Enhanced Ped/Bike + Multimodal Improvements*
2019 Existing	x			
2050 Baseline	x			
2050 By-Right	x	x	x	
2050 Proposed Zoning – Low	x	x	x	x
2050 Proposed Zoning – High	x	x	x	x

Table 3: Number of Intersections Operating at Each LOS for Motor Vehicles

Scenario	LOS	Do Nothing	Enhanced Vehicle Network	Enhanced Vehicle Network + Enhanced Ped/Bike	Enhanced Vehicle Network + Enhanced Ped/Bike + Multimodal
2019 Existing	A-C	42	-	-	-
	D	7	-	-	-
	E-F	1	-	-	-
2050 Baseline	A-C	37	-	-	-
	D	8	-	-	-
	E-F	5	-	-	-
1) 2050 By-Right	A-C	33	36	38	-
	D	8	6	4	-
	E-F	9	8	8	-
2) 2050 Proposed Zoning – Low	A-C	34	36	37	31
	D	6	5	7	9
	E-F	10	9	6	8
3) 2050 Proposed Zoning – High	A-C	28	31	33	29
	D	9	10	8	10
	E-F	13	9	8	9

The following key takeaways were taken from the motor vehicle traffic analysis results.

- Intersections operate similarly for motorists whether the area is redeveloped consistent with **#1 Existing zoning (by-right scenario)** or **#2 Proposed zoning - low.** While slight variations in the number of intersections operating at each LOS can be attributed to differences in trip generation between the peaks, overall, these two land use scenarios would result in similar operations on the corridor.
- Without any improvements to the transportation network (i.e. the **Do nothing transportation scenario),** more intersections would operate at LOS E or F with the **#3 Proposed zoning – high** land use scenario compared to the **#2 Proposed zoning - low** development scenario. With the transportation network **Enhanced vehicle network and ped/bike network,** the **#3 Proposed zoning – high** scenario operates more similarly to the lower development scenarios.
- Overall, adding the **Enhanced network for vehicles** results in more intersections operating at LOS A-C and fewer operating at LOS E or F compared to the **Do nothing** transportation scenario. Adding **Enhanced network for peds/bikes** results in more intersections operating at LOS A-C and fewer operating at LOS E or F compared to the **Enhanced vehicle network** scenario.
- The addition of multimodal improvements would increase the number of intersections operating at LOS D- F but the benefits of these improvements were discussed previously in this memo and include reducing conflicts between modes.

CONCLUSIONS AND KEY TRAFFIC ANALYSIS TAKEAWAYS

The Concord Pike (US 202) Corridor Master Plan was undertaken to envision future land use and transportation development opportunities along Concord Pike. In accordance with the vision for Concord Pike, which includes more walkable environments, strategies to reduce speeding and relieve heavy traffic, and additional pedestrian and bicycle trails and crossings, the traffic analysis was conducted with a multimodal approach including walking, biking, transit use, and driving. A combination of land use and transportation scenarios were studied which included varying levels of development and transportation scenarios with different mode splits, trip assignment, and trip distributions onto the network coming to or from the development sites.

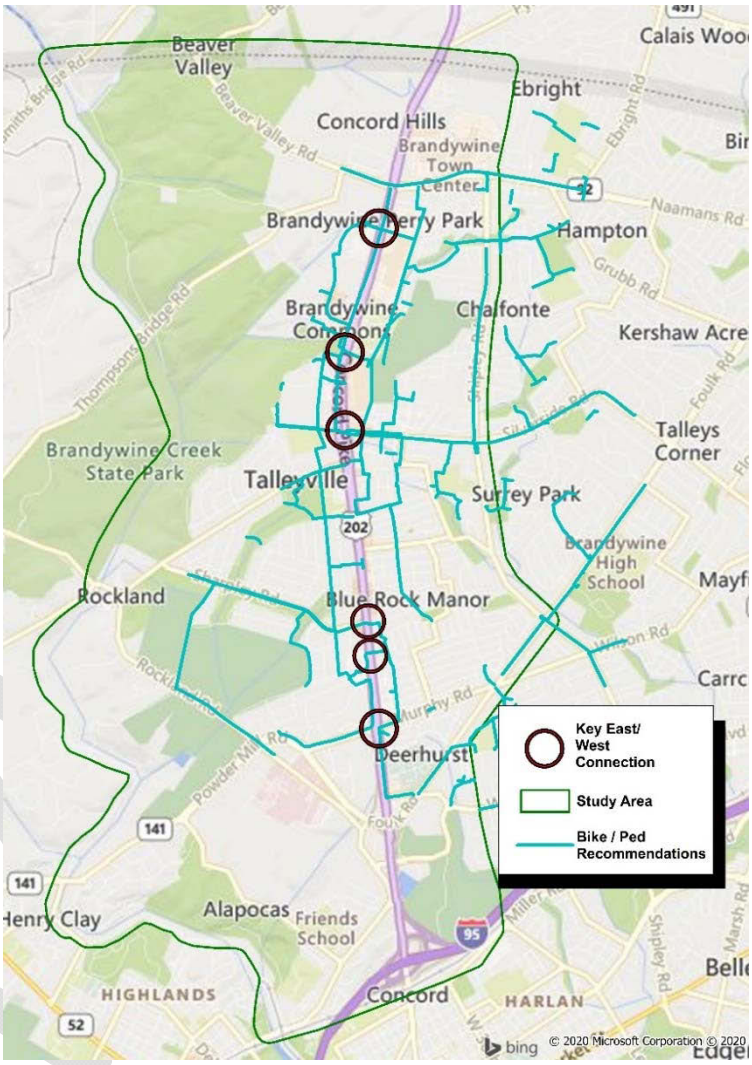
Based on the vision for the corridor the traffic analysis was conducted with the understanding that the capacity or value of a street is more than the number of cars it can handle – it can also encourage pedestrian activity, enhance connections to surrounding land uses, and support economic vitality. The following key takeaways were taken from the traffic analysis.

- Increases in delay for motorists are similar regardless of whether the area redevelops consistent with existing zoning or using the proposed zoning scenarios.
- Addition of roadway connections within re-development sites and additional pedestrian and bicycle connections will provide relief to delay for motorists.
- There are many opportunities to provide improved connections and options for people biking within the neighborhoods surrounding Concord Pike, crossing Concord Pike and adjacent to Concord Pike.
- A large menu of treatments is available to improve signalized intersections for people walking. In some cases, adding these treatments could increase delay for motorists.
- There are plans for bus service improvements on the corridor in the coming months and additional plans for longer term changes.
- The implementation of these recommendations will come in many forms – using existing programs, and potential new programs and policies.

CONCEPTS AND RECOMMENDATIONS

The transportation recommendations in this report are based on the understanding that the capacity or value of a street is more than just the number of cars it can hold. Adopting a multi-modal approach to street design incorporates all users, enhances connections to surrounding land uses, and supports economic vitality. The recommendations have been refined based on the public input received throughout the process. Traffic congestion was consistently cited as the greatest concern among residents and other stakeholders, who also cited unsafe walking, biking, and driving conditions as having a negative impact on quality of life.

Figure 18: Key East/West Connections



To address these concerns, the recommendations in this plan seek to create more walkable environments, between commercial areas on Concord Pike as well as connecting to and within the surrounding neighborhoods. Additional roadway connections with sidewalks and shared-use paths will enable walking and bicycling for transportation and recreation. Several opportunities to use existing right of way currenently held by DelDOT and New Castle County. Pedestrian-related recommendations will also improve safe access to bus stops. At signalized intersections, modifying right-turn slip lanes to be more pedestrian friendly and installing high-visibility crosswalks will improve crossings and slow turning vehicles. Adjustments at intersections, such as leading pedestrian intervals and right-turn on red restrictions, will also improve the safety and visibility of people crossing Concord Pike. Details of these, as well as other identified pedestrian treatments, are provided in the Pedestrian Toolkit in Appendix D.

For those biking, additional roadway connections and comfortable bicycle facilities will improve connectivity, comfort, and safety. The proposed bicycle facilities in the study area include bike lanes, shared use paths, and bicycle boulevards to encourage bicycle activity and commuting by bike. Details of these bicycle facilities and treatments are provided in the Bicycle Toolkit in Appendix D.

Multimodal travel will improve access to jobs, recreation, and other assets of the Concord Pike community. Additional connections for both pedestrians, bicyclists, motorists, and transit riders will create transportation options between and within focus areas. In addition to facilitating movement along the corridor, the proposed projects will enable safer and easier travel east to west. Through the LTS analysis tool, five locations have been identified as primary east/west connection points, These connection points were shown through the analysis to be most beneficial in connecting key origins/destination as well as providing the safest possible routes, usually along level 1 or level 2 LTS routes

All projects shown on this map can be explored in more detail by viewing interactive maps that can be found on the 202 project website.

TRANSPORTATION RECOMMENDATIONS FOR THE CORRIDOR

WALKING & BIKING

The recommendations in the Master Plan Final Report seek to create more walkable environments between commercial areas on Concord Pike as well as connecting to and within the surrounding neighborhoods. Additional roadway connections with sidewalks and shared use paths will enable walking and bicycling for transportation and recreation. At signalized intersections, creating pedestrian-friendly access and installing high-visibility crosswalks will improve crossings and slow turning vehicles. Adjustments at intersections, such as leading pedestrian intervals and right-turn on red restrictions, will also improve the safety and visibility of people crossing Concord Pike on foot.

For those biking, additional roadway connections and comfortable bicycle facilities will improve connectivity, comfort, and safety. The proposed bicycle facilities in the study area include bike lanes, shared use paths, and bicycle boulevards to encourage bicycle activity and commuting by bike. DelDOT has conducted a statewide bicycle Level of Traffic Stress (LTS) Analysis to visualize gaps within Delaware's non-motorized transportation network. Although the major intersections along Concord Pike are signalized, they still create barriers due to their size and lack of dedicated bicycle infrastructure.

