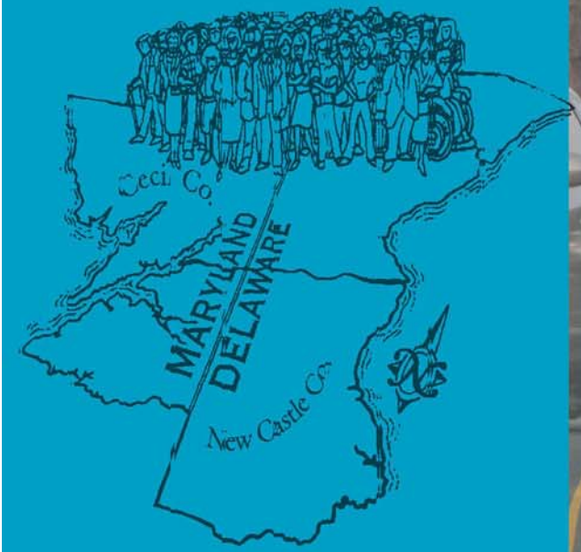


2009 WILMAPCO Congestion Management System Summary

WILMAPCO

July 2009

TABLE OF CONTENTS

List of Figures

List of Tables

This page has been intentionally left blank

INTRODUCTION

According to the Federal Highway Administration (FHWA), a Congestion Management Process (CMP) should be "a systematic process for managing traffic congestion and providing information on transportation system performance." A CMP is required in metropolitan areas with population exceeding 200,000, known as Transportation Management Areas (TMAs). In TMAs designated as ozone or carbon monoxide non-attainment areas (the Wilmington Area is in non-attainment for ozone) the CMP takes on a greater significance. Federal guidelines prohibit projects that increase capacity for single occupant vehicles unless the project comes from a CMP. Federal requirements also state that in all TMAs, the CMP shall be developed and implemented as part of the metropolitan planning process. According to the FHWA, a CMP must perform the following tasks:

- Measure multi-modal transportation system performance
- Identify the causes of congestion
- Assess alternative actions
- Implement cost-effective actions
- Evaluate the effectiveness of implemented actions

An effective CMP should also include alternative strategies for alleviating congestion and enhancing the mobility of persons and goods to levels that meet state and local needs. It should include a data collection and monitoring system, develop a "tool box" of strategies for addressing congestion, performance measures or criteria for identifying when action is needed, and a system for prioritizing which congestion management strategies would be most effective. In addition, federal guidelines prohibit projects that increase capacity for single occupant vehicles unless the project comes from a CMP.

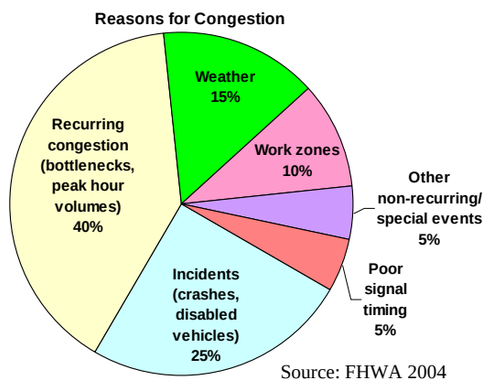
Finally the Safe, Accountable, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) signed into law in August 2005 requires that Long Range Plans include:

- Operational and management strategies to improve the performance of the existing transportation facilities to relieve vehicular congestion and maximize safety and mobility for people and goods

- A process that provides for effective management and operation to address congestion management

The main goal of the Wilmington Area Planning Council's (WILMAPCO) Congestion Management System (CMS) report is a "systems" approach to identifying and addressing congestion in our region. With this approach, the existence of congestion in the transportation system can be seen in more of a regional (or national) context and it becomes apparent how slight changes at a specific location can impact the operation of the transportation system as a whole.
Another important point that is carried forward in this report is the idea that it is often difficult (or too expensive) to build our way out of congestion. It has been witnessed and discussed locally and referenced in national studies that the "build more lanes" approach to solving congestion often has the undesired effect of actually creating more traffic. This report acknowledges that, in some areas, roadway capacity addition may be the only solution for a severe congestion problem. However, that option will only be examined as a last resort after all other strategies have been exhausted or determined to be unfeasible based on the characteristics of the corridor. These alternative strategies include measures to reduce automobile trips from the network, measures to shift trips to some other mode than the automobile, encouraging more high-occupant vehicle trips, and measures to manage the existing transportation system.

This report has been written with two audiences in mind. First, the document has been designed so that anyone, with or without a transportation planning background, can pick up the report and follow the progression through to the end. We have attempted to make the text clear and the steps logical, and have included numerous appendices including a listing of transportation terms for reference.



Source: FHWA 2004

The second audience is the planners and planning managers at the Maryland Department of Transportation, the Delaware Department of Transportation, New Castle County, Cecil County, and the Transportation Management Association of Delaware. While this report will serve as the first step in addressing regional congestion, we will rely on project development and land use planners to follow through with this report's recommendations with further study and eventual implementation. To that end, Chapter 5, in particular, has been written in a "corridor summary" format where each corridor's relevant statistics, location, congestion measures, and recommended mitigation measures are summarized on one page for quick and easy reference.

The following sections explain in detail the process in which WILMAPCO has developed to address this requirement put forth by SAFETEA-LU.

The WILMAPCO Approach to Congestion

The WILMAPCO 2009 CMS uses a "Summary-Style" approach that has been designed to focus on the core functions of what a CMP is to perform. The goal was to create a more streamlined, data-oriented summary that serves as a resource for use in other Metropolitan Planning Organization (MPO) documents. The report has four key sections:

SECTION 1: *Congestion Definition*—A review annual performance measure data and the determi nation of the most congested locations based on a regional analysis

SECTION 2: *Strategy Evaluation*—Identification (by consensus) congested corridors, perform a detailed analysis of each corridor and determine which mitigationstrategies are fea sible

SECTION 3: *System Monitoring*—Track congestion trends and changes to transportation characteristics over time

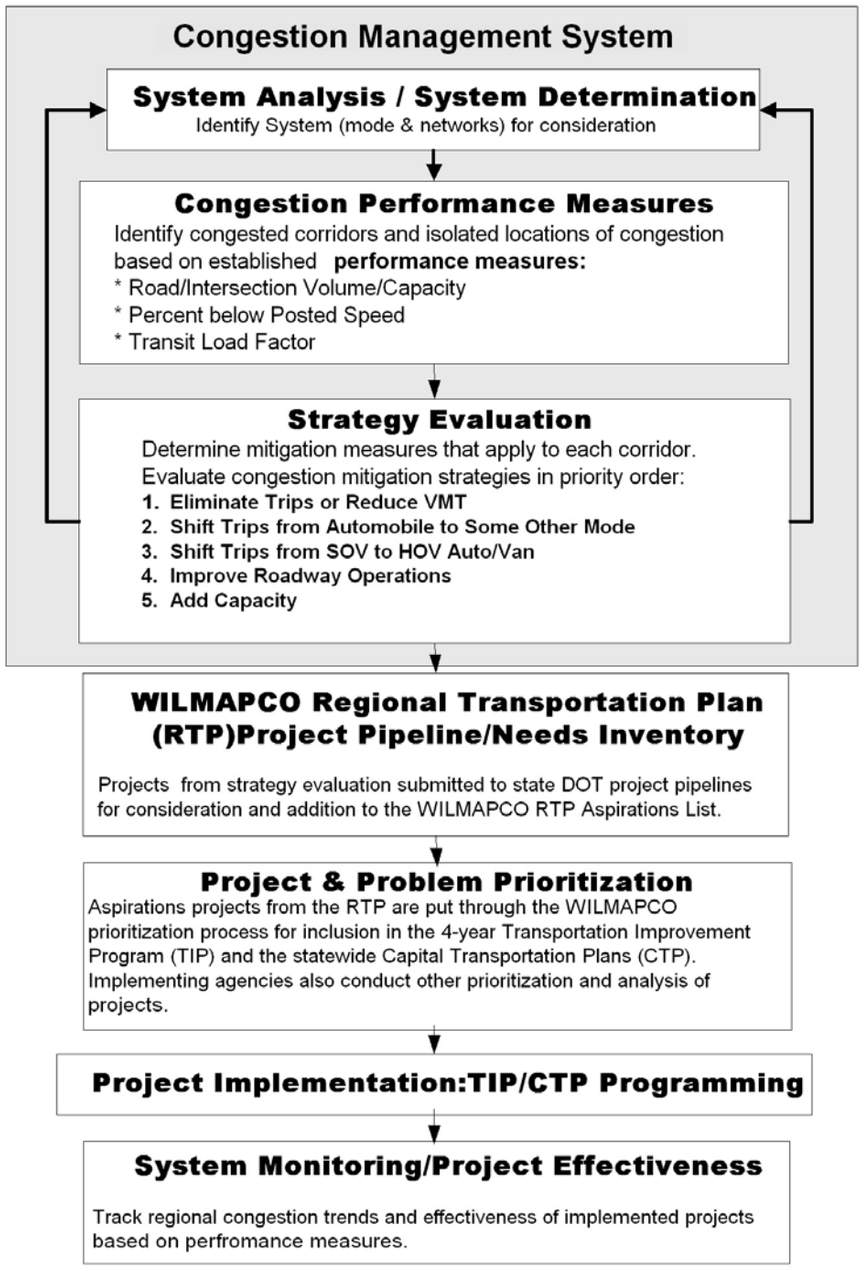
SECTION 4: *Data Collection & Inventory*—A display of ongoing data collection activities that relate to congestion.

All data shown in this document is available upon request. For more detail on the data sources and the history of the CMS, feel free to contact the WILMAPCO offices at (302) 737-6205 or visit our website at: www.wilmapco.org.

Integration into the Overall WILMAPCO Planning Process

The integration of the CMS into the overall WILMAPCO planning process is shown in Figure 1. The process begins with an evaluation of the overall system performance using the defined congestion performance measures. The outputs of the CMS (i.e. identified locations of congestion and recommended congestion mitigation measures) then flow into the Delaware Department of Transportation (DelDOT) project pipeline and the Maryland State Highway Administration (MDSHA) Highway Needs Inventory where they are included in the "Aspirations List" developed during the WILMAPCO Regional Transportation Plan (RTP) update in March 2007. The aspirations list is an inventory of needed, but not financially feasible projects which were included in the plan but are not part of the constrained project list used for air quality conformity. These aspirations projects are then evaluated by the WILMAPCO project prioritization process and prioritized for input into the RTP. Note—more details on the role of the CMS in the WILMAPCO Project Prioritization Process can be found in Section 3 of this document. After analysis, the projects are programmed into the WILMAPCO Transportation Improvement Program (TIP) along with other agency capital improvement programs for implementation based on funding allowances.

Figure 1: CMS Integration into the Planning Process



SECTION #1: CONGESTION PERFORMANCE MEASURES

Defining the Transportation Network
The first step in defining the CMS system is to determine the transportation network to consider in the analysis. Due to constraints in data collection, the network has been limited to all roadways classified as Minor Arterial or greater according to the FHWA functional classification network.

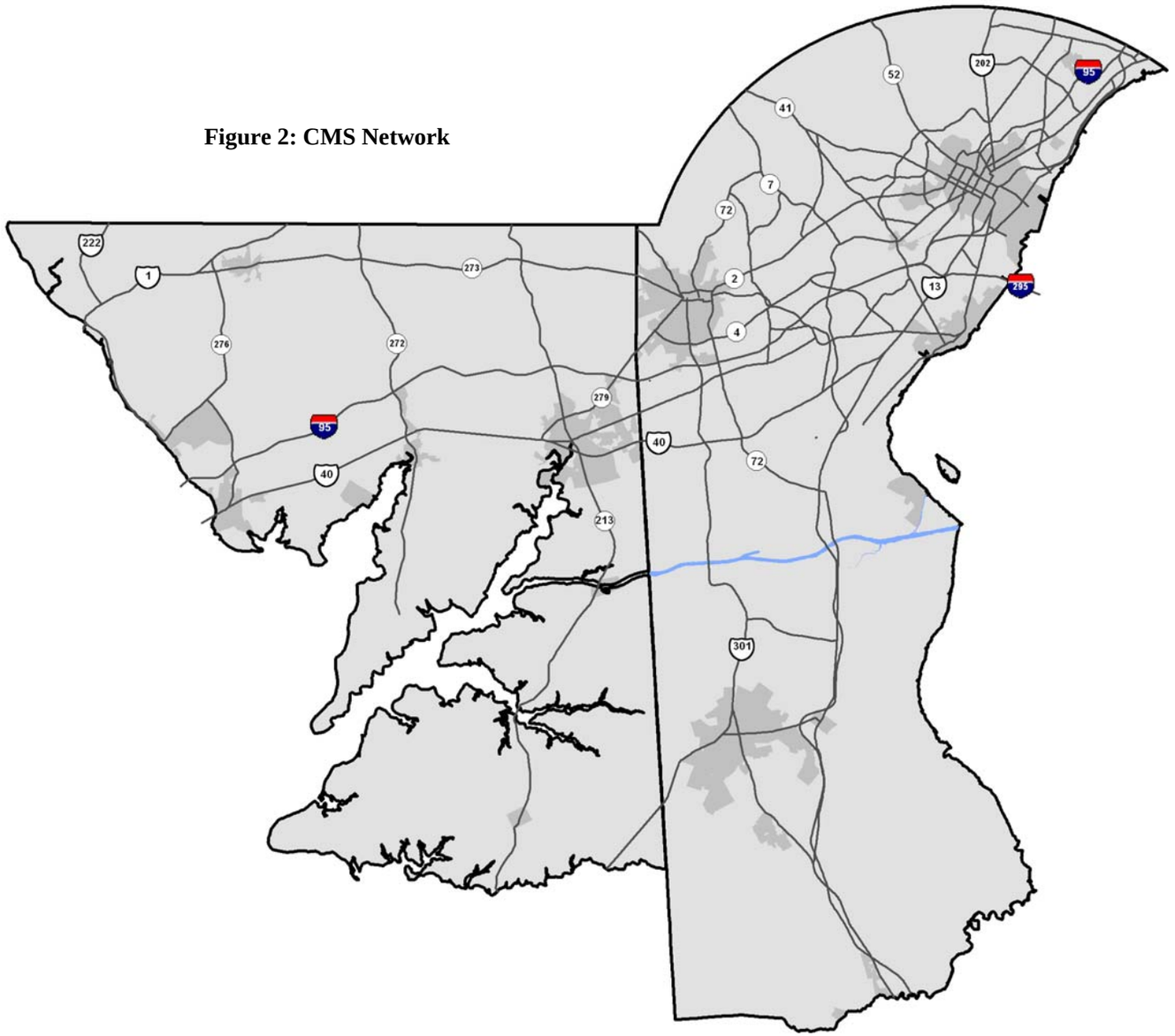
Currently this method captures roughly 15% of all roadway mileage in the WIL-MAPCO region (including local roads). However these roads carry around 74% of the daily vehicle miles traveled (VMT)*.

Performance Measures
The CMS uses a series of performance measures to evaluate the current congestion level of our most traveled roadway network.

Currently, performance measures used in the congestion identification analysis in this report is limited to roadway congestion due to reliable data constraints.

Those measures used include:
• Roadway Volume to Capacity Ratio (daily)
• Intersection Level of Service (peak hour)
• Roadway Travel Speeds vs. Posted Speed Limit (AM/PM peak)
• 3-year crash rate (Intersection and Road segments)

Figure 2: CMS Network



* Based on 2006 HPMS data.

Performance Measures #1 and #2: Roadway and Intersection Level of Service

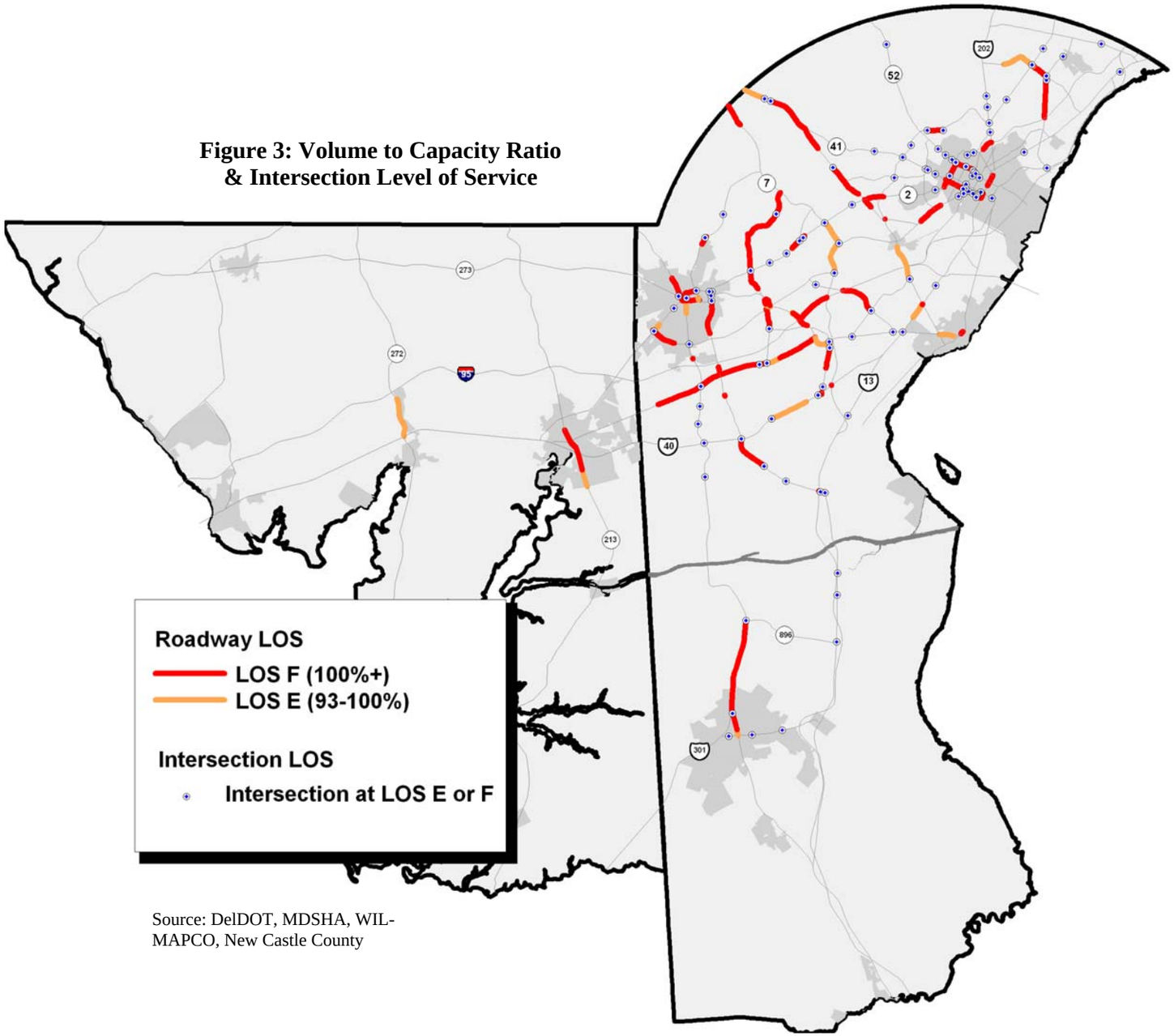
Performance Measure #1: Volume to Capacity Ratio

This measure looks at what percentage of the roadway's capacity is being utilized by traffic; the higher the ratio, the closer the roadway's capacity is to being filled **(See Figure 3).** For purposes of this report, we utilized a generally accepted measure of assigning letter grades (A-F) to ranges of the volume to capacity (V/C) ratio. Following this system, we have assumed that roadway *congestion* exists on segments with a Level of Service (LOS) "E" (which represents a V/C ratio between 93 and 100%) and LOS "F" (which represents V/C ratios higher than 100%).

Performance Measure #2: Intersection Level of Service (LOS)

This measure looks at the overall performance (delay experienced by the user) of a given intersection. As in the roadway volume to capacity performance measure discussed above, we applied the generally accepted letter grade system to the intersection LOS measure with LOS "E" and "F" assumed to be congested intersections. Tables 1 and 2 on the following page provide further detail.

Figure 3: Volume to Capacity Ratio & Intersection Level of Service



Source: DelDOT, MDSHA, WILMAPCO, New Castle County

Performance Measure #3: Percent Under Posted Speed

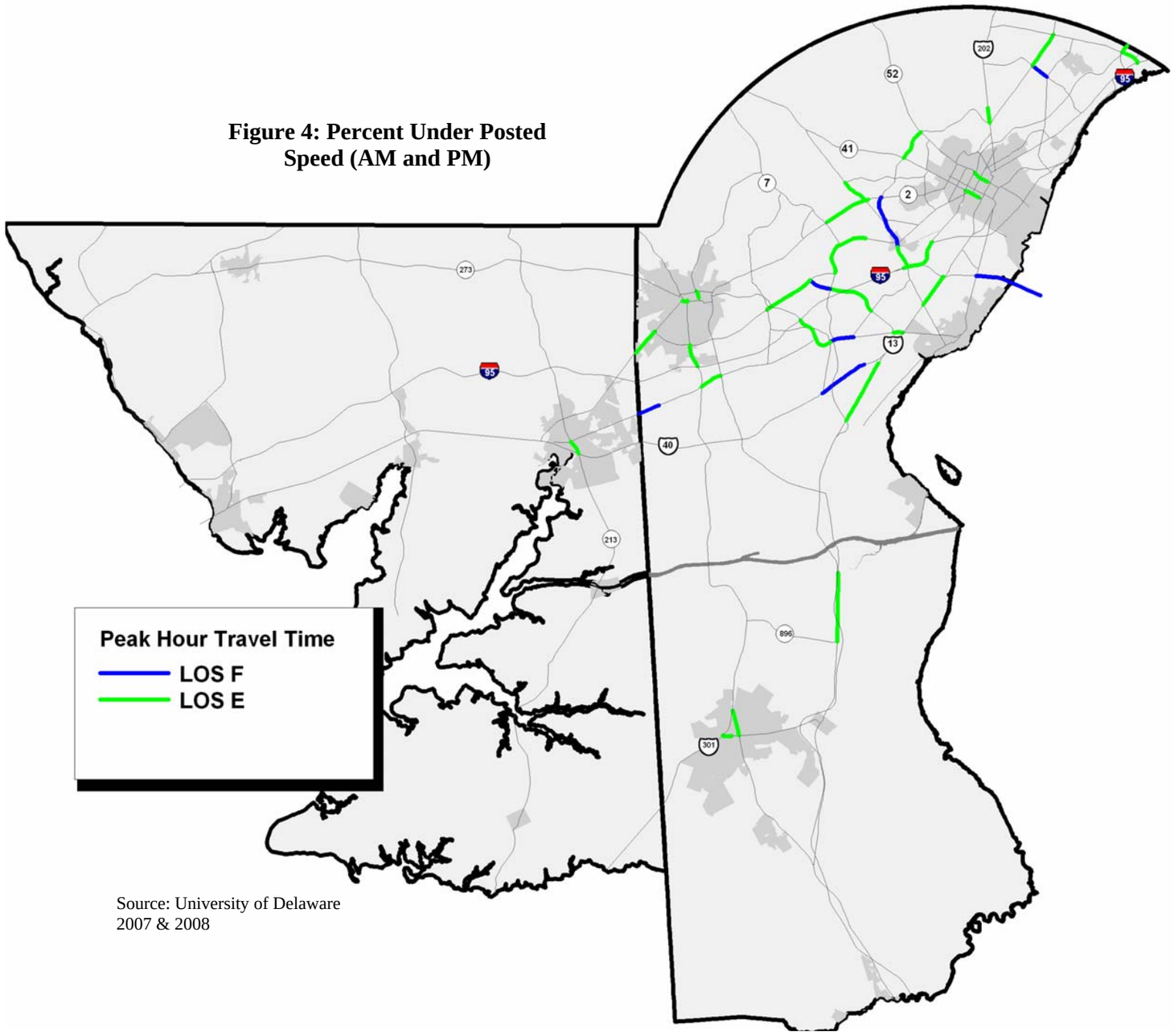
The third performance measure looks at the percentage difference between peak period travel speeds and the roadway's posted speeds. The greater the difference between the average vehicle operating speed and the posted speed, the more severe the congestion along the given segment. Data for most of our CMS network gets collected in pre-determined segments which enable us to identify in detail any segments that fall below the threshold set by the CMS.

The CMS uses the percent under posted speed measure since it is generally the most easily understood by members of the public. The roadway segments with a percent under posted speed at LOS "E" or "F" levels are shown in **Figure 4**.

Table 1: Level of Service Thresholds for Travel Speed

Interstate/Freeways: (% under speed limit)
LOS A: 0-14%
LOS B: 14-18%
LOS C: 18-20%
LOS D: 23-30%
LOS E: 30-50%
LOS F: 50%+
Arterials: (% under speed limit)
LOS A: 0-10%
LOS B: 10-30%
LOS C: 30-45%
LOS D: 45-60%
LOS E: 60-70%
LOS F: 70% +

Figure 4: Percent Under Posted Speed (AM and PM)



Source: University of Delaware
2007 & 2008

Performance Measure #4: Crashes

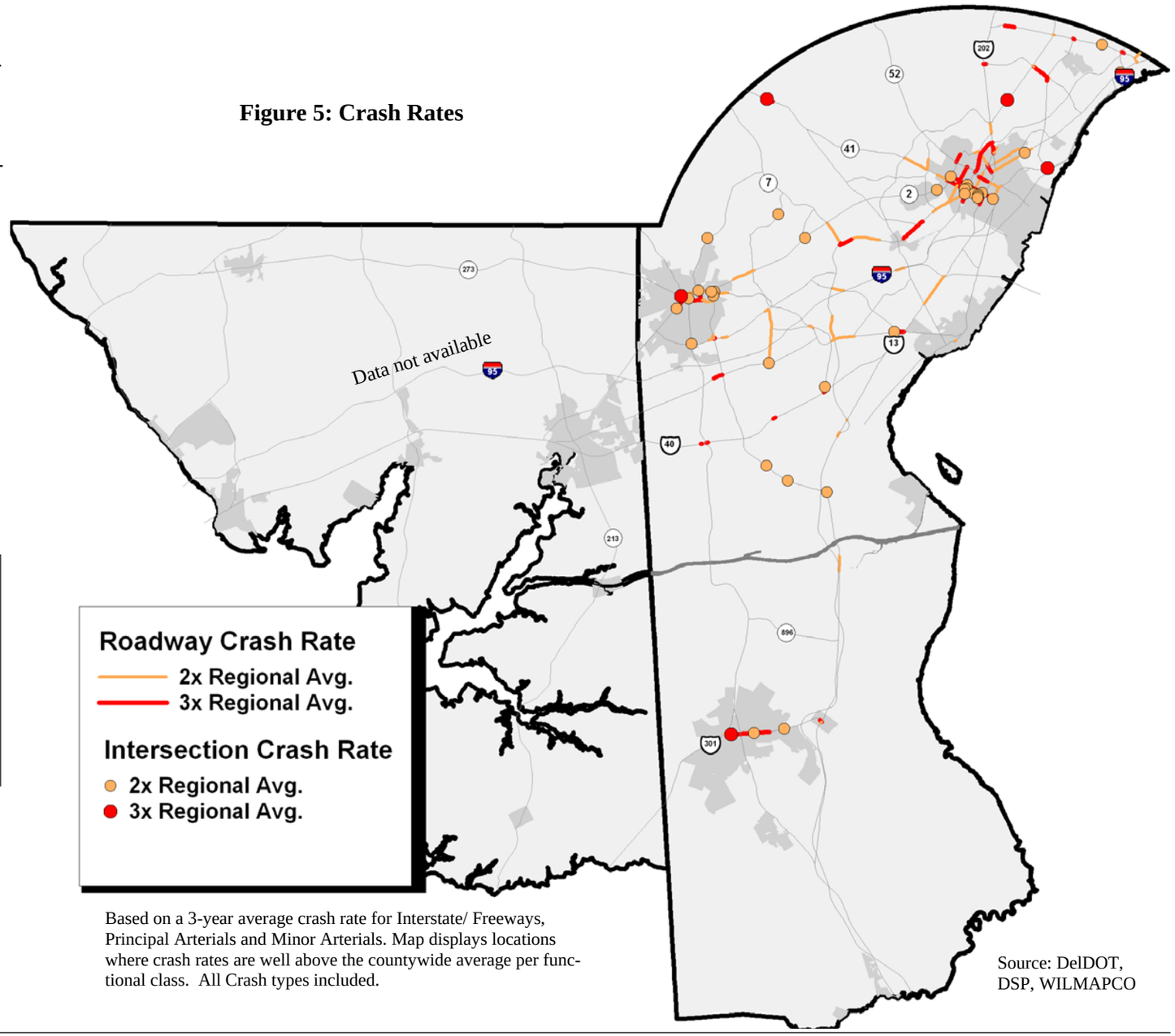
A performance measure new to this year's CMS are crash statistics. Crashes can dramatically change the performance of the roadway, contributing significantly to travel time delays. Research has found that a crash blocking one of three freeway lanes resulted in a mean capacity reduction of 63 percent, while an accident blocking two of three freeway lanes resulted in a mean capacity reduction of 77 percent[1]. Even minor lane-blocking incidents can have significant impacts on traffic if they are not removed quickly.

To address this, WILMAPCO has developed a regional approach to indentifying areas with high crash frequencies by comparing crash rate vs. roadway functional class. This gives us better insight into which portions of our network are experiencing higher frequencies of incidents. Since even the most minor crash can have an impact on the way traffic flows, we include all reported crashes along road segments and intersections in the analysis. Unfortunately, crash data from Cecil County is not available.

Regional Crash Rates by Functional Class (2004-2006) per 1 million VMT
- Freeway/Interstate: 0.88
- Principal Arterial: 1.69
- Minor Arterial: 1.89

Intersections*
- Principal Arterial: 0.69
- Minor Arterial: 0.51

Figure 5: Crash Rates



Based on a 3-year average crash rate for Interstate/ Freeways, Principal Arterials and Minor Arterials. Map displays locations where crash rates are well above the countywide average per functional class. All Crash types included.

