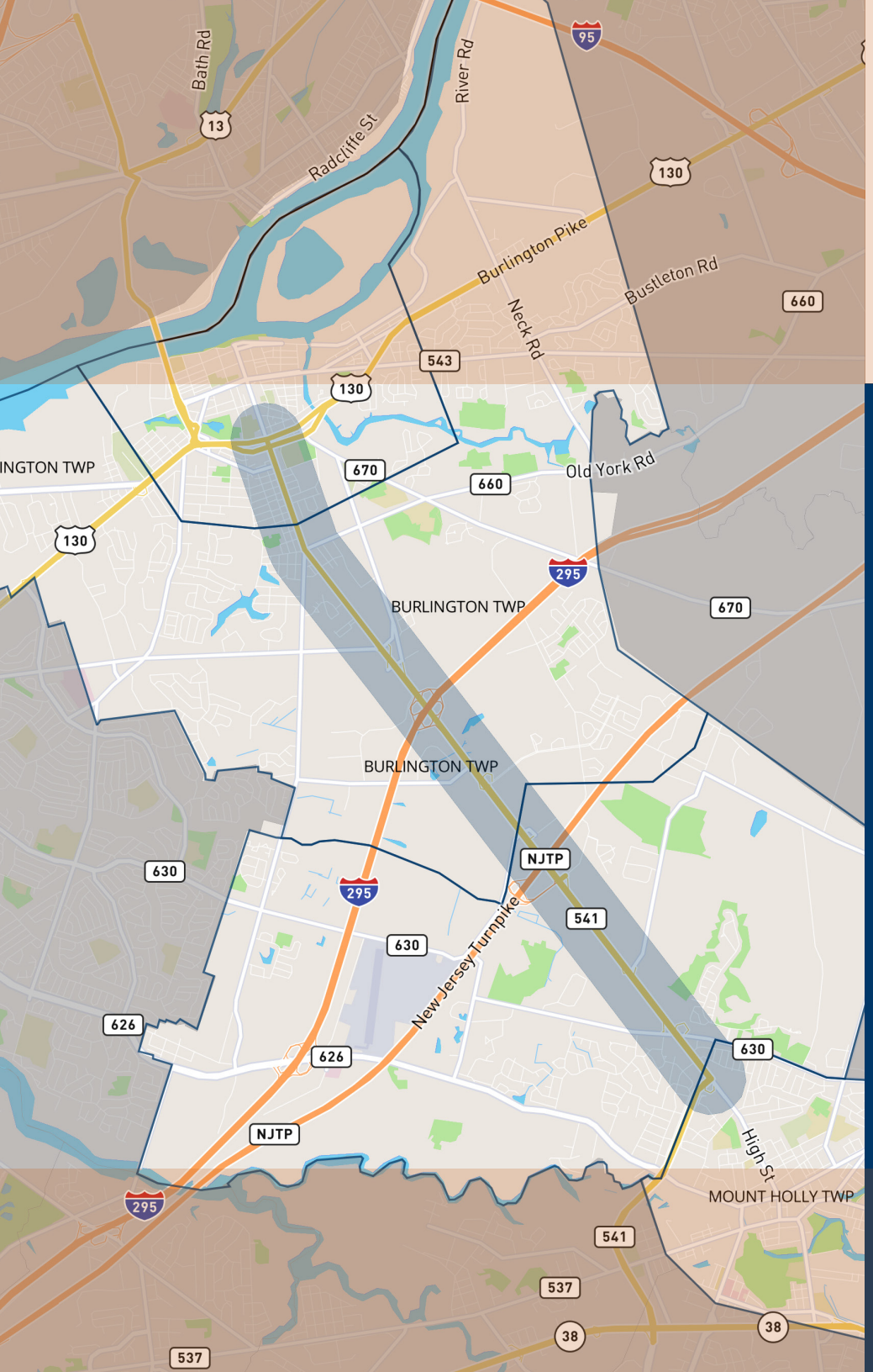
Burlington County
Route 541 Transportation and Circulation Plan







BURLINGTON 541 COUNTY

June 2020 - Final Report

DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

Special Thanks To:

Burlington County Board of Chosen Freeholders

Burlington County Planning Board

Burlington County Engineering Department

Joseph Brickley, County Engineer & Director of Public Works

Martin Livingston, County Traffic Engineer

Danielle Scoleri, County Planning Board Engineer

Burlington City

Honorable Barry W. Conway, Mayor

John Alexander, Director Department of Public Affairs

David H. Ballard, Business Administrator

William Harris, Director Housing & Community Development

Burlington Township

Honorable Brian J. Carlin, Mayor

Stephen Fazekas, Administrator

Scott W. Hatfield, Township Engineer

Mount Holly Township

Honorable Jason Jones, Mayor

Joshua Brown, Township Manager

Westampton Township

Honorable Sandy Henley, Mayor

Gene Blair, Construction Official / Zoning Officer

Wendy Gibson, Administrator

Route 541 Steering Committee Members

George Chachis, Burlington City

Suzanne Woodward, Burlington City

Ila Marie Lollar, Burlington City

George Kozub, Burlington Township

Michael Cantwell, Burlington Township

Jim Codianni, Mount Holly Township

Katherine McCandless, Mount Holly Township

Lee Eckart, Westampton Township

Linda Hynes, Westampton Township

Burlington City Police Department

Burlington Township Police Department

Mount Holly Township Police Department

Westampton Township Police Department

Prepared By:

Burlington County Bridge Commission

Department of Economic Development and Regional Planning

Mark A. Remsa, AICP, PP, LLA, ASLA, Director

Tom J. Stanuikynas, AICP, PP, Regional Planning Manager

Jason Miller, AICP/PP, Principal Planner

Linda Wong, GIS Specialist

WSP USA

Carlos Bastida, Supervising Engineer

Debbie Hartman, Supervising Engineer

Himadri Shekhar Kundu, Transportation Planner

Charles Romanow, Transportation Planner

Traffic Planning and Design, Inc.

Susan Blickstein

EXECUTIVE SUMMARY

The Burlington County Route 541 Transportation and Circulation Plan guides the corridor's future by address changing traffic patterns and land uses. This plan begins by examining the vast extent of previous work completed related to the 541 corridor including municipalities' master plans and zoning regulations, and other local previous studies. The study then examines existing transportation and land use conditions, including employment trends, public transportation, biking and walking conditions, and the plethora of vehicular data available including crash analysis, New Jersey Department of Transportation management systems data, traffic counts, and traffic congestion analysis. Throughout the process of gathering, synthesizing and presenting data, the project team collaborated with the Steering Advisory Committee, and gathered feedback from the public at an open house meeting, through an online mapping tool, and two online surveys. Together, these engagement tools resulted in more than 1,000 individual comments from local stakeholders who live, work, or shop along the 541 corridor. Public and committee input, together with data obtained through the existing conditions analysis resulted in a comprehensive array of complementary land use and transportation proposals. These recommendations include an extensive land use build-out analysis based on existing zoning regulations and development demand, two land use focus areas promoting efficient transportation and land use strategies, and six transportation focus areas utilizing transportation best practices to improve vehicular movement and safety based on projected 2045 volumes, as well as promoting bicycle and pedestrian safety and access to high-demand locations such as shopping and public transit. The report concludes with a detailing of means in which the recommendations can be incorporated into local planning documents and procedures, and ultimately implemented. The background and recommendations presented in this plan will further allow local municipalities and stakeholders to design a 541 corridor that best functions for their needs.

TABLE OF CONTENTS

Introduction 9
Purpose 13
Zoning and Previous Studies 14
- Municipal Master Plan/Zoning Regulations 14
- Previous Studies Review 17

Existing Conditions 27
Community 27
- Demographics 27
- Land Use and Business 29
- Population Projections 31
- Travel Patterns 31

Public Transportation 33
Bicycle and Pedestrian Conditions 35
- Walking Conditions 35
- Biking Conditions 35

Vehicular Conditions 40
Roadway Characteristics 40
Public Outreach 48
Proposed 58
Land Use Build-Out Analysis 58
Buildout Calculation 62
Non-Residential Zone Developments 63
Residential Zone Development 65
Results 68
Future Conditions 69
Traffic Analysis 69
Transportation Focus Areas 74
CR 541, Fountain Avenue, and Rancocas Road 74
CR 541, Sunset Road, and Burlington Bypass 77
CR 541, Elbow Lane, and Bromley Boulevard 79
CR 541 and New Jersey Turnpike Entrance 82
CR 541 and Burrs Road 84
CR 541 and Woodlane Road 85

Land Use Focus Areas 89
Concept Area 1 89
Concept Area 2 91
Bicycle and Pedestrian Recommendations 93
Biking Infrastructure Improvements 97
Transportation Demand Management (TDM) 99
Plan Implementation 101
Local Master Plans 101
Regional Long-Range Plans 102
Transportation Improvement Program and State Transportation Improvement Program 104
Project Phasing 108
Conclusion 109
Appendices 110

This page is intentionally left blank


BURLINGTON
CENTER
MALL
Mt Holly Rd
541
NO TURN ON RED

INTRODUCTION



In 2018, the Burlington County Bridge Commission (BCBC), on behalf of the Burlington County Board of Chosen Freeholders, obtained a Transportation and Community Development Initiative (TCDI) grant in the amount of $150,000 from the Delaware Valley Regional Planning Commission (DVRPC) to conduct a transportation and circulation study for County Route (CR) 541. The BCBC's Department of Economic Development and Regional Planning (EDRP) is partnering with the Burlington County Engineering Department, the four study area municipalities (Burlington City, Burlington Township, Westampton Township and Mount Holly Township) and the consulting firm WSP to analyze existing and future traffic conditions and develop implementable solutions to address circulation and safety issues for vehicular traffic, as well as bicyclists and pedestrians within the corridor.

The entire 541 corridor extends 24 miles in Burlington County though the focus of this transportation and circulation study is the 5.5-mile section of CR 541, between U.S. Route 130 to the north and the intersection of County Route 691 and the Mount Holly Bypass to the south. This segment of CR 541, also known as Burlington-Mount Holly Road or High Street, is a principal

arterial within north-central Burlington County providing an important north-south connection in the region as it offers direct access to Interstate 295 and the New Jersey Turnpike. The study corridor of CR 541 traverses four municipalities: Burlington City; Burlington Township; Westampton Township; and Mount Holly Township (Figure 1). Land use along the Corridor is a mix of urban town centers, suburban neighborhoods, highway-oriented commercial and industrial development, and semi-rural areas.

Due to its strategic location between Camden and Trenton and convenient access to Philadelphia and New York City (Figure 1), the CR 541 Corridor has experienced an increase in both residential and commercial development. The total population of the four municipalities grew by 2,856 persons, approximately 5.7%, between 2000 and 2017. Additionally, the number of households has increased by 2,078, over 11%, during the same time period. Residential construction is expected to continue as several market-rate and affordable housing developments have been approved. The DVRPC County and Municipal Level Population Forecasts project the total population of the four municipalities will increase by 3,358, approximately 6.6%, between 2015 and 2045.

Over the past five years, redevelopment of underutilized sites and development of vacant land has increased throughout the four municipalities. According to the Department of Community Affairs Certificates of Occupancy Yearly Summary Data, almost 200,000 square feet of new commercial space, 90,000 square feet of office space and 2,400,000 square feet of warehouse space was constructed between 2014 and 2018. Along the Corridor, much of the commercial development occurred in Burlington Township (north of Interstate 295) and Westampton Township (near the NJ Turnpike Interchange). An additional 250,000 square feet of commercial space is in the planning stages including the LIDL grocery store, Milestone Plaza and Fountain Square Shopping Center. Redevelopment of the Burlington Center Mall and the proposed medical center will

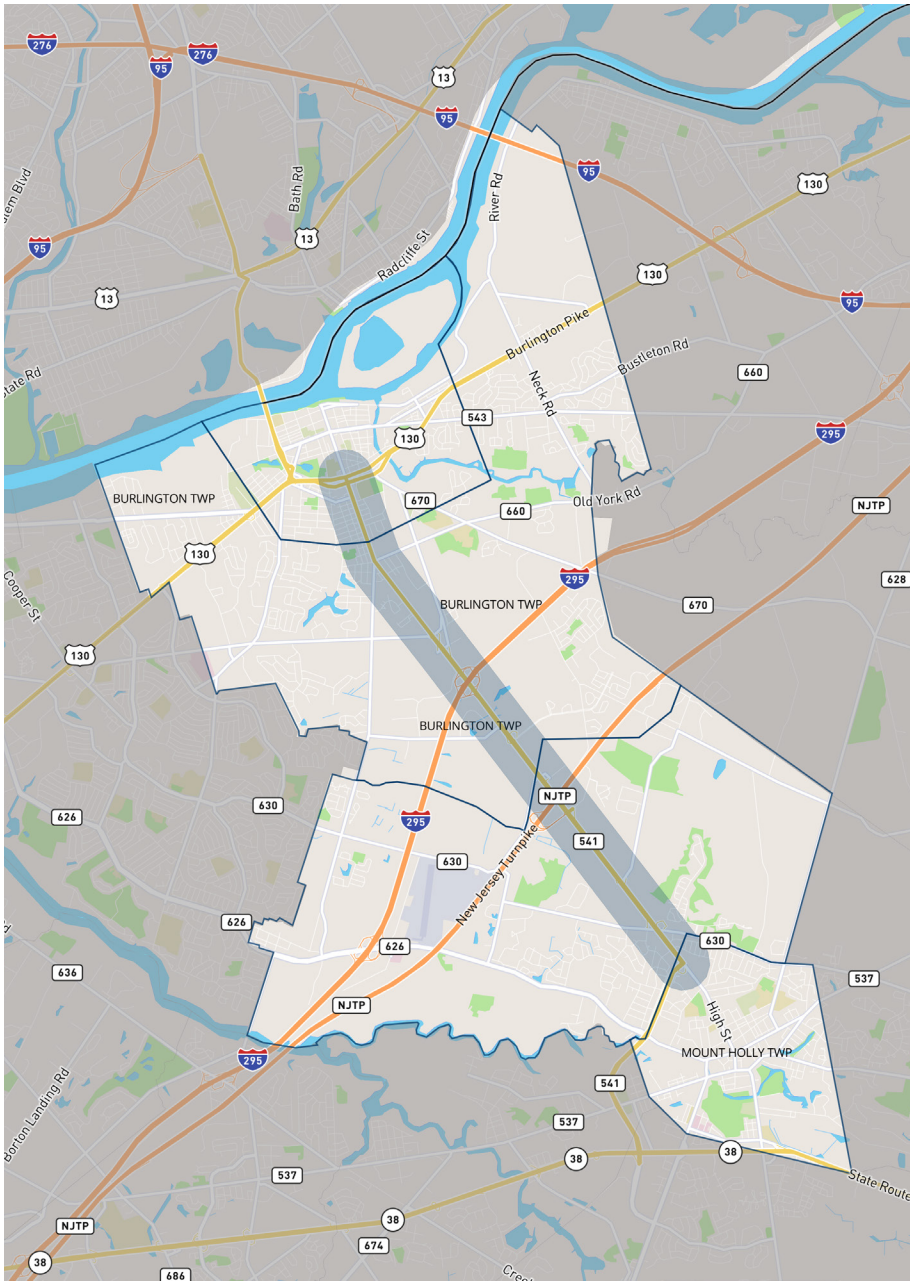


Figure 1: Study Area Location

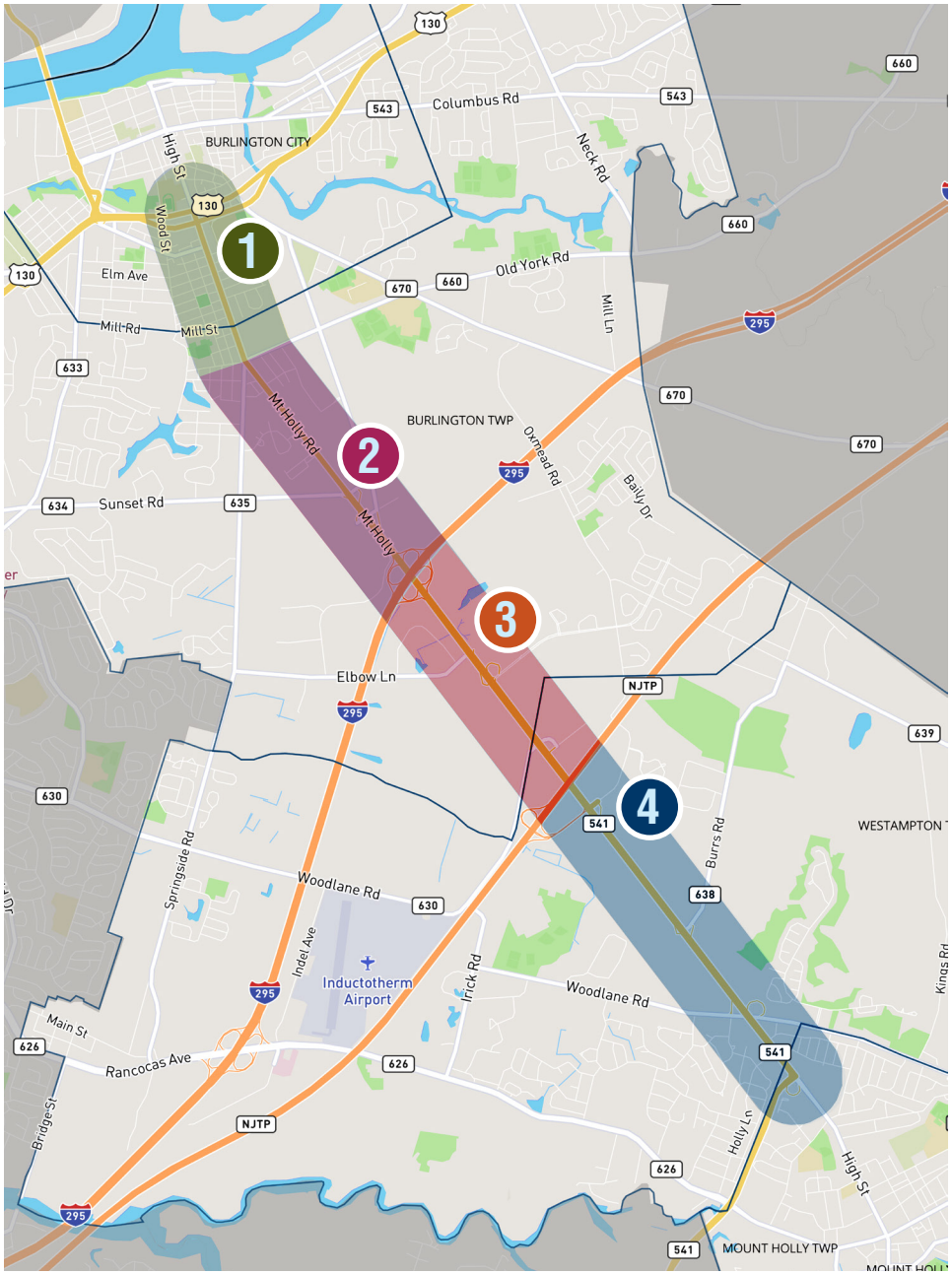


Figure 2: Study Corridor Sections

add up to another 4,000,000 square feet.

Despite the closure of the Burlington Center Mall in 2018, a surge of development has increased traffic and congestion along CR 541. Recent traffic counts demonstrate that an estimated 31,000 vehicles a day use portions of CR 541. The increase in non-residential development has produced an upsurge of truck traffic. For example, approximately 550 trucks use Exit 5 of the New Jersey Turnpike and 400 trucks use Exit 47 of I-295 daily. With increasing vehicular and truck traffic, CR 541 has experienced congested travel lanes, poor performing intersections, a rise in crashes and safety issues for both bicyclists and pedestrians.

For the purpose of this study, the corridor is divided into four distinct sections from north to south (Figure 2). The first section, from U.S. Route 130 to the Five Points intersection (High Street, Fountain Avenue, Mount Holly Road, Rancocas Road, 13th Street) represents the most urban area of the corridor. This mostly built-out area is comprised of a mix of older housing stock and neighborhood retail. In this section, CR 541 consists of one travel lane in each direction, with a center turn lane, shoulders and sidewalks on both sides of the road. The speed limit is 35 miles per hour.

Section 2 extends between the Five Points intersection and the I-295 interchange. This section has experienced an increase in traffic due to the redevelopment in and around the Wishing Well Plaza and the Liberty Square Center. Additional commercial development is planned across from Kelly Drive (a LIDL grocery store) and at the former Matson's Meat Market (Milestone Plaza). South of Kelly Drive, CR 541 expands from three to four lanes with additional turning lanes and access points. From north to south the speed limit increases from 40 mph at Five Points to 45 mph at Wishing Well Plaza Drive to 50 mph at Cadillac Drive. Gaps exist in the sidewalk and crosswalk network


Wawa
Wawa
Wawa
FREE
AIR

as the roadway begins to become more vehicle-oriented south of Sunset Road. Trucks traveling between U.S. Route 130 and I-295 are not permitted on Sections 1 and 2 and must use the Burlington Bypass.

The third section of CR 541 is between I-295 and the New Jersey Turnpike and experiences the most truck traffic. Highway commercial and business parks dominate the land uses along this portion of CR 541. A new shopping center (Fountain Square) is planned along CR 541 at Irick Road. A mix of warehousing and retail space is proposed at the former Burlington Center Mall property. CR 541 between I-295 and Irick Road is a six-lane divided highway, which reduces to four lanes south of Irick Road. The speed limit in this section is 50 mph and there are minimal pedestrian and bicycle amenities.

Finally, the fourth section, between the New Jersey Turnpike Interchange and the Mount Holly Bypass is the least developed. Aside from a few non-residential uses, this section is mostly agricultural and forested. A hospital and medical complex is proposed along CR 541 between Burrs Road and Woodlane Road. This section is a four-lane divided highway with a 50 mph speed limit and limited sidewalks and crosswalks.

Purpose

The purpose of the County Route 541 Transportation and Circulation Study is to identify and address automobile and truck traffic and circulation issues along CR 541 and the surrounding roads in the study area. The study examines current traffic conditions such as crashes, speeds and level of service to form a baseline for analysis. To calculate future traffic patterns, a land development buildout analysis, based on available land and current zoning, was developed. Computer modeling software determined the increase in traffic flow if no improvements are made to the current transportation network system.

Data generated from this analysis allow the municipalities to evaluate their current land-use and zoning regulations in the context of impacts to the current and future CR 541 road network.

The Plan provides specific recommendations to:

- Improve roadway and intersection conditions;
- Enhance long-term sustainability of the region's road network;
- Improve safety and mobility options for all users;
- Consider impacts of future development and redevelopment;
- Address current and anticipated transportation and circulation issues; and
- Change land use planning and zoning which will complement transportation and circulation improvements

The findings of this study will be incorporated into Burlington County's Highway Master Plan and will be used to identify and prioritize future roadway improvements. Additionally, data and recommendations from the Plan may be used to help guide municipalities as they plan for and address future development. Local decision-makers will have the necessary information to set policies and inform the public and potential developers. Specific actions set forth in the Plan may be incorporated into municipal master plans and master plan elements, redevelopment plans and zoning ordinances.

It is imperative that the county and the municipalities continue to plan for transportation and circulation improvements to address current conditions and anticipated growth.



Figure 3: Westampton Barn

Zoning and Previous Studies

Municipal Master Plan/Zoning Regulations

Municipal master plan and zoning regulations for each of the four study municipalities were reviewed for transportation considerations and their incorporation into the subsequently detailed land use build-out analysis. Each of the plan's elements are thoroughly detailed in the Appendix and summarized below.

Burlington City

Burlington City utilizes a transect zoning plan specifying broad desired uses for each portion of the City including Open Space, Suburban Residential Neighborhoods, Traditional Residential Neighborhoods, Town/Neighborhood Center, Waterfront, Highway Corridor, and Industrial Districts (Figure 4). Several zoning classifications can fall under each and multiple transects (i.e. R-1, R-2, and R-3 are both "Suburban Residential Neighborhoods

and "Traditional Residential Neighborhoods). The portion of CR 541 between the Burlington Township line and 4th Street is classified as a Suburban Residential Neighborhood while the portion between 4th Street and U.S. 130 is classified as a Traditional Residential Neighborhood. Using the City's more standard zoning classifications, both areas fall under R-3 zoning. Suburban Residential Neighborhoods consist of detached single-family dwellings. The objective of the Traditional Residential Neighborhood classification is to sensitively design and strategically redevelop such areas with a variety of housing choices to maintain historic neighborhood character and integrate compatible neighborhood-scale civic uses encouraging walking, biking and public transportation for most daily needs. An update of Burlington City's circulation plan is currently underway, focusing on the area north of U.S. 130 (outside the study area of this plan). Though not overlapping with the extents of this study, the focus on bicycle and pedestrian mobility in the circulation plan update speaks to the desires of local stakeholders for improve biking and walking opportunities. This sentiment extends to plans for the CR 541 corridor. The project team is working with the Burlington City Circulation Element project team to coordinate recommendations.

The R-3 designation along the corridor is summarized below.

Zoning Designation	Zoning Description	Minimum Lot Area (sq. ft.)
R-3	Suburban/ Traditional Residential Neighborhoods	5,000

Table 1: Zoning Designation along CR 541, Burlington City

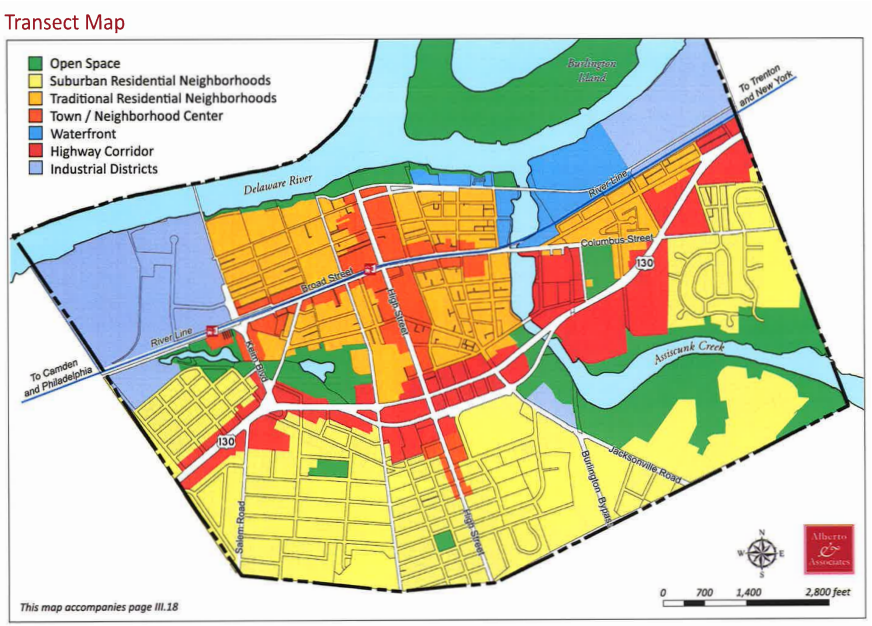


Figure 4: Burlington City Transect Map

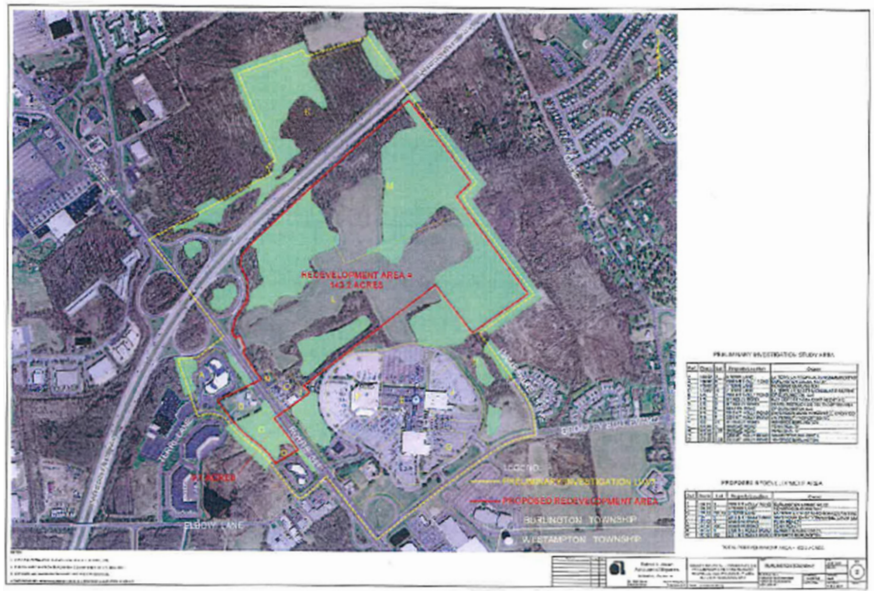


Figure 5: Redevelopment Area, Burlington Township Master Plan

Burlington Township

Burlington Township's master plan sets the vision of the township to achieve a fiscally beneficial balance of land uses and housing types while providing ample facilities for active and passive recreation. The plan includes the designation of the 140 acre CR 541/Interstate 295 Interchange Redevelopment Area. Goals of the development area include:

- Preserving environmentally sensitive areas
- Applying state of the art roadway design methods to optimize efficiency of the roadway network
- Integrating new development using Smart Growth techniques discouraging suburban sprawl
- Promoting pedestrian and bicycle infrastructure, particularly connecting residential neighborhoods with nodes of commercial activity and places of employment.

Zoning Designation	Zoning Description	Minimum Lot Area
R-40	Low Density Residential	40,000 sq. ft
R-20	Medium Density Residential	20,000 sq. ft
R-7.5	High Density Residential	7,500 sq. ft
B-2	Highway Business	40,000 sq. ft
BLI-1	Business Light Industrial	40,000 sq. ft
B-1	Regional Business	10 acres
I-1	Regional Business	10 acres

Table 2: Zoning Designation along CR 541, Burlington Township

The portion of CR 541 within Burlington Township includes several designated zoning districts permitting a variety of land uses and densities, summarized in Table 2.