POTENTIAL IMPROVEMENTS

Several projects have been identified to address bike/pedestrian improvements in the study area. The complete list can be found in Appendix A. Overall, there are several key objectives that these improvements are seeking to accomplish in addition to other concepts to explore for future consideration. One potential location for future consideration is Indepencence Mall.

New Shared-Use Paths Along Side Streets and within Neighborhoods, with Wayfinding Signage Improvements

Shared use paths are a highly visible amenity that encourages walking and biking for all ages and all members of the community. Bicycle wayfinding signs provide basic information about destinations, directionality, and distances, to help bicyclists plan their routes and navigate the bike network with confidence.

Shared Use Path Benefits and Applications

- Intended for shared use by a variety of groups, including pedestrians, bicyclists, scooters, and joggers
- Physically separate users from motor vehicles
- Shared use paths may be used adjacent to roadways where bicycle travel is desirable, but roadway traffic and speeds are unsafe for cyclists
- Shared use paths may be used independent from the roadway network in greenways, along waterways, and to improve the connectivity of on-street bicycle facilities

Wayfinding Signage Improvements

Wayfinding provides travel information through signage and maps. Signage points bicyclists to key routes and destinations.

Benefits and Applications:

- Provide information such as routes and distances to different destinations including parks, neighborhoods, business districts, schools, shared-use paths and transit stations
- Confirm that bicyclists are on a designated route
- Increase awareness of bicyclists to motorists
- Familiarizes users with the bicycle network
- Increases comfort for infrequent bicyclists
- Along roadways that are part of the bicycle network
- Along roadways comfortable for bicycle travel
- Important at turns and junctions where bicyclists must make wayfinding decisions

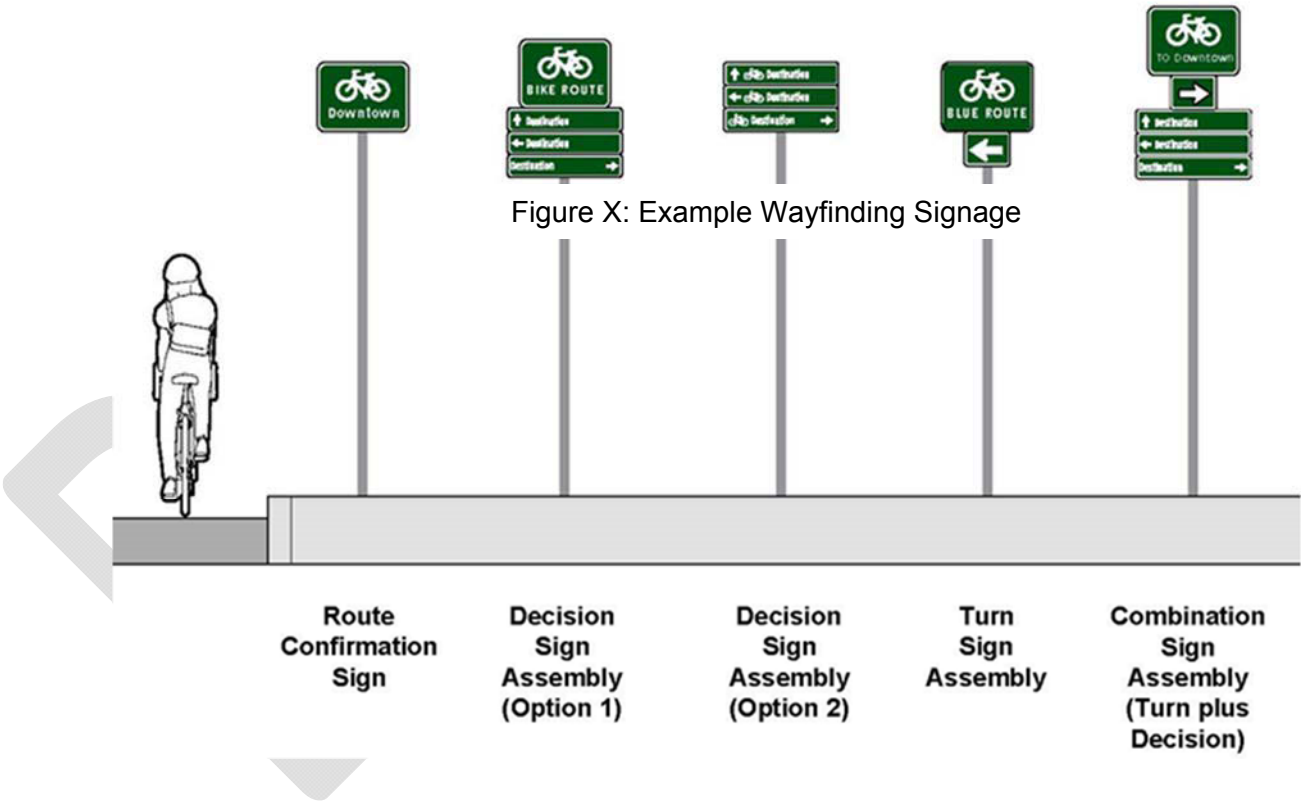


Figure X: Example Wayfinding Signage

Opportunities to Connect to Existing Path and Park Trail System
The State of Delaware and New Castle County have several existing trails within their respective parks. Creating connectivity and including wayfinding signage will provide clear directions and allows for safer traveling between destinations. Connecting neighborhoods to these parks through an expanded network will allow residents to enjoy these open spaces without having to travel to them by car.

Explore the Feasibility of Bike/Ped Overpass or Underpass
While costly, opportunities exist along the corridor to explore this concept. An over/underpass can help achieve the vision of enhancing safer east/west movement across Concord Pike.

Bike/Ped Underpass

Continue Coordination with DelDOT on LTS analysis
As in many other places, the low-stress network around Concord Pike is highly disconnected, with many "islands" of low-stress streets separated from one another by high-stress roadways and intersections that most people are unwilling to navigate by bicycle. Ongoing dialog with DelDOT as part of the proposed corridor monitoring committee can help with local participation in closing gaps in the system.

Incorporate Bicycle Parking into Development
With the recommended improvements made to the bicycle network over the next several years, it is likely that we will see an increase in demand for bicycle parking along the corridor.

Bicycle Parking

- On-street or on-sidewalk facilities that allow bicyclists to store their vehicle safely while accessing nearby destinations
- Provide quick access to destinations in a convenient and secure way
- Reduces the occurrence of bicycles being locked to trees, signposts, and street furniture

Pedestrian Improvements at intersections
All major intersections along Concord Pike are signalized. Due to their size, they create a barrier to safe east/west movement across Concord Pike. Several possible concepts are described in the Intersection Toolkit which may be applicable to intersections along the corridor. See the traffic improvements section for details on these recommendations.

TRANSIT

Continued transit service on Concord Pike is essential to realizing the vision of a vibrant, accessible, and multi-modal corridor. Future changes to both bus operations and bus-related infrastructure will improve the convenience and quality of public transportation. Proposed pedestrian improvements, including better east-west pedestrian connections, will improve access to stops. Signal improvements could also address bus delay at intersections. Beyond the corridor itself, exploring options for regional transit to connect commuters to jobs in Wilmington could help reduce traffic congestion.

PLANNED AND POTENTIAL IMPROVEMENTS

All transit trips begin and end with walking. Bus stops need appropriate pedestrian infrastructure to facilitate access from the bus stop to the final destination and to the other side of the street for return trips. Public workshop participants expressed a desire for well-marked and easy to access bus stops. Participants were interested in improving the experience of waiting at the stops and would like more amenities such as bus shelters, benches, and bus schedule information. DART uses ridership numbers to determine where amenities are added: benches and trash cans are possible at stops with greater than 20 onboarding passengers, and shelters are possible at stops with greater than 40 onboarding passengers. Future ridership numbers will influence the quality of bus stops. As redevelopment occurs, public-private partnerships to provide these amenities should be explored. Local businesses and neighborhood associations can help by participating in the “Adopt-A-Shelter” program.

Access to bus stops can be improved by installing wider sidewalk connections, marked crosswalks, and pedestrian signals at intersections. Any improvements must accommodate transit users of all abilities and ensure ADA accessibility. Improving access to and visibility of transit stops may increase transit ridership by increasing safety, convenience, and comfort.

Operationally, there are two short term improvements along the corridor:

- Route 2: Increase from 60-minute bus frequencies to 30-minute frequencies from 6:50pm to 9:50pm (or later). Additionally, extend service span to later in evening to accommodate workers with later shift times
- Merging Routes 48 and 35: Keep existing Bus Route 35 north of Powder Mill Road, then follow the alignment of Bus Route 48 south through A.I. Dupont Hospital, with new stops outside of Avenue North

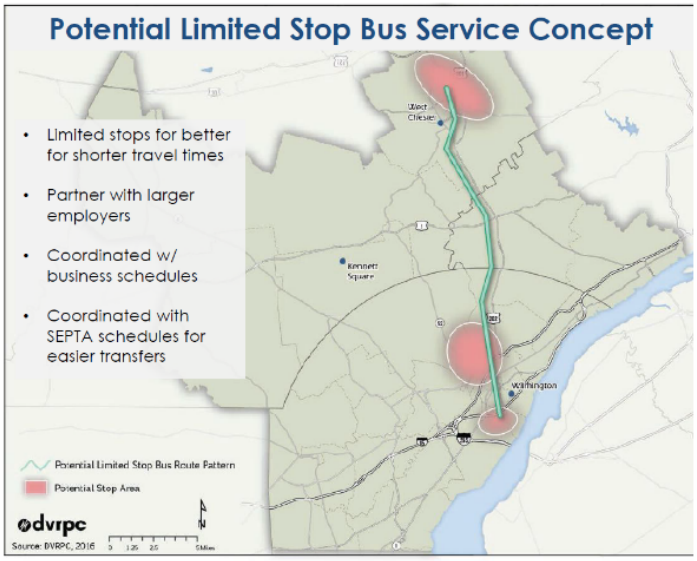
LONGER TERM CONCEPTS TO EXPLORE

In 2017, the Delaware Valley Regional Planning Commission (DVRPC) revisited the possibility of re-establishing service between Pennsylvania and Delaware. Since traditional fixed-route service has proven unsuccessful in the past for various reasons, the project team researched alternative transit options. The study identified two primary transportation alternatives which are the most feasible, though challenging, to implement in the study area.

