



Summary of the WILMAPCO Congestion Management Process

Prepared for:
T3 Webinar
September 18, 2007

Presentation Outline:

- **Summary of CMP Process**
- **How is the CMP used in Operations, Project Prioritization & Long-Range Planning?**
- **Challenges/Future activities**

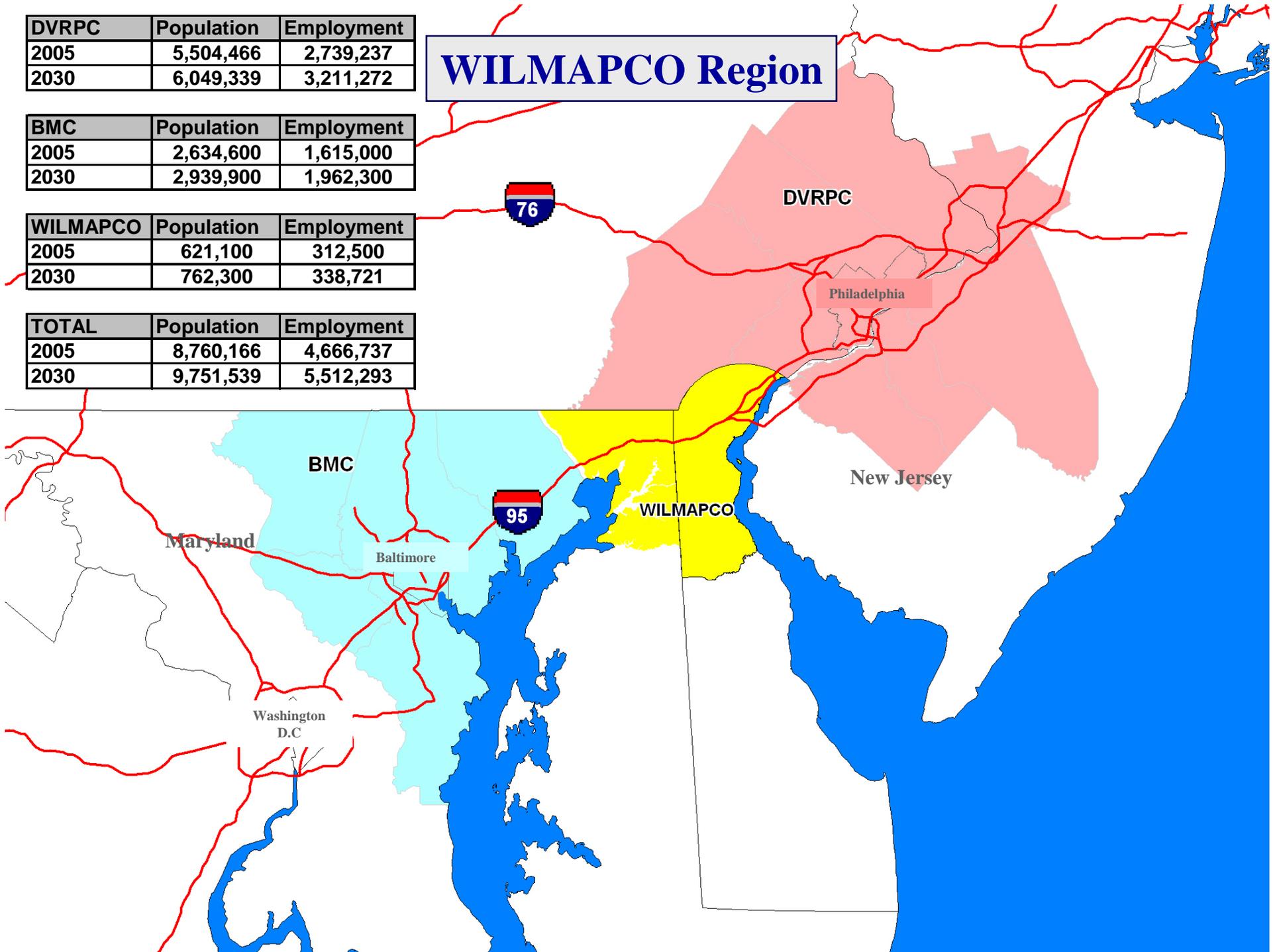
| DVRPC | Population | Employment |
|-------|------------|------------|
| 2005 | 5,504,466 | 2,739,237 |
| 2030 | 6,049,339 | 3,211,272 |

| BMC | Population | Employment |
|------|------------|------------|
| 2005 | 2,634,600 | 1,615,000 |
| 2030 | 2,939,900 | 1,962,300 |

| WILMAPCO | Population | Employment |
|----------|------------|------------|
| 2005 | 621,100 | 312,500 |
| 2030 | 762,300 | 338,721 |

| TOTAL | Population | Employment |
|-------|------------|------------|
| 2005 | 8,760,166 | 4,666,737 |
| 2030 | 9,751,539 | 5,512,293 |

WILMAPCO Region



WILMAPCO CMS Timeline:

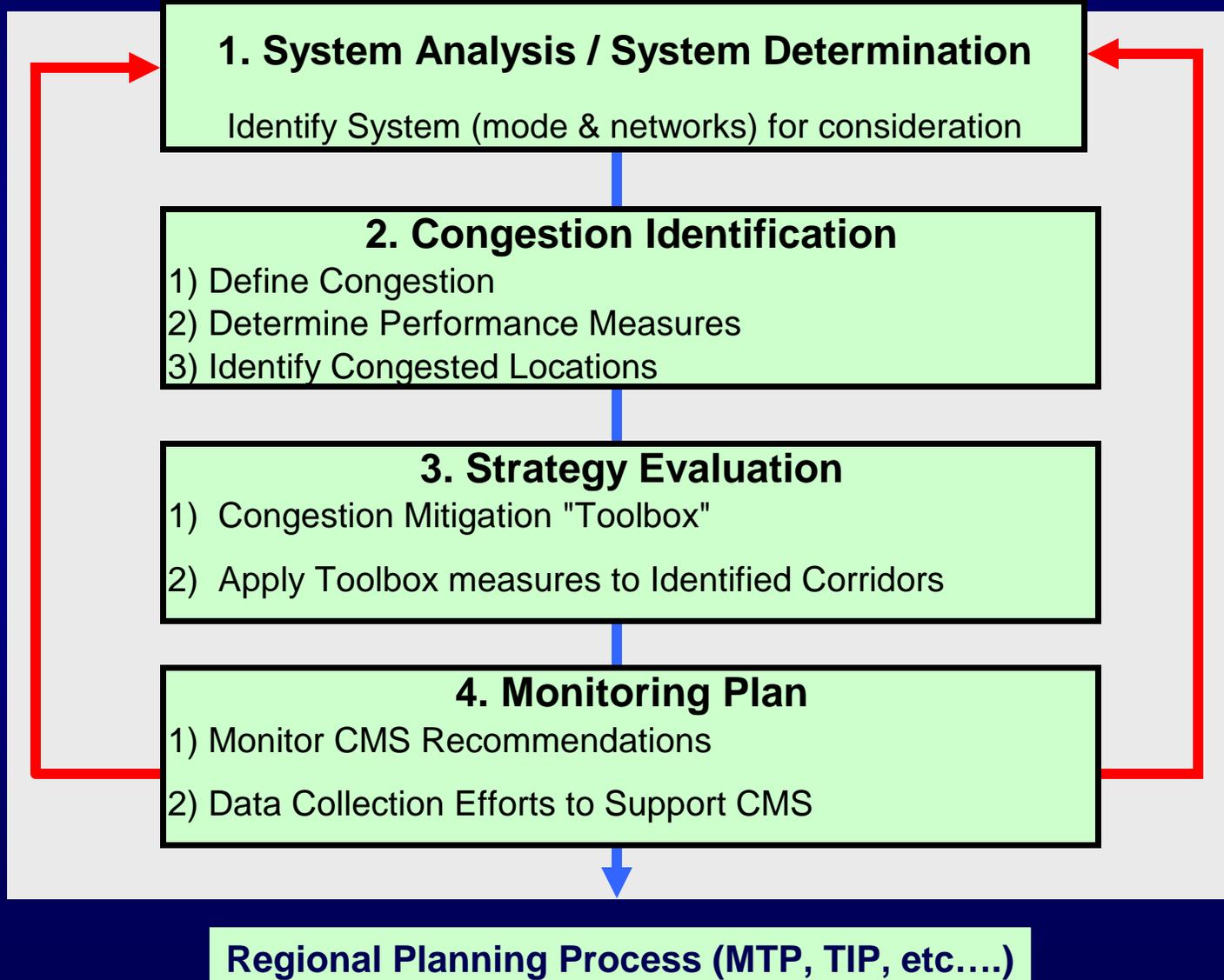
1997: First CMP produced by WILMAPCO

2000: Formation of the WILMAPCO CMP Subcommittee

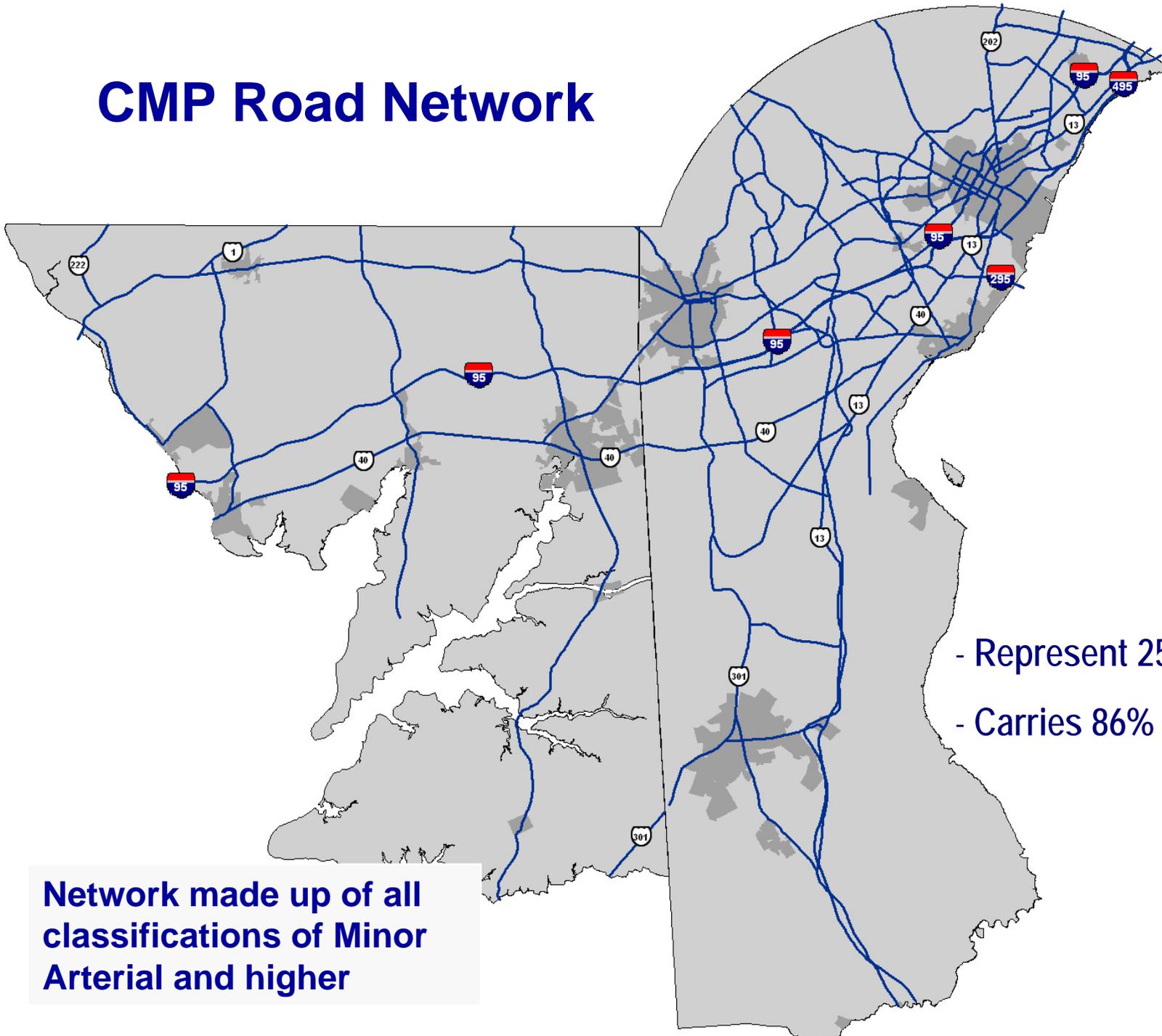
2001: Revised CMP produced

2002-2005: CMP produced annually

WILMAPCO 4-Step CMP Process - Overview



CMP Road Network



- Represent 25% of Roads
- Carries 86% of Daily VMT

Network made up of all classifications of Minor Arterial and higher

Step2: Congestion Definition & Identification

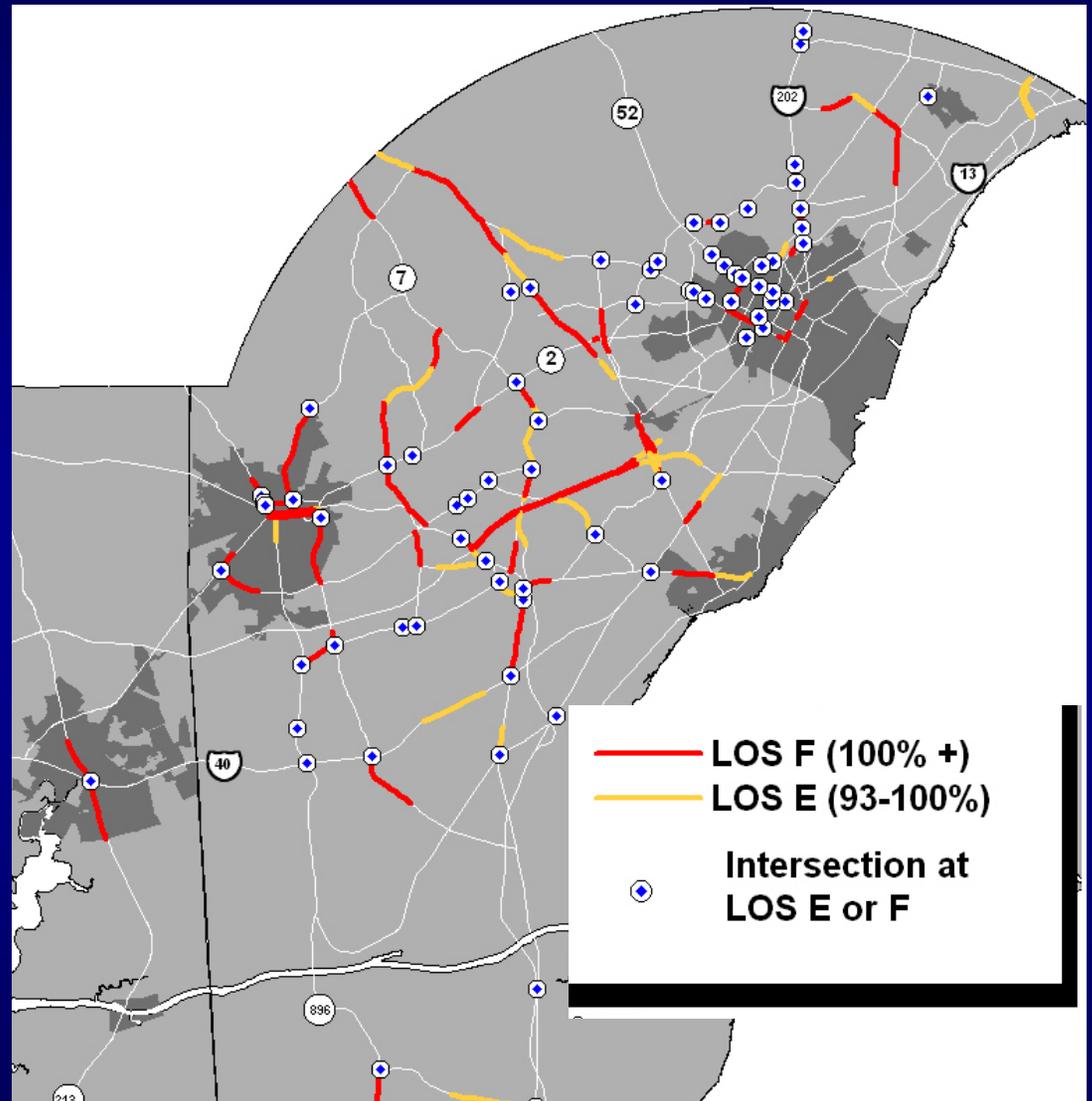
Performance Measures:

Roadway Volume/ Capacity Ratio

Segments operating at LOS E and
(V/C ratio greater than 93% Capacity)

Intersection Level of Service (LOS)

Intersections functioning at LOS E and
F (V/C greater than 90% Capacity)



Step2: Congestion Definition & Identification

Performance Measures:

Roadway Volume/ Capacity Ratio

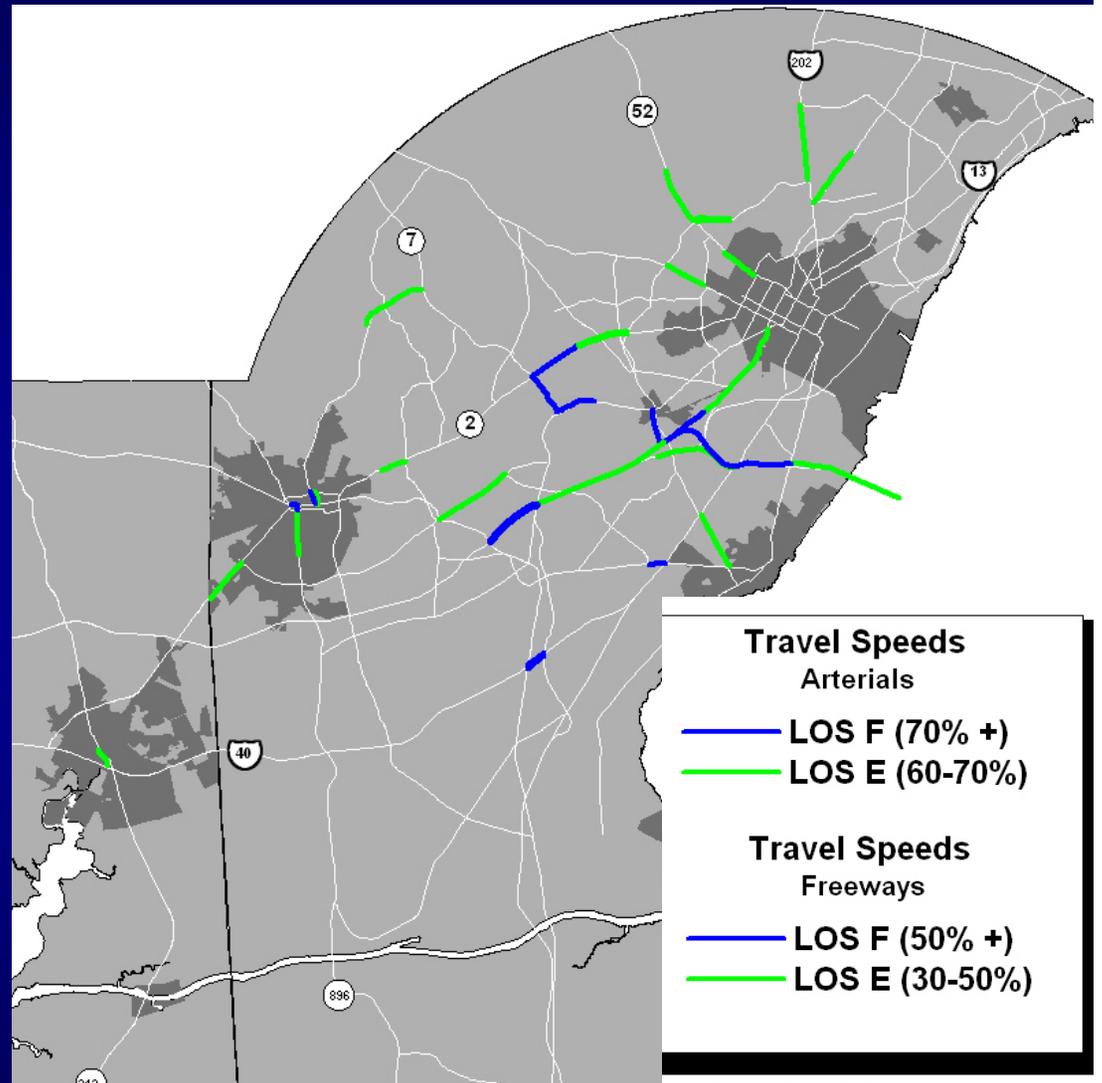
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Intersection Level of Service (LOS)

Intersections functioning at LOS E and
F (V/C greater than 90% Capacity)

Percent under posted speed:

Arterial Segments operating at greater
than 60% BELOW posted speed
Freeway Segments operating at greater
than 30% BELOW posted speed



Step2: Congestion Definition & Identification

Performance Measures:

Roadway Volume/ Capacity Ratio

Segments operating at LOS E and
(V/C ratio greater than 93% Capacity)

Intersection Level of Service (LOS)

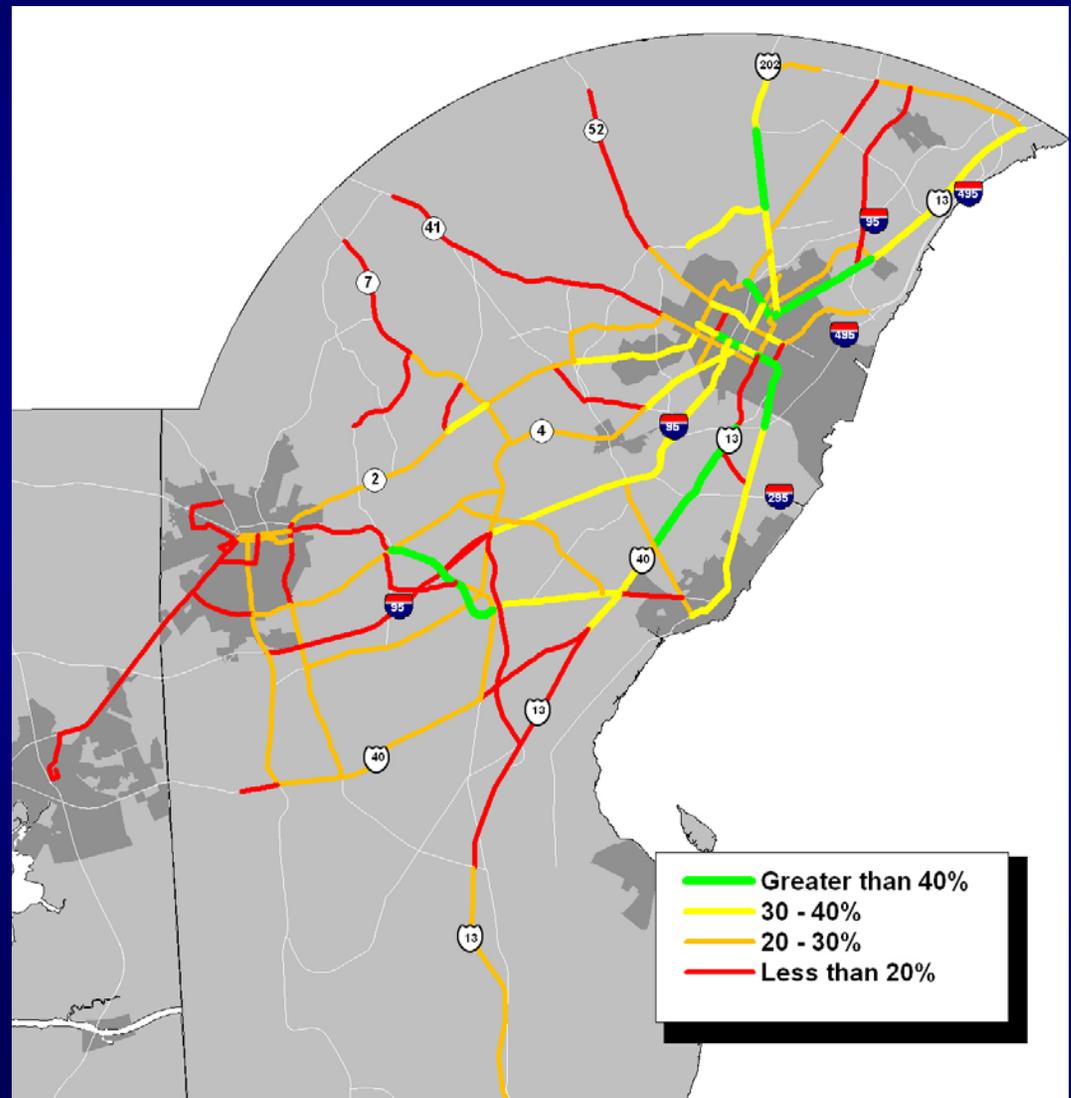
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Percent under posted speed:

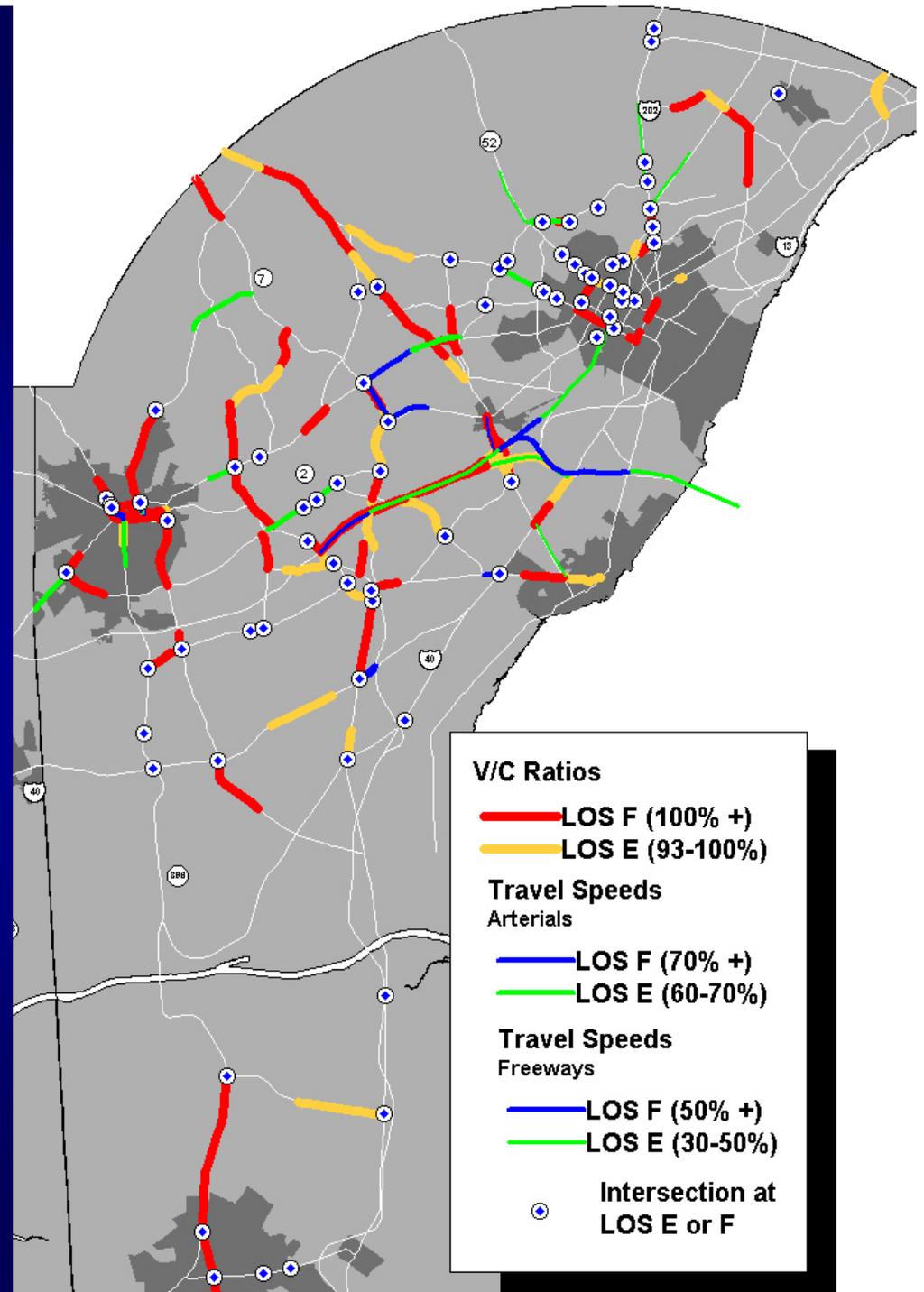
Arterial Segments operating at greater
than 60% BELOW posted speed
Freeway Segments operating at greater
than 30% BELOW posted speed

Transit Level of Service (Load Factor)

Routes with V/C ratio greater than
100% of capacity (LOS E & F)

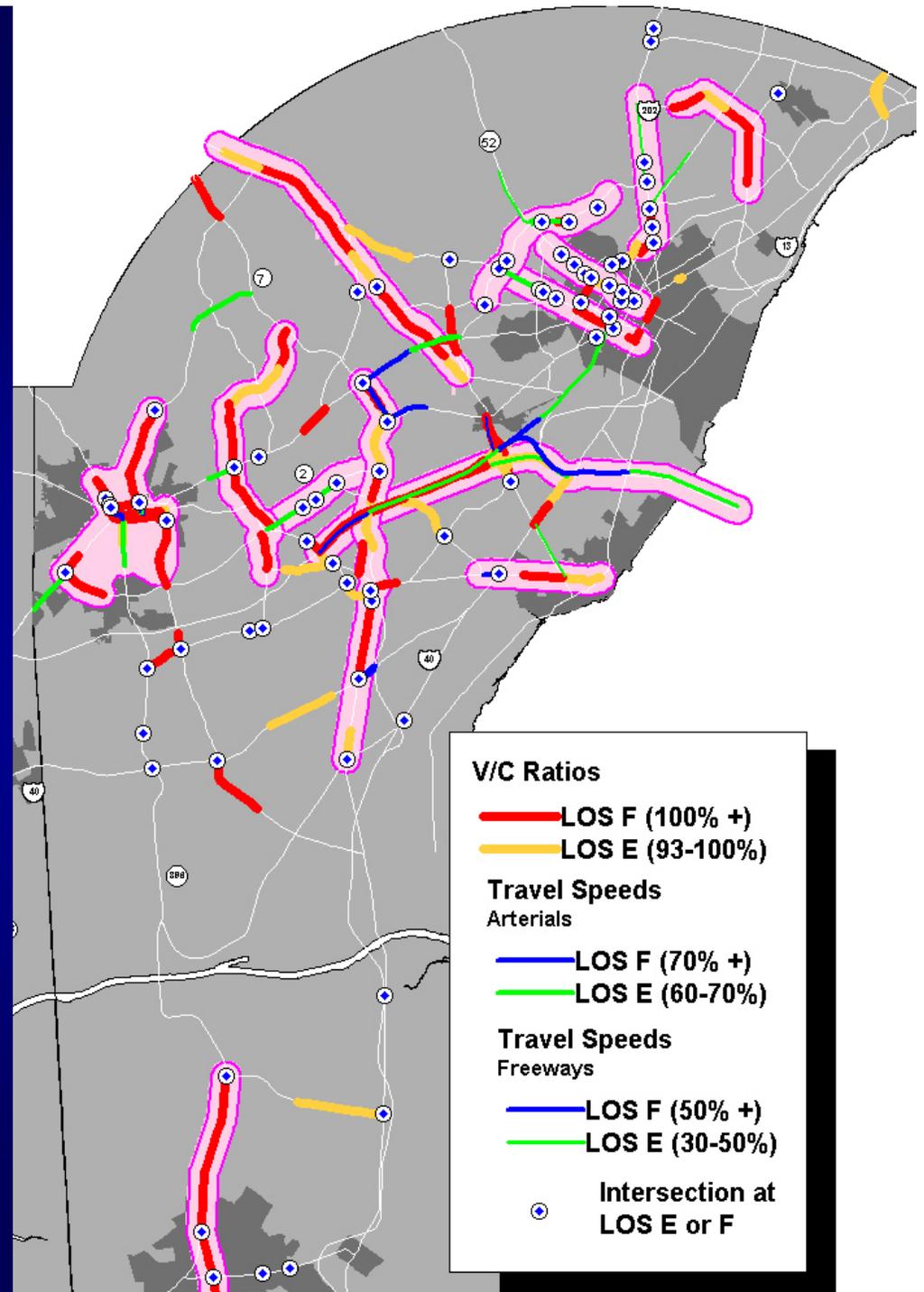


Selection of Identified Corridors



Selection of Identified Corridors

- Group Consensus
- Captures Major Movements
- Areas with significant congestion densities (multiple measures impacting corridor)