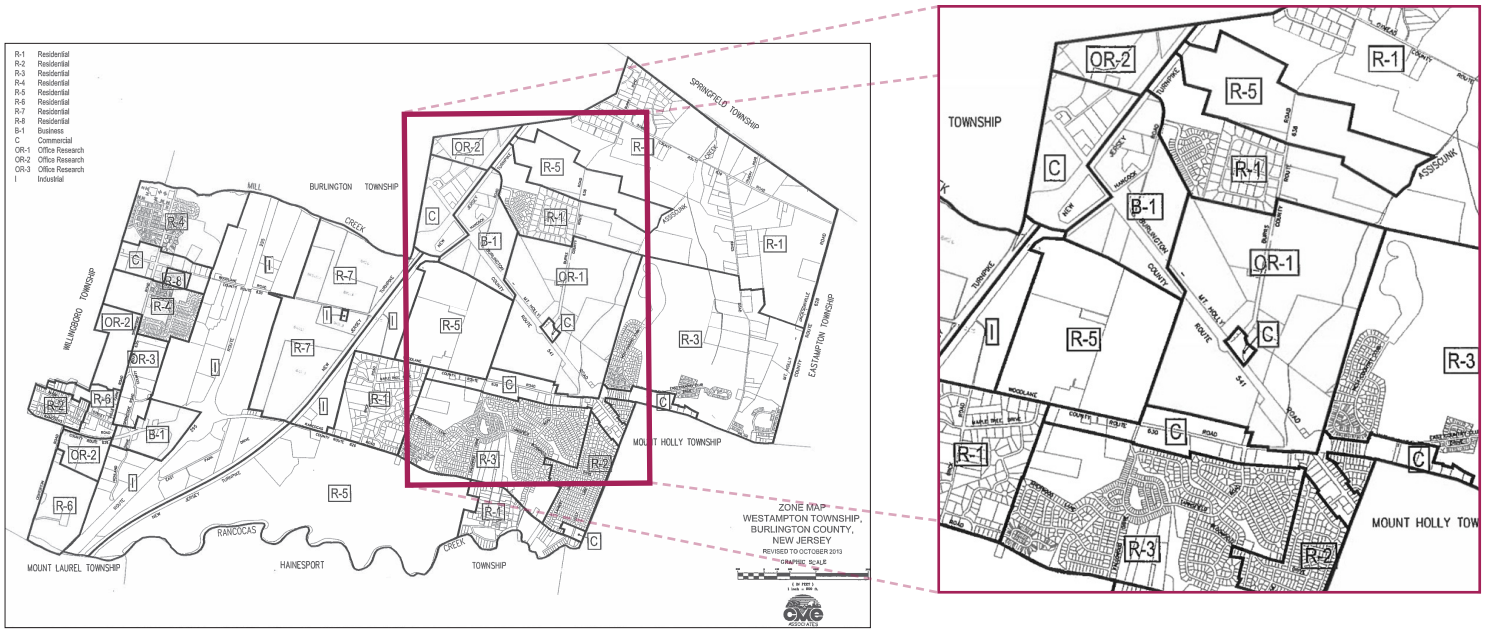


Figure 6: Zoning Map of Westampton Township with section of the map zoomed into zoning areas around Route 541

Westampton Township

Goals laid out in Westampton Township's Master Plan include maintaining the community's rural character, creating a recognizable identity for the township, supporting bicycle, pedestrian, and public transit mobility options, and providing quality housing choices. The township's reexamination of its development standards listed the following desired outcomes:

- Reuse and redevelopment of existing sites
- Developed center of mixed-use activity along center portion of corridor
- Enhanced bicycle and pedestrian access along western portion of corridor

Municipal zoning designations along the corridor is summarized in Table 3.

Zoning Designation	Zoning Description	Minimum Lot Size (acres)
R-2	Residential	1
R-3	Residential	1
R-5	Residential	1
B-1	Business	2
C	Commercial	1
MCD	Medical Campus District Overlay Zone	100
OR-1	Office Research	10
OR-2	Office Research	4

Table 3: Zoning Designation along CR 541, Westamton Township

Mount Holly Township

Mount Holly Township's master plan aims to improve the quality of life for Mount Holly residents, promote beneficial economic development, and take maximum advantage of the municipality's Urban Enterprise Zone. Additional aims directed toward area's designated Suburban Planning Areas (including CR 541) include reversing the current trend of suburban sprawl, protecting natural resources, and promoting growth and development in compact locations.

Though the project's study area's southern limit is the Mount Holly Bypass at the Mount Holly Township line, the zoning of the extent of CR 541 in Mount Holly was reviewed and the zoning designations (the zoning code does not provide minimum lot area) are shown in Table 4.

Zoning Designation	Zoning Description
B2	Central Business District
B3	Planned Shopping District
B4	Standard Business District

Table 4: Zoning Designation along CR 541, Mount Holly Township

Previous Studies Review

To build upon existing knowledge, the project team consulted several planning studies undertaken throughout the study area in recent years. These resources provide valuable information and fuel for analysis. This synergy will produce a more comprehensive and expansive bicycle and pedestrian network. A list of reviewed studies, and summaries of the relation to CR 541 of each are provided below.

Route 541 and I 295 Interchange Redevelopment Area

Title	Year
Route 541 and I-295 Interchange Redevelopment Area	2007
Mount Holly Township Master Plan Reexamination	2007
Township of Burlington Comprehensive Master Plan	2008
City of Burlington Master Plan	2010
CR 541 Corridor Safety Review	2012
Area in Need of Redevelopment Investigation: Mount Holly Township, Burlington County, New Jersey	2013
Master Plan and Development Regulations Reexamination Report for Westampton Township, Burlington County	2015
Mount Holly Township Municipal Public Access Plan	2017
Burlington County Highway Master Plan	2018
Burlington County River Route Corridor Study	2018
Freight Movement Around NJ Turnpike Interchange 6A	2018

Table 5: List of previous studies reviewed

(2007)

The Burlington Township Planning Board investigated a 300 acre site surrounding the CR 541/I-295 interchange to determine the feasibility of designation as a redevelopment area

Mount Holly Township Master Plan Reexamination (2007)

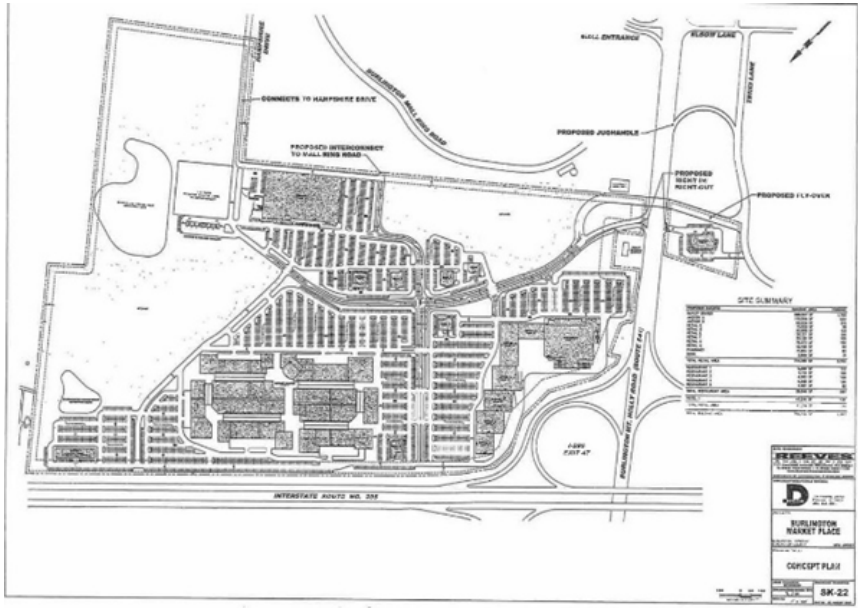


Figure 7: CR 541 and I-295 Interchange Redevelopment Area

The reexamination of Mount Holly Township's Master Plan involved reviewing previously established goals and recommendations, and any necessary changes. Recommended changes to local zoning include:

- Mount Holly Bypass/Rancocas Road Area
  - Rezone from Limited Industrial to Central Business District
- Undesignated Parcels
  - Designate as Central Business District and Government Services
- Industrial Zoned Parcels in Business Area
  - Rezone to Central Business District
- Former Landfill Area Zoned Industrial

- Rezone to Central Business District

Township of Burlington Comprehensive Master Plan (2008)

Burlington Township's Comprehensive Master Plan review focused on revisiting Master Plan goals and objectives; simplifying and consolidating proposed land uses and establishing a basis for updating the zoning ordinance.

Several recommendations were made for the Land Use Plan and Circulation Plan relevant for CR 541:

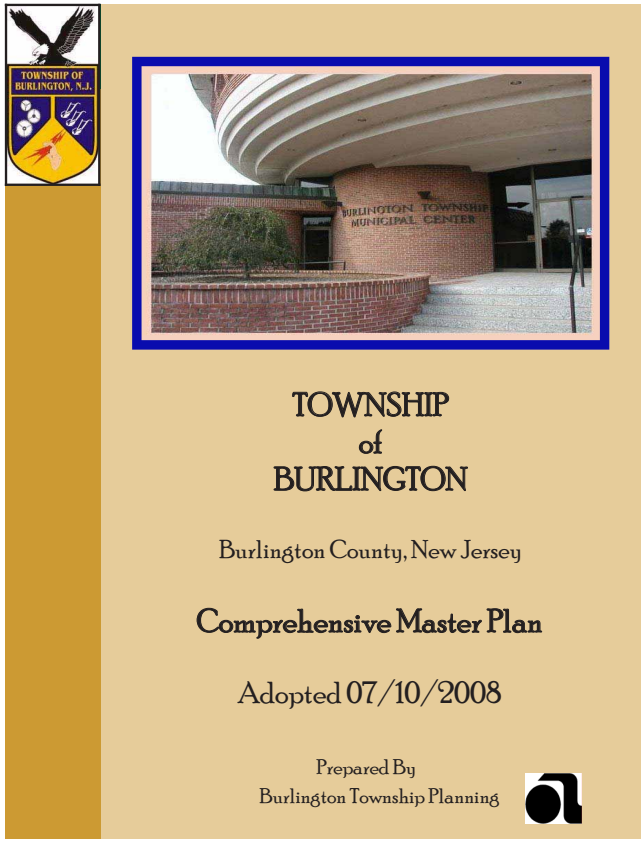


Figure 8: Burlington Township Master Plan (2008)

Land Use Element

- Zone change from Industrial to Business at the intersection of CR 541 and Irick Road
- Zone change from Residential to Business (B-2), east side of CR 541 just north of the proposed Lowe's to include Mattson's Market (also included in Circulation Element recommendations)
- Transition zones between existing transportation corridors (particularly U.S. 130 and CR 541) and residential areas should be further explored. Transition zones would aim to control or eliminate certain negative impacts on residential areas associated with particular non-residential uses (also included in Circulation Element recommendations).
- Burlington Township's Circulation Element promotes pedestrian walkway systems and bikeways throughout the community. Township development ordinances should clearly require developers to install sidewalks along adjacent roadways.

Circulation Element

- Realignment of CR 541T (Burlington Bypass)
- Install traffic signals for Northgate Village Apartments and Liberty Square Plaza

City of Burlington Master Plan (2010)

Burlington City's Master Plan updates the previous 1961 version. The new master plan provides a vision for future land development, redevelopment and planning efforts in the City. The plan's recommendation includes redesignating High Street between U.S. 130 and Broad Street from an Urban Collector to a Minor Arterial Road and ensuring improvement to roads throughout the City meet desirable right-of-way, shoulder, and

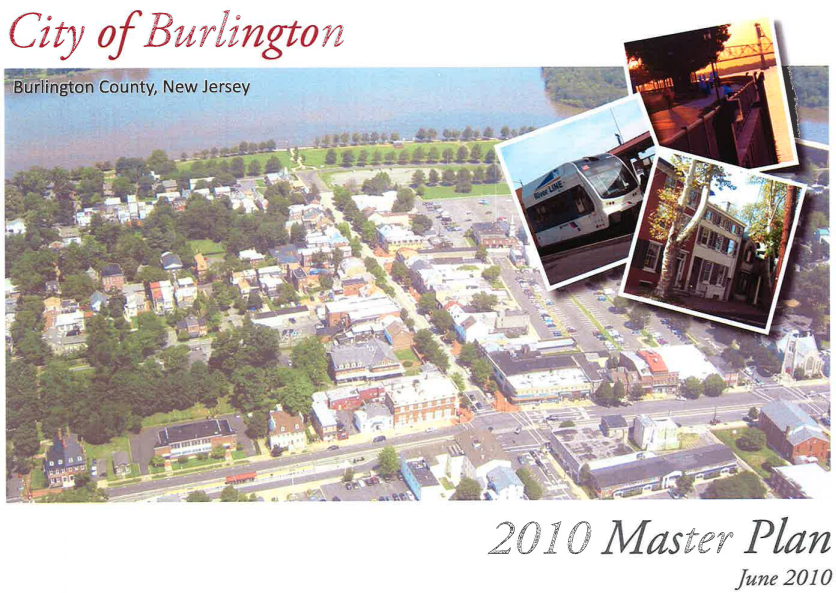


Figure 9: City of Burlington Master Plan (2010)

cartway widths to accommodate motorists and cyclists. No other recommendations were relevant to the study area.

CR 541 Corridor Safety Review (2012)

A safety evaluation of the CR 541 corridor was conducted as part of DVRPC's Office of Transportation Safety and Congestion Management. The five mile segment of CR 541 analyzed had the most crashes of any in Burlington County. The study found that the number of crashes along the corridor increased from 2005 and 2008, before declining in the following years. At the time of the study, four FHWA-approved safety countermeasures were deemed applicable for the corridor:

- Medians and pedestrian crossing islands
- Corridor access management
- Traffic signal backplates and retroreflective borders
- Pedestrian hybrid beacons

The study also reviewed several changes made to the corridor in recent years to promote safety and traffic flow:

- Upgrade of all traffic signals to 12-inch red lenses (most already had 12-in yellow and green lenses)
- Optimization of traffic signals and establishment of traffic-responsive parameters between CR 691 and U.S. 130
- Installation of seven pan/tilt/zoom (PTZ) traffic cameras
- Installation of Variable Message Signs (VMS) southbound between Cadillac Road and I-295, and northbound between Burrs Road and Hancock Lane/New Jersey Turnpike
- Extension of left turn lanes northbound at CR 626, and northbound at Elbow Lane
- Installation of pedestrian crossing of CR 541 at Elbow Lane with



Figure 10: Redevelopment Area, Mount Holly (2013)

striping and pedestrian countdown signal heads

- Widening and restriping to two lanes for left turn receiving lanes on Hancock Lane
- Installation of pedestrian countdown signal heads and crosswalks at Bromley Boulevard and Home Depot access road
- Marking of skip-line pavement markings or "elephant tracks" through intersection with Fountain Avenue
- Sidewalk improvements near U.S. 130
- Upgrade of every traffic signal to GPS-based Emergency Vehicle Pre-emption system

Area in Need of Redevelopment Investigation: Mount Holly Township, Burlington County, New Jersey (2013)

This study assessed the area's potential for designation as a Redevelopment Area. As per the State of New Jersey, redevelopment is a planning tool used to fulfill goals of rebuilding abandoned and/or underutilized properties, including improving the local economy, appearance of the community, and when necessary, acquiring property through eminent domain. The area comprises 30 acres in central Mount Holly, but does not make any specific recommendations related to CR 541.

Master Plan and Development Regulations Reexamination Report for Westampton Township, Burlington County (2015)

The reexamination of Westampton Township's Master Plan reviewed recommendations made during previous updates and the various changes to the community since the last update. The update lays out a vision for the CR 541 corridor as a mixed-use center, recommending the development of a mixed-use center land plan and land use regulations. Also recommended for the proposed mixed-use center are:

- Architectural design standards
- Upgraded pedestrian and bicycle facility standards
- Landscaping and buffering standards
- Sign standards for pedestrian-oriented development
- Consolidation of zones (such as R-1, R-2, and R-6)

Mount Holly Township Municipal Public Access Plan (2017)

The Mount Holly Township Municipal Public Access Plan set to identify, preserve, and enhance public access to the North Branch of the Rancocas Creek running through the center of Mount Holly.

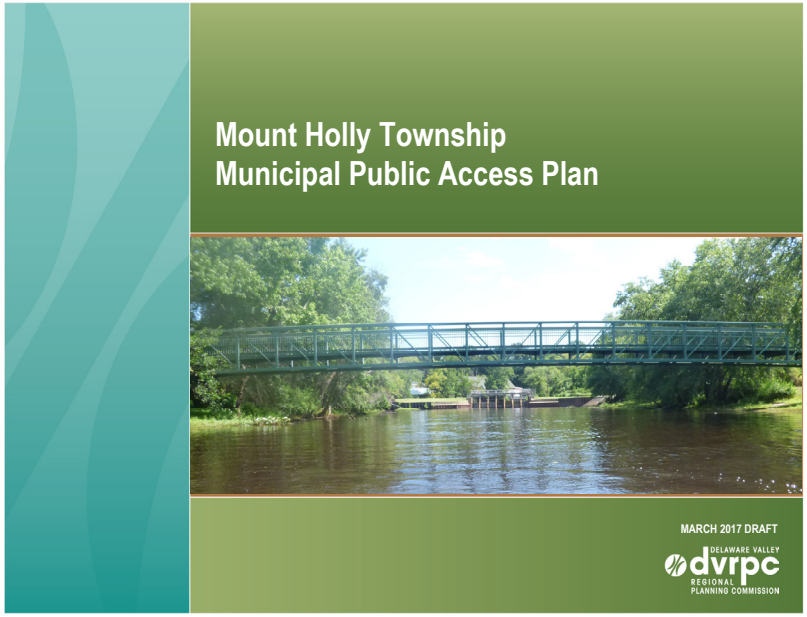


Figure 11: Mount Holly Township Municipal Public Access Plan (2017)

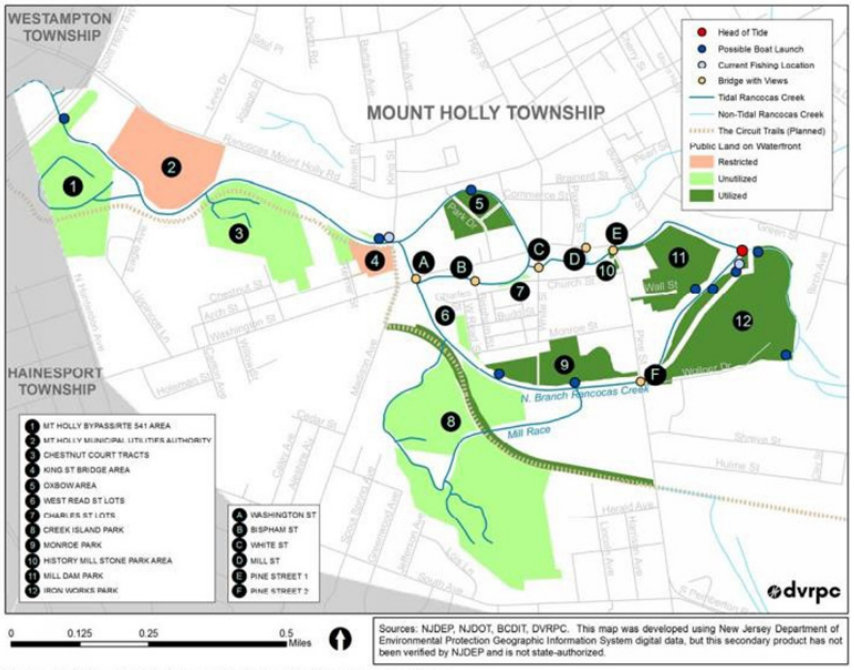


Figure 3: Mount Holly Township's Public Access Locations

Figure 12: Mount Holly Township's Public Access Locations

Specific parcels were identified where access can be provided to the creek. Goals of the plan include:

- Fostering connections between the creek and downtown Mount Holly
- Providing amenities for visitor safety and comfort at public access locations
- Providing clear and informative signage for access locations
- Maintaining safe and adequate access locations for fishing along the creek

Burlington County Highway Master Plan (2018)

The Burlington County Highway Master Plan supplied a vision and implementation framework for the county highway network to sustainably complement long-term growth patterns. The document is an update of the County's 1989 Highway Master Plan, highlighting the different county highways, traffic safety and traffic congestion information, proposed right-of way widths, public transportation routes, bike networks, and congestion management plans. The project included the creation of a GIS transportation database and preparation of a summary document and web map outlining several congestion management process (CMP) strategies for medium-term planning to strengthen the connections between the Long-Range Plan and the regional Transportation Improvement Program.

Road segments were screened for strategies across five categories:

- Operational Strategies
  - Operation improvements, transportation system

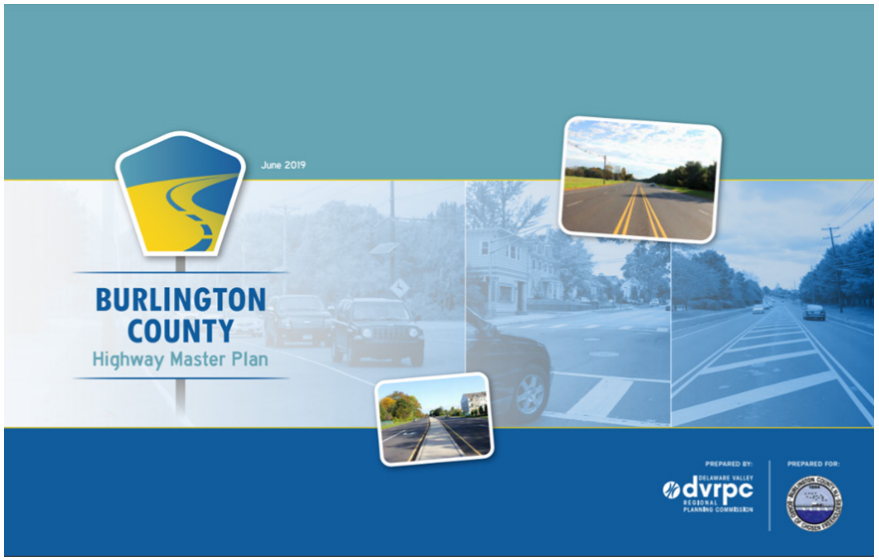


Figure 13: Burlington County Highway Master Plan (2018)

management, intelligent transportation systems

- Transportation Demand Strategies
  - Programs and projects encouraging the use of transportation alternatives to driving alone and otherwise focused on the demand side of trip-making
- Increase existing transportation system capacity
  - Increase capacity of existing services and facilities first
- Add new transportation system capacity
  - Increase capacity of existing roads
- Goods movement strategies
  - Policies, strategies, and projects to maintain and optimize the safe and efficient movement of freight

The study resulted in the creation of a Desired Ultimate Right-of-Way layer used to evaluate land development applications. Information contained in the layer for CR 541 is summarized in Table 6.

Parameter	County Route 541			
Section (by Milepost)	17.60 to 18.35	18.35 to 20.47 21.50 to 23.06	20.47 to 21.50	23.06 to 23.84
FHWA Highway Functional Class	Principal Arterial – Other			
NJDOT Urban Area	Urban	Urban	Urban	Urban
Recommended ROW Width (ft)	100v	125	150	100
Number of Travel Lanes	2	4	6	2
Capacity	Multimodal	Multimodal	Multimodal	Widen
Width of Median or Turning Lane (ft)	1	18	18	18
Width of Travel Lane (ft)	12	12	12	12
Bike Lane Width (Shoulder) (ft)	6	6	6	6
Parking Lane Width(ft)	8	8	8	8
Sidewalk Buffer Width (ft)	5	5	5	5
Sidewalk Width (ft)	10	10	10	10

Table 6: Desired Ultimate Right-of-Way, Burlington County Highway Master Plan (2018)

Burlington County River Route Corridor Study (2018)

U.S. 130 between Cinnaminson and Bordentown Township was studied for multi-modal improvements to 41 priority intersections and corridors.

The document summarizes the priority intersections and corridors along (and feeding into) U.S. Route 130, documenting the existing conditions (location, current design, geometric configuration, crash data, traffic volumes, local and regional context), notable previous studies and findings, issues and deficiencies, recommended improvements, and concept diagrams.

The one location reviewed within the study area was along CR 541 between I-295 and Sunset Road (CR 634) (Figure 15). Issues found along this segment include the number of heavy trucks using CR 541 northbound despite the 4-ton weight restriction north of the Burlington Bypass. Additionally, the frequency and geometrics of driveways along the corridor and discontinuous pedestrian network were found to pose safety concerns.

Several recommendations were made for this segment:

- Remove jughandle from CR 541 to Wedgewood Drive
- Investigate installation of roundabouts to improve traffic circulation in the shopping area
- Improve pedestrian facilities at CR 541 and Sunset Road by striping high visibility crosswalks, installing pedestrian signal heads with leading pedestrian intervals, and installing continuous sidewalks
- Install cantilever sign reading "All Thru Trucks Must Exit to Burlington Bypass/Sunset Road" along northbound CR 541. Supplement sign with pavement markings reading "All Thru Trucks Next Right"

Freight Movement Around NJ Turnpike Interchange 6A (2018)

This study was prepared by DVRPC to examine traffic circulation along the U.S. 130 corridor near the industrial area of the New Jersey Turnpike Interchange 6A. Designated a Freight Center by DVRPC, the area includes parts of Florence Township, Burlington Township, and Burlington City and is expected to accommodate



Figure 14: Burlington County River Route Corridor Study (2018)

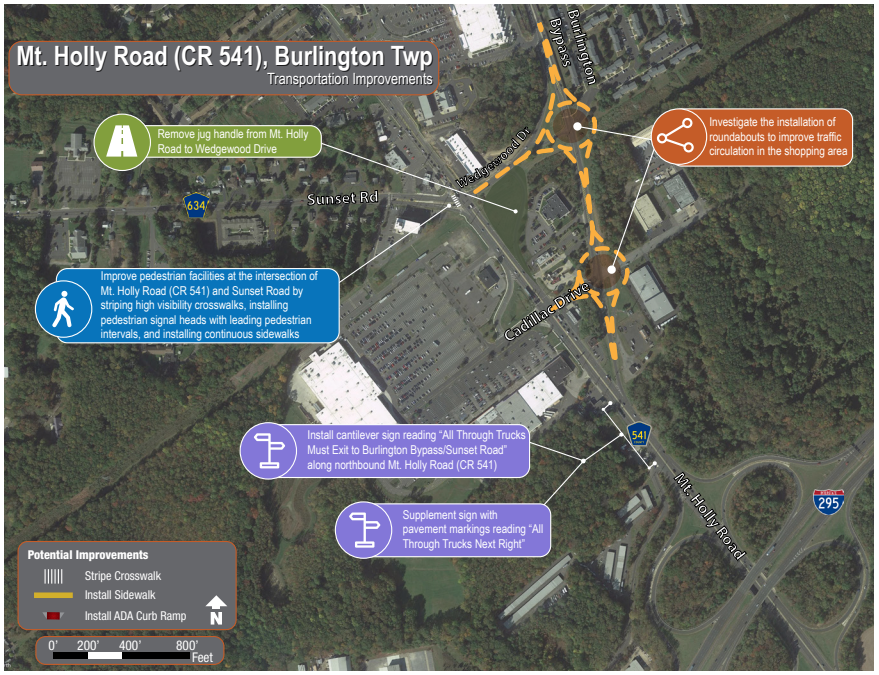


Figure 15: CR 541 Recommendations, Burlington County River Route Corridor Study (2018)

approximately 10 million square feet of additional warehouse and industrial space by 2025. The purpose of the study is to identify short-term and long-term roadway improvement capable of supporting the additional traffic generated by the new developments. Though in the vicinity of CR 541, there are no specific recommendations made directly relevant to the CR 541 corridor.

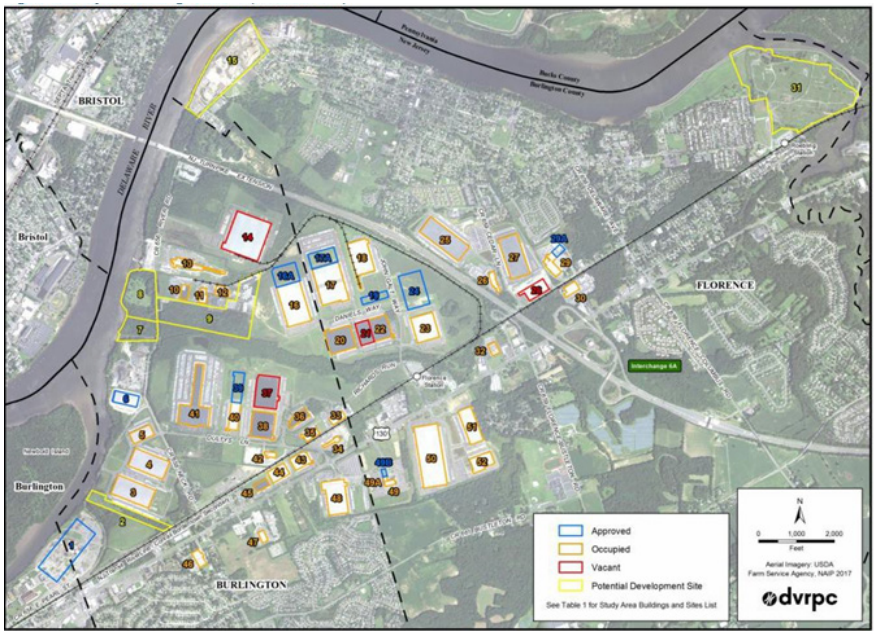


Figure 16: Study Area Buildings and Sites (Dec 2017), Freight Movement around NJ Turnpike Interchange 6A (2018)

Recent Corridor Improvements

In addition to analysis and recommendations included in these previous studies and reports, Burlington County has implemented several spot improvements along the corridor as a result of the 2005 County Route 541 Safety Improvement Study, including the following:

- Reconfigured roadway between Fountain Avenue and Wishing Well Plaza from four lanes with no shoulders, to three lanes with shoulders to improve multimodal use
- Improved traffic signal timing at eight intersections between U.S. 130 and NJ 38
- Extended the deceleration lane from Wedgewood Drive to Wawa to avoid traffic overflowing into travel lanes
- Improved Wedgewood Drive and Cadillac Road intersection to ease circulation between CR 541 and the Burlington Bypass
- Installed a traffic signal on Sunset Road at Walmart to avoid traffic backups



Figure 17: CR 541 at Connecticut Drive


HT TURN
SOUTH
130
ONE WAY
Gulf
Amy's
Omelette House
BREAKFAST
Empire Mechanical
877-422-0007

EXISTING CONDITIONS

Community

Demographics

Buffers of ½ mile and two miles were utilized for the demographic analysis to review commonalities and differences between these localized areas and nearby municipalities (Figure 18).

Both buffer areas have experienced a gradual population increase from 2010 to 2018 of 1.7% within ½ mile and 0.5% within two miles. These areas are expected to grow by an additional 1.2% and 0.8%, respectively, over the next five years.

Like much of the state and country, both the ½ mile and two mile buffer areas are seeing an increasingly aging population. Since 2010, the median age has risen from 40.5 to 42.3 (½ mile) and 39.4 to 41.1 (two miles), and are expected to increase to 43.3 and 42.2, respectively by 2023. The 45-59 and 60-74 age cohorts are the fastest growing. Countywide, the number of 60-74 year olds grew 43% from 2000 to 2016, and the number of those older than 84 increased 77%. This has coincided with a decrease in the number of young people in the County and State. There was a 17% decrease in the number of 25-44 year old's in the County, and a 13% decrease in those under the age of 5. New Jersey experienced similar though less pronounced trends in the increase of the elderly and decrease of children and young adults.

Each of the study area municipalities, County, and State saw an increase in the foreign-born population from 2000 to 2016. Westampton saw the largest increase from 6.5% to 11.2% while Mount Holly showed the smallest increase, from 5.8% to 7.1%. These figures are lower than Statewide averages. The share of residents speaking a language other than English also increased; rising from 9.6% to 15.9% in Burlington City, and 11.8% to 16.9% in Burlington Township.