Alternative #1: Potential Limited Stop Bus Service Concept

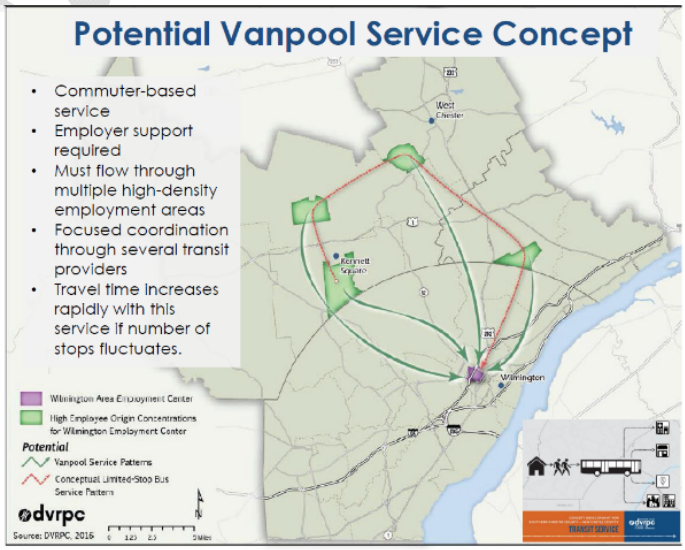
Limited stop bus service is a modified version of traditional fixed route local bus service. Limited service minimizes the number of stops, which shortens travel time for passengers and creates a rapid regional service instead of a slower local service. However, fewer stops come at the expense of local access, meaning users may need to use another mode to access the limited stop route. Characteristics of a successful, limited stop service are:

- A schedule with service at logical times, such as at 15-, 30-, and 60-minute frequency intervals, based on prevailing commute patterns
- A service area between 4 to 10 square miles
- Activity nodes, such as a transportation center or shopping center, at the end of the line
- A limited number of stops for shorter travel times



Alternative #2: Vanpool Service Concepts

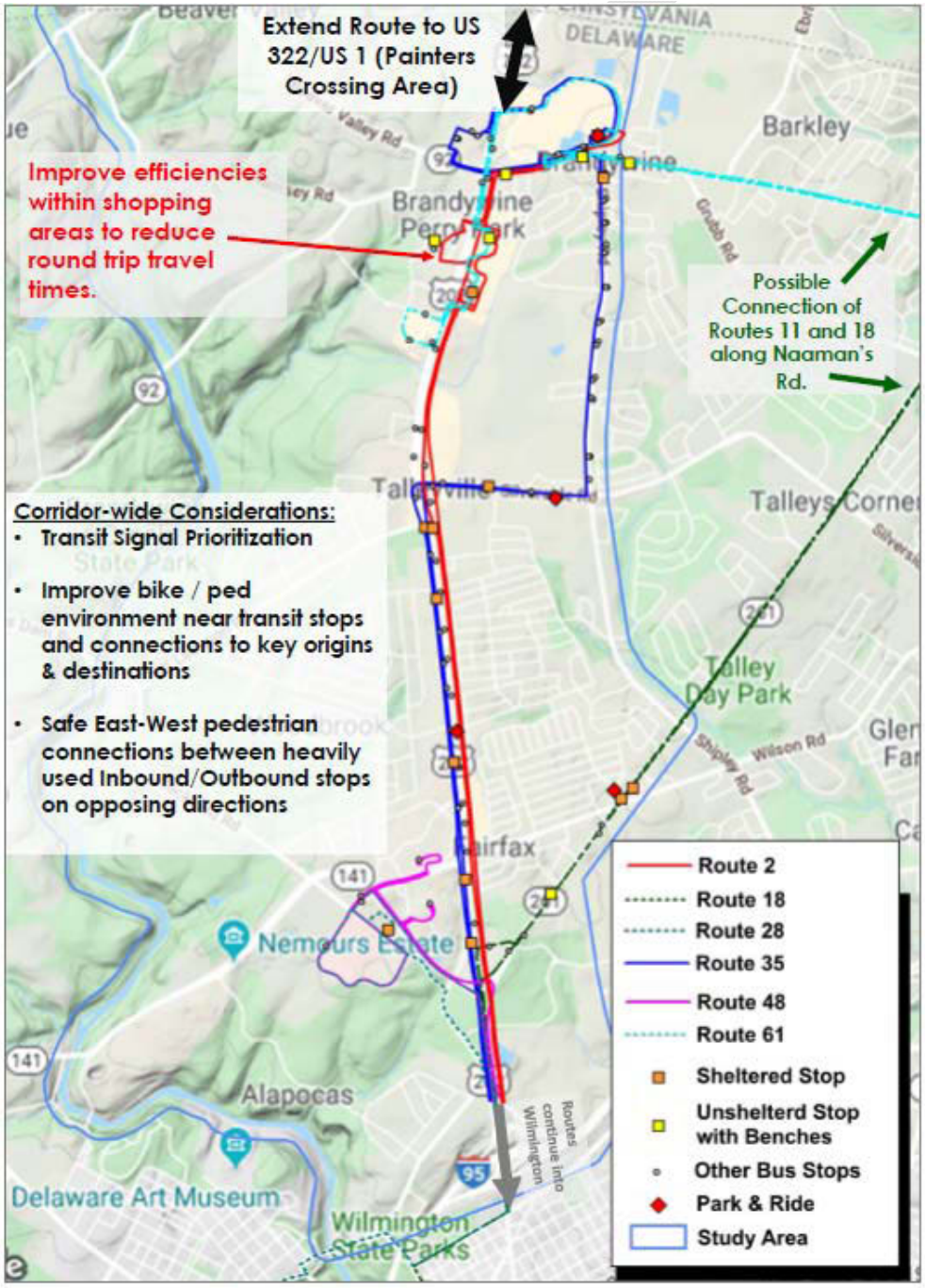
Vanpools are often used to fill gaps in transit services by coordinating travel between groups of people with similar origins, destinations, and schedules. This commuter-oriented service works best when it passes through multiple high-density employment areas and receives financial and programmatic support from employers. Vanpools should be designed with a limited number of stops, as each stop increases travel time for commuters.



ADDITIONAL DTC TRANSIT INITIATIVES

DTC is exploring a series of possible concepts for the Concord Pike corridor in the future. Twice per year, DTC reviews and adjusts their bus routes and schedules, commonly called a “Service Change”, in which changes can be made to the transit network. These service change proposals are announced in advance and hearings are provided for persons wishing for a dialog with DTC regarding any changes. The concepts shown on the map below are potential changes for future DART Service Changes. Adjusting the timing on traffic signals on Concord Pike can reduce bus travel times and improve transit reliability. Transit signal prioritization uses timing technology to reduce transit vehicle dwell times at traffic signals, for example, holding green lights longer so rather than arriving at the beginning of a red phase, the green phase is extended so buses can clear an intersection, among other TSP timing strategies.

Figure 19: DTC Future Transit Initiatives



STREET NETWORK

Regardless of land use changes and redevelopment immediately along the corridor, regional growth is anticipated to result in increased traffic volumes along Concord Pike. To lessen the negative impacts from growth on traffic conditions along the corridor, this report includes recommendations for the major intersections along the corridor, reconfiguring sections of the corridor with a multiway concept, adding pedestrian and bicycle facilities both parallel to and across Concord Pike, and introducing small-scale street grids in the form of additional street network connections as part of redevelopment along the corridor. The additional street network connections are meant to disperse motorists' trips by providing a different route through the network, potentially avoiding the more congested intersections and movements. Street network connections also have benefits beyond those for motorists. They allow for smaller, more efficient intersections, with a smaller footprint that are more walkable and encourage motorists to drive more slowly. The additional network encourages walking between buildings on mixed use sites rather than people getting into their cars for short trips from their neighborhoods or between retail areas and restaurants.

- Develop more connected street network in conjunction with land use changes
- Create conditions and programs to improve transportation options
- Meet corridor needs for local and regional transportation connections
- Preliminary assessment of traffic patterns, intersections, and land use redevelopment options
- Evaluate existing traffic conditions to target improvements
- Develop new street network on redeveloped properties

Explore Opportunities in Development of Multiways at various locations along the corridor

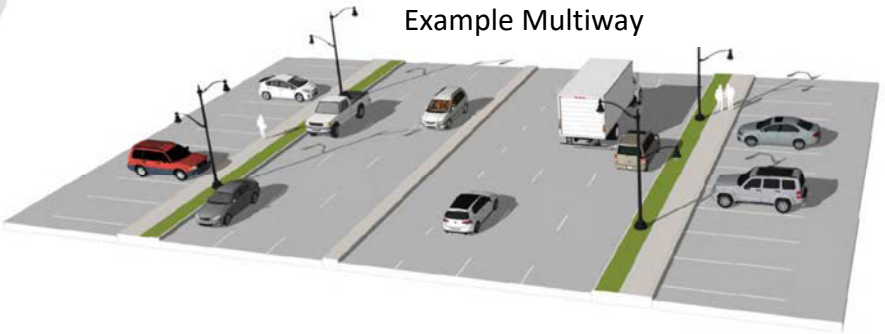
Multiways can be used to separate through traffic from local traffic, improve shared access, and connect retail destinations. Landscaping, parking, and sidewalks often separate multiways from the main roadway. These elements help to calm traffic and create a neighborhood feel on the outside edge of the multiway. Multiways are used in both commercial and residential areas and offer a variety of parking configurations. Four areas along the corridor have been delineated as possible locations for implementing a multiway.

