

June 12, 2008

Office of Highway Policy Information
Federal Highway Administration
400 Seventh Street, S.W.
Washington, D.C. 20590
Attention: HPPI-20, Room 3306

RE: Delaware HPMS 2007

Dear Sir/Madam:

We are submitting herewith the 2007 HPMS Data in accordance with the reporting requirements.

Area and Population

The 2007 HPMS information reflects the 2000-Census Urban Boundaries. The Land area and Population are presented below:

Location	Area (Square Miles)	2007 Population
Middletown, DE	3.5	6,664
Dover, DE	58.6	72,052
Georgetown, DE	3.6	8,410
Lewes, DE	17.3	18,102
Long Neck, DE	11.8	9,802
Milford, DE - Kent	5.5	5,724
Milford, DE - Sussex	6.3	8,562
Ocean View, DE	10.4	9,724
Philadelphia, PA--NJ--DE--MD	188.2	483,061
Salisbury, MD--DE	0.6	1,245
Seaford, DE	15.6	23,134
Smyrna, DE - Kent	6.0	15,657
Smyrna, DE - New Castle	1.1	70
Rural	1,625.50	201,697
Total Urban	328.50	662,207
Total Rural	1,625.50	201,697
Total State	1954	863,904

The Land Area was calculated in accordance with HPMS guidelines. This year’s calculations correctly match the 2000 Census measurements of Delaware’s total land area of 1954 square miles.

Based on the 2000 Census data, the Delaware Population Consortium provided the following population data and forecasts by each county of the State.

County	Area (Square Miles)	Population			
		2000 Census	2005	2006	2007
New Castle	427	500,265	523,016	525,578	529,590
Kent	589	126,697	143,969	147,587	150,516
Sussex	938	156,638	176,555	180,282	183,798
Total State	1954	783,600	843,540	853,447	863,904

Source: DE Population Consortium, 2007

2007 Delaware Certification Public Mileage

On May 15, 2008, Delaware reported 2007 Certified Public Miles to the FHWA. There were six thousand two hundred and forty-three (6,242.65) miles of public roadways in Delaware.

The following table shows the comparison of 2007 and 2006 mileage by the type of roadway under jurisdictions. There was a total increase of 64.40 miles as shown below.

2006 - 2007 Mileage Table			
Type	2006	2007	Change
Road Inventory	3,900.65	3898.22	-2.43
Suburban	1,380.30	1,416.76	36.46
Municipal	741.63	769.22	27.59
DOD	41.00	41.00	0
ACE	69.99	69.99	0
Delaware Parks & Recreation	33.26	36.04	2.78
U.S. Fish and Wildlife Service	11.42	11.42	0
Total	6,178.25	6,242.65	64.40

Road Inventory Mileage

In 2007 there was no major new construction by DelDOT.

A segment of 0.37 miles of Urban Collector was added in Dover along with a few sections (**non Federal funded roads**.) Some of the local roads which are under DelDOT jurisdiction and have very limited public use are reviewed annually and at the request of adjacent property owners and users, are transferred to private, thereby saving the public annual cost of maintenance. DelDOT transferred 2.27 miles of functionally local roads from public to private.

The above mentioned changes account for 2.43 miles reduction of DelDOT Roads Inventory.

For the past three years the road inventory information gathered for the HPMS was only for new sections and significant physical and alignment changes during the calendar year.

At present, DelDOT is under a hiring freeze due to fiscal budget restrain, we are trying to accomplish only the high priorities required for ongoing projects.

In 2007 our office has accomplished and updated 11% of the Road Inventory, which tops 440 miles or nearly 6% of the Delaware Certified Miles. .

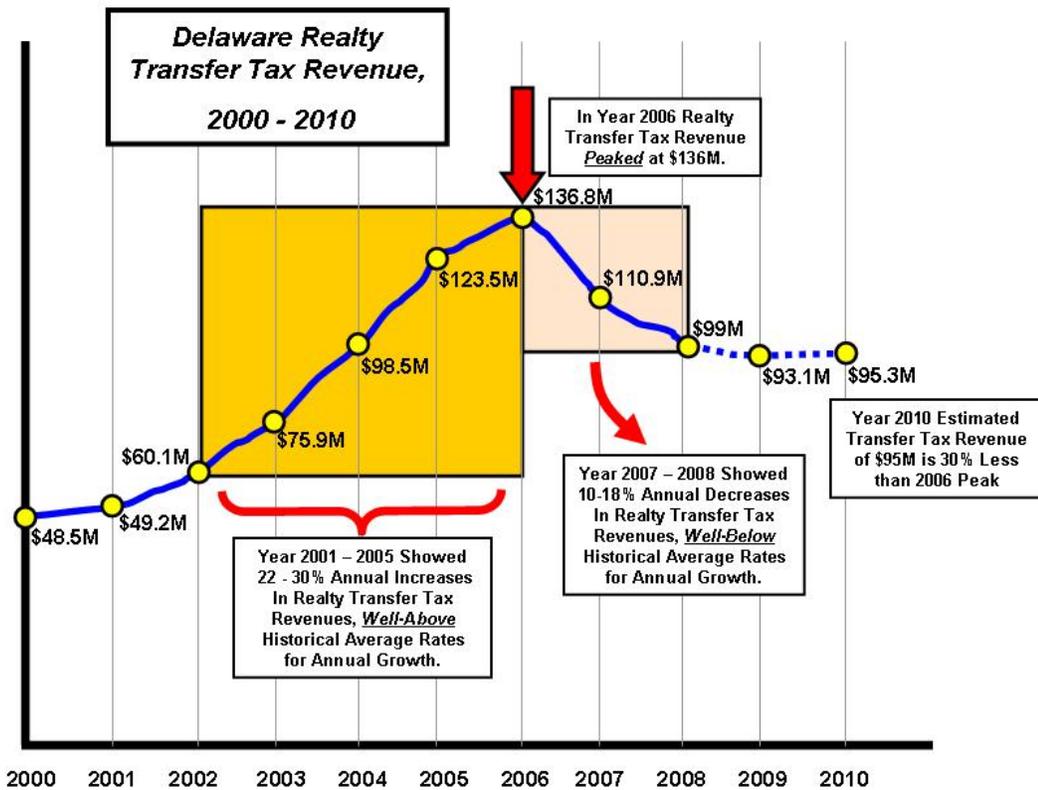
Suburban Street Mileage

There was an increase of 36.46 miles in the Suburban Street Mileage. In the HPMS Universe, county, rural and urban areas group the Suburban street mileage by number of lanes as well as by Direction (1-way, 2-way). All of this mileage is local, and traffic counts are made every five years on limited sections for review.

Suburban street mileage funds for road improvements are distributed based on electoral districts.

Realty Transfer Tax Gross State Collections

Delaware has a Realty Transfer Tax (which is 3% of the sale price.) The buyer and the seller pay 1.5% each. Depending on the location of property, the Realty Transfer Tax is split between the state and the municipality, or the state and the county.



Source: Delaware Economic and Financial Advisory Council

One of the major sources of revenue for Delaware municipalities is the property transfer tax. As the above chart shows, the trend seems to be in reverse at this time.

Due to subprime mortgage debacle around the country, Delaware municipalities, as everywhere, are also facing a decline in the value of residential houses.

When purchasing residential property, buyers often consider the neighborhood and their commuting times to work; others are more concerned about the state they live in. To evaluate and compare the existing residential conditions by state, [Dynamic Maps of Nonprime Mortgage](#) is a good source.

[Federal Reserve](#) historical data shows an easy access to credit provided by banks has contributed to the current economic crisis.

Municipal Street Mileage

There are 57 municipalities in Delaware. The increasing population and annexations of the adjoining lands by municipalities accounted for the trend in growth. The Municipal-Aid Fund is used for

cash distribution to municipalities based on street mileage and population. As reported herein, there was an increase of 27.59 miles of municipal street mileage in 2007.

In the HPMS Universe, county, rural and urban areas group the Municipal street mileage by number of lanes as well as by Direction (1-way, 2-way). More than 99% of this mileage is local and traffic counts are made every five years on limited sections for review.

DelDOT maintains and updates the road inventory mileage of all municipalities. Other relevant information on municipalities is presented below.

The State Legislature appropriates a portion of the Delaware Transportation Trust Fund under the Capital Improvement Program to qualifying municipalities. The money is to be used for the maintenance of city maintained streets as stipulated in Title 30, Chapter 51, Subchapter III of the Delaware Code.

The distribution is based on 2 factors:

Population: As certified by the U.S. Bureau of Census, Delaware Population Consortium, or a prescribed enumeration (40% of distribution)

Mileage: As verified by the Data Collection Unit (60% of distribution)

In FY 2007-2008 the amount of funding was \$5.5 million, which was a reduction from the previous year. Annually, correspondence is mailed from my office on April 15th to all municipalities requesting any updates for the next Fiscal Year. Responses are to be returned to my office on or before May 15th.

Verification of the municipal road mileage is conducted in conjunction with the normal road inventory data collection. Upon completion of gathering all required data, the calculation of funding to be distributed to each municipality is completed and forwarded to the State Treasurer's Office for payment.

A "Municipal Officials" database is maintained and continually updated utilizing various resources. It also requires the constant monitoring of Municipal Elections as they occur throughout the year.

Historical data is available on the DelDOT website. The FY 2008-2009 Program will be posted after July 1, 2008. Also a complete guideline for the Municipal Street Aid Funding may be found on the State of Delaware Office of Auditor of Accounts web site.

Contact Information:

Steven (Steve) Smith

MSA Program Compliance Coordinator

Planning/Mapping Section

Ph. (302) 760-2456

Fax: (302) 739-6371

steven.smith@state.de.us

Electronic Red Light Safety Program (ERLSP)

Based on positive safety-driven outcomes reported in the January 2008 ERLSP report to the Bond Bill Committee of the 144th Delaware General Assembly, the Delaware Department of Transportation is polling the most recent available crash data to identify ten additional intersections where ERLSP technology will be deployed to lower angle crash rates. This process is expected to last through calendar year 2008, including equipment installation at the identified intersections. Once the new locations are identified and equipment installed, a total of 25 intersections will be under video enforcement, statewide.

Over 231,000 red light running violations have been recorded to date. Angle collisions due to red light running have been reduced at 14 out of 20 intersections as a result of the ERLSP; 14 out of 20 had fewer rear-end crashes as well. The ERLSP technology currently in use is owned and maintained by Nestor Traffic Systems (NTS). By the end of June, negotiations for extending the agreement will be completed. The costs under the extended contract will lower the operating cost of the ERLSP by approximately 15%.

The fine for a violation remains \$75, levied to the registered owner of the vehicle. However, the 143rd General Assembly introduced and passed a bill changing that would shift the fine to the driver of the vehicle, rather than the owner. This legislation added a \$37.50 Transportation Trust Fund surcharge to the \$75 statutory fine, and also increased Court costs for those found responsible by adding a \$10.00 surcharge for Court security and a \$1.00 surcharge for system support of the DelJIS organization. The cost and dividend structures paid to the municipalities and employer costs paid to the Delaware State Police remain the same as they were in the Pilot portion of the Program.

Electronic Red Light Safety Program

The ERLSP Contact Information:
Brett Taylor, Financial & Legislative Policy Advisor
DelDOT
Office of the Secretary
800 Bay Road
Dover DE 19903
Brett.Taylor@state.de.us
(302) 760-2492

Department of Defense Mileage (DOD)

During 2007 there was no change in miles under the jurisdiction of DOD mileage; we are reporting 41 miles for the year. This mileage exists inside Dover Air Force Base, and conforms to the guidelines of public road mileage. At the entrance of Dover Air Force Base, civilian employees and non-employees are required to pass through security clearance, show identification cards, and explain the purpose of their visit. Under the new Home Land Security guidelines, these procedures are very common in most state and federal office buildings.

Every few years, the U.S. Department of Defense consolidates Air Force Base operations; some bases are closed while others are consolidated. The closest international airports to Dover (Capitol of Delaware) are Philadelphia, PA, Baltimore, MD and Dulles, VA. The travel time to each of these airports is approximately two hours from Dover. Thus, Delaware will need a regional airport in the future. The joint use of civilian and Air Force flight operations may be more cost-effective.

The contact person for Dover Air force mileage, lanes, and AADT is:

Mr. Kennard, C. Barry, Acting Chief, Resources Flight

United States Air Force

Dover AFB, DE 19902

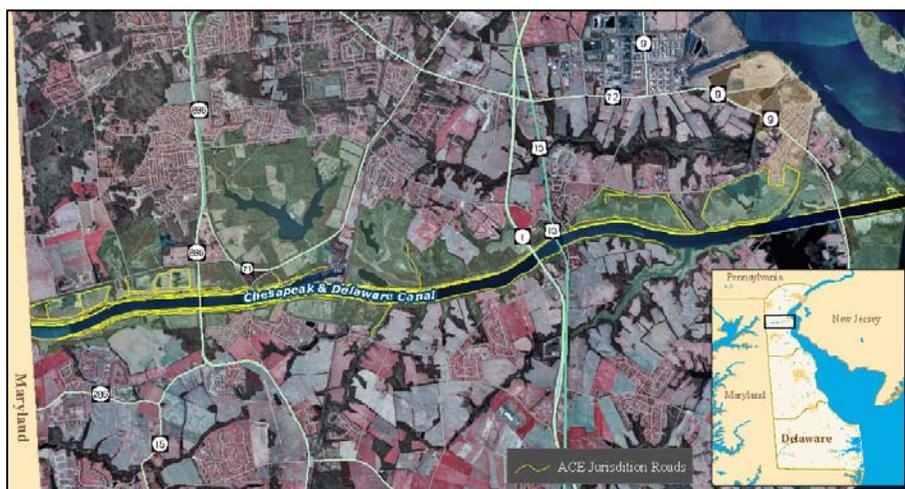
Phone: (302) 677-6200

carl.kennard@dover.af.mil

Army Corps Of Engineers Mileage

In 2004, Delaware added 69.99 miles of local dirt roads in the proximity of Chesapeake and Delaware Canal. These roads are presently being used by the public and comply with the guidelines of public road mileage. Delaware Congressman Michael N. Castle, and other state and local officials as well as the public, are interested in converting some of the adjacent lands to a state public park.

