SOUTH JERSEY TRANSPORTATION PLANNING ORGANIZATION

TC

The SJTPO 2015 Regional Transportation Plan

August 1995

SOUTH JERSEY TRANSPORTATION PLANNING ORGANIZATION
SJTPO

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The SJTPO Policy Board provided the initiative and overall direction for the Plan, with technical guidance by the Steering Committee appointed early in the planning process by the Board.

The SJTPO Citizens' Advisory Committee, which brings representatives from a broad cross-section of interests into SJTPO's structure, played a key role in soliciting public input throughout the development of the Plan.

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William E. Sturm, Jr. - Director, Cape May County Board of Chosen Freeholders and past SJTPO Chairman

Dr. John R. Reinard - Cumberland County Freeholder and past SJTPO Vice-Chairman

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I. PLAN FRAMEWORK

The South Jersey Transportation Planning Organization

As required by the Federal government, transportation planning and decision-making for urbanized areas is carried out through Metropolitan Planning Organizations (MPOs). On July 1, 1993, the South Jersey Transportation Planning Organization (SJTPO) was designated the MPO for the southern New Jersey counties of Atlantic, Cape May, Cumberland and Salem. The SJTPO replaced three smaller MPOs which previously covered parts of the area and also incorporated areas not formerly served by an MPO. The SJTPO was formed to allow a stronger regional approach to solving transportation problems and brings new opportunities to southern New Jersey. Map I-1 at the end of this chapter depicts the SJTPO region.

MPOs coordinate the planning activities of participating agencies in the region (e.g., New Jersey Department of Transportation, NJ TRANSIT, the four counties, among others) and provide a forum for cooperative decision-making among responsible state and local officials, public and private passenger and freight operators, and the general public. MPOs, under recent legislation (Intermodal Surface Transportation Efficiency Act of 1991 or ISTEA), are entrusted with an expanded role in transportation planning and capital programming. The MPOs have become partners with state government in deciding how available federal transportation dollars are spent and bring transportation decisions closer to those served.

Long-Range Regional Transportation Plan Development and Oversight

A long-range Regional Transportation Plan serves as the official, adopted long-range plan for the metropolitan region and directs regional transportation decision-making for a twenty year period. A long-range transportation plan is required for each MPO, including the SJTPO, under ISTEA. This Regional Transportation Plan serves as the first long-range transportation plan for the SJTPO and will be updated in three years.

Regional Transportation Plans serve as the foundation for the continuous, comprehensive, and coordinated regional transportation planning efforts required of MPOs. Regional Transportation Plans provide a method to address regional concerns through the integrated improvement of highways, public transit, freight, multimodal and intermodal facilities, as well as bicycle and pedestrian enhancement activities. The plan must include both short-range and long-range actions or strategies that will lead to the formation of an integrated intermodal transportation system that facilitates the efficient movement of people and goods. As such, Regional Transportation Plans do not specify the design of actual projects or services. Instead, they identify future needs to confront transportation system weaknesses so that more detailed and technical studies may take place. Once these more detailed and technical studies occur, actual project features and funding limitations are identified in the MPO's Transportation Improvement Program or TIP. To receive federal funding, transportation projects must appear in a MPO's TIP. A precondition for including a project in the TIP is that the project must be consistent with the Regional Transportation Plan.

Technical work to develop the SJTPO Plan consisted of several tasks that are described in later sections of this Plan: establishment of baseline conditions; development of future transportation conditions; identification of future transportation improvements, strategies, and actions; development of a financial plan and an air quality conformity assessment. The technical work efforts and extensive public involvement activities have defined the planning process. Direct involvement of officials of transportation agencies, local governments, freight transportation providers, and other interested members of the public were of critical importance to the planning process and helped ensure that the goals, policies and

recommended actions and strategies of the Plan are reflective of the identified needs of these groups and individuals.

Oversight in developing the Regional Transportation Plan was accomplished through the board and committee structure of the SJTPO and many public involvement activities. These groups and activities are described below:

The SJTPO Policy Board - The governing board of the SJTPO is the Policy Board which consists of eleven voting members. Members include one elected official from each county government, one municipal elected official from each county, specifically including the Mayors of Atlantic City and Vineland, and one representative each from the New Jersey Department of Transportation, NJ TRANSIT, and the South Jersey Transportation Authority. The Policy Board formally approves planning process products (TIPs, etc.) and adopted this Regional Transportation Plan as the long-range transportation plan for the region. As part of the development of the Regional Transportation Plan, goals for the Plan were crafted by members of the Policy Board at a Board retreat. Goals are statements reflecting what the region's transportation system should be in the year 2015. The Regional Transportation Plan goals are described in a subsequent section of this chapter. The Policy Board also reviewed all the policy statements and action steps that are outlined in later chapters of this Plan.