Step 3 – Strategy Evaluation

- Individual Corridor Analysis
- CMP “Toolbox”
- Area-wide mitigation strategies
- Corridor Solution Matrix
- TIP Analysis

General Corridor

Avg. Annual Daily Traffic Range (2003)

Type of Facility(ies)

WILMAPCO Investment Area

Transit Routes/ Volume to Capacity Ratio

Number of Park-n-Rides Along Corridor

Corridor Demographics/ Environmental Justice

Gross Corridor Household Density (per acre)

Gross Corridor Employment Density (per acre)

Percent Coverage of Non-Motorized facilities along corridor

% of Households Along Corridor within Environmental Justice Target Areas

Major Activity Center

Corridor Trends

Household Change 1990-2004 vs. Region

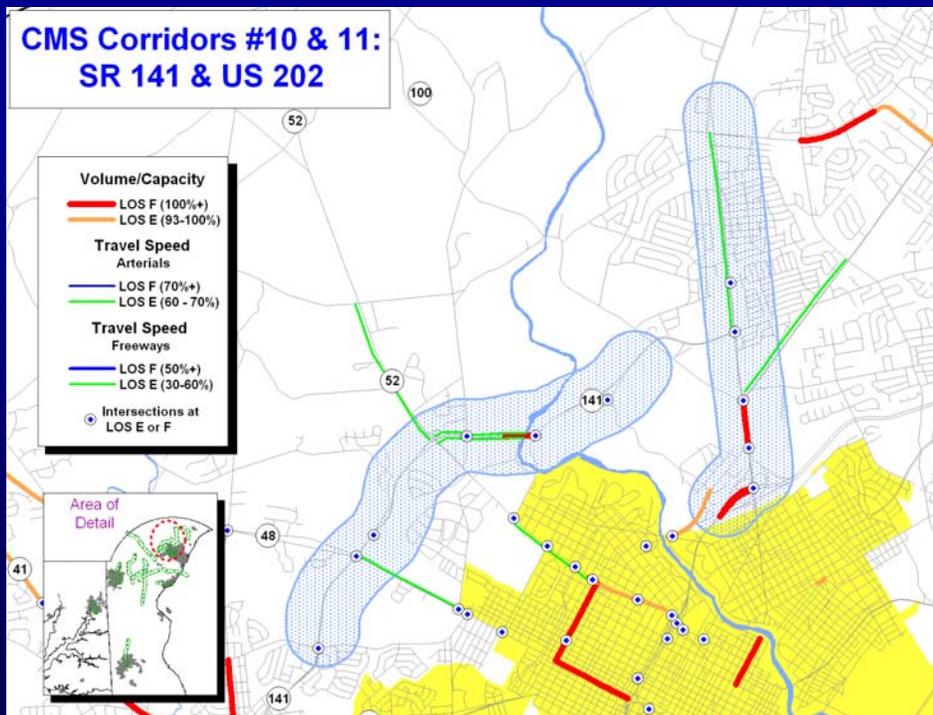
Population Change 1990-2004 vs. Region

% AADT Change 1998 - 2003 vs. Region

% V/C Ratio Change 1998-2003

% change in avg travel speeds 1998-2004

**CMS Corridors #10 & 11:
SR 141 & US 202**



Step 3 – Strategy Evaluation

- Individual Corridor Analysis
- **CMP “Toolbox”**
- Area-wide mitigation strategies
- Corridor Solution Matrix
- TIP Analysis

Strategy #1: Eliminate person trips or reduce VMT during peak hours
(Land Use, Congestion Pricing, TDM)

Strategy #2: Shift Trips from Automobile to Other Modes
(Transit, Bicycle and Pedestrian Improvements)

Strategy #3: Shift Trips from SOV to HOV Auto/Van
(Rideshare, HOV Facilities, Parking Management)

Strategy #4: Improve Roadway Operations
(Arterial and Intersection Operations, Access Management, ITS)

Strategy #5: Add Capacity

Step 3 – Strategy Evaluation

- Individual Corridor Analysis
- CMP “Toolbox”
- **Area-wide mitigation strategies**
- Corridor Solution Matrix
- TIP Analysis

| | |
|--|---|
| Strategy #1: Eliminate Person Trips or Reduce | Growth Management/Activity Centers |
| | Land Use Policies/Regulations - |
| | Congestion Pricing |
| | Parking Fees - |
| | Transportation Demand Management |
| Alternate Work Schedule, Telecommuting and Employee Trip Reduction Programs- | |
| Strategy #3 Shift Trips from | Transportation System Management |
| | Parking Management - Preferential parking is a low-cost incentives |
| | Rideshare Matching Services - |
| | Vanpool/Employer Shuttle Programs - |
| Strategy #4: Improve Roadway | Traffic Operational Improvements |
| | Incident Management- Detection, Response & Clearance - Utilize traveler radio, travel alert notification (via e-mail, fax, etc.), |

Step 3 – Strategy Evaluation

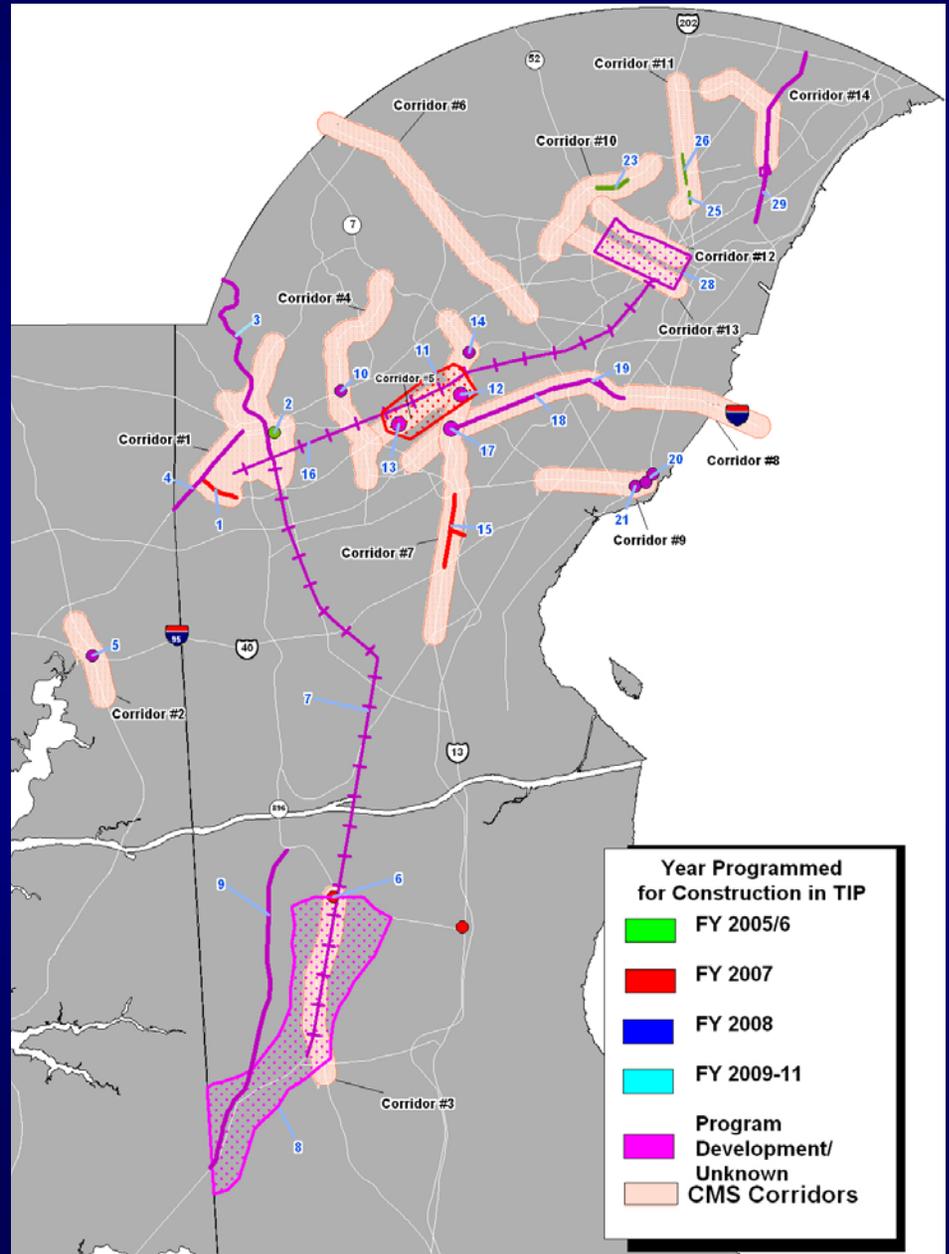
- Individual Corridor Analysis
- CMP “Toolbox”
- Area-wide mitigation strategies
- **Corridor Solution Matrix**
- TIP Analysis