Source: DelDOT, DSP, WILMAPCO

1. American Society of Engineers, 2003

* Includes all crashes with 50ft of an intersection. Based on average crash rate of intersections with 15 or more crashes over

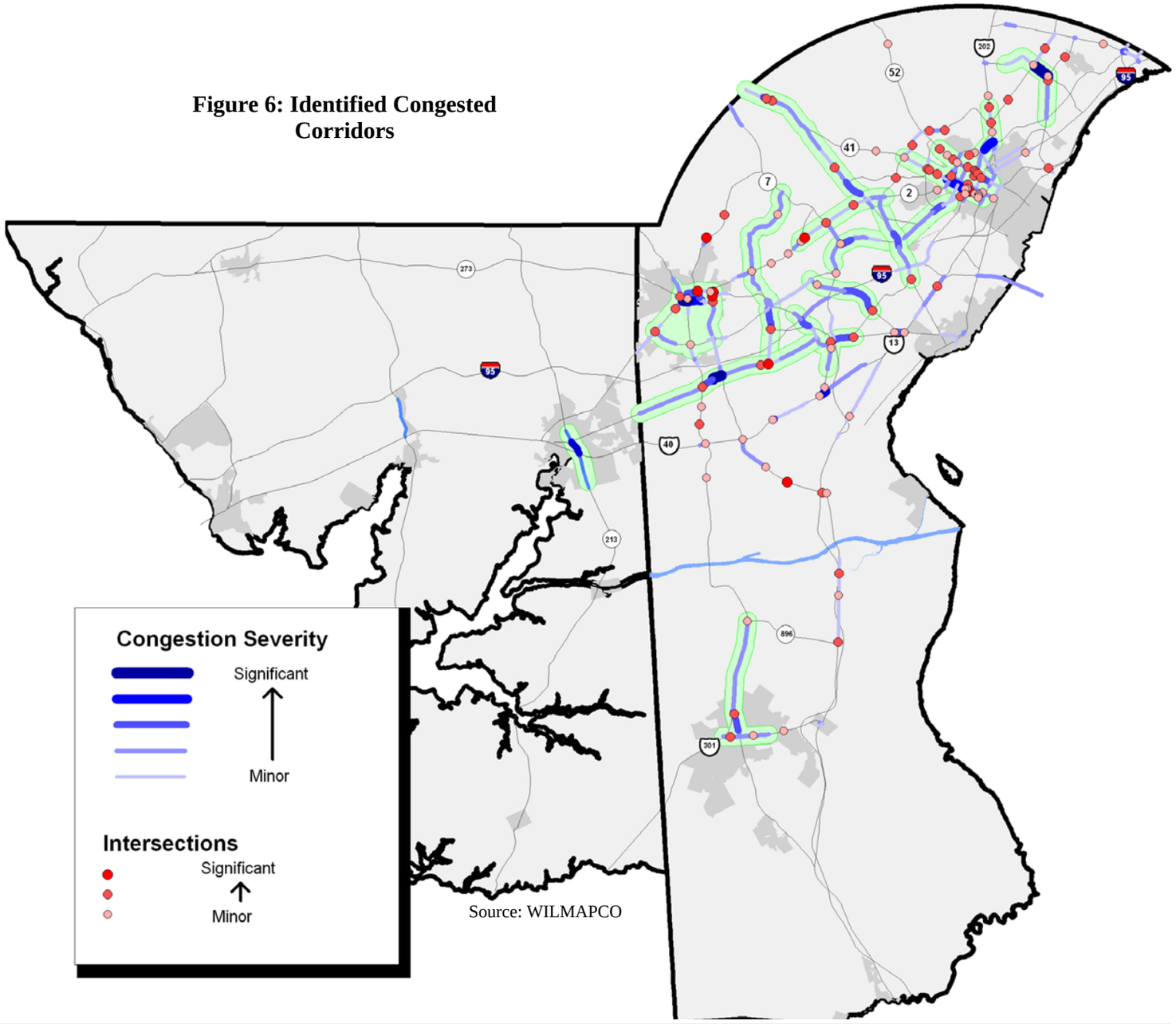
CONGESTED CORRIDOR IDENTIFICATION

Using the four performance measures, the final step in the CMS process is to delineate specific congested corridors. With the addition of crash frequencies to the identification process, changes were required in terms of how these data are displayed. Instead of layering each measure on a single map, staff used GIS to analyze each roadway segment and intersection to show which segments and intersections are experiencing multiple performance failures. For instance, segments of highway with "Minor Congestion" are segments which have a single measure which is at LOS E (or twice the regional average for crash rates). Segments with "Significant Congestion" are experiencing failures of all applicable measures with at least two being LOS F. Colors/thicknesses in between represent segments of highway with two failing measures and a combination of LOS E or F.

2009 Identified CMS Corridors

Corridor #1: City of Newark
Corridor #2: SR 213 (Elkton)
Corridor #3: U.S. 301 (Middletown)
Corridor #4: Old Baltimore Pike
Corridor #5: Red Mill/Polly Drummond Hill Rd.
Corridor #6: SR 273 / SR 7
Corridor #7: SR 58, Churchman's Road
Corridor #8: SR 41/SR 141
Corridor #9: SR 2 Kirkwood Highway
Corridor #10: SR 4(Newport)
Corridor #11: City of Wilmington
Corridor #12: Silverside Rd.

Figure 6: Identified Congested Corridors



SECTION #2: STRATEGY EVALUATION:

Potential strategies to reduce congestion have been assembled in a "toolbox" designed to provide the appropriate solutions for each corridor. Within each of these strategies, specific congestion mitigation measures are outlined and described in detail. This package of solutions to congestion includes measures involving *all* modes of transportation as well as strategies to encourage more sensible land development.

WILMAPCO CMS "TOOLBOX" STRATEGIES:

Strategy #1: Eliminate person trips or reduce VMT during peak hours
Strategy #2: Shift Trips from Automobile to Other Modes
Strategy #3: Shift Trips from SOV to HOV Auto/Van
Strategy #4: Improve Roadway Operations
Strategy #5: Add Capacity

A key component in WILMAPCO's "top-down" approach ensures that solutions which would eliminate or shift auto trips or improve roadway operations are evaluated before adding roadway capacity. While our effort is designed to be corridor-specific, there are several strategies that are being employed region-wide that help address congestion. **Table 2** lists these strategies in detail.

Table 2: Area-wide Congestion Mitigation Strategies (Not Corridor Specific)

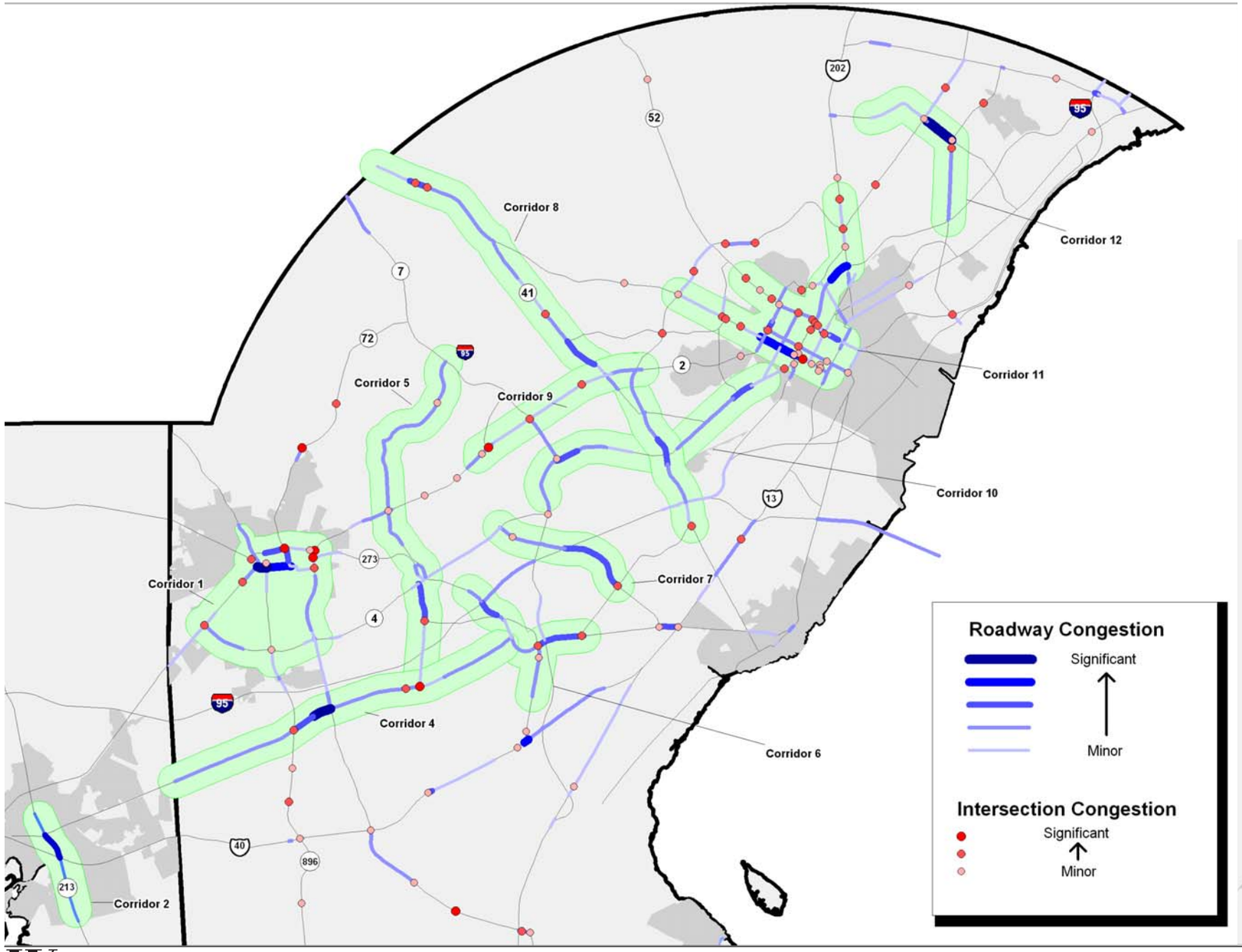
Strategy #1: Eliminate Person Trips or Reduce VMT	**Growth Management/Activity Centers**
	Land Use Policies/Regulations - Encourage more efficient patterns of commercial or residential development in defined growth areas. Specific land use policies and/or regulations that could significantly decrease both the total number of trips and overall trip lengths, as well as making transit use, bicycling and walking more viable.
	Congestion Pricing
	Parking Fees - Market-based strategy designed to modify mode choice by imposing higher costs for parking private automobiles. Most appropriately applied to parking facilities in urban settings.
	Transportation Demand Management
	Alternate Work Schedule, Telecommuting and Employee Trip Reduction Programs- Encourage employers to consider allowing employees to maintain a flexible schedule – thus allowing the employee the option of commuting during non-peak hours. Organize Groups/employers that offer tax incentives or transit subsidies on a regular basis
Strategy #3 Shift Trips from SOV to HOV	**Transportation System Management**
	Rideshare Matching Services - Provide carpool/vanpool matching and ridesharing information resources and services
	Vanpool/Employer Shuttle Programs - Organize groups of commuters to travel together in a passenger van or employer-provided shuttle on a regular basis.
Strategy #4: Improve Roadway Operations	**Traffic Operational Improvements**
	Incident Management- Detection, Response & Clearance - Utilize traveler radio, travel alert notification (via e-mail, fax, etc.), and general public outreach to enhance incident-related information dissemination.

The next several pages will describe in detail the strategy evaluation process for each corridor. Page 8 contains the expanded illustration of the identified corridors (Fig. 6) which were described in Section 1. **Table 5** on page 11 shows the corridor solution matrix with all ten corridors and the congestion mitigation strategies deemed applicable to each. An "X" in the corridor column indicates that the strategy is applicable to the corridor. Listed next to each strategy are the agencies responsible for implementing each project.

Our CMS Subcommittee, comprised of state and county planners that guide the development of this summary, developed the matrix by assigning the congestion mitigation strategies from the toolbox that they felt would be effective along each corridor. Additional weight was given to feedback from the implementing agency of a particular strategy as to whether that strategy was applicable for a given corridor.

To assist in the above work, the Subcommittee carefully reviewed the corridor profiles on pages 11-22.

Figure 6: Identified Congested Corridors



Corridor #3—Middletown Area

Table 3: CMS Strategy Mitigation Matrix

		Strategy	Implementing Agency	Corridor 1 - City of Newark	Corridor 2- MD 213, Elkton	Corridor 3 - US 301/Middletown	Corridor 4 - Old Baltimore Pike	Corridor 5 - Red Mill/Polly Drummond Hil Rd.	Corridor 6 - SR 273/SR 7	Corridor 7 Churchman's Road	Corridor 8 SR 41/SR 141	Corridor 9- SR 2, Kirkwood Highway	Corridor 10- SR 4 Newport	Corridor 11- City of Wilmington	Corridor 12 - Silverside Rd
Strategy #1: Eliminate Person Trips or Reduce VMT		**Congestion Pricing**													
	1-2	**Road User Fees -** Includes area-wide pricing fees, time-of-day/congestion pricing and tolls. Most appropriately applied to freeways and expressways and requires the infrastructure to collect user fees. Complimented by transit/HOV discounts.	MDOT/DelDOT												
Strategy #2: Shift Trips from Automobile to Other Modes		**Public Transit Capital Improvements**													
	2-1	**Exclusive Right of Way – New Rail Service -** Includes heavy rail, commuter rail, and light rail services. Most appropriately applied in a dense context serving a major employment center.	DTC/MTA	X	X	X				X				X	
	2-2	**Exclusive Right of Way – New Bus Facilities -** Includes Busways, Bus Only Lanes, and Bus Bypass Ramps. Most appropriately applied to freeways and expressways with high existing transit ridership rates.	DTC/MTA	X	X	X	X	X	X	X	X	X	X	X	X
	2-3	**Fleet Expansion -** Expansion of existing rail and/or bus capacity to provide increased service. Includes improvements to the service frequency and service area provided throughout the region.	DTC/MTA	X	X	X	X	X	X	X	X	X	X	X	X
	2-4	**Improved Intermodal Connections-** Improve the efficiency and functionality of intermodal connections where several modes of transportation are physically and operationally integrated.	DTC/MTA	X	X	X	X	X	X	X	X	X	X	X	X
	2-5	**Bus Rapid Transit -** A high-capacity bus transport system that is designed to move people from their current location to their destination with high frequency and reliability. May require exclusive right-of-way, signal preemption and modified boarding locations.	DTC/MTA									X			
		Public Transit Operational Improvements													
	2-6	**Traffic Signal Preemption -** Improve traffic flow for transit vehicles traveling through signalized intersections.	DTC/MTA		X	X	X	X	X	X		X	X	X	X
	2-7	**Transit Fare Reductions/Reduced Rate of Fare**- Includes system-wide reductions, off-peak discounts and deep discount programs.	DTC/MTA												
		Advanced Public Transportation Systems (APTS)													
	2-8	**Intelligent Bus Stops & Transit Information Systems -** Increasing ridership by providing real-time vehicle, schedule, and transfer information and improved in-vehicle and station information systems to improve the dissemination of transit-related information to the user.	DTC/MTA	X						X		X		X	
		Bicycle and Pedestrian Modes													
	2-9	**Improved/Expanded Bicycle Network and Facilities -** Includes on-road facilities, pathways, and greenways. Providing safe and secure places for bicyclists to store their bicycles at key locations including Park and Ride/Park and Pool Facilities.	MDOT/ DelDOT/ Municipalities	X	X	X	X	X	X	X	X	X	X	X	X
	2-10	**Improved/Expanded Pedestrian Network Facilites-** Includes sidewalks, overpasses/tunnels, greenways and walkways.	MDDOT/ DelDOT/ Municipalities	X	X	X	X	X	X	X	X	X	X	X	X
Strategy #3: Shift Trips from SOV to HOV Auto/Van		**Encourage High Occupancy Vehicle (HOV) Use**													
	3-1	**Add HOV Lanes**- Most appropriate use on freeways and expressways.	DelDOT/MDOT												
	3-2	**HOV Toll Savings-** Preferential pricing to multi-occupant vehicles. Needs infrastructure to administer toll collection.	DelDOT/MDOT												
	3-3	**Development of Park and Pool/Park-n-Ride Facilities & Capital Improvements -** Modify or expand current capacity of Park and Ride/Park and Pool Lots.	DelDOT/MDOT	X		X	X	X	X	X	X	X	X	X	X
		Transportation System Management													
	3-4	**Parking Management -** Preferential parking is a low-cost incentive that can be used to encourage the utilization of alternative commute modes, such as carpooling and vanpooling.	Municipalities/ Private Businesses	X		X				X		X	X	X	X
Strategy #4: Improve Roadway Operations		**Traffic Operational Improvements**													
	4-1	**Intersection Geometric/Channelization/Turn Restriction Improvements -** Improvements to intersection geometrics to improve overall efficiency, and operation and improvements that provide physical separation or delineation of conflicting traffic movements. Also includes turn restrictions to reduce conflicts and increase overall intersection performance.	DelDOT/MDOT	X	X	X	X	X	X	X	X	X	X	X	X
	4-2	**Intersection Signalization Improvements -** Improving signal operations through re-timing signal phases, adding signal actuation, etc.	DelDOT/MDOT	X	X	X	X	X	X	X	X	X	X	X	X
	4-3	**Coordinated Intersection Signals (ITS) -** Improve traffic signal progression along identified corridors.	DelDOT/MDOT	X	X	X	X	X	X	X	X	X	X	X	X
	4-4	**Incident Management- Detection, Response & Clearance -** Utilize traveler radio, travel alert notification (via e-mail, fax, etc.), and general public outreach to enhance incident-related information dissemination.	DelDOT/MDOT	X		X		X	X	X	X	X	X	X	X
		Arterial/Freeway Operations and Management													
	4-5	**Elimination of Bottlenecks -** Eliminating high-traffic areas where one or more travel lane(s) are removed.	DelDOT/MDOT	X	X	X	X	X	X	X	X	X	X	X	X
	4-6	**Ramp Metering -** Metering vehicular access to a freeway during peak periods to optimize the operational capacity of the freeway.	DelDOT/MDOT												
		Access Management													
	4-7	**Access Control / Roadway Frontage-** Reduction or elimination of "side friction", especially from driveways via traffic engineering, regulatory techniques, and purchase of property rights. Includes Auxiliary roadways which provide a separated lane or lanes for access to abutting land uses along freeways or arterials.	DelDOT/MDOT	X	X	X	X	X	X	X	X	X	X	X	X
	4-8	**Access Management -** Reduction of centerline and "side friction", via traffic engineering and regulatory techniques.	DelDOT/MDOT	X	X	X	X	X	X	X	X	X	X	X	X
Strategy #5: Add Capacity		**Addition of General Purpose Lanes**													
	5-1	**Arterial/Freeway Lanes -** Increasing the capacity of congested arterials through additional travel lanes.	DelDOT/MDOT	X	X	X			X	X	X				
	5-2	**Interchanges** - Addition of Interchanges for capacity, operational or safety improvements.	DelDOT/MDOT			X			X	X		X			
	5-3	**Relief Routes-** The addition of a roadway designed to carry through traffic around an area of significant congestion.	DelDOT/MDOT		X	X									

Note: Other Area-wide mitigation measures are listed on Table 3

CMS Corridor #1, Newark: Profile

Transportation Inventory		
Measure	Statistic(s)	Data Year
AADT* Range	9,700 - 40,800	2007
Type of Facility(ies)	Minor Arterial, Other Principal Arterial	2008
Average Transit Routes V/C** Ratio	18.4%	2007
Average Roadway V/C Ratio	85.9%	2007
Average Transit Peak Headway (AM/PM)	39 minutes / 46 minutes	2006
Number of Park and Rides and % Usage	3; 63.0%	2008
Daily Truck % at Select Locations # (Shown on map in yellow)	5.8%	2005

Demographics		
Measure	Statistic(s)	Data Year
Gross Household Density (per acre)	1.44	2008
Gross Employment Density (per acre)	3.43	2008
Percent within an EJ*** Area	N/A	2000
Percent within a TJ**** Area	8.0%	2000
Major Activity Center	City of Newark	

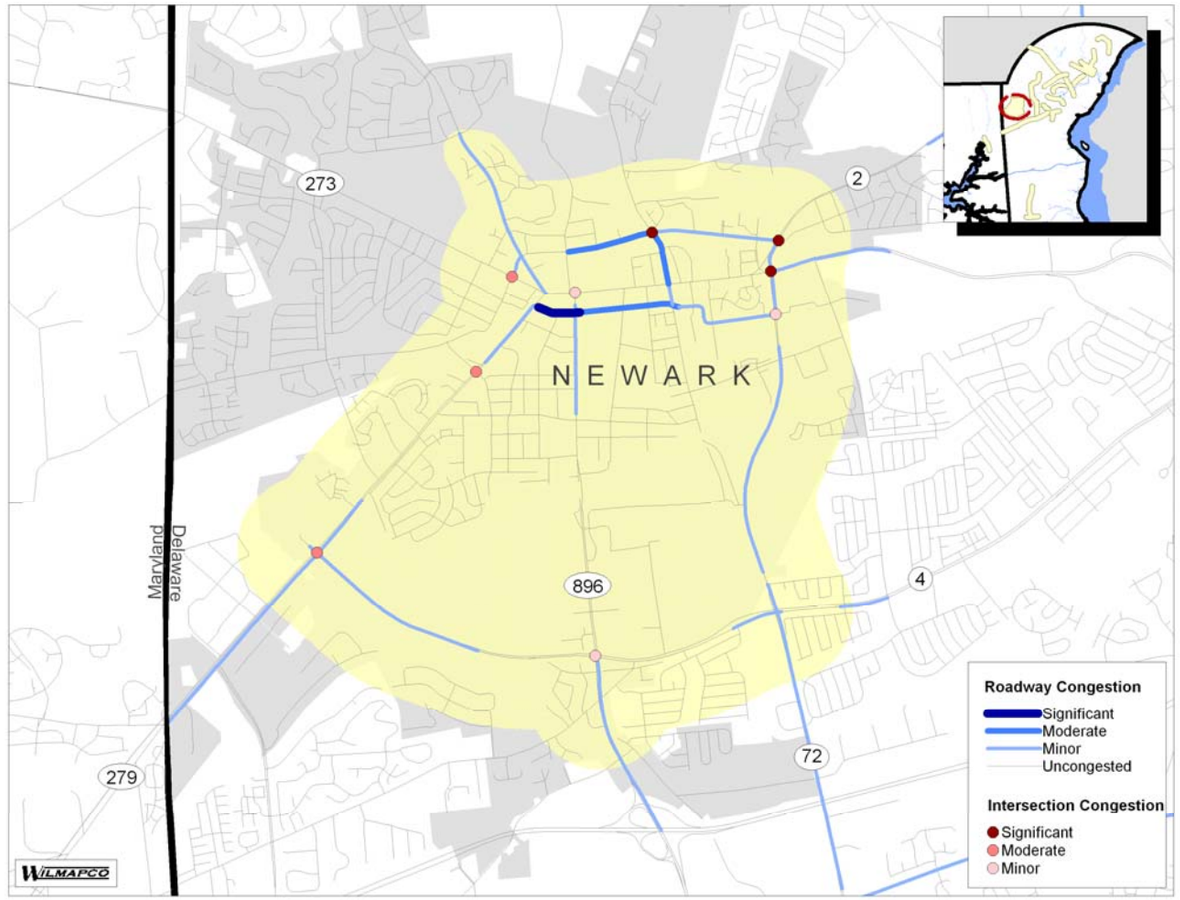
Trends		
Measure	Statistic(s)	Data Year
Gross Population Change (2000-2008)	857 (2% increase)	2008
Gross Employment Change (2000-2008)	2,531 (7.3% increase)	2008
AADT Change (2000-2007)	2000 - 22,073 2007 - 22,293 (1% increase)	2007
Avg. Peak Travel Speed Change (2001-2008)	2001- 19.18mph 2008 - 26.65mph (28% increase)	2008

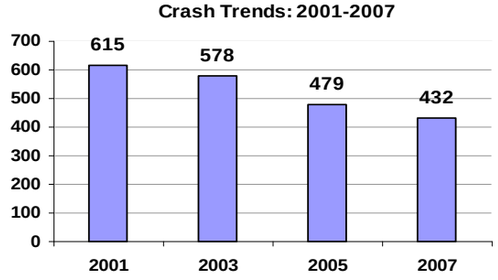
* AADT = Average Annual Daily Traffic ** V/C = Volume to Capacity

*** EJ = Environmental Justice (low income and minority neighborhoods)

**** TJ = Transportation Justice (elderly, disabled and zero car household neighborhoods)

FHWA classifications 5 and higher





Source: DelDOT, WILMAPCO 2008. Includes all reported crashes along all arterials/freeways located within corridor. Included crashes at all intersections.

CMS Corridor #2, SR 213 (Elkton): Profile

Transportation Inventory		
Measure	Statistic(s)	Data Year
AADT* Range	13,800 - 19,282	2007
Type of Facility(ies)	Principal Arterial	2008
Average Transit Routes V/C** Ratio	N/A	2007
Average Roadway V/C Ratio	79.8%	2007
Average Transit Peak Headway (AM/PM)	N/A	2006
Number of Park and Rides and % Usage	1 (>10%)	2008
Daily Truck % at Select Locations # (Shown on map in yellow)	1. MD 213 (south of US 40) - 8.3%	2006

Demographics		
Measure	Statistic(s)	Data Year
Gross Household Density (per acre)	0.61	2008
Gross Employment Density (per acre)	2.14	2008
Percent within an EJ*** Area	32.8%	2000
Percent within a TJ**** Area	30.8%	2000
Major Activity Center	Town of Elkton	

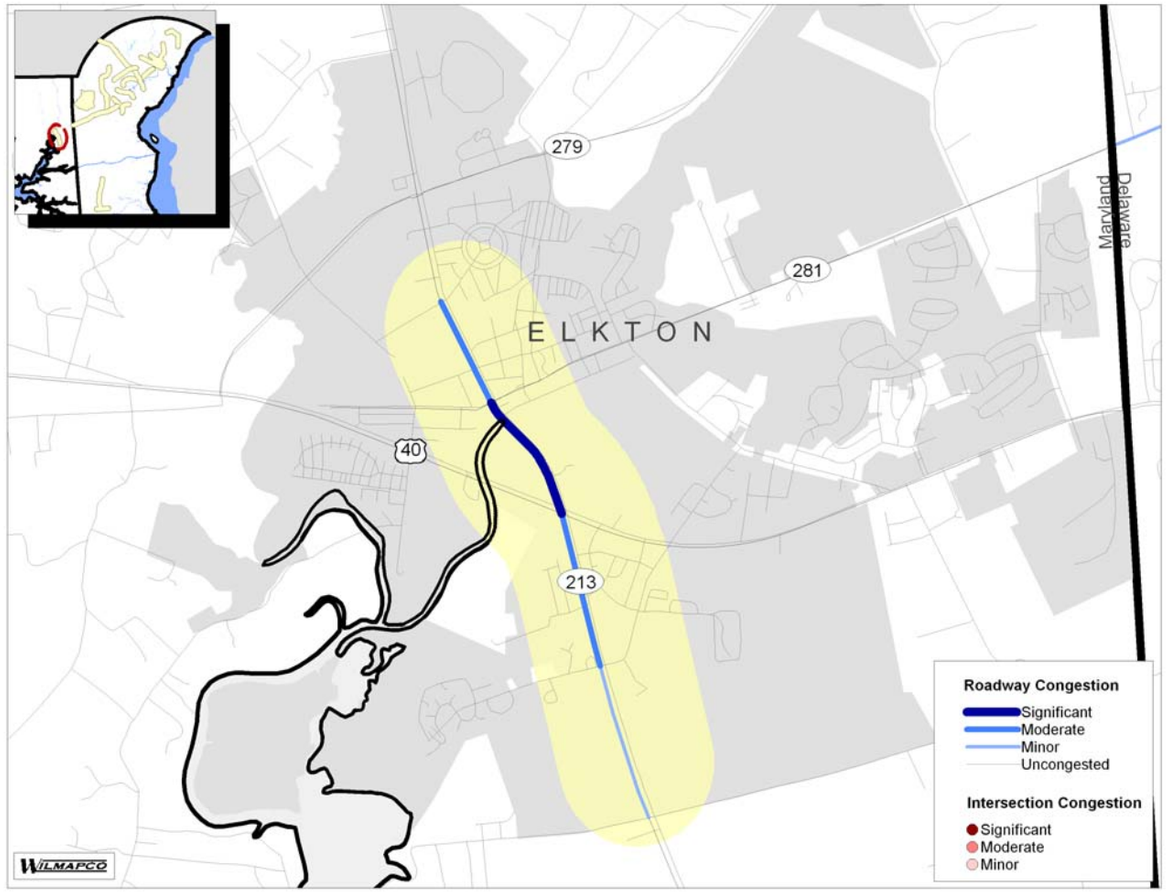
Trends		
Measure	Statistic(s)	Data Year
Gross Population Change (2000-2008)	2,692 (34% increase)	2008
Gross Employment Change (2000-2008)	2,801(27% increase)	2008
AADT Change (2000-2007)	2000 - 14,987 2007 - 18,007 (17% increase)	2007
Avg. Peak Travel Speed Change (2001-2008)	2001- 19.18mph 2008 - 19.76mph (3% increase)	2008

* AADT = Average Annual Daily Traffic ** V/C = Volume to Capacity

*** EJ = Environmental Justice (low income and minority neighborhoods)

**** TJ = Transportation Justice (elderly, disabled and zero car household neighborhoods)

FHWA classifications 5 and higher



CMS Corridor #3, U.S. 301 (Middletown): Profile

Transportation Inventory		
Measure	Statistic(s)	Data Year
AADT* Range	7,800 - 24, 200	2007
Type of Facility(ies)	Major, Other Principal and Minor Arterials	2008
Average Transit Routes V/C** Ratio	3.6%	2007
Average Roadway V/C Ratio	25.0%	2007
Average Transit Peak Headway (AM/PM)	N/A	2006
Number of Park and Rides and % Usage	1; 65.0%	2008
Daily Truck % at Select Locations # (Shown on map in yellow)	13.4%	2005

Demographics		
Measure	Statistic(s)	Data Year
Gross Household Density (per acre)	0.37	2008
Gross Employment Density (per acre)	0.34	2008
Percent within an EJ*** Area	15.4%	2000
Percent within a TJ**** Area	N/A	2000
Major Activity Center	Town of Middletown	

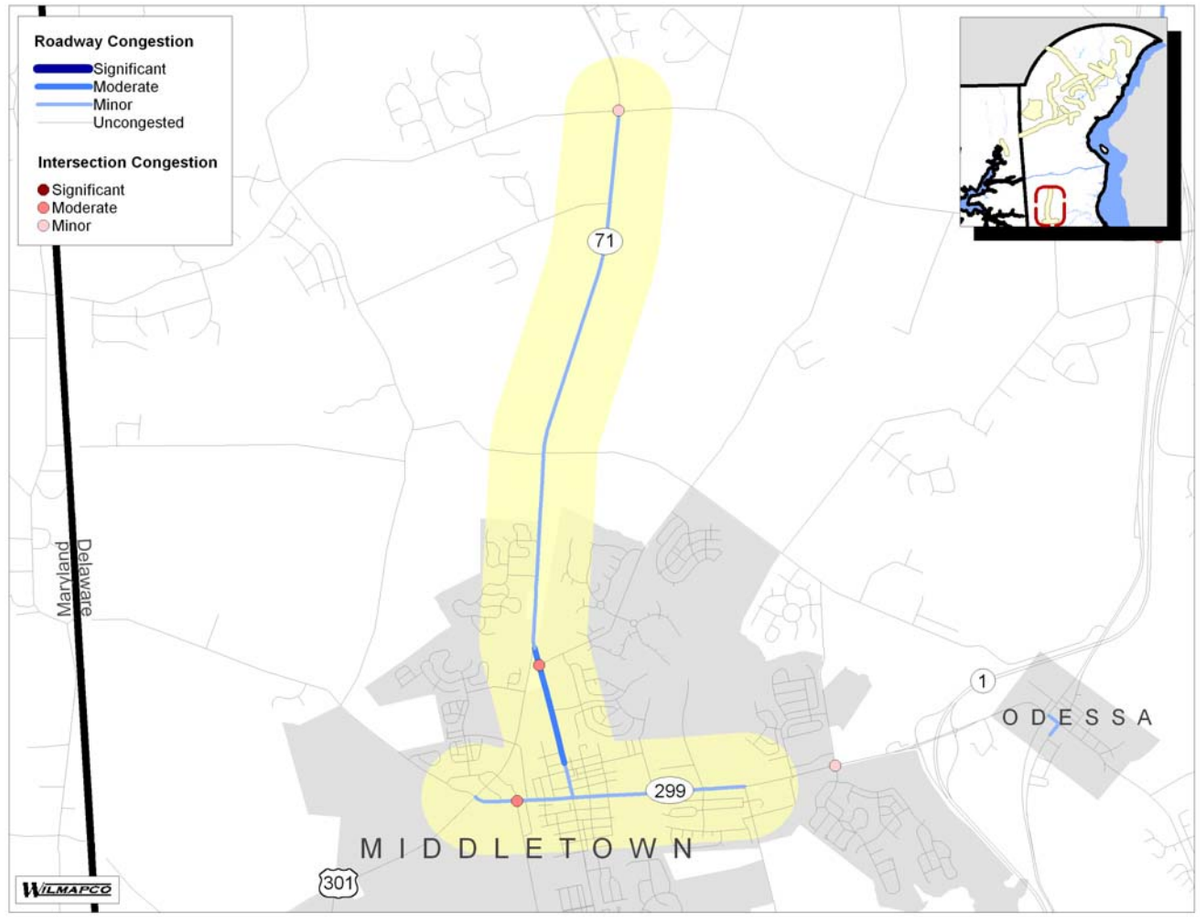
Trends		
Measure	Statistic(s)	Data Year
Gross Population Change (2000-2008)	4,880 (67% increase)	2008
Gross Employment Change (2000-2008)	1,502 (57% increase)	2008
AADT Change (2000-2007)	2000 - 11,093 2007 - 15,646	2007
Avg. Peak Travel Speed Change (2001-2008)	SR 299 section: 2001- 22.18mph 2008 - 22.24mph (0.3% increase) US 301 section: 2004- 44.81mph 2008 -40.15mph (12% decrease)	2008

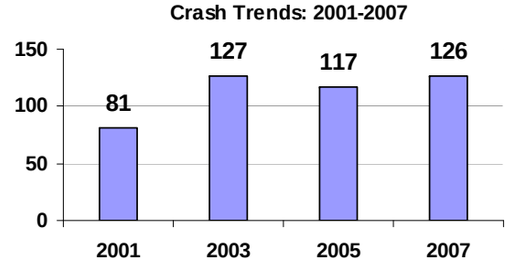
* AADT = Average Annual Daily Traffic ** V/C = Volume to Capacity

*** EJ = Environmental Justice (low income and minority neighborhoods)

**** TJ = Transportation Justice (elderly, disabled and zero car household neighborhoods)

FHWA classifications 5 and higher





Source: DelDOT, WILMAPCO 2008. Includes all reported crashes along US 301 from Boyd's Corner Rd. to SR 71/US 301 split, then south on SR 71 to SR 299. Includes crashes at all intersections.