Benefits of a multiway include

- Delineate local traffic and through traffic by way of access management
- Improve access to local businesses
- Provide less intimidating pedestrian environments
- Create more social settings

Full multiway configurations can be found in Appendix C.

Example Multiway



RECOMMENDATION: REGULAR TRAFFIC SIGNAL COORDINATION/OPTIMIZATION

Traffic signal optimization is the coordination of the timing of a series of traffic lights. Signal optimization improves traffic flow by minimizing stops and delays, which in turn improves safety; reduces bottlenecks, fuel consumption and emissions; and improves air quality and driver satisfaction. The Concord Pike corridor should be periodically reviewed as planned development begins to occur. Close coordination with the DelDOT's Traffic Management Center (TMC) is required to review travel time data and any trends that may occur over time.

INTERSECTION IMPROVEMENTS

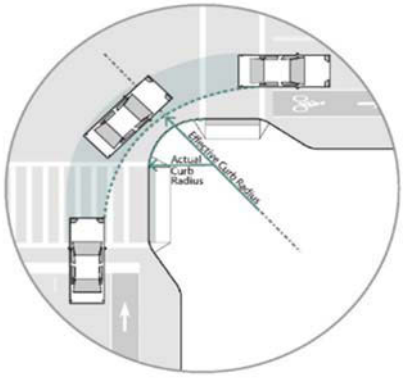
Making improvements at the intersection level can prove to be a challenge when trying to strike a balance between moving vehicular traffic and providing safe and easy access for other modes of transportation. As a result, there is not a "one size fits all" solution and these can vary by location depending on factors such as roadway geometry, current and future traffic movement and land uses surrounding the immediate area. Preliminary alternative intersection concepts at Silverside/Garden of Eden Rds. were determined to need additional technical analysis to be completed as an individual project outside the scope of the master plan.

Threrefore this plan includes a Toolkit of potential treatments that can be applied in an effort to achieve the desired multi-modal vision along the corridor. See Appendix D for the complete list of treatments. The following treatments are examples of things that could be implemented at intersections to improve access for pedestrians. All treatments will be reviewed by DelDOT on a case-by-case basis or suggested through individual land use plans. It is worth noting that not all of the items in the toolkit are currently consistent with national or Delaware policies or manuals. Therefore, some suggestions may need to be further researched or piloted prior to implementation being considered.

Tighter Corner Radii

A wide curb radius allows motorists to turn right at high speeds and increases risk of collisions with pedestrians. Truck aprons, and other measures that reduce the corner radius, force motorists to slow down to take the sharper turn.

Benefits and Applications



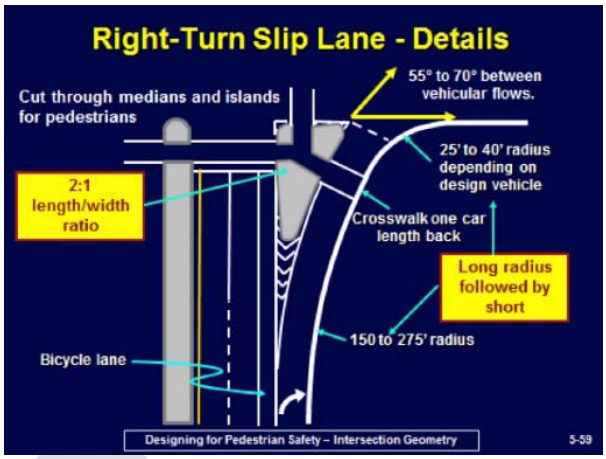
- Decrease the effective radius available for motor vehicle turn movements by forcing sharper turns.
- Reduce vehicle turning speeds.
- Reduce crossing distance for pedestrians.
- Provide flexibility for curb ramp placement.
- Most intersections, especially with fast turning movements or common turning conflicts.
- Do not use on intersections with high truck or bus volumes.

Truck Aprons

- A small curb radius has adverse safety effects if the rear wheel of a truck travels over pedestrian queueing areas. Mountable truck aprons are a solution that can reduce turning speeds for passenger vehicles while accommodating larger vehicles that require the larger corner radii.
- Mountable truck aprons are raised 2 – 3 inches above the street. The surface should be visually different from the adjacent travel way and pedestrian areas.

Pedestrian-Friendly Slip lanes

Well-designed slip lanes slow down motor vehicles and reduce pedestrian exposure compared to standard designs. The island is large enough to accommodate pedestrians waiting to cross.



Benefits and Applications

- Encourage drivers turning right to yield to pedestrians crossing and to traffic on the cross street
- Optimize sightlines to the crosswalk for motorists turning right
- Reduce the complexity of intersection
- Reduce the crossing distance for pedestrians
- Reduce motor vehicle speeds and thus conflict severity
- Locations with existing higher speed channelized right turns

Median Refuge Islands

Marked crosswalks are used to raise driver awareness of people crossing the street, while directing pedestrians to the best place to cross the street. High visibility crosswalks are marked in a way that increases motorist visibility of the crosswalk.

Benefits and Applications

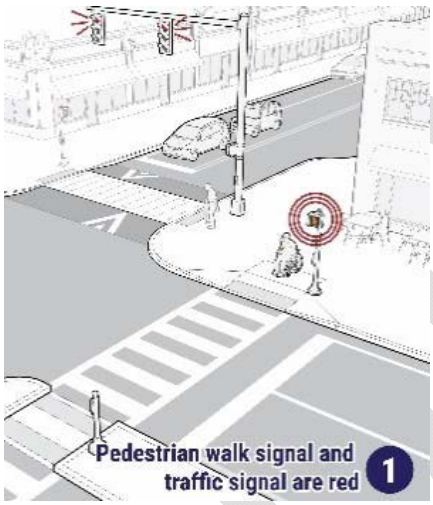
- The continental striping pattern is more visible to drivers than narrow parallel lines
- Help guide pedestrians to locations where they should cross the street
- Increase motorist awareness of crosswalk location
- All controlled crossings and relevant uncontrolled crossings
- All legs of intersections

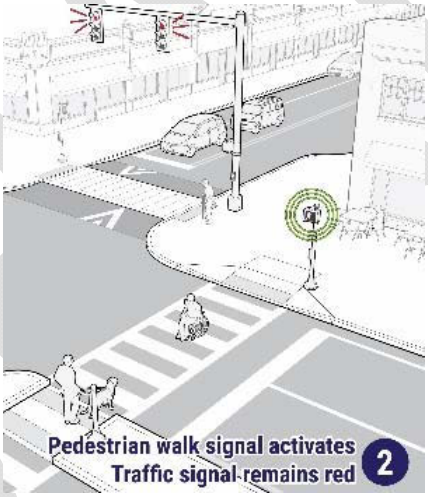
Leading Pedestrian Intervals

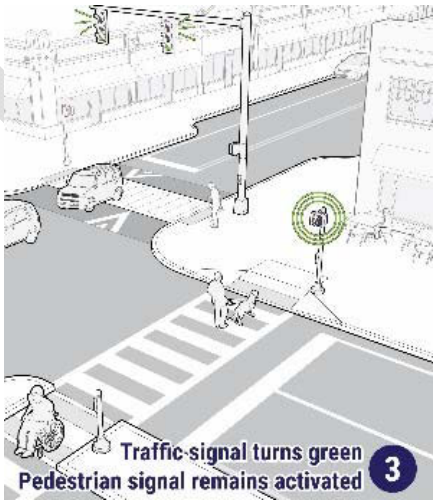
Leading Pedestrian Intervals (LPI) starts the pedestrian WALK signal three to seven seconds before motorists traveling in the same direction are given the green indication. This allows pedestrians to enter the intersection prior to turning motorists, increasing visibility between all modes.

Benefits and Applications

- Give pedestrians an opportunity to establish themselves in the intersection before the green phase
- Prioritize pedestrian safety and convenience at intersections
- Increase visibility of crossing pedestrians
- Reduce conflicts between pedestrians and motorists
- Increase compliance of motorists yielding to pedestrians
- LPIs especially benefit slower pedestrians, including people with disabilities, seniors, and children by providing additional crossing time
- LPIs are most effective at intersections with high volumes of pedestrians and conflicting motorist turning movements





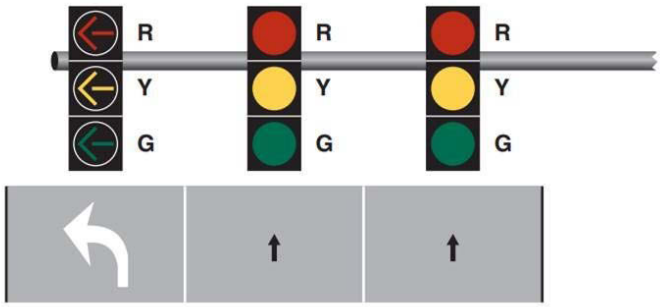


Signal Phasing and Timing Strategies

Traffic signals are used to convey the right-of-way to intersection users to provide for the orderly and efficient movement of traffic. Signal phasing and timing strategies can be used to reduce the potential for crash-producing conflicts between motorists, pedestrians, and bicyclists and provide improved safety for pedestrians.

Benefits and Applications

- Coordinated signal timing set for a desirable progression speed can dictate the speed of motor vehicles along a corridor.
- Shorter cycle lengths in the off-peak can reduce delay for all users and may decrease instances of pedestrians crossing against the signal.
- Pedestrian recall and Rest in Walk for the coordinated pedestrian phases yield longer pedestrian walk intervals and may decrease instances of pedestrians crossing against the signal.
- Protected-only left turns (i.e. green arrow only) reduce potential conflicts between left turning drivers, who are usually focused on gaps in on-coming traffic, and pedestrians crossing with the signal.
- Flashing yellow arrow for right turns may increase driver yielding to crossing pedestrians.
- Signal timing can be adjusted at all signalized intersections, with a priority for locations with medium to high pedestrian volumes.
- Signal timing adjustments are most effective on long corridors with:
    - Infrequent crossing opportunities,
    - Short pedestrian phasesr
    - High pedestrian or bicyclist volumes.