The State GIS Analyst, Sarah Burkett, in coordination with the Army Corps of Engineers' Chesapeake City Project Office, has used GIS technology to calculate the mileage of roads along the C&D Canal. The methodology included heads-up digitizing of roads using a 2002 high-resolution (1:2,400 scale) infrared orthophotography base with reference to 2005 satellite imagery, and hard copy maps from the Atlas of Delaware produced by DelDOT. Total mileage of the roadways were calculated using GIS length calculation tools, resulting in 69.99 miles. The U.S. Army Corps of Engineers (ACE) was given hardcopy maps of the digitized roadway for review. DelDOT and ACE mutually agreed to use this calculation for state mileage reporting purposes.



Map displaying ACE Jurisdiction Roads identified using GIS technology.

The contact information of the official in the US Army Corps of Engineers, who reviewed the GIS data and mileage calculations, is:

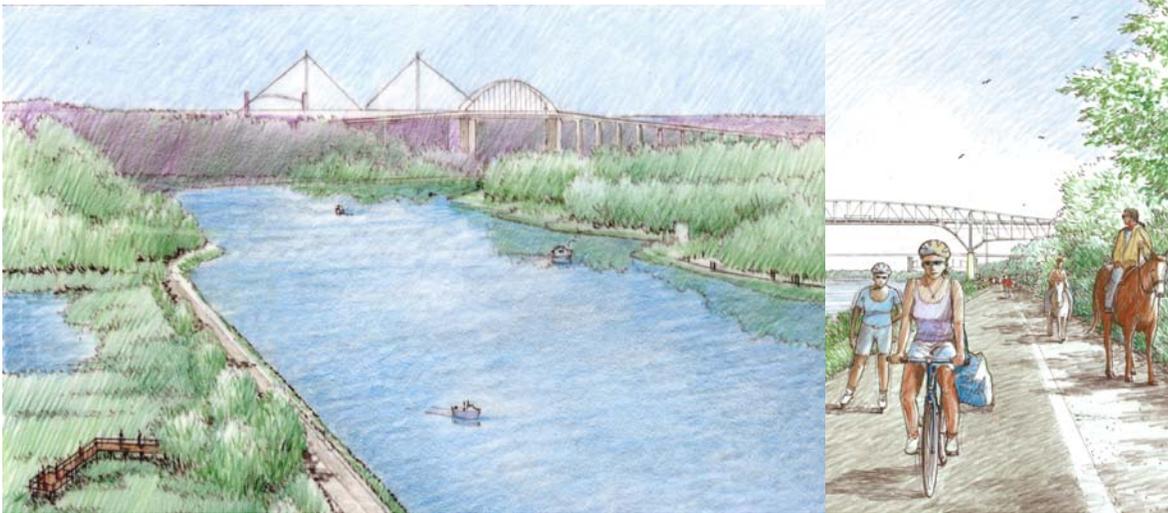
James R. Tomlin, Jr.,
Resident Engineer
Chesapeake City Project Office
U.S. Army Corps of Engineers
P.O. Box 77
Chesapeake City, Maryland 21915
TEL: 410-885-5621
E-mail: James.R.Tomlin@nap02.usace.army.mil

Mr. Tomlin has provided his approval of the calculated mileage.

Chesapeake and Delaware Canal Recreation Trail

The Chesapeake and Delaware Canal Recreation Trail project, led by Congressman Mike Castle, would transform over 26 miles of Army Corps service roads from Delaware City to Chesapeake City into a multi-purpose recreation trail with associated amenities and added security. The area is already being used by Delawareans and Marylanders alike for a variety of compatible activities. After completing concept plans in April 2006, the trail design is underway and the final design to be broken down into three phases is expected to be completed before the end of 2008. Construction of Phase I, from DE City to Chesapeake City on the north side of the Canal, will begin contingent on available funding. As communities continue to grow and develop throughout Delaware, this recreation project is increasingly important to residents who value open space and access to recreational areas. While this is a long-term project, the U.S. Army Corps of Engineers, Rep. Wayne Gilchrest (MD-01), DE Dept. of Transportation, DE Dept. of Natural Resources and Environmental Control, MD Dept. of Natural Resources, New Castle Co., Cecil Co., Delaware City, and Chesapeake City remain committed to getting the trail construction underway as soon as possible.

For project updates, please visit Rep. Castle's website at www.castle.house.gov. To view the "Trail Concept Plan," please visit www.nap.usace.army.mil/Projects/CD/index.htm.



OLIVIA KURTZ
SENIOR LEGISLATIVE ASSISTANT
CONGRESSMAN MICHAEL N. CASTLE (DE)
1233 LONGWORTH HOUSE OFFICE BUILDING
202/225-4165
202/225-2291 ~ FAX

Chesapeake and Delaware Canal Recreation Trail, DeIDOT Partnership

The concept design package was completed in 2006 with input from many agencies and interested public groups. DeIDOT initiated the final design in 2007; 30% design was completed in November 2007 and public meetings were held in January 2008; 60% design is expected to be completed in June 2008; and the final design should be delivered before the end of the calendar year. DeIDOT's Transportation Enhancement Program, Delaware Department of Natural Resources & Environmental Control, Maryland Department of Natural Resources & Environmental Control, New Castle County, and federal Transportation Appropriations are providing funding for the project design. Additional public workshops will be scheduled throughout the design development process to allow for public input.

If you are in need of additional information please contact;

Mr. Jeff Niezgoda
Project Manager, Transportation Enhancement Program
Delaware Department of Transportation
Phone: (302) 760-2178
Email: Jeff.Niezgoda@state.de.us

Delaware Parks and Recreation

The Division of Parks and Recreation operates and maintains 16 state parks and related preserves and greenways throughout Delaware totaling more than 25,000 acres. The state's land protection programs, as well as the state's Greenways program, are administered by the Division. The Division is also responsible for providing recreational opportunities, educational and interpretive programs for the public. Other responsibilities include acquiring and developing recreational lands & facilities, providing for the protection of natural areas, and overseeing & planning for statewide recreational needs.

Fiscal year 2007 saw many exciting improvements and changes throughout Delaware State Parks, including the introduction of the new Alapocas Run State Park in Wilmington. This park features the historic Blue Ball Barn and the new Can-Do Playground. The Barn is an adaptive re-use of an historic structure now serving as the permanent home of the Delaware Folk Art Collection and as a special-event facility. In addition, it is the first public building in Delaware to be LEED-certified for energy efficiency and sustainability. The Can-Do Playground was the brainchild of six area Rotary Clubs who wanted to celebrate the centennial of Rotary International in a special way. They raised nearly half a million dollars to develop the first public playground in Delaware designed and built in conjunction with the National Center for Boundless Playgrounds for children of all abilities to enjoy. This project highlights the importance of our state parks to local communities and the important contributions that local organizations can make to their park system.

In the southern region Delaware's first State Park, Trap Pond, was designated by the National Park Service as part of the Chesapeake Bay Gateways Network, Delaware's first such site. This will link Trap Pond and Sussex County to an extensive array of sites throughout the estuary to promote a better understanding of the Bay and its ecological and recreational resources. This partnership reinforces the important role that Delaware State Parks plays in the region and as part of a "National System of Parks."

The inventory for the State Parks road system lists a total of 36.04 miles. The mileage inventory is now more than 5 years old. The Division of Parks & Recreation is currently updating the road inventory, which will be provided when completed.

For more information please go to <http://www.destateparks.com>

The contact information of the person in Delaware Parks & Recreation, who provided this information, is:

Robert Shaw
Management Analyst II
Division of Parks & Recreation
89 Kings Highway
Dover, DE 19901
Phone: (302) 739-9231
Fax: 302-739-7026

In today's computer-oriented society, an after-work trip to happy hour for socialization and recreation has become routine. In 2007, Delaware had 6,894 drivers arrested for DUI, so we are encouraging alternative forms of recreation. DelDOT is presently working with various State cabinet members to provide adequate roads for increasing use of our various parks, rather than visiting the local tavern.

U.S. Fish and Wildlife Service

In 2006, we also added 11.42 miles under the jurisdiction of U. S. Fish and Wildlife. This includes Bombay Hook and Prime Hook, which become major attractions for bird watchers, especially during bird migration seasons.

Studies conducted by the National Wildlife Federation show that nearly 400,000 people spent more than \$130 million on hunting, fishing and wildlife viewing in Delaware, which in turn, supported 2,255 jobs in the state.

U. S. Fish and Wildlife information was provided by the following:

Oscar Reed, Jr.
Deputy Refuge Manager
Bombay Hook NWR
(302)653-9345
Oscar_Reed@fws.gov

Bill J. Jones
Visitor Services Manager
Prime Hook National Wildlife Refuge
(302) 684-8419
Bill_J_Jones@fws.gov

ERROR MESSAGES 2007

Our response to Valid Errors Summary Report is as follows:

- Error Messages 1 & 2: Future AADT growth is 4 times or more than AADT
County 1(Kent County) - Section ID: 000160002000
County 1(Kent County) - Section ID: 000160002180

Response: Kent County Rd 16, designated as Delaware Route 8, is an Urban Minor Arterial with an AADT of 1,478 vpd, and the forecast AADT for the year 2030 is 9,045 vpd. The traffic forecast accounts for additional growth expected in the long-range horizon year due to recently completed ramps between Delaware Route 8 and Delaware Route 1, which are in the vicinity of this sample section.

- Error Messages 3 & 4: VSF must be less than or equal to 1.20
County 1(Kent County) - Section ID: 000290001000
County 1(Kent County) - Section ID: 000290001250

Response: Kent County Rd 29, designated as Delaware Route10, is an Urban Collector with an AADT of 18, 319 vpd.

The intersection at the east end of this segment (US 13/SR 10) is very congested during peak hours. Because of right-of-way constraints and historic sites in the vicinity, there is no project currently planned to relieve such excessive congestion. DelDOT is working with the Town of Camden and area developers to explore options for diverting some of the traffic.

- Error Messages 5: Unusually high number of intersections (> 25 per mile)
County 1(Kent County) - Section ID: 001920000330

This is a very small section with a section length of 0.33 mile, and is in an Urban Collector in the city of Dover. The number of intersections is correct.

- Error Messages 6: Unusually high number of intersections (> 25 per mile)
County 1(Kent County) - Section ID: 004560000550

This is a very small section with a section length of 0.40 mile, and is in an Urban Collector in the city of Milford. The number of intersections is correct.

- Error Messages 7, 8, & 9: VSF must be less than or equal to 1.20
- At Peak Capacity for more than 13 hours

County 3(New Castle County) - Section ID: 000560009830

County 3(New Castle County) - Section ID: 000590000470

County 3(New Castle County) - Section ID: 000590001820

Response: New Castle County Road 56 & Road 59 are a part of the Interstate route I-95, and this section is where all three Delaware Interstate routes I-95, I-295 and I-495 converge. This is a recurring traffic congestion problem.

For Section ID 000590001820, which is New Castle County Road 59 and also I- 95, the condition remains for more than 13 hours daily over this very small section of 0.31 miles.

- Error Messages 10: VSF must be less than or equal to 1.20
County 3(New Castle County) - Section ID: 000590012870

Response: New Castle County Road 59 is a part of Interstate route I-95 and this section is where the two Interstate routes I-95 and I-495 converge. This is a recurring traffic congestion problem.

- Error Messages 11, 12, 13 & 14: Future AADT growth is 4 times or more than AADT

County 3(New Castle County) - Section ID: 000600000120

County 3(New Castle County) - Section ID: 000600000320

County 3(New Castle County) - Section ID: 000600000680

County 3(New Castle County) - Section ID: 000600000820

Response: New Castle County Road 60 is a part of Interstate I-495 and there is a transition from 6 to 4 lanes. These sample sections are very small ranging from 0.12 to 0.36 miles. They act more like ramps and transitional lanes. The existing traffic is 29, 369 vpd and the future AADT for the year 2030 is 122, 000 vpd. Our latest adopted Transportation and Land Use Network reflect major traffic movement in this corridor.

- Error Messages 15: Future AADT growth is 4 times or more than AADT

County 5 (Sussex County) - Section ID: 00019A000140

Response: Sussex County road 19A is Ferry Terminal road with the section length of 0.14 miles. Based on travel demand forecasting, the existing traffic of 883 vpd is expected to grow to 4,186 vpd in the year 2030.

- Error Messages 16: Unusually high number of intersections (> 25 per mile)

County 5 (Sussex County) - Section ID: 000210005240

Response: This is a very small section with a section length of 0.17 mile. It is in an Urban Minor Arterial in the city of Seaford and the number of intersections is correct.

- Error Messages 17: Unusually high number of intersections (> 25 per mile)

County 5 (Sussex County) - Section ID: 000500006080

Response: Sussex County Road 50 is designated as Delaware Route 1. It has a sample length 0.46miles, and this sample is in the town of Bethany Beach. The number of intersections is correct

- Error Messages 18: Unusually high number of intersections (> 25 per mile)

County 5 (Sussex County) - Section ID: 00225000480

Response: Sussex County Road 225 has a section length of 0.48 miles. It is in the town of Milford. The number of intersections is correct.

- Error Messages 19 Unusually high number of intersections (> 25 per mile)

County 5 (Sussex County) - Section ID: 003340000380

Response: Sussex County Road 334 has a section length of 0.38 miles. It is in the town of Dagsboro. The number of intersections is correct.

- Error Messages 20: Unusually high number of intersections (> 25 per mile)
County 5 (Sussex) - Section ID 005360004580

Response: This is very small sample sections with a length of 0.28 miles. It is an Urban Collector in the city of Seaford. The number of intersections is correct.

- Error Messages 21: Unusually high number of intersections (> 25 per mile)
County 5 (Sussex) - Section ID 006180000680

Response: This is very small sample sections with a length of 0.15 miles. It is an Urban Collector in the city of Milford. The number of intersections is correct.

Small Universe Section: Delaware HPMS universe has several small sections. The HPMS database is used to establish the mileage and vehicle-miles of travel for the municipalities. As of 2007, there were 57 municipalities. For funding allocation to the municipalities, the existing formula prescribed by Delaware Legislature is based on municipal population and street mileage. This is an ongoing process.