CMS Corridor #4, Old Baltimore Pike Profile

Transportation Inventory		
Measure	Statistic(s)	Data Year
AADT* Range	12,400 - 20,800	2007
Type of Facility(ies)	Minor Arterial	2008
Average Transit Routes V/C** Ratio	16.5%	2007
Average Roadway V/C Ratio	57.4%	2007
Average Transit Peak Headway (AM/PM)	60 minutes / 60 minutes	2006
Number of Park and Rides and % Usage	1; 69.0%	2008
Daily Truck % at Select Locations # (Shown on map in yellow)	8.0%	2005

Demographics		
Measure	Statistic(s)	Data Year
Gross Household Density (per acre)	1.32	2008
Gross Employment Density (per acre)	0.82	2008
Percent within an EJ*** Area	22.4%	2000
Percent within a TJ**** Area	N/A	2000
Major Activity Center	People's Plaza; City of Newark; Christiana Mall	

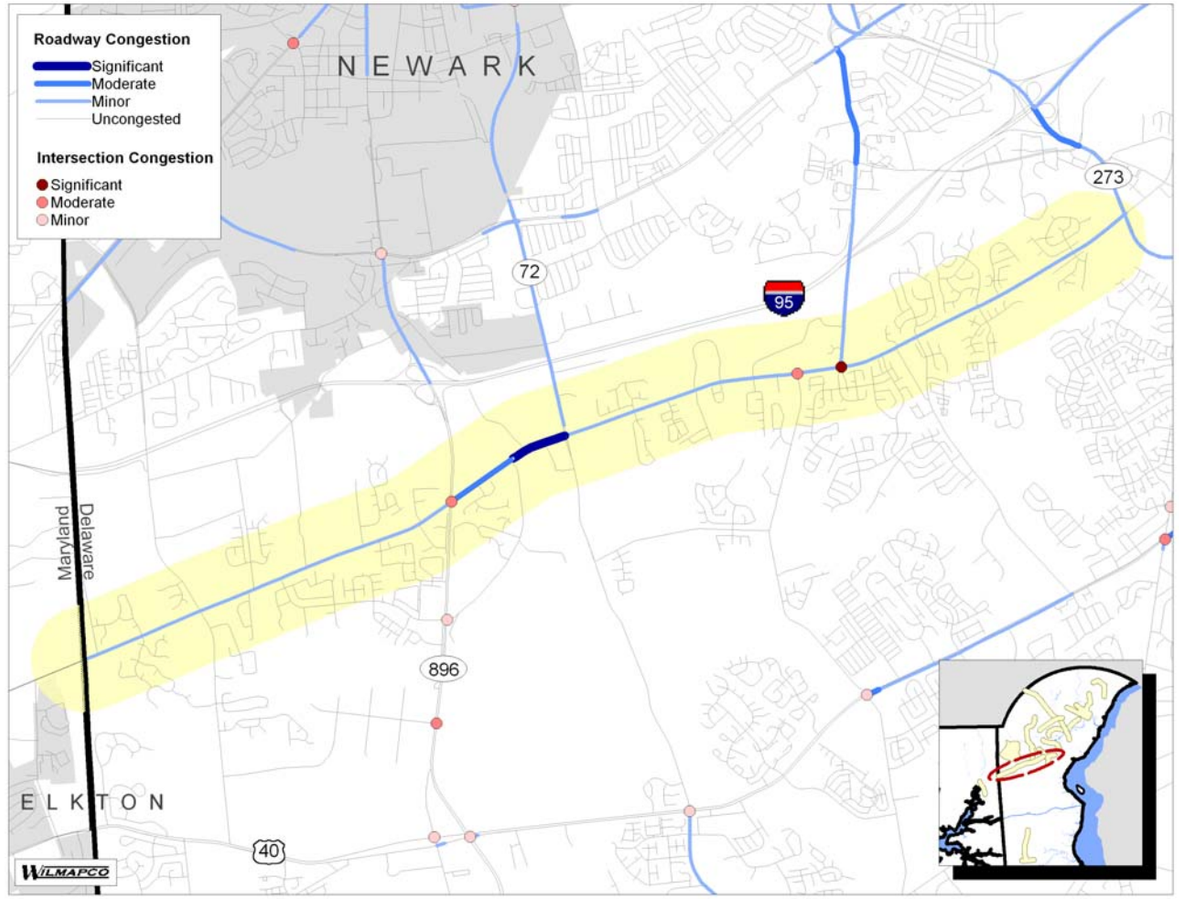
Trends		
Measure	Statistic(s)	Data Year
Gross Population Change (2000-2008)	2,626 (9% increase)	2008
Gross Employment Change (2000-2008)	1,728 (30% increase)	2008
AADT Change (2000-2007)	N/A	2007
Avg. Peak Travel Speed Change (2001-2008) * Does not include section from SR 896 to MD line	2001- 25.88mph 2008 - 26.15mph (1% increase)	2008

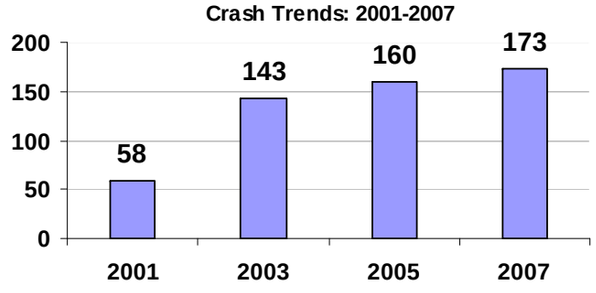
* AADT = Average Annual Daily Traffic ** V/C = Volume to Capacity

*** EJ = Environmental Justice (low income and minority neighborhoods)

**** TJ = Transportation Justice (elderly, disabled and zero car household neighborhoods)

FHWA classifications 5 and higher





Source: DelDOT, WILMAPCO 2008. Includes crashes at intersections.

CMS Corridor #5; Red Mill/Polly Drummond Hill Rd. Profile

Transportation Inventory		
Measure	Statistic(s)	Data Year
AADT* Range	9,500 - 20,200	2007
Type of Facility(ies)	Minor Arterial	2008
Average Transit Routes V/C** Ratio	7.6%	2007
Average Roadway V/C Ratio	68.3%	2007
Average Transit Peak Headway (AM/PM)	29 minutes / 43 minutes	2006
Number of Park and Rides and % Usage	3; 48.7%	2008
Daily Truck % at Select Locations # (Shown on map in yellow)	5.3%	2005

Demographics		
Measure	Statistic(s)	Data Year
Gross Household Density (per acre)	1.67	2008
Gross Employment Density (per acre)	1.42	2008
Percent within an EJ*** Area	7.6%	2000
Percent within a TJ**** Area	N/A	2000
Major Activity Center	City of Newark; Kirkwood Highway; Christiana Mall	

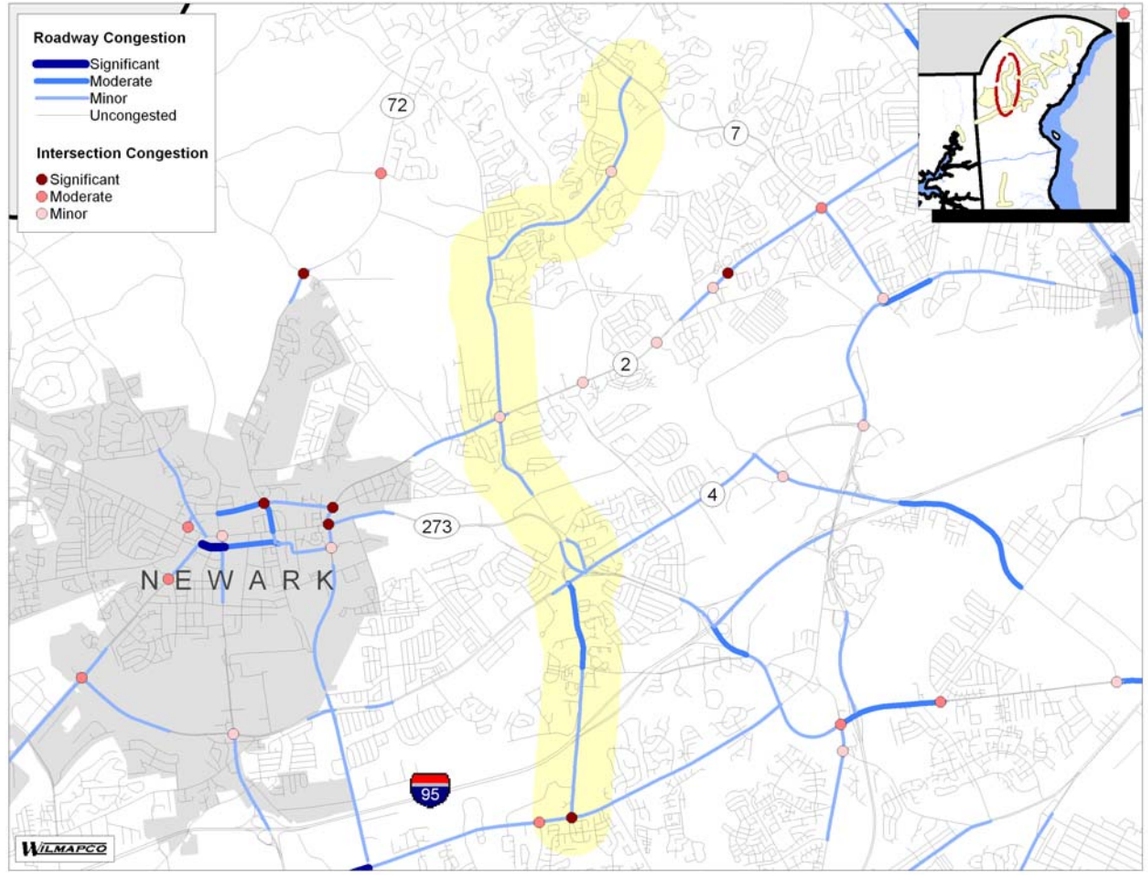
Trends		
Measure	Statistic(s)	Data Year
Gross Population Change (2000-2008)	886 (1% increase)	2008
Gross Employment Change (2000-2008)	-12,584 (36% decrease)	2008
AADT Change (2000-2007)	2000 - 17,169 2007 - 16,132 (6% decrease)	2007
Avg. Peak Travel Speed Change (2001-2008)	N/A	N/A

* AADT = Average Annual Daily Traffic ** V/C = Volume to Capacity

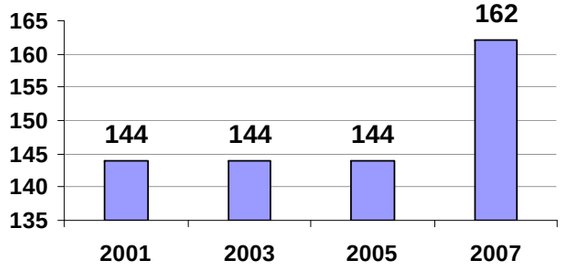
*** EJ = Environmental Justice (low income and minority neighborhoods)

**** TJ = Transportation Justice (elderly, disabled and zero car household neighborhoods)

FHWA classifications 5 and higher



Crash Trends: 2001-2007



Source: DelDOT, WILMAPCO 2008. Includes crashes at intersections.

CMS Corridor #6, SR 273 / SR 7: Profile

Transportation Inventory		
Measure	Statistic(s)	Data Year
AADT* Range	31,100 - 58, 000	2007
Type of Facility(ies)	Minor Arterial, Other Principal Arterial	2008
Average Transit Routes V/C** Ratio	25.0%	2007
Average Roadway V/C Ratio	20.7%	2007
Average Transit Peak Headway (AM/PM)	40 minutes / 56 minutes	2006
Number of Park and Rides and % Usage	1; 28.0%	2008
Daily Truck % at Select Locations # (Shown on map in yellow)	4.6%	2005

Demographics		
Measure	Statistic(s)	Data Year
Gross Household Density (per acre)	2.02	2008
Gross Employment Density (per acre)	2.92	2008
Percent within an EJ*** Area	30.0%	2000
Percent within a TJ**** Area	N/A	2000
Major Activity Center	Christiana Mall	

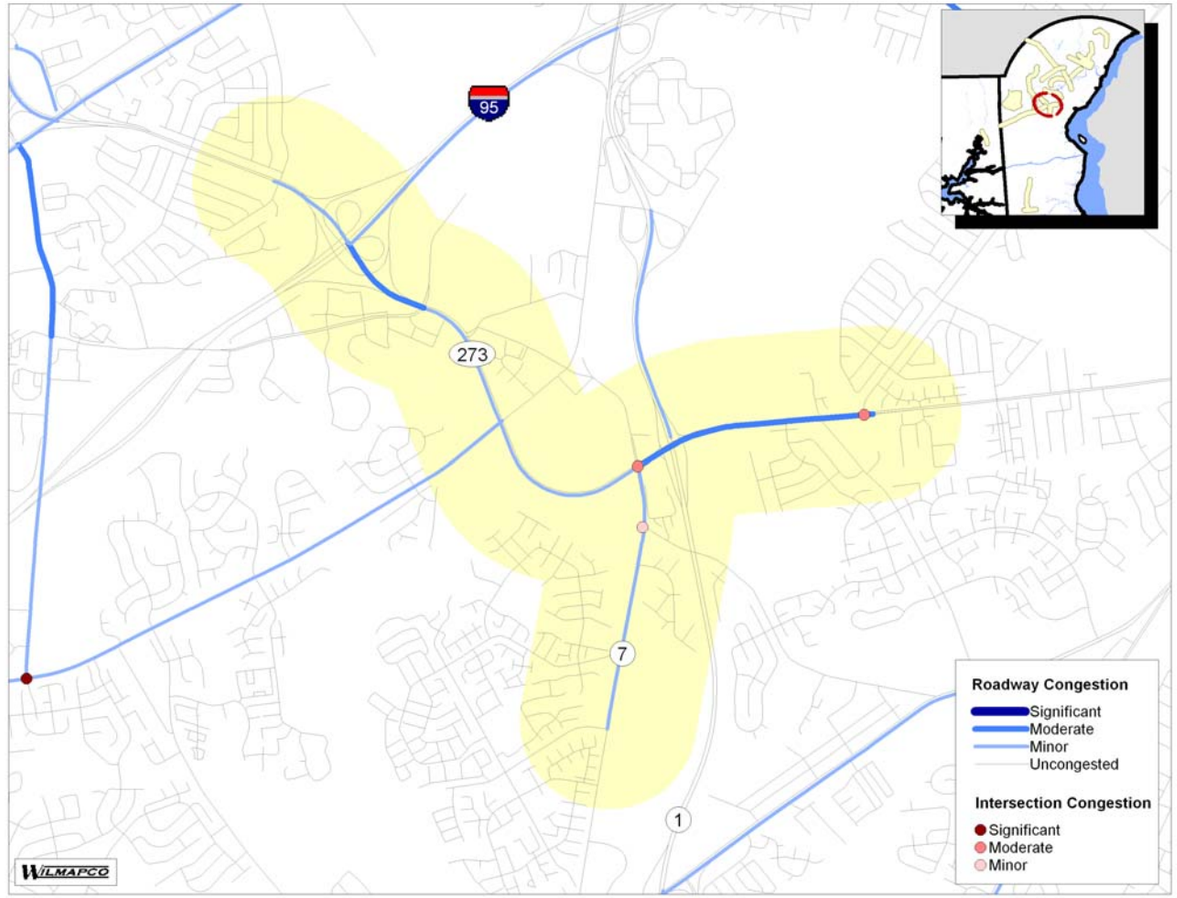
Trends		
Measure	Statistic(s)	Data Year
Gross Population Change (2000-2008)	1,674 (5% increase)	2008
Gross Employment Change (2000-2008)	4,988 (32% increase)	2008
AADT Change (2000-2007)	2000 - 27,475 2007 - 41,929 (53% increase)	2007
Avg. Peak Travel Speed Change (2001-2008)	2001 - 28.07 2008 - 25.86 (8% decrease)	2008

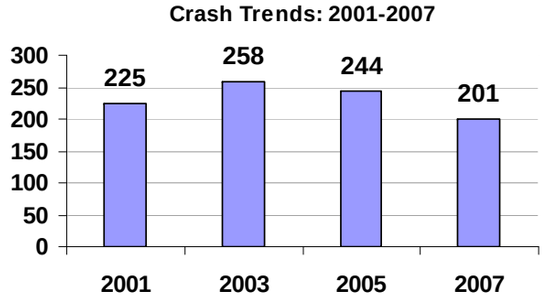
* AADT = Average Annual Daily Traffic ** V/C = Volume to Capacity

*** EJ = Environmental Justice (low income and minority neighborhoods)

**** TJ = Transportation Justice (elderly, disabled and zero car household neighborhoods)

FHWA classifications 5 and higher





Source: DelDOT, WILMAPCO 2008. Includes crashes at intersections.

CMS Corridor #7, SR 58, Churchman's Road Profile

Transportation Inventory		
Measure	Statistic(s)	Data Year
AADT* Range	14,100 - 26,400	2007
Type of Facility(ies)	Minor Arterial	2008
Average Transit Routes V/C** Ratio	32.5%	2007
Average Roadway V/C Ratio	16.9%	2007
Average Transit Peak Headway (AM/PM)	38 minutes / 41 minutes	2006
Number of Park and Rides and % Usage	2; 100.0%	2008
Daily Truck % at Select Locations # (Shown on map in yellow)	9.0%	2005

Demographics		
Measure	Statistic(s)	Data Year
Gross Household Density (per acre)	0.78	2008
Gross Employment Density (per acre)	3.64	2008
Percent within an EJ*** Area	26.1%	2000
Percent within a TJ**** Area	N/A	2000
Major Activity Center	Christiana Mall; Kirkwood Highway	

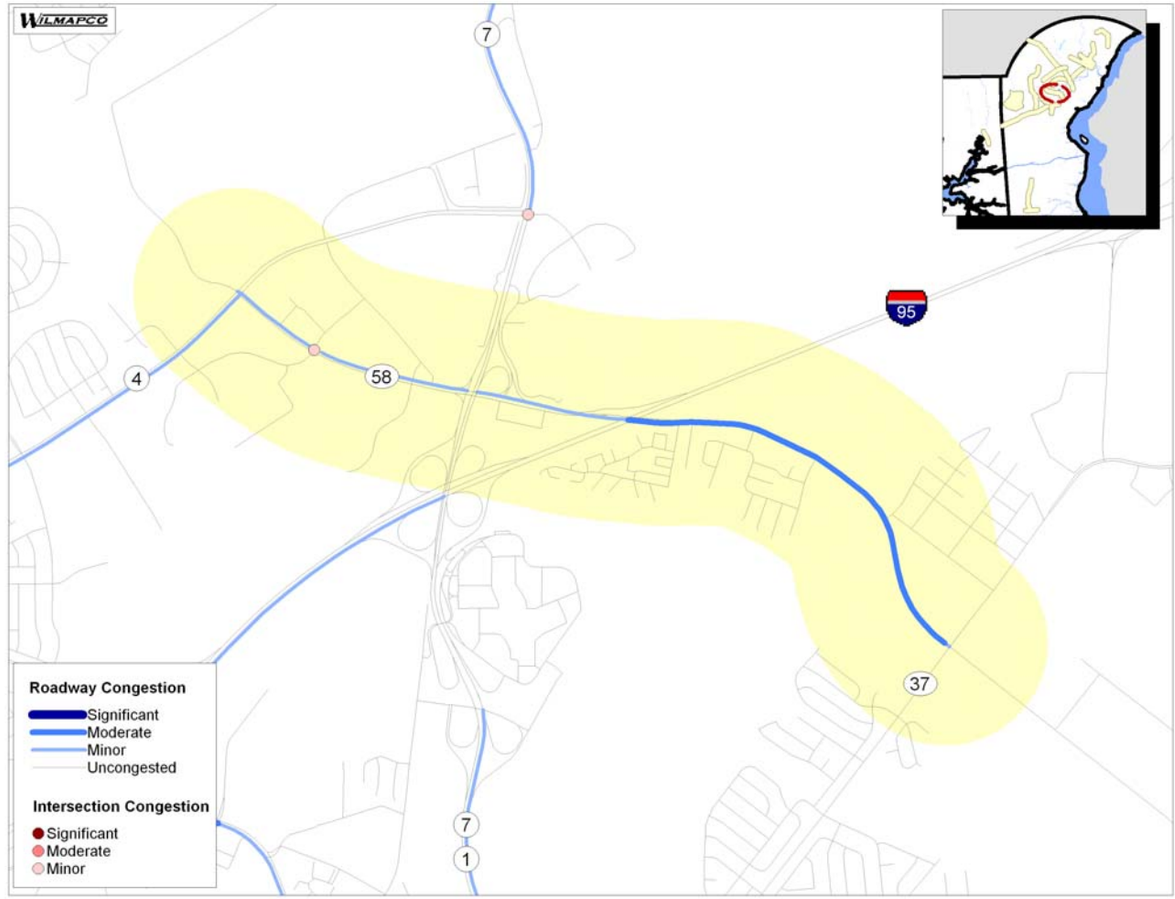
Trends		
Measure	Statistic(s)	Data Year
Gross Population Change (2000-2008)	356 (2% increase)	2008
Gross Employment Change (2000-2008)	-6,699 (20% decrease)	2008
Avg. AADT Change (2000-2007)	2000 - 18,369 2007 - 20,240 (10% increase)	2007
Avg. Peak Travel Speed Change (2001-2008)	N/A	N/A

* AADT = Average Annual Daily Traffic ** V/C = Volume to Capacity

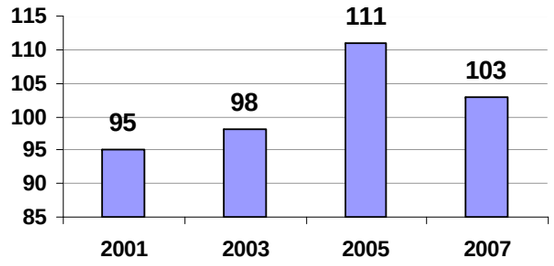
*** EJ = Environmental Justice (low income and minority neighborhoods)

**** TJ = Transportation Justice (elderly, disabled and zero car household neighborhoods)

FHWA classifications 5 and higher



Crash Trends: 2001-2007



Source: DelDOT, WILMAPCO 2008. Includes crashes at intersections.

CMS Corridor #8, SR 41/SR 141 Profile

Transportation Inventory		
Measure	Statistic(s)	Data Year
AADT* Range	12,500 - 80,000	2007
Type of Facility(ies)	Other Principal Arterial	2008
Average Transit Routes V/C** Ratio	15.0%	2007
Average Roadway V/C Ratio	9.6%	2007
Average Transit Peak Headway (AM/PM)	16 minutes / 21 minutes	2006
Number of Park and Rides and % Usage	5; 38.8%	2008
Daily Truck % at Select Locations # (Shown on map in yellow)	6.4%	2005

Demographics		
Measure	Statistic(s)	Data Year
Gross Household Density (per acre)	1.10	2008
Gross Employment Density (per acre)	1.62	2008
Percent within an EJ*** Area	4.5%	2000
Percent within a TJ**** Area	9.4%	2000
Major Activity Center	Kirkwood Highway; Christiana Mall	

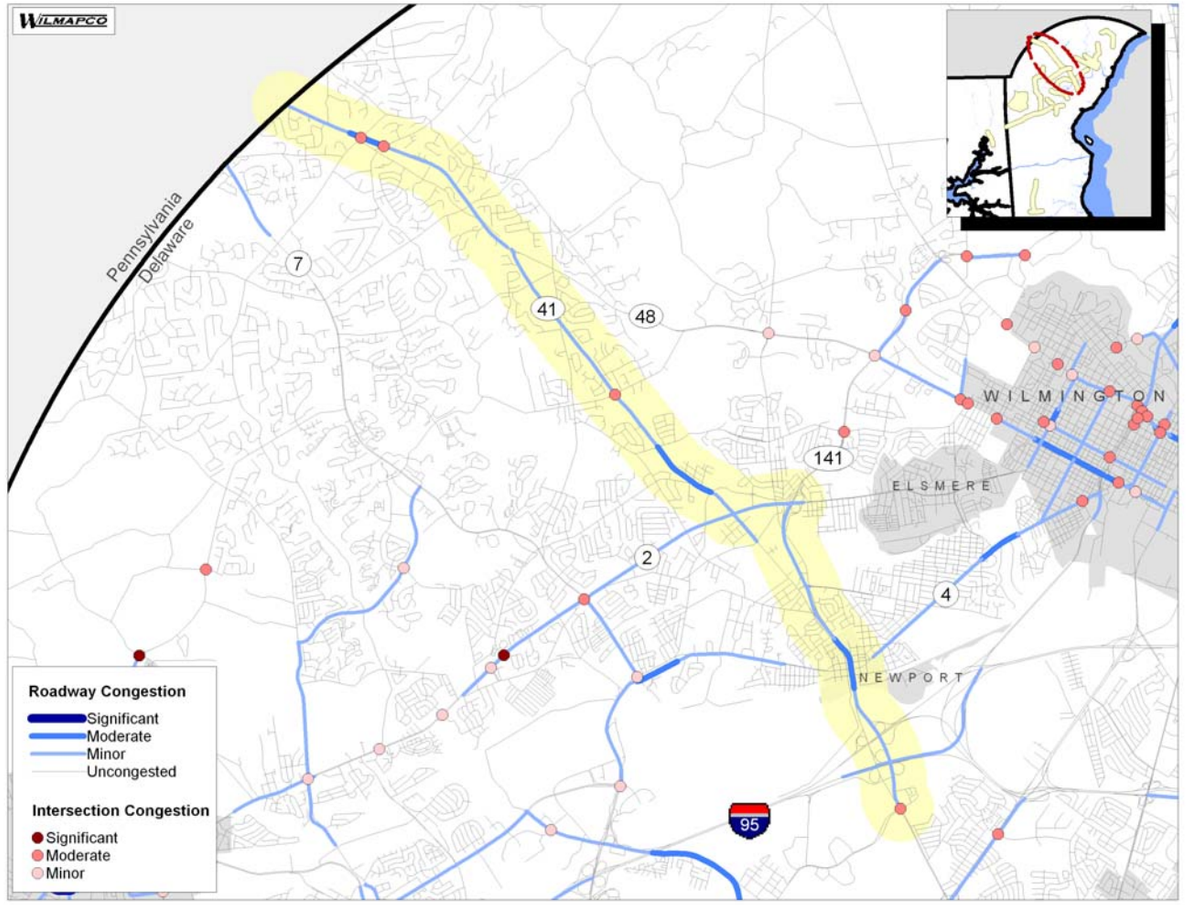
Trends		
Measure	Statistic(s)	Data Year
Gross Population Change (2000-2008)	472 (1% increase)	2008
Gross Employment Change (2000-2008)	-4,784 (14% decrease)	2008
AADT Change (2000-2007)	2000 - 27,231 2007 - 30,605 (12% increase)	2007
Avg. Peak Travel Speed Change (2001-2008) * Does not include SR 41 from SR 48 split to SR 2.	2001 - 34.61 2008 - 34.69 (4% increase)	2008

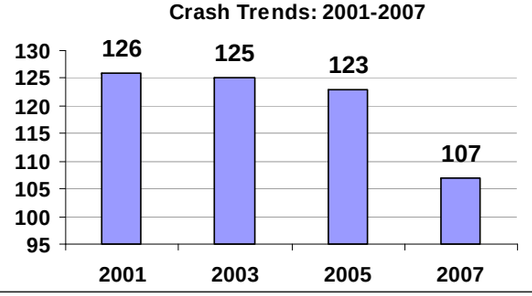
* AADT = Average Annual Daily Traffic ** V/C = Volume to Capacity

*** EJ = Environmental Justice (low income and minority neighborhoods)

**** TJ = Transportation Justice (elderly, disabled and zero car household neighborhoods)

FHWA classifications 5 and higher





Source: DelDOT, WILMAPCO 2008. Includes crashes at intersections.