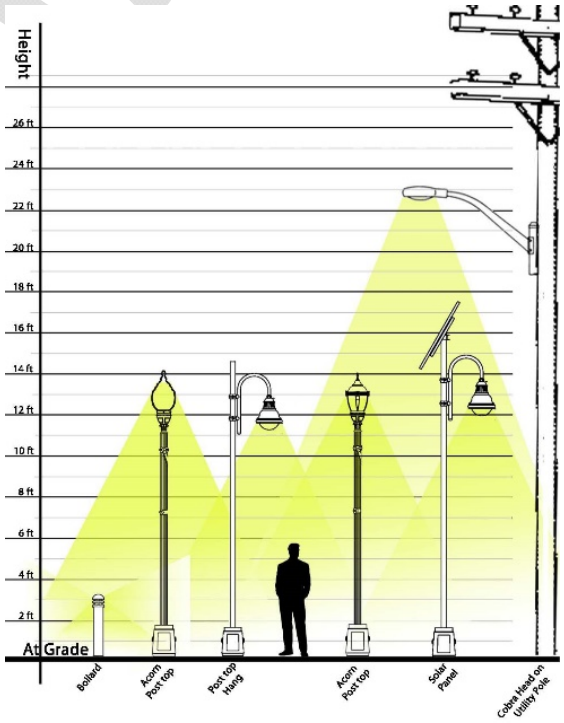


Pedestrian Lighting – Local/Side Streets

Lighting is an essential element in street design on side / local streets. It is used to increase the visibility and safety of people walking, biking, and driving at night and during dawn/twilight hours. Guidelines for placement, size, and wattage of lighting is a key element of creating pedestrian-friendly streets.

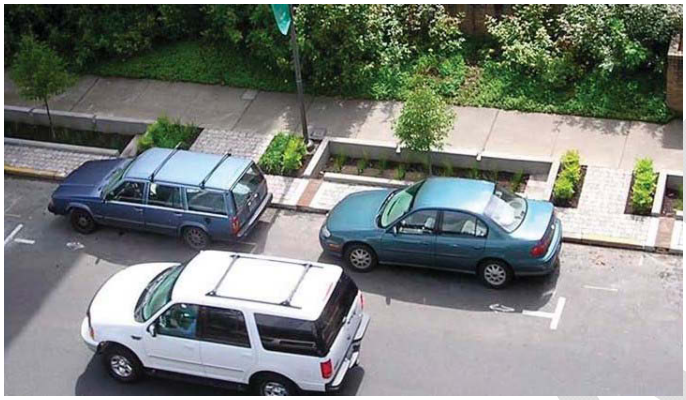
Benefits and Applications:

- When implemented at intersections, increases visibility of pedestrians crossing to people driving
- Highlights certain locations and elements in a neighborhood as focal points or landmarks which provides wayfinding support
- Beneficial at intersections in areas with high volumes of pedestrians, such as commercial or retail areas
- Controlled and uncontrolled intersections
- On crossing approaches
- Along sidewalks
- Near schools, parks, and recreation centers



COMPLETE STREETS

Complete Streets are streets that provide safe and convenient accommodation to all potential users, including pedestrians, cyclists, private vehicle drivers, and transit riders. Complete Streets recognize that crossing the street, walking to shops, and cycling to work are equally important to driving. Complete Streets enable transit to be an efficiently accommodated and recognized mode of transportation. Since streets will play an important role in the livability of the Concord Pike (US 202) community, they must accommodate all users, whether young or old, motorist or cyclist, walker or wheelchair user, bus rider or shopkeeper. A network of Complete Streets, together with necessary physical, design, and visual elements, will enable Concord Pike (US 202) to be safer, more livable, and welcoming to everyone. Sustainable design elements including stormwater management, native planting, sustainable materials, and efficient lighting contribute to the overall comfort, safety, and natural resource benefits that are part of Complete Street design.



Precedent - Street with parallel parking, curb step-off zone, rainwater planters during rain event, and pedestrian zone

Precedent - Commercial streetscape with tree planting zones, sidewalk zones, and building zones

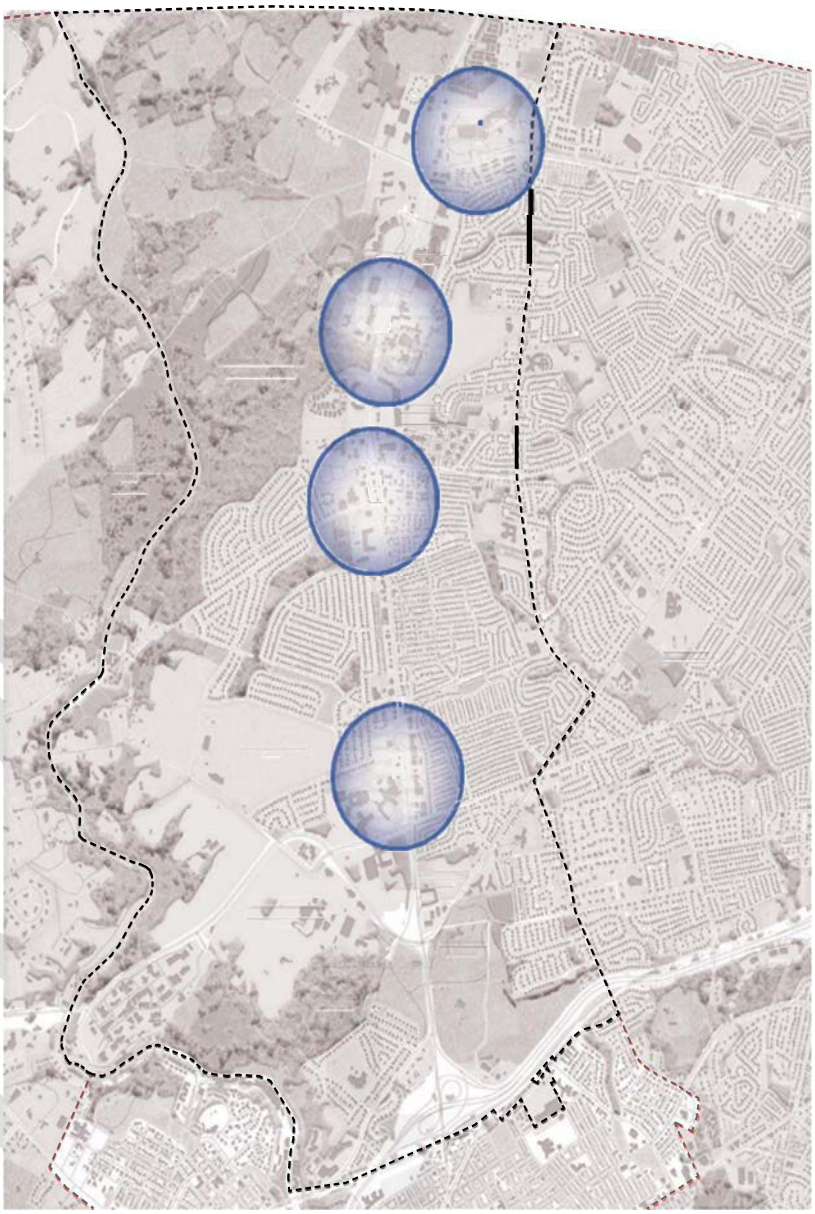
Precedent - Commercial streetscape with tree planting zones, sidewalk zones, and building zones

Precedent - Street with parallel parking, curb step-off zone, rainwater planters during rain event, and pedestrian zone

GUIDING PRINCIPLES – LAND USE

Guiding Principles establish appropriate criteria to influence future development. These principles incorporate strategies for creating a thriving, cohesive community that better serves its residents and visitors. The Guiding Principles for Concord Pike (US 202) include:

1. Identifiable Centers: Focus Areas
2. Identity and Gateways
3. Responsible Infill Redevelopment
4. Mix of Uses
5. Recreational Amenities



The Guiding Principles identify overarching, best practices for achieving a more successful and sustainably built environment. These principles have been targeted as essential strategies for improving Concord Pike (US 202). They should be used to guide zoning modifications, streetscape and transportation improvements, new development, and redevelopment throughout the area. The Guiding Principles encompass the entire study area and aim to keep the larger scale of the community and its surrounding context in mind. They help to create an interconnected and coordinated approach for the recommendations and inform the design of future development and redevelopment in the Focus Areas.

The Recommendations will be implemented through specific studies or improvement projects within the study area. These recommendations are based on the analyses that were completed as part of this master plan and from the comments collected throughout the extensive public outreach process that has been an important part of the plan. A zoning analysis was conducted by the consultant team to develop recommendations for potential zoning changes and overlay districts. The community expressed serious concerns with the prospect of continued development on the Concord Pike Corridor. Our project team has chosen not to include any of the alternatives developed for the Focus Areas in the master plan recommendations. Those alternatives have been included in Appendix C for reference and as examples of potential redevelopment designs.

1. Identifiable Centers: Focus Areas

The Focus Areas consist of several portions of the study area that are most likely to be considered for investment and infill redevelopment based on the location, age of existing structures, current use, and surrounding development. Concord Pike is a busy commercial area surrounded by established residential neighborhoods. For each area, detailed development alternatives were created to show the full range of possibilities to support the vision for a more vibrant, cohesive community. Applying community-enhancing amenities within these areas would help create recongnizable centers of activity with a sense of "place".