The Technical Advisory Committee (TAC) - As designated by the Policy Board, the fifteen-member TAC provides input and makes recommendations to the Policy Board. The TAC consists of staff of each Policy Board member as well as representatives of the New Jersey Turnpike Authority, the New Jersey Highway Authority, and the Delaware River and Bay Authority, along with the Chairperson of the Citizens Advisory Committee of the SJTPO. A subset of the TAC, the Regional Transportation Plan Steering Committee, was most directly involved in oversight and development of the Plan. This committee guided staff and consultant work efforts on the Plan by reviewing technical products and policy issues. Representatives on the Steering Committee include Planning Directors from the four counties and representatives from the New Jersey Department of Transportation, NJ TRANSIT, South Jersey Transportation Authority and a representative from the SJTPO Citizens Advisory Committee.

The Citizens Advisory Committee (CAC) - With thirty-two members, the CAC represents a broad cross-section of interests. The CAC was established as part of the SJTPO's initial structure in recognition of the importance of public involvement to the organization. The CAC consists of civic representatives from each of the four counties, representatives from the New Jersey Conference of Mayors, and the South Jersey Transit Advisory Committee. Business concerns are represented by members of the four counties' Chambers of Commerce, county economic development agencies, the Southern New Jersey Development Council, the Southern Shore Regional Tourism Council, and the Greater Atlantic City Region Tourism Council. Environmental interests are represented through the South Jersey Land Trust and the Audubon Society. Private providers of transportation and users are represented by the Winchester and Western Railroad, CONRAIL, the Southern Railroad of New Jersey, the West Jersey Railroad, Cape May Seashore Lines Railroad, Atlantic City Jitney Association, Atlantic City Bus Operators Association, New Jersey Motor Truck Association, Aircraft Owners and Pilots Association, along with bicycle advocates from South Jersey Wheelman, Shore Cycle Club, and the New Jersey Coalition of Cyclists. Other interested individuals and associations have been included on CAC mailing lists by request. Updates on the development of the Regional Transportation Plan have been reported at the regularly scheduled meetings of the CAC. Importantly, the CAC has provided guidance in the development of the public participation process for the Regional Transportation Plan.

The Public Involvement Program

The technical work efforts interacted with extensive public involvement activities at critical milestones to ensure early and timely public input in the Plan development. The process allowed a broad range of participants access and input to both the initial tasks in Plan development, such as goal setting, and also

to later tasks, such as identifying future transportation investments, strategies and actions. Early in Plan development three public meetings and a focus group were undertaken. As preliminary transportation investments, strategies and actions were developed, a subsequent round of public meetings was held. The Plan also used the results of the Statewide Long Range Plan public participation process. A public hearing was held after a draft of the Plan was released by the Policy Board. The objectives and results of both sets of public outreach meetings and the objectives and results of the stakeholder focus group are described below.

Initial Public Outreach Meetings

Three public outreach meetings were held after draft goals were developed by the Policy Board during August of 1994. The objectives of the initial public outreach meetings were to:

- Obtain public comment on the draft goals.
- Ascertain public perceptions about regional transportation problems, issues and concerns; both short-term and long-term.
- Display and receive comment on maps developed as part of the baseline conditions task illustrating congestion prone areas, high accident areas, etc.

Various communication activities were undertaken to create public awareness of the meetings, increase meeting attendance, and convey the importance of public participation. Activities included a radio station interview with the SJTPO Executive Director, press releases, announcements made at meetings of local economic development and business groups, and distribution of flyers placed on community bulletin boards and mailed to individuals on the SJTPO mailing lists. In an effort to attract a non-traditional audience and reach the general traveling public, two of the meetings were held at locations with unique public appeal -- the new Hamilton Mall for Atlantic County and Historic Cold Spring Village for Cape May County. The other meeting was held at the Cumberland County Library for Cumberland and Salem Counties.