By 2023, more than 25% of the population within ½ mile of the corridor will be at least 65 years old. In recent years there has been an increasing desire by the elderly to "age in place" or continuing living in the communities' they have called home for years, rather

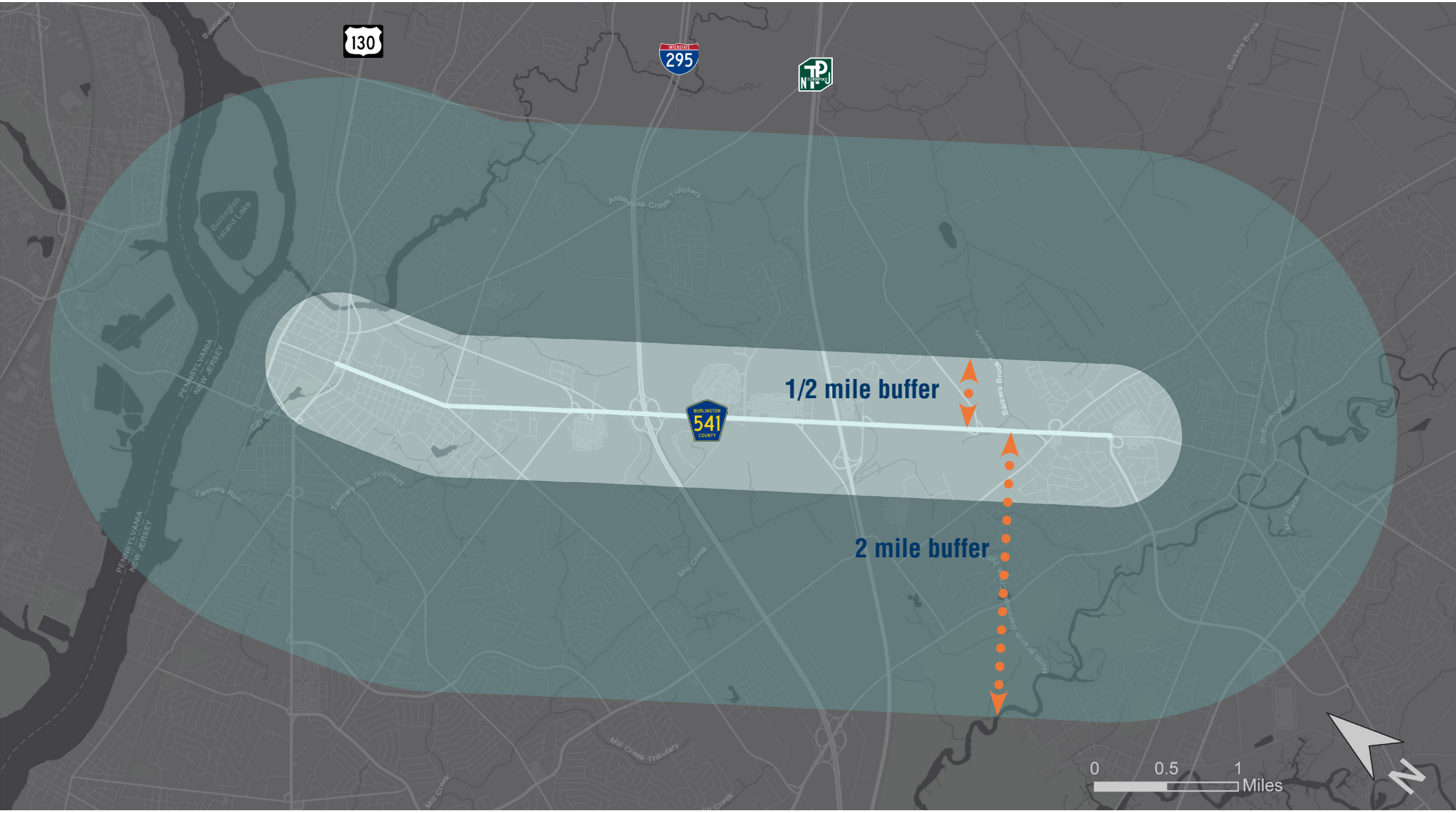


Figure 18: Demographic Analysis Catchment Area

than move to a warmer climate or a senior-living community. As we age, we are less physically equipped to operate a motor vehicle as easily as we once did. Because of this, the elderly often rely on public transit and walking to accomplish daily tasks such as going to the grocery store, or visiting family and friends. Enhanced transit and walking accessibility options make life easier for the elderly (and many others).

Land Use and Business

An analysis of employment locations within ½ mile of the corridor was conducted to assist the subsequently developed traffic model and shed light on the type of business establishments occupying the area.

The healthcare and social assistance industry comprised 36% of businesses in the area and employs 29% of employees (4,084 employees). Retail accounts for 12% of businesses, and 15% of jobs (2,091 jobs), and educational services account for 1,235, or 9% of jobs. This information is summarized in the table below.

The corridor itself caters to many highly frequented retail, dining, institutional, and amenity locations in a combination of small single-use lots and large shopping centers housing dozens of businesses. Larger establishments with frontage along the study area corridor include the Burlington County Board of Social Services, Towne Crossing Shopping Center (including Dick's Sporting Goods, Target, Home Depot, Regal Burlington, and Starbucks), Liberty Square Center (including Walmart, Marshalls, and Home Goods), Wishing Well Plaza (including Shop Rite, and Wawa), and Burlington City High School.

Employment Sectors Within 1/2 Mile of Corridor								
Establishments			Employees			Sales		
Rank	Business Type	% of Total Businesses	Rank	Business Type	% of Total Employees	Rank	Business Type	% of Total Sales
1	Health Carre and Social Assistance	36.0%	1	Health Carre and Social Assistance	29.1%	1	Wholesale Trade	29.4%
2	Retail Trade	11.5%	2	Retail Trade	14.9%	2	Health Carre and Social Assistance	21.4%
3	Other Services (except Public Administration)	10.2%	3	Educational Services	8.8%	3	Retail Trade	20.4%
Total Businesses		1,104	Total Employees		14,035	Total Sales (in Million $)		2,606.2

Table 7: Sumary of Businesses


CITGO
CASH
CREDIT
FOOD MART
CIGARS
CITGO
ALL TURNS FROM RIGHT LANE
TRUCK
600 FT
776

Population Projections

Commercial use along the corridor has grown in recent years. Over the past five years, 250,000 square feet of commercial space has been developed along the corridor, and an additional 100,000 square feet is planned. This rise in commercial use has coincided with a local population increase; the four towns along the corridor have seen a population increase of more than seven percent, and a 15% increase in the number of households (indicating more smaller households). The population is continuing to grow, with projections developed through 2045. Between 2000 and 2045, Westampton, Burlington Township, and Burlington City are expected to grow 35.8%, 15.3% and 11.5%, respectively, while Mount Holly is expected to shrink by 5.3% (Figure 19).

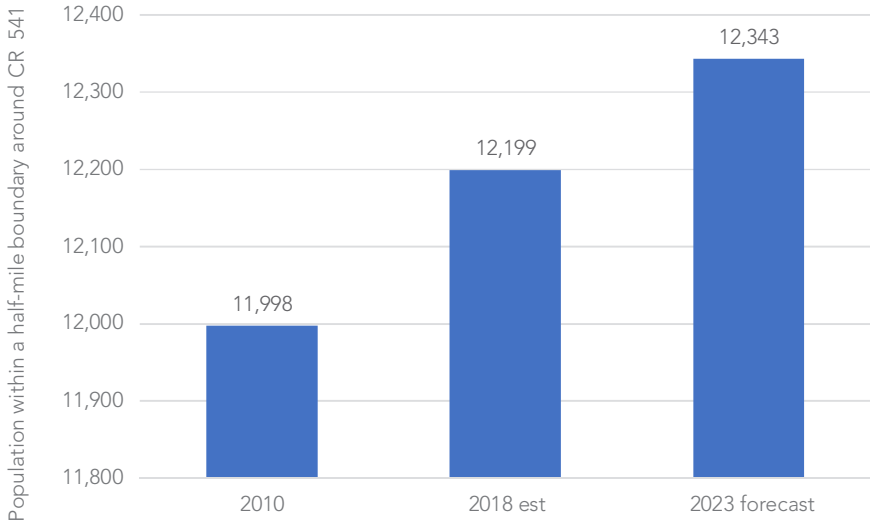


Figure 19: Population within half-mile boundary around CR 541

Travel Patterns

Like much of the state and nation, most commuters surrounding the CR 541 corridor commute by car. 77% of commuters in the four study area municipalities travel in a single-occupant vehicle. This varies slightly from municipality to municipality, with Westhampton having the highest rate of single-passenger commuting at 88%. Due to limited proximity and service of public transit, commuting by public transit is minimal in the four study area communities. In Burlington City, home to several New Jersey Transit bus routes and two River Line light rail stations, 5.3% of commuters use public transit.

55% of commuters in Burlington County commute within the County while 12.3% travel south to Camden County and 10.4% north to Mercer County. Commute times in the four municipalities are generally in line with County and State averages, ranging from 24.2 minutes in Mount Holly to 28.7 minutes in Burlington Township, compared with 28.1 minutes in Burlington County, and 29.8 minutes for New Jersey.



Figure 20: CR 541 at Elbow Lane


Cadillac Dr
Liberty Sq
NO TURNS
NO TURNS
LIBERTY SQUARE
Walmart
Marshalls
HomeGoods
ROSS DRESS FOR LESS
dollarzone!
SPEED LIMIT 50
AE
RETAIL SPACE AVAILABLE

Public Transportation

The NJ Transit #413 bus route is the only public transit service along the CR 541 corridor. NJ Transit bus routes #417 and #418 provide limited service near the southern portion of the project corridor east of the Mount Holly Bypass and outside of the project limits. Route #413 service begins at Walter Rand Transportation Center in Camden and travels through several municipalities to Burlington City, primarily along Route 38, Marne Highway, and CR 541. Weekday headways are 30 minutes until 10:00 AM, hour headways until 8:00 PM, and limited service after 8:00 PM. Weekend headways are one hour. At the Walter Rand Transportation Center, connection is available to the PATCO Speedline east to Lindenwold and west to Philadelphia, and several other bus routes. Along the CR 541 corridor, there are 14 marked stops and connections to the #409 and #419 NJ Transit buses, the River Line and the BurLink Shuttle.

Along the #413 bus route, overall ridership, as well as weekday, Saturday, and Sunday ridership figures between 2013 and 2017 were reviewed. Ridership along the route has steadily decreased from nearly 18,000, 13,000, and 10,000 weekday, Saturday, and Sunday riders, respectively, in 2013 to 13,500, 10,000, and 8,000 riders in 2017, marking a 20-25% decrease. This compares to the 5% decrease in bus ridership statewide, despite a slight increase in the local population over the same time. It is unclear whether the transit trips disappeared entirely or switched to other modes such as single-occupancy vehicles or ride-hailing services such as Uber.

Figure 22 shows the change in ridership on Route #413 over the past five years.

Route #417 bus service provides express service from Mount Holly and Willingboro to Philadelphia. The closest stop to the project corridor is at the Fairgrounds Plaza in Mount Holly. This is a weekday service with approximately 30-minute headways with four AM trips to Philadelphia and four PM trips to South Jersey. This

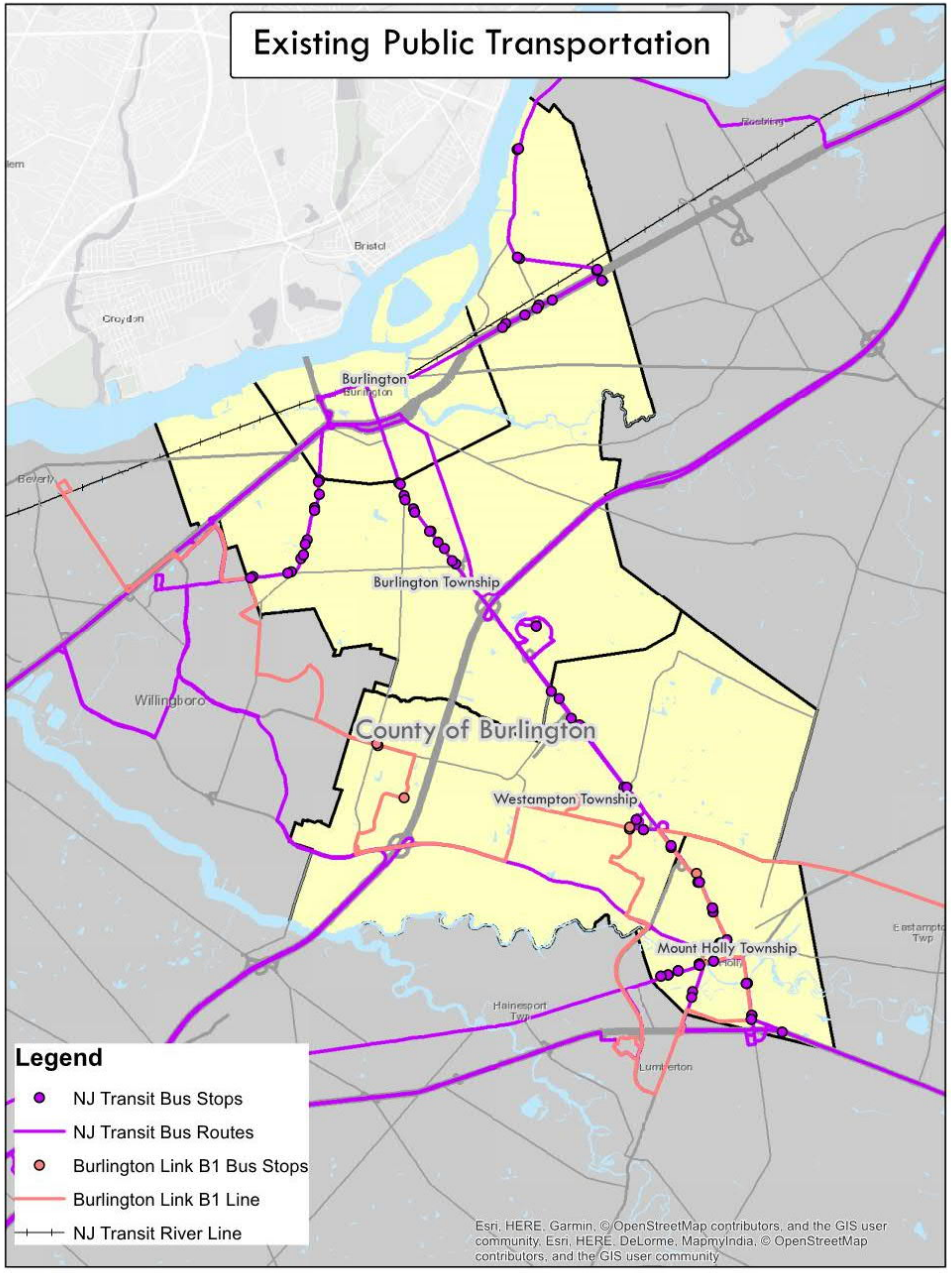


Figure 21: Existing Public Transportation

Data Source(s): New Jersey Department of Transportation Congestion Management System (accessed 01/2019)

route has an average daily ridership of 85 passengers (2017 NJ Transit data).

Route #418 bus service provides service between Philadelphia and the Trenton Transit Center, primarily along U.S. 130. The closest stop to the project corridor is at High Street and Broad Street in Burlington City. This route has an average daily weekday ridership of 20 passengers with no weekend service available (2017 NJ Transit data).

The Burlington County Board of Chosen Freeholders provides a shuttle service via BurLink. The BurLink buses connect with several NJ Transit bus routes and River Line stations. This service is operated by Stout's Transportation Services and is funded by the Federal Transit Administration, NJ Transit, and Burlington County. The BurLink currently has one active route (B1) providing service in the vicinity of the project corridor. The B1 Route provides service between the Beverly/ Edgewater Park River Line station and Browns Mills/Country Lakes with 11 stops in Willingboro, Westampton, Lumberton, Mount Holly, and Pemberton. The closest stop to the project corridor is at Fairgrounds Plaza in Mount Holly. This service operates with one hour headways and has a daily ridership of 207 passengers (2017 Burlington County ridership data).



Figure 22: NJT 413 Ridership

Ridership figures over the same timespan were also reviewed for nearby routes, namely Route #417, Route #418, and Route #B1. Each of these routes have fewer riders than Route #413, though have experienced similar declines.

Ridership data for the past 5 years on the peripheral transit routes is illustrated in Figure 23 respectively.

Data Source(s): Ridership statistics provided by NJ Transit for NJT bus routes and Burlington County for BurLink Bus Services

Bicycle and Pedestrian Conditions

Though the CR 541 corridor primarily carries vehicular traffic, there is also pedestrian and bicycle demand along the corridor.

Existing pedestrian and bicycle infrastructure in the study area were mapped, including sidewalks, crosswalks, and shared-use paths.

Walking Conditions

CR 541 north of I-295 generally has good sidewalk coverage on both sides of the street, including the segments where residential and retail uses are congregated. Additionally, there is moderate sidewalk coverage south of Woodlane Road. Elsewhere, sidewalks are located along a handful of lots, but lack connectivity.

The northern section of the corridor has decent crosswalk prevalence, particularly north of Rancocas Road. Additionally, there are multiple intersections featuring crosswalks near Sunset Road, and Elbow Lane. Elsewhere, crosswalks are located sporadically, and often do not connect to existing sidewalks.

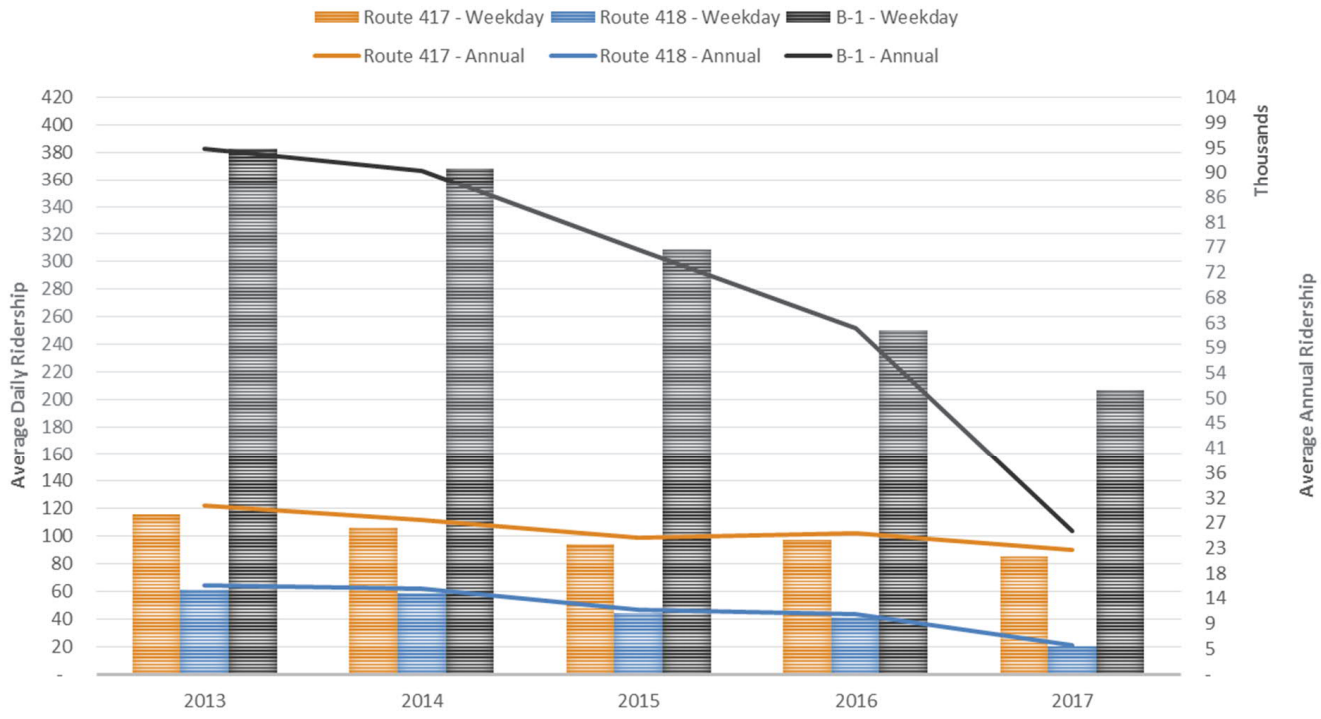


Figure 23: Peripheral Transit Route Ridership

Biking Conditions

Two short shared-use paths operate near CR 541; one on Woodlane Road west of CR 541, and another on Bromley Boulevard. The Woodlane Road path begins west of CR 541 in front of the Burlington County Social Services building and extends 0.66 miles west to Pioneer Boulevard where many county services, including the county library, are located. The Bromley Boulevard path runs for 1.16 miles and extends from CR 541 to nearby residential neighborhoods. A map of existing biking and walking conditions is presented in Figure 24.

Data Source(s): Ridership statistics provided by NJ Transit for NJT bus routes and Burlington County for BurLink Bus Services


CITGO
CITGO
Joe Canal's
Liquor
Wine
Beer
CIGAR
Sunset

Bicycle Level of Traffic Stress

Bicycle level of traffic stress (LTS) measures a cyclist's expected comfort based on roadway conditions. Each bicyclist has a different tolerance for stress created by the volume, speed, and proximity of automobile traffic. The LTS metric is based on the Dutch concept of low-stress bicycle facilities. In general, lower stress facilities have increased separation between cyclists and vehicular traffic and/or lower speeds and traffic volumes. Higher stress environments generally involve cyclists riding near traffic, multi-lane roadways, and higher speeds or traffic volumes; a condition undesirable for most cyclists. Based on an analysis of the criteria, the LTS for a given roadway segment is classified into one of four categories. The four categories build open one another, so all LTS 4 cyclists would tolerate an LTS 1-4 roadway, LTS 3 cyclists would tolerate LTS 1-3 roadways, etc.

The four LTS categories are:

- Level of Traffic Stress 1: tolerated by most users (including children and seniors)
- Level of Traffic Stress 2: tolerated by most adults
- Level of Traffic Stress 3: tolerated by "enthusiastic" riders who might still prefer dedicated space
- Level of Traffic Stress 4: tolerated by only the most experienced riders

LTS was measured for the CR 541 study corridor and adjacent, and perpendicular roadways. The project team assessed the roadways using a variety of data sources, including base mapping, GIS data files and NJDOT Straight Line Diagrams and traffic data. The team also conducted field evaluations to measure and verify the various roadway features, character, parameters, and user behavior. For many of the local roads in the study area, basic assumptions were made for their typical characteristics, such as traffic volumes and roadway width. Additionally, LTS includes factoring in the posted speed limit of a corridor, but not the actual (or prevailing) speed. The results of the LTS analysis are presented in Figure 25.

The entirety of the study corridor has an LTS 4 due to high

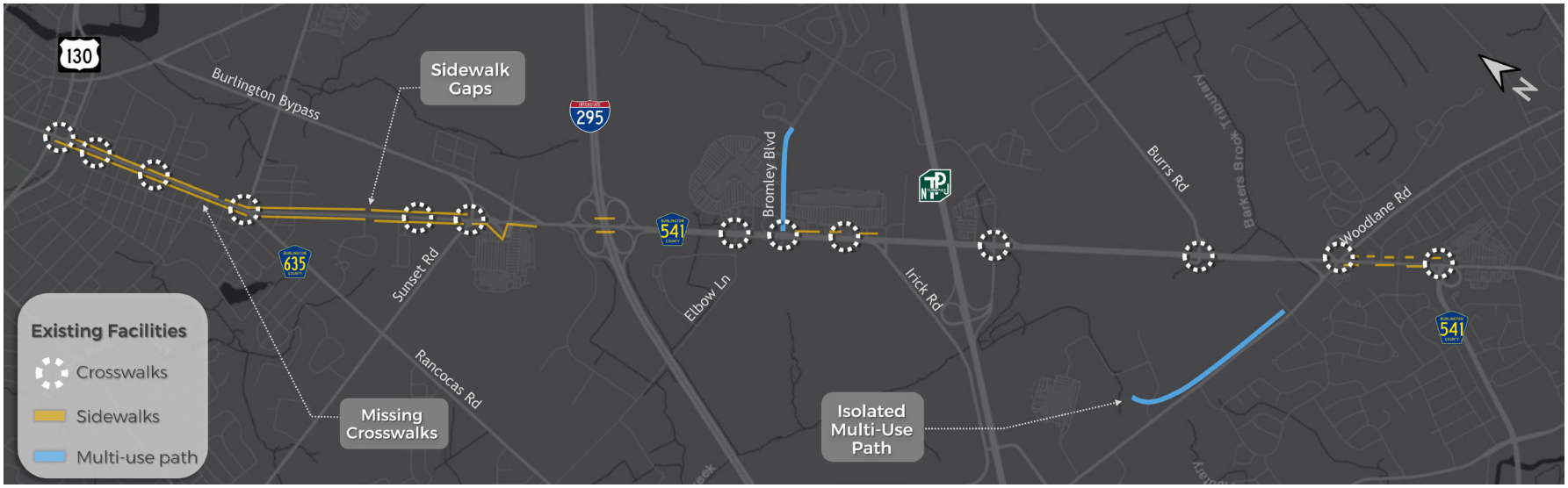


Figure 24: 2019 Existing Bicycle and Pedestrian Conditions and Deficiencies

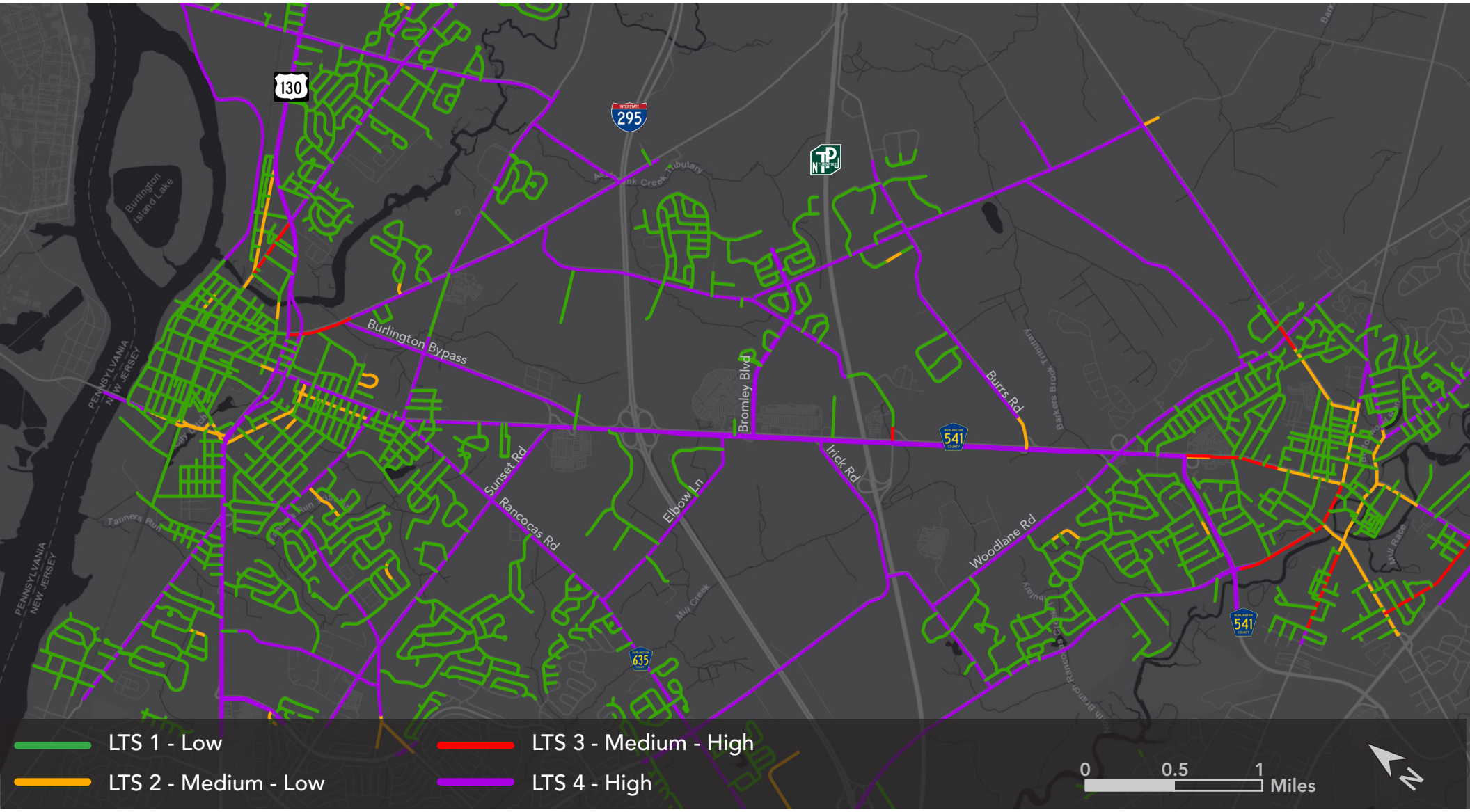


Figure 25: Level of Traffic Stress for Bicyclists in the Study Area



Figure 26: CR 541 at Bromley Boulevard

volumes, wide roadbed, and high speeds. CR 541 south of the Mount Holly Bypass has an LTS 3 while the extension of High Street into Burlington City has an LTS 1/2. Classification of a corridor as LTS 4 indicates only the most experienced and confident bike riders are comfortable riding the corridor. Many of the intersecting streets also operate with an LTS 4 due to high speeds and high volumes, including U.S. 130, Fountain Avenue, Rancocas Road, Sunset Road, Elbow Lane, Bromley Boulevard, Woodlane Road, and the Mount Holly Bypass.



Figure 27: Annual Average Daily Traffic in the Study Area

Vehicular Conditions

Roadway Characteristics

Bridge Management Systems Data

The NJDOT Bridge Management Unit supplied priority rankings for the project corridor. The ranking ranges from 1 to 5 with 1 being a high priority and 5 being a low priority. Between MP 17.4 and 23.84, the Bridge Management System identified four structures. One structure identified as 03D4-105 was ranked with a BMS ranking of 5. The structure was not identified as Functionally Obsolete or Structurally Deficient. The other three identified structures included 0327-173, 0327-174, M044360.

The NJDOT Pavement and Drainage Management Unit does not supply system data for county roadways.

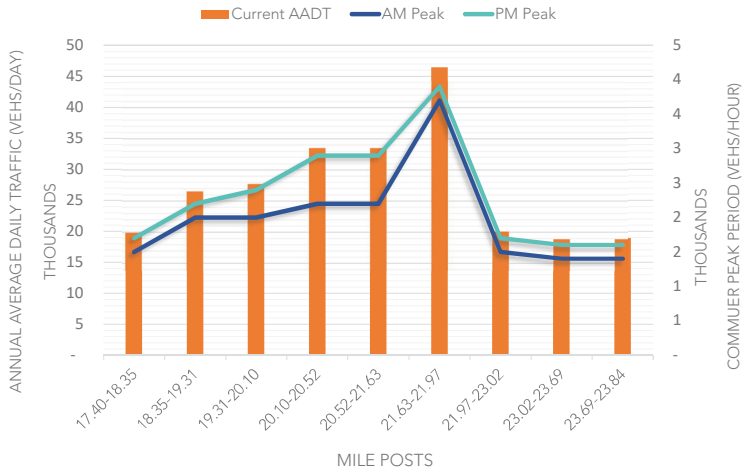


Figure 28: Traffic Volume Summary

Traffic Counts

Traffic count reports collected as part of the New Jersey Traffic Monitoring Program were compiled for the project corridor. A background growth factor for the corridor was utilized to develop current traffic volumes based on information supplied by the New Jersey Department of Transportation in their Annual Background Growth Rate Table. As shown in Figure 27 and Figure 28, daily traffic volumes fluctuated along the project corridor with higher volumes concentrated near the major interchanges.

The annual average daily traffic (AADT) is measured in vehicles per day. According to DVRPC traffic counts, taken between 2013 and 2017, the highest AADT (45,196) within the corridor is found between Connecticut Drive and Cadillac Road in Burlington Township, which is coincident to the area with the highest number of crashes. Between Dresser Avenue and Kelly Drive, also in Burlington Township, the AADT was just under 20,000 (19,242). This decrease in the number of vehicles on the northern section of CR 541 may be attributed to the Burlington Bypass, which a had an AADT (8,705) and was built to relieve the traffic on CR 541 between I-295 and US 130. In Westampton Township the AADT was 35,088 between Hancock Lane and Western Drive, 27,551 between Burrs Road and Hancock Lane and 28,994 between Woodlane Road and Burrs Road.

Traffic Analysis

A variety of vehicular traffic indicators were reviewed as part of the traffic analysis to extrapolate projections and feed the land use build-out analysis.