2005 CMP Summary- Solution Matrix

| Strategy | Mitigation Method | | Implementing Agency | Corridor 1 |
|--|--|---|---------------------------------------|------------|
| Strategy #1: Reduce VMT | Congestion Pricing | | | |
| | 1-2 | Road User Fees | MDOT/DeIDOT | |
| Strategy #2: Shift Trips from Automobile to Other Modes | Public Transit Capital Improvements | | | |
| | 2-1 | Exclusive Right of Way – New Rail Service | DTC/MTA | |
| | 2-2 | Exclusive Right of Way – New Bus Facilities | DTC/MTA | |
| | 2-3 | Fleet Expansion | DTC/MTA | |
| | 2-4 | Improved Intermodal Connections | DTC/MTA | X |
| | Public Transit Operational Improvements | | | |
| | 2-5 | Traffic Signal Preemption | DTC/MTA | X |
| | 2-6 | Transit Fare Reductions/Reduced Rate of Fare | DTC/MTA | X |
| | Advanced Public Transportation Systems (APTS) | | | |
| | 2-7 | Intelligent Bus Stops & Transit Information Systems | DTC/MTA | X |
| | Bicycle and Pedestrian Modes | | | |
| 2-8 | Improved/Expanded Bicycle Network and Facilities | MDSHA/ DeIDOT/ Municipalities | X | |
| 2-9 | Improved/Expanded Pedestrian Network Facilities- | MDSHA/ DeIDOT/ Municipalities | X | |
| Strategy #3: Shift Trips from SOV to HOV Auto/Van | Encourage High Occupancy Vehicle (HOV) Use | | | |
| | 3-1 | Add HOV Lanes | DeIDOT/MDOT | |
| | 3-2 | HOV Toll Savings | DeIDOT/MDOT | |
| | 3-3 | Development of Park and Pool/Park-n-Ride Facilities | DeIDOT/MDOT | |
| | Transportation System Management | | | |
| | 3-3 | Parking Management | Municipalities/ Private Businesses | X |
| | 3-4 | Rideshare Matching Services | TMA-Delaware | X |
| 3-5 | Vanpool/Employer Shuttle Programs | TMA-Delaware | X | |

Step 3 – Strategy Evaluation

- Individual Corridor Analysis
 - CMS “Toolbox”
 - Area-wide mitigation strategies
 - Corridor Solution Matrix
 - TIP Analysis
- Project Name
 - Project Type
From Strategy List
 - Year Scheduled for
Construction
 - Project Cost



Step 4: System Monitoring

Trend Analysis:

- **Travel Speed Changes by segment Since 2000**
- **Current AADT**
- **AADT Changes Since 1998**
- **Truck Volumes along CMP Network**
- **Transit Ridership Performance**

Step 4: System Monitoring

Data Inventory:

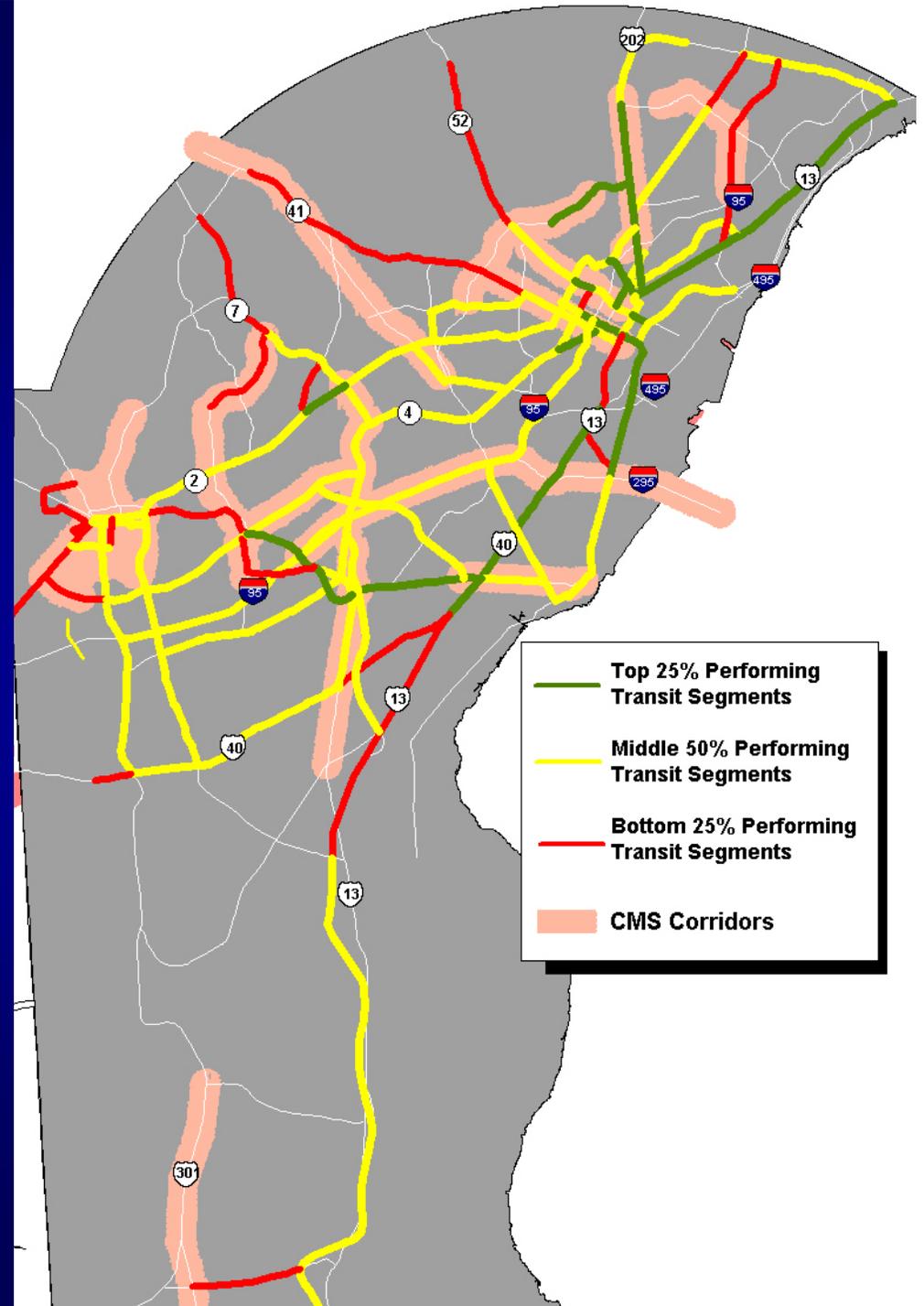
- **Participation Data from TMA**
- **ITS Infrastructure (Coord. Signals, Traffic Cameras, VMS)**
- **Park & Ride/Park & Pool Inventory and Usage**
- **Transit Ridership by Route and Capacity Analysis**
- **Non-Motorized facilities**

How has the CMS helped Operations & Long-Range Planning?