Standard Samples and Donut Sample Volume Group

The 2006 Universe comprises 6243 miles of roadway in Delaware. There was a net decrease of 5 Standard samples. Five samples were deleted, because they were all under 0.40 miles in section length, which did not meet the guideline adequacy. Three donut samples were added in the Nonattainment Area Code 387 for the volume group 2.

Annual changes in Standard and Donut Samples are presented below.

Change in Standard & Donut Samples

Year	Samples	Change	Donut Samples	Change
2000	587		89	
2001	621	34	109	20
2002	628	7	118	9
2003	643	15	175	57
2004	733	90	212	37
2005	658	(75)	253	41
2006	643	(15)	255	2
2007	638	(5)	258	3

The AADT, as reported, is for the entire universe of the state, including roads and streets classified under the Local category. Field counts are made for all state-maintained roads. For Suburban Street mileage and municipally maintained roads, which are grouped together, a sampling procedure is used along with engineering judgment to determine the traffic volumes. The function of Donut Samples is to estimate DVMT in Rural and Small Urban Areas, Urban and Rural Minor Arterials, Urban Collectors and

Rural Major Collectors. The entire universe data are provided on Summary Sheet A, (Daily Travel Information in Thousands).

2007 Sample Status

Delaware now has more samples than the minimum HPMS sample requirement. Besides the HPMS needs, we also include samples where major growth may occur, and traffic patterns are likely to change. SR- 1, North South Freeway from Dover to Interstate-95 was opened in its entirety in late 2004. We will continue to review and delete smaller samples as well as other HPMS Samples as more traffic volume counts are available.

HPMS Roughness Reporting Requirement

Roughness measurements were collected in the State of Delaware in accordance to Appendix E in the HPMS Field Manual dated 2005. Data collection was required for some sample segments and recommended for others. Because of time constraints, data was not collected for the “recommended” segments, but data was collected for the entire length of “required” segments. Roughness measurements were conducted on Rural Principal Arterials (HPMS Code 2), Rural Minor Arterials (HPMS Code 6), Urban Principal Arterials – Interstate (HPMS Code 11), Urban Principal Arterials – Freeways & Expressways (HPMS Code 12), and Urban Principal Arterials (HPMS Code 14).

Infrastructure Management Services (IMS) used a Digital Road Surface Tester (RST) equipped with a laser bar measuring the data for calculation of the IRI. In addition to the laser measurement system, the RST is equipped with a differentially corrected global positioning system to ensure that the correct locations were measured for HPMS reporting. For Quality Control purposes, IMS captured a video record of the test areas while they were collecting HPMS data.

Data collection and IRI calculation was performed by Infrastructure Management Services from Rolling Meadows, Illinois. Data for this submission was collected from January 23, 2008 – February 4, 2008. Temperatures during the test time were above freezing when data collection was taking place. Contact information for IMS is:

IMS Infrastructure Management Services
1895-D Rohlwing Road,
Rolling Meadows, IL 60008
Phone (847) 506-1500
Fax: (847) 255-2938

All data was collected in the direction of increasing chainage in DelDOT’s road database system, which is south to north and west to east. When multilane facilities were tested, the outermost lane was tested. Bridges and railroads were excluded from the data reported. Both wheelpaths were measured and the IRI was calculated in accordance to AASHTO PP 37-04.

Any questions concerning the collection of the data should be directed to:

James Pappas
Department of Transportation
P.O. Box 778
Dover, Delaware 19903
(302) 760-2400

Present Serviceability Rating (PSR)

The Pavement Management Section collects the PSR data on an annual basis.

1. The Overall Pavement Condition (OPC), as determined by the Pavement Management Section, is the source of the PSR data. A consultant is retained to perform the task.
2. The Pavement Management Section has collected data for all state-maintained roads in 2002, 2003, 2004, 2006 and 2007.
3. In 2005, the data was collected for all state-maintained roads, except for suburban streets.
4. The severity and the extent of distress of each roadway segment are evaluated by visual inspection. The consultant collecting the ratings retains an academic expert to provide the QA/QC report reviewed.

The engineer in charge of PSR data is:

Jennifer Pinkerton
Phone: 302 760 2071
FAX: 302 739 5270
E-mail: jennifer.pinkerton@state.de.us

The HPMS Console

GeoDecisions, a consultant, was hired by DelDOT in 2006 to facilitate the gathering of all data required for the HPMS. The HPMS console was developed as a component of the Department's Information Network for the Online Resource Mapping (INFORM) project. It can be used to manage, monitor, report, maintain, and generate various automated reports. However, the HPMS console could not be used to prepare the HPMS report for 2007 due to initial rollout problems. The problems with the application of the console are being rectified at present. It is expected that the HPMS console will be useful in preparing the HPMS reports for 2008.

Response to HPMS Data in 2006

Last year, DelDOT submitted HPMS data conforming to the reporting requirements. On September 21, 2007, Arhin Kwame and Tashia Clemons of the FHWA, Division Office did HPMS Field Audit. We were asked to improve the quality and the collection of data especially on Pavement related

items and IRI data. We were told to take steps and update the procedure for Widening Feasibility and the Number of Intersection within the sample section.

We have taken numerous steps to work toward achieving that goal. Some of the actions that we've taken are reflected in our 2007 submission.

Changes Planned for 2008 HPMS Data

During 2007, we are reporting 18.12 miles of two lanes Arterial Highways with AADT above 20,000. Some of these road sections adjacent to the Interstate-95 construction are showing unusual traffic patterns. In other cases the roads that have not been counted for more than 5 years and have been factored annually for growth, could show that traffic has increased, when in reality, it may have decreased. There are still some locations which need to be reviewed and evaluated for changes in the functional classification. We will request approval after the data is evaluated. Traffic Pattern Group factors for some locations may need to be reevaluated. We will confirm our procedures for developing the seasonal group factors, directional splits and peak hour factors, especially on summer routes.

At present we are still using the old HPMS software Version 6 date April 19, 2004. We are also working with GeoDecisions on a new GIS based program called HPMS Console. We will be implementing this new program for our 2008 submittal. The contact information is:

GeoDecisions
Plaza 273, Suite 207
Christiana, DE 19702
Phone: 302-731-7531

LRS FOR GIS PRODUCTS

We have coded the LRS data for this 2007 HPMS submission. The road centerline file is in ESRI shapefile format with associated metadata. The attribute data for the centerline includes the LRS identification field and DeIDOT's linear referencing fields including roadway ID, beginning mile point and ending mile point.

The contact information for the consultant in charge of LRS is as follows:

Kumar Sanjay
GIS Consultant
DeIDOT
Phone: 302-760-2648
Sanjay.Kumar@state.de.us

SITE-SPECIFIC TRAVEL ACTIVITY/VEHICLE CLASSIFICATION DATA:

We were unable to count the required one-third (1/3) of the HPMS sample sections in 2007 because of delays in funding approvals from FHWA's regional office. Assuming that the FHWA regional office begins working with us and not against us, we do not anticipate having this problem for 2008. As required, we continue to send the monthly ATR counts to the Travel Monitoring and Surveys unit of the FHWA via e-mail: atrdata@fhwa.dot.gov.

During 2007, our consultant worked with the Chaparral Company, using their TRADAS HPMS module to extract traffic related data, which was used to support DeIDOT's submission. There were 444 short-term counts for one-week duration in 2007. This represents approximately 13% of the 3300 roadway sections in the network. During 2007, 75 of our ATR's were operational, which included twenty-two (22) Weigh-in-Motion (WIM) stations. During 2007, we calibrated all 22 WIM sites. However, the I-95 site was one of the sites that were not operational, therefore, could not be calibrated. In 2007, major construction began on I-95 and is expected to last for approximately two years. The I-95 ATR site will be operational once construction is completed.

K & D Factors were developed by Chaparral Systems Corporation, our TRADAS vendor, using its FHWA approved HPMS module. DeIDOT is in the process of implementing a system to monitor real-time traffic data, to include site status, via the ATRs. This system will allow our field technicians to respond immediately to ATR communication problems.

The contact information of the person in charge of traffic monitoring is:

Paul McKenna, TIS, Application Support Project Leader
302-760-2579
Paul.McKenna@state.de.us

Travel and Demographic Data:

The 2007 population data was obtained from the April 2007 Population Consortium. The Delaware Land Area remains at 1954 square miles conforming to the 2000 U.S. Census.

Population: The yearly change in population by county is tabulated below:

County	Population by Year		
	2006	2007	% Change
New Castle	525,578	529,590	0.76%
Kent	147,587	150,516	1.98%
Sussex	180,282	183,798	1.95%
Total State	853,447	863,904	1.23%

The growth of population was only 0.76% in New Castle County. There are several reasons for the slight growth, which include major bank mergers, transfer of credit card operations to other states, and outsourcing work assignments to other countries. The City of Wilmington, which is the financial hub of banking operations in Delaware, has a wage tax. There was a general shift of jobs to lower tax area states, which offer other incentive packages. In comparison to the other two counties of Delaware, the property prices are higher in New Castle County. Early-retirement opportunity, buyout offers, and elimination of salaried positions in automobile assembly plants created a migration of some labor force from Delaware. General Motors and Daimler-Chrysler assembly plants are located in New Castle County. Despite these factors, there was still a slight growth of population in New Castle County.

Kent County had the greatest increase in population of 1.98% for the year. The main reason for the increase can be attributed to affordable housing and the ease of travel after the completion of the SR-1 freeway in 2004. The state capitol is located in Kent County.

Sussex County had a 1.95% increase in population. There was a large population migration from other states into Sussex County. The cost of living, affordable housing, open space, environmental benefits and convenient public transportation are some of the major reasons for this increase in population. As the demographic changes in the Census indicate, many of these new comers are retirees and senior citizens. That was one more factor for an unusual booming residential demand in Delaware during the years 2000-2005.

In 2007, like most other states, Delaware is facing a high foreclosure rate. With a decline in the housing industry, there is a problem for the new immigrants who were employed in the construction. Low salaries and sporadic employment in this sector have also contributed to the high foreclosure rate within the state.

Daily Vehicle Miles of Travel:

The following table shows DVMT in Delaware by county:

Daily Vehicle Miles Travel (000)			
County	Year		Annual Change
	2006	2007	
New Castle County	15,224	15,194	-0.20%
Kent County	4,601	4,655	1.17%
Sussex County	5,947	6,054	1.80%
State of Delaware	25,773	25,903	0.51%

There are several noteworthy events that appear to have had an effect on decreasing the HPMS traffic count samples used to generate the overall HPMS VMT estimate for 2007. Delaware's overall real estate market for 2007 followed and was consistent with regional and national trends, indicating a "slow down" of retail sales for both new and existing homes. In Delaware, this trend affected all three counties but was particularly evident in the eastern part of Sussex County noted for its resort-oriented seashore recreational attractions. Over the past ten years, according to the Delaware Population Consortium, about

40% of the total dwelling units constructed in eastern Sussex County were "second homes" used as vacation homes or partial-year residences. Many of these homes were also used as weekly or monthly rental units for all or part of the summer months. For 2007, the overall "downturn" in the real estate market was demonstrated by the 15-20% reduction in real estate transfer taxes (RTT) as reported in major newspapers. This slowdown also appears to have been, at least partially, the result of the relatively high price of gasoline as compared with 2006, and appears to partially explain reductions in AADT and VMT throughout the state. (Source: Michael DuRoss, Planning Supervisor, DelDOT)

National Highway System (NHS):

There were no changes to the NHS for 2007. It remains 338.17 miles.

Strategic Highway Network (STRAHNET):

The STRAHNET mileage has not changed for 2007. It remains 146.90 miles, including 40.61 miles in the Interstate Highway System.

Intermodal Connector:

Delaware has 7.00 miles of Intermodal Connector mileage and has not changed in 2007.

Toll Routes:

There was no change in the toll road mileage of 48.40 miles in Delaware.

The 2008 State Budget for Delaware passed this summer and in it are changes that will affect many drivers through Delaware. At stake in the \$3.28-billion budget are increases in tolls on both Interstate 95 at the Delaware state line and the SR 1 Turnpike between Dover and Christiana.

The following toll adjustments were made effective October 1, 2007:

Delaware Turnpike (I-95) Newark Toll Plaza:

- Tolls for all classes of vehicles on I-95 increased by \$1 to \$4.
- The nighttime commercial vehicle E-ZPass discount was eliminated.

Rt. 1 Biddle's Corner Toll Plaza (south of Canal) and Dover Toll Plaza:

- Passenger vehicle tolls on Rt. 1 on weekends (7 p.m. Fridays to 11 p.m. Sundays) increased by \$1 to \$2.
- Passenger vehicle toll rates on weekdays remain unchanged.
- Commercial vehicle tolls increased by \$1 on weekdays, and by \$2 on weekends (7 p.m. Fridays to 11 p.m. Sundays).

Boyd's Corner (exit 142) and Denney's Road (exit 104) toll ramps:

- Passenger vehicle toll remain the same, at 50 cents
- New commercial vehicle rates are 50 cents per axle.

South Smyrna (exit 114) toll ramp:

- Passenger vehicle toll remain the same, at 25 cents.
- New commercial vehicle rates are 25 cents per axle.

Route 1, Other

- The Frequent Traveler 50 percent discount for passenger vehicles making 30 trips in 30 days remain unchanged.
- The commercial vehicle E-ZPass discount was reduced from a discounted rate of 50 percent to a discounted rate of 25 percent per transaction
- The 15 percent standard E-ZPass discount was eliminated at all locations.
- The High Occupancy Vehicle (HOV) discount was eliminated.

Traffic Volatility:

Unusual traffic conditions exist in many roadway sections of lower functional classifications. From field observations, we believe this is due to recreational traffic in the summer as well as peak traffic in urbanized areas (Dover and Wilmington). There is a tendency by local residents, familiar with area roads, to use short cuts to bypass the congested mainline traffic.

Lane Width:

The lane width is based on road markings. Much of Delaware Road Inventory data are over three years old. As we continue to update our Inventory files, the necessary changes will take place.

Road Inventory

We have implemented electronic inventory data collection software. We have hired two technicians to function as our data collection crew. This will allow us to implement our data collection plan and provide updates to the Federal funded roadways on a three to five year cycle.