The agendas for two of the meetings, at the Cumberland County Library and Historic Cold Spring Village, were similar. At these meetings, the Executive Director identified and described the SJTPO and the purpose of developing a Regional Transportation Plan. Members of the consulting team then explained the public involvement process and reviewed the draft goals. The consulting team project manager then led a group discussion focusing on transportation issues and problems and asked for comments on the draft goals. Display boards illustrating changes in New Jersey's economy, demographics and travel patterns were placed around the meeting rooms for attendees to view. Also on display were area maps depicting congestion areas, high accident areas, and the like. The public was invited to write on the maps. Draft goals were also placed on boards for public view. A hand-out for each meeting was developed that outlined the agenda, identified key project team members, listed the draft goals and included a study area map. A postage-paid suggestion card was also made available for attendees to provide additional comment. A sign-in sheet was used to record attendees' names and addresses and for mailing list development. Information about public transportation was also available from NJ TRANSIT.

In contrast to the above meetings, the Hamilton Mall meeting utilized a non-traditional approach to public involvement to reach out to the average citizen. The meeting was set up as a "drop-in" center on transportation issues, where project team members circulated in the center court area of the mall speaking to members of the public that stopped by the display area. The center court area displayed the draft goals, the area map, and the display boards depicting changes in New Jersey's economy, demographics and travel patterns that were used in the other two meetings. Comment cards were available for the public to fill-out and the public was invited to write comments on the maps. A videotape

depicting NJ TRANSIT's long-range planning process was played through-out the evening. Transit information and give-aways were available from NJ TRANSIT.

The majority of comments received from the initial round of public outreach meetings focused on identifying areas of congestion and promoting transportation choices by expanding public transit or by promoting interconnections or intermodalism in the transportation system. Mobility is a concern for many southern New Jersey residents, however, comments received at the outreach meetings showed that individual needs differed. For some, mobility meant being able to move efficiently along a heavily used transportation route. For others, like the transportation disadvantaged, mobility meant the ability to board a bus or purchase a bus or train ticket. To others, mobility meant having transportation choices or options, especially alternatives to the single-occupant vehicle. Members of the public agreed with the draft goals developed by the Policy Board and no changes were recommended. As will be seen in later sections of this Plan, the goals reflect public concerns about reducing congestion, expanding public transit and promoting transportation choices.

Stakeholder Focus Group

Subsequent to the initial public outreach meetings, a focus group was held with regional stakeholders. The purpose of the focus group was to obtain transportation issues and concerns from a range of special interests that had not had strong participation in the initial public involvement activities.

Specifically, the objectives of the focus group were to:

- Seek out transportation concerns, issues, and problems from the viewpoint of environmental groups, major employers, economic development interests, the transportation disadvantaged, and freight interests.
- Provide the opportunity for "point/counter-point" discussion given the broad cross-section of interests represented.
- Gain an understanding of the transportation system investment priorities and mobility concerns of the special interests represented.

Common themes and consensus on certain issues emerged from the group discussion. Most participants agreed that maintaining the existing transportation system in a state of good repair and expanding the public transit system to foster mobility and create more travel options are investment strategies that should receive the highest priority in the region. Additionally, many participants asserted that as southern New Jersey looks to expand its economy and businesses, highway access and freight system improvements will be critical to achieve this end. Moreover, many attendees felt that because southern New Jersey is less developed than other regions of the state, the region has a real opportunity to plan for future growth and development. There was universal agreement that the key to effectively planning for the future development of southern New Jersey was more comprehensive and strategic transportation, land use, utility and resource planning. Participants also thought it would be important for project team planners to think regionally, not locally, and fully identify regional problems and solutions.

Second Round of Public Outreach Meetings

Three public outreach meetings were held later in the plan development process after preliminary transportation investments, strategies and actions were identified. These meetings were held in late February and early March 1995. The Atlantic County meeting was held at the Mays Landing Branch of the Atlantic County Library. The Cape May meeting was held at Historic Cold Spring Village. A joint Cumberland County and Salem County meeting was held at Vineland City Hall.

The objectives for the second round of public outreach meetings were to:

- Present forecasted future conditions of the region.
- Present preliminary transportation investments, strategies and actions that had been identified.
- Obtain public comment on the preliminary investments, strategies and actions identified and on future conditions.
- Ascertain public preferences and ideas for solutions to transportation problems.

The publicity efforts for the second round of meetings were similar to the first round. Additionally, a large mailing (200+) was conducted to local mayors, county and municipal planning and engineering staffs, attendees at the previous outreach meetings, and the focus group participants.