Congestion

Probe Data Analytics (PDA) Suite data from 2018 was reviewed along the project corridor. Based on INRIX data, the PDA Suite provides Travel Time Indices (TTI) for the corridor throughout the day. The TTI is a ratio of the travel time for a given time period compared to travel time under free flow conditions. For example, a TTI of 1.5 indicates a peak hour trip takes 50% longer than during free flow conditions.

The TTI screen for the project corridor is shown in Figure 29. The greatest congestion in the southbound direction was recorded on the segment approaching the Mount Holly Bypass during the midday peak period, with a TTI of 2.0, indicating significant congestion. The greatest congestion in the northbound direction was recorded in the segment approaching U.S. 130 during the PM peak period, with a TTI of 1.6., indicating considerable congestion.

Other sections experiencing considerable congestion include:

- Southbound direction:
  - Segment approaching Rancocas Road (CR 626) during the majority of the day
  - Segment approaching Hancock Lane during the morning, midday, and afternoon peaks
  - Segment approach U.S. 130 during the midday and afternoon peaks
  - Segment between U.S. 130 and the Burlington City line during the afternoon peak
- Northbound direction:
  - Segment between the Burlington City line and U.S. 130 during the afternoon peak

NJDOT's Congestion Management System (CMS) database identifies congestion issues within the state highway system. The project corridor is on the list of Congested Commuter Corridors. Within the CMS, the project corridor is divided into 11 segments. The CMS scores and rankings are based upon AM and PM v/c

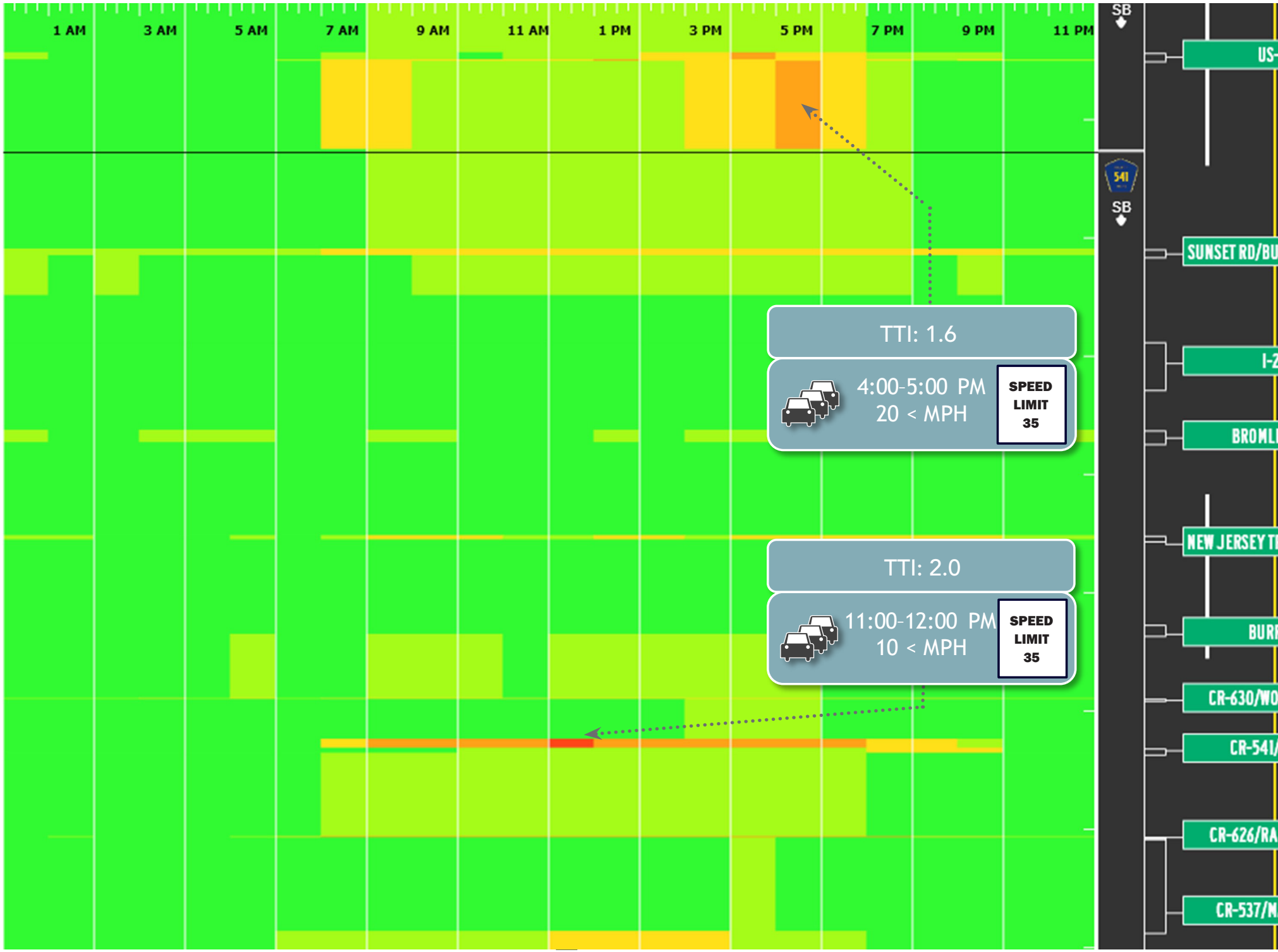
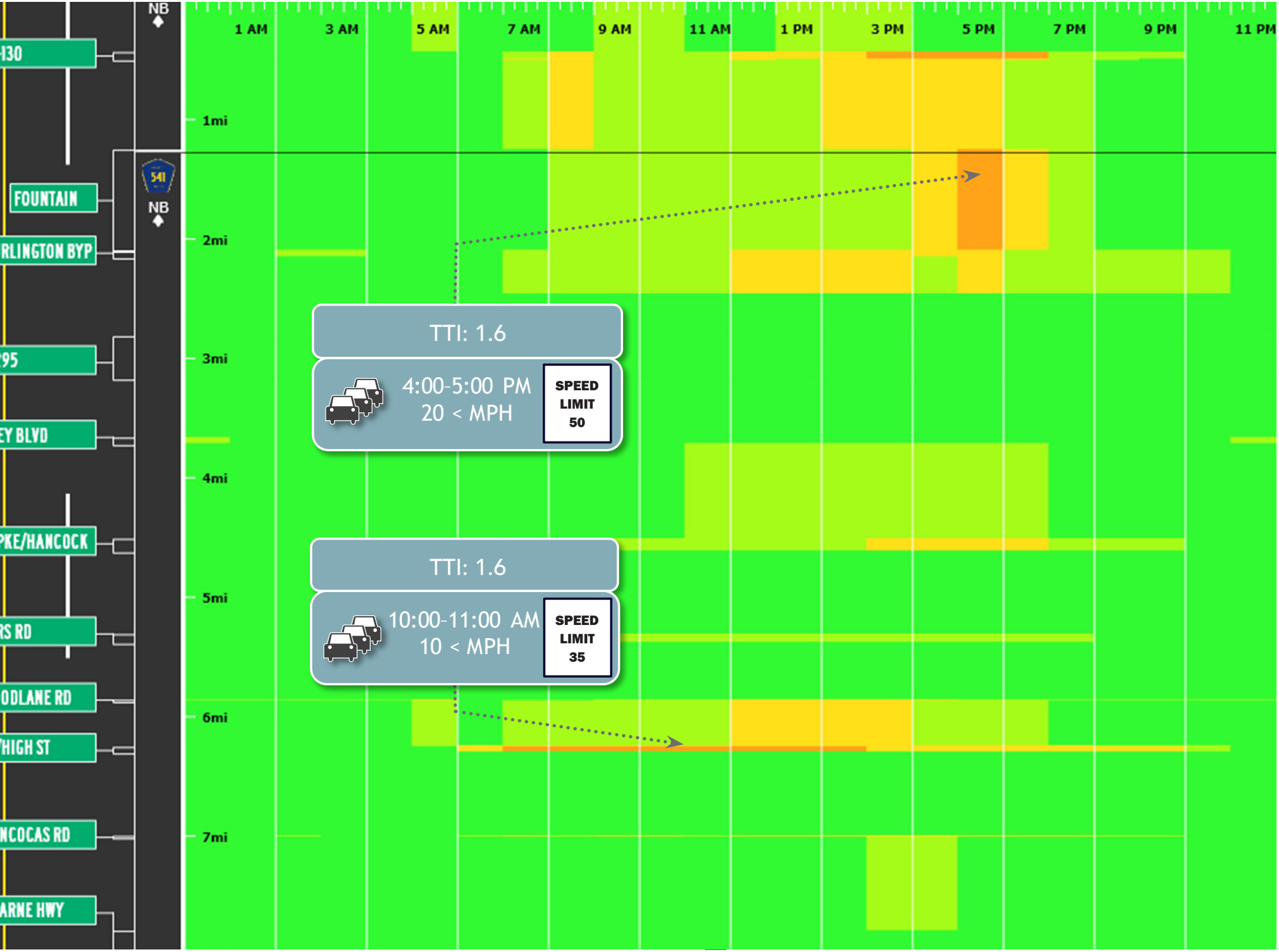


Figure 29: Travel Time Index (TTI) for C



R 541 Study Corridor, Weekday of 2018

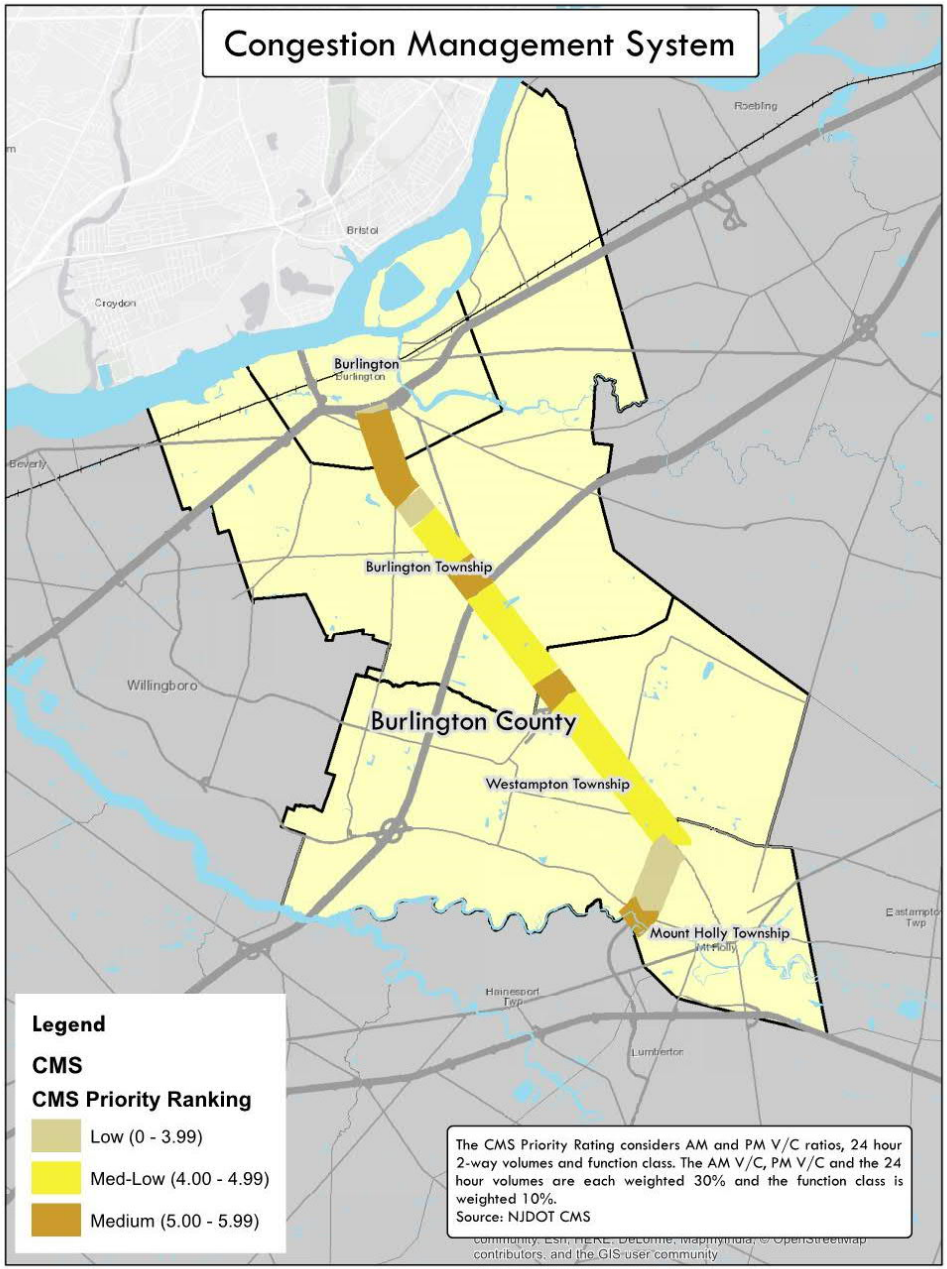


Figure 30: Congestion Management Systems Ratings

ratios, 24-hour two-way volumes, and functional class. Scoring ranges from 1 to 10 with 1 being a low priority and 10 being a high priority.

As shown in Figure 30, the CMS identified the highest score along the corridor between MP 22.85 to 23.77 which is considered 'moderately congested'. There were no sections of the project corridor rated Medium-High or High. The two sections of the project corridor with Medium priority rankings include:

- MP 20.27-20.52: New Jersey Turnpike to Irick Road (CR 637)
- MP 22.85-23.77: Dresser/Ellis Avenues to U.S. 130 northbound (highest overall ranking)

Speeds are slowest at the Mount Holly Bypass (10 mph) in the morning rush hour, and between U.S. 130 and Fountain Road (20 mph) in the evening rush hour. Level of service (LOS) is used to determine how well an intersection functions and how great the traffic delay is. The following list provides a general description of each LOS score based on the Transportation Research Board's Highway Capacity Manual:

- A-free flow
- B-reasonably free flow
- C-stable flow
- D-approaching unstable flow
- E-unstable flow
- F-forced or breakdown flow

The corridor is moderately congested, with significant queuing required at several intersections and operates with an LOS F at several intersections, being at capacity. Intersections along the corridor with a substandard level of service (E or F) include Connecticut Drive (in both AM and

PM peaks), Sunset Road (AM peak), Bromley Boulevard (AM peak), and Elbow Lane (PM Peak). Additional intersections operate with moderate congestion and a level of service C or D.

Crash Analysis

The project team reviewed all crashes occurring within 300 feet of the corridor obtained from NJDOT's Safety Voyager database to identify problem areas and trends (Figure 31 and Figure 33). The analysis included data between the 2013 and 2017, with this time frame being the most recent complete five-year dataset available. A crash hotspot map was developed to determine areas with higher concentrations of crashes.

1,965 crashes occurred within 300 feet of the corridor. Crashes were generally spread throughout the corridor, with the most prominent hotspot being centered around the intersection with Sunset Road, accounting for 610 crashes. An additional 367 crashes occurred south of the I-295 interchange near Bromley Boulevard and the Towne Center Shopping Center. Additional, though less statistically significant hotspots are located near intersections with Rancocas Road, Hancock Lane, and Woodlane Road.

The highest incident of crashes (610) along the corridor are found between Wishing Well Plaza and the Burlington Bypass,

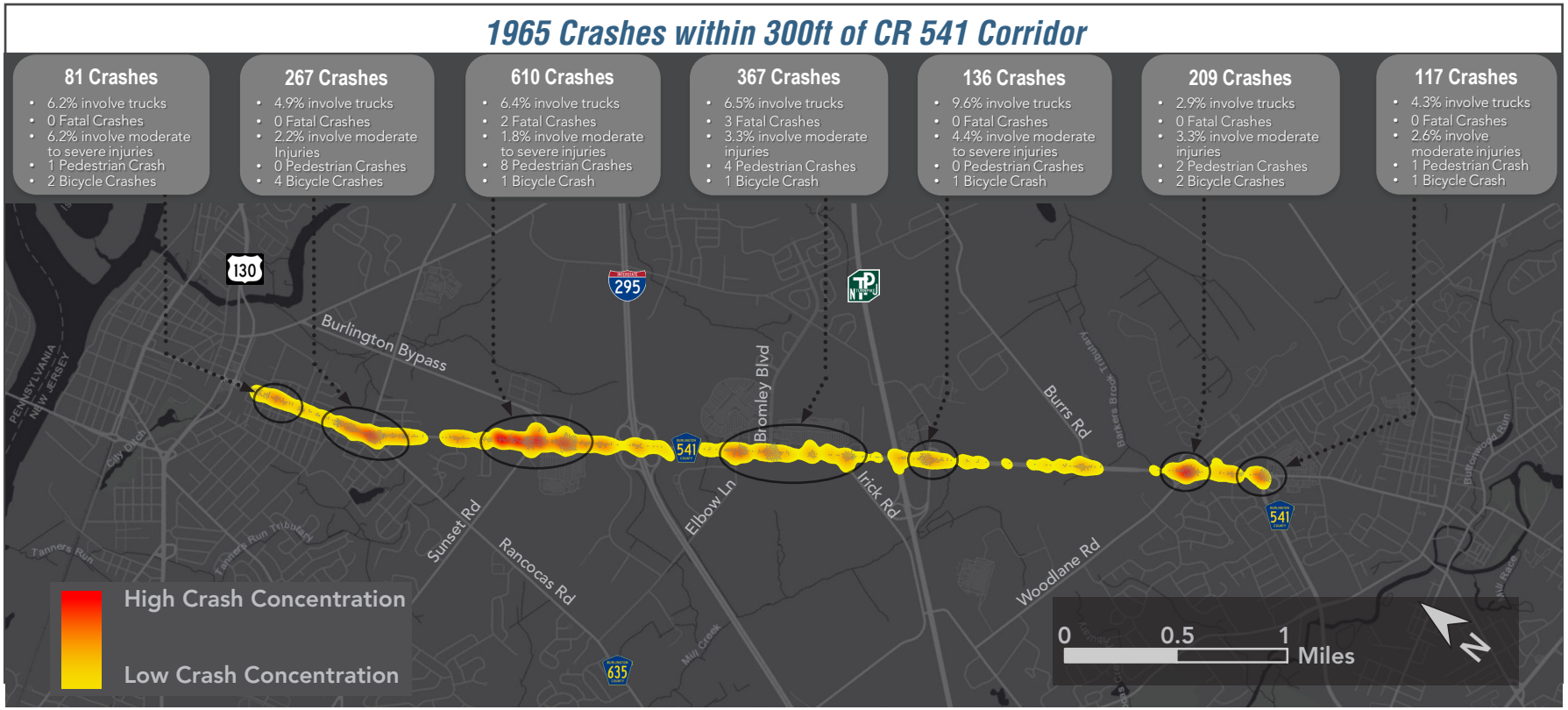


Figure 31: Crash Analysis (2013-2017)

which includes the intersection with Sunset Road. This area also had the most pedestrian crashes (8). The area between Elbow Lane and Irick Road, had the second most crashes (367) but the most fatal crashes (3). The intersection at Hancock Lane and the New Jersey Turnpike had the highest percentage of crashes involving trucks (9.6%). The Five Points intersection experience the highest number of bicycle crashes (4). In all there were 30 crashes involving a bicycle and 17 involving pedestrians. At the intersection of CR 541, CR 691 and the Mount Holly Bypass, 117 crashes were recorded.

Pedestrian and cyclist crashes accounted for 17 and 30 crashes, respectively, in the study area, with most occurring at intersections.

Utilizing statewide averages for a variety of pre-determined crash types, several overrepresentations were identified in the study area including same direction-rear ends (53% in study area, versus 34% in County and 32% in state), and same direction-sideswipes (17% in study area, 11% in county, and 13% in state).



Figure 32: CR 541 at Morris St

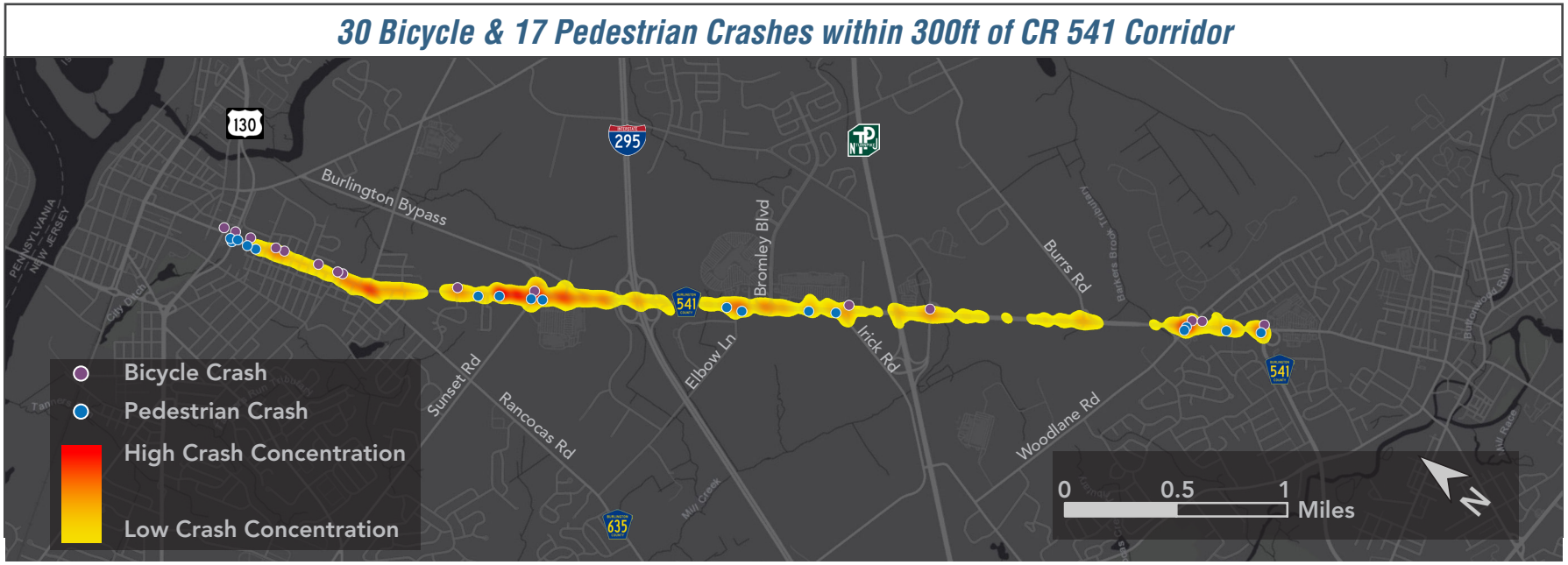


Figure 33: Bicycle and Pedestrian Crashes (2013-2017)



Public Outreach

A multifaceted and thorough community outreach process was conducted to elicit public input for the project. The public outreach process consisted of the following methods, each detailed in the subsequent sections:

- Open House Meetings
- Steering Advisory Committee (SAC) Meetings
- Online Survey
- Wikimap

Open House Meetings

A critical step toward the success of the plan was engaging with the community to gather input from local residents who live, work and/or commute along the corridor. Early in the process, EDRP, with the assistance of WSP, organized and facilitated two public open houses. Westampton Township hosted the first open house on Monday, September 23, 2019 and Burlington Township hosted the second on Saturday, September 28, 2019. The open houses were designed to offer the members of the community a venue to share their concerns and experiences and offer suggestions. Attendees were encouraged to participate in a question and answer session as well as markup poster-sized maps of the corridor with their concerns and suggestions for improvement. Additionally, an interactive map prepared by WSP and hosted via WikiMap, was available during the open houses and online between August 2019 and October 2019. This digital tool gave the public yet another opportunity to share comments and suggestions and relate them to specific points and areas on a map (Figure 41).

In total, approximately 50 citizens attended the two open house



Figure 34: Open House #1

meetings and provided feedback. The majority of the comments focused on three main categories: access, congestion and safety, (Figure 39). Spatially, most of the feedback was concentrated mostly in Section 2 of the corridor, around Five Points, Sunset Road and Interstate 295. The areas around U.S. 130, the former Burlington Center Mall, the New Jersey Turnpike and Woodlane Road also received multiple comments. The feedback provided from the two open houses was furthered refined by EDRP and WSP staff and is summarized below by individual Section.

Section 1

Public comments focused primarily on safety, congestion and the complex configuration of the dual intersections between



Figure 35: Open House #2

U.S. Route 130 and CR 541. Respondents suggested that high speeds, on-street parking and increased traffic leading up to the intersection contribute to the congestion and safety concerns.

Section 2

The public noted congestion, frequent crashes, increased truck traffic and the lack of sidewalks and pedestrian crossings along 13th Street and Rancocas Road as the primary issues in the Five Points area. Citizens noted that commuters use Kelly Drive and Finnegan's Way as a cut through between CR 541 and Rancocas Road, which compound circulation problems. Crosswalks, sidewalks and a traffic signal are suggested at the intersection between Kelly Drive and CR 541.

The section of CR 541 between the Wishing Well Plaza and the I-295 interchange had the highest number of comments regarding congestion and access. Concerns about access in and out of both Wishing Well Plaza and neighboring Wawa to and from CR 541 were raised. Respondents suggested the installation of a center median, alternate access points into the establishments and a new connector road from CR 541 to the Burlington Bypass as possible methods to reduce these traffic conflicts. Frequent crashes at the intersection of CR 541 and Sunset Road and Wedgewood Drive were noted and attributed to congestion, excessive curb cuts and confusing geometry. Respondents indicated that the intersection between CR 541, Cadillac Road and the Burlington Bypass was difficult to navigate and improved signage or a complete redesign was needed to reduce confusion. Trucks exiting from Connecticut Drive merging onto CR 541 South was noted as a major conflict that needed to be addressed. Commenters indicated more sidewalks and pedestrian and bicycle improvements are needed in this section of CR 541.

Section 3

Respondents identified the high occurrence of automobiles weaving on CR 541 South between I-295 interchange and the left turn into Towne Center Shopping Center. It was also noted that the queue in the jughandle for Bromley Boulevard can extend into traffic along CR 541. Commenters noted the high number of trucks utilizing the intersection between CR 541 and Elbow Road. Finally, the public wishes to see circulation improvements at the intersection with Irick Road in conjunction with the future construction of the Fountain Square Shopping Center.

Section 4

Comments in Section 4 were mainly focused on the intersection of CR 541 and Woodlane Road (CR 630). Respondents believed that the jughandle on the northeast side caused difficulty merging into traffic and excessive weaving. Additionally, citizens indicated the ramp on the northwest side caused traffic conflicts. Trucks backing up at the jughandle with Burrs Road and poor site distances along Hancock Lane were also identified as traffic issues in this section.

Steering Advisory Committee Meetings

The Steering Advisory Committee provided input and guidance at key intervals during the planning process. The SAC had more than a dozen members and included representatives from each of the study area municipalities, in addition to the Burlington County Engineering Department, Planning Board, and Board of Chosen Freeholders. In addition to regular interaction throughout the process, the SAC met with the project team during three meetings,

summarized below.

In addition to the community outreach described above, the EDRP worked closely with municipal representatives during each step of the process. A steering committee was formed consisting of elected officials and professional staff from each of the four municipalities, as well as County engineering and planning staffs. Additionally, during each phase of the project, the EDRP kept the municipalities informed and the municipalities provided local expertise to the analyses, as needed. At the end of the project, EDRP staff presented the findings to the County Freeholders, the municipal governing bodies and the public. Over the course of the project the following meetings were held:

- Two (2) workshop meetings with municipal staff and professionals
- Two (2) public open house meetings
- Three (3) steering committee meetings
- Four (4) municipal governing body meetings
- One (1) Burlington County Board of Chosen Freeholders meeting

Summaries of the three steering committee meetings are provided below.

SAC Meeting 1

The first SAC Meeting consisted of two meetings; each covering different areas. The first meeting included representatives from Burlington City and Burlington Township, and the second involved committee members in Westampton and Mount Holly. During each meeting, the entirety of the study area corridor was discussed. Both meetings were facilitated by members of the project team and Burlington County Bridge Commission.



Figure 36: Open House #2

The primary task of the meeting was to obtain vital input about prevalent issues along the CR 541 corridor, future developments potentially impacting traffic patterns, and to hear general concerns from stakeholders. All forms of transportation were commented on during the meetings. Among others, the following points and issues were brought up during the two meetings:

- Residents along CR 541 have difficulty entering/exiting their driveways due to constant traffic flow
- Pedestrians frequently cross both of legs of U.S. 130 at CR 541, leading to traffic backups
- Navigation is generally confusing at the shopping centers at the intersection of Sunset Road and CR 541; also the location along

the corridor with the most crashes

- Pending redevelopment, the Burlington Center Mall site should have a left turn to CR 541 and potentially a reorganization of access roadways to improve circulation between CR 541, the New Jersey Turnpike, I-295, and the adjacent shopping centers.
- There are many pedestrians along CR 541 in Mount Holly and Westampton. Many of these people are travelling to and from the jail facility in Mount Holly, the Human Services facility at the intersection of Woodlane Road and CR 541, or the numerous commercial establishments along CR 541 between Woodlane Road and Ridgley Street/Levis Drive.
- An approved development will take shape in Mount Holly along Rancocas Road near the intersection with the Mount Holly Bypass. The planned development will bring 12,000 square feet of commercial space along with 96 residential townhouse units.
- The NJ Transit bus stops along the corridor are not well-lit and do not provide a safe place to cross the road. This issue was specifically cited at the intersection of CR 541 and Holly Lane. This bus stop lacks crosswalks, lighting, shelter, and sidewalk connectivity. These issues are present at most bus stops along the corridor, particularly south of I-295.
- Sidewalk gaps are prevalent along CR 541. An example provided by the stakeholders is the frontage of Frank's Barber Shop which has a fence forcing pedestrians onto the grass adjacent to the roadway. These sidewalk gaps make it nearly impossible for a wheelchair-bound person to navigate the corridor.
- The area near New Jersey Turnpike Exit 5 will host several new hotels in the future. As of December 2018, the proposed Fountain Square Shopping Center has been approved. The development will be located at the intersection of Irick Road and CR 541 and comprise 60,000 square feet of retail space, a bank, two drive-thru restaurants, a sit-down restaurant, and a four-story hotel. The project will include the addition of more than 650 new parking spaces. As an improvement to the circulation of the site, the existing intersection of CR 541 and Irick Road will be relocated to align with Western Drive. Two additional right-in right-out driveways will be built to improve access to the site.
- The Phase 2 Concept Site Plan for the proposed Virtua Hospital in Westampton creates a new access road between CR 541 and Woodlane Road. An auxiliary network of roadways within the site



Figure 37: Public Input during Open House #2

will connect the parking lots and numerous additional medical buildings with the primary hospital. The northern end of the access road will align with the existing Burrs Road intersection and serve as the primary access to the hospital from CR 541.

SAC Meeting 2

The second meeting of the Steering Advisory Committee focused on sharing of the initial data collection by the project team. This process included the following data/topics:

- Public Input
- Demographic data and trend analysis
- Travel Time Index
- Congestion management systems data
- Transit ridership data
- Traffic volumes
- Crash data and analysis

SAC Meeting 3

Due to mandatory social distancing guidelines in place during Winter/Spring of 2020, the third SAC meeting was held via the teleconferencing application Zoom. During the meeting, the project team updated the committee on changes and progress made since the previous meeting, with a focus on recommendations included in the transportation focus areas, active transportation (biking and walking) improvements, TDM strategies, and land use concepts.