CMS Corridor #9, SR 2 Kirkwood Highway Profile

Transportation Inventory		
Measure	Statistic(s)	Data Year
AADT* Range	40,000 - 53,300	2007
Type of Facility(ies)	Other Principal Arterial	2008
Average Transit Routes V/C** Ratio	39.8%	2007
Average Roadway V/C Ratio	92.4%	2007
Average Transit Peak Headway (AM/PM)	25 minutes / 19 minutes	2006
Number of Park and Rides and % Usage	1; 38.0%	2008
Daily Truck % at Select Locations # (Shown on map in yellow)	3.0%	2005

Demographics		
Measure	Statistic(s)	Data Year
Gross Household Density (per acre)	2.34	2008
Gross Employment Density (per acre)	2.28	2008
Percent within an EJ*** Area	6.5%	2000
Percent within a TJ**** Area	15.1%	2000
Major Activity Center	Kirkwood Highway	

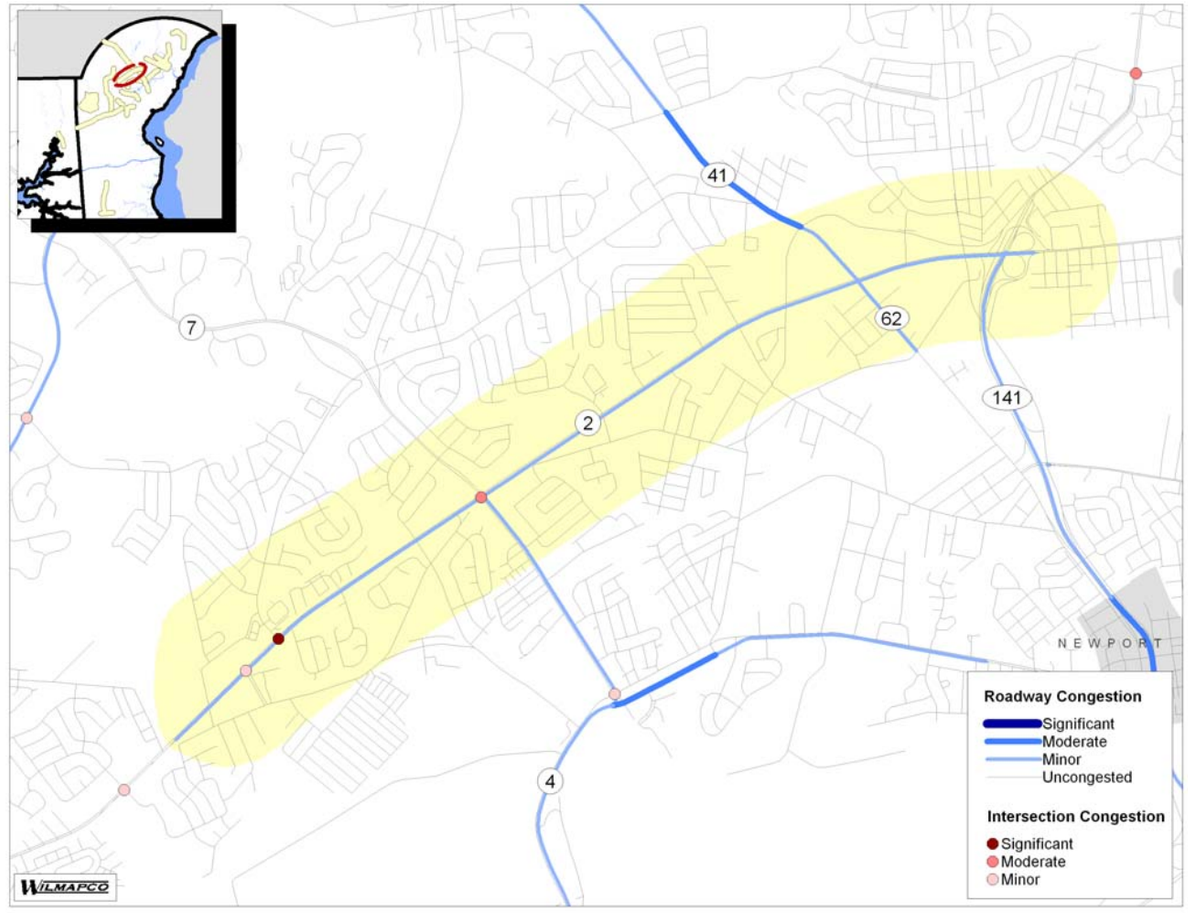
Trends		
Measure	Statistic(s)	Data Year
Gross Population Change (2000-2008)	126 (<1% increase)	2008
Gross Employment Change (2000-2008)	-4,460 (27% decrease)	2008
AADT Change (2000-2007)	2000 - 47,792 2007 - 47,190 (1% decrease)	2007
Avg. Peak Travel Speed Change (2001-2008)	2001 - 28.11 2008 - 28.54 (2% increase)	2008

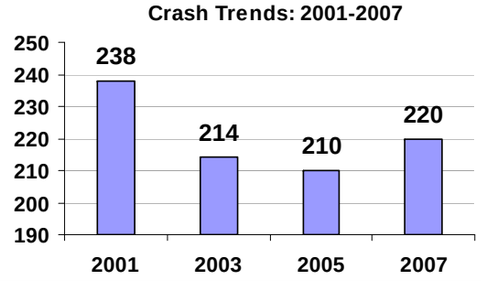
* AADT = Average Annual Daily Traffic ** V/C = Volume to Capacity

*** EJ = Environmental Justice (low income and minority neighborhoods)

**** TJ = Transportation Justice (elderly, disabled and zero car household neighborhoods)

FHWA classifications 5 and higher





Source: DelDOT, WILMAPCO 2008. Includes crashes at intersections.

CMS Corridor #10, SR 4(Newport): Profile

Transportation Inventory		
Measure	Statistic(s)	Data Year
AADT* Range	2600 - 57,500	2007
Type of Facility(ies)	Other Principal Arterial	2008
Average Transit Routes V/C** Ratio	32.8%	2007
Average Roadway V/C Ratio	62.6%	2007
Average Transit Peak Headway (AM/PM)	9 minutes / 10.5 minutes	2006
Number of Park and Rides and % Usage	1; 9.0%	2008
Daily Truck % at Select Locations # (Shown on map in yellow)	18.3%	2005

Demographics		
Measure	Statistic(s)	Data Year
Gross Household Density (per acre)	1.54	2008
Gross Employment Density (per acre)	2.64	2008
Percent within an EJ*** Area	16.3%	2000
Percent within a TJ**** Area	34.3%	2000
Major Activity Center	Kirkwood Highway; City of Wilmington; Christiana Mall	

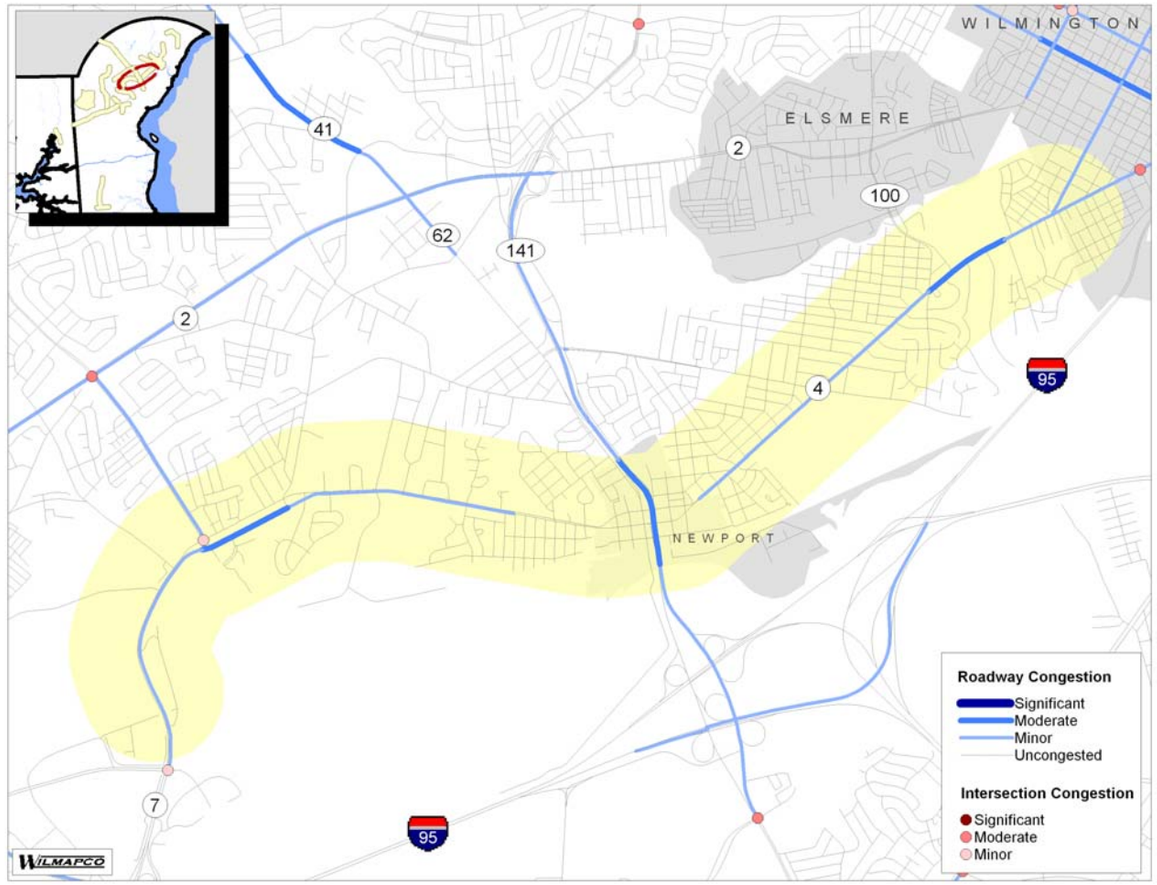
Trends		
Measure	Statistic(s)	Data Year
Gross Population Change (2000-2008)	-83 (<1% decrease)	2008
Gross Employment Change (2000-2008)	-14,062 (31% decrease)	2008
AADT Change (2000-2007)	2000 - 22,485 2007 - 18,072 (20% decrease)	2007
Avg. Peak Travel Speed Change (2001-2008)	2001 - 22.42mph 2008 - 24.36mph	2008

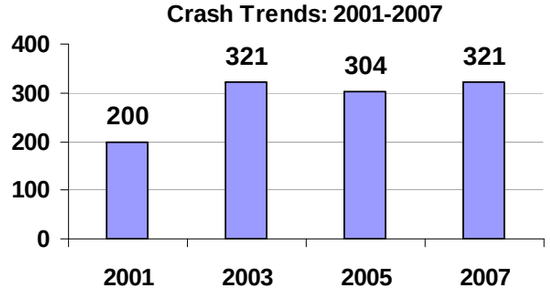
* AADT = Average Annual Daily Traffic ** V/C = Volume to Capacity

*** EJ = Environmental Justice (low income and minority neighborhoods)

**** TJ = Transportation Justice (elderly, disabled and zero car household neighborhoods)

FHWA classifications 5 and higher





Source: DelDOT, WILMAPCO 2008. Includes crashes at intersections.

CMS Corridor #11, City of Wilmington: Profile

Transportation Inventory		
Measure	Statistic(s)	Data Year
AADT* Range	5,600 - 81,200	2007
Type of Facility(ies)	Interstate, Minor, and Other Principal Arterial	2008
Average Transit Routes V/C** Ratio	38.5%	2007
Average Roadway V/C Ratio	62.3%	2007
Average Transit Peak Headway (AM/PM)	24 minutes / 25 minutes	2006
Number of Park and Rides and % Usage	1; 141.5%	2008
Daily Truck % at Select Locations # (Shown on map in yellow)	7.2%	2005

Demographics		
Measure	Statistic(s)	Data Year
Gross Household Density (per acre)	3.43	2008
Gross Employment Density (per acre)	8.16	2008
Percent within an EJ*** Area	55.7%	2000
Percent within a TJ**** Area	44.7%	2000
Major Activity Center	City of Wilmington; Concord Pike	

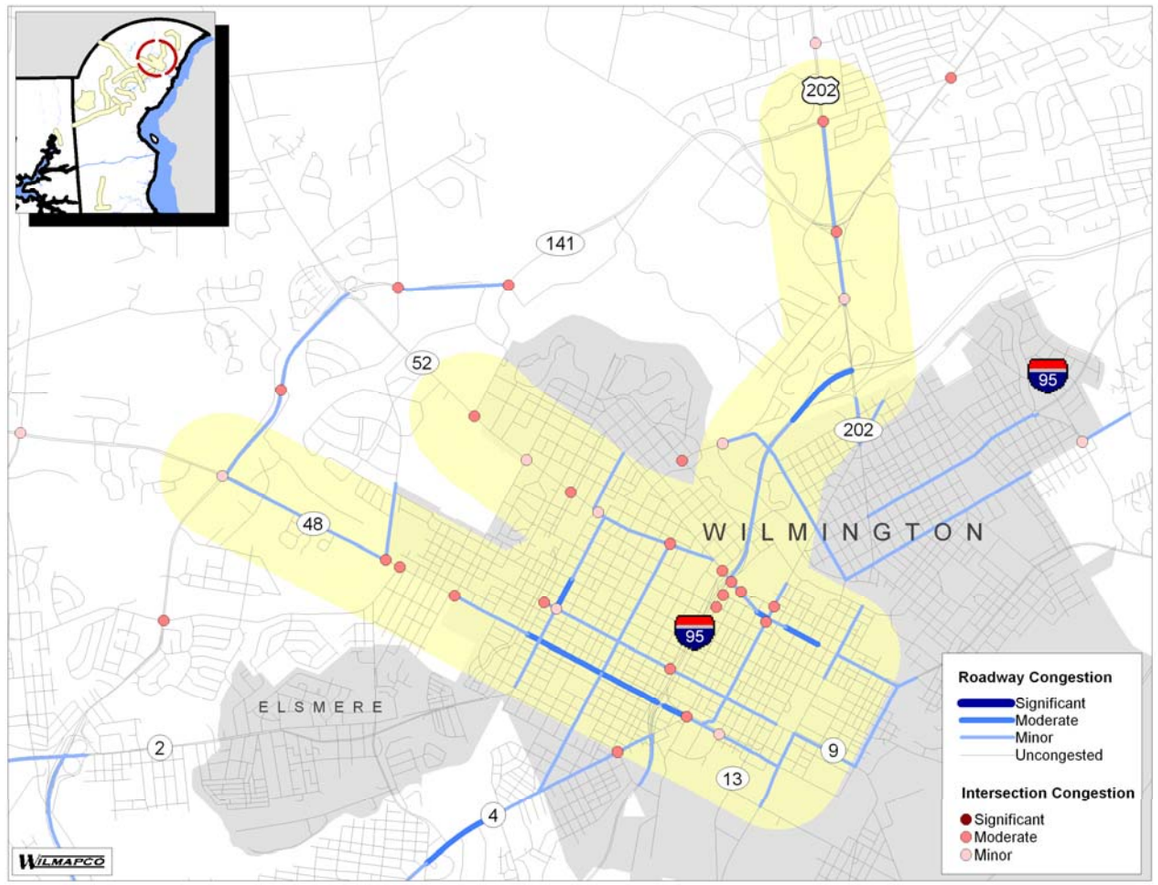
Trends		
Measure	Statistic(s)	Data Year
Gross Population Change (2000-2008)	-22 (<1% decrease)	2008
Gross Employment Change (2000-2008)	-9,348 (11% decrease)	2008
AADT Change (2000-2007)	2000 - 29,092 2007 - 27,891 (4% decrease)	2007
Avg. Peak Travel Speed Change (2001-2008)	2001 - 19.51 2008 - 18.52 (4% decrease)	2008

* AADT = Average Annual Daily Traffic ** V/C = Volume to Capacity

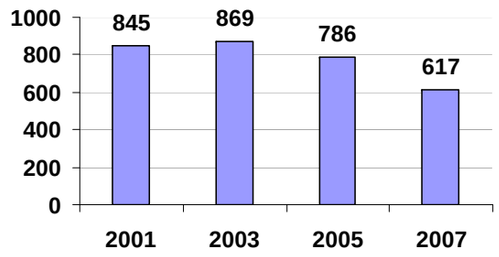
*** EJ = Environmental Justice (low income and minority neighborhoods)

**** TJ = Transportation Justice (elderly, disabled and zero car household neighborhoods)

FHWA classifications 5 and higher



Crash Trends: 2001-2007



Source: DelDOT, WILMAPCO 2008. Includes crashes at intersections.

CMS Corridor #12 Silverside Rd. Profile

Transportation Inventory		
Measure	Statistic(s)	Data Year
AADT* Range	14,000 - 16,000	2007
Type of Facility(ies)	Minor Arterial	2008
Average Transit Routes V/C** Ratio	13.9%	2007
Average Roadway V/C Ratio	31.9%	2007
Average Transit Peak Headway (AM/PM)	19 minutes / 18 minutes	2006
Number of Park and Rides and % Usage	3; 64.7%	2008
Daily Truck % at Select Locations # (Shown on map in yellow)	23.1%	2005

Demographics		
Measure	Statistic(s)	Data Year
Gross Household Density (per acre)	1.71	2008
Gross Employment Density (per acre)	1.83	2008
Percent within an EJ*** Area	na	2000
Percent within a TJ**** Area	5.6%	2000
Major Activity Center	Concord Pike	

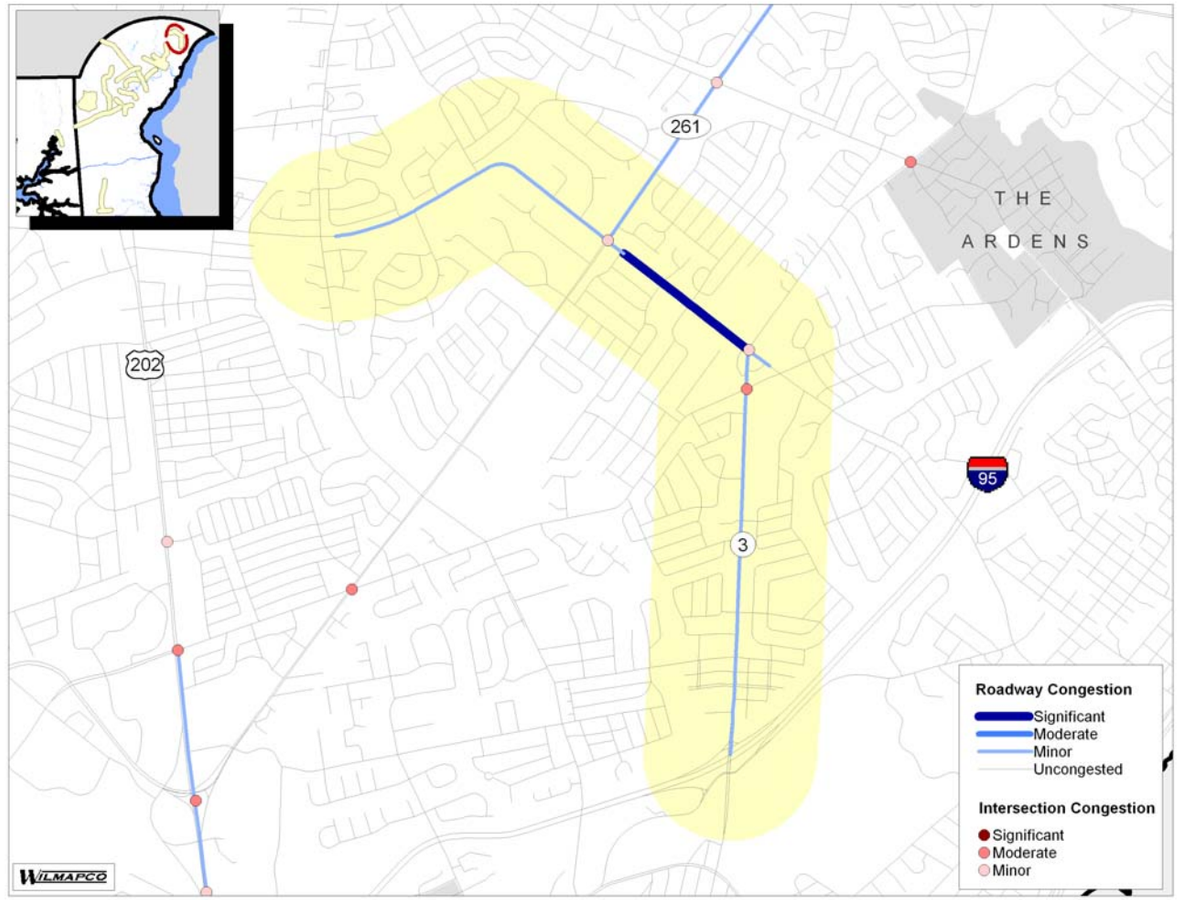
Trends		
Measure	Statistic(s)	Data Year
Gross Population Change (2000-2008)	-77 (<1% decrease)	2008
Gross Employment Change (2000-2008)	-3.936 (25% decrease)	2008
AADT Change (2000-2007)	2000 - 14,883 2007 - 15,509 (4% increase)	2007
Avg. Peak Travel Speed Change (2001-2008)	N/A	N/A

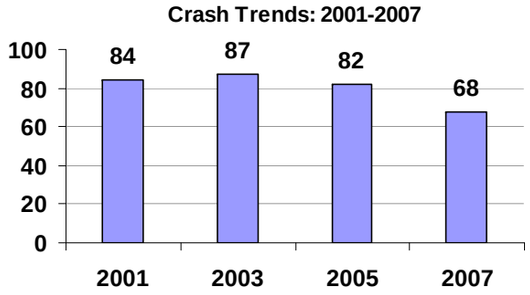
* AADT = Average Annual Daily Traffic ** V/C = Volume to Capacity

*** EJ = Environmental Justice (low income and minority neighborhoods)

**** TJ = Transportation Justice (elderly, disabled and zero car household neighborhoods)

FHWA classifications 5 and higher





Source: DelDOT, WILMAPCO 2008. Includes crashes at intersections.

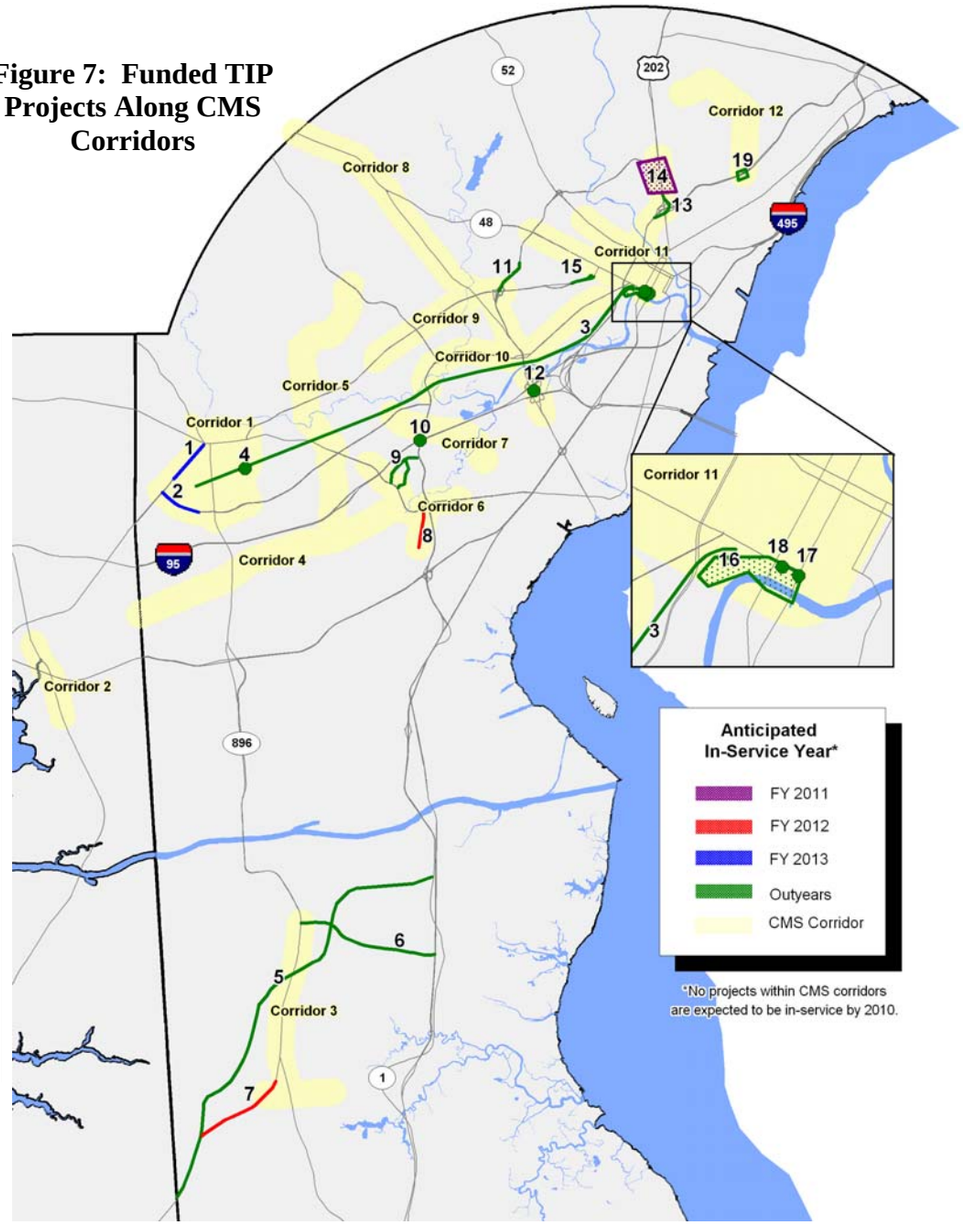
Programmed Projects Along Identified CMS Corridors

Figure 7 shows the location of projects that aim to address congestion currently programmed in the Transportation Improvement Plan (TIP) from fiscal year 2010 to 2013. Only management and expansion projects are shown, all preservation projects are excluded from this list. **Table 6** gives a corridor-by-corridor summary of the programmed projects, with overall costs and projected in-service year. For future updates on the TIP and the projects along CMS corridors, please check the WILMAPCO website at: www.wilmapco.org.

Table 4: FY 2010-2013 Funded TIP Projects Along CMS Corridors (funding x $1,000)

CMS Corridor	Map ID	Project Name	Mitigation Strategy	Anticipated In-Service Year	Total FY 2010-2013	Total FY 2014-2015
#1	1	Elkton Rd: Casho Mill Rd to Delaware Ave, Reconstruction, Improve Intersection	4-1	2013	$25,680	$0
#1	2	SR 4: Elkton Rd to SR 896, Roadway Reconstuction	4	Outyears	$150	$0
#1,5,7,8, 10,11	3	Third Rail Track Expansion, Newark to Wilmington	2-1,2-3	Outyears	$37,511	$0
#1	4	Newark Train Station Acquisition & Relocation	2-1	Outyears	$9,562	$0
#2	----	*No projects currently scheduled in Corridor 2*	----	----	----	----
#3	5	US 301: Maryland Line to SR 1	4	Outyears	$425,158	$215,420
#3	6	Boyds Corner Road, Roadway Improvements	4	Outyears	$13,700	$17,100
#3	7	Westown, US 301: Middleneck to Peterson Rd, Construct 4-Lanes & Sidewalks	2	2012	$7,800	$0
#4	----	*No projects currently scheduled in Corridor 4*	----	----	----	----
#6	8	SR 7: Newtown Road to SR 273, Widen from 2 to 4 Lanes	5-1	2012	$9,200	$0
#6	9	Road A/SR 7, Widening & Reconfiguration of Intersections	4-1, 5-1	Outyears	$4,200	$9,000
#7	10	SR 1/I-95 Interchange - New Multiple Lane Interchange	5-2	Outyears	$500	$0
#8,9	11	SR 141:Kirkwood Hwy to Faulkland Rd, Construct 4-Lane Arterial	5-1	Outyears	$5,790	$0
#8	12	SR 141/I-95 Interchange, Reconfigure Interchange, Improve Ramp Connections	5-2	Outyears	$500	$0
#11	13	I-95 & US 202 Interchange, Widening of Ramp	5-2	Outyears	$38,000	$0
#11	14	SR 141/US 202-Blue Ball Properties Program	5-2	2011	$1,750	$0
#11	15	S Union St, SR 2: Railroad Bridge to Sycamore St, Sidewalk & Curb Replacement	2-8	Outyears	$4,570	$0
#11	16	Wilmington Riverfront Program, Engineering support	4	Outyears	$2,900	$180
#11	17	Wilmington Train Station	2	Outyears	$1,140	$0
#11	18	Wilmington Operations Center, For Operations of Paratransit & Fixed Route	2-4	Outyears	$1,140	$0
#12	19	I-95, Carr Rd & Marsh Rd Interchange, Congestion & Capacity Improvements	5-2	Outyears	$2,910	$0
				TOTAL FUNDING x 1,000:	$592,161	$241,700

Figure 7: Funded TIP Projects Along CMS Corridors



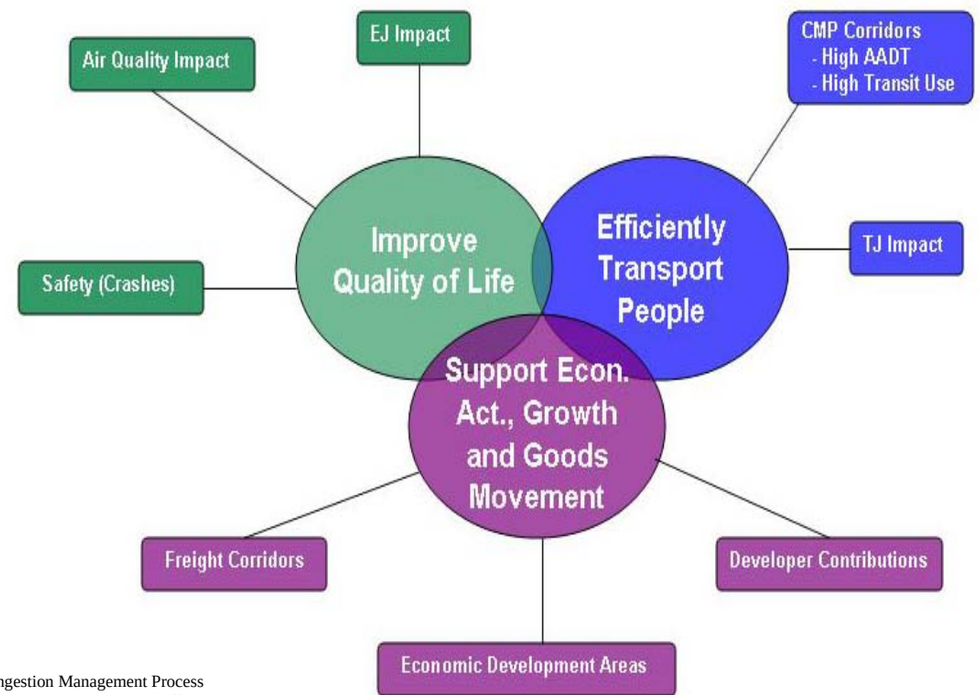
* Refer back to page 11 for a detailed list of mitigation strategies.