The Four Focus Areas include:

- Fairfax
- Talleyville
- Widener
- Brandywine Town Center

In the past few years several large redevelopment projects have occurred along the corridor: Avenue North at the former AstraZeneca site (in development); the redevelopment of Concord Plaza to mixed use (first phase completed); and the proposal to redevelop the Brandywine Country Club (in process). These projects have capitalized on opportunities to add residential and commercial uses to an already popular and thriving corridor. Concord Plaza created a mixed-use development on the site of a former office complex. Avenue North proposes to create another mixed-use area along Concord Pike, a corridor with many uses in a close area, but without true mixed-use properties.

As our team moved through the public outreach process, we heard many residents express serious concern about new development in this very crowded, congested corridor. However, we also heard that aging, vacant, and underutilized commercial areas along the corridor may be better options for redevelopment than the few remaining areas of open space. During our Community Visioning workshop, we asked residents to discuss their thoughts and feelings about Concord Pike. We then showed images of other areas and had residents vote on design guidelines that could be implemented as part of redevelopment on Concord Pike. Later, we received comments on surveys concerned about commercial areas with vacant storefronts and aging buildings that could be redeveloped to improve the "curb-appeal" along the corridor.

Residents also expressed fear that large-scale development and high-density redevelopment projects would bring even more congestion to the corridor. Our team used these comments to develop land use scenarios for the transportation analysis that consider the effect mixed-use development could have on new traffic compared to traditional single-use zoning. Our team also carefully considered which areas of the corridor were most likely to be redeveloped and focused on these areas to show how implementation of mixed-use zoning practices could protect the existing community when redevelopment or new development occurred. These alternatives were not included as part of the recommendations; however, the details were retained in Appendix E for use as blueprints if redevelopment occurs.

DISCLAIMER: The Focus Area Plans are meant to provide conceptual ideas for the development of properties, in order to set forth a general vision only. They are not intended to depict any particular planned or proposed development. Every development plan must follow standard design reviews by the County and meet the applicable requirements, including but not limited to parking, stormwater management, open space, and/or forest conservation requirements.

2. Identity and Gateways

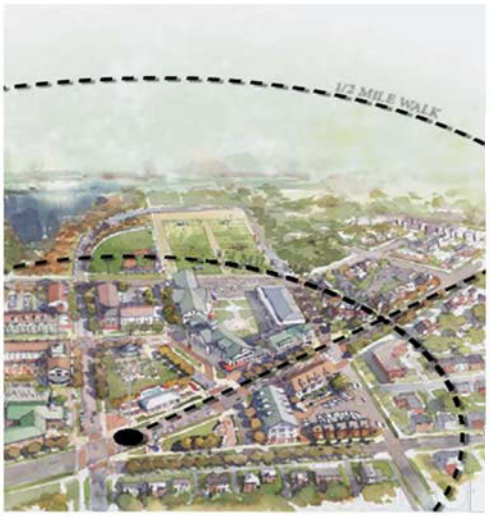
- Located at key perimeter locations to announce primary entry points
- Establish an authentic identity and welcome visitors, building on Concord Pike (US 202)'s history and culture
- Can be organized as a series of elements with a hierarchy of scales to address vehicular, bicycle, and pedestrian arrivals
- Gateway treatments may include:
  - Planting
  - Directional signage/wayfinding
  - Welcome signs
  - Art
  - Plazas
  - Unique lighting fixtures

3. Responsible Infill Redevelopment

- Encourage redevelopment of underutilized properties and surface parking areas that are adjacent to Concord Pike (US 202)
- Encourage plans that creates strong building frontage along Concord Pike (US 202)
- Screen parking from primary streets and public spaces
- Locate building entrances along primary streets and provide easy access and wayfinding for all users

4. Mix of Uses

- Provides for a wide-range of uses and amenities that benefit and attract the broader community
- Encourages more compact, high-quality development within walking distance to homes, workplaces, services, and other destinations
- Promotes walkability and bicycling
- Promotes accessibility and allows for aging in place
- Potentially, concentrate active uses adjacent to major employers along Concord Pike (US 202)



1/2-Mile Walking Radius = 10-Minute Walk

1/4-Mile Walking Radius = 5-Minute Walk

5. Recreational Amenities

- Spectrum of passive and active open spaces attracts a broad base of users
- Provides for a wide-range of amenities that benefit and attract the broader community
- Promotes walking and bicycling
- Promotes accessibility and allows for aging in place
- Promotes family-friendly outdoor activities
- Potentially, require new development to respect and integrate with trails

Recommendations-Land Use

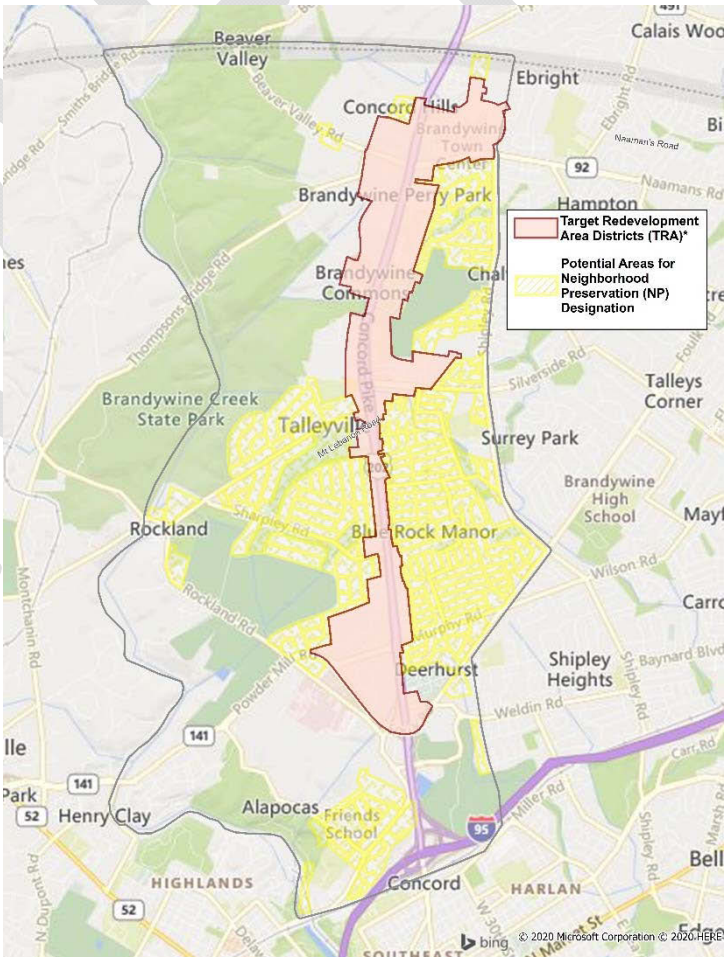
Today, Concord Pike (US 202) is primarily designed for vehicles and does not currently promote a safe and accessible environment for pedestrians, bicyclists, or transit riders. Although residential neighborhoods immediately abut much of the commercial uses, transitions between the uses are abrupt, sometimes non-existent, and connectivity is fragmented. While Concord Pike (US 202) will always be a vital connection for vehicles, the corridor has the potential to transform to better accommodate vehicular travel while also serving as an attractive, multi-modal main street that supports the broader economic, transportation, and land use development objectives for the area. To address existing development patterns and guide appropriate future development, revisions to the study area's zoning based on New Castle County's Unified Development Code are recommended and outlined below.

PROPOSED ZONING

Following the analysis of the existing zoning conditions and an assessment of the allowable uses and bulk standards associated with the New Castle County Unified Development Code, the design team identified high-level zoning recommendations for the Concord Pike (US 202) Corridor. The recommendations are categorized into three major strategies, identified below, and located on the adjoining map:

Zoning Recommendation 1: Develop Land Use Policy That Encourages Context Sensitive Commercial Redevelopment in the Identified Redevelopment Areas (TRA)

The Concord Pike (US 202) Corridor Master Plan has identified design elements that, if implemented, would: establish a mix of vertical and horizontal land uses; promote active storefronts with commercial and amenity uses at the street level; accommodate pedestrian-friendly multi-modal streets; encourage upper-story residential and office uses; and provide guidance in parking lot design and location. These reflect existing elements in the Unified Development Code (UDC), Appendix 7 – Guiding Principles for Development. New Castle County should revise the redevelopment provisions of the UDC so as to encourage redevelopment consistent with the principles of The Concord Pike (US 202) Corridor Master Plan and the Guiding Principles for Development.