Online Survey

To supplement the open houses, an online survey, created by the EDRP and hosted by Survey Monkey, was made available to the public between August 15, 2019 and October 31, 2019. The survey was promoted on various social media platforms, government websites and fliers posted in public areas within the study area. The fifteen question survey gave members of the community, who may have been unable to attend an open house in person, an alternate method to comment and provide feedback. Over 500 survey responses were received and the results are mapped in Figure 39. Feedback from the online survey reinforced many of the common issues and concerns expressed by the public through the open houses and interactive map. Some of the significant findings from the survey are summarized below:

- Most respondents lived in one of the four corridor municipalities
- Respondents did not feel comfortable walking or bicycling along CR 541
- By a significant margin, most trips along CR 541 involve shopping or running errands. Commuting to and from work was a distant second
- Burlington Township generates the most traffic
- By a narrow margin, most trips occur during the evening rush hour. The afternoon or the late evening were more popular than early morning
- Section 2, especially around Wishing Well Plaza, was the most problematic area of the Corridor
- Respondents would like to see improvements to CR 541 in the form of egress (businesses and intersections) and speediness (less lights, more lanes, higher speeds)
- More respondents use alternate roads to avoid CR 541 than do

not

- Respondents felt that they could easily access destinations by car, but not by walking or biking
- Shopping and businesses and highway access are valuable traits of CR 541 while congestion and traffic are considered negative traits of CR 541

Online survey desires included:

- Better signage (at high-demand turning locations and prompting trucks to use the Mount Holly Bypass)
- Improved streetscape designs (more trees, lighting, walkability emphasis, and narrower lanes in the north)
- More greenery in front of businesses and clearer access points near Shop Rite and Walmart; better signage and longer merging lanes
- Fewer left turn lanes (north of I-295), more consistency in the use of jughandles and left turn lanes; for example, left turn in/out of Wawa creates conflicts
- Improved traffic flow, eliminate traffic signals, time signals to reduce stops, widening lanes, or adding more lanes
- Increased bus frequency, better walking conditions, improved connections



Figure 38: Open House #2

Wikimap

An online "Wikimap" website was launched to collect place-based comments about transportation conditions along CR 541. Like hard copy maps used at public events, the web interface allows users to mark-up a virtual map of the corridor. Accessible to the general public, users were asked to identify problem locations.

Through public meetings and the online Wikimap, 84 comments were mapped, distributed into the following categories:

- Access
- Congestion
- Safety
- Pedestrian
- Enforcement

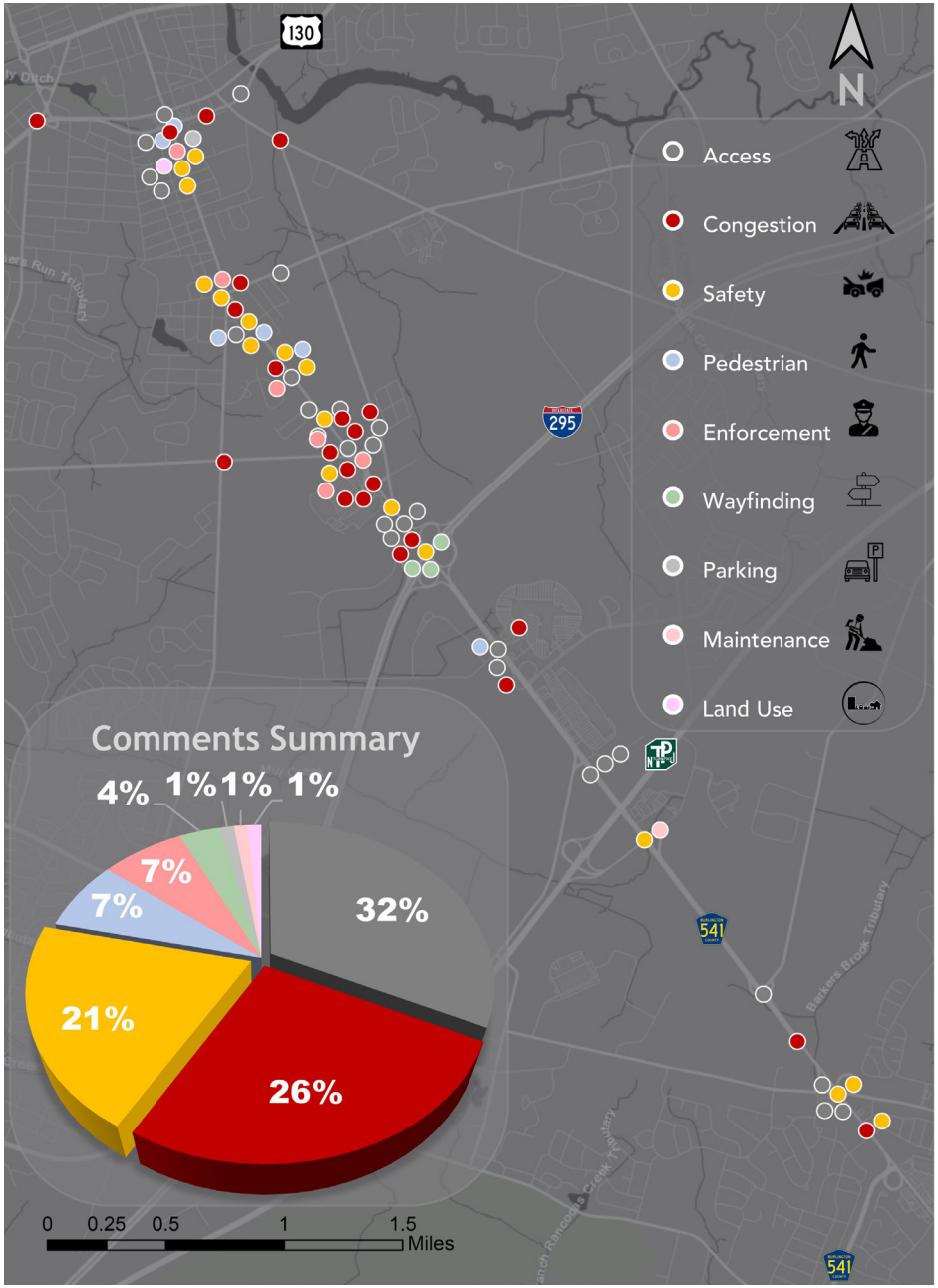


Figure 39: Public Input Summary

- Wayfinding
- Parking
- Maintenance
- Land Use

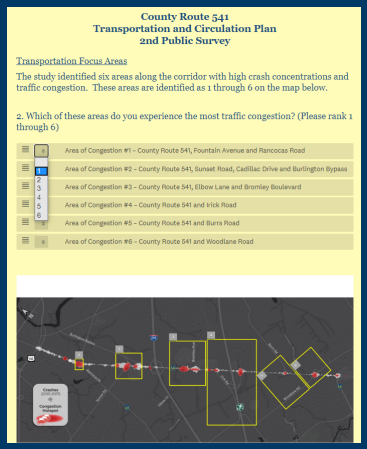


Figure 40: Second Online Survey Screenshot

Frequently cited issues included:

- Truck traffic along CR 541
- Lack of bicycle and pedestrian facilities
- Motorists do not yield
- Weaving traffic
- Left turns into shopping centers
- Linkage, signage and overall confusion about the Burlington Bypass

Between the survey and Wikimap, the most frequently cited problem intersections along the corridor include:

- U.S. 130
- Cadillac Road
- Entrance to Wawa/Wishing Well Plaza
- Sunset Road
- Kelly Drive
- Connecticut Drive
- Fountain Avenue

- Woodlane Road
- I-295

Second Online Survey

A second online survey was made available in place of a second open house, which was canceled due to limitations on public gatherings as a result of COVID-19. Questions focused on respondent's overall thoughts about the recommendations presented to the Steering Advisory Committee as well as responses to specific recommendations at several problem intersections. Almost 600 responses were received during a three-week period in late May and early June. The survey combined open and closed-ended questions, allowing respondents to provide written feedback as to why they answered in a certain way. Each question received 250-500 responses. Additionally, 805 individually written comments were provided supplementary to the closed-ended questions. Feedback from this survey reinforced the recommendations generated during project development and will help pinpoint which elements are most and least approved of, ultimately informing future outreach efforts.

This section provides a brief summary of the survey results, which are detailed in the Appendix.

- The corridor is most frequently used for shopping
    - Respondents were asked if they shop, live, and/or work along the corridor. The majority (70%) shop along the corridor and slightly less than half live along the corridor
- The northern portion of the corridor is most congested
    - The two most congested areas along the corridor are Rancocas Rd/Fountain Ave, and Sunset Rd/Cadillac Dr/ Burlington Bypass
- Reactions to the six transportation focus areas (subsequently presented on the page 74) are mostly positive with some concern about roundabouts

Five Points (CR 541, Fountain Ave, & Rancocas Rd)

- Slightly less than half of respondents approve of the need to acquire property to implement recommendations (such as roundabouts); 35% disapprove; respondents express substantial concern about the negative impact of roundabouts on crashes, and the amount of confusion they cause; respondents expressed concerns about truck traffic at this intersection

Sunset Road at Burlington Bypass

- 60% approve of the recommended improvements near Wawa and Wishing Well Plaza; respondents approve of the need to improve safety entering/exiting Wawa as well as improving access to Wishing Well Plaza, but expressed concern about the need for roundabouts

Elbow Lane and Bromley Blvd

- 75% agree with the reconfiguration of Bromley Blvd and Elbow Lane to divert trucks from vehicular traffic access the shopping centers and residential neighborhoods

NJT Entrance and Irick Road

- Only 8% of respondents felt that this area was among the most congested

Burrs Road

- Only 6% of respondents felt that this area was among the most congested
- 85% approve of a new connector road between Burrs Road and Woodlane Road and believe this will relieve traffic at

the CR 541 and Woodlane Road intersection

Woodlane Road

- Recommended improvements to the CR 541 Woodland Road intersection were positively received; almost 70% of the respondents support a connector road from CR 541 to Tarnsfield Road

Bicycle and pedestrian improvements

- 80% approve of the need for sidewalks, crosswalks, and a shared-use path, especially near Woodlane Road to connect with county facilities; respondents indicated bicycle and pedestrian safety was a priority and crosswalks should be prioritized at key signalized intersections

- Overall, respondents are pleased with the recommendations
  - 77% of respondent's expressed they were satisfied with the recommendations and only 1% stated they were "very unsatisfied"

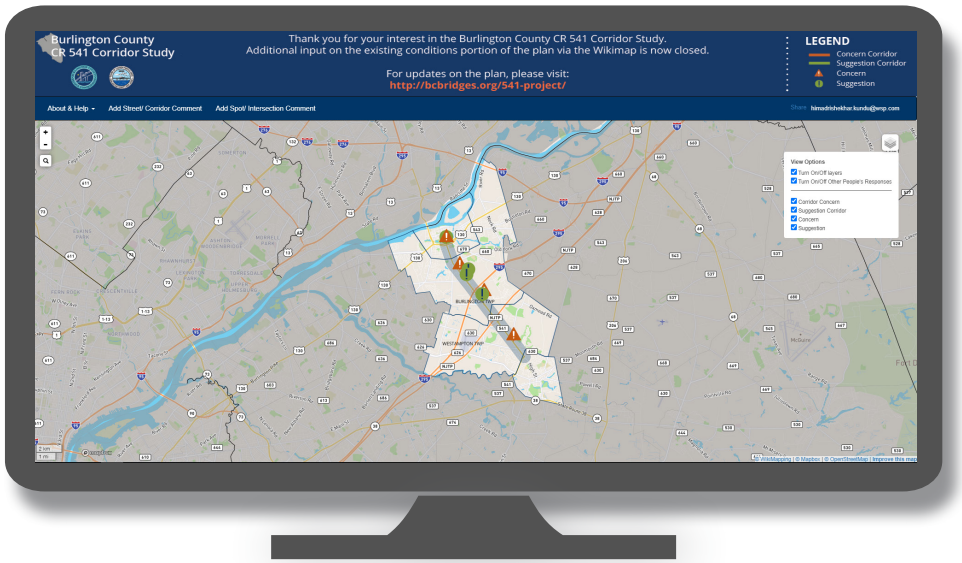


Figure 41: Wikimap Screenshot



Figure 42: CR 541 at New Jersey Turnpike entrance


SPEED LIMIT 45
RIGHT LANE MUST TURN RIGHT
Wawa
REGULAR
2.56 9/10
DIESEL
2.99 9/10
No Surcharge ATM
PNC BANK
Chick-fil-A
BREAKFAST
STOP
FOR LEASE
Buy 2 packs and SAVE $1.50 with the Wawa CARD
Buy 2 packs and SAVE $5.50
Newport
Save SAVE $2.00 per carton

PROPOSED

Land Use Build-Out Analysis

The purpose of the land use build-out analysis is to calculate the amount of additional development square footage available in the study area under current zoning conditions. The results of the buildout analysis are necessary to improve the accuracy of modeling future traffic impacts of development. Since different types of development generate various volumes at different times of day, the buildout analysis must provide a comprehensive analysis of developable land in all residential, commercial, and industrial zones. The methods used to assess future growth potential in the study area are described below, followed by the results of the analysis which were used to model future traffic scenarios.

The amount of developable land was calculated by excluding existing building footprints, environmental constraints, permanently preserved land, and undersized lots, and calculating available building density based on the zoning regulations detailed in section beginning on page 14.

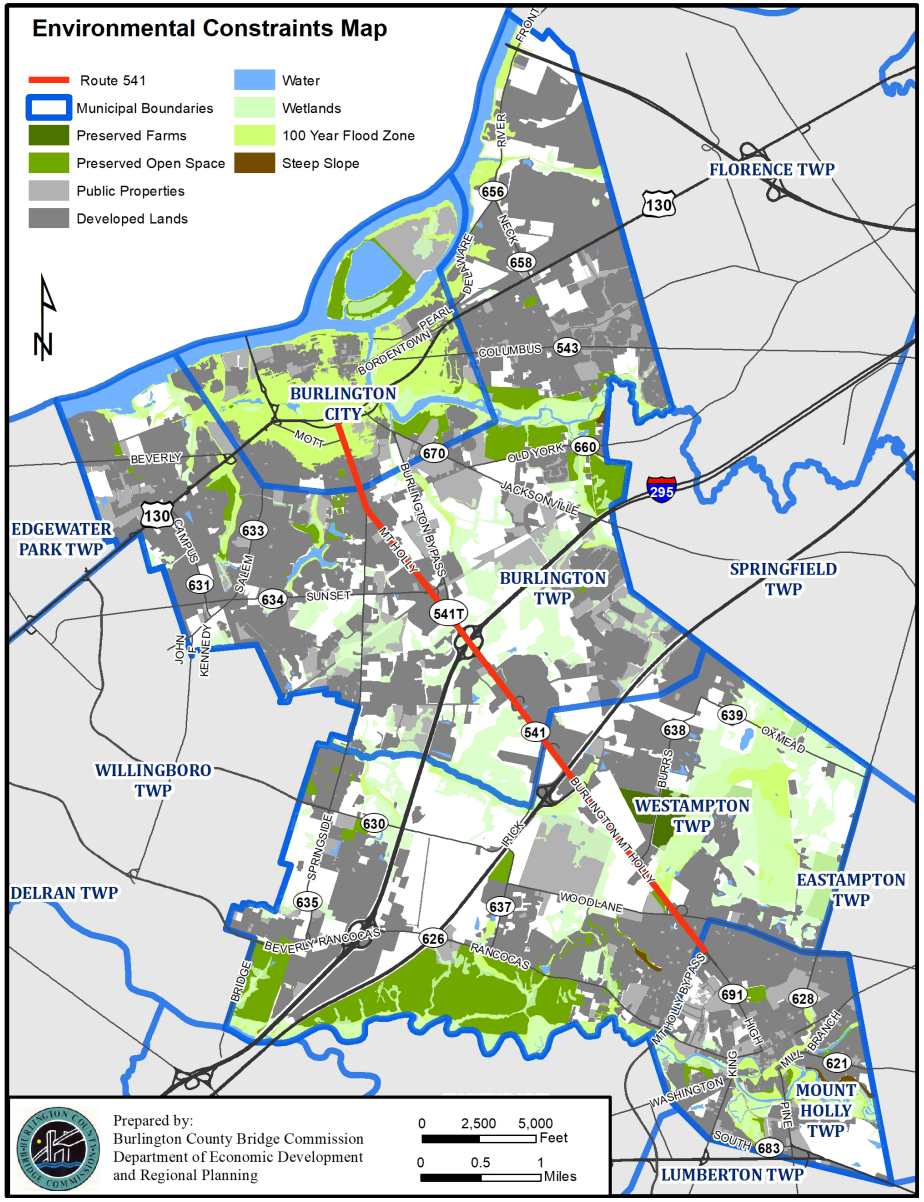


Figure 43: Environmental Constraints Map



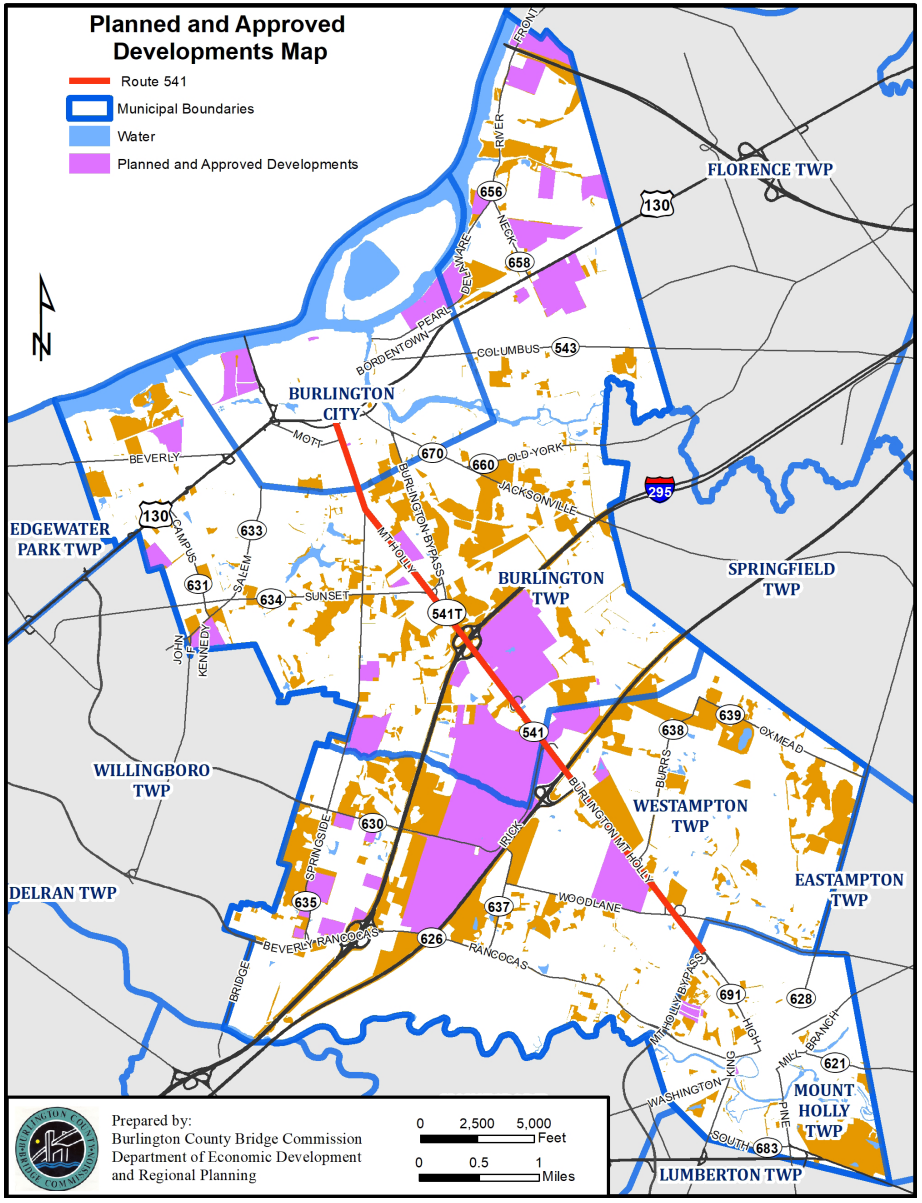


Figure 44: Planned and Approved Developments Map

Additionally, both approved and plan developments received from local municipalities were gathered.

The list of geospatial data as shown in Table 7, with their sources was utilized to develop a map of environmental and developmental constraints.

The overriding process for finding all developable land in the study area begins with the full cadastre of the four towns, and progressively removing undevelopable land from the parcels.

Parcels involved in currently planned or approved developments were removed from the buildout analysis because their development potential is already known. Each municipality provided details of site plan and subdivision applications and approvals for developments that have entered the municipal development process. Such developments range in status from construction phases to pre-proposal talks with the municipalities. Information was provided for 44 projects throughout the four towns and their locations shown in Figure 44. These developments include 21 pending applications; three in the approval process, 13 fully approved but not under construction, five under construction, and two existing but unoccupied buildings with plans for occupancy. Together these projects represent over 11,000,000 square feet of future commercial and industrial space, as well as 1,204-1,604 new housing units.

Other parcels were removed from the buildout analysis entirely because they are considered to have no future development potential. Any parcels that are deed restricted as preserved farmland, are in the Registered Open Space Inventory (ROSI), or designated tax assessment property class "15" (i.e. schools, public property, churches, charities, cemeteries, and other exempt properties) were eliminated as potential developable parcels.

The land-use/land-cover data from NJ DEP categorizes land from aerial imagery in several land-cover types such

Environmental Constraints		Development Constraints	
Data	Source	Data	Source
Soils, with slope data	USGS	Parcels	BC IT
Preserved open space	BC IT	Property tax data MODIV	BC IT
Preserved farmland	BC IT	Sewer service areas	NJ DEP
Water	NJ DEP	Land use/Land cover	NJ DEP
Wetlands	NJ DEP	Zoning boundaries	EDRs
Flood zones	FEMA	Zoning standards	MCDs
		Planned and approved developments	MCDs

Table 8: GIS data used for Land Build-Out Analysis

as agriculture, barren land, forest, urban, water, and wetlands. The urban land-cover encompasses all developed land uses such as residential, commercial, etc. All urban land-cover area is removed from the total land area for potential development.

Undevelopable land that has environmental constraints, such as open water and freshwater wetlands, 100-year flood zone designation, or land sloping more that 15%, is eliminated as potential developable areas. Figure 43 "Environmental Constraints Map" shows the study area with the effective environmental constraints, public properties, and urban land cover area (developed land). The remaining areas are the land considered developable at this point in the analysis unless they have a planned or approved development.

The largest area remaining in Mount Holly is the inactive Mount Holly Landfill, which has its own unique development constraints. With that land restricted from future development, Burlington City and Mount Holly are almost entirely built out. Any new developments in those municipalities

Zone	Sewer	Min. Lot Size	Residential Units/AC (Max.)	Commercial Floor Area Ratio (Max.)	Lot Coverage (Max.)	Building Height (feet)
B-1	Yes	10 AC			60%	35
B-2	Yes	40,000 sqft			50%	35
B-3	Yes	40,000 sqft			50%	35
BLI-1	Yes	40,000 sqft			50%	35
BLI-2	Yes	6,500 sqft			35%	35
I-1	Yes	2 AC			60%	60
I-2	Yes	5 AC			60%	
I-3	Yes	40,000 sqft			60%	
CCRC	Yes	100 AC	6			
R-7.5	Yes	7,500 sqft			50%	35
R-12	Yes	12,000 sq ft			40%	35
R-12 (PRD)	Yes	50 AC	6.8			
R-20	Yes	20,000 sq ft			40%	35
R-20 (PRD)	Yes	50 AC	4.4			
R-40	Partial	40,000 sqft			40%	35
R-40 (PRD)	Yes	50 AC	2.9			

Table 9: Burlington Township Development Regulations

will most likely occur as infill or redevelopment projects. Typically, infill development occurs at a small scale, which makes it difficult to quantify. Future development that occurs as redevelopment is guided by a redevelopment plan that often departs from current zoning regulations, thereby making it impossible to predict and model without prior knowledge. Future traffic impacts from redevelopment projects in these communities are expected to be minimal.

The buildout analysis involves mapping all developable land. In some instances, parcels of land with small developed portions still have development potential. To determine which of these areas can realistically be used for development, and how much development is possible on vacant parcels, the regulations of each zone are applied to all developable land in accordance with the zoning ordinance. To spatially sort the developable land into their respective zones the county-wide zoning GIS zoning layer was used to delineate the zone boundaries. Where parcels span more than one zone the developable land in each zone were analyzed separately using the applicable zoning regulations.

Buildout Calculation

Municipalities regulate land development potential by various means of zoning regulations. Typically, all zones have a minimum lot size requirement for land to be developed. This is usually the main factor used to determine how many residential dwelling units can be developed on any amount of land in single-family residential zones. In multi-family residential zones, maximum densities establish the permissible number of units per acre as well as minimum lot size. The way in which municipalities regulate non-residential developments varies. Some will limit maximum floor-area-

Zone	Block-lot	Status	Parcel Sq. Ft.	Building Sq.Ft.	Coverage	Average
B-1	124-22	Existing Building	72,233	24,998	0.35	
B-1	124-21	Existing Building	65,289	12,074	0.18	
B-1	124-11	Existing Building	358,042	68,137	0.19	**0.23**
B-1	124-20	Existing Building	37,510	5,232	0.14	
B-1	124-17	Existing Building	442,661	124,318	0.28	
B-2	116-1.03	Proposed or Approved	220,753	38,400	0.17	
B-2	116-1.01, 5, 5.01, 7	Proposed or Approved	690,803	36,000	0.05	
B-2	123-3, 4	Proposed or Approved	2,590,417	267,750	0.10	
B-2	145.01-28, 16, 28.01	Proposed or Approved	286,002	95,000	0.33	
B-2	116-2	Existing Building	803,700	46,813	0.06	**0.14**
B-2	118-4, 3, 5.02, 5.03	Existing Building	184,499	19,600	0.11	
B-2	116-2	Existing Building	803,700	228,235	0.28	
B-2	118-1	Existing Building	213,612	6,956	0.03	
B-3	105-5.04	Proposed or Approved	50,657	13,331	0.26	
B-3	142.07-4	Existing Building	56,070	8,801	0.16	**0.16**
B-3	143.11	Existing Building	79,022	3,736	0.05	

Table 10: Burlington Township Building Coverage Ratio Evaluation by Zone

Zone	Block-lot	Status	Parcel Sq. Ft.	Building Sq.Ft.	Coverage	Average
BLI-1	99-2	Existing Building	886,954	264,480	0.30	**0.30**
BLI-1	99.01-8	Existing Building	417,935	96,820	0.23	
BLI-1	99.01-7	Existing Building	249,963	76,398	0.31	
BLI-1	99.01-6	Existing Building	476,024	180,483	0.38	
BLI-1	132-25	Existing Building	107,420	30,542	0.28	
BLI-2	148.04-1.01	Existing Building	40,985	3,754	0.09	**0.19**
BLI-2	148.05-1	Existing Building	33,137	3,981	0.12	
BLI-2	148.03-1.01	Existing Building	12,545	4,692	0.37	
BLI-2	148.01-2	Existing Building	10,822	2,076	0.19	
I-1	147-9	Proposed or Approved	452,868	104,000	0.23	**0.20**
I-1	147-1.02, 3.01,& 1	Proposed or Approved	3,713,606	1,064,116	0.29	
I-1	120.02-4, 5, 6	Proposed or Approved	593,631	90,400	0.15	
I-1	108-1.04, 1.05, 1.06	Proposed or Approved	2,469,407	282,000	0.11	

Table 11: Burlington Township Building Coverage Ratio Evaluation by Zone (contd.)

ratio (FAR), which is the maximum amount of total building floor area related to the area of the lot expressed as a decimal, while others use a maximum building or impervious coverage expressed as a percent of total lot area.

Non-Residential Zone Developments

Minimum lot size requirements for each non-residential zone were used to eliminate any developable areas that were not large enough to support new development. This reduces the number of parcels under consideration for future development.

The final step was calculating how many square feet of building space can be constructed on each developable lot. Burlington Township's industrial and commercial zoning districts (B-1, B-2, B-3, BLI-1, BLI-2 I-1, and I-2) generally use a maximum lot coverage regulation, which restricts the total amount of impervious coverage (buildings with roofs, pavement and other impermeable surfaces) on a lot. Westampton Township's industrial and commercial zoning districts (B-1, C, I, OR-1, OR-2, and OR-3) are regulated by both FAR and impervious coverage, which is functionally similar to Burlington Township's "lot coverage area." Burlington Township's regulating factors guiding the buildout analysis are shown in Table 9 (Township of Burlington, Schedule of Yard, Area and Bulk Requirements, August 15, 2008).

Burlington Township's ordinance limits the height of buildings in the industrial zones to 60 feet, 35 feet in both BLI zones, but does not state the maximum number of stories a building may have. Westampton's ordinance limits building heights in the I and OR-1 zones to 45 feet, 35 feet in the commercial and industrial zones, and does not state the number of stories permitted. For purposes of this analysis, it is assumed that warehouses, trucking, and distribution facilities will have only one story or floor because of the nature of the operations. Treating each non-residential building development as a one-story building means the coverage area of

Zone	Block-lot	Status	Parcel Sq. Ft.	Building Sq.Ft.	Coverage	Average
I-2	151-1.01	Existing Building	2,430,648	545,857	0.22	
I-2	151-1.03	Existing Building	1,306,800	477,736	0.37	
I-2	151-1.02	Existing Building	727,452	172,173	0.24	
I-2	153.02-2.01, 153.02-3	Existing Building	910,404	192,380	0.21	
I-2	154.01-2, 154-2	Existing Building	4,695,768	1,000,000	0.21	
I-2	152-1, 152-1.02	Proposed or Approved	500,940	310,000	0.62	
I-2	153-1.09	Existing Building	370,260	86,316	0.23	
I-2	153-1.07	Existing Building	422,532	87,241	0.21	**0.29**
I-2	153-1.10	Existing Building	374,616	85,390	0.23	
I-2	153-1.04	Existing Building	1,655,280	510,586	0.31	
I-2	153-1.12	Existing Building	984,456	416,440	0.42	
I-2	153-1.13	Existing Building	596,772	188,294	0.32	
I-2	153-1.02	Existing Building	3,371,544	633,836	0.19	
I-2	147.51-7	Existing Building	2,069,100	521,445	0.25	

Table 12: Burlington Township Building Coverage Ratio Evaluation by Zone (contd.)



the building (not all impervious area) is essentially the same as a floor-area-ratio.

An analysis of existing and approved developments in the commercial and industrial zoning districts for both townships was done to compare real-world building coverage areas to the regulatory maximums. In general, the average building coverage was less than the maximum, and represented a more realistic figure for the building coverage approved by each municipality's planning boards. Table 10, Table 11, Table 12, Table 13, and Table 14 show each parcel of existing developments and its measured building footprint, or an approved development and its proposed building footprint. Only properties that are fully built-out were used. The average of each zone's building coverages was developed into coverage coefficients used to project likely building sizes in the developable lots.

Residential Zone Development

Another geographic factor that can affect the calculation of development potential is whether the land is in a designated sewer service area. Some of these areas may not have wastewater infrastructure currently in place but were designated in an approved wastewater management plan for future sewer service. Any developable areas that touched a DEP sewer service area can potentially be developed with sewer service. The only zones with properties outside of a sewer service area were the R-40 zone in Burlington Township, and the R-1 zone in Westampton Township.