The entire DelDOT Road Inventory unit is overseen by:

Kevin Gustafson

Road Inventory Supervisor

302-760-2142

Kevin.Gustafson@state.de.us

Unpaved Roads

There were 88.17 miles of unpaved roads in 2007. DelDOT has a special unpaved roads schedule program, and funds are allocated every few years. In 2007 there were no roads under the jurisdiction of DelDOT which were classified as unpaved. Reporting Year in which the roads were first added to the Delaware Certified Mileage, Jurisdiction, and Rural-Urban Mileage for the unpaved is shown in the table below.

2007 Unpaved Road Mileage by Year, Jurisdiction & Rural -Urban

Year	Jurisdiction	Rural	Urban
2005	Army Corps Of Engineers Mileage	69.99	
2006	Delaware Parks & Recreation	6.54	1.55
2006	U.S. Fish and Wildlife Service	10.09	
	Total	86.62	1.55

Total Unpaved Miles in Delaware 88.17 miles

Highway Surveillance Systems (item's 38 – 46):

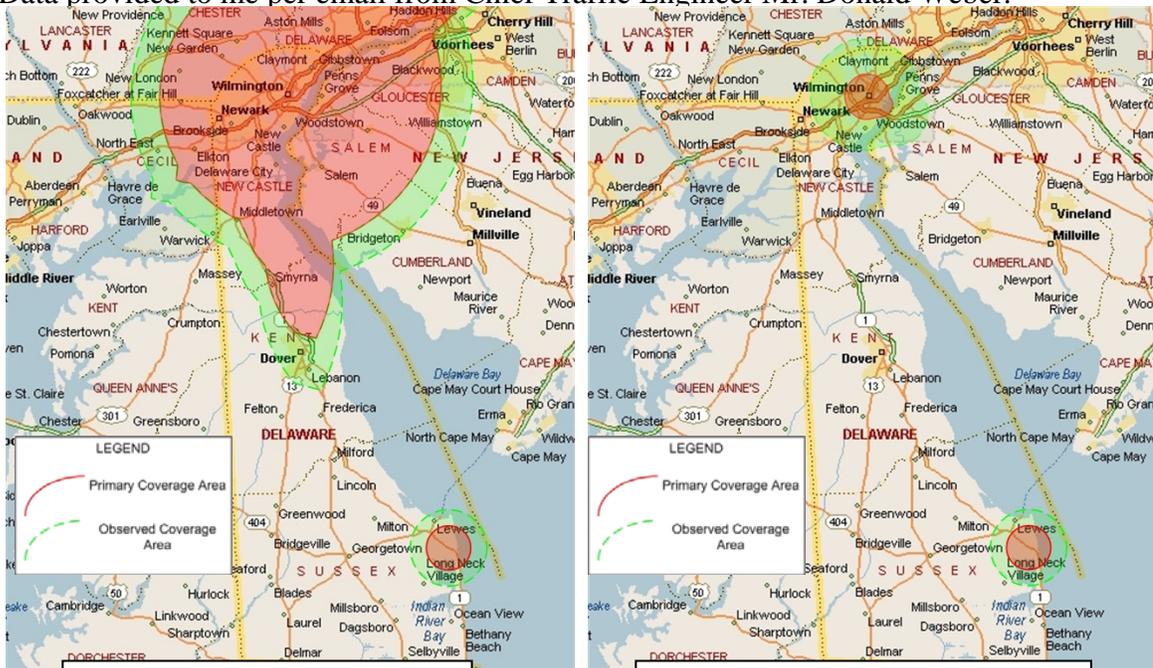
All of the information provided to us for the 2007 HPMS submittal came from data collected by the Transportation Management Center (TMC). Data collected for items 40 and 42 are also maintained by DelDOT O.I.T. section in an Oracle Spatial Database.

Changes made for 2007 HPMS:

I performed all changes that were entered into Oracle Spatial database. Mr. Sanjay Kumar ran queries on the data and entered changes into the spreadsheet that was provided to Mr. Subhash Bhai.

- Item 38 – Collection of Real-time traffic data to monitor traffic flow:
None for the state, however, if this pertains explicitly to microwave detection we have none currently. We do use the signal loops in the resort area to pull real time volumes on beach routes. We did bring 10 of these count stations online last year and can monitor volume and speed near real time. Currently working on bringing 20 more and anticipate all 80+/- over the next year.
Data provided to me per email from Chief Traffic Engineer Mr. Donald Weber.
- Item 39 – Metered entrance ramps:
None for the state
Data provided to me per email from Chief Traffic Engineer Mr. Donald Weber.
- Item 40 – Variable message signs:
Reported 9 signs in 2006 and no signs were added in 2007. The VMS at 195/Churchmans was temporarily removed for construction it will be reinstalled in calendar year 2008.
Data provided to me per email from Chief Traffic Engineer Mr. Donald Weber.
- Item 41 – Highway Advisory Radio:
Reported in 2006, Route 1 only from NC County to Dover also Route 1 from 5 Points Lewis to north of Bethany. Radio is fulltime operation but because of FCC requirements operates with reduced power at night. A repeater has also been added in Dover (near signal sign shop) and several more are planned to be constructed this year.
Report no changes for 2007.

Data provided to me per email from Chief Traffic Engineer Mr. Donald Weber.



- Item 42 – Surveillance Cameras:
Reported 82 cameras for 2006. Three cameras were added in 2007 making the total 85 cameras for 2007.
Data provided to me per email from Chief Traffic Engineer Mr. Donald Weber.
Data entered into Oracle Spatial database by myself. Mr. Sanjay Kumar also with DelDOT OIT, queries roadway segments within a half-mile of cameras to generate report.
- Item 43 – Incident Detection Tech. Algorithms:
None for the state
Data provided to me per email from Chief Traffic Engineer Mr. Donald Weber.
- Item 44 – Covered by free Cell Phone (#77):
Statewide 24/7 Coverage by DSP for 911 and #77 by DelDOT.
Data provided to me per email from Chief Traffic Engineer Mr. Donald Weber.
- Item 45 – Public Service Patrol or Towing:
No fulltime Public Service Patrol or Towing for the state.
We operate a MAP program on I95 during peak hours, holidays and weekends. In addition we offer a STO program along primary beach routes (both north south and east west) during the summer.
Data provided to me per email from Chief Traffic Engineer Mr. Donald Weber.
- Item 46 – Hardware needed to provide In-vehicle signing info to equipped vehicles:
None for the state
Data provided to me per email from Chief Traffic Engineer Mr. Donald Weber.

Future improvements for 2008:

We expect to add several cameras, bring additional signal locations under central signal system control and possibly to complete a communications backbone from Dover to Milford (possibly with microwave). Future recommendations and suggestion as to how we can improve the procedure for future submissions:

There should be a person in the DelDOT Traffic section who is familiar with GeoMedia or Arc that would maintain the geospatial databases for this section. I would also recommend that they be trained to use the HPMS Console. The HPMS Console needs to be automated for all items where we have highway surveillance. For instance if the cameras were automated this would eliminate the involvement of Mr. Kumar.

Below is the contact information for the DelDOT employee in charge of compiling the Highway Surveillance System data. Information is furnished below:

Darin Dell, CADD/GIS Technologist
Delaware Dept. of Transportation – T615
Office of Information Technology
800 Bay Road, P.O. Box 778
Dover, DE 19903
Tel. (302) 760-2632
Fax (302) 760-2632
Email: Darin.Dell@state.de.us

- Item 50 Surface/Pavement Type: Visual Pavement Management System Software – Surface type is updated by consultant performing condition ratings for the state-maintained inventory on an annual basis (suburban inventory may skip years), Pavement Management maintains this database and surface changes are submitted to Planning to update the road inventory. Surface type data is also updated when construction projects are completed and form is submitted to Pavement Management, which updates the surface type manually.
- Item 53 – Year of Surface Improvement: Visual Pavement Management System Software – Improvement data is updated when construction or maintenance projects are completed and a form is submitted to Pavement Management, which updates the construction history of the road segment affected.

Jennifer Pinkerton, P.E.
Delaware Department of Transportation
Maintenance and Operations, Pavement Management
Dover DE 19901
Tel. (302) 760-2071
Fax (302) 739-5270
Email: Jennifer.Pinkerton@state.de.us

- Item 51 – SN or D
For the structural number determination, Materials & Research has an internal database that is used to determine material compositions and pavement thicknesses. From that database, structural numbers are determined.

James Pappas
Chief Materials & Research Engineer
Transportation Solution & Engineering Support
Material & Research Section
Tel. (302) 760-2379
Email: James.Pappas@state.de.us

- Item 62 — Widening Feasibility
In 2007 all the 638 HPMS Samples were evaluated for widening feasibility by visual examination of the latest (2007) aerial photography in ArcGIS. Josh Thomas and I created 12-foot lane “buffers” that we superimposed on the road network to assist in visually estimating widening feasibility of the sample road segments. We were thus able to tell how many 12-foot lanes could reasonably be added to either side of the segments or how close any permanent structures were to the segment.

Chief, Highway Systems Performance Division

June 12, 2008

Page 25 of 54

Joshua Thomas

Project Planner

DelDOT Planning Division

Tel. 302-760-4834

Email: Joshua.thomas@state.de.us

Jay Gerner

Project Planner

DelDOT Planning Division

Tel. 302-760-2530

Email: Jay.Gerner@state.de.us

Pavement Geometric

HPMS software was used to evaluate the 2007 Samples Adequacy Requirements, and no new samples were added. There were no changes in the pavement geometry and the status is same that was in 2006.

- Items 63-68 – Falcon/DMS: Actual Construction Plan (Horizontal Geometry Section)
- Item 70 – Terrain Type: Falcon/DMS: Actual Construction Plan Profiles
- Items 72-77 – Grades by Class: Falcon/DMS: Actual Construction Plan Profiles

The above information was obtained from DelDOT's archive plan database. Users should have proficiency of plan reading, station to milepost conversion and archive file search criteria.

Leo E. Gracie

Delaware Department of Transportation

Quality Section

Dover DE 19901

Tel. (302) 760-2347

Fax (302) 739-6360

Email: Leo.Gracie@state.de.us

Traffic/Capacity

The Traffic Studies Section was responsible for updating the following 10 items for all the roadway segments (643 segments) in New Castle, Kent, and Sussex Counties for the 2007 HPMS submission:

- 61 Peak Parking
- 78 Percent Passing Sight Distance
- 80 Speed Limit
- 88 Left Turning Lanes
- 89 Right Turning Lanes
- 90 Prevailing Type of Signalization
- 91 Typical Peak Percent Green Time
- 92 Number of At-Grade Intersections – Signals

- 93 Number of At-Grade Intersections – Stop Signs
- 94 Number of At-Grade Intersections – Other or No Controls

The resources we used to update these items included DeIDOT's Digital Video Log, aerial photographs from GeoMedia and various internet maps, and existing signal and regulatory sign resolutions found in DocStar (a document database of resolutions and agreements). With these resources the inventory segments were viewed (via the aerials and video log) to check for passing sight distance, left and right turning lanes, and number/type of intersections. The current speed limit and parking restrictions were verified by checking the 2007 resolutions from DocStar and by viewing digital video log and live internet street views. The prevailing type of signalization and green times were verified through the Transportation Management Center (TMC) Timing Sheets and TMC personnel. We also relied on experience and knowledge of the Traffic Studies staff from numerous field reviews that are performed regularly to update and maintain many of the items.

Percentage Complete

This year, we were tasked with updated all 643 segments. Given the limited personnel and resources, we came to an agreement with the DeIDOT Planning section to update as many as possible before the June 15th FHWA submission deadline and to finish the rest throughout the year. As of May 23, 2008, the following percentages of items have been updated:

New Castle County: $143/278 = 51\%$ complete

Kent County: $129/183 = 70\%$ complete

Sussex County: $50/182 = 27\%$ complete

Total: $322/643 = 50\%$ complete

HPMS Console Problems

This year we were supplied with an excel spreadsheet listing all the items and also the Console was available for use. We ran into no problems using the spreadsheet and the manual methods with aerials and files as described above. We did, however, run into some problems while using the Console. All three counties were started by using the Console to collect and input data, but the problems we ran into were very time consuming and unable to be fixed before the FHWA Submission deadline, so the decision was made to submit the data using the spreadsheet. Below is a list of the errors we commonly had with the Console:

- Slow processing time (especially when panning or zooming)
- Null error occurred on random and would require the Console to be restarted
- Mile point readouts where not correct when compared to the Traffic Summary Book
- Console segments beginning and end points did not always match with the spreadsheet segments

- Item 61 (Peak Parking) and Item 78 (Percent Passing Sight Distance) were not listed in the console

Information provided by:

For New Castle County: Peter Haag (DelDOT) Traffic Studies Engineer Tel. (302) 659-4084 Fax (302) 653-2860 Email: Peter.Haag@state.de.us	For Kent County: Kristen Melendez (DelDOT) Traffic Studies Engineer Tel. (302) 659-4096 Fax (302) 653-2860 Email: Kristen.Melendez@state.de.us	For Sussex County: Naa-Atswei Tetteh (DelDOT) Traffic Studies Engineer Tel. (302) 659-2051 Fax (302) 653-4097 Email: Naa-Atswei.Tetteh@state.de.us
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Year of Future AADT (Forecast Traffic 2030)

Mike DuRoss, a supervisor in DelDOT's Division of Planning, providing forecast traffic. The forecast traffic year for this HPMS submission is 2030, the same as last year's submission. The 2030 horizon year is consistent with the latest adopted long-range transportation plans for Delaware's two MPO's, the Wilmington Metropolitan Area Planning Council, and the Dover/Kent MPO. The Division of Planning's "Peninsula Travel Demand Model" produced the 2030 forecast traffic, Version "Clean Model 14.0" prepared by WRA in January, 2008. This is a standard five-step travel demand model in the CUBE Voyager software (Version 4.2.1, October, 2007) that covers Delaware's three counties but also includes the nine counties of Maryland's Eastern Shore.