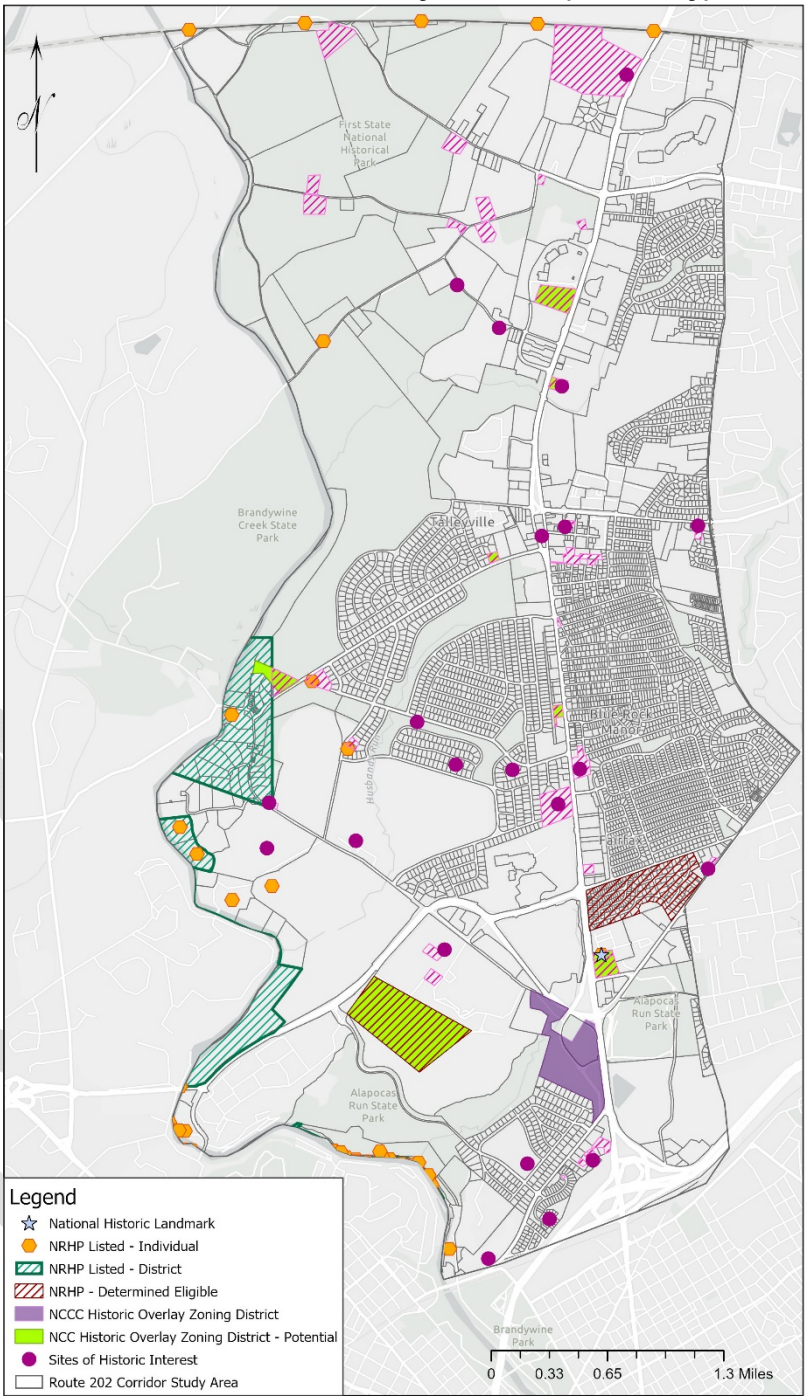


Zoning Recommendation 2: Encourage Neighborhood Preservation through Land Use Policy

The Concord Pike (US 202) Corridor Master Plan has identified a number of neighborhoods adjacent to the commercial corridor. These have residential Future Land Use designations and are zoned Neighborhood Conservation, which applies to neighborhoods or planned areas whose character was established prior to the adoption of the UDC. New Castle County Code calls for these areas to be protected or conserved. The County should continue land use policy that further encourages conservation and preservation of these neighborhoods' character. Should neighborhoods seek to further integrate adjacent non-residential development within the fabric of their community the UDC empowers the community to pursue a Neighborhood reservation Overlay District that provides, where appropriate, residents with further opportunity to guide such development.

Zoning Recommendation 3: Identify Potential Parcels for Historic Overlay Districts (H-Overlay)

Historic structures are an important component to a community's fabric. New Castle County is a Certified Local government and administers the Department of the Interrior's grant program. The program has enabled the County to prepare 7 National Register Nominations over the last 2 years. While the National Register of Historic Places is an important preservation tool it provides no inherent protection to the resources. The Unified Development Code provides historic resource protections including from demolition by neglect through the Historic Overlay Zoning District (H-Overlay). Properties rezoned to have an H-Overlay require approval by the Historic Review Board (HRB) for plans and permits that could impact the resource. The HRB can also deny a plan or permit on such a property that does not adequately preserve the significance of the resource.



Within the Concord Pike (US 202) Corridor Master Plan study boundary there are a number of significant historic resources depicted on the map to the right including:

The map also depicts property within the New Castle County Historic Overlay Zoning District as well as property that has been evaluated as having the potential for Historic Overlay Zoning District. The plan has also identified sites of historic interest that requires further evaluation to determine the integrity and significance of the resource(s).

The New Castle County Land Use Depaerment should work with these property owners to encourage them to pursue a Historic Overlay zoning designation. The County should also continue to evaluate properties for historical significance along the corridor. Additionally, the County should consider providing additional protections for historical resources through the land development process.

PAGE
INTENTIONALLY
LEFT BLANK

4.0 IMPLEMENTATION AND NEXT STEPS

Implementation and Next Steps

The recommendations presented in this plan are at the very beginning of the implementation process. It must be stressed that funding has not yet been set aside to complete these recommendations. In the meantime, WILMAPCO will add the transportation recommendations to the Regional Transportation Plan (RTP) for added leverage and inclusion in the project prioritization process. Community members, stakeholders, and interested organizations are also encouraged to make their support known to elected officials and relevant agencies to help ensure that the recommendations are not forgotten and are properly funded and appropriately implemented.

Some projects may move more quickly than others through various departments throughout DelDOT and DTC. Based on the overall project size, they will be handled differently. Typically, the size and complexity of a project dictates where it falls in the development process. Larger, long-term projects are added to the WILMAPCO Regional Transportation Plan (RTP). For moderate-sized projects, a project page for the plan will be added to the DelDOT CTP and WILMAPCO TIP. Smaller projects may be included as part of regular DOT/DTC and TMC budgets. TIS/TID recommendations include improvements as part of development plans through the TIS process or as specified in a specified Transportation Improvement District (TID), if designated.

Transit related projects

Twice a year, DTC holds Community Conversations regarding proposed changes to transit routes, including bus stop locations, frequency of trips, and changes to the paths of bus routes. During these Conversations, the public has an opportunity to view proposed schedule changes, interact with staff, and listen to the reasons for proposed changes before the Service Change is implemented. Community members, stakeholders, and interested organizations can use these bi-annual opportunities to get updates on the status of the short-term recommendations as well as continue the discussion on the future concepts presented in this plan.

Non-Motorized Projects

Within the recently completed New Castle County Bike Plan, further steps have been identified to begin to move these recommendations forward. Taking concepts from the broad view within the New Castle County Bike Plan to the implementation of individual projects will require additional planning, public outreach, engineering, and refinement of details. This public process will allow new input and ideas to emerge for these projects, as well as coordination through other planning initiatives, road projects, parks projects, and development activities.

Projects can be completed through multiple funding programs available through DelDOT and the USDOT. Primary ways to get projects built include:

- Low hanging fruit: Small, low cost projects can be done quickly using in-house resources or existing contracts
- Land use development: New and redevelopment land use applications should be evaluated for opportunities to expand the bicycle, pedestrian, and vehicular network.
- Restriping: Routine roadway restriping provides an opportunity to reallocate space for a lower-stress bicycle route. This might include narrowing motor vehicle travel or parking lanes or buffering wide bike lanes. When possible, preserving old markings, may significantly decrease the project cost and may reduce damage to the pavement.
- Paving and rehabilitation: Resurfaced pavement is a blank slate for placing lane markings. Routine street maintenance provides an opportunity to upgrade bike facilities at a lower cost than a stand-alone project.
- Capital projects: Stand-alone projects may be completed through addition to the WILMAPCO Transportation Improvement Program (TIP) and DelDOT Capital Transportation Program (CTP).

Other small project programs include:

- Transportation Alternatives Program (TAP)
- Bicycle and Pedestrian Improvements Program
- Community Transportation Fund (CTF)

Plan Recommendations

A wide range of recommendations were made throughout the development of the US 202 Corridor Master Plan. These suggestions provide a 30-year guide for redevelopment and transportation investment along the Concord Pike corridor with the hope that additional studies, designations, grants, and projects will emerge along the way. It must be stressed that funding has not yet been set aside to complete these recommendations. However, New Castle County (in the case of zoning recommendations) and DelDOT (in the case of transportation recommendations) are committed to studying the recommendations further, where necessary, and leading the implementation of these ideas in the future. In the meantime, WILMAPCO will add the transportation recommendations to the Regional Transportation Plan for added leverage. Community members, stakeholders, and interested organizations are encouraged to make their support known to elected officials and relevant agencies to help ensure that the recommendations are not forgotten, are properly funded, and appropriately implemented.

The Goals Matrix describes a strategic approach to realizing the long- term vision for the Concord Pike (US 202) Area, as described in this plan document. The Goals Matrix that follows identifies prioritized actions for the corridor.

The implementation strategies listed herein are divided into three categories: short term (1 to 3 years); intermediate (3 to 8 years) and long term (8+ years). Strategies (actions) are shown in the appropriate time frame table with a narrative description and listed with the agency or organization responsible for its implementation.

The plan diagram on the next page locates actions that are site-specific. These actions are color coded to the appropriate time frame (see graphic below). Those actions that apply to or affect the full study area or are non-location specific are not shown on the diagram. See thespreadsheets on the following pages for more detail on all actions.

MAJOR TRANSPORTATION AND LAND USE RECOMMENDATIONS

<3 Years

- Establish ongoing corridor monitoring advisory group. Group will establish regular data collection and monitoring of land use and transportation trends. Use group to report annual planning activities project updates.
- Prioritize non-motorized projects using the LTS analysis tool. Given the large number of recommended projects, a technical effort will be needed to prioritize the most important projects.