Zone	Block-lot	Status	Parcel Sq. Ft.	Building Sq.Ft.	Coverage	Average
B-1	203-8	Existing Building	743,496	254,000	0.34	**0.23**
B-1	906.07-8.01	Existing Building	392,268	50,000	0.13	
B-1	201-10.01	Existing Building	696,519	301,248	0.43	
B-1	905-1.01	Existing Building	454,973	96,394	0.21	
B-1	905-1.03	Existing Building	237,659	48,491	0.20	
B-1	905-1.02	Existing Building	547,456	48,119	0.09	
C	904-3.01	Existing Building	71,020	12,212	0.17	**0.12**
C	203-5	Existing Building	178,620	10,685	0.06	
C	1204-2, 3	Existing Building	32,262	2,540	0.08	
C	904-6	Existing Building	181,355	19,168	0.11	
C	904-5	Existing Building	216,853	17,073	0.08	
C	904-4	Existing Building	126,142	11,744	0.09	
C	1201-20	Existing Building	254,843	54,960	0.22	
C	1203-20	Existing Building	86,877	14,707	0.17	
C	1203-23	Existing Building	58,697	6,291	0.11	
C	1203-26	Existing Building	140,587	22,686	0.16	
C	206-7	Existing Building	18,427	2,130	0.12	
C	803.08-44	Existing Building	97,074	9,289	0.10	
I	202-4.03	Proposed or Approved	627,189	215,823	0.34	**0.31**
I	203-7.01	Existing Building	264,905	84,537	0.32	
I	203-6.04	Existing Building	378,134	70,000	0.19	
I	203-7.03	Existing Building	424,467	173,719	0.41	
I	202-4	Existing Building	634,440	306,203	0.48	
I	202-3	Existing Building	1,293,073	293,711	0.23	
I	201-8.03	Existing Building	452,988	131,862	0.29	
I	201-7.07	Existing Building	758,041	184,368	0.24	

Table 13: Westampton Building Coverage Ratio Evaluation by Zone

Zone	Block-lot	Status	Parcel Sq. Ft.	Building Sq.Ft.	Coverage	Average
OR-1	804-7	Existing Building	4,748,630	2,000,000	0.42	**0.29**
OR-1	906.07-6	Existing Building	276,896	79,557	0.29	
OR-1	906.07-4	Existing Building	300,426	47,008	0.16	
OR-2	902-1, 2, 3	Existing Building	1,791,538	610,000	0.34	**0.20**
OR-2	201-6	Existing Building	515,605	31,332	0.06	
OR-3	203-2	Existing Building	1,267,224	682,708	0.54	**0.25**
OR-3	203.08-1.01	Existing Building	180,047	43,727	0.24	
OR-3	203.08-1.02	Existing Building	281,951	9,600	0.03	
OR-3	203-1.02	Existing Building	343,193	63,444	0.18	

Table 14: Westampton Building Coverage Ratio Evaluation by Zone (contd.)



Figure 45: Target at Towne Crossing Shopping Center

Neither zone differentiates regulation based on sewer service, so there is no effective change in the buildout calculation based on this factor.

As with the non-residential zones, all developable areas that are smaller than the minimum requirement for a new development are removed from the analysis, which greatly reduces the number of properties under consideration. Counter to the non-residential zones the yield calculations for the developable areas is in residential zones do not use a coverage coefficient, but rather an efficiency factor. For major subdivisions (developments of more than four lots) an efficiency factor reduces the total yield of an area by 25% to accommodate inefficiencies in shape and size of the parcels of land, new road rights-of-way, storm water management, and other infrastructure. This figure was determined and tested over years of similar buildout analyses, and proven accurate for this region.

Generally, the calculation of units in the residential areas is simply dividing the developable area of a lot by the minimum lot size for single-family residential zones, or multiplying the maximum units per acre by the developable area for multi-family residential zones. Then, any yield of four or more units, are reduced by the efficiency factor of 25%.

However, there are several exceptions to this procedure;

- The R-7 and R-8 zones in Westampton have development plans to meet affordable housing requirements. The maximum units for these zones are written into the zoning code as 578 units in R-7 (250-14.1, R7 Residential Zone. 2/28/2006, Ord. No. 1-2006) and 75 unit in R-8 7 (250-14.2, R8 Residential Zone) with a variety of housing types and rent structures.
- Burlington Township and Westampton both allow smaller lot sizes in certain zones when developments are densely arranged and a minimum open space area is set aside. Burlington Township has a 50-acre minimum for Planned Residential Developments (PRD) in the R-12, R-20, and R-40 zones, and in the developable areas remaining in the analysis, there are none meeting this threshold. Westampton allows Parcel Clustering in the R-6 zone if the development does not yield over two net units per acre. There are a few instances where this provision

Zone	Min. Lot Size	Residential Units/AC (Max.)	*Commercial Coverage Coeficient (Max.)	Residential Units Potential	Commercial Sq. Ft. Potential
B-1	10 AC		25%		255,175
B-2	40,000 sqft		15%		366,856
B-3	40,000 sqft		15%		201,151
BLI-1	40,000 sqft		30%		246,351
BLI-2	6,500 sqft		20%		4,555
I-1	2 AC		20%		564,694
I-2	5 AC		30%		2,999,598
I-3	40,000 sqft		30%		-
CCRC	100 AC	6		1757	
R-7.5	7,500 sqft			19	
R-12	12,000 sq ft			103	
R-12 (PRD)	50 AC	6.8		0	
R-20	20,000 sq ft			259	
R-20 (PRD)	50 AC	4.4		0	
R-40	40,000 sqft			124	
R-40 (PRD)	50 AC	2.9		0	
			Totals	**2262**	**4,638,380**

* Calculated from existing and planned developments

Table 15: Burlington Township Buildout Results

would increase the total units, and so it is applied to the buildout calculation.

- The CCRC zone in Burlington Township is for Continuing Care and Retirement Communities, and all properties in this zone are owned and managed by the non-profit Masonic Charity Foundation of NJ. All developments in this zone require a General Development Plan (GDP), which allows for a variety of development patterns however there is a maximum of six units per gross acre in this zone. There is a GDP in place for one development that is partially constructed. Future phases include a lot subdivision that, when combined with the existing development, max-out the six units/AC density. The remainder of the undeveloped CCRC zone is calculated to buildout using this maximum six units per gross acres method.

Results

The total buildout potential for developable land in the study municipalities is provided in Figure 46. The total amount of potential gross floor area is 10,759,671 square feet, which consists of 1,623,475 square feet of commercial space and 9,136,196 square feet of industrial space. Additionally, there are 4,105 potential residential units, with 1,757 potentially built in the CCRC zone of Burlington Township. When combined with the 8,922,154 square feet of known industrial and commercial developments and 1,204-1,604 residential units that are planned or approved by all four municipalities in the study area, the total buildout potential for the area is 19,681,825 square feet of non-residential space, and 5,309-5,709 residential units.

Zone	Min. Lot Size	Residential Units/AC (Max.)	*Commercial Coverage Coeeficient (Max.)	Residential Units Potential	Commercial Sq. Ft. Potential
B-1	1.5 AC		25%		532,202
C	1 AC		10%		268,091
I	5 AC		30%		3,769,729
OR-1	10 AC		30%		884,560
OR-2	4 AC		20%		535,462
OR-3	4 AC		25%		131,247
R-1	1 AC			260	
R-2	20,000 sq ft			6	
R-3	20,000 sq ft			130	
R-4	1 AC	10		766	
R-5	1 AC			16	
R-6	20,000 sq ft			0	
R-6 (cluster)	15,000 sq ft	2 (net)		12	
R-7	n/a	Affordable Plan		578	
R-8	n/a	Affordable Plan		75	
			Totals	**1843**	**6,121,291**

* Calculated from existing and planned developments

Table 16: Westampton Buildout Results

It is important to understand the results of the buildout analysis are approximate because they are based on tax map data and general mapping of environmental constraints provided by the State of New Jersey and other sources. More accurate results would occur when individual parcels of land are surveyed for exact areas and topographic information, environmental constraints are determined in the field, surveyed and shown on surveys, and actual site design and layouts are performed according to

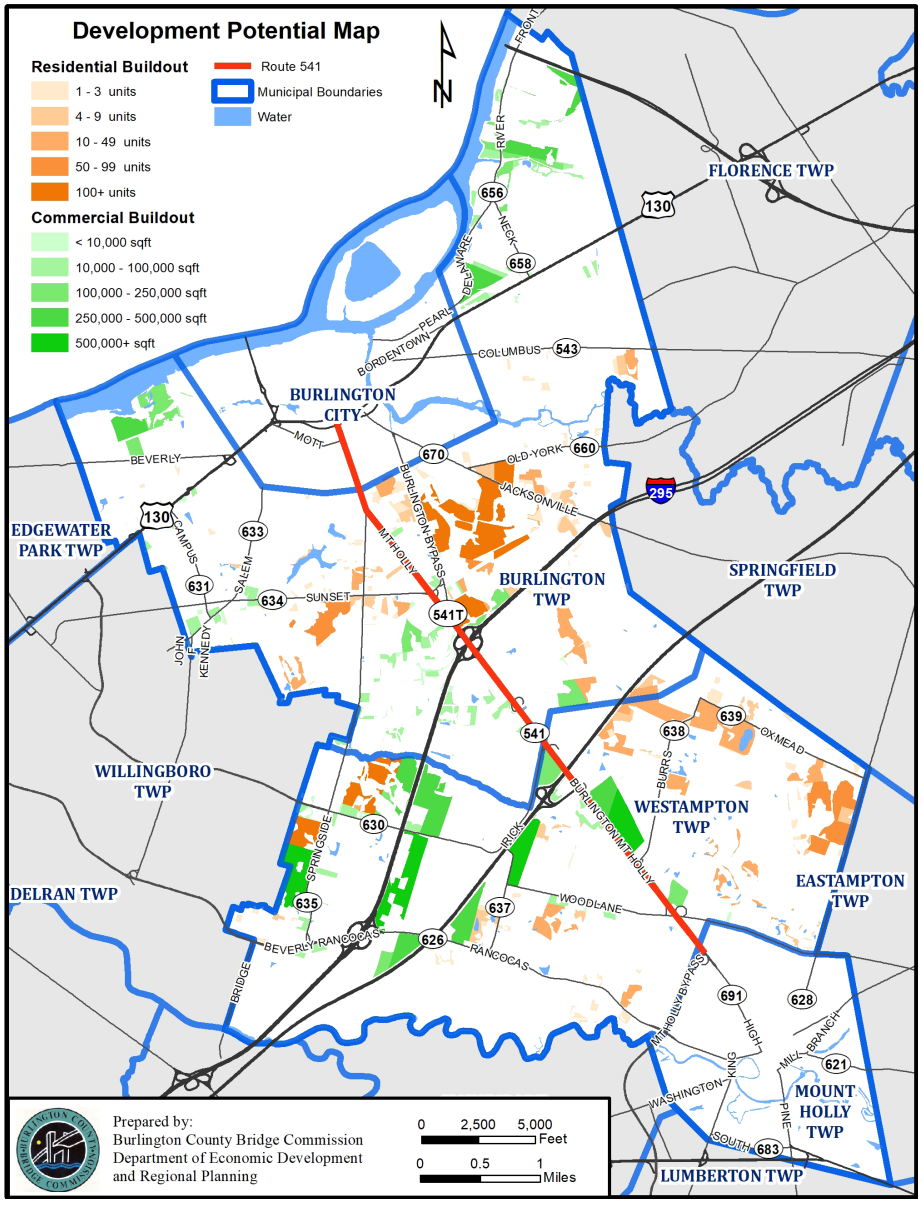


Figure 46: Development Potential Map

municipal zoning regulations and approved by municipal land development review boards and all other applicable county, state and federal review agencies.

Future Conditions

Utilizing the land use build-out analysis, and the traffic variables, future transportation conditions for the year 2045 were determined including traffic projections and the identification of two land use focus areas.

Traffic Analysis

A traffic analysis of future conditions was developed for both No-Build (assuming land use development, but no change to the road), and Build conditions (assuming implementation of all elements elaborated upon in the transportation focus areas). The follow table and maps show the change in Level of Service and subsequent queuing delay at each intersection. Within the No Build column, red text indicates a negative change in delay from Existing conditions of at least one letter grade. In the Build column, the red and green text each indicate a change (negative, and positive, respectively) of at least one letter grade from the No-Build condition.

The Level of Service of several intersections improve or worsen between existing conditions and future No-Build conditions, as well as between 2045 No-Build and Build conditions. The most significant changes are highlighted below:

- Cadillac Road/Burlington Bypass
  - PM peak worsens from D to F between No-Build and Build
- Elbow Lane/Burlington Center Mall



Figure 47: CR 541 and Irick Road

- AM peak worsens from B to F between Existing and No-Build
- AM peak improves from F to C between No-Build and Build
- PM peak maintains at F between No-Build and Build, but the queue is shortened by 93 seconds

- Hancock Lane/NJTP Exit 5
  - AM/PM peaks worsen from D to F between Existing and No-Build/Build
- Woodlane Road
  - AM/PM peaks worsen from D to F between Existing and No-Build/Build, but the queue is shortened by 259-605 seconds from No-Build/Build
- Rancocas Road/Fountain Avenue/13th Street
  - AM/PM peaks worsen from D to F between Existing and No-Build
  - AM peak improves from F to B between No-Build and Build
  - PM Peak improves from F to C between No-Build and Build
- Connecticut Drive
  - AM/PM peaks improve from F to A between Existing/No-Build and Build
- Bromley Boulevard
  - PM peak worsens from C to F between Existing and No-Build
  - PM peaks improves from F to D between No-Build and Build

- Irick Road
  - PM peak improves from F to D between No-Build and Build
- Burrs Road
  - PM peak worsens from C to D between No-Build and Build

As the Table 17 and Table 18 illustrates, No-Build conditions will be significantly worse than existing conditions and Build conditions will result in improvements during six peaks, and only worsen from No-Build conditions at three intersections, while simultaneously improving traffic flow, and enhancing pedestrian and cyclist mobility.

Intersections	2019 Existing AM / PM	2045 No- Build AM / PM	2045 Build AM / PM
Wishing Well Plaza	B (13)	B (13)	B (13)
	C (26)	C (29)	C (26)
Cadillac Dr/Burlington Bypass	C (22)	C (25)	C (23)
	C (34)	D (46)	F (97)
Elbow Ln/Burlington Mall	B (19)	F (118)	C (24)
	E (60)	F (234)	F (141)
Towne Crossing Shopping Center	B (12)	B (14)	B (13)
	C (23)	C (33)	C (24)
Hancock Ln/NJTP Exit 5	D (53)	F (173)	F (162)
	D (54)	F (234)	F (208)
Woodlane Rd	D (38)	F (656)	F (387)
	D (42)	F (1178)	F (573)
Fair Grounds Plaza	A (4)	A (4)	A (4)
	B (14)	B (15)	B (13)
Morris St	B (16)	C (27)	C (21)
	B (14)	D (36)	C (33)

Table 17: Capacity Analysis Summary Results

Intersections	2019 Existing AM / PM	2045 No- Build AM / PM	2045 Build AM / PM
Rancocas Rd/Fountain Ave/13th Ave	D (54)	F (94)	B (13)
	D (54)	F (163)	C (19)
Sunset Rd/Wedegwood Dr	E (65)	F (119)	F (99)
	D (39)	F (80)	F (247)
Connecticut Dr	F (2)	F (347)	A (0)
	F (4)	F (580)	A (0)
Bromley Blvd	E (65)	F (86)	F (62)
	C (28)	F (102)	D (47)
Irick Rd	B (18)	C (30)	D (38)
	D (39)	F (199)	D (50)
Burrs Rd	A (9)	C (20)	C (24)
	A (10)	C (29)	D (37)
Mount Holly Bypass/ High St	C (29)	D (38)	C (35)
	C (29)	D (42)	D (40)

Table 18: Capacity Analysis Summary Results (contd.)



Figure 48: Shop Rite at Wishing Well Plaza on CR 541



Figure 49: Entrance to New Jersey Turnpike

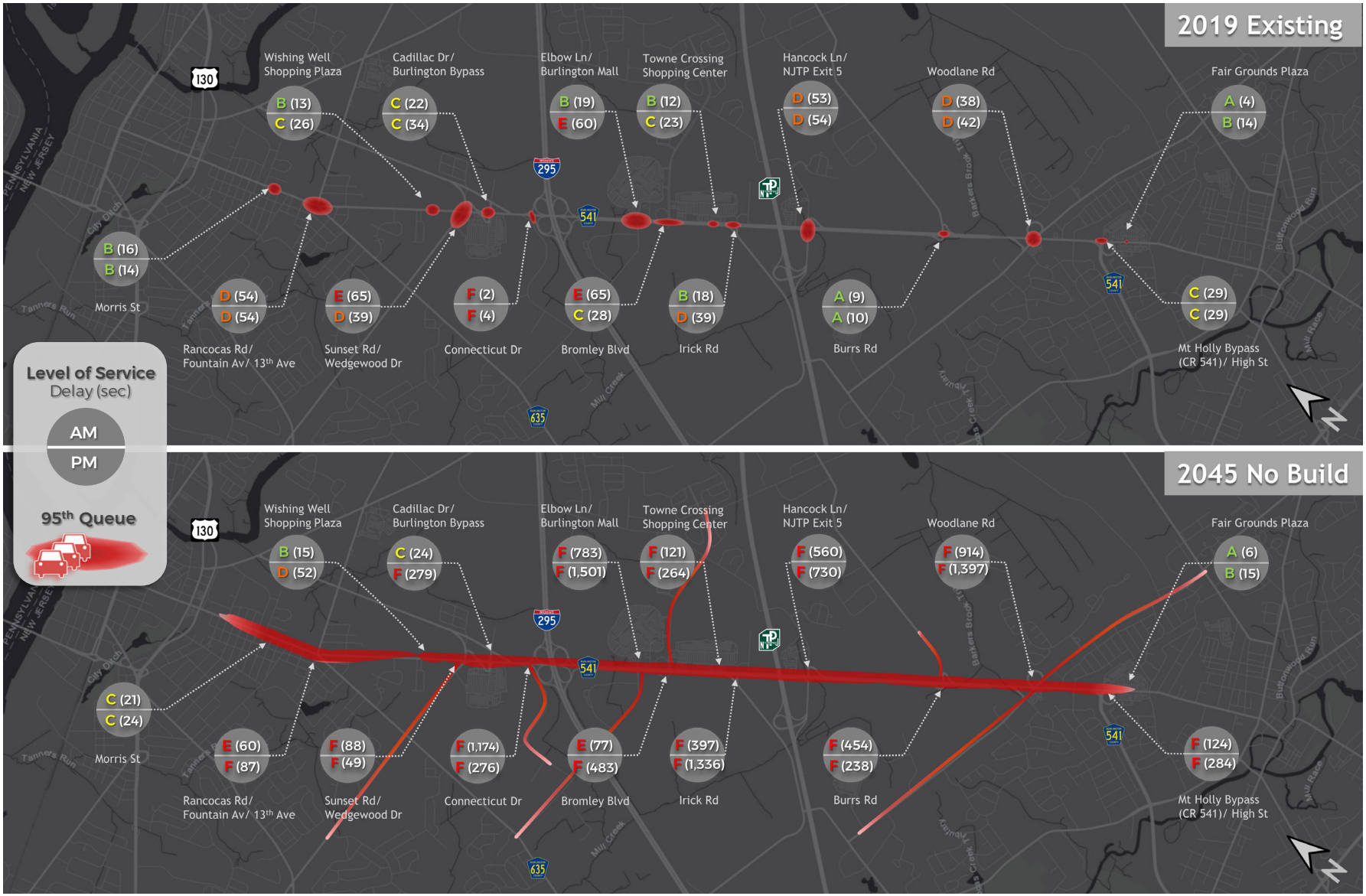


Figure 50: 2019 Existing (top) and 2045 No Build (bottom) Traffic Conditions

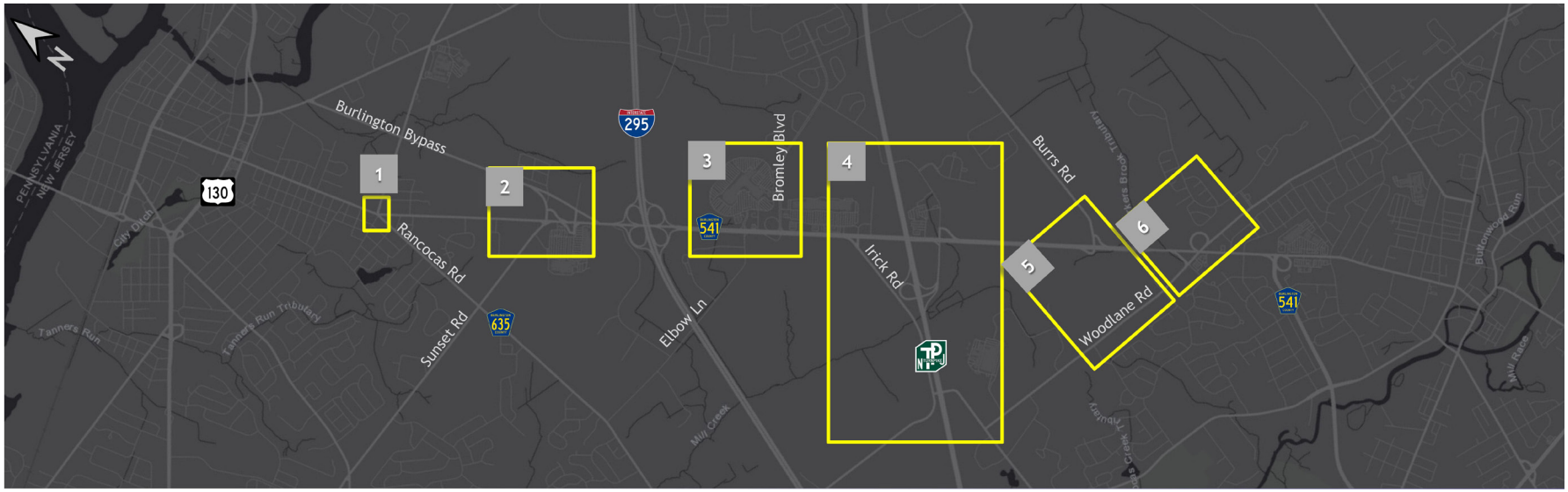


Figure 51: Transportation Focus Areas

Transportation Focus Areas

Together, the traffic, crash, and land use analyses led to the identification of six transportation focus areas for which recommendations were developed (Figure 51). For each area, a table of existing, No-Build, and Build level of service and queue delay is provided. CR 541 intersections with US 130 was not analyzed in this report since it was covered in previous reports.



Figure 52: Social Services Building on Woodlane Road

CR 541, Fountain Avenue, and Rancocas Road

The intersection of CR 541, Fountain Avenue, and Rancocas Road (Figure 53) separates the mainly residential land uses to the north and more commercial operations to the south. Here, Rancocas Road continues south into Westampton, paralleling I-295 and providing access to several residential neighborhoods. Fountain

Avenue travels east, continuing as Old York Road into Florence Township and Bordentown Township. Most development along the corridor consists of single-family homes with little development emanating from the corridor. Burlington Township High School sits less than one mile to the east. 13th Street operates one-way westbound from the intersection and provides access to the local residential neighborhood. Offices occupy the northeast and southeast corners, with a church on the south, and residences on the northwest and northeast. Local stakeholders expressed significant concern about the number of trucks traveling through this intersection on CR 541.

Hotspot Crashes	2019 Existing AM PM	2045 No- Build AM PM	2045 Build AM PM
267	D (54)	F (94)	B (13)
	D (54)	F (163)	C (19)

Recommendations

- Add roundabout; eliminate traffic signal
- Mark high-visibility crosswalks along all legs

Considerations

- Requires some land acquisition
- Maintains 13th Street as one-way

Benefits

- Roundabout slows traffic while maintaining consistent



Figure 53: Proposed improvements at CR 541, Fountain Avenue, and Rancocas Road



Figure 54: CR 541, Fountain Avenue, and Rancocas Road

traffic flow

- Roundabout discourages truck traffic from corridor; Burlington Bypass is alternative
- High-visibility crosswalks provide safe for crossings for pedestrians

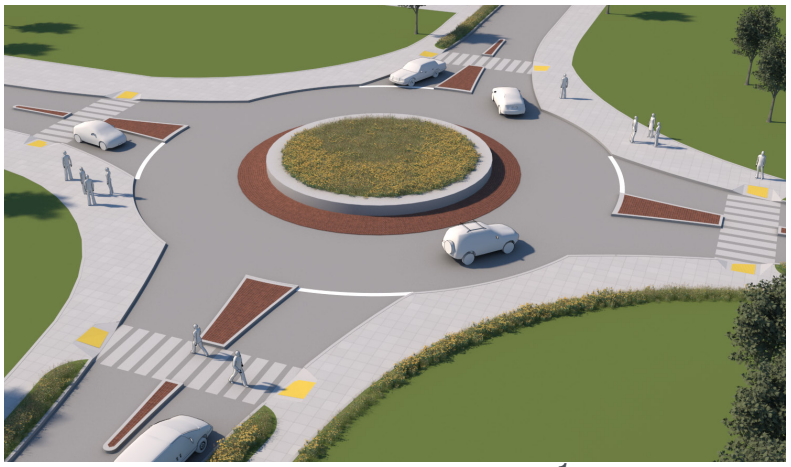


Figure 55: Rounabout Design[1]

[1] *Source: NJDOT Complete Streets Design Guide*

CR 541, Sunset Road, and Burlington Bypass

The intersection of CR 541 with Sunset Road and the Burlington Bypass sits north of the I-295 interchange. Sunset Road continues west into Willingboro Township, providing access to nearby residential neighborhoods, and commercial uses near U.S. 130. The Burlington Bypass continues north to U.S. 130, providing an alternate route to access Burlington City without traveling along the downtown High Street. Burlington Township Middle School is located just north of the intersection on the Burlington Bypass, and Burlington Township High School is located further northeast along Old York Road. The southeast corner of the intersection has a large open space with fast food restaurants beyond. The northeast corner contains a strip mall. To the northwest is a gas station, and to the northeast is a McDonald's and a large shopping center anchored by Walmart. Vehicles turning right onto CR 541 from eastbound Sunset Road have a slip

Intersections	Hotspot Crashes	2019 Existing AM / PM	2045 No- Build AM / PM	2045 Build AM / PM
Sunset Rd/ Wedegwood Dr	610	E (65)	F (119)	F (99)
		D (39)	F (80)	F (247)
Cadillac Dr/ Burlington Bypass		C (22)	C (25)	C (23)
		C (34)	D (46)	F (97)



Figure 56: Proposed Improvements at CR 541, Sunset Road, and Burlington Bypass

lane for doing so, while all turns along northbound CR 541 are made via a jughandle to the Burlington Bypass. One of the most common comments during the outreach process was the difficulty of making a left turn into the Wawa just north of Sunset Road from southbound CR 541. These existing left turning vehicles also lead to crashes and congestion along the corridor.

Recommendations (Figure 56)

- **A** Eliminate Burlington Bypass south of Cadillac Drive
- **B** Realign Burlington Bypass to extend from Sunset Road intersection instead of directly from CR 541
- **B** Construct roundabout connecting Burlington Bypass with Wishing Well Plaza
- **C** Add entrance to Wishing Well Plaza from Burlington Bypass
- **C** Construct service driveways from business locations to new service road
- **D** Restrict left turns to Wawa from southbound CR 541
- **D** Add left turn movements into Wishing Well Plaza
- **E** Construct a new connector road north of Wishing Well Plaza is recommended to improve circulation
- ● Install high-visibility crosswalks along each leg
- ● Install shared use path south of Sunset Road to Burlington Bypass

Considerations

- High tension wires along CR 541 here pose consideration during construction

Benefits

- Realignment of Burlington Bypass reduces speeding by forcing more perpendicular turns
- New connector roads and entrances to Wishing Well Plaza reduce number of vehicles on CR 541, minimize number of conflicts at the few existing intersections, and create more direct access to the retail establishments from the Burlington Bypass
- Roundabout slows traffic while maintaining consistent traffic flow
- Realigned forward jughandle provides smoother traffic alternative to entering Burlington Bypass via Cadillac Drive
- Restriction of left turn into Wawa improves safety; new connector roads and rounadbout improve safe access to Wawa and other retail locations
- High-visibility crosswalks improve pedestrian safety and comfort
- Shared-use path provides safe place for cyclists, and encourages cycling

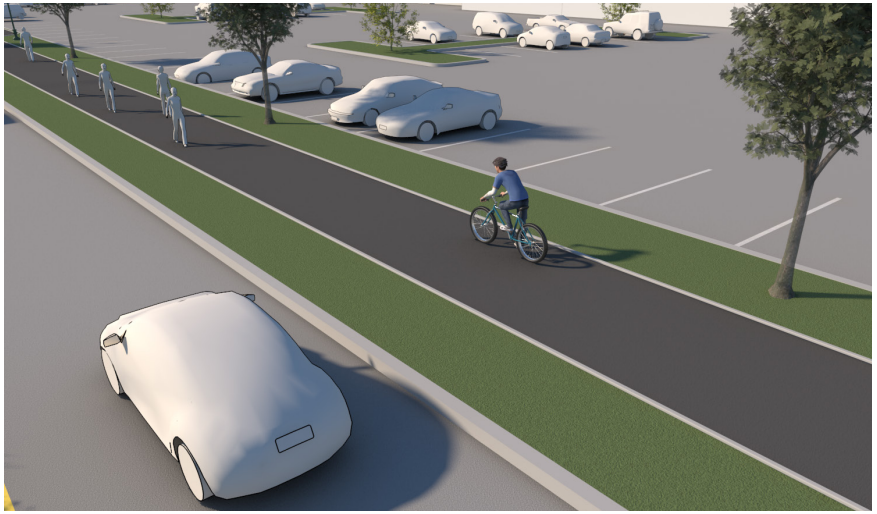


Figure 57: Multi-use Path Design

Source: NJDOT Complete Streets Design Guide

CR 541, Elbow Lane, and Bromley Boulevard

This focus location consists of two intersections (Figure 58), one with Elbow Lane, and another with Bromley Boulevard. Elbow Lane continues west over I-295, providing access to several large offices. Bromley Boulevard provides local access to nearby residential neighborhoods to the east, as well as connecting with the entrance to Regal Burlington, and the former Burlington Center Mall. A gas station is present on the east side of CR 541 at Elbow Lane, and small-scale retail is present on the west side. Southeast of Bromley Boulevard is the Towne Crossing Shopping Center with several large retail establishments.