CMS and the Project Prioritization Process

Spurred by a plethora of unfunded transportation projects in our 2030 Regional Transportation Plan (RTP) and the desire for more transparency in project selection, WILMAPCO developed a technical process to score—and ultimately help rank— projects for funding. Known as the "Project Prioritization Process," transportation projects are scored against criteria tied to the overall goals of our RTP—Improve Quality of Life, Transport People and Goods, and Support Economic Growth and Activity.

As shown in **Figure 8**, measures such as a project's impact on air quality, sensitive neighborhoods (Environmental and Transportation Justice), or location along a bottlenecked freight route are considered. Projects receive points if they support these criteria, or can have points deducted if they do not. For example, a major commuter rail project would receive the maximum number of points for air quality, as it would promise to reduce automobile emissions. By contrast, an interstate interchange project located in a low-income/minority neighborhood would receive negative points for Environmental Justice, as it would introduce noise, pollution and traffic into the community.

Figure 8: Prioritization Process & Criteria



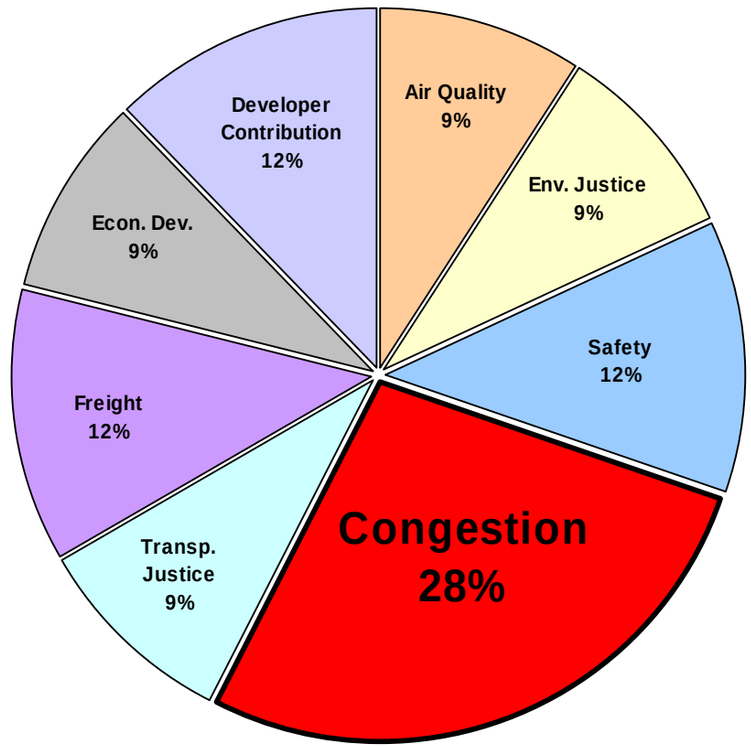
CMP= Congestion Management Process
AADT= Average Annual Daily Traffic
TJ = Transportation Justice (elderly, disabled and zero-car household neighborhoods)
EJ = Environmental Justice (low-income/minority neighborhoods)

A project's presence within an identified CMS corridor can boost its score greatly. Projects within a CMS corridor automatically receive points. They are then qualified to receive additional points if the traffic volumes are high and/or if the capacity of the location's fixed-route transit service is too. Shown in **Figure 9**, CMS is the single most heavily-weighted factor in the prioritization process.

After technical scores are calculated, qualitative considerations may be introduced to adjust a project's final ranking. These include the urgency of the project, or its cost-effectiveness.

For a more detailed overview of the WILMAPCO Prioritization Process with full point breakdowns, please visit: www.wilmapco.org/RTP.

Figure 9: Weight Distribution of Prioritization Criteria



CMS and the Project Prioritization Process (continued)

Putting the scoring system into practice, **Table 5** lists the technical scores of projects in the FY 2010-2013 Transportation Improvement Program (TIP) which fell within a CMS corridor. The TIP is a four-year funding program with over $1.2 billion in transportation projects. The table also lists projects eligible for Congestion Mitigation and Air Quality (CMAQ) funding. Below is a breakdown of the congestion-based scoring criteria used in the adopted WILMAPCO prioritization process.

Prioritization Scoring Results for Congestion Based Criteria

Proximity to a Identified Corridor
2pts.— Project within a CMS corridor identified by the CMS Subcommittee
1pt.— Road segment with LOS E or F but outside of identified CMS corridors

Additional Bonus Criteria—Only Applies to Projects that meet the above criteria
Average Annual Daily Traffic (AADT) - If project is in the CMS, then calculate additional points:
4pts.— Greater than 60,000 AADT
3pts.— 40,000 – 60,000 AADT
2pts— 20,000-40,000 AADT
0pts.— Less than 20,000 AADT

Transit Usage - Transit Load Factor by segment based on the average number of riders vs. the number of available seats.
3pts.— Greater than 35% capacity
2pts.— 25 – 35% capacity
1pt.— 15 – 25% capacity
0pts.— Less than 15% capacity

Four projects along the I-95 corridor—the SR 141 Interchange, the SR 1 Interchange, the 5th Lane Widening, and the SR 1 Widening—received the highest CMS scores as shown in **Table 5**. The high traffic volumes (ADT) and heavy transit use on I-95 boosted these congestion relief projects' technical scores. Also, the expansion of rail from Newark to Wilmington, and a widening project on SR 1 received a high score.

Table 5: Top FY 2010-13 TIP Projects Based on CMS Criteria from the WILMAPCO Prioritization Process

	Project	Project Type	CMS Proximity Score	CMS AADT Score	CMS Transit Score	Total Score	CMAQ Eligible?
1	I-95 & SR 141 Interchange	Expressways	2	4	3	9	
2	I-95 & SR 1 Interchange	Expressways	2	4	3	9	
3	Rail: Newark to Wilmington Track Expansion	Transit	2	4	3	9	Yes
4	I-95 / US202 Interchange	Expressways	1	4	3	8	Yes
5	SR 1, Tybouts Corner to SR 273, Widening to 6 lanes	Expressways	1	4	3	8	
6	SR 2: S. Union Street	Arterial	2	2	3	7	
7	Aeronautics, New Castle County Airport Terminal Improvements	Other	1	4	2	7	
8	Churchmans: BR 234 Pedestrian Improvements	Bike Ped	2	2	3	7	Yes
9	Transit Vehicle Replacement and Refurbishment, New Castle County	Transit	2	2	3	7	Yes
10	SR 141 & US 13 to Burnside Blvd. Widening	Arterial	1	4	1	6	
11	Transit Vehicle Expansion: Bus Route 301	Transit	1	2	3	6	Yes
12	SR 7/US 40: SR 7, Newtown Rd. to SR 273	Arterial	2	2	1	5	
13	Churchmans: SR4/Harmony Rd.	Arterial	1	2	2	5	Yes
14	SR 4, Christina Parkway: SR 2, Elkton Rd. to SR896, S. College Ave	Arterial	2	2	1	5	
15	US 40: Eden Square Connector	Arterial	1	2	2	5	
16	Wilmington Traffic Calming: Walnut: MLK Blvd. to 16th	Collector	2	2	1	5	
17	I-95: Carr Road/Marsh Rd. Interchange	Expressways	2	3	0	5	
18	Bicycle, Pedestrian: Pomeroy	Bike Ped	2	2	1	5	Yes
19	Transit Vehicle Expansion: Middletown/Glasgow/Newark	Transit	2	2	1	5	Yes
20	Transit Vehicle Expansion: 301 MIS	Transit	2	2	1	5	Yes
21	US 40: Transit improvements	Transit	1	2	2	5	Yes
22	Rail Improvements: Fairplay Station Parking	Transit	2	0	3	5	
23	SR 2, Elkton Rd., Casho Mill Rd. to Delaware Ave.	Arterial	2	2	0	4	
24	SR 2, Elkton Rd., Maryland State Line to Casho Mill Rd.	Arterial	2	2	0	4	
25	Wilmington Riverfront: Christina River Bridge	Collector	1	0	3	4	
26	US 301: MD Line - SR 1, and Spur	Expressways	2	2	0	4	
27	Transit Vehicle Expansion, NCC	Transit	1	2	1	4	Yes

Crash Analysis—Intersections

Between 2004 and 2006 just over 8,675 reported crashes occurred on 285 intersections along our CMS network [1].This represents about 1/3 of all of the crashes along the network. These may even be more problematic for congestion as crashes impact two roads depending on the crash location and severity, causing extra delays on the network.

Figure 10 shows the crash rates of the all intersections along the CMS network with 15 or more crashes over the past 3 years (2004-2006). Crash rates have been grouped by functional classification of the primary road which runs through the intersection. For reference, the average crash rate for all qualifying intersections involving a Principal Arterial was 0.69 crashes per million vehicles entering an intersection while Minor Arterials average a rate of 0.51 crashes per million vehicles entering intersection.

As we will see, the crash pattern follows very closely to that of the roadway segments. There are a few locations in outlying areas that show high rates which is most likely due to their lower traffic volumes.

Table 6: Intersection Crash Performance of Identified CMS Corridors 2004-2006[1]

Corridor	Total Intersection Crashes along corridor	Intersection Crash Rate*	Worst Perfoming Intersection along Corridor
Corridor #1- Newark	873	0.99	SR 4 and South College Ave. (72 crashes; 2.04 crashes per million vehicles entering intersection)
Corridor #2- Elkton			
Corridor #3 - U.S. 301 (Middletown	155	0.80	SR 299 and New St. (15 crashes; 1.67 crashes per million vehicles entering intersection)
Corridor #4- Old Baltimore Pike	222	0.59	Old Baltimore Pike and Salem Church Rd. North (25 crashes; 1.02 crashes per million vehicles entering intersection)
Corridor #5- Red Mill/ Polly Drummond Hill Rd.	228	0.64	Linden Hill and Polly Drummond Rd. (24 crashes; 1.22 crashes per million vehicles entering intersection)
Corridor #6- SR 273 / SR 7	351	0.67	SR 273 and Airport Rd.(49 crashes; 1.24 crashes per million vehicles entering intersection)
Corridor #7- SR 58, Churchman's Road	91	0.67	Churchman's Rd. and Airport Rd.(23 crashes; 0.79 crashes per million vehicles entering intersection)
Corridor #8 - SR 41/SR 141	243	0.75	SR 41 and Yorklyn Rd. (38 crashes; 3.85 crashes per million vehicles entering intersection)
Corridor #9 - SR 2 Kirkwood Highway	291	0.38	Kirkwood Highway and Milltonw Rd. (59 crashes; 1.69 crashes per million vehicles entering intersection)
Corridor #10 - SR 4 (Newport):	340	0.54	Maryland Ave. and Winston Ave (21 crashes; 0.97crashes per million vehicles entering intersection)
Corridor #11 - City of Wilmington	1,445	0.84	MLK Blvd. @ West St. (63 crashes; 1.94 crashes per million vehicles entering intersection)
Corridor #12 - Silverside Rd.	122	0.60	Foulk @ Silverside Rd. (20 crashes; 0.49 crashes per million vehicles entering intersection)

* Average crash rate of all intersections with 15+ crashes from 2004-2006

[1] An intersection crash is any reported crash within 50 ft. of an intersection.

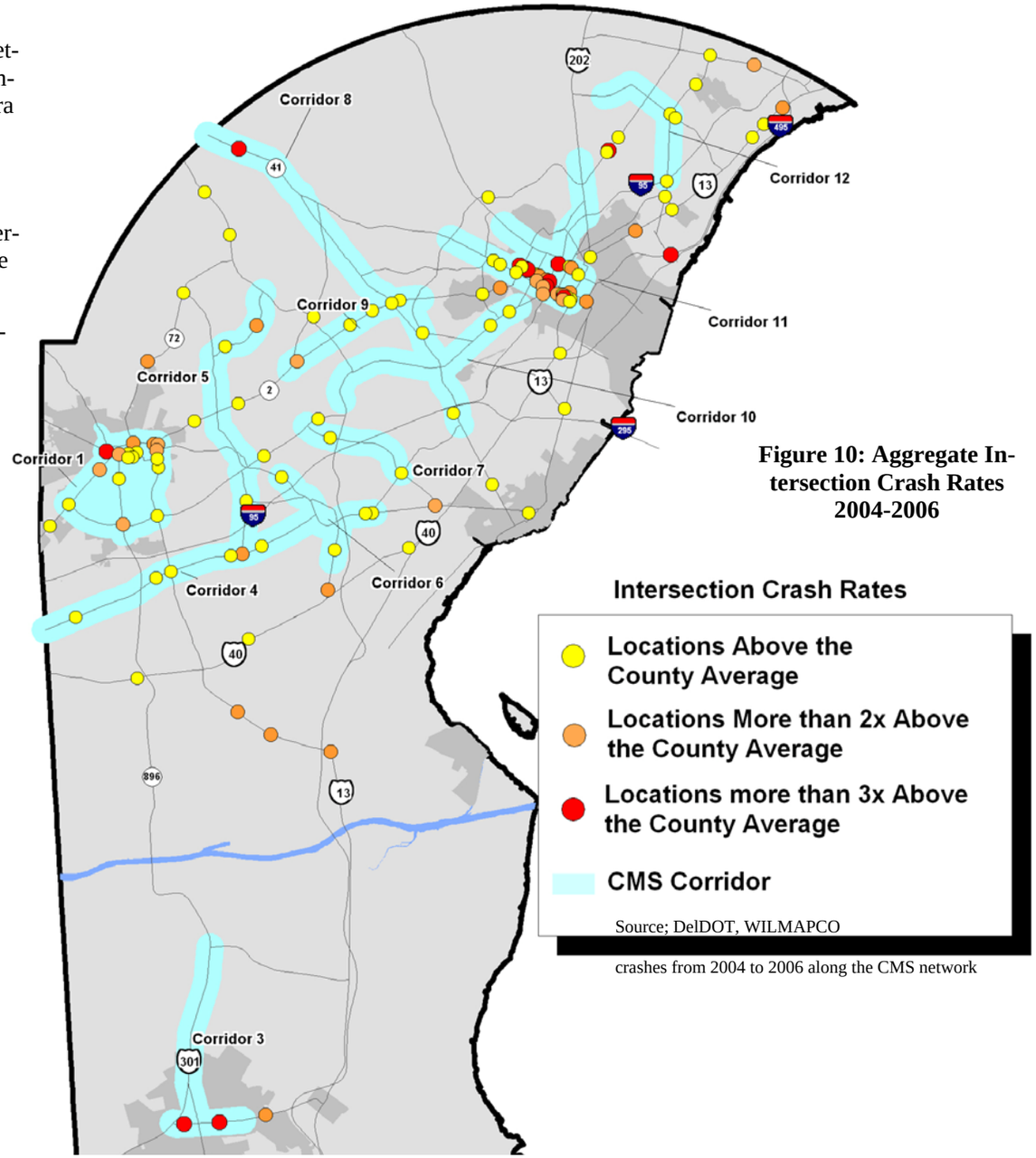


Figure 10: Aggregate Intersection Crash Rates 2004-2006

crashes from 2004 to 2006 along the CMS network

Crash Analysis– Roadway Segments

From 2004-2006, over 17,400 non-intersection* crashes occurred along our CMS network in New Castle County, scattered over 352 miles of roadway. With the use of GIS, we have been able to aggregate these to predefined roadway segments allowing us to measure the crash frequencies in greater detail. Since roads differ in traffic volumes, sight distances, access controls, etc., segments are compared to their respective functional class in which they are classified. For reference, the average 3-year crash rate for Interstates/ Freeways is 0.88 crashes per million Vehicle Miles Traveled (VMT), 1.69 for Principal Arterials and 1.89 for Minor Arterials. **Figure 11** displays the locations with crash rates above the countywide average for each segment's functional class.

High crash areas are predominately located in the northern part of the county, especially in the cities of Wilmington and Newark. **Table 7** below gives a performance breakdown of each corridor and which of its segments was found to be most problematic.

Table 7: Crash Performance of Identified CMS Corridors

Corridor	Total Roadway Crashes along corridor	Avg. Roadway Crash Rate along Corridor (per 1 million VMT)	Segment Along Corridor with Highest Crash Rate
Corridor #1- Newark	792	2.61	Main Street & Delaware Ave. from South College Ave. to Chapel St. (96 total crashes; 5.58 crashes per 1 million VMT
Corridor #2- Elkton			
Corridor #3 - U.S. 301 (Middletown	236	1.65	SR 299 from Pederson Rd.t to Silver Lake Rd. (56 total crashes; 6.21 crashes per 1 million VMT)
Corridor #4- Old Baltimore Pike	305	2.15	Old Baltimore Pike Coochs Bridge to SR 72. (40 total crashes; 6.00 crashes per 1 million VMT)
Corridor #5- Red Mill/ Polly Drummond Hill Rd.	169	1.33	Salem Church Rd. from SR 4 to Chapman Rd. (61 total crashes; 4.06 crashes per 1 million VMT)
Corridor #6- SR 273 / SR 7	428	2.38	SR 273 from Eagle Run Rd. to Main St. (34 total crashes; 4.39crashes per 1 million VMT)
Corridor #7- SR 58, Churchman's Road	188	2.48	Churchman's Rd. from Center Point Plaza to SR 4 (35 total crashes; 5.08 crashes per 1 million VMT)
Corridor #8 - SR 41/SR 141	587	1.43	SR 41 from Old Lancaster Pike to Yorklyn Rd. (40 total crashes; 6.55 crashes per 1 million VMT)
Corridor #9 - SR 2 Kirkwood Highway	526	2.33	Kirkwood Highway from Milltown Rd. to Limestone Rd.(72 total crashes; 2.93 crashes per 1 million VMT)
Corridor #10 - SR 4(Newport):	537	3.20	SR 4 from Cedar Street to Portland Ave. (21 total crashes; 10.62 crashes per 1 million VMT)
Corridor #11 - City of Wilmington	1,024	3.35	4th Street from King St. to Union St. (143 total crashes; 7.29 crashes per 1 million VMT)
Corridor #12 - Silverside Rd.	154	2.51	Silverside Rd. from Marsh Rd. to Foulk Rd. (35 total crashes; 14.87 crashes per 1 million VMT)

* Non-Intersection crashes are defined as crashes that have taken place more than 50 ft. from an intersection.

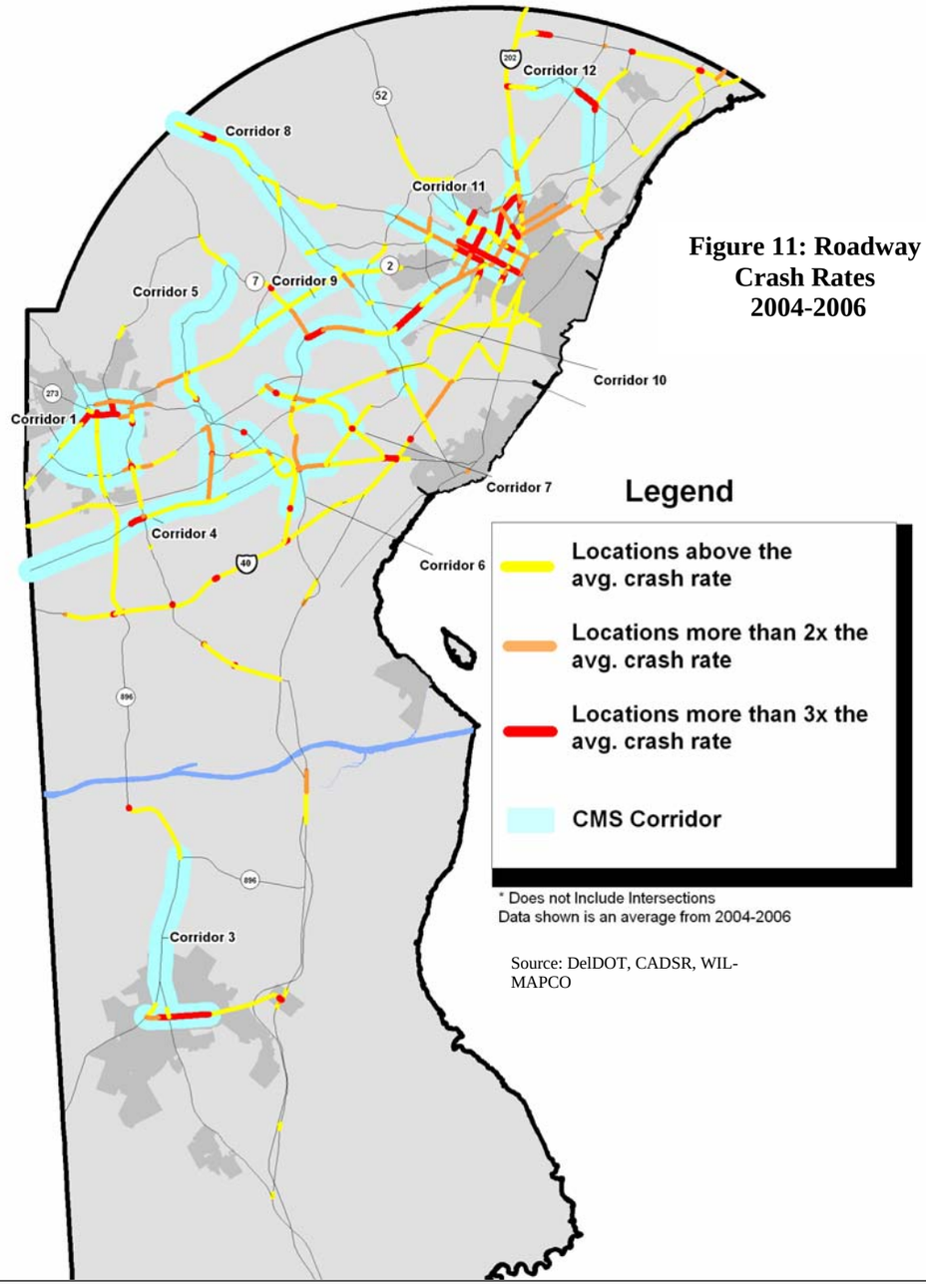


Figure 11: Roadway Crash Rates 2004-2006

SECTION #3: SYSTEM MONITORING

The fourth and final step in the development of the CMS, the task of monitoring the system, tracks the effectiveness CMS recommendations and allows us to see where new problems might arise. This section features a series of data analyses of demographic, traffic and planning initiatives to help decision makers get a sense of how changing conditions impact our network.

In addition to the CMS, WILMAPCO produces a Regional Progress Report every two years. This document analyzes a series of quantifiable congestion measures that relate back to the Regional Transportation Plan (RTP), and are consistent with the CMS. It tracks of measures such as AADT, the addition of infrastructure to help alleviate congestion (i.e., ITS) and transit LOS changes. It also tracks the funding of such projects in relation to other types of improvements. Progress Reports can be accessed here: www.wilmapco.org/Progress_Report

Travel Time Data:

Of data collected for use in the CMS, travel time data collection has proven to be the most valuable in tracking the region's traffic flow. Since 1998, the Delaware Transportation Institute at the University of Delaware has collected these data on a regular basis. A database has been created which shows the travel time, average travel speed, and amount of delay (determined by amount of time spent below 5 mph) from segments along a given route. As a result, we can review trends in these data.

Figures 12 & 13 show the average travel speeds for New Castle County and Cecil County since 2000 against each county's average. In comparing the two counties, Cecil has a much higher average travel speed.

Due to variability, the use of the travel time data as a system-wide performance measure has proven difficult. While the methodology has remained constant over the course of the data collection, this information is best utilized on a segment-by-segment basis. By looking at each link and its changes in travel speeds, we can focus on areas that are experiencing faster/slower speeds over the past several years.

Figure 12: AM Average Travel Speed (in mph) for the WILMAPCO Region

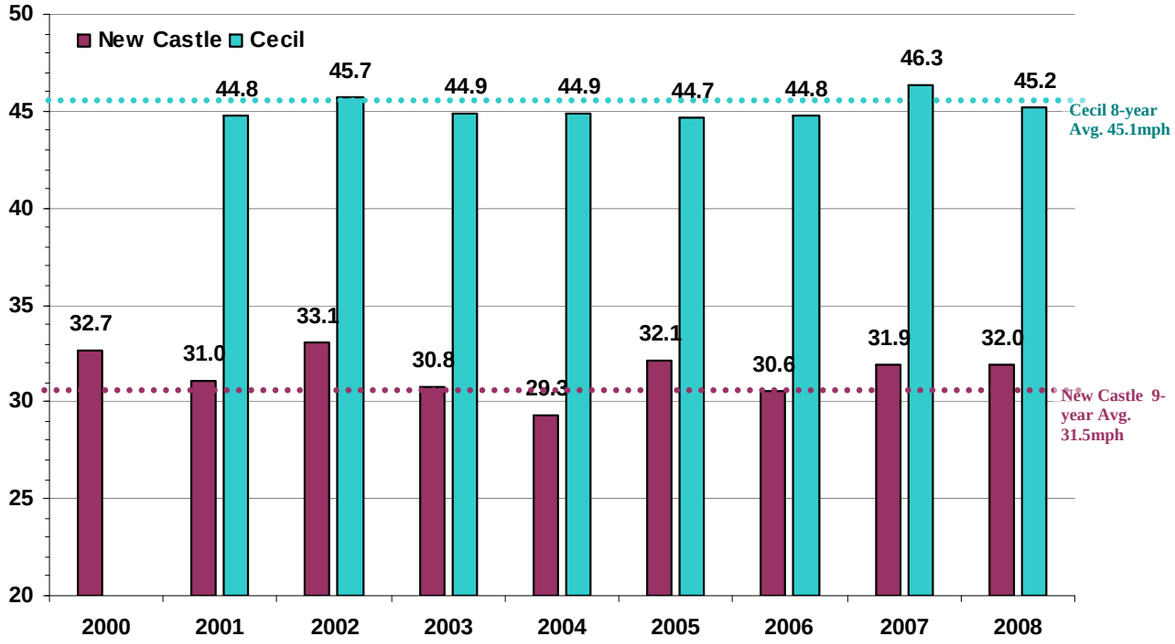
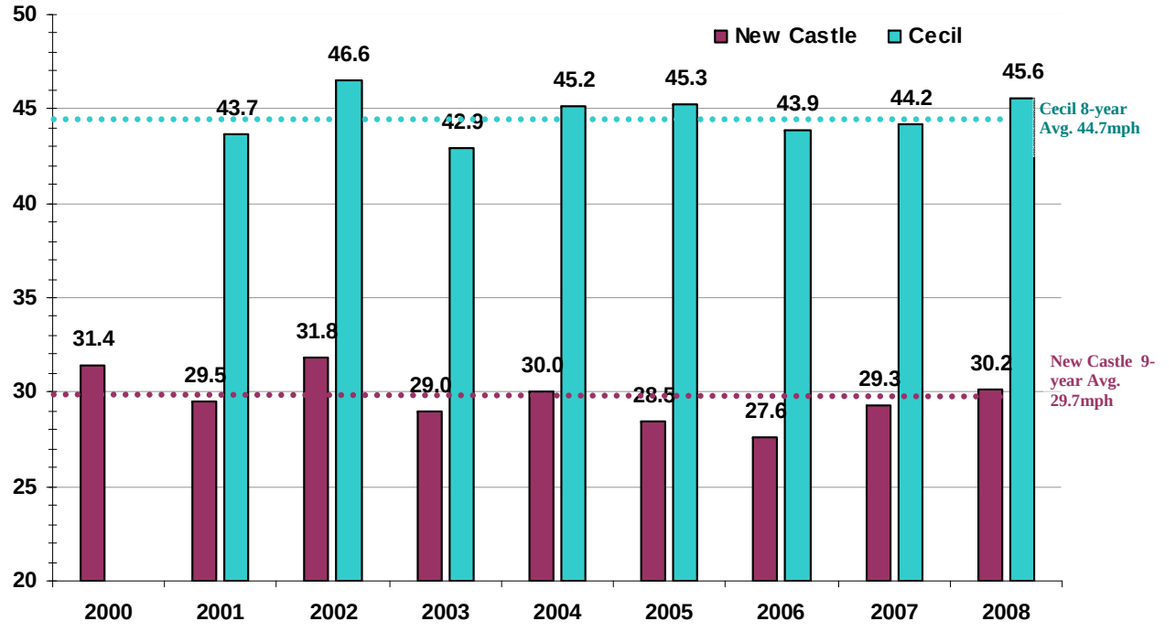


Figure 13: PM Average Travel Speed (in mph) for the WILMAPCO Region

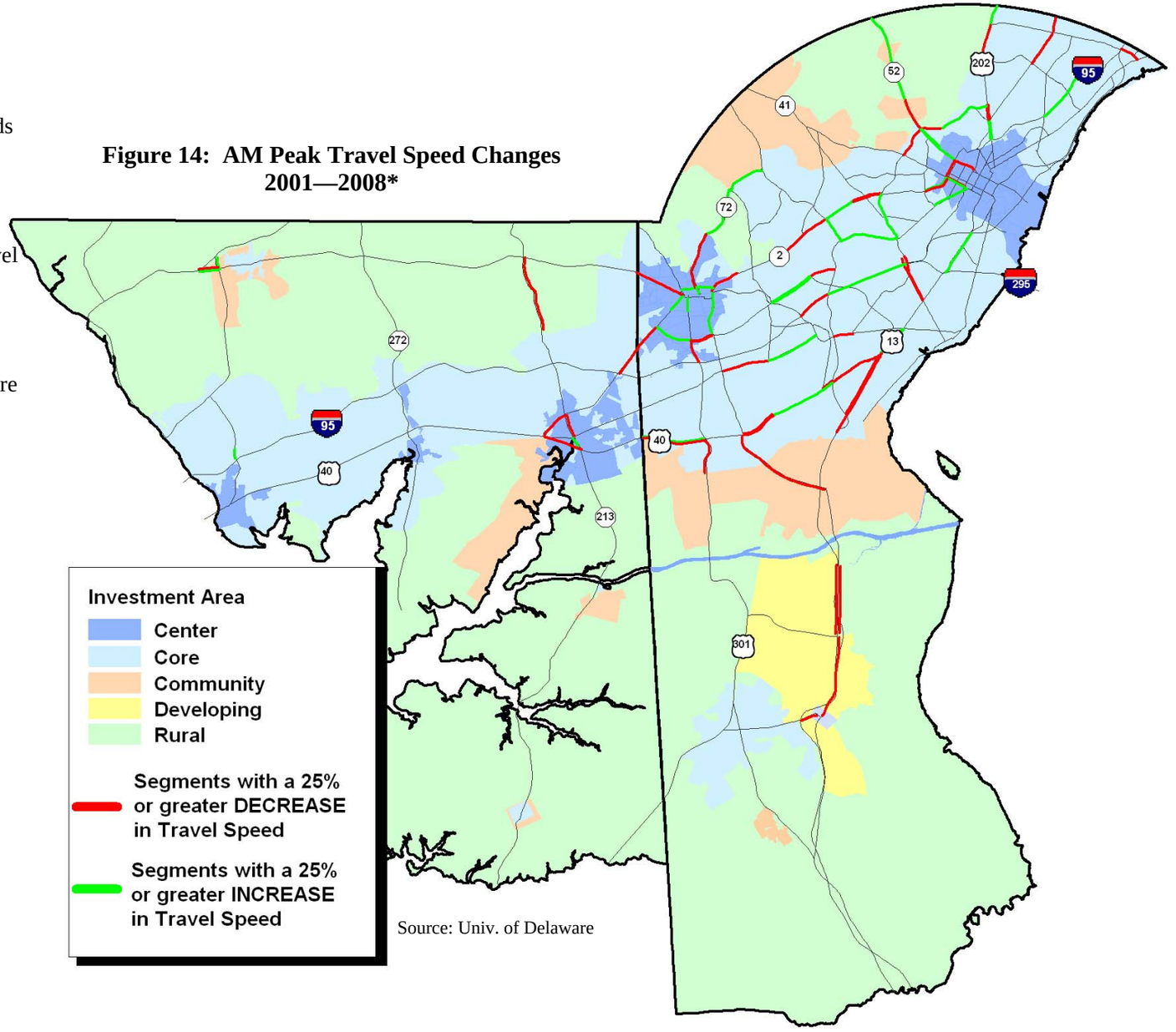


Source: University of Delaware Transportation Institute
NOTE: New Castle County results based on road segments that were part of the 2000 data collection. For data consistency, road networks added since the 2000 data collection were removed prior to calculation.