<8 Years

- Explore feasibility of extending DTC transit to the US 322 / US 1 area in Pennsylvania
- Perform additional modeling analysis on the feasibility of reconfiguring US 202 & Shipley/Garden of Eden Rd.
- Further explore multiway concepts along the corridor

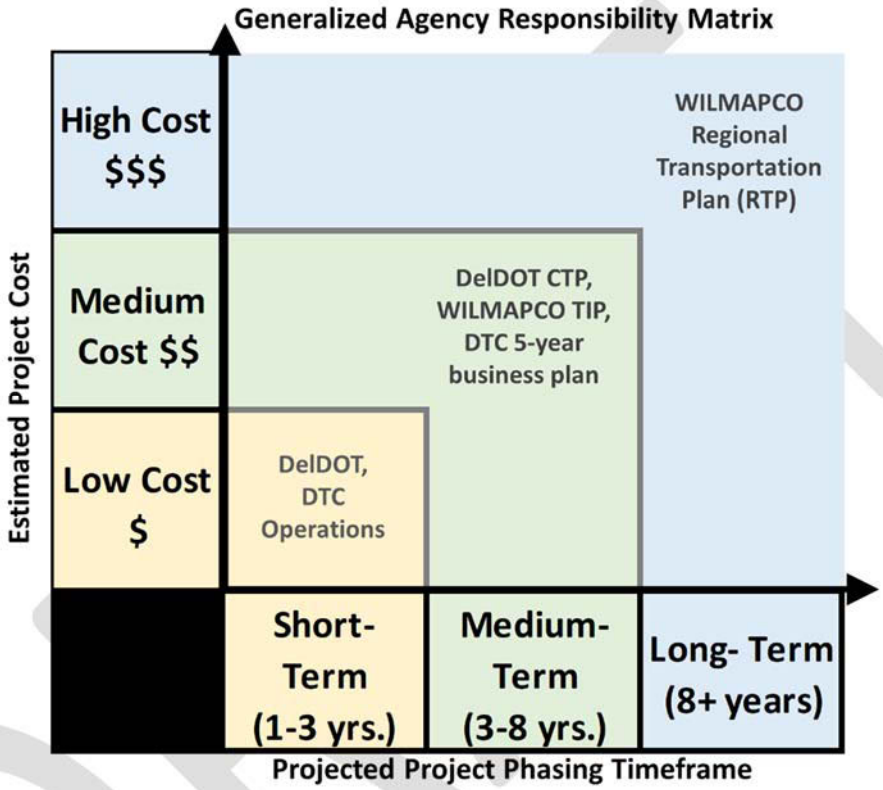
8+ Years

- Examine feasibility and cost analysis of pedestrian overpass/underpass options at key locations along corridor
- Explore longer term transit options along corridor, including intercounty service and vanpool services

Implementation Mechanisms

Projects will be implemented through various agencies throughout DelDOT and DTC. Based on the overall project size, they will be handled differently.

- Larger, long-term projects will be added to WILMAPCO Regional Transportation Plan (RTP).
- For moderate-sized projects, a project page for the plan will be added to the DelDOT CTP and WILMAPCO TIP.
- Smaller projects can be included as part of regular DOT/DTC and TMC budgets.
- TIS/TID recommendations include improvements as part of development plans through the TIS process or as specified in a specified Transportation Improvement District (TID), if designated



Transportation Improvement Districts

While some of the recommendations included in this report will take place on private property and be funded by private developers, the transportation recommendations are located primarily in the public right-of-way and will require other funding sources. One potential option is a creating a Concord Pike Transportation Improvement District. A transportation improvement district (TID) is “a geographic area defined for the purpose of securing required improvements to transportation facilities in the area” (Source: DelDOT). TIDs often cross jurisdictional boundaries and are governed by a board of directors.

TIDs are alternative funding mechanisms for transportation investments. Funding for transportation infrastructure comes from developer contributions based on an established fee structure for the TID. The fee structure is based per unit or per square foot of the development. Land use and transportation scenario modeling also helps determine the percentage of funding that the developer should contribute for a project.

A standard for adequate transportation, as measured by motor vehicle LOS, and required facilities to achieve such a standard, are determined when the TID is formed. The identified list of projects within the TID boundaries are assigned a cost estimate and prioritized by the TID stakeholders.

Benefits

Development places demand on the transportation system. TIDs operate on the premise that the private sector should pay to improve transportation infrastructure related to their project rather than the general public. TIDs ensure that developers provide their "fair share" based on their project's transportation impacts to the surrounding areas.

Financing improvements to the roadway network, bicycle and pedestrian facilities, or transit facilities using traditional revenue sources, such as federal grants and local capital programs, can take a long time. Requiring developers to construct transportation improvements on their parcels usually results in an incomplete network. TIDs streamline implementation and avoid such disconnected projects by banking all the required funding before beginning construction of a project.

TIDs streamline planning, financing, and construction by planning in advance. Rather than pay for a Traffic Impact Study, developers pay the established contributions to fund improvements related to the impacts generated by the development. TIDs help attract development because of this expedited process.

Considerations

The creation of a Concord Pike TID would require a separate public process to determine the boundaries and the applicable projects. In keeping with the other recommendations in this plan, the parameters for a Concord Pike TID should look beyond motor vehicle LOS when identifying the project list. While developers generally find the TID structure appealing because it expedites the development process, the fee schedule must be developed in a fair manner. If the fees are perceived as too high, developers may look elsewhere.

Best Practices (Case Studies)

- Westown in Middletown, DelDOT used a TID to incorporate community planning techniques and coordinate transportation planning in the neighborhood. The TID requires developers to pay a rate per unit or acre. Developers then "provide required rights-of-way, utility relocations, and stormwater management facilities to support the roadway improvements". Collaboration between developers, the Town, and DelDOT allowed the planning process to be streamlined, and Traffic Impact Studies were combined for ease of processing.
- In Ohio, Butler County TID does not have the authority to raise taxes. Instead, the TID has funded sixteen projects that foster economic development with "innovative and alternative funding" sources (BCTID). Butler County illustrates the effectiveness of a TID by accelerating the schedule of the Michael A. Fox Highway, effectively saving $8-10 million dollars. The TID unites multiple voices by involving many levels of government and local stakeholders.
- The KC Main Street Rail Transportation Development District (TDD) in Kansas City uses a combination of a maximum 1% sales tax, a special assessment on real estate, and a special assessment on surface pay parking lots (RideKC Streetcar). All funding sources are within the TDD boundary.
- International Drive Resort Area Transportation District in Orlando, FL was created to address transportation needs within a defined area near the city's convention center, major resorts and supporting hospitality businesses. The projects funded by the district include road widening, transit lanes, a pedestrian bridge at the convention center, and sidewalks and pedestrian safety enhancements throughout the district.

Applicability to Concord Pike (US 202)

During the development of this plan, many discussions about redevelopment along the corridor raised concerns about additional congestion. A TID can help manage growth and ensure funding for accompanying transportation needs. Concord Pike will benefit from thoughtful land use planning that is coordinated with transportation changes for all modes of travel along the corridor.

A TID along Concord Pike, including adjacent residential land, would capture future development along the corridor and put the collected funds toward pedestrian, bicycle, and roadway projects on Concord Pike and nearby active transportation routes. The TID is not meant to encourage development in the residential areas; rather, by including adjacent land to Concord Pike, this land will benefit from extra funds.

C**reating a TID in Delaware**

An agreement is made between DelDOT, the local government, and the MPO if relevant. The agreement establishes the District boundaries, target year, and roles of the parties. The parties must develop a land use and transportation plan or a master plan. TIDs must also identify a funding source or system. Creation of a TID also requires identifying the definition of adequate transportation. TIDs must also amend or update the local government's Comprehensive Plan to include the TID. Throughout this process, the TID must engage with stakeholders and the public. The TID would be established as a Memorandum of Understanding (MOU). In the MOU, the parties must establish:

- The accepted Level of Service.
- The participant boundary.
- The project list and facility boundary.
- The contribution fee schedule.

For bicycle and pedestrian projects, we can also utilize DelDOT's Bicycle Mobility Tool outlined in the *2018 Blueprint for a Bicycle Friendly Delaware*

This tool will help to evaluate proposed pathway and bikeway projects based on which projects provide the best connections from households to parks, employment centers, community centers, schools, and transit.

The process is designed to seek projects that:

1. Connect people to destinations.
2. Provide separation from traffic.
3. Turn a stressful route into a comfortable one.

Additionally, the use of DelDOT's Level of Traffic Stress Analysis (LTS) will be essential in the prioritization of bicycle and pedestrian projects for this corridor.

Corridor Monitoring and Performance Measuring

Finally, we need to include the community in the process of determining which projects have the highest priority for implementation while also ensuring that changing conditions on Concord Pike are considered as projects commence. We recommend that a Corridor Monitoring Committee be assembled to help control the implementation process.

Inspired by the success of other corridor plans, WILMAPCO recommends executing the Concord Pike Master Plan through a regular, ongoing, interactive process that includes the community as a partner. This monitoring process involves working with a committee of local stakeholders to evaluate the results of periodic monitoring of key metrics/trends along the corridor. These metrics include:

- Land development
- Traffic/congestion
- Highway safety
- Transit service
- Project Implementation status
- Effectiveness of completed projects
- Regional factors impacting corridor

The monitoring committee will guide and fulfill the recommendations of the Concord Pike Master Plan, which established a shared vision for the transportation and land use of the corridor. This work will be accomplished through a collaborative dialogue between its membership, which includes implementing agencies, local civic and community leaders, other key stakeholders, and the communities they represent. The benefits of this approach include:

- Providing regular communications between decision makers, community stakeholders and the traveling public on progress in plan implementation
- Providing key technical information to help the community understand the consequences/benefits of investment decisions across transportation assets or modes
- Provide recommendations on local transportation priorities
- Allowing for small mid-course corrections as conditions evolve over time
- Coordinating with agencies outside our region (PennDOT, Concord Township, etc.)
- Helping to facilitate solutions to traffic management problems as they arise, especially for concerns without clear agency responsibility (i.e. McDonald's drive through, the U-turn at the PA/DE line, etc.)

The use of a monitoring committee will allow the community a deeper level of insight into traffic trends on the corridor and the impacts on travel times and safety. It will also provide the monitoring of projects in the funding pipeline to ensure that the master plan recommendations are implemented.

5.0 Appendices

Appendix A: Project Recommendation Matrix

Appendix B: Traffic Analysis Approach and Results Memorandum

Appendix C: Focus Area Illustrations and Multiway/Street Network Concepts

Appendix D: Bicycle, Pedestrian and Intersection Treatment Toolkit

Appendix E: US 202/Concord Pike Market Analysis

Appendix F: US 202/Concord Pike Public Outreach Summary