Intersections	Hotspot Crashes	2019 Existing AM / PM	2045 No- Build AM / PM	2045 Build AM / PM
Elbow Ln/ Burlington Mall	367	B (19)	F (118)	C (24)
		E (60)	F (234)	F (141)
Bromley Blvd		E (65)	F (86)	F (62)
		C (28)	F (102)	D (47)

Recommendations

- **A** Add turning movements at Elbow Lane
- **B** Extend Elbow Lane to Bromley Boulevard
- **C** Remove reverse jughandle at Bromley Boulevard
- **D** and replace with forward jughandle at Elbow Lane extension
- ● Separate future warehouse and retail traffic

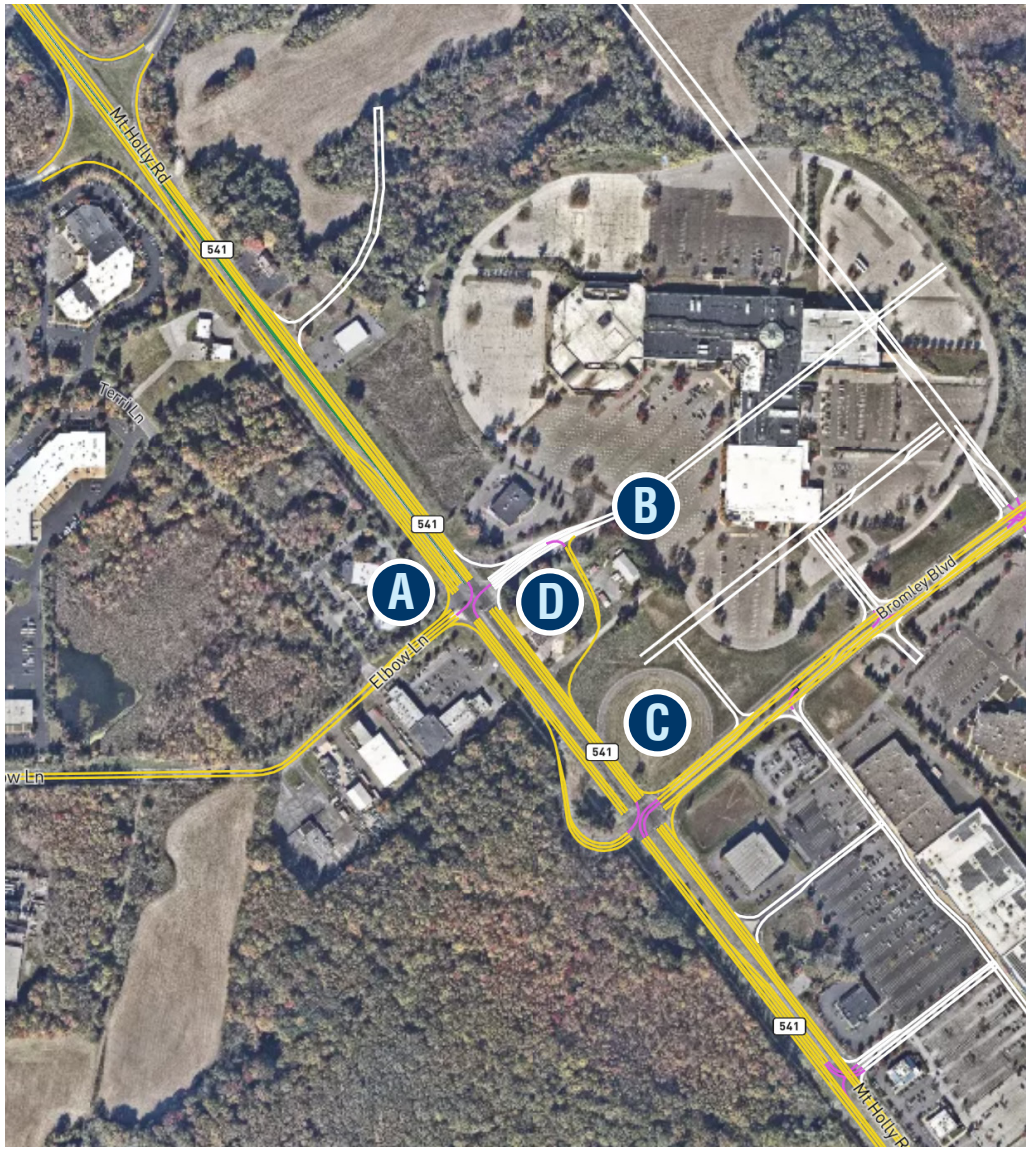


Figure 58: Proposed Improvements at CR 541, Elbow Lane, & Bromley Boulevard

Considerations

- These recommendations are based in part on previous site plans for former Burlington Center Mall site

Benefits

- Extension of Elbow Lane through CR 541 and Burlington Center Mall site reduces need for turning movements to and from CR 541, normalizes intersection allowing left turn from eastbound Elbow Lane to northbound CR 541, and provides access to any future development on the site
- Removal of reverse jughandle in favor of forward jughandle reduces number of vehicles entering intersection
- Creation of forward jughandle from northbound CR 541 to Elbow Lane reduces turning conflicts on CR 541 and improves traffic flow along the corridor
- Combination of improvements separates local Bromley Boulevard shopping traffic from large trucks accessing warehouses west along Elbow Lane



Figure 59: Regal Cinemas on Brombley Boulevard


Elbow La
LEFT ON GREEN ARROW ONLY
U AND LEFT TURNS KEEP RIGHT

CR 541, Irick Road, New Jersey Turnpike, and Hancock Lane

This location (Figure 60) provides access to and from New Jersey Turnpike. Irick Road parallels west of the New Jersey Turnpike, and connects south to Woodlane Road and several Burlington County government facilities. Northeast of CR 541 underpass for the Turnpike is an intersection of the Turnpike with Hancock Lane which passes over the Turnpike and connects back to Bromley Bouelvard to the north. A Red Roof Inn is located on the southbound side of CR 541, south of the Turnpike. Several other hotels

Hotspot Crashes	2019 Existing AM PM	2045 No- Build AM PM	2045 Build AM PM
136	B (18)	C (30)	D (38)
	D (39)	F (199)	D (50)

and small retail establishments are located along northbound CR 541.

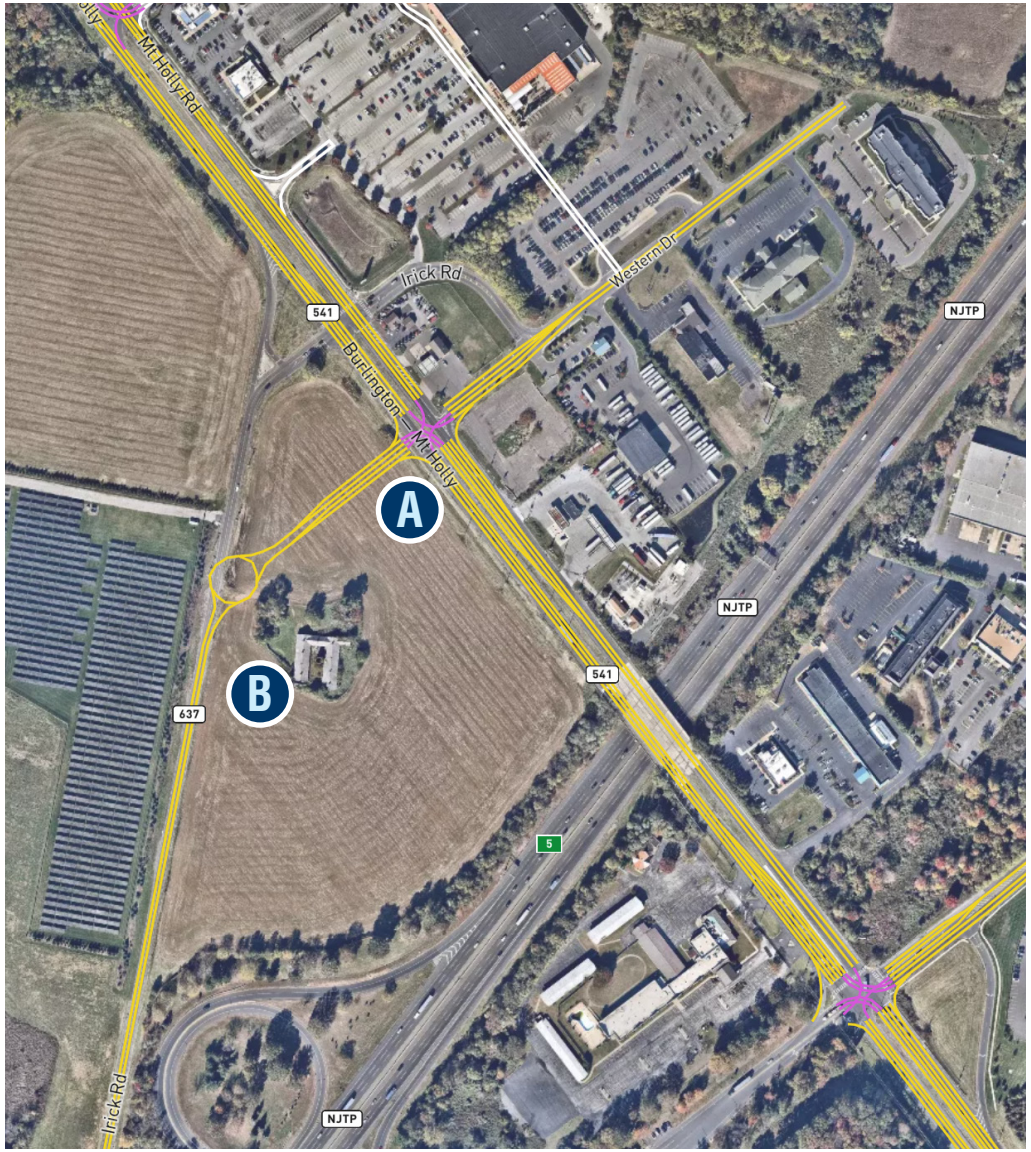


Figure 60: Proposed Improvements at CR 541 and Irick Road

Recommendations

- **A** Realign Irick Road with Western Drive
- **B** Add traffic circle at Irick Road and entrance of new shopping complex
- ● Realign Irick Road and Woodlane Road near New Jersey Turnpike
- ● Realign Hancock Lane at New Jersey Turnpike overpass

Considerations

- All recommendations are compatible with potential widening of New Jersey Turnpike

Benefits

- Realignment of Irick Road with Western Drive reduces number of necessary turns onto CR 541
- Roundabout on Irick Road provides for safe and efficient traffic flow to proposed Fountain Square Shopping Center
- Long-term construction of new bridges along Hancock Lane and Irick Road improves visibility and allows for widening of New Jersey Turnpike



Figure 61: New Jersey Turnpike Entrance



Figure 62: CR 541 and Irick Road

CR 541 and Burrs Road

This T-intersection is the termination of Burrs Road. Burrs Road extends north into Westampton, providing access to residential neighborhoods. The west side of the intersection caters to farmland, while several small offices occupy the east side (Figure 63).

Hotspot Crashes	2019 Existing AM PM	2045 No- Build AM PM	2045 Build AM PM
No Hotspot	A (9)	C (20)	C (24)
	A (10)	C (29)	D (37)

Recommendations

- Extend Burrs Road from CR 541 to Woodlane and Greenwich Roads
- Add connector road to access future hospital site
- Add left turn lane
- Continue shared use path on Woodlane Road to CR 541

Benefits

- Extension of Burrs Road and construction of new connector road improve access to proposed/ planned Virtua Hospital site, minimizes traffic impact on CR 541 corridor, and improves access to Woodlane Road



Figure 63: Proposed Improvements at CR 541 and Burrs Road

CR 541 and Woodlane Road

This four-way intersection is located (Figure 64) just north of the Mount Holly border. Woodlane Road extends west before terminating shortly east of the New Jersey Turnpike. Woodlane Road also extends west into Eastampton Township and Pemberton Township as a rural road. The Burlington County Board of Social Services is on Woodlane Road just west of the intersection. Several retail establishments occupy Woodlane Road west of the intersection, and CR 541 south of the intersection. Many public comments were made about traffic confusion caused by the reverse jughandle from northbound CR 541 to westbound Woodlane Road, requiring many drivers to weave in and out of traffic.

Hotspot Crashes	2019 Existing AM / PM	2045 No- Build AM / PM	2045 Build AM / PM
209	D (38)	F (656)	F (387)
	D (42)	F (1178)	F (573)

Recommendations

- **A** Reconfigure jughandle from CR 541 NB to Woodlane Road westbound into a t-intersection with a stop control
- **B** Add ramp from westbound Woodlane Road to northbound CR 541
- **C** Eliminate forward jughandle from CR 541 SB to
- **D** Woodlane Road and Orchard Road and replace with new connector road at Woodlane Road and



Figure 64: Proposed Improvements to CR 541 and Woodlane Road


NO
TURNS
DUNKIN' DONUTS
Woodlane Rd

Tarnsfield Road

E Eliminate driveway from CR 541 to Burlington County Social Services building

● Add shared-use path on Woodlane Road through CR 541 intersection

Benefits

- Reconfiguration of the jughandle reduces the need to weave onto Woodlane Road, and presents normalized perpendicular intersection
- Additional ramp removes traffic conflicts and need to weave from existing jughandle
- Elimination of driveway from Social Services building to CR 541 southbound eases turning conflicts
- Removal of jughandle from CR 541 southbound to Woodlane Road/Orchard Lane creates additional queuing space, further separates traffic from busy CR 541/Woodlane Road intersection, and improves ability to turn onto Woodlane Road
- Extended shared-use path improves reach of active transportation facilities and users



Figure 65: CR 541 and Woodlane Road


Town Square Dr
TOWNE CROSSING
TARGET
THE HOME DEPOT
KOHL'S
OfficeMax

Land Use Focus Areas

Two land use focus areas were identified for development concepts to best utilize the large lot areas while promoting efficient transportation and land use strategies.

While land use planning and transportation planning are typically approached as two distinct processes, this analysis paired the two together, allowing them to complement one another. The goal of the concepts is to think about opportunities beyond current zoning, looking twenty years into the future. The process included a review of municipal master plans, zoning ordinances, demographic analysis, emerging trends affecting land use and development, and the land use build-out analysis.

Concept Area 1

The first area sits between I-295 and the New Jersey Turnpike in Westampton, adjacent to a pending 578 unit multi-family development. The site is currently zoned industrial and can house 1.8 million square feet of industrial/warehouse space under existing zoning.

The future land use concept proposes incorporating a mix of attached, detached and multi-family residential units, and intermediate scale retail uses north of Woodlane Road. The area south of Woodlane Road would include a mix of light industrial/ business uses taking advantage of the easy access to I-295 and complementing existing industrial and manufacturing lots nearby.

The conceptual build-out includes:

- Residential: 500-900 units
- Commercial/Retail: 50,000-55,000 sq. ft
- Light Industrial/Business/Office/Services: 500,000-685,000 sq. ft
- Industrial: 275,000 sq. ft

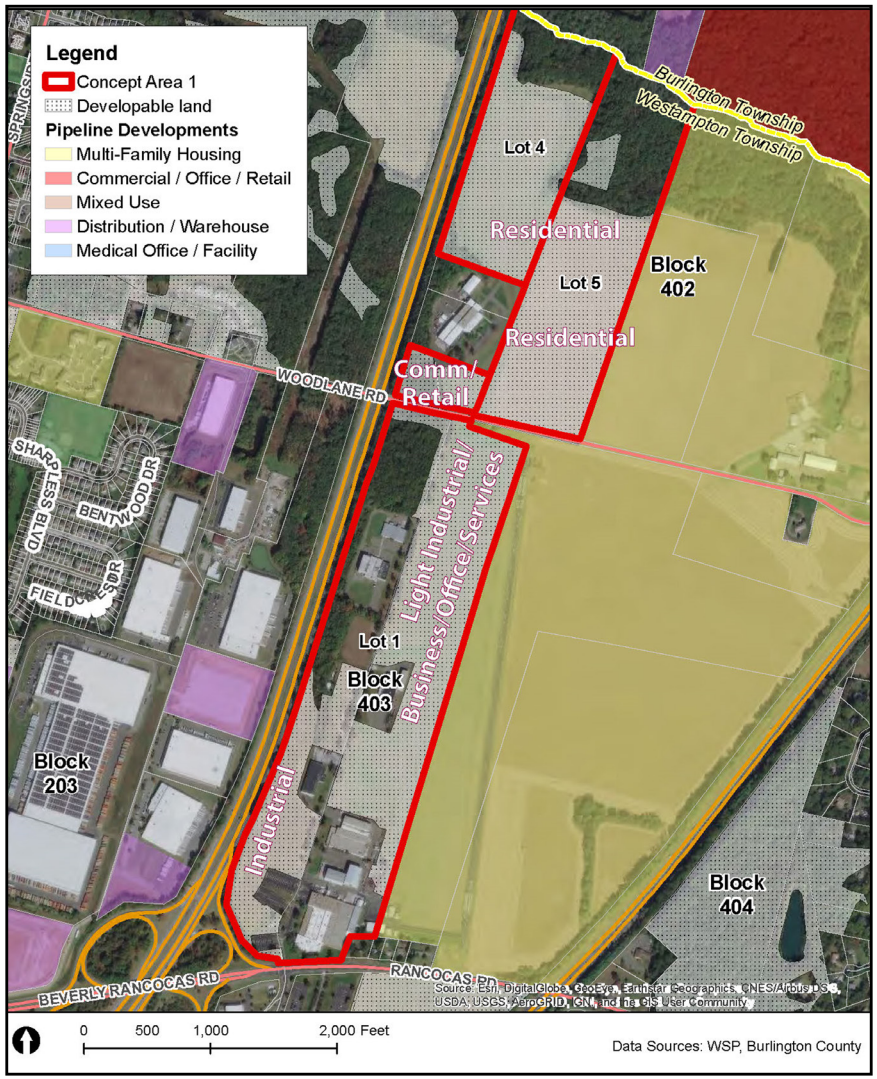


Figure 66: Land Use Concept Area 1


BURLINGTON CENTER

Concept Area 2

The second concept area lies on the north side of CR 541 in Westampton across from the planned Virtua Hospital complex. The site is currently devoted to commercial and farmland uses and is zoned B-1 and OR-1. Buildout with the existing zoning would result in 1.2 million square feet of business, office, and research uses.

The future land use concept proposed development of a Village Center in the north part of the area, and a Wellness Campus to the south, across CR 541 from the future hospital. The Village Center will provide a pedestrian-friendly, mixed-use center as a new "Main Street" paralleling CR 541. The lot can include a grid of roads with small blocks and on-street parking, internal green space, sidewalks, and trails. Housing would be marketed toward hospital staff, young professionals, and suburbanites looking to downsize in favor of walkable surroundings. The Wellness Campus would offer health-related services including physical therapy, fitness, and indoor recreation uses. Occupying only a portion of the site, the tributary and wetlands would be protected via a conservation easement.

The conceptual build-out includes:

- Residential: 825-1,250 units
- Commercial/Retail: 50,000-75,000 sq. ft
- Wellness Campus: 185,000 sq. ft

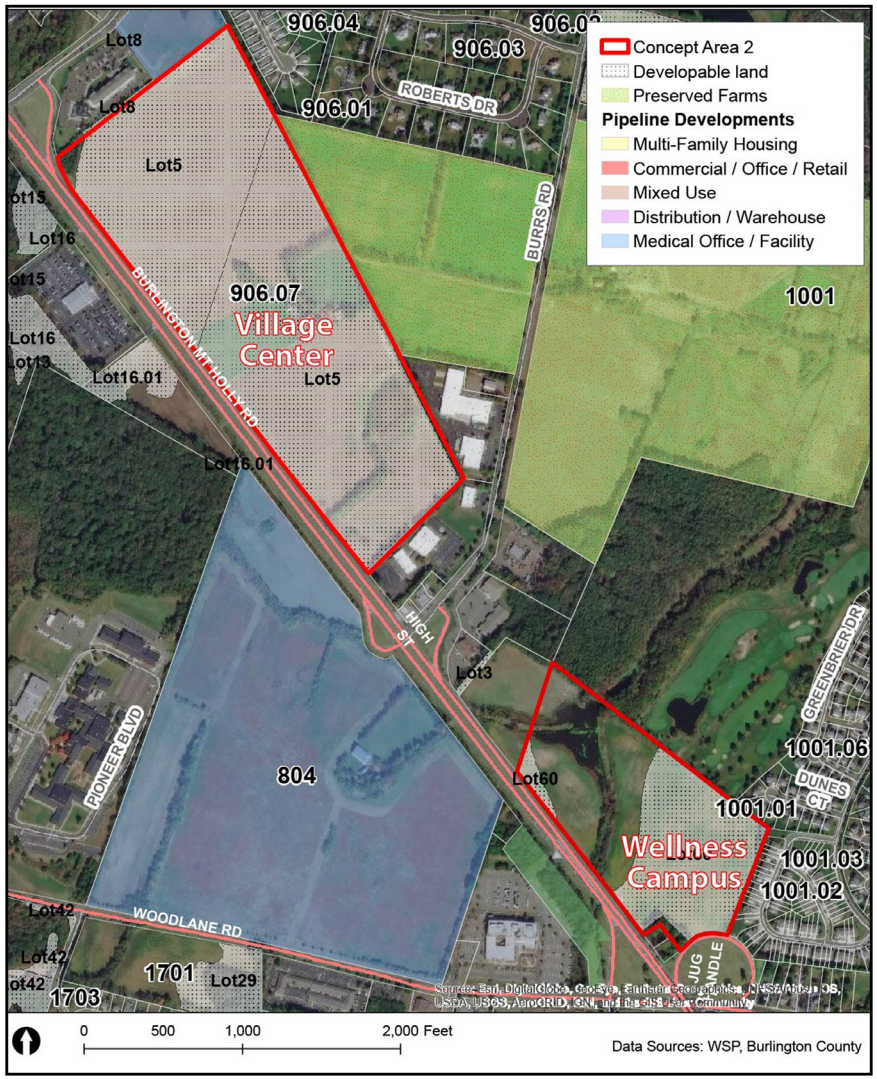


Figure 67: Land Use Concept Area 2


STOP
HERE ON
RED
Morris St
Bucks County
INTERNATIONAL
267-397-4000
267-397-4006
SALES • PARTS • SERVICE
IDEALEASE

Bicycle and Pedestrian Recommendations

After inventorying existing bicycle and pedestrian facilities, a set of active transportation improvements were formulated to plan a well-connected bicycle and pedestrian network, connecting to a variety of land uses.

Pedestrian Infrastructure Improvements

A set of sidewalk and crosswalk recommendations are included below. It is not necessary for the entire corridor to receive these

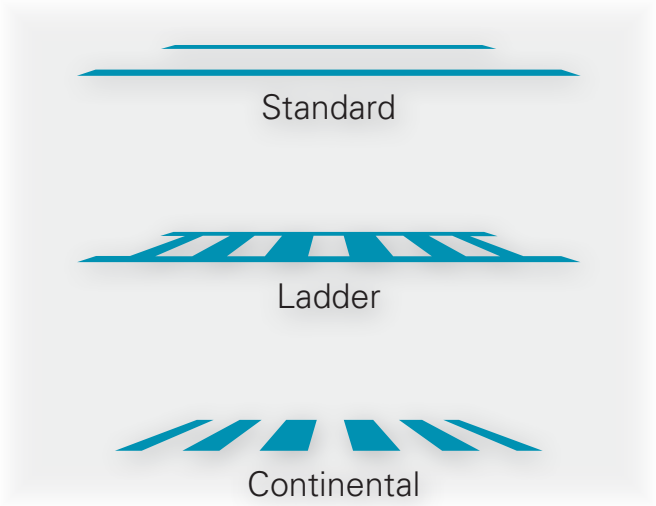


Figure 68: Types of Crosswalks[1]



Figure 69: Pedestrian walking along southbound CR 541

[1]*Source: NJDOT Complete Streets Design Guide*


SOUTH
BURLINGTON
541
COUNTY
ICED COFFEE
ORGANIC • SMOOTH • LOW ACID
ONLY $1.99
NTD
CENTER LANE ONLY

treatments, as recommendations are focused on locations in the most need of such improvements including gaps between sidewalks/crosswalks, locations near high-demand land uses (such as retail), and locations near bus stops.

The construction of sidewalks is recommended at the following segments along CR 541:

Southbound Side	CR 541	Northbound Side
▪ Just south of Kelly Drive		▪ North of Mount Holly Bypass
▪ North of Sunset Road		▪ South of Holly Lane
▪ South of Woodlane Road		▪ Just north of Holly Lane
▪ North of Mount Holly Bypass		▪ Just south of Smith Lane
		▪ South of Woodlane Road
		▪ South of Western Drive
		▪ Between Irick Road and Western Drive
		▪ South of entrance to Target/Kohl's/Home Depot
		▪ South of northernmost entrance to Shop Rite
		▪ Just north of First Christian Assembly, south of 11th Street
		▪ Between U.S. 130 NB and U.S. 130 SB next to Amy's

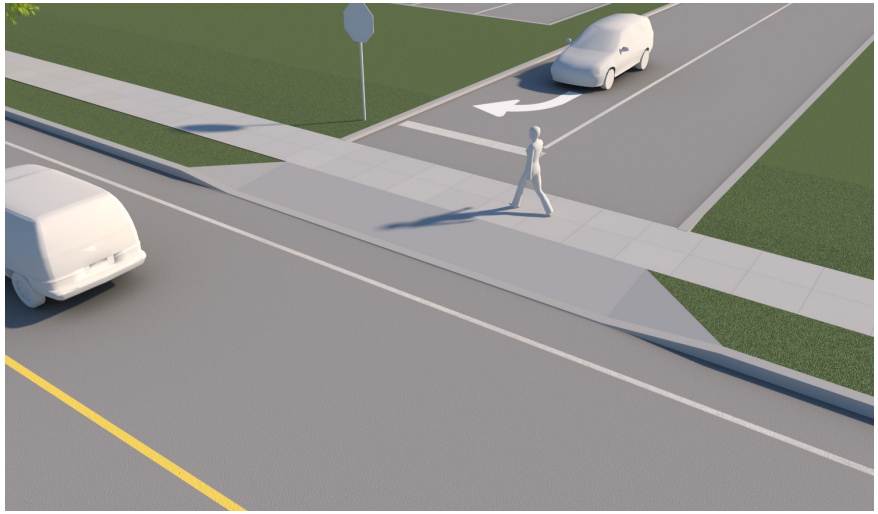


Figure 70: Driveway Design[1]



Figure 71: High Visibility Paint, Continental Stripping, Refuge Island / ADA Ramps

[1]*Source: NJDOT Complete Streets Design Guide*



Figure 72: Example of Multi Use Path in Princeton, NJ

The installation of crosswalk markings is recommended at the following locations:

- Ella Avenue crossing CR 541
- W 4th Stret crossing CR 541
- 11th Street crossing CR 541
- CR 541 crossing Rancocas Road
- Dresser Avenue crossing CR 541
- Kelly Drive crossing CR 541
- Sunset Road, south leg crossing CR 541
- Cadillac Drive crossing CR 541
- CR 541 east leg, crossing Burrs Road



Figure 73: Curb extension with High-visibility paint crosswalk[1]

[1]*Source: NJDOT Complete Streets Design Guide*

Biking Infrastructure Improvements

Additionally, a shared-use path (available to both pedestrians and cyclists) is recommended along the southbound side of CR 541 between the Burlington Bypass and Mount Holly Bypass. This path will promote cycling along the corridor, including providing connections to the currently disconnected shared-use paths on Bromley Boulevard and Woodlane Road. There is ample space along the southbound side for a 10-14 foot shared-use path. South of the Burlington Bypass, the path will cross to the northbound side of CR 541 and continue along the southbound side of the Burlington Bypass to Burlington Township Middle School, where future connections north to U.S. 130 and east to Fountain Woods Elementary School and Burlington Township High School are available. To accommodate the shared-use path the southbound sidewalk beneath the I-295 overpass will require widening. The



Figure 74: Example of Multi Use Path in Somerset, NJ



Figure 75: Bicyclist on CR 541 (High Street)

existing narrow sidewalk will need to be extended to at least ten feet and a vertical barrier (such as a Jersey barrier) may be necessary. Additional guidance concerning the design of shared-use paths can be found on page 102 of NJDOT's Complete Streets Design Guide.

Utilizing the LTS methodology introduced on page 37, having a dedicated cycling facility separated from traffic will improve the corridor's LTS from a 4 to a 1, encouraging riders of all ages and abilities to travel along the corridor for recreation, socializing, commuting, or shopping. A full map of proposed bicycle and pedestrian improvements is presented below in Figure 77.

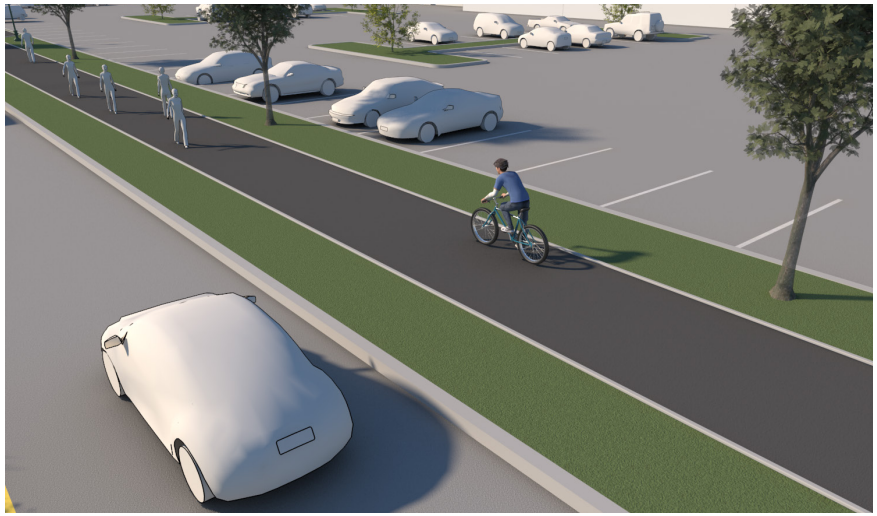


Figure 76: Multi Use Path Design[1]

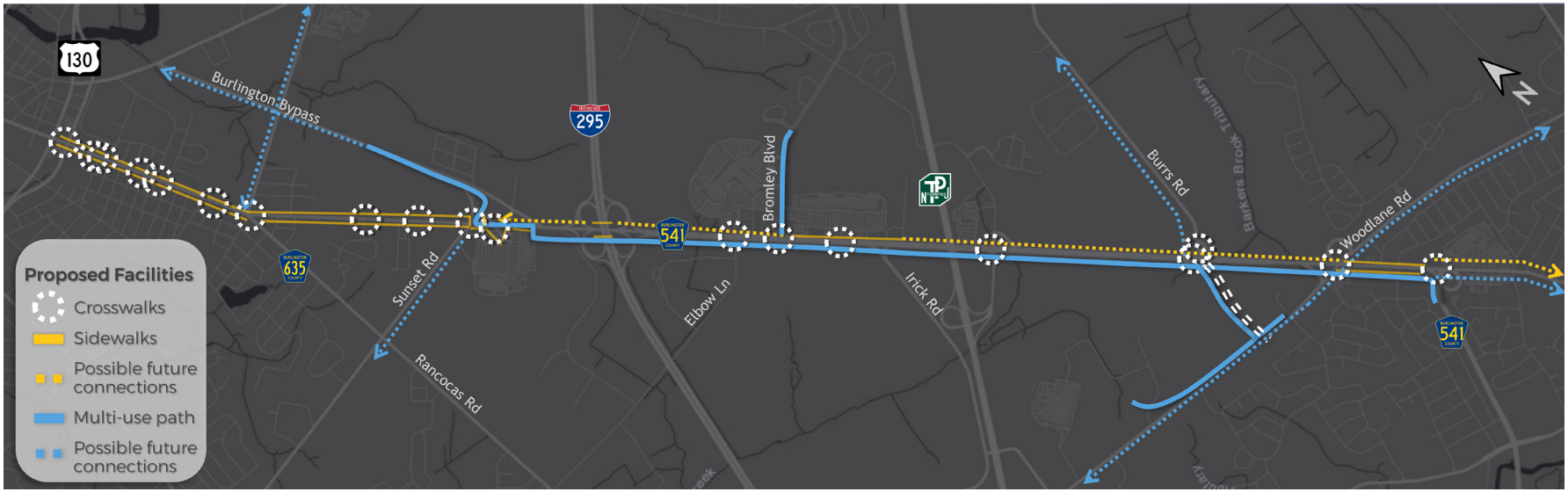


Figure 77: Proposed Bicycle and Pedestrian Improvements

[1]*Source: NJDOT Complete Streets Design Guide*

Transportation Demand Management (TDM)

In addition to the previously detailed infrastructure recommendations, a set of transportation demand management (TDM) strategies are also recommended. TDM aims to improve the transportation system by maximizing smart mobility changes, fundamentally changing the demand for various transportation modes.