The model described above was used to develop projections for the year 2030 in this year's new HPMS sample sections. It was also used to review projections for all Interstate, freeway and expressway samples as the projections on those sections tend to be very sensitive to the annual updating of traffic counting data. As with last year's HPMS submission, this submission included a review of traffic data for all HPMS samples. This comprehensive review used the latest version of DelDOT's travel model which also included updated population and employment data for all Traffic Analysis Zones in New Castle County as well as the nine Maryland counties, and was based upon an updated traffic assignment calibration using DelDOT's "2005 Traffic Summary". As noted above, this comprehensive review used the forecast horizon year from the 2030 planning horizon year of the WILMAPCO Long-Range plan for New Castle County and the Dover/Kent MPO Long Range plan for Kent County.

Due to the number of samples reviewed for traffic forecast growth factors in this year's submission, the HPMS console was not used because time constraints did not permit the traffic forecasting staff to learn the menu systems and other aspects of that particular software. It is again noted that use of the HPMS console is a recommendation for traffic forecasting for next year's HPMS submission. It is noted that several sections of Delaware's interstate system appeared to have discrepancies between the 2006 and 2007 reported Traffic Summary AADT in terms of apparently large increases or decreases (above a typical expected range). Other sections appeared to have apparently large increases or decreases as one moves "up or down" the traffic stream (for example, 2007 counts along a stretch of I-495 went from 80,000 range to 30,000 back up to 80,000

within just a few miles) In those instances, and since the travel model was calibrated to the 2005 AADT's, the future year growth factors were derived from the 2005-2030 period and applied with manual adjustments as necessary. It is again noted that additional attention will need to be placed on those sections of the interstate system in developing HPMS forecast traffic for next year's submission.

The contact person in charge of forecasting traffic in DelDOT is:

Michael DuRoss
 Transportation Planning Supervisor
 302-760-2110
Michael.Duross@state.de.us

Delaware Interstate Travel

The following Interstate routes exist in Delaware.

Interstate Route	Total Miles	Urban Areas Served
95	23.43	Philadelphia
295	5.71	Philadelphia
495	11.47	Philadelphia
Total	40.61	Philadelphia

Since 1995, the traffic on the Interstate has continued to change, while the number of through lanes and miles have remained the same. The following table shows the Daily Vehicle Miles of travel on the Interstate routes since 2000.

DVMT on Interstate Routes

Year	DVMT (000)	Change
2000	3,807	-0.92%
2001	3,789	-0.46%
2002	3,766	-0.61%
2003	3,808	1.12%
2004	3,852	1.15%
2005	3,793	-1.56%
2006	3,633	-4.21%
2007	3,533	-2.78%

Chief, Highway Systems Performance Division

June 12, 2008

Page 29 of 54

Since 2000, the DVMT on Delaware Interstate routes has been almost stagnant. The DVMT peaked in the year 2004. The HPMS 2007 sample records show that the I-95 section, from Del Route 273 to Del Route 141, amounting to 5 miles of the interstate, is operating at undesirable levels of service. The Volume/Service Flow (V/SF) ratio far exceeds 0.80. As indicated by the DVMT table above and for sample sites on the table next page, a three-year trend of declining traffic on Delaware's Interstate Routes since 2004 can be attributed to congestion and higher tolls. Also, the Interstate routes in Delaware connect with major airports in the adjacent states, where the airlines have cut down services due to higher fuel cost and low load factor.

Site	Location	2006 AADT	2007 AADT	% Change
8000	I-95 - JFK Turnpike Toll Plaza	74,025	74,077	0.07%
8001	I-295, Memorial Bride Toll Plaza	96,974	96,584	-0.40%
8004	I-495, near Boulevard Body Shop	64,688	64,830	-0.22%

Delaware Interstate Ramps

The Interstate ramp data are presented below.

Interstate Route Ramps	Miles	Lane Miles	Urban Areas Served
95	22.41	25.67	Philadelphia
295	8.05	10.76	Philadelphia
495	6.82	6.90	Philadelphia
Total	37.28	43.33	Philadelphia

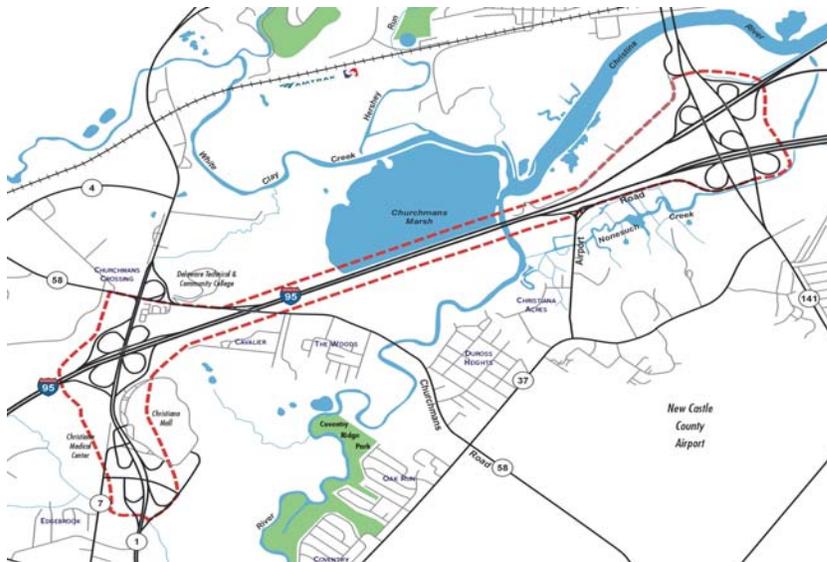
While the Interstate mileage is only 40.61 miles in the entire state, there are 37.28 miles ramps along the Interstate routes. Since the ramp mileage is significantly disproportionate, the FHWA and Congress should modify the federal-aid formula to include Interstate ramps for equity in the apportionment.

SR - 1 Interchange/ I-95 Mainline Area

DelDOT is working on options to improve this interchange area via the I-95/SR-1 Interchange project. A major contributor of the congestion is the mixing of local and thru traffic as well as continuing housing developments in the state, south of the interchange. DelDOT had attempted a P3 (Public Private Partnership) venture in this area, but the effort was stopped in the fall of 2005. With insufficient funds to proceed with the P3, this project is delayed until a suitable implementation plan can be developed. Environmental permitting is continuing for this project. The total cost of the Interchange project will be in excess of \$125 million dollars. At this point, work will not begin until after the I-95 5th Lane project is completed (end of 2008). The Department is reviewing options to complete this project via traditional Design Bid Build or possibly Design build. This is a recurring roadway condition and we will continue to report these locations operating at undesirable level of service until these projects are completed.

(Source: Darren O'Neill, Project Manager)

A map of the interchange and the area is presented below:



SR – 1 / I – 95 Interchange and Vicinity

Traffic Congestion

When the Volume/Service Flow Ratio (V/SF) ratio exceeds 1.20 at a sample section, the HPMS data process sends an error message in the output. The default in HPMS software is that the V/SF ratio must not exceed 1.20, because the capacity would not allow such a high level of traffic flow. However, V/SF ratios in excess of 1.20 do occur on several highway segments in Delaware.

The best example of this condition is I-95 between the SR 273 and SR 141 interchanges. Based on traffic monitoring, not estimation, the 2007 AADT on this section of highway ranged from 121,768 vpd to 179,927 vpd. The observed V/SF ratio of 1.28 is correctly calculated. However, it appears to overstate the situation because traffic does continue to flow through the section where this ratio is observed. There are two possible explanations. The more likely explanation is that some of the counted traffic is not through traffic, but is actually entering, or exiting traffic. There is no manpower in DeIDOT to make regular traffic counts. The Department depends on the consulting firm Chaparral for traffic monitoring activities. The existing traffic counts cannot separate through traffic from ramp traffic, which is either entering or leaving the intersection. The other explanation, which could account for some of the difference, is that because the area is congested drivers are willing to accept lower headways at higher speeds.

The following table shows the mileage by county, where the V/SF ratio continues to exceed 0.80 since 2000.

Miles by County With Volume/Service Flow Ratio (V/SF) exceeding 0.80
(V/SF multiplied by Sample Expansion factor)

Year	County			Total
	New Castle	Kent	Sussex	
2000	35.62	12.20	9.37	56.23
2001	41.89	17.46	36.94	96.29
2002	71.68	16.38	22.70	110.77
2003	80.93	15.26	19.12	113.80
2004	66.38	12.95	30.99	110.32
2005	60.45	13.37	21.79	95.61
2006	83.85	16.99	43.40	144.24
2007	71.71	7.09	34.36	113.17

The above table shows that there were 113.17 miles of road in the year 2007, where the V/SF ratio exceeded 0.80. Because of state budget constraints, there are no funds for projects to improve capacity.

In New Castle County, there were 71.71 miles of congestion including 17.19 miles on urban interstates (I-95, I-295 & I-495) in the Philadelphia Urbanized Area. The section of SR 1 (Freeway & Expressway), south of Delaware 273 to North of I-95, included 4.88 miles where V/SF exceeded 0.80.

There is a long history of congestion in New Castle County which is directly related to interstate travel trends. This Northeast Philadelphia corridor, which extends through Pennsylvania, Delaware and Maryland, has no easy solutions to address this ongoing congestion. Perhaps instituting congestion pricing, as Europe has done, may be a possible alternative.

After the completion of SR-1 (toll) freeway in 2004, this route became the primary corridor for travel to the state capital in Dover, and to Delaware's beaches. Merging from the SR- 1 (toll) freeway to I-95 is a major bottleneck and is severely congested throughout most of the day.

In Kent County, congestion is primarily the result of through traffic merging with local traffic during the peak hour in the Dover urbanized area. Both U.S 13 and U. S. Route 113 in this county have multiple commercial strip developments, which cause traffic congestion throughout the year.

The primary cause of congestion in Sussex County is caused by heavy seasonal traffic, to the Delaware and Maryland beaches from points in the Philadelphia, Wilmington, Baltimore and Washington, DC areas during the summer. This beach traffic passes through several small towns merging with local traffic, which causes congestion. During 2007, there was a 20.82% decline in the congestion mileage in Sussex County. Factory outlets, which once captivated the beach traffic, are now unable to attract buyers due to recent changes in consumer spending. The credit card users seem to have reached their limit, and

for the first time, a decline in sales has been observed. Buy one and get one free sales pitches have failed to attract buyers caught up with high energy costs which has cut into their buying power.

Delaware is currently widening sections of I-95 from 8 lanes to 10 lanes. Even after its completion in 2009, there may not be any significant changes in the congestion level.

SR-1 Route

Intermittent sections of SR-1 are tolled. Due to the locations of the tolls along SR-1, it allows motorists to avoid tolls at various locations throughout its length. One particular location that allows this to happen is at the Rest Area which straddles both the local road and the tolled SR-1 facility. Motorists can freely enter or exit the toll route at this location. For this reason toll revenues are not as high as would be expected.

The HPMS sample sections on SR-1 exceed the sample adequacy requirement. We will continue to report the information from those sample sections.

Delaware Transit Ridership Trend

The table below shows that there was a significant change in Delaware Transit Ridership during the past three years. Since 2003, there has been a net increase of 16.54% which exceeds the growth of total population. During the fiscal year 2007, which ended on June 30, 2007, there was a slight decrease in transit ridership.

Fiscal Year	Transit Ridership	Yearly Change
2000	8,944,828	
2001	9,260,336	3.53%
2002	9,045,281	-2.32%
2003	8,785,314	-2.87%
2004	9,224,929	5.00%
2005	9,602,722	4.10%
2006	10,238,738	6.62%
2007	10,154,338	-0.82%

Source: Delaware Transit Corporation

For the 9-month period from July 1, 2007 to March 31, 2008, the transit ridership has increased to 7,776,857, which is 2.34% over the same 9-month period of the previous year.

Higher fuel prices, congestion on the main travel routes in the urbanized areas, increasing travel times, and the rising cost of parking in central business districts are making transit a more viable alternative to driving. However, there is another significant component to the growth shown here. The

figures in the foregoing include par transit, which serves the elderly and persons with disabilities. Transit offers special discounts for seniors and the disabled. As the general population ages, the state of Delaware continues to attract retirees from other states, particularly to Sussex County, where the demand for par transit is growing rapidly.

For beach traffic, Delaware Area Resort Transit (DART) offers special discounts, and also free transfers to connect with Ocean City.

Delaware Gasoline Consumption

The following table shows gasoline consumption and the state revenue collected from gasoline sales in the state from 2000 to 2007.

Gasoline Consumption/Revenue

Gallons sold		Revenue collected	
Fiscal Year	Total	Fiscal Year	Total
2007	447,204,018	2007	\$102,382,062
2006	447,641,622	2006	\$103,394,033
2005	434,107,363	2005	\$99,162,587
2004	425,075,277	2004	\$99,145,271
2003	415,364,330	2003	\$94,365,047
2002	410,727,263	2002	\$95,064,201
2001	382,107,442	2001	\$86,497,377
2000	396,439,626	2000	\$91,426,164

The increase in gasoline consumption is consistent throughout the years. However, there was a very slight decrease in consumption by 0.11 % in 2007.

The following table pertains to the 9-month period from July 1, 2007 to March 31, 2008 for the Fiscal year 2008. For this time frame, the gasoline consumption increased by 1.0 %. (There was no increase in the gasoline tax, but the table shows a slight increase in revenue).

Gasoline Consumption/Revenue 2007-2008

Gallons sold		Revenue collected	
Fiscal Year	Total	Fiscal Year	Total
2008	335,993,332	2008	\$72,948,869
2007	332,481,768	2007	\$70,851,152

Source: Michael J. Harrell, Motor Fuel Tax Administrator, DelDOT/DMV

Nationwide, however, the gasoline consumption went up by 1 % while the price of gasoline also increased by 15 % over the same period. (Source: Taylor and Van Doren)

A comparison of average retail price of gasoline between June 2, 2007 and June 2, 2008 in Delaware and its neighboring states is presented in the following table. The price of diesel has been added to the second table, along with the price on a national basis for 2008.

Retail Average Gasoline Price on June 2, 2007

State	Regular	Mid	Premium
Pennsylvania	\$3.08	\$3.25	\$3.39
New Jersey	\$2.96	\$3.17	\$3.29
Delaware	\$3.04	\$3.23	\$3.37
Maryland	\$3.11	\$3.31	\$3.39

Source: www.fuelgagaugereport.com (Prices updated June 2, 2007)

Retail Average Gasoline Price on June 2, 2008

State	Regular	Mid	Premium	Diesel
Delaware	\$3.96	\$4.21	\$4.40	\$4.85
Maryland	\$3.96	\$4.21	\$4.32	\$4.81
New Jersey	\$3.87	\$4.15	\$4.31	\$4.77
Pennsylvania	\$3.98	\$4.20	\$4.39	\$4.95
National	\$3.98	\$4.22	\$4.37	\$4.79

Source: www.fuelgagaugereport.com (Prices updated June 2, 2008)

As the table indicates, the current price of gasoline is competitive in this region.