Mean Peak Travel Speed Changes (Continued)

Figure 14 identifies road whose AM travel speeds have changed significantly over the past several years. As the previous page shows, our overall travel speeds are in flux on a regional scale. As the map indicates, many segments of highway have seen either a 25 percent increase—or decrease—in travel speeds. While there is no true standard to measure overall change, the 25 percent threshold was determined to be a noteworthy shift in speeds. Also, to minimize any data collection issues, the figure represents changes between an average travel speed from years 2001 and 2002 versus the average travel speeds from years 2007 and 2008. This ensures that the times reflect recurring problem areas as opposed to areas that had some type of nonrecurring delays (i.e. accident, construction, etc). While difficult to see, this map shows speed changes directionally for each segment, allowing for a more refined view of speed changes.

Figure 14: AM Peak Travel Speed Changes 2001—2008*



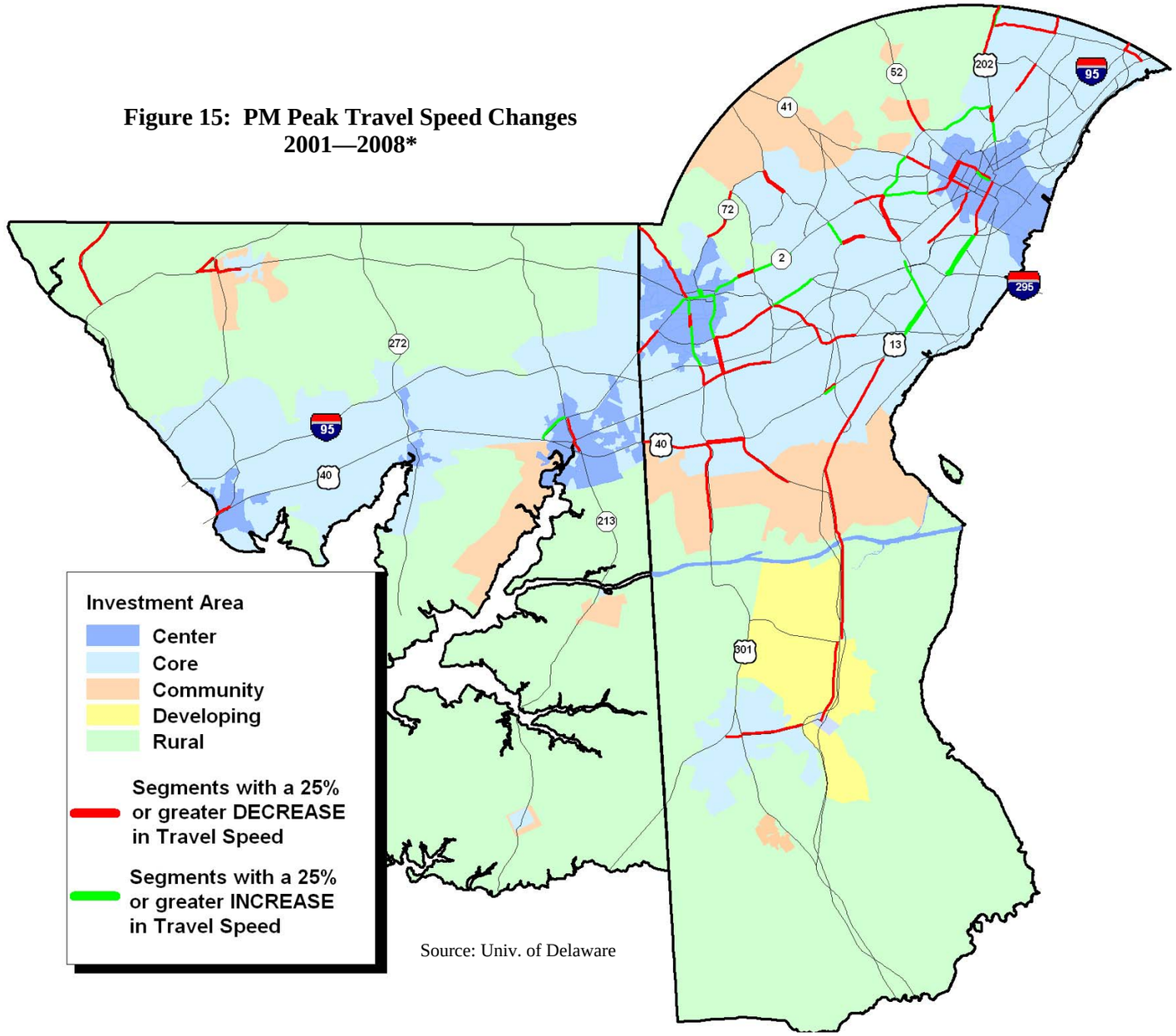
* Data shown is a comparison of average of years 2001 & 2002 vs. the average of years 2007 & 2008

Mean Peak Travel Speed Changes (Continued)

Figure 15 shows the peak travel speed changes during the evening rush hour (4-6:30pm). As the map indicates, degradation of travel speeds throughout the period can be found in most portions of the county. In particular, the 896 corridor from I-95 to south of the C & D canal has seen a rather steady drop along a long stretch of the segment. In addition, the roadways intersecting SR 896, such as US 40, Old Baltimore Pike and SR 273 have also experienced decreases in average travel speed. The Town of Elkton also has experienced some degrading travel speeds. MD 213 from MD 279 to US 40 has seen a drop in peak hour travel speeds. Some areas of improvement have been seen within the City of Newark and along US 13 and SR 141.

Overall, **Figures 14** and **15** begin to shed some light on the evolution of congestion in the region. Many of the changes, both positive and negative, are occurring in our Center/Core Investment areas with a few occurring in the Developing area of southern New Castle County. Since 1996, 70 percent of our population growth has been within the Center and Core investment areas. Overall, 86 percent of our population and 93 percent of our employment reside in these two Transportation Investment Areas (TIAs). According to the WILMAPCO Regional Transportation Plan, this is where we are focusing our funding for transportation projects, with the latest TIP allocating roughly 94 percent of its funding to these areas.

Figure 15: PM Peak Travel Speed Changes 2001—2008*



Source: Univ. of Delaware

*Data shown is a comparison of years 2001 & 2002 vs. the avg. of years 2007 & 2008

Traffic Volume Changes

Figure 16 shows the locations of all Automatic Traffic Recorders in Cecil and New Castle Counties. **Table 8** shows the raw comparison of traffic volumes at these locations between 1996 and 2007, illustrating trends in traffic volumes. From these data it is apparent that Center and Core investment areas are, logically, home to the heaviest traffic volumes. Recent changes in volume vary, depending on location. Rural areas show the highest percentage increases, with US 13 at the St. Georges Bridge (282%) and US 301 west of Middletown (230%) seeing the highest increases.

Table 8: Daily Traffic Volume Growth 1996-2007

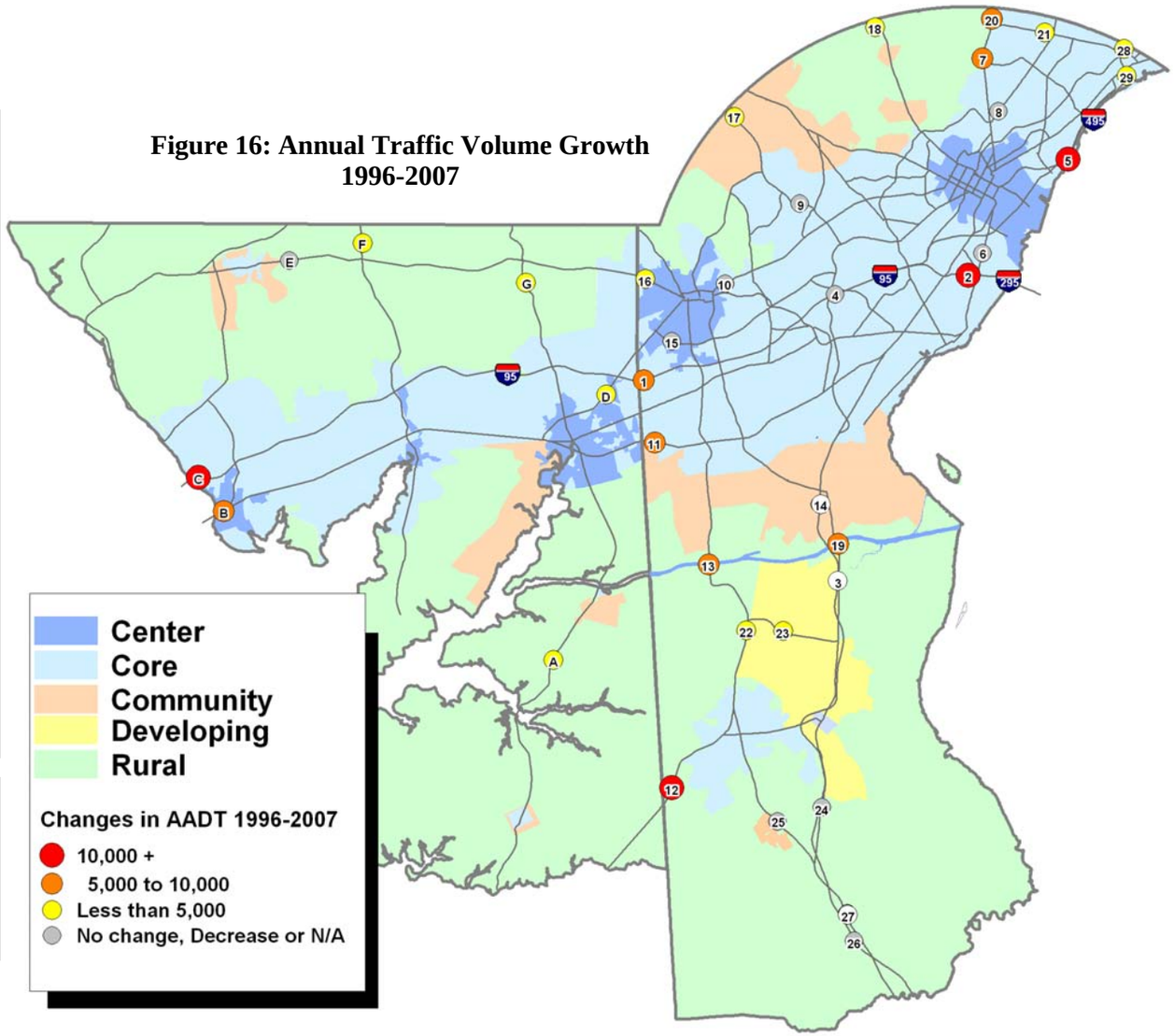
Site	New Castle	Road Type	TIA	1996 AADT	2007 AADT	Change 96-07	% Change
1	I-95 @ Toll Plaza	Interstate	Core	66,529	74,077	7,548	11.3%
2	I-295, Del. Mem. Br.	Interstate	Core	79,687	96,584	16,897	21.2%
3	SR 1 at Biddles Corner Toll Plaza	Principal Arterial	Developing	N/A	47,936	N/A	N/A
4	I-95, east of SR 7	Interstate	Core	135,962	N/A	N/A	N/A
5	I-495, near Blvd Body Shop	Interstate	Core	43,922	64,830	20,908	47.6%
6	SR 9, North of I-295	Minor Arterial	Core	18,540	16,767	(1,773)	-9.6%
7	US 202, near Widner College	Principal Arterial	Core	43,226	50,378	7,152	16.5%
8	SR 261, N. of Blue Ball	Principal Arterial	Core	16,392	12,327	(4,065)	-24.8%
9	SR 7, North of Milltown Rd.	Principal Arterial	Core	37,961	35,763	(2,198)	-5.8%
10	SR 2, East of Windy Hills	Principal Arterial	Center	35,188	31,698	(3,490)	-9.9%
11	US 40 near MD Border	Principal Arterial	Core	26,520	31,772	5,252	19.8%
12	US 301, west of Middletown	Principal Arterial	Rural	4,707	15,552	10,845	230.4%
13	SR 896, Summit Bridge	Principal Arterial	Rural	21,363	30,497	9,134	42.8%
14	US 1 Bridge @ C& D Canal	Principal Arterial	Community	N/A	63,894	N/A	N/A
15	SR 4 at Chrysler Entrance	Principal Arterial	Center	22,772	16,677	(6,095)	-26.8%
16	SR 273, near MD border	Minor Arterial	Center	8,148	8,715	567	7.0%
17	SR 7, near PA border	Principal Arterial	Community	12,749	16,039	3,290	25.8%
18	SR 52, near PA border	Principal Arterial	Rural	10,573	11,755	1,182	11.2%
19	US 13, St. Georges Bridge	Minor Arterial	Rural	2,367	9,036	6,669	281.7%
20	US 202 North of Naamans Rd.	Principal Arterial	Core	36,484	42,247	5,763	15.8%
21	SR 92, East of US 202	Principal Arterial	Core	25,717	28,425	2,708	10.5%
22	US 301 south of NC 15	Principal Arterial	Developing	18,275	22,343	4,068	22.3%
23	SR 896 East of Mt Pleasant Rd.	Principal Arterial	Developing	11,838	12,896	1,058	8.9%
24	US 13 North of Blackbird Rd.	Principal Arterial	Rural	37,535	13,351	(24,184)	-64.4%
25	SR 71, North of US 13	Minor Arterial	Rural	5,942	5,863	(79)	-1.3%
26	US 13, N. of Blackbird	Principal Arterial	Developing	37,535	22,204	(15,331)	-40.8%
27	SR 1, N. of KC Border	Principal Arterial	Rural	N/A	40,269	N/A	N/A
28	I-95, near Naamans Rd	Interstate	Core	41,416	44,495	3,079	7.4%
29	I-495, near Naamans Rd	Interstate	Core	43,922	45,486	1,564	3.6%

Site	Cecil	Road Type	TIA	1996 AADT	2007 AADT	Change 96-07	% Change
A	MD 213 North of Cayots Corner Rd.	Minor Arterial	Rural	9,354	10,402	1,048	11.2%
B	US 40 @ Cecil/ Harford Line	Principal Arterial	Center	23,033	30,564	7,531	32.7%
C	I-95 @ Harford/Cecil Line	Interstate	Core	69,038	81,400	12,362	17.9%
D	MD 279 South of I-95*	Minor Arterial	Center	12,425	13,081	656	5.3%
E	MD 273 East of Rising Sun*	Minor Arterial	Rural	5,725	5,720	(5)	-0.1%
F	MD 272 @ PA Line*	Minor Arterial	Rural	4,350	7,050	2,700	62.1%
G	MD 213 South of MD 273*	Minor Arterial	Rural	4,750	6,052	1,302	27.4%

* Not a permanent counter location

Sources: DelDOT, MDOT

Figure 16: Annual Traffic Volume Growth 1996-2007



Freight/Truck Volumes

Freight activity is important to our economy and helps to maintain our current standard of living. However, trucks contribute to congestion and disrupt the flow of traffic. As **Figure 17** indicates, Interstates currently carry the bulk of the truck movements, along with SR 1, SR 896, US 13 and US 301. There are also several other arterials that carry a notable volume of trucks. **Table 9** lists volumes at key locations around our region in 2005.

Table 9: 2005 Truck AADT and Percentages at Selected Locations*

Locations with Highest Truck Volumes

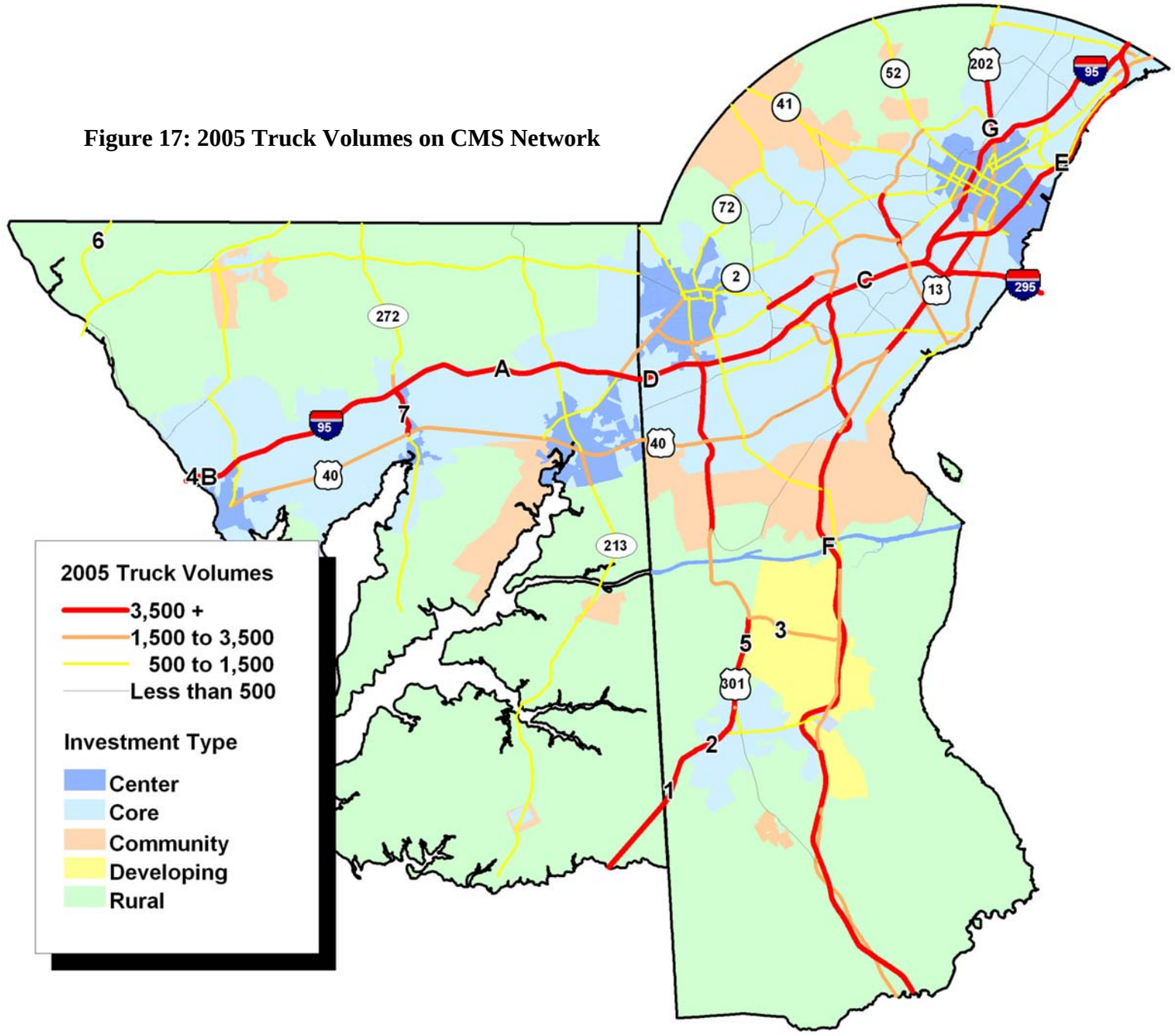
Map #	Location	Daily Truck Volume
A	I-95 between near MD545	18,258
B	I-95 at Cecil and Hartford county line	18,196
C	I-95 near DE RT 7	17,972
D	I-95 at DE/MD Toll Plaza	10,728
E	I-495 near Boulevard Body Shop	7,402
F	SR1 C&D Canal	7,218
G	US 202 S. of Foulk Rd.	4,596

Locations with Highest Truck Percentage

Map #	Location	Daily Truck Volume	Truck %
1	US 301 at DE/MD State Line	3,825	34.6%
2	US 301 north of SR 15 split	4,123	26.0%
3	SR 896, west of Cedar Ln. Rd.	2,746	23.9%
4	I-95 at Cecil and Hartford county line	18,196	23.2%
5	US 301 S. of Boyd's Corner Rd.	3,422	19.9%
6	US 222 near the PA/MD line	791	19.4%
7	MD 272 South of I-95 Interchange	3,643	17.9%

Source: DelDOT, MDSHA and WILMAPCO. * Truck volumes include all 2-axle, 6-tire trucks and greater. Specific locations above selected from available classification counts collected during 2005.

Figure 17: 2005 Truck Volumes on CMS Network



Crash Trends

As stated earlier, traffic incidents represent a quarter of all causes of congestion. To their credit both DelDOT and MDOT have well-defined programs which put resources toward addressing traffic safety. However, there is no current mechanism that reviews the effectiveness of the improvements or tracks trends on a regional basis. With reliable historical crash data now available, WILMAPCO has the ability to begin tracking the crash trends in the region. **Figure 18** shows the average annual trends over the past six years and which segments have seen a significant increase or decrease in total crashes. In time this data will be a useful tool in measuring the effectiveness of improvements meant to reduce vehicle crashes.

Currently, the majority of our improving sections are found within the Center/Core investment areas, where as previously noted before the vast majority of transportation dollars are spent. Both Wilmington and Newark boast mostly improving conditions while areas around Middletown have largely seen a increase in crashes. **Table 10** below breaks down the crashes by segment. As the table shows, US 13 has 3 of the top 4 locations with significant decreases. With the construction of DE 1, US 13 has seen a drop in AADT, which may help explain the positive results.

Table 10: Location with Significant Annual Crash Changes

Locations with significant decreases in crashes

	Road Segment	Average Annual Crashes 2000/2001	Average Annual Crashes 2005/2006	Change
1.	U.S 13 from Pine Tree Corner/Blackbird Landing Rd. to SR 71 (1.74mi.)	31	7	343% Decrease
2.	U.S 13 from SR 71 to Savannah Dr. (3.54mi.)	52	20	160% Decrease
4.	Elkton Rd. from Delaware Ave. to Old Barksdate Rd. (0.37mi.)	33	14	136% Decrease
3.	U.S. 13 from Odessa Town limits to Pine Tree Corner/Blackbird Landing Rd. (3.17mi.)	26	12	117% Decrease
5.	Kirkwood Highway from Old Possum Park Rd. to Last Lane (0.28mi.)	20	10	100% Decrease
6.	SR 41 (Lancaster Pike) from Yorklyn Rd. to Brackenville Rd..	29	16	81% Decrease

Locations with significant increases in crashes

	Road Segment	Average Annual Crashes 2000/2001	Average Annual Crashes 2005/2006	Change
A.	SR 299 from Silver Lake Rd. to Railroad Tracks (1.34mi.)	6	26	77% Increase
B.	DE 1 from US 40 to SR 273 (1.72mi.)	13	31	58% Increase
C.	I-95 from US 202 overpass to Exit 8 (0.41mi.)	19	42	55% Increase
D.	US 301 from Broad St. to Boyd's Corner Rd. (3.38mi.)	16	34	53% Increase
E.	SR 4 from SR 7 to Stanton Rd. (0.45mi.)	12	25	52% Increase

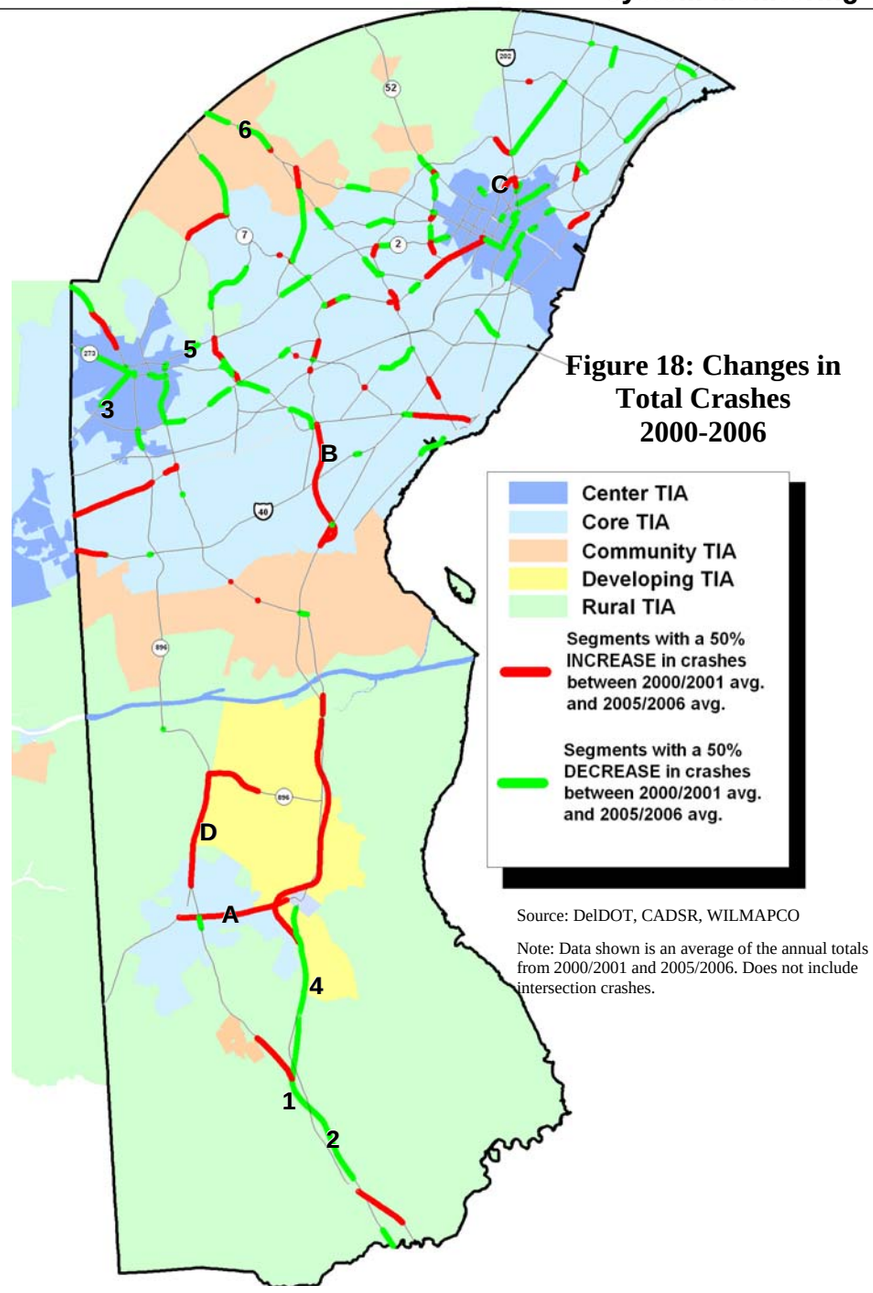


Figure 18: Changes in Total Crashes 2000-2006

Source: DelDOT, CADSR, WILMAPCO

Note: Data shown is an average of the annual totals from 2000/2001 and 2005/2006. Does not include intersection crashes.

SECTION #4: CONGESTION MITIGATION ACTIVITIES

The following section is designed to chronicle the effectiveness of some of the congestion mitigation strategies discussed in the strategy evaluation section of this document. This is now possible as a result of the numerous data collection efforts performed by WILMAPCO and its member agencies. With a well established base of annual data, the ability to track trends has developed. The section provides valuable insight on the linkage between where certain congestion mitigation measures have beenmore effective than others.