- 1. Involve operating community in strategy selection process**
- 2. Data collection / trend analysis of strategies**
- 3. Transit Operations Planning**
- 4. Project prioritization for TIP & RTP**
- 5. Assessing developer contributions for transportation Improvements**

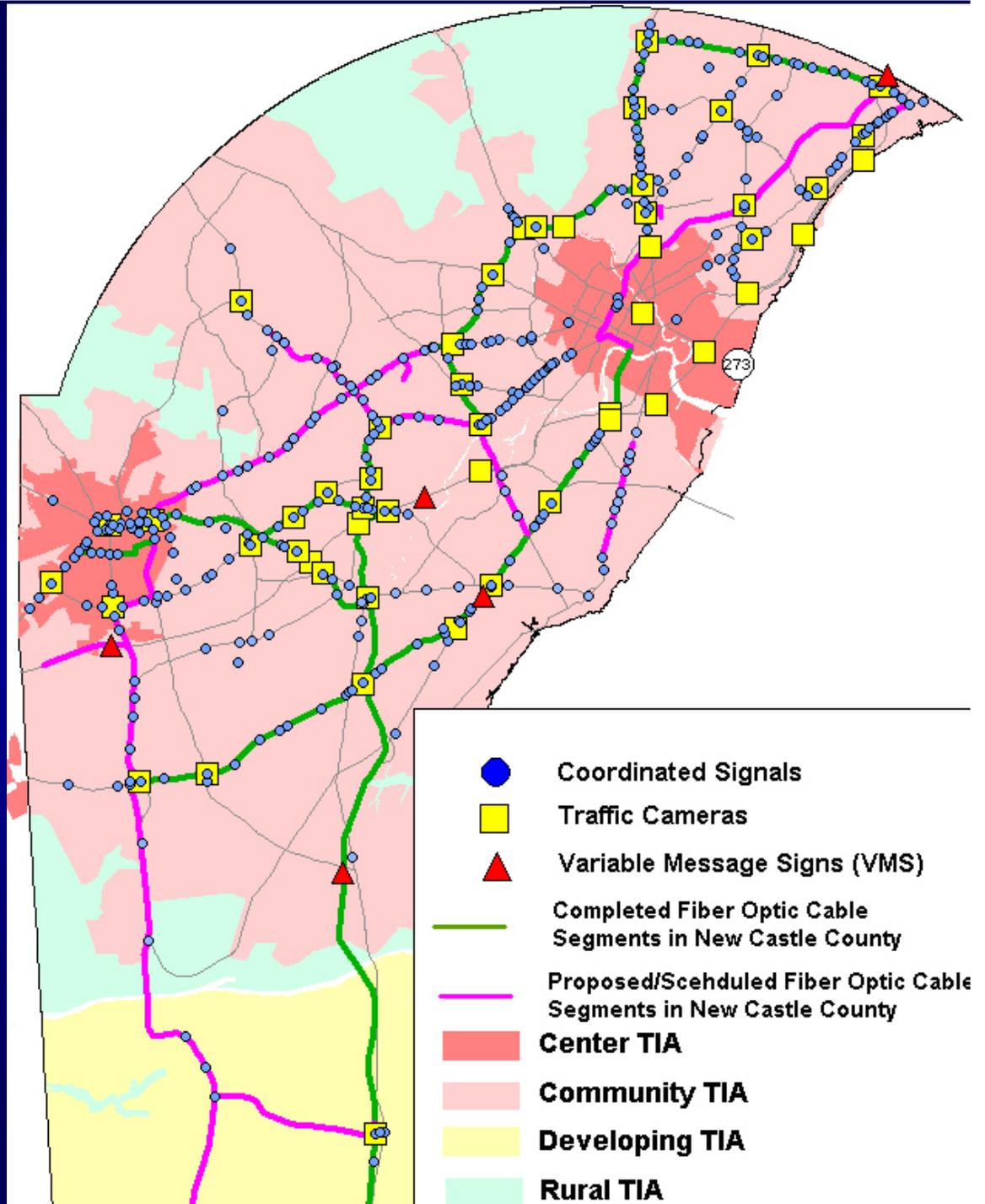
Transit Operations Planning

- Source of data for transit operations decisions
- Used in review of annual route performance
- helps prioritize where to add/cut service



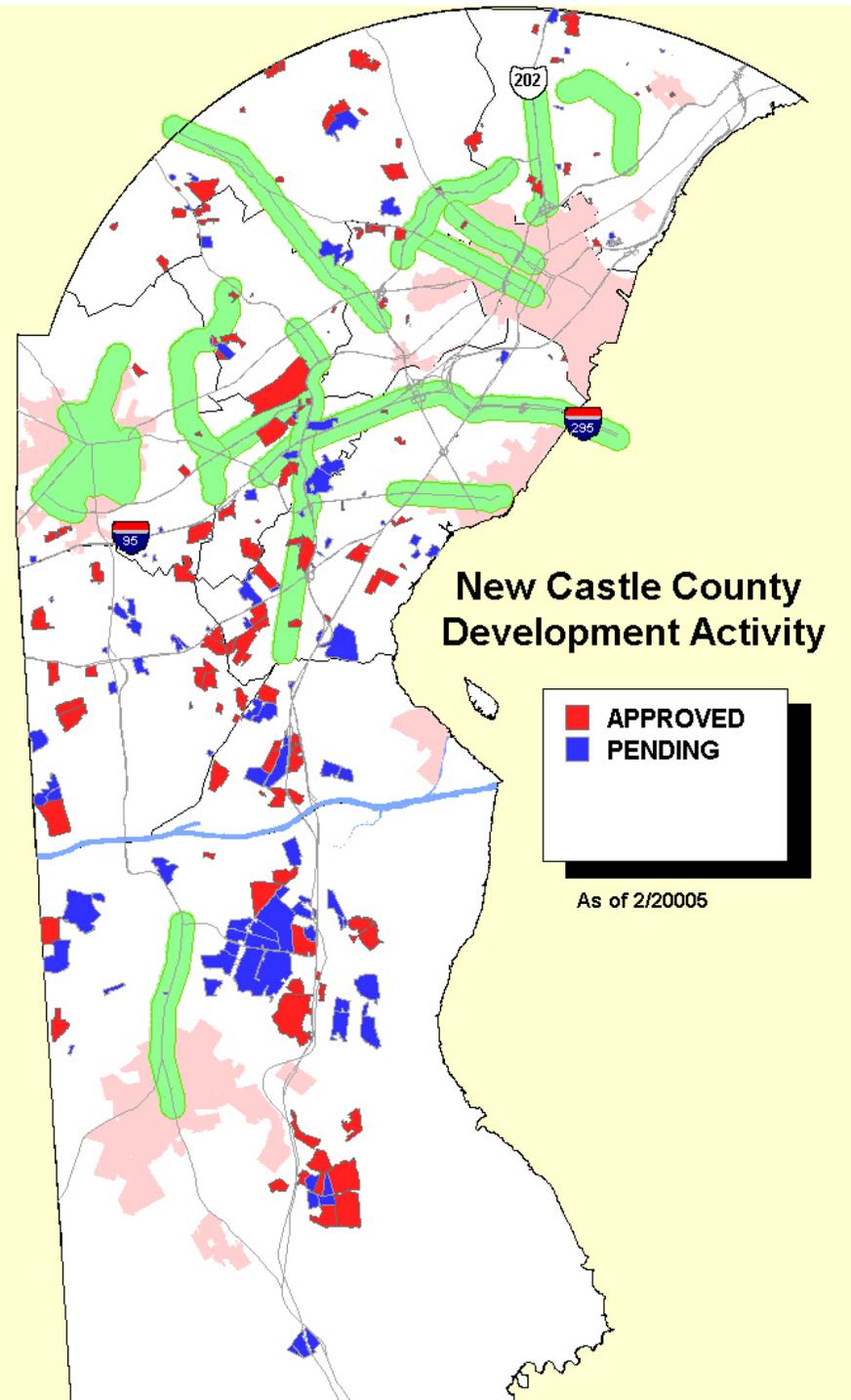
ITS Infrastructure

| Type | 2003 | 2005 |
|--------------------------------|------|------|
| Coordinated Signals | 370 | 367 |
| Vairable Message Signs (VMS) | 8 | 9 |
| Live Traffic Cameras | 50 | 54 |
| Completed Miles of Fiber Optic | 58 | 74 |



Assessing developer contributions for transportation improvements

- CMS used when reviewing land use plans
- Assess adequate developer costs for improvements for:
 - Intersection improvements
 - Transit stops
 - Sidewalks



How has the CMS helped Operations & Long-Range Planning?