On the Federal-Aid Apportionment

HPMS data constitute one of the tools to determine Federal-Aid apportionments among the 50 states and D.C. The apportionment uses a formula-based criteria. Delaware is one of the smaller states in terms of population, land area, NHS mileage, vehicle-miles of travel. Because of this Delaware suffers from being a “minimum apportionment” state.

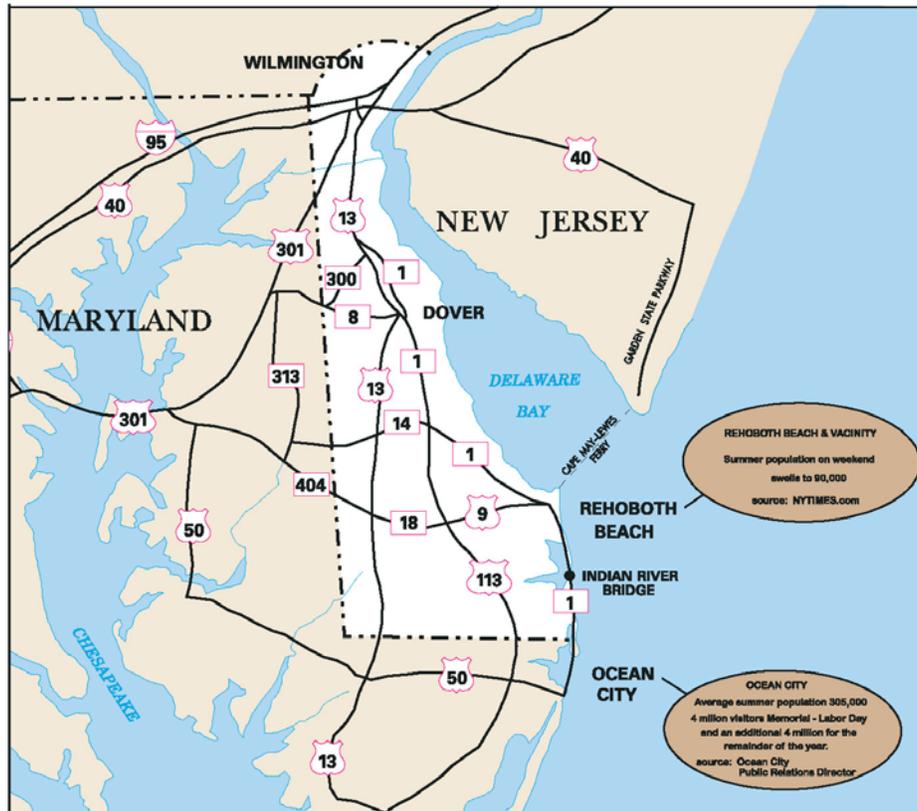
Data provided under the Delaware Interstate Travel report, shows that the State’s Interstate lane mileage has remained the same for the past 10 years. Since the year 2000, Delaware’s Vehicle Miles Traveled overall has changed very little. While there are many possible reasons for these trends one in particular is that certain key roads have been operating at an undesirable level of service especially during peak hour conditions. It is important to note that there is no element of congestion in the apportionment formula.

The current interstate and intersection projects, mentioned earlier in this report, have an estimated cost of more than \$300 million dollars. In the past, the delay and shifting of projects to later years often resulted in cost overruns because each year the cost of construction continues to escalate. For a small state with limited resources, these overruns can result in a major financial burden, which limits the State’s ability to undertake essential projects.



Indian River Inlet Bridge

The Indian River Inlet Bridge, now on NHS, will serve the summer traffic between Rehoboth Beach and Ocean City, Maryland. The traffic demand is extremely high as the accompanying figures indicate. Further delay in the construction of the project would be undesirable.



REHOBOTH BEACH & VICINITY
Summer Population on Weekend
Swells to 90,000
Source nytimes.com

Distance: 27.2 miles Approximate Travel Time: 50 minutes

OCEAN CITY Average Summer
Population 305,000
4 million visitors Memorial-Labor Day and
additional 4 million for the remainder of
the year Source: Ocean City Public Relations
Director.

In 2007 toll increases and higher prices for diesel have dramatically changed traffic patterns.

Truck traffic as a percentage of AADT also showed a decline. As a result, some independent truckers used alternate routes to avoid the toll increases.

Delaware is a small state and many drivers traveling through the state on I-95, I-495, and I-295 are able to pass through the entire state without purchasing gas. In this age of internet access and instant media, the public is well aware of the gas prices in surrounding areas. During the spring of 2007 Delaware proposed increases to most of its vehicle-related revenue sources including a possible increase in the state gas tax. However, it appears that the option of increasing state fuel taxes was not feasible for many reasons including a desire to maintain competitive pricing with surrounding states since gas stations in New Jersey, Pennsylvania, and Maryland are, in some cases, not that far away for many Delaware residents.

Delaware Revenue and other tables shown are pointing to the difficult decisions that will need to be made in the near future.

Three Major Projects

At present, DelDOT is working on three major projects which would cost \$ 1,271,800,000 upon completion. The table below shows the existing expenditure status. At 80% Federal participation, the state share amounts to \$254,360,000. While these projects serve national travel needs, it represents an enormous capital burden for a small state.

Delaware's Current Major Transportation Projects

Dollars in thousands				
Project Title	Est. Total Funds	Funds Spent 2007	Funds Spent to Date	Percent Funds Expended
I-95 MD State Line to I-295	\$397,400	\$28,200	\$269,900	67.92%
Indian River Inlet Bridge	\$229,900	\$6,000	\$26,400	11.48%
US 301 and Spur Road	\$644,500	\$2,500	\$30,400	4.72%
Total	\$1,271,800	\$36,700	\$326,700	

Delaware has 6,242.65 total certified miles of roadway, out of which 4,710 miles of roads are not eligible for Federal-aid. Thus, a huge disproportionate length covering 75.45% of the state mileage is ineligible for any Federal-aid participation. In view of this, it seems a review is necessary to increase Federal-aid for highway improvements in a small state like Delaware.

U.S. 301, DE/MD State Line to SR1, South of the Chesapeake & Delaware Canal

DelDOT is working on improvements to the U.S. 301 Corridor in Delaware, from the MD State Line to SR1, South of the Chesapeake and Delaware Canal. The existing U.S. 301 in Delaware is a two-lane highway with signalized and unsignalized access points. The corridor is experiencing congestion and

increases in accidents caused by a growth in population in this area of New Castle County and the use of the roadway for regional traffic, including large percentages of trucks.

To address these short and long-term transportation needs, DelDOT, on behalf of FHWA, initiated an Environmental Impact Statement (EIS) in 2005, and evaluated alternatives consistent with the National Environmental Policy Act (NEPA). A Draft EIS was published in November 2006, with a Final EIS published in November 2007. A Record of Decision (ROD) was issued by FHWA on April 30, 2008. The ROD selected a four lane limited access highway, from the MD State Line to SR1, and a two lane “spur” from the Armstrong Corner Road area to connect to the Summit Bridge over the Canal. The Selected Alternative, Green North + Spur, is shown below:



Transportation Challenges and Additional Revenue Needs

Because of the increasing demands on the State’s transportation system due to unprecedented traffic growth, limited resources for the design and construction of necessary projects to improve safety and provide needed mobility, and increases in the costs of land acquisition, labor and raw materials needed to construct and maintain a variety of transportation improvements, the Department has identified significant shortfalls of funding for the Trust Fund.

To meet these transportation challenges, the Department has revised the capital plan. As a result of this focus and refinement, the previous \$2.7 billion deficit over the term of the six-year Capital

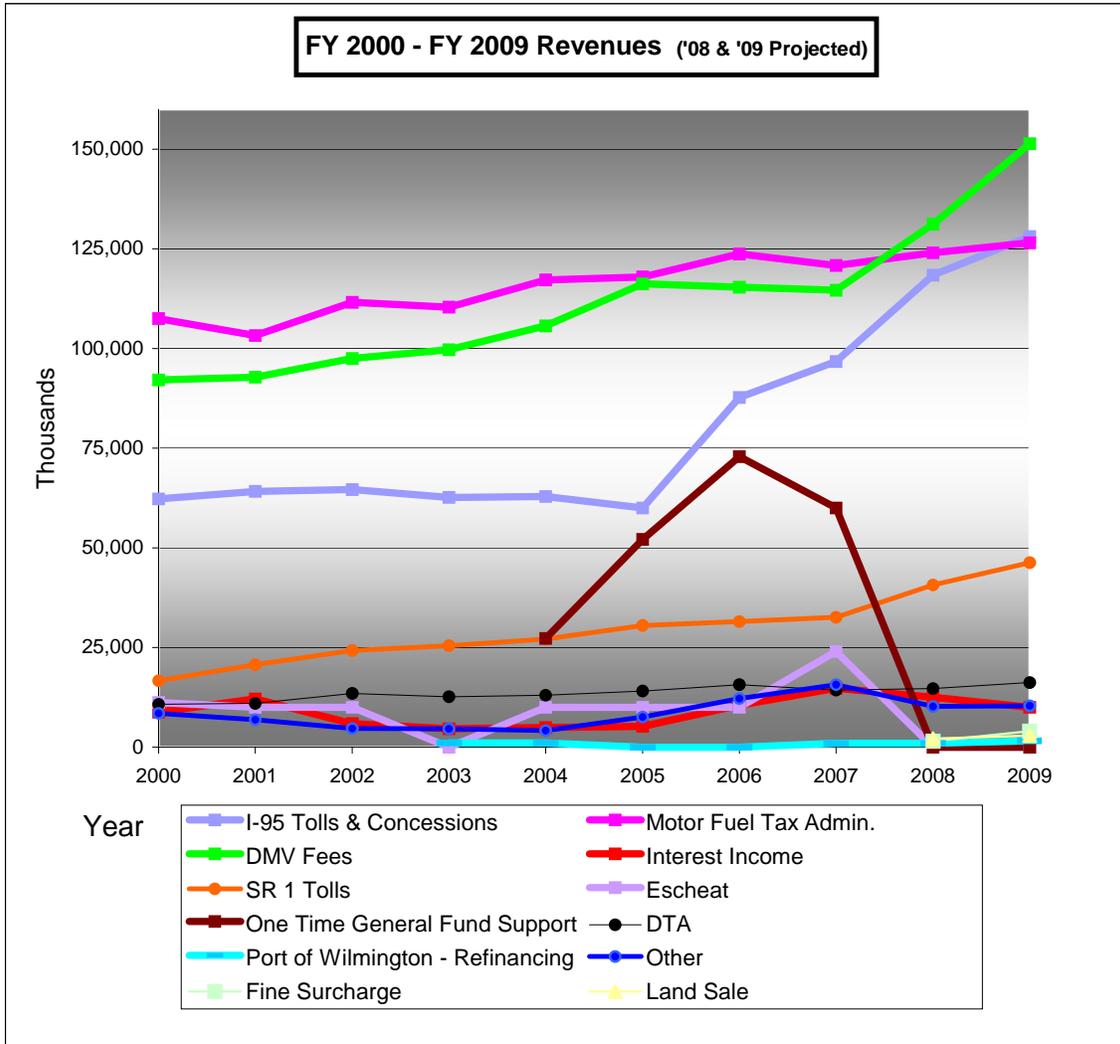
Transportation Program has been reduced to \$1.5 billion. The Governor recommended a revenue package to provide additional revenues necessary to eliminate the remaining shortfall.

The new revenue package was considered and passed during the FY2007 legislative session and implemented in FY2008. The new package included toll increases on both of Delaware's toll roads, as well as several Division of Motor Vehicle fee increases. A new non-pledged revenue source was also added to the Trust Fund in the form of a 50% surcharge on traffic violation fines.

The new revenue package was estimated to add an additional \$572 million to the Trust Fund over six-years. Even with this additional revenue, the program is still short over six years therefore some projects will still be delayed/shelved.

Subsequent to the revenue package approval and as a result of the current economic downturn Trust Fund revenue forecasts for FY2008 through FY2014 have been decreased at recent DEFAC meetings, further adding to the shortfall.

Transportation Trust Fund Revenues										
(\$ in 000s)										
State Fiscal Year	2000	2001	2002	2003	2004	2005	2006	2007	projected 2008	projected 2009
Pledged Revenues										
I-95 Tolls & Concessions	62,307	64,133	64,584	62,637	62,861	60,021	87,696	96,748	118,400	128,100
Motor Fuel Tax Admin.	107,532	103,239	111,586	110,403	117,225	117,917	123,714	120,804	124,000	126,500
DMV Fees	92,134	92,822	97,501	99,678	105,663	116,180	115,415	114,629	131,200	151,400
Interest Income	8,823	12,123	5,879	4,592	4,923	5,207	10,523	14,774	12,500	10,000
Total Pledged Revenues	270,796	272,317	279,550	277,310	290,672	299,325	337,348	346,955	386,100	416,000
Non-Pledged Revenues										
SR 1 Tolls	16,650	20,709	24,223	25,443	27,101	30,563	31,524	32,606	40,700	46,300
Other Transportation Revenue	8,478	6,883	4,712	4,612	4,191	7,597	12,196	15,704	10,200	10,400
Total Non-Pledged Revenues	25,128	27,592	28,935	30,054	31,292	38,160	43,720	48,310	50,900	56,700
Other Sources										
Escheat	11,245	10,000	10,000	0	10,000	10,000	10,000	24,000	0	0
General Fund Support	0	0	0	0	27,300	52,100	72,869	60,000	0	0
Port of Wilmington - Refinancing	0	0		1,065	1,059	0	0	1,000	1,000	1,618
DE Transit (Farebox, FTA, & Other)	10,732	10,961	13,511	12,640	13,064	14,100	15,676	14,332	14,705	16,219
Fine Surcharge Revenue									1,500	4,000
Property Sale Revenue									2,100	2,900
Total All Sources	317,901	320,870	331,996	321,069	373,387	413,685	479,613	494,597	456,305	497,437



I-95 Tolls, SR-1 Tolls, and DMV Fee Revenue all increase in FY2008 due to the implementation of the new revenue package effective October 1, 2007. The fee increases affected 9 months of FY2008. FY2009 also shows an increase due to the additional 3-months of the new fee increases. In FY2008 two new revenue sources were added, a fine surcharge on all traffic fines and revenues from the sale of land. The escheat transfer has been temporarily suspended in FY2008 and FY2009. Projections based on April 2008 DEFAC.