At the meetings, the Executive Director identified and described the SJTPO and the purpose of a Regional Transportation Plan. Members of the consulting team then presented existing and forecasted transportation conditions in the region by explaining the data that were gathered, the analysis tools that were used and where future transportation problems are forecast to occur. Consulting team members presented the planning priorities and the preliminary investments, strategies and actions that the project team had identified and the necessary evaluations that are required of a long-range plan. Throughout the presentations, attendees were encouraged to ask questions and offer comments after each topic was introduced.

On display was a map of the region depicting future problem areas with a guide describing the actual location and type of problem. A hand-out for each meeting was developed that included an agenda, identified key project team members, described the planning priorities, contained a smaller version of the problem location map, and described preliminary highway and transit system actions and strategies. Again, similar to the initial outreach meetings, comment cards were available and a sign-in sheet was maintained.

The comments received ranged from ideas for specific improvements at a local intersection or alternatives to some of the proposed highway investments to more general concerns about the need for more transit and changes to the review process currently conducted to implement or construct a transportation system improvement.

Regarding transportation improvements, the public appears to be seeking more multimodal and intermodal solutions such as expanded and more accessible public transit and shuttle services, bicycle and pedestrian ways, better managed and more efficient highway system (improved signals, signage, etc.) and selective enlargement of the highway system such as limited expansion to alleviate congestion. Regarding goods movement strategies, specific projects were identified to better link southern New Jersey rail freight lines to northern New Jersey and other markets to the north. Other needs cited included the development of improved intermodal facilities at the Port of Salem (barge/ship to rail), including assurances of needed highway access for trucks to the port and developing intermodal facilities near urban areas (rail to truck). As will be seen in later chapters of this Plan, these concerns and ideas are addressed in the policies and action steps advocated by the Plan.

Planning Factors

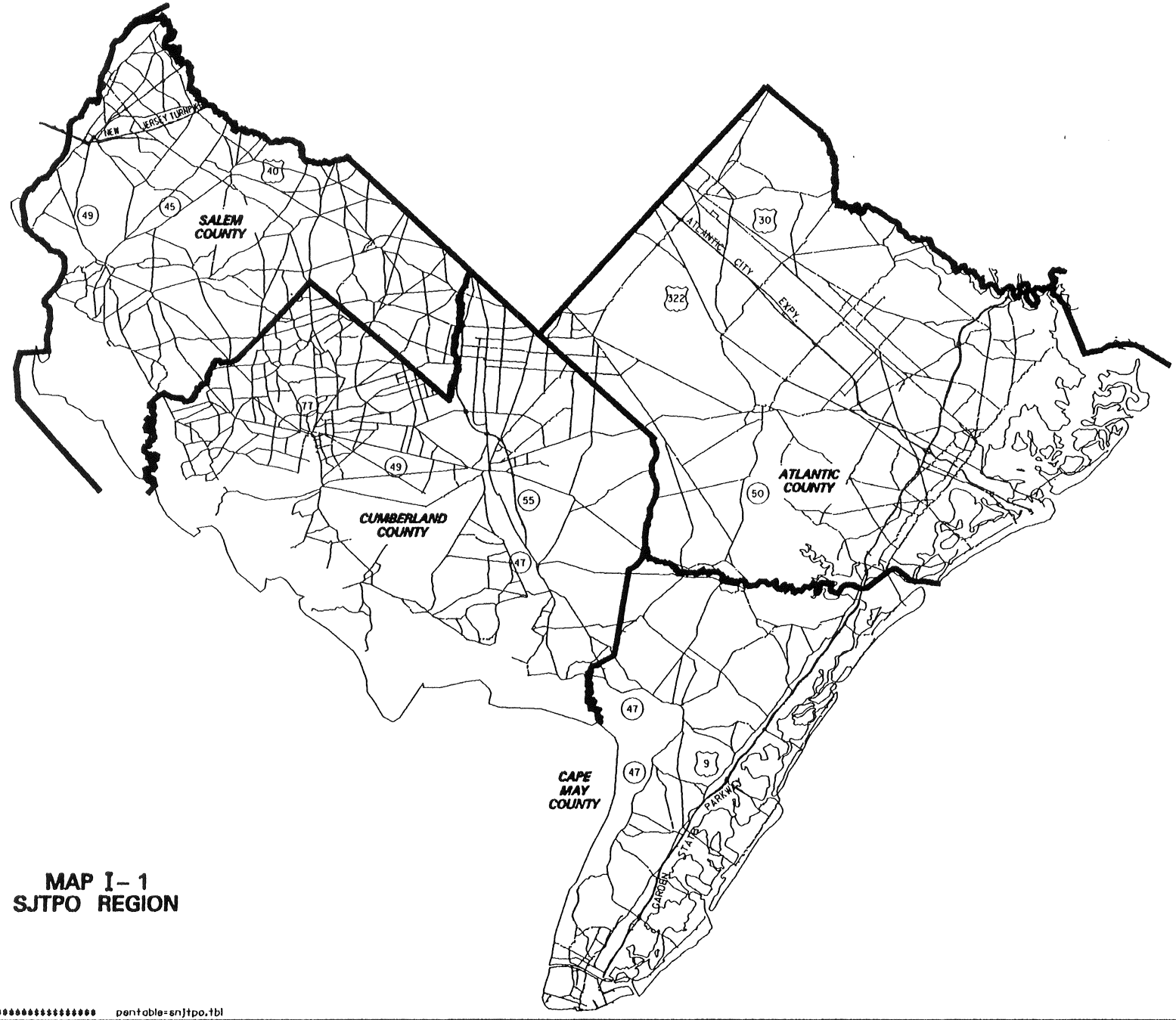
In addition to a proactive public involvement process, the planning process to develop a Regional Transportation Plan must consider fifteen planning factors. These fifteen factors ensure that MPO long-range plans attempt to achieve common objectives across the nation. The fifteen factors are required to be explicitly considered, analyzed as appropriate and reflected in the Plan. Appendix I contains a table comparing adopted Plan goals, policies and actions with these requirements.