Data Collection/Trend Analysis

- **Demonstrated need for better data collection**
 - **Travel Time data**
 - **Transit usage**
 - **Location of ITS infrastructure**
 - **Park & Ride/Park & Pool usage**
- **Results:**
 - **Funding set aside in UPWP for annual data collection**
 - **Helps establish trends in measuring effectiveness of mitigation strategies**

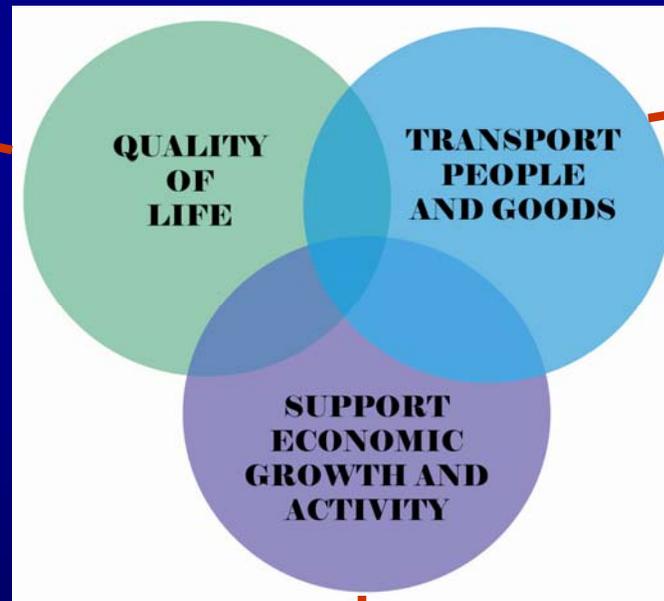
How has the CMS helped Operations & Long-Range Planning?

- **CMP corridors used in TIP & RTP project prioritization**
- **Scoring system gives higher priority to projects that have been recommended in the CMS**

Project Prioritization Process

- Evaluates transportation projects using measurable criteria based on the goals of our long-range Regional Transportation Plan (RTP).
- Projects are “scored” using a series of criteria based on RTP goals

1. Air Quality Impacts
2. Environmental Justice Areas
3. Safety(Crash Rate)



1. **CMP Corridors**
High AADT Areas
High Transit Use Areas
2. Transportation Justice Areas

1. Freight Corridors
2. Econ. Development Areas
3. Developer Contributions

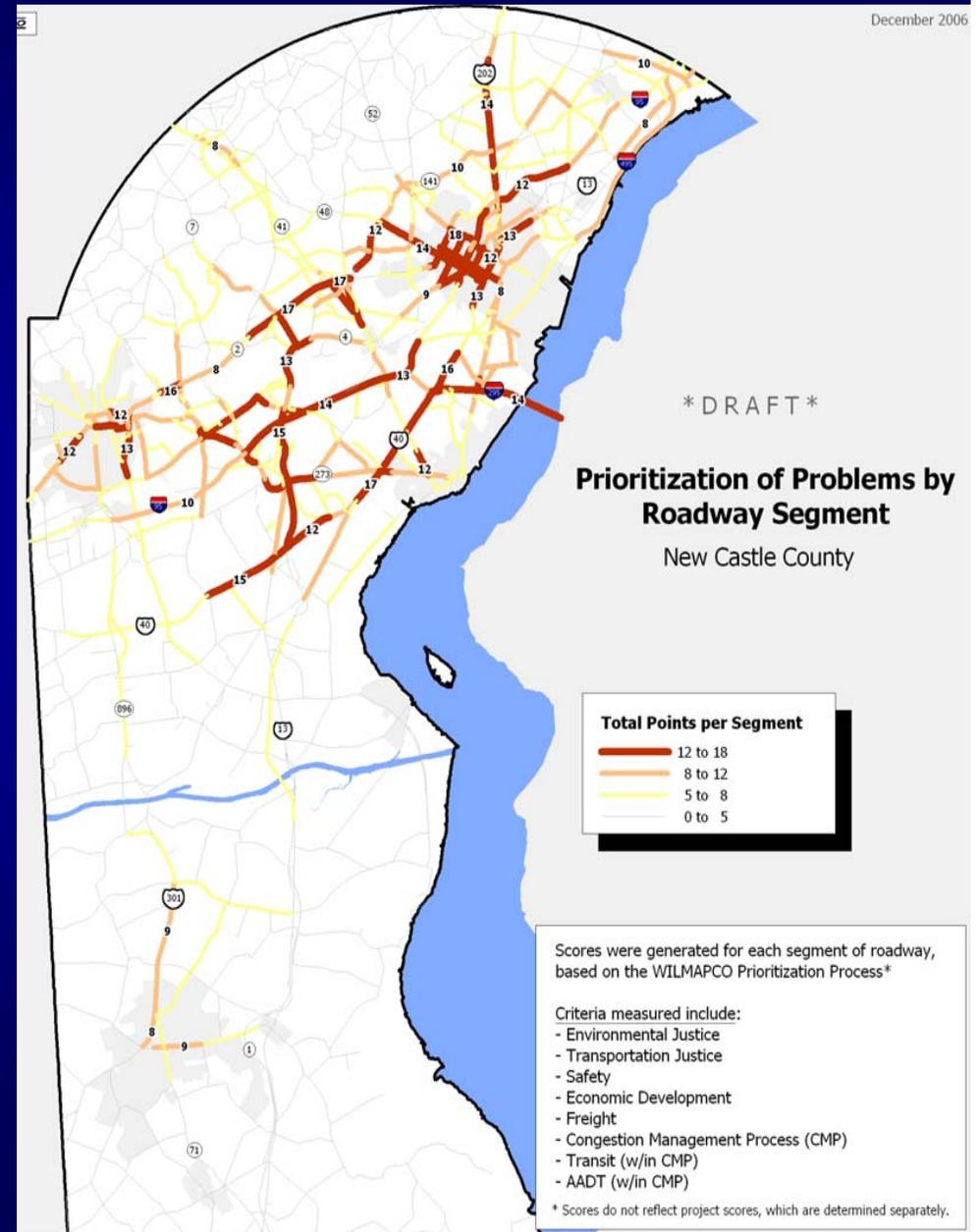
Project Prioritization Process

| | | Goal #1: Improve Quality of Life | | | Goal #2 Transport People and Goods | | | | Goal#3: Support Economic Activity and Growth | | | |
|--|---------------------|----------------------------------|-----------------------|------------|------------------------------------|---------|-------------|------------------------|--|----------------------|---------------|-------------------|
| PROJECT | DeIDOT Project Type | Air Quality Impacts | Environmental Justice | Crash rate | CMS Corridor | CMS ADT | CMS Transit | Transportation Justice | Freight Impacts | Economic Development | Funding Match | Technical Scoring |
| Wilmington Traffic Calming | Collectors | 1 | 3 | 3 | 2 | 0 | 3 | 3 | 0 | 3 | 1 | 19 |
| Transit Vehicle Replacement and Refurbishment, New Castle County | Transit | 1 | 3 | 1 | 2 | 2 | 3 | 3 | 1 | 3 | 0 | 19 |
| SR141: SR273 to SR 48 | Arterials | 1 | 0 | 2 | 2 | 3 | 2 | 3 | 1 | 3 | 0 | 17 |
| Wilmington Signal Improvements | Locals | 1 | 3 | 3 | 2 | 0 | 3 | 0 | 1 | 3 | 0 | 16 |
| Blue Ball Properties, SR141 and US202 Area Improvements | Arterials | 1 | 0 | 2 | 2 | 4 | 3 | 0 | 1 | 3 | 0 | 16 |
| Churchman's Crossing Corridor Improvements | Arterials | 1 | 1 | 2 | 2 | 2 | 3 | 0 | 2 | 3 | 0 | 16 |
| Christina Riverfront | Locals | 1 | 3 | 2 | 2 | 2 | 1 | 1 | 0 | 3 | 0 | 15 |
| SR 2, Kirkwood Highway and Red Mill Road Intersection | Arterials | 1 | 3 | 2 | 2 | 3 | 2 | 0 | 1 | 0 | 0 | 14 |
| I-95, Maryland State Line to SR141 | Expressways | 0 | 0 | 2 | 2 | 4 | 2 | 0 | 3 | 1 | 0 | 14 |
| SR 2, Elkton Road, Maryland State Line | Arterials | 1 | 3 | 1 | 2 | 3 | 0 | 0 | 1 | 3 | 0 | 14 |
| I-295 Improvements | Expressways | 0 | 0 | 2 | 2 | 4 | 0 | 0 | 3 | 3 | 0 | 14 |

Project Prioritization Process

“Problem Prioritization”

- Aids in Project Development Projects



Thank You!

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<http://www.wimapco.org>**