Shift in the State Economy

Delaware, also known as the first state, is also first in supporting a pro-business climate. It is often referred to as the "corporate capital of the world," as nearly 6 out of 10 Fortune 500 companies are

incorporated in Delaware. Every few years, the state has had a new industry group that has located to the state and kept the state's economy growing.

For more than a century, it has been home of world famous DuPont and other chemical industries. The major north-south highway passing through the state, from Maryland to Pennsylvania, is called DuPont Highway. Also, the state is home to a few automobile manufacturing plants.

With the oil prices at new highs, it has caused a three pronged impact on the state's economy. First, the consumer is paying the highest price ever at the pumps which has an impact in their driving habits. As expected, it has reduced auto sales leading to layoffs, early retirements, and the closure of auto plants. Third, the state chemical industry is feeling the squeeze and this is making its impact on the state revenue. As a result, as expected, traffic counts on the permanent counter stations for the 2008 are showing declines.

In 1990s, the state economy was making a change. The leading industry was no longer chemical or auto, but banking. Delaware was the first state in the union which removed the cap on interest rates that credit card companies could charge. As a result Wilmington became credit card capitol. Though, still reported to be profitable, the card issuers are dealing with over extended consumer credit, increasing personal bankruptcies, and defaults. The future income of Delaware's Division of Revenue from the credit card sector is less certain. The growth of newer technology, global outsourcing of services and consolidation in the banking sector may require the state to a new industry in the future to replace the possible loss of the banking industry.

In late 1990s, Delaware allowed slot machines on its three race tracks. It profited handsomely by attracting, not only its own residents, but also residents of nearby states. Except for Atlantic City which already allowed gambling, no other states allowed slot machines. Now the adjacent states are also allowing gambling, which will undoubtedly lower revenues in Delaware.

With all the effort put forth by DeIDOT to compile and submit the HPMS report, Delaware is still required to provide the 20% match for project cost. Fortunately in the past, as new industries replaced old industries in Delaware, no significant impact was felt by its economy. The indicators now show that the current economic cycle is different. Home foreclosures are rising, consumers are deeply in debt, commodity prices are at an all time high, and globalization is structurally shifting away from this country. It is proposed that new and/or additional criteria are implemented to determine Federal-aid to highways and streets for smaller states with less than one million populations.

Delaware Scenic Coastal Highways & Global Warming

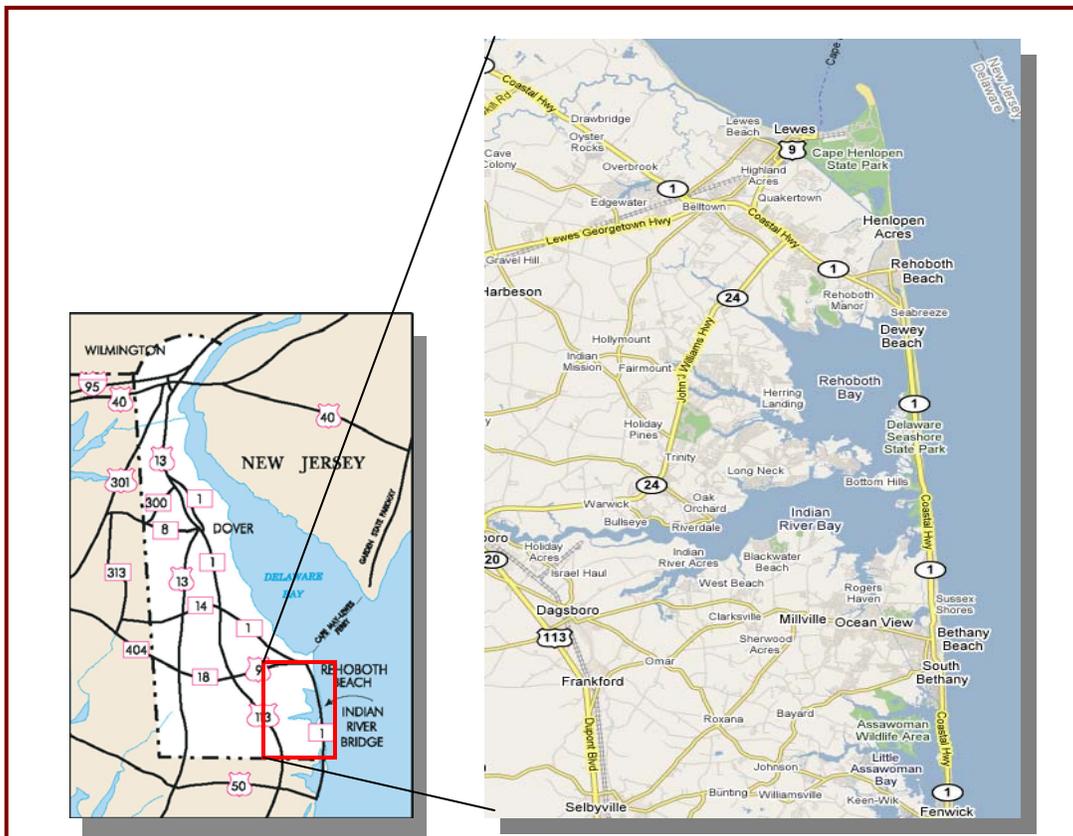
There are approximately 117 miles of coastline on the east side of Delaware. Except for a small stretch in the middle, the coastline is served by interconnected roads and two major highways: SR-9 on the north and SR-1 on the south running as an Arterial Highway into Ocean City in Maryland.

State Route 9 is a 52-mile road that runs from the historic City of New Castle to south of Dover Air Force Base mostly along the western shore of the Delaware River and Bay. It passes over the C & D Canal and through communities such as Delaware City and Leipsic. There are lush green farm fields that

stretch for miles along this route. Moreover, the corridor of SR-9 contains the largest area of preserved coastal marshland, nearly 50,000 acres, on the east coast. Surrounded by natural beauty, Delaware Route 9 was recently named “Coastal Heritage and Scenic Byway” by the State of Delaware.

With the Reedy Point Bridge over the C & D Canal, State Route 9 also serves as a north-south connector in addition to SR-896, US 13, and SR-1 in the state. This route relieves traffic congestion from its parallel routes. This route also has the potential to serve vehicular traffic by boat to and from New Jersey across the Delaware River. With the National Park along the C & D Canal in the planning, the future development of SR-9 is apparent.

State Route 1 on the south serves the coastline alongside the Atlantic Ocean in Delaware. The ocean view coastline is about 25 miles from historic Lewes to Fenwick Island through Rehoboth, Dewey Beach, and Bethany Beach. This stretch of coastline is lined with captivating sand beaches that attract sun worshippers from all over the region. Three state parks are located here within 12 miles of the beachfront. The resorts, comprising Lewes, Rehoboth Beach, Bethany Beach, and Fenwick Island are devoid of high-rise buildings as each retains a small-town charm.



In “Global Warming Effects on Delaware Wildlife”, the National Wildlife Federation has reported that the sea level near Lewes has risen about one foot in the last 100 years. The Federation also predicts that there would be 23 inches additional rise in sea level near Lewes by 2100 (globalwarming@nwf.org). The Philadelphia District of the US Army Corps of Engineers (USACE) has recently completed two beach nourishment projects here to protect the desirable beach width. The USACE also has a three-year beach nourishment program for the protection of these ocean beaches from tidal storm.

Apart from cyclic beach protection projects, the Delaware coastline is vulnerable to nor'easter. There is a severe loss to tourism, local business, homeowners, wildlife, wetlands, and significant damage to SR-1 whenever this calamity strikes the Delaware coastline. DelDOT expends considerable resources to repair the damages to SR-1 by nor'easter. Unfortunately, there is no provision in the Federal-aid Apportionment formula to provide for damages to Arterial Highways by a nor'easter. However, the replacement of the Indian River Inlet Bridge, as a Federal-aid Highway Project, is in progress.

There is severe traffic congestion in the SR-1 Corridor near the coastline, particularly during the summer months. DelDOT provides Resort Transit Service with extra buses from Memorial Day to mid-September to alleviate traffic congestion in this area. There are also Park & Ride Free plus Bikes on Buses provisions by DelDOT to mitigate traffic problems. Nonetheless, certain signalized intersections lack capacity in this corridor.

Congestion Management in Delaware

Traffic congestion in Delaware is managed principally by the Delaware Department of Transportation (DelDOT), which is responsible for 89 percent of the lane-miles in the state. Also, there are two MPOs in the state: WILMAPCO and Dover / Kent County MPO. These two MPOs maintain federally mandated congestion management systems (CMS) in collaboration with DelDOT.

Update of TIS Section of Congestion Management Element of HPMS

Developer-funded capital projects tend to be small improvements such as turning lanes at intersections but can be larger, especially where the efforts of two or more developers can be coordinated. The need for these projects is typically identified through TIS and they are typically required as conditions for plan approval. DelDOT's Development Coordination Section, in the Division of Planning, works with local governments to require TIS and the improvements. In calendar year 2007, DelDOT reviewed 37 TIS, 11 in New Castle County, 7 in Kent County and 19 in Sussex County. Most of these resulted in at least some off-site improvements being required of the developers whose projects were addressed in those studies.

On December 21, 2007, DelDOT adopted revised regulations pertaining to subdivision streets and state highway access. These regulations included revised regulations for TIS. Because land development applications filed with local governments before April 1, 2008, were grandfathered and the fees proposed

in the regulations still need to be approved by the State legislature, the full effects of these regulations have not been seen.

The fees just mentioned are a significant element of the regulations just mentioned. There are six fees:

Fee	Purpose	Status
Area Wide Study	Paid by smaller developments in lieu of a doing a TIS	Pending
TIS Review	Review of traffic impact study	Pending
Initial Stage	Review of record plan	Previously approved
Construction Stage	Review of entrance or subdivision street construction plans	Previously approved
National Pollution Discharge Elimination System	Review of plans for storm water management facilities associated with off-site improvements	Pending
Inspection	Inspection of entrance or subdivision street construction	Pending

A TIS is also used as the primary source of information for the CMS maintained by Delaware's two MPOs; the Wilmington Metropolitan Planning Council (WILMAPCO) and the Dover Kent MPO. The CMS is used by the MPOs to identify and address congestion more comprehensively. WILMAPCO staff with DelDOT and local government participation manages the WILMAPCO CMS. Because the Dover Kent MPO has a smaller staff, DelDOT plays a greater role in helping them develop and update their CMS.

TIS reviews are performed by:

T. William Brockenbrough, Jr., P.E., AICP
County Coordinator
DelDOT Development Coordination
(302) 760-2109
Thomas.Brockenbrough@state.de.us

2. WILMAPCO Congestion Management System (CMS)

The WILMAPCO Congestion Management System (CMS) Summary is a 4-step process designed to meet the federal requirement set by ISTEA and SAFETEA-LU.

The FHWA defines a CMS as "a systematic process for managing congestion that provides information on transportation system performance and on alternative strategies for alleviating congestion and enhancing mobility." These regulations go on to state the following required elements of a CMS. The WILMAPCO CMS has been developed and has been produced annually since 2001, with the exception of 2006. The 4-step process is shown below:

Step #1: Review of Congestion Performance Measures:

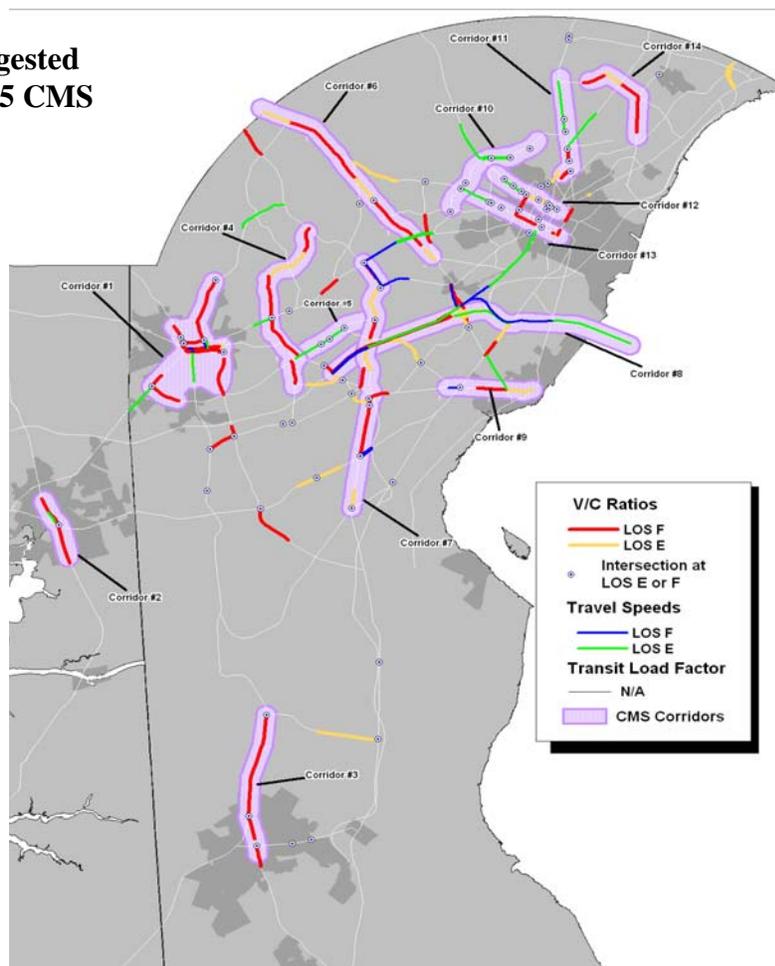
The following performance measures are used to identify congested corridors:

- 1- Roadway Segment Volume to Capacity Ratio
- 2- Intersection Level of Service
- 3- Vehicle Travel Time (Percent Under Posted Speed)
- 4- Transit Volume to Capacity Ratio

Step #2: Corridor Identification

Using the four performance measures, the final step in the process is to delineate specific congested corridors. Members of the CMS Subcommittee identified these corridors with criteria that analyzed congestion density (number or frequency of adjacent congested segments and/or intersections) and predominant travel patterns.