These strategies aim to build off the existing TDM efforts undertaken by the County, including mandating developers of large development projects create traffic mitigation plans using TDM techniques to offset any pending negative impact on the functioning of traffic.

Supporting Burlington County's existing efforts at transportation demand management, the following strategies are recommended:

- Encouraging telecommuting
- Offering and expanding ridesharing opportunities, including jitney's
- Scheduling flexible work times

Benefits of TDM

Environmental Benefits

- Reduction in emissions, energy use, heat-islands

Economic and Financial Benefits

- Reduction in ownership cost, healthcare cost, infrastructure spending

Transportation System Benefits

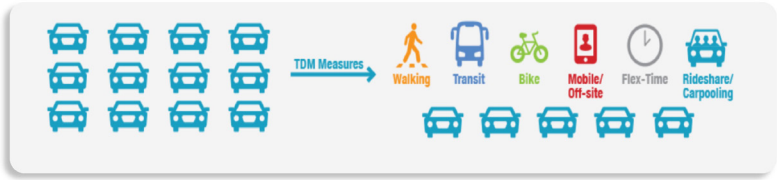
- Travel time savings, increased access, convenience, connectivity

Social Benefits

- Quality of life, less fragmentation, age-in-place

Health and Safety Benefits

- Active transportation, reduced stress levels, improved air quality



Source: City of Monterey, CA



Source: City of Monterey, CA


NO RIGHT TURN
NO RIGHT TURN
SOUTH
130
ONE WAY
Gulf

Plan Implementation

This Plan provides the basis for needed improvements to the roadway system within the Region and offers recommended improvements for the roadway system to handle current and future traffic projected to the year 2045. Implementation of the Plan can be achieved in numerous ways by various partners and agencies. This section recommends the ways in which to implement the Plan and by whom.

Local Master Plans

The term "master plan" is defined as "a comprehensive, long-range plan intended to guide the growth and development, usually of a community or region, for a set period of time…" (Moskowitz, H. S., Lindbloom, C. G., & et al. (2015). The Complete Illustrated Book of Development Definitions (4th ed.). New Brunswick, NJ: Transaction Publishers). In the State of New Jersey, several governmental jurisdictions are permitted to prepare and adopt master plans. The New Jersey County Planning Act (N.J.S.A. 40:27-1 et seq.) sets forth the following duties related to preparing and adopting a county master plan:

> *The county planning board shall make and adopt a master plan for the physical development of the county. The master plan of a county, with the accompanying maps, plats, charts, and descriptive and explanatory matter, shall show the county planning board's recommendations for the development of the territory covered by the plan, and may include, among other things, the general location, character, and extent of streets or roads, viaducts, bridges, waterway and waterfront developments, parkways, playgrounds, forests, reservations, parks, airports, and other public ways, grounds, places and spaces; the general location and extent of forests, agricultural areas, and open-development areas for purposes of conservation, food and water supply, sanitary and drainage facilities, or the protection of urban development, and such other features as may be important to the development of the county (N.J.S.A. 40:27-2).*

Furthermore, the County Planning Act requires that "[t]he county planning board shall encourage the co-operation of the local municipalities within the county in any matters whatsoever which may concern the integrity of the county master plan and to advise the board of chosen freeholders with respect to the formulation of development programs and budgets for capital expenditures".

The Municipal Land Use Law (N.J.S.A. 40:55D-1 et seq.) gives municipalities the ability to prepare and adopt master plans through their planning boards. "The planning board may prepare and, after public hearing, adopt or amend a master plan or component parts thereof, to guide the use of lands within the municipality in a manner which protects public health and safety and promotes the general welfare" (N.J.S.A. 40:55D-28.a.). At a minimum, municipal master plans shall comprise "a statement of objectives, principles, assumptions, policies and standards which constitute proposals for the physical, economic and social development of the municipality are based", and "a land use plan element" (N.J.S.A. 40:55D-28.b.(1) & (2)). The Municipal Land Use Law allows the preparation and adoption of fourteen other master plan elements, of which a circulation plan element may be included. The law describes a circulation plan element as:

… showing the location and types of facilities for all modes of transportation required for the efficient movement of people and goods into, about, and through the municipality, taking into account the functional highway classification system of the Federal Highway Administration and the types, locations, conditions and availability of existing and proposed transportation facilities, including air, water, road and rail (N.J.S.A. 40:55D-28.b.(4)).

Recommendations:

- The Burlington County Board of Chosen Freeholders and the Burlington County Planning Board should adopt this Plan as part of the 2019 County Highway Master Plan . As a result of the county/municipal cooperative effort undertaken to plan for improvements to the roadway system within the Region, adopting the Plan will accrue the following benefits:
    - Advance the cooperative efforts undertaken by Burlington County and the four municipalities within the Region to plan for improvements to the roadway system;
    - Approve of and endorse the recommended roadway improvements for the Region;
    - Elucidate to governmental jurisdictions and agencies, public utilities and the land development community the recommended roadway improvements that are required for the Region and should be incorporated into their capital improvement plans and land development plans; and
    - Establish the basis for assessing the land development community with its pro-rata share of off-tract roadway improvements within the Region.
- The four municipalities within the region, Burlington City, Burlington Township, Mount Holly Township and Westampton Township, should adopt this Plan as part of their municipal master plans. The same benefits for the County Planning Board adopting the Plan will accrue to the municipalities.

Regional Long-Range Plans

Burlington County is located within the nine-county, bi-state, Greater Philadelphia area served by DVRPC, which is a federally designated metropolitan planning organization (MPO) that provides "guidance and assistance to build a sustainable and livable region" (DVRPC. (2020). https://www.dvrpc.org/About/). As the region's MPO, DVRPC is responsible for developing a long-range transportation plan, which "creates a vision for the region's growth, development, and preservation, and is a blueprint for the prioritization and funding of capital transportation investments "(DVRPC. (2020). https://www.dvrpc.org/LongRangePlan/). The Long-Range Plan, which covers a minimum 20-year planning horizon and is updated every four years, "prioritizes regional transportation funding and considers land use, the natural environment, economic development, equity, and quality of life issues" (DVRPC. (March 2018). Connections 2045, Plan for Greater Philadelphia, Summary Document. Philadelphia, PA. 2.). In essence, the Long-Range Plan "outlines how the [DVRPC] region intends to invest in the transportation network" " (DVRPC. (December 2017). Connections 2045, Plan for Greater Philadelphia. Philadelphia, PA. 2.) "DVRPC's long-range plan and planning process strive to be consistent with and complementary to the goals and policies of the plans and programs of member municipal and county governments, and the statewide transportation plans of the Pennsylvania and New Jersey departments of transportation (DOTs)."

DVRPC's 2045 Long-Range Plan provides a strategy for making transportation investments in the region. "Federal regulations require that MPOs, such as DVRPC, develop a regional long-range transportation plan with a fiscally constrained financial plan covering a minimum 20-year planning horizon." A key component of the Long-Range Plan is the financial plan that consists of five steps:

- Assessing transportation infrastructure needs;
- Forecasting revenue:
- Allocating forecasted revenue to project types;

- Evaluating and selecting Major Regional Projects; and
- Identifying options to close the funding gap.

DVPRC assesses transportation infrastructure needs for two modes of transportation: roadway, and transit. For the County Route 541 Transportation Region, the Plan focuses on the roadway mode. Roadway investments are grouped into the following categories: system preservation; operational improvements; bicycle and pedestrian; system expansion; and other. Other investments for roadways include miscellaneous items such as parking facilities, drainage, environmental mitigation, transportation management associations, engineering, regional and local planning and debt service.

DVRPC identifies all federal, state and local revenue sources that the region can reasonably expect to receive during the 20-year planning horizon. Assumptions about projecting revenues are made and documented in the long-range plan.

Funding is allocated to mode of transportation categories based on comparative need, as well as meeting regional goals. DVRPC's "[l]ong-range plan policy prioritizes preservation and maintenance needs, followed by operational improvements, then system expansion." Essentially, this is a "'fix-it-first' policy that allocates more funding to preserving and maintaining existing roadway and transit networks."

DVRPC undertakes major project regional project evaluation and selection in a judicious manner. To do so, it relies on a quantitative assessment process. DVRPC's 2045 Long-Range Plan stresses that "…capital programming should be based on sound long-range strategic planning considerations, life-cycle investments analyses, and network performance and condition data. Careful tradeoff analysis must be done to ensure that the region get the best possible return on its transportation investments." This Plan for the County Route 541 Corridor avoids repeating the evaluation and selection criteria and processes that are provided in DVRPC's Connections 2045, Plan for Greater Philadelphia. Rather, the Plan stresses the importance of understanding the criteria, how they are applied to the selection and evaluation processes, and what the processes are, because DVRPC continually revises the criteria in response to federal regulation and guidance as well as to internal review and recommendation for improvement.

DVRPC provides two types of plans for recommended transportation improvements: the Vision Plan, and the Funded Plan. Connections 2045, Plan for Greater Philadelphia describes the Vision Plan as:

> *[including] all of the identified improvements that are needed to attain the region's transportation goals outline in the long-range plan. It includes the system preservation needs assessment, along with desired investments in operational improvements, system expansion, and bike and pedestrian projects needed to achieve the Plan's vision. Since the Plan covers a 28-year horizon, there is a focus on Major Regional Projects. However, the financial plan considers all sizes and types of projects that are critical to achieving our transportation goals. Major Regional Projects that are not included in the Funded Plan are listed as unfunded aspirational projects.*

The Funded Plan is described as "…the list of fiscally constrained projects that can be paid for with the reasonably anticipated revenue through 2045." The Funded Plan is the portion of the long-range plan that informs the development and preparation of the Transportation Improvement Program (TIP) . The DVRPC Board adopts the TIP for the Greater Philadelphia region. The DVRPC TIP is incorporated into the New Jersey's TIP, which is known as the State Transportation Improvement Program (STIP). Federal legislation requires that each state develop one multimodal STIP for all areas of their state. In New Jersey, the STIP consists of a listing of statewide line items and programs, as well as three regional Transportation Improvement Programs (TIPs) [including DVRPC TIP], which are developed by three Metropolitan Planning Organizations (MPOs) [including DVRPC] covering the state. Those

three TIPs contain local and state highway projects, statewide line items and programs, and public transit and authority-sponsored projects" (https://www.state.nj.us/transportation/capital/stip2029/).

The transportation infrastructure needs assessment for the region in Connections 2045, Plan for Greater Philadelphia found a regional funding gap of nearly $65 billion. The last step of the Financial Plan endeavors to identify potential solutions for closing the funding gap. While DVRPC's 2045 Long-Range Plan is short on potential solutions, it does stress the importance of "right-sizing" projects and provides an appendix for various financing tools.

Recommendations:

- Since DVRPC's long-range plans inform the development and preparation of DVRPC TIPs, it is imperative for all of the recommended roadway improvements to be incorporated into the Vision Plan of the Long-Range Plan. The Vision Plan contains all of the identified improvements needed to attain the region's transportation goals outlined in the Long-Range Plan. All of the recommended roadway improvements that are anticipated to be entirely or partially funded by public sources should be placed on the Vision Plan of the Long-Range Plan.
- Pursue incorporating key roadway improvements into the Funded Plan of DVRPC's Long-Range Plan. Recommended improvements contemplated for inclusion into long-range plans must be evaluated in terms of DVRPC's performance-based assessment criteria and the possibility to be allocated forecasted revenues for implementation. In other words, because not all of the projects will make their way into the fiscally constrained Funded Plan, those that have the best chance of getting into the Funded Plan must be pursued. Projects that can be solely funded by the development community or a combination of the development community and local funding sources should be pursued outside the Long-Range Plan. For costly projects of regional importance with a long-time horizon for implementation pursued through the Long-Range Plan, their chances of being placed in the Long-Rang Plan are greatly improved when the projects are able to leverage local funding such as off-tract contributions from the development community and other sources.

Transportation Improvement Program and State Transportation Improvement Program

Transportation Improvement Program (TIP)

The DVRPC Transportation Improvement Program Handbook (July 2017. 2 & 3.) provides the following comprehensive description of a TIP:

> *The TIP is the agreed-upon list of specific priority projects and is required for the region to receive and spend federal transportation funds. The TIP lists all projects that intend to use federal funds, along with non-federally funded projects that are regionally significant. The TIP represents the transportation improvement priorities of the region and is required by federal law, currently the Fixing America's Surface Transportation Act ("FAST Act"). The list is multimodal; in addition to the more traditional highway and public transit projects, it also includes bicycle, pedestrian, and freight-related projects.*
>
> *The TIP shows estimated costs and schedules by project phase. The TIP not only lists the specific projects but also documents the anticipated schedule and cost for each project phase (preliminary engineering, final design, right-of-way acquisition, and construction). Inclusion of a project phase in the TIP means that it is seriously expected to be implemented during the TIP time period.*
>
> *The TIP covers a four-year period by regulation, follows*

the federal fiscal year schedule, and is updated every other year. Federal regulation requires that the TIP cover a minimum of four federal fiscal years of programming. DVRPC TIP documents for both Pennsylvania and New Jersey demonstrate a longer planning and programming horizon (12 years for Pennsylvania; 10 years for New Jersey) in order to better understand expected resources, and to provide the region with a more realistic timeframe for advancement of TIP projects and more accurate project costs. The TIP operates on a federal fiscal year schedule that begins on October 1[st] of a given year and ends on September 30[th] of the following year. The Pennsylvania and New Jersey TIPs are updated every other year, in alternate years.

The TIP is financially constrained. The list of projects in the TIP must be financially constrained to the amount of funds that are expected to be available. In order to add projects to the TIP, others must be deferred, or additional funding to the region must be identified. As a result, the TIP is not a wish list; competition between projects for inclusion in the TIP clearly exists.

The TIP is authorization to seek funding. A project's presence in the TIP represents a critical step in the authorization of funding to a project. It does not, however, represent a commitment of funds, an obligation to fund, or a grant of funds [emphasis added]. The TIP may be changed after it is adopted. Under the provisions of federal law and regulation, the approved TIP can be modified or amended in various ways in order to add new projects, delete projects, advance projects into the first year, and accommodate cost and phase of work changes or major scope changes to a project. The criteria and procedures for changing the TIP are outlined in a Memorandum of Understanding (MOU).

The Handbook further describes what the TIP is not and does not do in the following manner:

> *The TIP is not a final schedule of project implementation. The timeframe shown in the TIP is the best estimate at the time of TIP development, which ranges from six to nine months prior to the beginning of the first fiscal year of the TIP period. Projects quite often cannot maintain that schedule and are reprogrammed to later years.*
>
> *The TIP does not guarantee project implementation. Unforeseen problems may arise, such as engineering obstacles, environmental permit conflicts, changes in priorities, and additional financial constraints. These problems can slow a project and cause it to be postponed or even dropped from further consideration. They can also increase the project's overall cost.*

A variety of sources fund the TIP. "The major funding source for the projects in the TIP is federal transportation legislation… In addition to federal funds, state matching funds are made available… Local counties, municipalities, and private developers or toll authorities, as well as transit operators, may also participate in providing matching funds for federal aid. New funding sources and innovative funding techniques are constantly being sought".

"Regionally significant projects must be drawn from the region's [Long-Range Plan], and all projects in the TIP must help implement the goals of the [Long-Range Plan]. The [Long-Range Plan], required by federal law, is the document that helps direct transportation and land use decisions over a minimum 20-year horizon." It often takes years of "pre-implementation research and public input" for a project to be included on the TIP. The typical course for a project to get on the TIP involves the following major steps:

- First, a particular transportation need is identified. In many cases, municipal planners and engineers generate lists of goals. The [Regional Technical Committee (RTC)] is composed

of state, county, and city planners; transit operators; citizen representatives from the Public Participation Task Force (PPTF); and transportation-related interest groups. The RTC makes recommendations to the DVRPC Board.

- Finally, the DVRPC Board provides the forum through which the elected officials of the region's counties and major cities and representatives of the states and operating agencies determine each year's TIP projects. After considering the recommendations of the RTC and the comments received from the public, the Board determines the final list of projects to be included in the TIP and adopts it as its selection of projects to be advanced.

State Transportation Improvement Program (STIP)

The New Jersey STIP is a "comprehensive, one-volume guide to major transportation improvements planning in the State of New Jersey… [and] it serves as the reference document, required under federal regulations (23 CFR 450.216), for use by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) in approving the expenditure of federal funds for transportation projects in New Jersey" (New Jersey Department of Transportation. 2020. https://www.state.nj.us/transportation/capital/stip2029/). The STIP consists of a listing of statewide line items and programs, as well as three regional [TIPs], which are developed by three [MPOs, including DVRPC]."

The New Jersey Department of Transportation prepares the STIP to conform to the following specific requirements of the federal regulations:

- It lists the priority projects programmed for the first four (4) years of the planning period. It also includes a priority list of projects to be funded over an additional six (6) years.
- It is fiscally constrained for the entire 10 years.
- It contains all regionally significant projects, regardless of funding source.
- It contains all projects programmed for federal funds.
- It contains, for information, state-funded projects.
- It contains expansive descriptive information.

The STIP is a 10-year plan that is fiscally constrained based on federal estimated resources. The STIP incorporates the three separate TIPs without modification. Federal regulations require "the STIP contain projects consistent with the Statewide Long Range Transportation Plan (SLRTP), Transportation Choices 2030. The SLRTP is a comprehensive plan developed by NJDOT and NJ Transit that includes goals, policies, strategies, and actions providing strategic direction in the formulation of the STIP and guide investment prioritization for New Jersey's transportation system."

Recommendations:

- TIP – It is imperative to pursue moving projects in the Funded Plan of DVRPC's Long-Range Plan to the DVRPC TIP. The process to get projects onto the TIP is a deliberative process that includes negotiation. Chances to do this are improved when state and/or federal funding is leveraged with local funding, including off-tract contributions made by the private development community. Every effort must be made to identify and secure as many funding sources that could be leveraged with state and/or federal dollars to implement the project.
- STIP – As indicated in the discussion about STIPs, once a project is on an MPO's TIP it is incorporated into the STIP without modification. Emphasis is placed on getting projects onto the DVRPC TIP so that they are on the STIP.

Coordination between Municipal and County Partners

Implementation of the Plan depends upon how well the municipal and county partners execute their roles for pursuing the improvement of the roadway system within the Region. The municipal partners include Burlington City, Burlington Township, Mount Holly Township and Westampton Township. The first major step toward solving the transportation and circulation issues within the Region is to prepare a comprehensive plan that analyzes the issues affecting the Region, establishing the need for making roadway improvements within the Region and setting forth the recommendations needed to address the transportation and circulation issues in the Region. Burlington County, through EDRP of BCBC, accomplished this initial step by preparing this Plan with the full support and cooperation of the participating municipalities. The following recommendations provide the next steps toward implementation of the Plan:

Recommendations:

- The planning boards of the municipal partners adopt the Plan as part of their master plans.
- The Burlington County Planning Board holds the required public hearing on the Plan, approves it and recommends that the Burlington County Board of Chosen Freeholders adopt the Plan as part of the 2019 Burlington County Highway Master Plan.
- The municipal partners review and, if necessary, update their ordinances to ensure they track current state requirements for requiring developers to construct or pay the pro-rata share of the cost of providing only reasonable and necessary improvements to streets, as well as other infrastructure.
- The Burlington County Board of Chosen Freeholders update the Land Development Review Resolution in accordance with previous recommendations.
- The municipal partners and Burlington County agree to enter into a formal agreement to continue working together in the following manner:
  - The municipalities agree to provide the County Engineer with information about pending and anticipated development applications in the Region – this is an early warning mechanism for the County Engineer to review and evaluate the development applications vis-à-vis traffic impacts.
  - County Engineer will provide development information to BCBC's EDRP to maintain a list of proposed developments in the Region and to compare the proposed/anticipated development to the buildout component of the Plan – this is a check for anticipating future traffic generation by development that will impact the region
  - The municipal partners and the County agree to meet on an annual basis to:
    - Discuss progress in implementing the Plan;
    - Identify emergent traffic issues and ways to address them;
    - Strategize to fill gaps in funding to implement the Plan;
    - Collaborate to pursue grants and outside agency funding to implement the Plan; and
    - Have the County take the lead in convening annual meetings and preparing summaries of the meetings and distributing them to the governing bodies of the municipal partners.

The concepts and recommendations presented in this plan were developed in accordance with current design guidance, but are not fully engineered. Implementation of many of the recommendations will require engineering studies to refine design elements related to traffic warrants, right of way, drainage design, utilities, and other considerations. This study did not investigate whether existing curb ramps or other pedestrian features are compliant with current ADA standards.

Recommendations from this study will also need to be advanced in accordance with state and federal regulations that govern environmentally-sensitive areas, which include coastal zones, wetlands, woodlands, and preserved open space. Projects adding new paved areas will also need to meet NJDEP Stormwater Management (SWM) Rules for groundwater recharge and runoff quantity. The use of pervious paving – whether asphalt, concrete, or gravel – can help to mitigate potential environmental impacts related to stormwater runoff.

An implementation table was developed to summarize the major plan recommendations (see Table 7). This table provides a brief description, order-of-magnitude, cost, timeframe, and jurisdiction for each recommendation. The table also provides an estimate of the complexity of each project to aid in the decision-making process.

Project Phasing

Since the projects and programs presented in this plan would be developed over many years, phasing of the recommendations is an important consideration. Recommended timeframes for major plan elements are included in the implementation table. Several of the project and program recommendations in this plan could be implemented soon after it is adopted. These immediate action items will improve pedestrian and bicycle conditions in specific areas, creating early successes. These items will also build momentum for implementing the other recommendations.



Figure 78: Westampton Barn

Conclusion

The traffic and land uses surrounding CR 541 have changed over time and will continue to change as the communities grow. With this plan, the local municipalities will have greater input and control how future land developments and roadway upgrades can work together to result in a corridor that functions for everyone.





APPENDICES

IMPLEMENTATION MATRIX

Category	Location	Recommendation	Cost	Timefame	Lead Entity
Land Use Focus Areas	Concept 1, Westampton Township	500-900 Residential Units	N/A	L	Muni, County, NJDOT
		50,000-55,000 sq. ft. Commercial/Retail Space			
		500,000-685,000 sq. ft. Light Industrial/Business/Office/ Services Space			
		275,000 sq. ft. Industrial Space			
	Concept 2, Westampton Township	825-1,250 Residential Units	N/A	L	Muni, Developer County, NJDOT
		50,000-75,000 sq. ft. Commercial/Retail Space			
		185,000 sq. ft. Wellness Campus			
		grid of roads with small blocks, on-street parking, internal green space, sidewalks, and trails			

LEGEND

Jurisdiction

- **Muni** = Study Area municipalities
- **County** = Burlington County
- **NJDOT** = New Jersey Department of Transportation
- **NJTA** = New Jersey Turnpike Authority
- **Developer** = Local Land Developer

Timeframe

- **S** = Short (1 to 3 years)
- **M** = Medium (3 to 5 years)
- **L** = Long (5 years +)

Cost

- **$** = Low
- **$$** = Medium
- **$$$** = High
- **N/A** = Not Applicable

Category	Location	Recommendation	Length (feet)	Cost	Timefame	Lead Entity
Pedestrian Improvements	SB Side-Just south of Kelly Drive	Sidewalk Construction	50	$	S	Muni, Developer
	SB Side- North of Sunset Road	Sidewalk Construction	250	$	S	Muni, Developer
	SB Side- South of Woodlane Road	Sidewalk Construction	250	$	S	Muni, Developer
	SB Side- North of Mount Holly Bypass	Sidewalk Construction	350	$	S	Muni, Developer
	NB Side-North of Mt Holly Bypass	Sidewalk Construction	300	$	S	Muni, Developer
	NB Side- South of Holly Lane	Sidewalk Construction	250	$	S	Muni, Developer
	NB Side- Just north of Holly Lane	Sidewalk Construction	100	$	S	Muni, Developer
	NB Side- Just south of Smith Lane	Sidewalk Construction	100	$	S	Muni, Developer
	NB Side- South of Woodlane Road	Sidewalk Construction	200	$	S	Muni, Developer
	NB Side- South of Western Drive	Sidewalk Construction	100	$	S	Muni, Developer
	NB Side- Between Irick Road and Western Drive	Sidewalk Construction	300	$	S	Muni, Developer
	NB Side- South of Entrance to Target/Kohl's/Home Depot	Sidewalk Construction	200	$	S	Muni, Developer
	NB Side- South of northernmost entrance to Shop Rite	Sidewalk Construction	150	$	S	Muni, Developer
	NB Side- Just north of First Christian Assembly, south of 11th Street	Sidewalk Construction	100	$	S	Muni, Developer
	NB Side- Between U.S. 130 NB and U.S. 130 SB next to Amy's Omelette House	Sidewalk Construction	100	$	S	Muni, Developer

LEGEND

Jurisdiction

- **Muni** = Study Area municipalities
- **County** = Burlington County
- **NJDOT** = New Jersey Department of Transportation
- **NJTA** = New Jersey Turnpike Authority
- **Developer** = Local Land Developer

Timeframe

- **S** = Short (1 to 3 years)
- **M** = Medium (3 to 5 years)
- **L** = Long (5 years +)

Cost

- **$** = Low
- **$$** = Medium
- **$$$** = High
- **N/A** = Not Applicable

Category	Location	Recommendation	Cost	Timefame	Lead Entity
Pedestrian Improvements	Ella Avenue crossing CR 541	Crossing Markings	$	S	Muni, County
	W 4th Street crossing CR 541	Crossing Markings	$	S	Muni, County
	11th Street crossing CR 541	Crossing Markings	$	S	Muni, County
	CR 541 crossing Rancocas Road	Crossing Markings	$	S	Muni, County
	Dresser Avenue crossing CR 541	Crossing Markings	$	S	Muni, County
	Kelly Drive crossing CR 541	Crossing Markings	$	S	Muni, County
	Sunset Road, south leg crossing CR 541	Crossing Markings	$	S	Muni, County
	Cadillac Drive crossing CR 541	Crossing Markings	$	S	Muni, County
	CR 541 east leg, crossing Burrs Road	Crossing Markings	$	S	Muni, County
Bicycle Improvements	SB side between Burlington Bypass and Mount Holly Bypass	Install shared-use path	$$	M	Muni, County
Transportation Focus Areas	CR 541, Fountain Ave, and Rancocas Road	Add roundabout; eliminate traffic signal	$$$	L	Muni, County
		Mark high-visibility crosswalks along all legs	$	S	Muni, County

LEGEND

Jurisdiction

- **Muni** = Study Area municipalities
- **County** = Burlington County
- **NJDOT** = New Jersey Department of Transportation
- **NJTA** = New Jersey Turnpike Authority
- **Developer** = Local Land Developer

Timeframe

- **S** = Short (1 to 3 years)
- **M** = Medium (3 to 5 years)
- **L** = Long (5 years +)

Cost

- **$** = Low
- **$$** = Medium
- **$$$** = High
- **N/A** = Not Applicable

Category	Location	Recommendation	Cost	Timefame	Lead Entity
Transportation Focus Areas	CR 541, Sunset Road, and Burlington Bypass	Eliminate Burlington Bypass south of Cadillac Drive	$$	M	Muni, County
		Realign Burlington Bypass to extend from Sunset Road intersection instead of directly from CR 541	$$	M	Muni, County
		Construct roundabout connecting Burlington Bypass with Wishing Well Plaza	$$$	L	Muni, County
		Add entrance to Wishing Well Plaza from Burlington Bypass	$$	M	Developer
		Construct service driveways from business locations to new service road	$$	M	Developer
		Restrict left turns to Wawa from southbound CR 541	$	S	Muni, County
		Add left turn movements into Wishing Well Plaza	$$	M	Muni, County
		Install high-visibility crosswalks along each leg	$	S	Muni, County
	CR 541, Elbow Lane, and Bromley Boulevard	Extend Elbow Lane to Bromley Boulevard	$$	M	Muni, County
		Remove reverse jughandle at Bromley Boulevard and replace with forward jughandle at Elbow Lane extension	$$	M	Muni, County
		Add turning movements at Elbow Lane	$	S	Muni, County
	CR 541 and Burrs Road	Extend Burrs Road from CR 541 to Woodlane and Greenwich Roads	$$	M	Muni, County
		Add connector road to access future hospital site	$$	M	Developer
		Add left turn lane	$	S	Muni, County
		Continue shared-use path on Woodlane Rd to CR 541	$$	M	Muni, County

LEGEND

Jurisdiction

- **Muni** = Study Area municipalities
- **County** = Burlington County
- **NJDOT** = New Jersey Department of Transportation
- **NJTA** = New Jersey Turnpike Authority
- **Developer** = Local Land Developer

Timeframe

- **S** = Short (1 to 3 years)
- **M** = Medium (3 to 5 years)
- **L** = Long (5 years +)

Cost

- **$** = Low
- **$$** = Medium
- **$$$** = High
- **N/A** = Not Applicable

Category	Location	Recommendation	Cost	Timefame	Lead Entity
Transportation Focus Areas	CR 541, Irick Road, New Jersey Turnpike, and Hancock Lane	Realign Irick Road with Western Drive	$$	M	Developer
		Add traffic circle at Irick Road and entrance of new shopping complex	$	M	Developer
		Eventual widening of New Jersey Turnpike	$$$	L	NJTA
		Realign Irick Road and Woodlane Road near New Jersey Turnpike	$$$	L	NJTA
		Realign Hancock Lane at New Jersey Turnpike overpass	$$$	L	NJTA
	CR 541 and Woodlane Road	Reconfigure jughandle from CR 541 NB to Woodlane Road westbound into a t-intersection with a stop control	$$	M	Muni, County/ Developer
		Add ramp from westbound Woodlane Road to northbound CR 541	$$	M	Muni, County/ Developer
		Eliminate driveway from 541 to Burlington County Social Services building	$$	M	Muni, County/ Developer
		Eliminate forward jughandle from CR 541 southbound to Woodlane Road and Orchard Road and replace with new connector road at Woodlane Road and Tarnsfield Road	$$$	K	Muni, County/ Developer
		Add shared-use path on Woodlane Road through CR 541 intersection	$$	M	Muni, County/ Developer

LEGEND

Jurisdiction

- **Muni** = Study Area municipalities
- **County** = Burlington County
- **NJDOT** = New Jersey Department of Transportation
- **NJTA** = New Jersey Turnpike Authority
- **Developer** = Local Land Developer

Timeframe

- **S** = Short (1 to 3 years)
- **M** = Medium (3 to 5 years)
- **L** = Long (5 years +)

Cost

- **$** = Low
- **$$** = Medium
- **$$$** = High
- **N/A** = Not Applicable

Category	Location	Recommendation	Cost	Timefame	Lead Entity
Transportation Demand Management Strategies	Corridor-wide	Encourage telecommuting	$	S	Muni, County
		Offer and expand ridesharing opportunities, including jitney's	$	S	Muni, County
		Scheduling flexible work time	$	S	Muni, County

LEGEND

Jurisdiction

- **Muni** = Study Area municipalities
- **County** = Burlington County
- **NJDOT** = New Jersey Department of Transportation
- **NJTA** = New Jersey Turnpike Authority
- **Developer** = Local Land Developer

Timeframe

- **S** = Short (1 to 3 years)
- **M** = Medium (3 to 5 years)
- **L** = Long (5 years +)

Cost

- **$** = Low
- **$$** = Medium
- **$$$** = High
- **N/A** = Not Applicable













Burlington County Bridge Commission

WSP USA

Traffic Planning and Design, Inc.

Susan Blickstein