Transit Performance

Transit is a key congestion mitigation strategy. **Figure 19** shows the average ridership of fixed-route segments during peak weekday hours. Segments with high average ridership (fewer available seats) appear in red, while those with low ridership (more available seats) are shown in yellow. Routes directly servicing the City of Wilmington tend to have the highest average ridership. A stretch of US 202 (letter A) operates at the highest ridership of any segment in the region, connecting this city with its northern suburbs. SR 1 (location B), shuttling southern New Castle County residents to and from the region's northern core, is the second best-performing transit segment. Outlying, connecting transit segments tend the have the lowest capacities. SR 52 (location E), in the Greenville/Centerville area is the region's weakest segment. Listed below are the top and bottom performing fixed-route segments:

Transit Segments with the Highest Capacity
A. US 202 (from SR 261 to Silverside Road) — 51% avg. ridership
B. SR 1 (from SR 299 to SR 273) — 50% avg. ridership
C. SR 9 (from Terminal Avenue to 4th Street) — 48% avg. ridership

Transit Segments with the Lowest Capacity
D. SR 299 (from SR 1 to SR 71) — 3% avg. ridership
E. SR 52 (north of SR 141) — 1% avg. ridership
F. New Linden Hill Rd. (from SR 7 to Polly Drummond Rd. — 5% avg. ridership

Source: DTC 2008. Data represents weekday transit ridership averages vs. capacity

A complete route-by-route ridership breakdown of all fixed-routes is listed on Page 35 of this document.

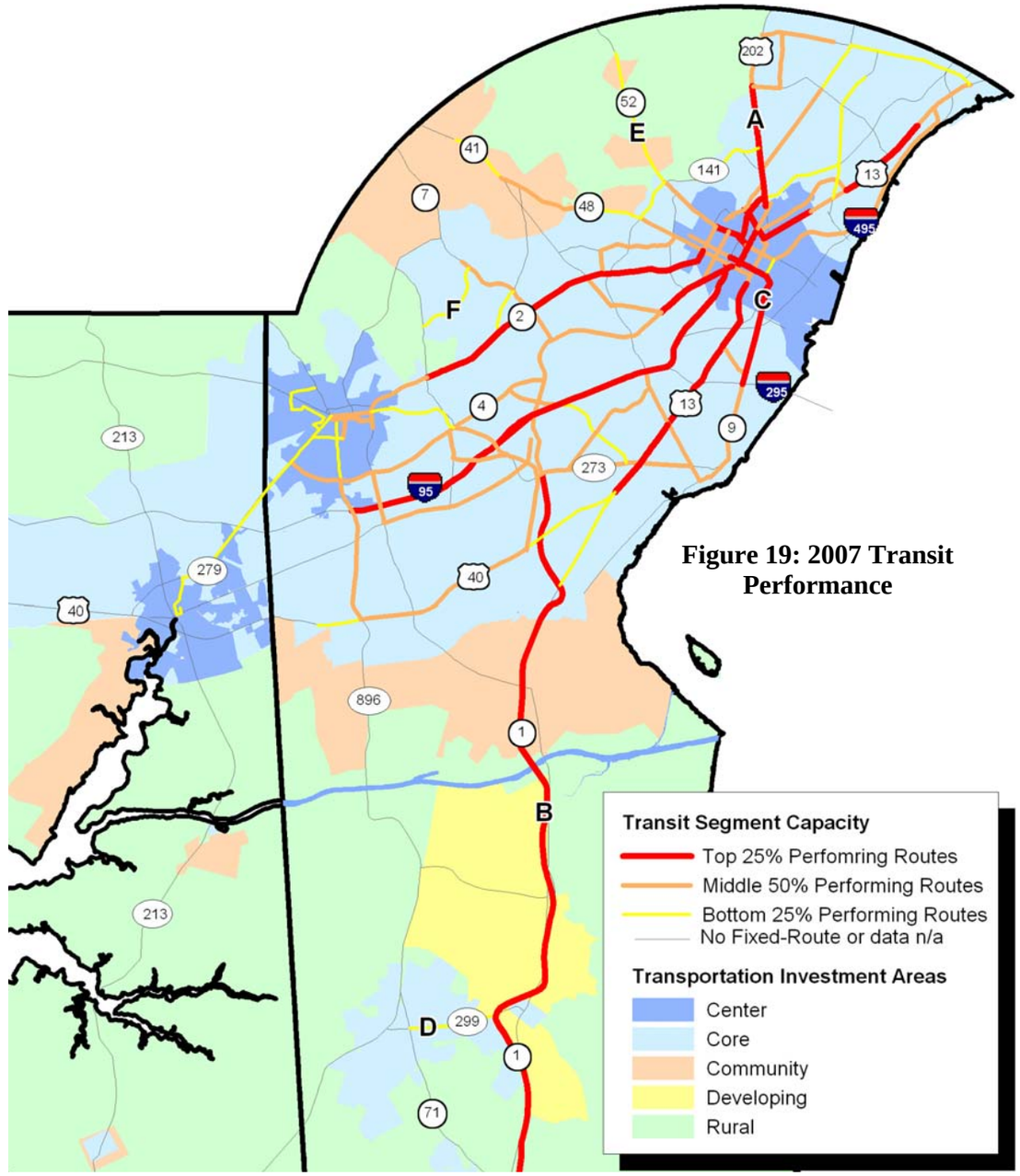
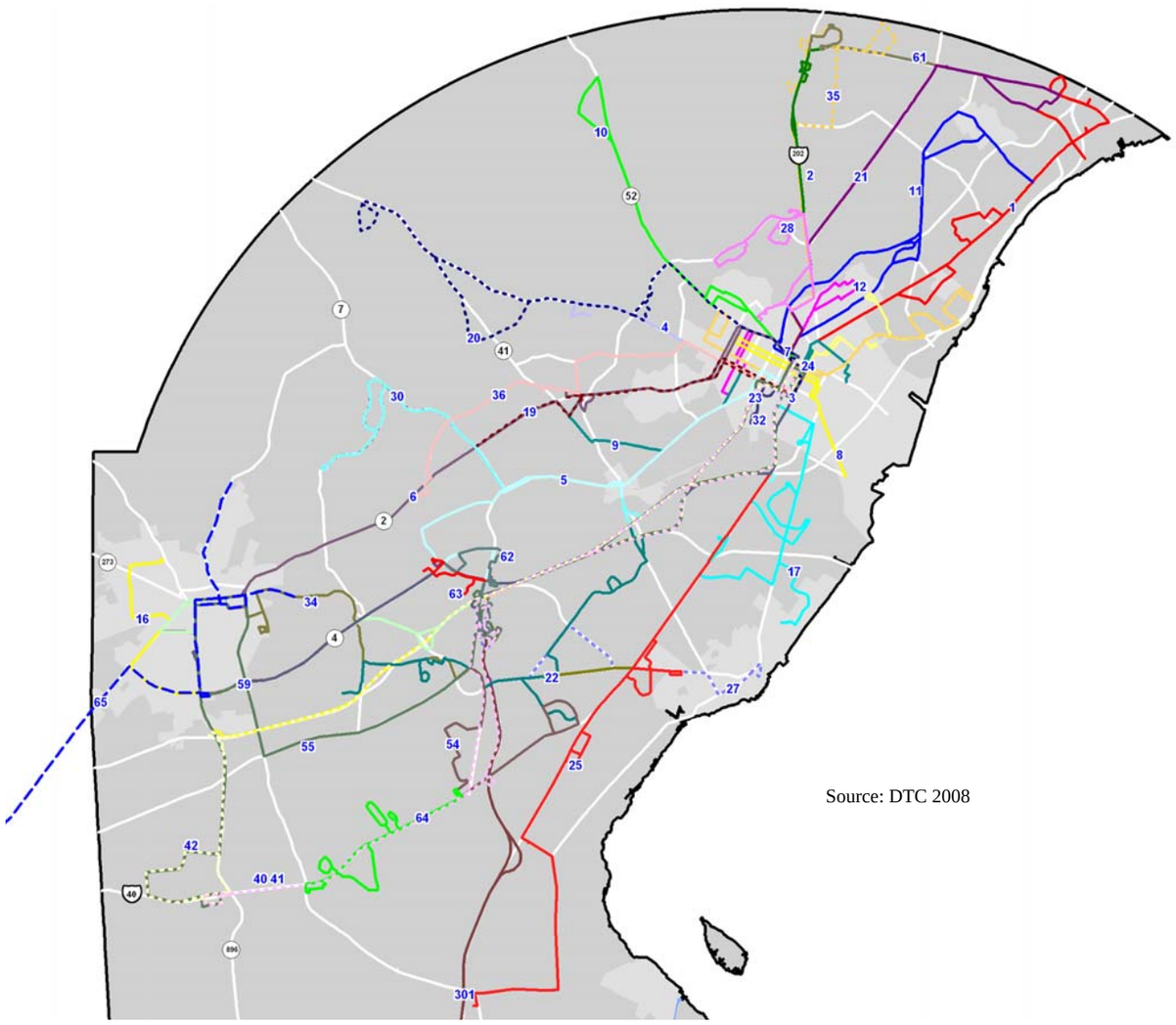


Figure 19: 2007 Transit Performance

Transit Ridership

Below is an inventory and brief analysis of the ridership trends of all fixed transit routes New Castle County. **Figure 20** shows the locations of the routes and **Table 11** gives a route-by route breakdown of annual ridership changes since 2001 and the 2008 load factor for each. Overall, ridership has increased by 6.4% since 2001. Routes showing the greatest ridership growth were the Route 32 (City Circuit), the Route 55 (Old Baltimore Pike) and Route 301 (Inter-County Service). Routes with the heaviest declines were the Route 11 (Washington Street/Marsh Road), the Route 8 (8th and 9th Streets) and the Route 10 (Delaware Avenue/Kennett Pike).

Figure 20: DTC Fixed Bus Routes



Source: DTC 2008

Table 11: Transit Ridership Analysis 2001-2008

2001-2008 ridership Analysis						October 2008 Capacity Analysis			
Route	Name	FY 2001	FY 2008	FY 01-08 Change	FY 01-08 % Change	Total Monthly Trips	Bus Capacity	Monthly Seating Capacity	Load Factor
1	Philadelphia Pike	734,447	724,373	(10,074)	-1.4%	2,590	40	103,600	72%
2	Concord Pike	293,897	310,493	16,596	99%	1,150	40	46,000	69%
3	26th Street/Lea Boulevard	146,512	153,103	6,591	4%	1,108	40	44,320	44%
4	W. 4th Street/Lancaster Avenue	566,139	539,262	(26,877)	-5%	2,783	40	111,320	49%
5	Maryland Avenue	527,160	499,870	(27,290)	-5%	2,258	40	90,320	59%
6	Kirkwood Highway	651,520	757,940	106,420	16%	2,067	40	82,680	83%
7	DuPont/Clayton Streets	0	19,053	19,053	N/A	414	40	16,560	14%
8	8th Street and 9th Street	215,457	155,860	(59,597)	-28%	1,612	40	64,480	23%
9	Boxwood Rd/Broom St/Vandever Ave.	243,926	244,717	791	0%	1,222	40	48,880	52%
10	Delaware Avenue/Kennett Pike	190,390	135,023	(55,367)	-29%	1,344	40	53,760	25%
11	Washington Street/Marsh Road	333,244	253,118	(80,126)	-24%	1,783	40	71,320	34%
12	Baynard Boulevard	234,439	206,108	(28,331)	-12%	1,806	40	72,240	25%
15	New Castle Avenue	428,968	455,301	26,333	6%	1,698	40	67,920	72%
16	Newark Express	63,867	44,541	(19,326)	-30%	299	40	11,960	44%
17	Dunleith/Holloway Terr/Health & S.S. Campus	156,740	140,675	(16,065)	-10%	1,164	40	46,560	32%
19	Pike Creek Valley (wkday)	142,672	115,417	(27,255)	-19%	782	40	31,280	44%
20	Lancaster Pike	80,236	70,791	(9,445)	-12%	644	40	25,760	30%
21	Foulk Road	106,720	104,368	(2,352)	-2%	874	40	34,960	30%
22	Wilton/DuPont Highway	303,679	274,719	(28,960)	-10%	1,153	40	46,120	67%
23	University Plaza/Corporate Commons	98,318	111,709	13,391	14%	807	40	32,280	25%
24	Governor Printz Boulevard	389,242	465,918	76,676	20%	1,911	40	76,440	60%
25	Llangollen/DuPont Highway	196,045	255,167	59,122	30%	1,214	40	48,560	52%
27	New Castle Industrial Parks/Christiana Mall	0	6,577	6,577	N/A	276	40	11,040	4%
28	A.I. DuPont Hospital/Nemours Clinic	60,110	77,183	17,073	28%	646	40	25,840	23%
30	Limestone Road/Stanton	8,272	14,710	6,438	78%	184	40	7,360	23%
31	Newark Trolley	2,763	3,733	970	35%	713	26	18,538	6%
32	Wilmington Trolley	100,335	198,892	98,557	98%	2,078	26	54,028	19%
33	Wilmington/Newark	410,232	365,920	(44,312)	-11%	1,620	40	64,800	61%
34	Wilmington/Newark	31,176	73,992	42,816	137%	368	40	14,720	84%
35	Concord Pike/Shipley Road	118,523	124,957	6,434	5%	598	40	23,920	55%
36	Milltown Road/Faulkland Road	88,764	82,598	(6,166)	-7%	667	40	26,680	31%
38	Arden Express	0	11,505	11,505	N/A	46	40	1,840	44%
39	Chestnut Hill Road Express	0	39,052	39,052	N/A	230	40	9,200	41%
40	Glasgow/US Highway 40	199,074	219,803	20,729	10%	982	40	39,280	59%
41	US Highway 40 Express	18,155	52,417	34,262	189%	230	40	9,200	53%
42	Glasgow Express	13,716	42,356	28,640	209%	276	40	11,040	44%
54	Wilmington/Wilton	38,072	111,729	73,657	193%	927	40	37,080	29%
55	Wilmington/Old Baltimore Pike	4,488	96,741	92,253	2056%	936	40	37,440	35%
61	Namaans Road	0	25,891	25,891	N/A	602	26	15,652	19%
62	Churchmans Shuttle East	18,984	6,454	(12,530)	-66%	575	26	14,950	5%
63	Churchmans Shuttle West	21,984	7,445	(14,539)	-66%	575	26	14,950	4%
64	US Highway 40 Feeder	3,853	20,340	16,487	428%	598	26	15,548	13%
65	Newark/Elkton	3,923	19,014	15,091	385%	736	26	19,136	9%
301	Wilmington-Dover Intercounty	88,029	164,080	76,051	86%	736	47	34,592	56%
		7,334,072	7,802,915	468,843	6.4%				

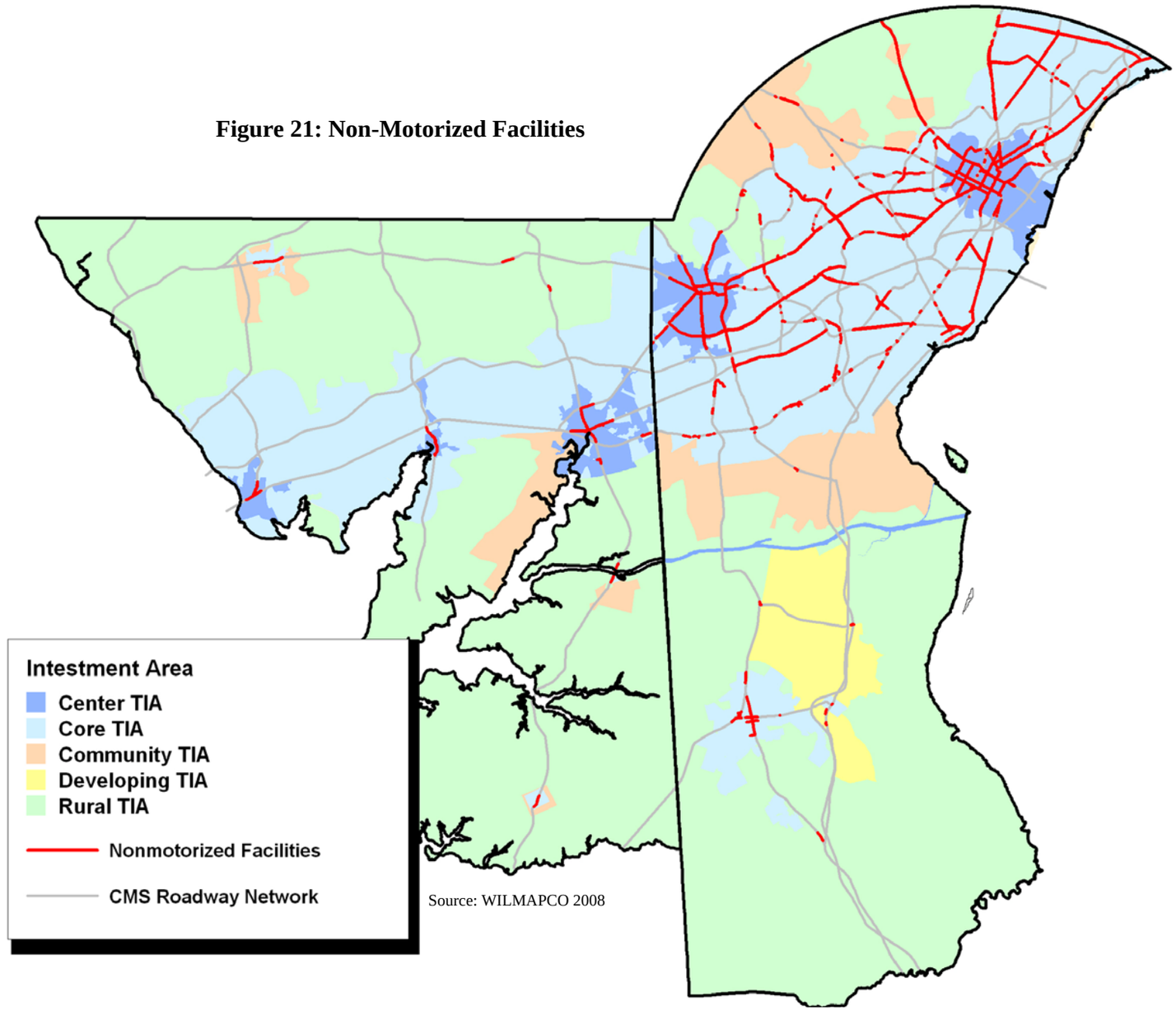
Non-Motorized Facilities

Figure 21 is an inventory of sidewalks, crosswalks, footpaths and dedicated bike lanes along the CMS network. Its inclusion into the CMS is important as it gives us insight into the location of these facilities and if they have been maximized as a method of congestion mitigation. Using these data, we can determine which corridors are lacking these facilities, making them targets for new project.

This dataset gives a concise view of where existing facilities are located along all roads associated with the CMS network. Out of a total of 854 miles of roadway (in both directions), 218 miles (25.5%) are covered with designated non-motorized facilities (note: Interstates, SR 1 and US 301 in MD are excluded due to bike/ped prohibitions). It also shows where concentrations of facilities are located. For instance, areas in Wilmington and Newark have very good coverage, as well as sections of SR 2 (Kirkwood Highway), SR 4 and SR 92 (Naamans Road). However, it is evident that many parts of the region have many "broken" links in the connectivity of bike/pedestrian facilities.

Data is also available for roads other than those currently in the CMS network for future analysis.

Figure 21: Non-Motorized Facilities



Intelligent Transportation Systems (ITS)

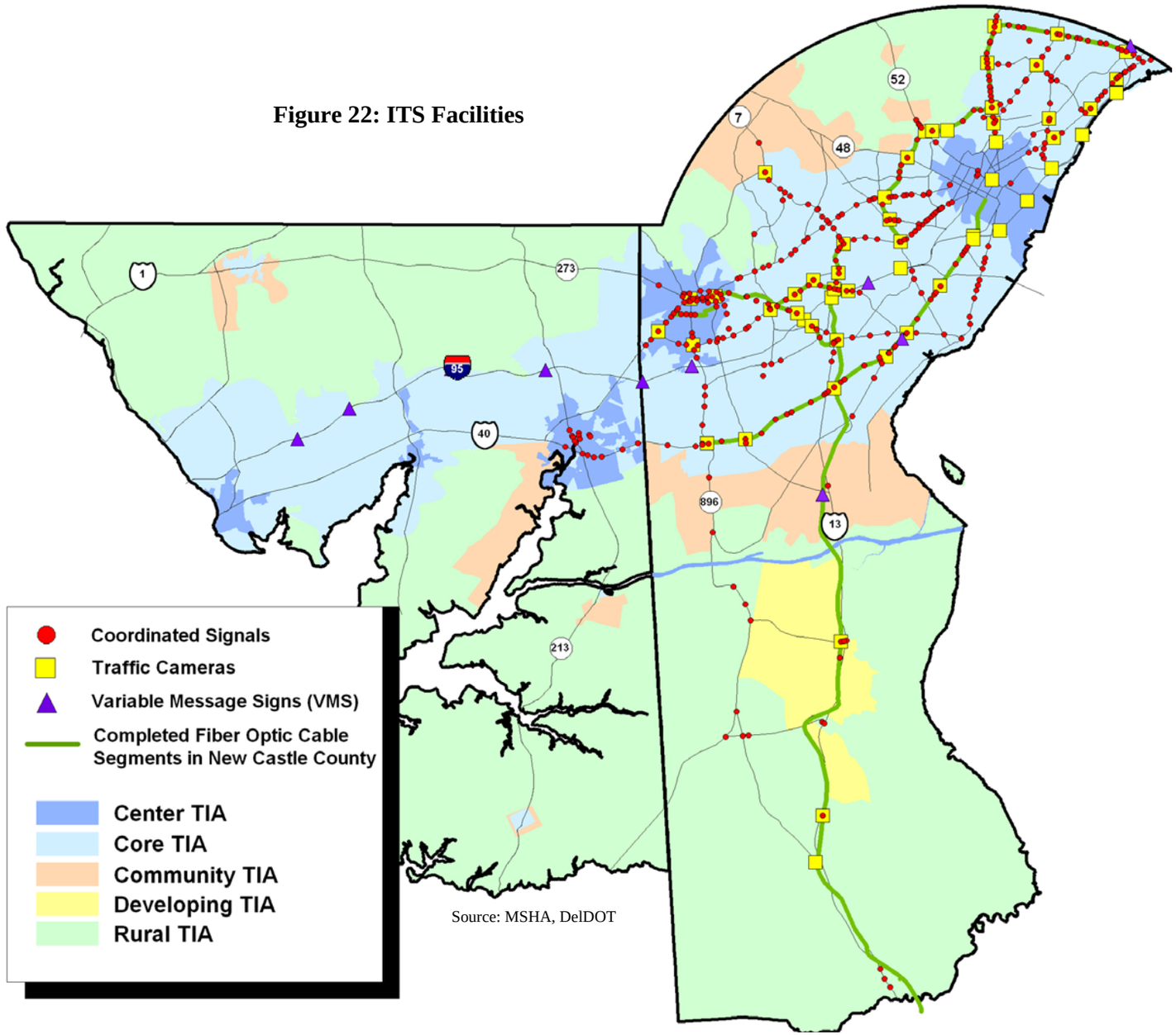
Looking closely at the congestion mitigation toolbox, ITS plays a vital role in the solution for traffic congestion. Many of the ITS strategies deal with the *management* of traffic capacity, not ways to increase it. As a result, most corridors have these strategies checked off as solutions to congestion. The value of ITS technology is in the fact that it can improve a roadway's performance without costly roadway expansion. It also has several methods to deal with non-recurring congestion. On average, every minute saved in response time to an incident saves up to five minutes in traffic delay.

Figure 22 shows the inventory of the major components of ITS in the WILMAPCO region as of March 2005. **Table 14** below reflects changes since the 2004 CMS Summary was produced.

Table 12: Changes to ITS Infrastructure

	October 2003	March 2005
Corrdinated Signals	370	367
Vairable Message Signs (VMS)	8	9
Traffic Cameras	50	54
Completed Fiber Optic Cable Installation (New Castle County)	58	74

Figure 22: ITS Facilities



Park & Ride / Park & Pool Lot Inventory

Figure 23 shows an inventory of all designated Park & Ride/ Park & Pool facilities in the region and their location relative to the Transportation Investment Areas (TIAs). Park & Rides are defined as locations where drivers can access transit or meet for a carpool or vanpool. Park and Pools are lots that are not currently served by transit, but are available for car/vanpools. Included in **Table 13** is a breakdown of spaces available and the average percent of capacity utilized since 2000. Over the period, 447 new park and ride spaces and three new locations have been added to the region. New Park & Ride locations have added 336 spaces while 111 additional spaces have been added due to expansion of existing locations. In order to get a more comprehensive usage analysis for the park and ride facilities, WILMAPCO began a work task in FY 2006 to collect annual usage data for New Castle County locations.

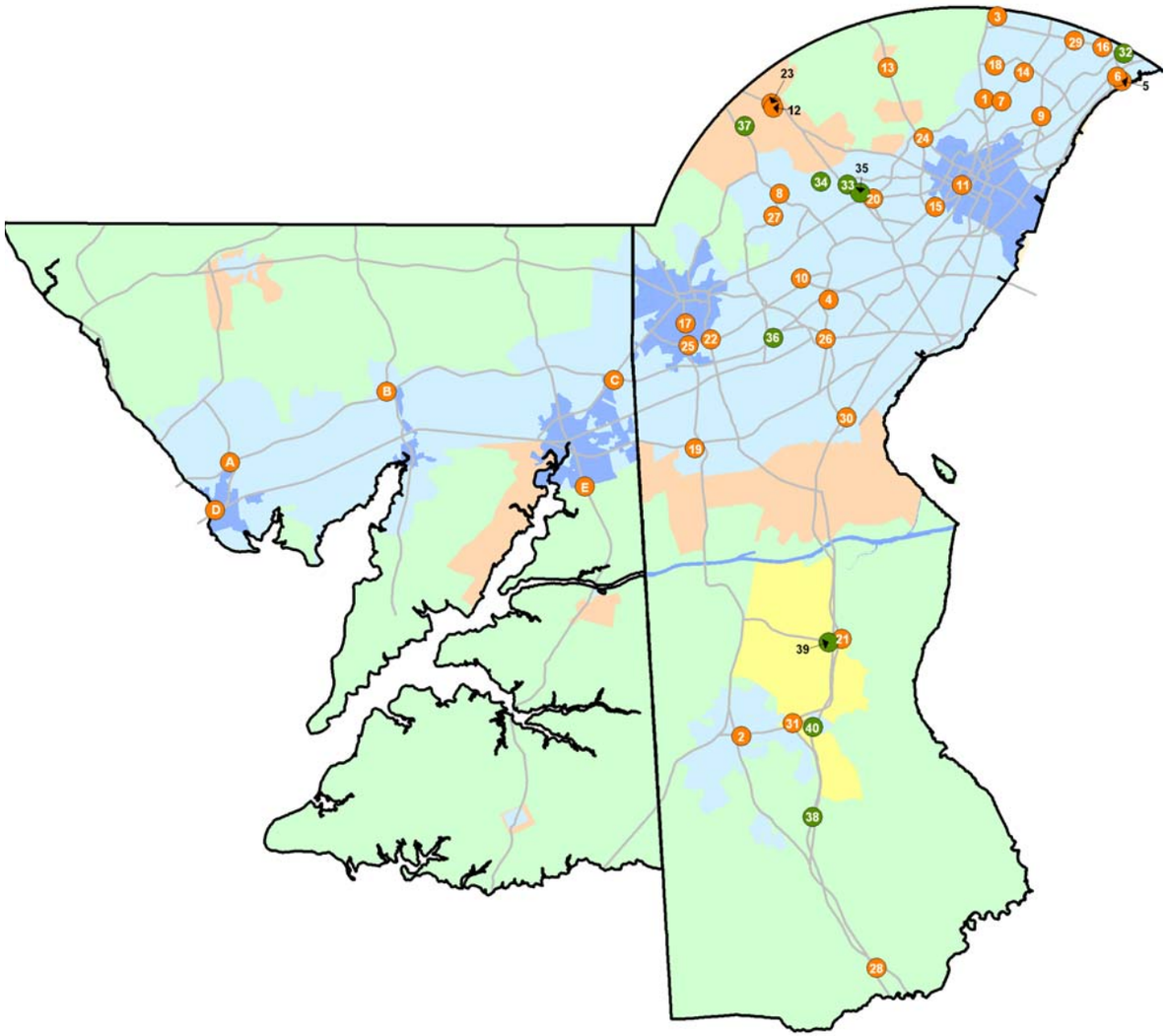


Table 13: Park & Ride / Park & Pool Facilities 2000-2008

		Location	2000			2008			Actual Change	Percent Change
		Cecil County	Spaces	Usage	Capacity	Spaces	Usage	Capacity	2000-2008	2000-2008
Park and Ride Locations	A	I-95 and MD 222 (Ext I 93)	40	26	65%	40	26	65%	0	0%
	B	I-95 and MD 272 (Ext I 100)	17	1	6%	17	7	38%	6	550%
	C	I-95 and MD 279 (Ext I 109)	25	2	8%	25	3	12%	1	50%
	D	Perryville Train Station	75	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	E	MD 213 at Frenchtown Rd	N/A	N/A	N/A	18	2	11%	N/A	N/A
		New Castle County								
	1	Aldersgate United Methodist Church	75	11	15%	75	59	78%	48	432%
	2	Bethesda United Methodist	20	5	25%	20	13	65%	8	160%
	3	Brandywine Town Center	500	6	1%	500	31	6%	25	417%
	4	Christiana Mall	200	160	80%	200	203	101%	43	27%
	5	Claymont Train Station	301	299	99%	577	398	69%	99	33%
	6	Claymont Overflow Parking	76	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	7	Concord Presbyterian Church	20	14	70%	20	37	182%	23	161%
	8	Faith Baptist Church	50	50	100%	50	33	66%	-17	-34%
	9	Faith Presbyterian Church	35	25	71%	35	42	120%	17	68%
	10	Fairplay Station	118	96	81%	138	136	99%	40	42%
	11	Fourth & Jackson	50	0	0%	50	103	205%	103	0%
	12	Hockessin Memorial Hall	20	14	70%	20	16	78%	2	11%
	13	Lower Brandywine Presbyterian	20	0	0%	20	4	20%	4	0%
	14	Lutheran Church of the Good Sheperd	35	0	0%	35	16	44%	16	0%
	15	Germay Drive at Aaron's Rental	50	15	30%	50	5	9%	-11	-70%
	16	Carpenter Station	18	0	0%	18	2	8%	2	0%
	17	Newark Rail Station	276	164	59%	285	280	98%	116	70%
	18	North Baptist Church	10	2	20%	10	3	30%	1	50%
	19	Peoples Plaza	50	45	90%	50	65	129%	20	43%
	20	Prices Corner	158	86	54%	158	61	38%	-26	-30%
	21	Boyds Corner	N/A	N/A	N/A	216	51	23%	N/A	N/A
	22	Scottfield PNR	20	N/A	N/A	20	N/A	N/A	N/A	N/A
	23	First Union Bank	40	44	110%	40	29	73%	-15	-34%
	24	Routes 52 and 100	30	18	60%	30	27	90%	9	50%
	25	DE 4 and DE 896	180	101	56%	180	100	56%	-1	-1%
	26	DE 273 and DE 7	187	52	28%	180	50	28%	-2	-4%
	27	Skyline United Methodist Church	40	12	30%	40	5	11%	-8	-63%
	28	SymrnaPark and Ride	20	0	0%	20	54	270%	54	0%
	29	Trinity Presbyterian Church	20	2	10%	20	16	80%	14	700%
	30	Tybouts Corner	117	17	15%	109	32	29%	15	85%
	31	Odessa Park and Ride	N/A	N/A	N/A	102	82	80%	N/A	N/A
Park and Pool Locations	32	Tri State Mall	150	22	15%	105	28	27%	6	27%
	33	Brandywine Springs Park	100	0	0%	100	4	4%	4	400%
	34	Delcastle Recreation	500	0	0%	500	31	6%	31	3100%
	35	Greenbank Park	150	0	0%	150	2	1%	2	200%
	36	I-95 Service Plaza	104	11	11%	104	72	69%	61	550%
	37	Lantana Square	20	2	10%	20	6	28%	4	175%
	38	Pine Tree Corner	15	12	80%	43	19	43%	7	54%
	39	Boyds Corner PNP	30	23	77%	27	42	154%	19	80%
	40	Route 13 and Wallace Road	20	0	0%	12	1	4%	1	100%
		Subtotal New Castle County	3,825			4,329				
		Subtotal Cecil County	157			100				
		Total WILMAPCO Region	3,982			4,429				

*Data for Cecil County Park and Pools is from 2006.