Identified Congested Corridors – 2005 CMS



Step 3: 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 mitigation measures

are outlined and described in detail. This package of solutions to congestion includes measures involving all modes of transportation as well as encouraging more efficient patterns of land use and 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.

Step#4: System Monitoring

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

WILMAPCO CMS Subcommittee

The CMS is developed by the WILMAPCO Congestion Management Subcommittee and assembled by WILMAPCO staff. WILMAPCO staff coordinates with all agencies of the subcommittee for various activities regarding the report such as data collection, review of performance measures and review of potential congestion mitigation strategies. Currently the subcommittee consists of members from DelDOT, Maryland State Highway Administration (MDSHA), Delaware Transit Corporation (DTC), New Castle County Land Use Department, City of Wilmington, TMA Delaware, Maryland Department of Planning, Delaware Office of State Planning Coordination and a member of the WILMAPCO Public Advisory Committee.

For more information regarding the CMS or to download the latest version, visit

<http://www.wilmapco.org/cms>

Source: Daniel Blevins
Principal Planner
WILMAPCO
Phone: (302) 737-6205 Ext 21
Email: dblevins@wilmapco.org

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

Dover/Kent County MPO Congestion Management

CMS is not a requirement for MPOs under 200,000; therefore the Dover/Kent County MPO does not manage its own CMS. The D/KC MPO relies on the data and analysis from DelDOT's CMS to identify congested intersections and segments. The MPO recently narrowed its definition of a congested intersection from having at least one approach operating at LOS F to an overall LOS F. This change resulted in a drastic reduction in the number of intersections identified as congested. The MPO views this change as a better indication of current levels of congestion.

To date, the CMS is not a factor in the MPO's priority process. However, the MPO continues to work with DelDOT to identify performance measures that can be incorporated into the priority process. Congestion Management is anticipated to be one of those performance measures.

Source: Juanita. S. Wieczoreck
Executive Director
Dover/Kent County MPO
Phone: (302) 760-2713
Juanita.Wieczoreck@state.de.us

Salisbury/Wicomico Metropolitan Planning Organization (including Delmar, DE)

As a result of the 2000 Census, the urbanized area of Salisbury, Maryland reached the 50,000-population threshold that requires establishment of an MPO. This new Salisbury/Wicomico MPO includes Delmar, DE. It is expected that other areas of Sussex County will meet the 50,000-population threshold after the next census. A Congestion Management System or Process is not required for MPOs with a population less than 200,000. However, the MPO has undertaken detailed transportation corridor studies for areas that are experiencing significant development pressures and increased congestion. One of these corridor studies covers the Delmar, MD and Delmar, DE area, and is currently underway, with completion expected in FY 2009.

Source: Gary R. Pusey
Long Range/Transportation Planner
Ph: (410) 548-4860
P.O. Box 870
Salisbury, MD 21803
gpusey@wicomicocounty.org

Delaware MPOs

Delaware is a small state with only 3 MPOs. DelDOT coordinates with these agencies on congestion management, related funding needs, and other transportation issues.

The contact person in charge of coordinating with MPO's and congestion mitigation in DelDOT is:

Mark Eastburn
Planner, DelDOT
DelDOT Statewide & Regional Planning
(302) 760-2138
Mark.Eastburn@state.de.us

HPMS Recommendations for Congestion Management

Electronic billboards should be installed at major parking centers to advise as of the availability of parking for motorists. Smart technology used in this manner can significantly reduce congestion.

Shopping centers and casinos should increase bus service for visitors from other states. This will not only reduce congestion, but increase revenues as well.

Starting October 1, 2007, tolls were increased 50% on State Route-1 during the weekends (7 p.m. Fridays to 11 p.m. Sundays). The toll increase, along with higher gas prices appears, for now, to have reduced the amount of travel by motorists.

A public-private partnership may be needed to provide more ferry service across the Delaware River to and from New Jersey to relieve traffic congestion on the Delaware Memorial Bridge and I-95.

For the past 70 years, the Fair Labor Standard Act which was passed in 1938, standardized the eight hour work day and 40 hour work week, has not changed. There is a need for limited intervention or guidance from states to review and encourage a gradual transition towards a 4-day work per week. Such a change, if implemented, could reduce auto insurance rates, reduce vehicular accidents, and result in lower travel expense. In turn, this would reduce fuel consumption and result in a reduction of highway congestion. To get an idea of the actual societal costs of commuting, the following link: [Calculate Your Commute Costs](#).

ON THE HPMS DATA COMPILATION

Delaware is a small state consisting of 1954 square miles, which ranks 49th in the land area and 45th in population, estimated at 863,904 persons in 2007.

The entire data, as being submitted, were collected, compiled, and presented in the U.S. Customary Units. There is no plan in DelDOT to convert to metric system in the foreseeable future.

With the loss of resources, there are only two full time staff members in the entire department to gather road inventory and field data. During 2007, the suburban and municipal street mileages were

increased by 36.46 and 27.59 miles respectively. Although these streets are ineligible for federal-aid apportionment, the revised inventory was essential for an increase in the authorization of suburban and municipal street aid funds of the state.

The traffic count is contracted to Chaparral, a traffic monitoring consultant in New Mexico. Accordingly, the traffic counting schedule is prepared one year in advance. There is no internal procedure to audit raw traffic data unlike what is done in many other states.

Stormy weather mixed with heavy rains creates coastal flooding and traffic diversions and detours take high priority. As a result, some ATR stations periodically malfunction.

There is no HPMS field crew in Delaware, and therefore, some data is not made available until just before the due date for reporting the HPMS data. DeIDOT also encounters problems in "Sample Management". There are small sections within the Volume Group Universe with section length under 0.20 miles. These sections should be ignored by the HPMS software. DeIDOT puts a lot of effort into collecting data from numerous small sections to avoid errors. Because the software fails to ignore very small sections, it is doubtful if these extra efforts are worthwhile.

Small sections in the Central Business District and around the beach area also generate unusually high number of intersections (> 25 per mile).

We have not attempted to override the HPMS software capacity. The HPMS universe requirements are only for through lanes. In reality, some HPMS sections function as both thorough lanes while also providing local access.

NAAQS Non-attainment Areas

The following is a list of NAAQS non-attainment areas in the State. The list also shows urbanized areas within each NAAQS non-attainment area.

All three counties are declared as NAAQS non-attainment areas.

<u>County</u>	<u>Urbanized Area</u>
1. Kent County (Nonattainment)	Dover
2. New Castle County (Nonattainment)	Philadelphia
3. Sussex County (Nonattainment)	Salisbury

List of Standard Sample Panel Groupings:

- Not applicable in Delaware

The statistical information was derived from various computer files, such as the 2007 HPMS Universe/Sample database, the Delaware Road Inventory, and the traffic data files.

2000 Census Corrections

Even though all the 2000 Census updates were completed in 2005, we have now discovered that 6.70 miles of Urban Principal Arterial was wrongly classified. In this 2007 submission we have corrected this error. The changes for these two functional classes are shown in the table below.

Functional Class	2006	2007	Change
Urban Other Freeways Expressways	23.69	30.37	6.68
Urban Principal Arterial	184.45	177.68	-6.77
Total	208.14	208.05	-0.09

Review of the 2007 HPMS, **System Length and Daily Travel** Table, and the significant changes in Miles and DVMT from 2006 is due to the above reporting error and is not as a result of the building of any New **Urban Other Freeways Expressways**.

TRUTH- IN- DATA

During 2007, there were 72 ATR stations, 5 toll sites for collecting traffic data, and 444 sites using portable recorders in the highway network. However, there were serious problems with more than 8% of the ATR stations statewide. We determined that a site has failed if the site failed to collect data for less than 200 days per year. We decided to use the 200-day threshold because we lack the staff resources and equipment needed to respond to a failure in a more timely fashion.

Much of the ATR down time was caused by lengthy construction or seasonal window of opportunity for installation of sensors/loops. Those sites that met the 200-day threshold are shown below.

Some of the sensor failures are indicated below:

Site	2007 Days Lost	Problem	Cause of Problem
8032	184	Sensor Failure	Construction
8033	195	Sensor Failure	Construction
8037	174	Sensor Failure	Environment
8074	188	Sensor Failure	Environment
8082	199	Sensor Failure	Construction
8091	224	Sensor Failure	Environment

Our sensor failure rate was 50% less than last year. DelDOT has benefited by the hiring of an additional ATR field technician and the implementation of the Open Roads/Open TSS software that provides real-time monitoring of the sites.

DelDOT continues to evaluate new traffic counting technology and is currently evaluating Wavetronix detection devices.

Delaware and Immigration 2007

Delaware is also known as: The First State, The Diamond State, Blue Hen State, and Small Wonder.

The state bird is the Blue Hen. Delaware was ranked 8th among the states in producing poultry with 1,597,700,000 pounds in 2007. Delaware produced 245,800,000 broilers in 2007, and ranked 10th among the states in the number of broilers produced. In 2006, Delaware broiler production was valued at \$739,230,000. According to the 2002 U.S. Census of Agriculture, Sussex County in Delaware ranked first among America's counties in broiler chicken production.

(Source: Delmarva Poultry Industry, Inc.)

Many of the new immigrant workers in Delaware's poultry industry are Hispanic, low wage earners who do not have the right to vote in this country. When the consumers order the "Dollar Menu Meal" at some fast food restaurants, they seldom think about the low wage workers who make this thrifty meal for the nation.

The new change in the immigration laws will not only affect Delaware's economy, it will also require a greater financial commitment to provide educational, health and other social benefits to the immigrants in the future.

To assimilate non English speaking folks in our society, Delaware State Board of Education offers a special program, called **English Language Learners (ELL)**. The enrolment in ELL program was 5.5% of the total Delaware School enrollment in 2007.

HPMS Reassessment 2010+ and DelDOT

Jazmin Casas, from FHWA represented DelDOT at the HPMS Reassessment 2010 workshop in March 2007 in Denver, CO. There was discussion of the new data items required, the new data model (GIS based), and an overview of the changes in the HPMS Field Manual (which is still a working draft and HPMS staff is seeking comments on the manual).

With the increased need for accurate HPMS data, there may be some difficulties in meeting the compliance requirements by DelDOT. Small states like Delaware lack adequate resources for data collection, analysis, and compilation. The existing manpower of the Planning unit of DelDOT is inadequate to inspect 638 intersections on an annual basis in Delaware. While the need for more data in the Reassessment 2010+ is justified, the resources should be increased to help states meet the additional data requirements.

The Reassessment 2010+ is also justified, if it can identify additional resources for improvement of deficient highway infrastructure. Along with some other states, the highway infrastructure is crumbling

in Delaware due to a lack of funds for improvement. There has been no new public road built in Delaware since the completion of the SR-1 toll road in 2004.

According to www.taxfoundation.org, the local, state and Federal gas taxes amount to a total of 45.9 cents per gallon of gasoline on an average. These taxes have remained unchanged for more than a decade although the price of gasoline has increased significantly during the same period.

However, the existing allocation factors, including population and traffic, are no longer sufficient for an equitable Federal-aid Apportionment formula.

HPMS Statistical Data

The HPMS data supports many types of analyses that are used by a wide range of administrative staff and are reviewed by elected officials. Besides the Federal Submission, HPMS data is widely used by various Delaware State, County, Municipal and other local agencies. Miles, DVMT, and other similar data are used by DNREC and the MPO's for various analyses. Some of the data is available at the DelDOT Web Site below. In Delaware, HPMS data is available through DelDOT, which is the only official source for this information.

The HPMS provides statistical tables, which can provide useful information for agency staff conducting transportation-related analyses. It is also used to provide data to the general public, data for financial and planning decision-making, and for quick reference mapping. In addition to HPMS data, the following link also provides information on other DelDOT projects.

<http://www.deldot.gov/information/projects/>

Presently, we are working on a "Delaware Highway Statistics Booklet" which will contain the most requested historical data for the years 2001-2007 and it will be updated annually. For those who need to perform micro analysis, the HPMS database is available by corresponding with the HPMS coordinator.

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Personal Remarks

1. The IRI data was collected for 2007. Therefore, Table HM-47 (Miles by Measured Pavement Roughness) in Highway Statistics data for Delaware meets the guidelines.

2. Traffic count scheduling is a part of DelDOT Planning. However, traffic counts and traffic data analysis are now contracted to a private consultant. There are certain roadway segments without seasonal counts for many years. Growth factors are applied to report the current AADT.
3. Sometimes, traffic counts made by consultants do not conform to the Traffic Summary Book. Routine review by the Department personnel is conducted.
4. Due to lack of staff resources, there is no provision for the repair of malfunctioning permanent counter stations in a timely manner.
5. A significant portion of I-95 has been under construction since early 2007. With the fluctuation of traffic volumes during construction, the traffic data for 2007 was adjusted using the growth factor from previous years of counts. With toll changes, a decline in air travel, and a greater number of more transit trips being made because of high fuel cost, the traffic data reported herein does not reflect most of these variables.
6. Unlike other states, DelDOT lacks an office of Bureau of Statistics and a field crew to conduct HPMS sample inspections. The data are collected from various sections of DelDOT. Suggestions provided by these individuals are included in this report. It is truly a team effort by the HPMS hard hats. The success of this HPMS report is a direct result of the efforts by these individuals. I wish to express my sincere appreciation for their cooperation and contribution for help in preparing this HPMS report.

Our special thanks go to Tashia Clemons, and Arhin Kwame, FHWA, DelMar Division Office, who have graciously assisted us in the preparation of the HPMS.

We would also like to thank Mr. Thomas Roff, Mr. Robert Rozycki, and Mr. Paul Svercl, at FHWA, Washington Headquarters, for their patience and constant guidance to complete this onerous task.

Sincerely,

S. Bhai
Senior Transportation Planner

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