Transportation Management Activities

RideShare Delaware, which is funded through the Delaware Transit Corporation (DTC) is responsible for organizing and promoting various ride sharing and carpooling programs throughout the state of Delaware and Cecil County, Maryland. **Table 14** shows the Rideshare Delaware participant data and a breakdown of mode share that they currently use to get to work. Below in **Table 17** are some other statistics of

Table 14: Participation and Mode Split Data for Rideshare Delaware

New Castle	Total Participants	Carpool	Vanpool	Transit	Bike/ Walk	Drive Alone
2003	1,576	21.6%	1.1%	54.1%	2.2%	21.0%
2004	1,997	19.6%	4.3%	48.7%	2.3%	25.1%
2005	1,363	14.9%	0.5%	52.3%	3.1%	28.2%
2006	1,801	15.5%	0.5%	52.5%	3.2%	28.6%
2007	2,103	17.3%	0.5%	51.5%	3.3%	27.0%

Cecil County	Total Participants	Carpool	Vanpool	Transit	Bike/ Walk	Drive Alone
2003	65	26.2%	1.5%	29.2%	0.0%	43.1%
2004	88	22.7%	3.4%	22.7%	0.0%	51.1%
2005	68	20.6%	0.0%	23.6%	0.0%	51.5%
2006	92	29.3%	0.0%	21.7%	0.0%	46.5%
2007	104	30.8%	0.0%	20.2%	0.0%	46.2%

Other RideShare Delaware Statistics:

37 New Castle County Employers listed in the RideShare Program indicate that they offer commuter some form of benefits as of 4/4/2008.

RideShare Delaware program statistics

Year	Avg. home to work distance	Avg. carpool
2005	18.14	10.0
2006	18.3	10.3
2007	18.85	17.8

Future Actions/Next Steps

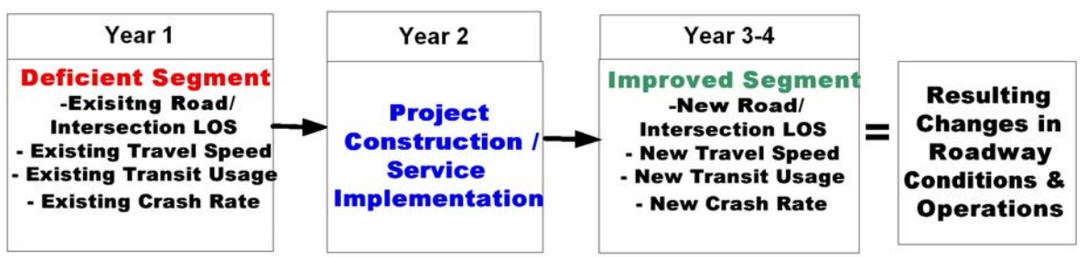
The CMS is a document which is constantly being improved as better data becomes available. Over the years, a pair of recommendations have been made by members of the CMS subcommittee for inclusion in the document.

- Incorporate Crash data into the system performance. Now that there is a full understanding of the capabilities of crash data, the thought of including it as part of the congested corridor identification portion of the document.

- Work with state DOTs to better coordinate data needed to conduct better analysis of completed congestion mitigation projects and the effects (positive or negative) it had. Using travel time, volume/capacity, crash statistics and other data sources, begin to measure more accurately true benefits of transportation improvements. For example, as part of the CMP, a document should be created to review recently competed projects to gauge which ones have had a greater impact on reducing congestion.

Once this analysis is completed, comparisons can be made on the effectiveness of various congestion mitigation types (or a combination of) that give the most benefit vs. the cost of the project.

Figure 24: Basic Project Effectiveness Flowchart



Other UPWP Data Collection Activities

Each year, the Unified Planning Work Program (UPWP) outlines numerous types of data for use in the CMS document. The following items below are being addressed in the FY 2010 UPWP that will have direct benefits to the development of the CMS.

- **Travel Time Data Collection:** Runs will continue in New Castle County (funded through DelDOT) and in Cecil County. The travel time runs will collect travel speed and delay data on major roadways in our region and will serve as a primary input into the WILMAPCO Congestion Management System (CMS).

- **Park & Ride/Park & Pool Usage Statistics:** As part of our partnership with the University of Delaware, all park & ride/pool locations in the New Castle will be counted twice annually (March and October) to determine the average daily usage of these facilities.

- **Intersection turning movement counts:** This task will include turning movement counts (vehicle volumes at identified intersections during peak morning and evening periods to ascertain overall intersection level of service ratings) and other traffic data collection, as needs are identified. The data collected will serve as input into the WILMAPCO Congestion Management System (CMS) and other analyses. For a detailed list of intersection to be counted and methodology used in FY 2009, see Appendix C.

This page has been intentionally left blank

Appendix

Appendix A: Glossary

Appendix B: Intersection Count Prioritization – New Castle County

Appendix C: Crash Trends in the WILMAPCO Region

Appendix D: WILMAPCO CMS Resolution

Appendix A: Glossary

AADT or Annual Average Daily Traffic – The estimate of typical daily traffic on a road segment for all days of the week, Sunday through Saturday, over the period of one year.

Access – The facilities and services that make it possible to get to any destination, measured by the availability of physical connections (roads, sidewalks, etc.), travel options, ease of movement, and nearness of destinations.

CMS or Congestion Management System - A process for evaluating the level of congestion on the region's transportation system, and for identifying strategies which will reduce this congestion.

Conformity – An assessment of the compliance of any transportation plan, program, or project with air quality improvement plans. The conformity process is defined by the Clean Air Act.

CTP or Capital Transportation Program - The program devised by the state of Delaware to determine and prioritize transportation capital investments. These needs and cost estimates are updated annually in the program. This process is coordinated with WILMAPCO in the development of its TIP, or Transportation Improvement Program.

CTP or Consolidated Transportation Program – The program devised by the state of Maryland to determine and prioritize transportation capital investments. These needs and cost estimates are updated annually in the program. This process is coordinated with WILMAPCO in the development of its TIP, or Transportation Improvement Program.

DelDOT or Delaware Department of Transportation - DelDOT provides the transportation network throughout Delaware, including design, construction and maintenance of roads and bridges, highway operations and operation of DART First State.

DTC or Delaware Transit Corporation – Operates “DART First State”, statewide multimodal and specialized transportation services throughout the State of Delaware.

Demographic Trends - Trends regarding population, such as size, growth, density, distribution and vital statistics.

FHWA or Federal Highway Administration – The agency of the U. S. Department of Transportation that funds surface transportation planning and programs, primarily highways.

FTA or Federal Transit Administration – The agency of the U.S. Department of Transportation that funds surface transportation planning and programs, primarily transit.

Functional Classification – A hierarchical system of categorizing streets and roads on the basis of the way they are used, the volumes of traffic they carry, and the way they function within the context of the overall transportation system.

FY or Fiscal Year – WILMAPCO’s yearly accounting period begins July 1 and ends the following June 30. Fiscal years are denoted by the calendar year in which they end. The federal fiscal year is October 1-September 30. The MDOT and DelDOT fiscal year runs concurrent with WILMAPCO’s.

GIS or Geographic Information Systems – GIS is a system of computer software, hardware and data to help manipulate, analyze and present information that is tied to a spatial location.

Greenways - Interconnecting paths designed to accommodate bicycle and pedestrian uses. Greenways link our natural areas and make them accessible to our communities. The Lower Susquehanna Greenway, the East Coast Greenway, and the Delaware Coastal Heritage Greenway are examples.

Infrastructure - The physical structure of a community, such as roads, sidewalks, sewers, rail lines, and bridges.

Intelligent Transportation Systems (ITS) - Technologies that improve the management and efficiency of our transportation system, such as electronic toll collection, timed traffic signals and on-board navigation systems.

Intermodal – Those issues or activities which involve or affect more than one mode of transportation, including transportation connections, choices, cooperation and coordination of various modes. Also known as "multimodal". The term "mode" is used to refer to and to distinguish from each other the various forms of transportation, such as automobile, transit, ship, bicycle and walking.

Land Use – Activities and structures on the land, such as housing, shopping centers, farms, and office buildings.

MdTA or Maryland Transportation Authority - The Authority is responsible for managing, operating and improving the State's toll facilities.

MDOT or Maryland Department of Transportation - The Department provides Maryland citizens with a transportation network encompassing aviation, highway, marine, mass transit, motor vehicle, railroad and toll facilities.

Metropolitan Planning Organization (MPO) – The organization required by the federal government, designated by states, and operated by local officials for developing transportation programs in urban areas of 50,000 or more people. The MPO for our region is WILMAPCO.

MTA or Maryland Mass Transit Administration - The MTA provides a network of transit, rail and freight services.

Mobility – The movement of people or goods throughout our communities and across the region. Mobility is measured in terms of travel time, comfort, convenience, safety and cost.

Park-and-Ride – Lots in outlying areas where people can park and then use transit, carpool, or vanpool for the remainder of their trip.

Pipeline Process – Used by DelDOT to keep track of projects and to help move them from idea state to implementation.

ROW or Right of Way Acquisition – An abbreviation used in the WILMAPCO TIP.

Regional Transportation Plan (RTP)– A blueprint to guide the region's transportation for the next 25 years. Federal law requires the RTP to be updated every four years (in areas that do not meet air quality standards) to ensure that the plan remains current and effective at achieving the goals. Formerly known as the Metropolitan Transportation Plan (MTP).

SAFETEA-LU - Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users. The second, and most recent, transportation re-authorization legislation. Enacted into law in July of 2005, the bill authorizes $284 billion of federal funding through 2009. Replaces ISTEA and TEA-21.

SHA or (Maryland) State Highway Administration - As part of the Maryland Department of Transportation (MDOT), SHA is responsible for more than 16,000 lane miles of interstate, primary and secondary roads and more than 2,500 bridges.

Special Use Lanes – Lanes on heavily congested roadways that are used exclusively by carpools, vanpools, buses or any vehicle that transports multiple passengers; also called High Occupancy Vehicle (HOV) lanes.

TAC or Technical Advisory Committee – An advisory committee to the Council that represents federal, state, and local planning agencies in Delaware and Maryland. The TAC is responsible for overseeing the technical work of WILMAPCO staff and developing recommendations to the Council on projects and programs.

TEA-21 – The acronym for the 1998 federal Transportation Equity Act for the 21st Century. Replaced ISTEA, but continued and expanded ISTEA's restructured programs for all modes of transportation. It provides guidelines to authorize federal funding of transportation projects.

TIP or Transportation Improvement Program – A program that lists all federally funded projects and services in the WILMAPCO region, covering a period of four years. It is developed annually in cooperation with MDOT, DelDOT and affected transit operators.

Traffic Calming – Design techniques to decrease the speed and volume of vehicle traffic on streets, while still providing vehicle circulation in an area. Techniques include speed bumps, landscaping and roundabouts.

Transit – Passenger service provided to the public along established routes. Paratransit is a variety of smaller, often flexibly scheduled and routed transit services serving the needs of persons that standard transit would serve with difficulty or not at all.

Transportation Investment Areas (TIA) – Areas for future investments in transportation which will match transportation investments to land use needs.

UPWP or Unified Planning Work Program – A plan, developed by WILMAPCO, that **g**uides all transportation planning activities in the WILMAPCO region.

VMT or Vehicle Miles of Travel – A standard areawide measure of travel activity, calculated by multiplying average trip length by the total number of trips.

Wilmington Area Planning Council (WILMAPCO) – The MPO for Cecil County, Maryland and New Castle County, Delaware.

Appendix B– Intersection Count Prioritization – New Castle County

In order to keep an up to date database of key intersection along the CMS network, WILMAPCO has increased funding to collect Level of Service data on several locations on an annual basis. Intersections will be counted based on criteria from the DOT Traffic Impact Study (TIS) policy. Counts should occur from 6-9am and from 4-6pm on a Tuesday, Wednesday or Thursday. Counts would be submitted to DelDOT for LOS calculation. In addition, counts of pedestrians and heavy trucks would also be completed. Also, separate counts of right-turn-on-red counts would be collected (as opposed to right-turn movements). Counts will be current conditions only. No factoring for committed developments will be calculated. LOS calculations would be performed by DelDOT staff. Below is the criteria used on prioritizing the candidate intersections for consideration. For more details, please refer to the image of the top 50 locations on page A-4 and the table showing the scoring results on page A-5.

Criteria used:

- To qualify, counts will be conducted on intersection with LOS data more than **7** years old or no counts available

1. Intersections along the designated CMS network/currently congested area:
   - Intersection within 2008 CMS corridor (2 pts.)
   - Intersection outside of CMS corridor, but along a congested segment (Showing LOS E or F in one of the CMS performance measures: Road/Intersection volume capacity ratio or roadway travel speeds) (1 pt.)
   - Intersection not within any of the above location types (0 pts.)

2. Functional Classification of intersecting roads:
   - Principal Arterial vs. Principal Arterial (5 pts.)
   - Principal Arterial vs. Minor Arterial (4 pts.)
   - Minor Arterial vs. Minor Arterial (3 pts.)
   - Principal Arterial vs. Major Collector (2 pts.)
   - Minor Arterial vs. Major Collector (1 pt.)
   - All others (0 pts.)

3. Average Annual Daily Traffic (AADT) of the primary roadway of the intersection:
   - Greater than 60,000 (4 pts.)
   - 40,000 to 60,000 (3 pts.)
   - 20,000 to 40,000 (2 pts.)
   - 10,000 to 20,000 (1 pt.)
   - Less than 10,000 (0 pts.)

4. Located within area of possible upcoming development outside of the limits of the TIS required intersections:
   - Intersection near proposed development (2 pts.)
   - Intersection not located near proposed development (0 pts.)

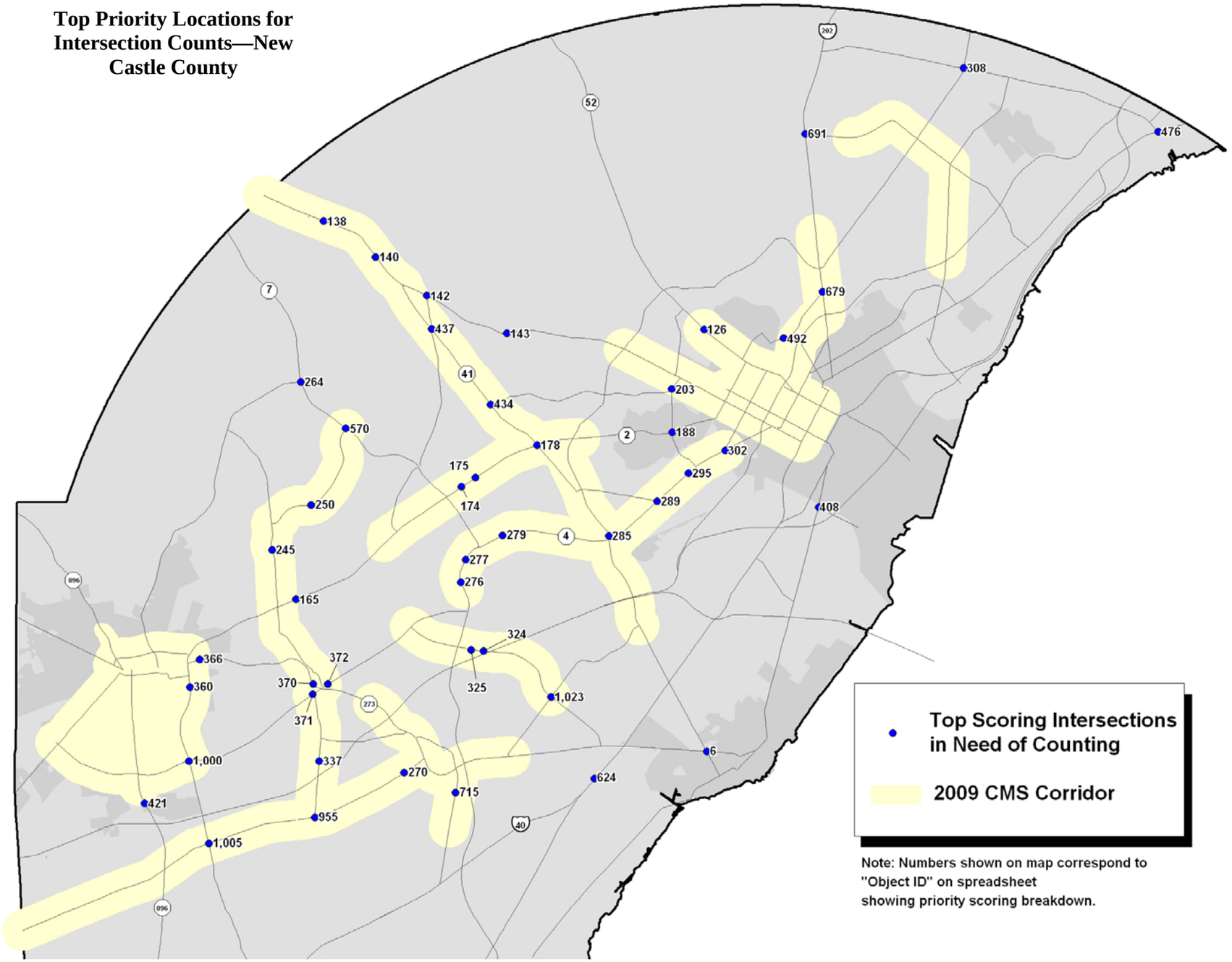
Appendix B– Intersection Count Prioritization – New Castle County (cont.)

Top Priority Locations for Intersection Counts—New Castle County

OBJECT ID	Primary Rd.	Secondary Rd.	CMS Score	Funct. Class Score	AADT Score	Development Activity	Total	Last TIS (If Any)	AM LOS (If any)	PM LOS (If any)
371	SR 4	SALEM CHURCH RD	2	4	2	2	10	2001	D	D
178	SR 2	SR 41	2	4	3	0	9	2001	D	D
1005	SR 72	OLD BALT PIKE	2	3	2	2	9	2001	C	C
570	SR 7	LINDEN HILL RD	2	4	2	0	8	2001	C	
679	US 202	AUGUSTINE CUTOFF	2	4	2	0	8	1999	E	C
955	OLD BALTIMORE PIKE	SALEM CHURCH/SALEM WOODS	2	3	1	2	8	2000	E	F
1000	SR 4	SR 72	2	4	2	0	8	2001	D	C
264	SR 7	SR 72	1	4	2	0	7	2001	C	C
285	JUSTIS ST	MARSHALL ST	2	3	2	0	7			
302	MARYLAND AVE	LATIMER ST	2	4	1	0	7			
308	SR 92	FOULK RD	1	4	2	0	7	2000	C	D
372	SR 273	SR 4 RAMP @ B OF A	2	4	1	0	7			
437	SR 41	LOVEVILLE RD	2	4	1	0	7	1992	C	C
691	US 202	SILVERSIDE RD	0	4	3	0	7	1997	B	D
1023	SR 58	AIPORT RD	2	3	2	0	7	1999	F	F
6	SR 141	SR 273	1	4	1	0	6	2001		B
126	SR 52	RISING SUN LANE	2	2	2	0	6	1999	E	F
138	SR 41	YORKLYN RD	2	2	2	0	6	1999	F	F
140	SR 41	BRACKENVILLE RD	2	2	2	0	6	1990	B	B
142	SR 48	LOVEVILLE RD	1	4	1	0	6			
188	SR 2	DUPONT RD	0	4	2	0	6			
203	Faulkland Rd.	DUPONT RD	2	3	1	0	6			
250	LINDEN HILL RD	PIKE CREEK RD	2	1	1	2	6			
270	OLD BALT PIKE	TREVETT BLVD	2	0	2	2	6	2001	D	B
279	SR 4	KIAMENSI RD	2	2	2	0	6			
324	Churchmans Rd.	I-95 SB RAMP	2	0	2	2	6			
325	Churchmans Rd.	DEL TECH	2	0	2	2	6	2001	C	C
366	SR 273	MARROWS RD	2	2	2	0	6	1997	C	C
370	SR 273	SALEM CHURCH/SR 4 RAMP	2	1	1	2	6			
421	SR 896	WELSH TRACT RD	2	2	2	0	6			
476	PHILADELPHIA PIKE	SR 92	1	4	1	0	6	2001		
492	18TH ST	AUGUSTINE CUTOFF	2	3	1	0	6	1999	C	E
624	US 13	SECOND AVE	0	0	4	2	6	1997	A	
715	SR 7	CHRISTIANA MEADOWS	2	0	2	2	6	1999	C	F
143	SR 48	HERCULES RD	1	2	2	0	5	1989	D	C
165	SR 2	BREWSTER DR	2	0	3	0	5	1995	B	C
174	SR 2	KIRKWOOD PLAZA	2	0	3	0	5			
175	SR 2	FARRAND DR	2	0	3	0	5			
245	Henderson Rd.	POLLY DRUMMOND HILL RD	2	1	2	0	5			
276	SR 7	OLD STANTON RD	2	0	3	0	5			
277	SR 7	DEL PARK ENT	2	0	3	0	5			
289	MARYLAND AVE	BOXWOOD AVE	2	2	1	0	5			
295	MARYLAND AVE	DUPONT RD	2	2	1	0	5			
337	SALEM CHURCH RD	GENDER RD	2	0	1	2	5	2000	B	C
360	SR 72	Wyoming Rd.	2	1	2	0	5			
408	NEW CASTLE AVE	TERMINAL AVE	0	4	1	0	5			
434	SR 41	FAULKLAND RD	2	2	1	0	5			
360	SR 72	Wyoming Rd.	2	1	2	0	5			
408	NEW CASTLE AVE	TERMINAL AVE	0	4	1	0	5			
434	SR 41	FAULKLAND RD	2	2	1	0	5			

Appendix B– Intersection Count Prioritization – New Castle County (cont.)

Top Priority Locations for Intersection Counts—New Castle County



Appendix C: Crash Trends

New this year to the CMS is the incorporation of crash statistics. According to the FHWA, roughly 1/4 of all congestion is caused by traffic incidents. Automobile crashes can dramatically change the performance of the roadway, affecting both travel speeds and throughput volumes. These incidents, defined as "non-recurring" congestion, contribute significantly to travel time delays. Accidents significantly reduce remaining capacity on freeway segments, well beyond the physical blockage of lanes. This research found that an accident blocking one of three freeway lanes resulted in a mean capacity reduction of 63 percent, while an accident blocking two of three freeway lanes resulted in a mean capacity reduction of 77 percent[1]; Even minor lane-blocking incidents can have significant impacts on traffic if they are not removed quickly. But their impacts are accentuated during peak traffic hours. If a lane is blocked when traffic flow is at or near the capacity of a facility, the queue of traffic that accumulates behind the incident will not dissipate after the incident is removed until the traffic flow into the queue decreases—in other words, until the peak period ends. Thus a standing queue of traffic may exist for several hours, depending on when the incident occurred, how many lanes were blocked, and how long the blockage lasted. In actuality, total crashes and crash rates have actually *fallen* over the past several years.

Figure 10: Annual Crash Rate Trends 2000-2007

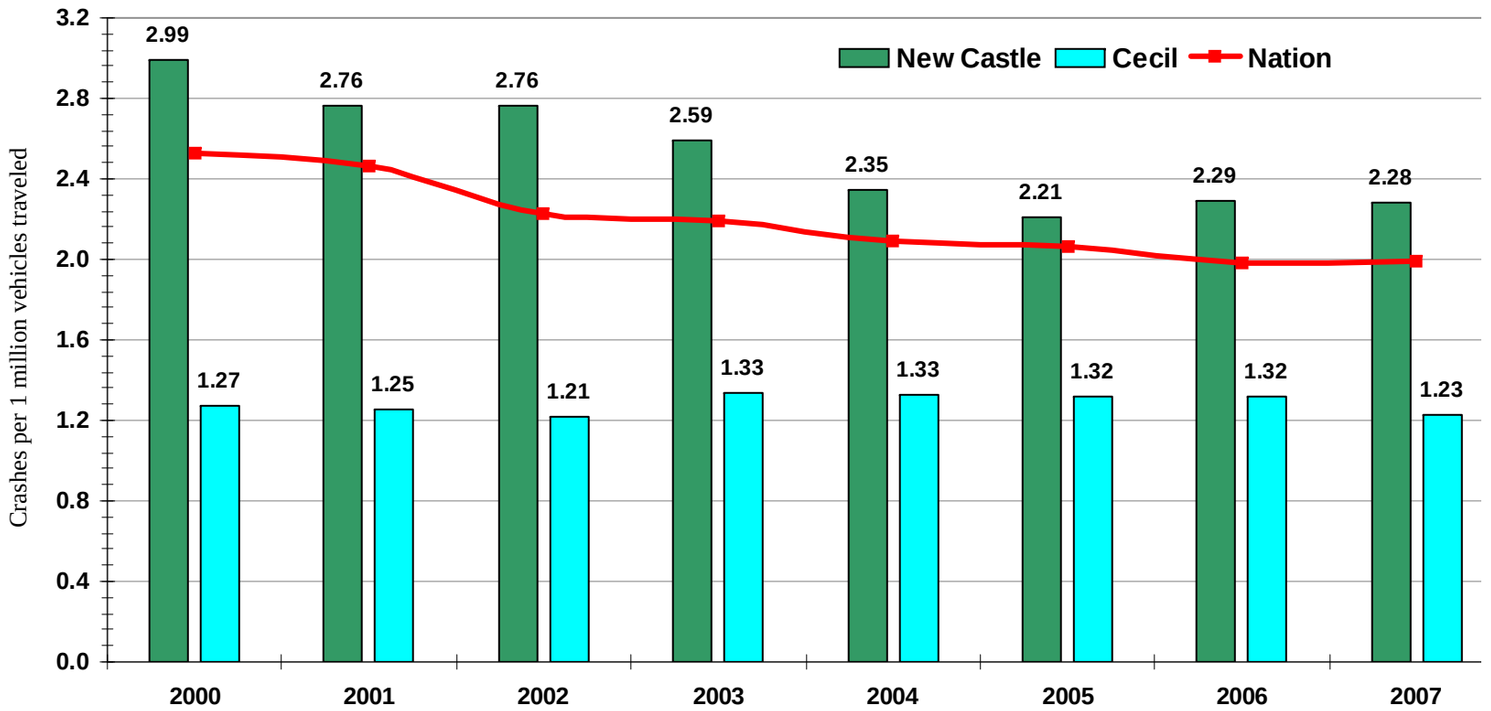


Figure 10: Annual Crash Trends by County 2000-2007

Year	Total Crashes		Fatalities	
	New Castle	Cecil	New Castle	Cecil
2000	15,129	1,391	66	17
2001	14,514	1,461	73	21
2002	14,744	1,473	62	27
2003	14,228	1,642	80	23
2004	12,921	1,575	59	25
2005	12,347	1,652	64	21
2006	12,698	1,650	63	23
2007	12,647	1,702	58	22

Source: DelDOT, Delaware State Police,MDOT, Maryland SHA

1. American Society of Engineers, 2003

Appendix D– WILMAPCO CMS Resolution

Wilmington Area Planning Council

850 Library Avenue, Suite 100
Newark, Delaware 19711
302-737-6205; Fax 302-737-9584
From Cecil County: 888-808-7088
e-mail: wilmapco@wilmapco.org
web site: www.wilmapco.org

RESOLUTION (DRAFT)

BY THE WILMINGTON AREA PLANNING COUNCIL (WILMAPCO) TO ADOPT THE WILMAPCO 2009 CONGESTION MANAGEMENT SYSTEM (CMS) SUMMARY

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

WHEREAS, the United States Department of Transportation (USDOT) Regulations of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) Metropolitan Planning Requirements require that MPOs with over 200,000 population, in cooperation with participants in the planning process, produce a document to satisfy the Congestion Management Process (CMP); and

WHEREAS, a CMS Subcommittee of the Technical Advisory Committee was formed in November 2000, following the WILMAPCO Council's recommendation, and met on a regular basis to develop the 2009 WILMAPCO CMS Summary; and

WHEREAS, the WILMAPCO CMS is a systematic process for managing congestion that provides information on transportation system performance and on alternative strategies for alleviating congestion and enhancing the mobility of persons and goods to levels that meet State and local needs; and

WHEREAS, the WILMAPCO CMS includes methods to monitor and evaluate the performance of the multimodal transportation system, identify the causes of congestion, identify and evaluate alternative actions, provide information supporting the implementation of actions, and evaluate the efficiency and effectiveness of implemented actions; and

WHEREAS, the WILMAPCO CMS provides an appropriate analysis of all reasonable (including multimodal) travel demand reduction and operational management strategies for the corridor in which a project that will result in a significant increase in capacity for single occupant vehicles (adding general purpose lanes to an existing highway or constructing a new highway) is proposed;

NOW, THEREFORE, BE IT RESOLVED that the Wilmington Area Planning Council adopts the WILMAPCO 2009 Congestion Management System Summary, as presented.

_____ _____

Date: Stephen Kingsberry, Chairperson
Wilmington Area Planning Council

WILMAPCO

Partners with you in transportation planning