Goals for the SJTPO 2015 Regional Transportation Plan

One task in developing the Regional Transportation Plan was to create a set of goals that provide a basis for the direction of the Plan. As such, the goals help guide decision-making on transportation improvement strategies and actions envisioned in this Plan and in subsequent SJTPO Transportation Improvement Programs (TIPs) development.

To develop a set of regional goals, both a review process and a visioning process were undertaken at the Policy Board retreat. The review process consisted of gathering goal statements from the four counties' master plans, goals statements or draft plan documents from adjacent MPOs (Delaware Valley Regional Planning Commission and the North Jersey Transportation Planning Authority), the goals established for the New Jersey Department of Transportation's long-range planning process (Transportation Choices 2020), and the current SJTPO project ranking criteria. This review was undertaken because federal regulations intend the Regional Transportation Plan to serve as the current framework for transportation decision-making. Hence, the Regional Transportation Plan should be reflective of the state-wide transportation plan, adjacent metropolitan plans and currently adopted land use plans. To produce a more concise goal review document, goal statements from the other plans and the SJTPO ranking criteria were organized into one document by the topical issue addressed by the goal or criteria. Using this document, the Policy Board decided whether a goal was needed for an issue, and if so, the exact wording of the goal statement. To facilitate the drafting of the goals, the Board compared the wording of the existing project ranking criteria against goals statements of other New Jersey MPO's and NJDOT. Listed below are the adopted goals of the Regional Transportation Plan:

- Improve safety;
- Support the regional economy;
- Reduce congestion;
- Promote transportation choices;
- Protect and improve the environment;
- Restore, preserve and maintain the existing transportation system;
- Secure dependable, reliable sources of funds, and
- Recognize the interrelationships between transportation and land use plans.



MAP I-1
SJTPO REGION

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II. EXISTING TRANSPORTATION & SOCIO-ECONOMIC CHARACTERISTICS

Overview

The transportation system of southern New Jersey is a multi-modal system with a pronounced concentration on highways. Virtually all types of transportation, both public and private, operate in the region and include highways, transit, trucking, ports, ferry, passenger rail, rail freight, passenger air, air freight, bicycle, and pedestrian.

The four-county service area of the SJTPO has a combined population that is much lower than the service areas of the other MPO's operating in the state, as can be seen in Table II-1. The North Jersey Transportation Planning Authority (NJTPA), with eleven times the population of the SJTPO region, has far more total travel demand. SJTPO figures for population, employment, annual vehicle miles traveled (VMT) for work trips, and annual transit work trips are by far the lowest of the three. The annual average VMT per person in the SJTPO region is 8898 compared to 7318 for the NJTPA region, highlighting South Jersey's heavier reliance on automobiles for work-related travels. Due to sprawling land uses, low population and employment densities, and few choices for public transit use, South Jersey residents travel in their automobiles over 20 percent more than North Jersey residents.

Table II-1
Comparison of New Jersey's MPO's

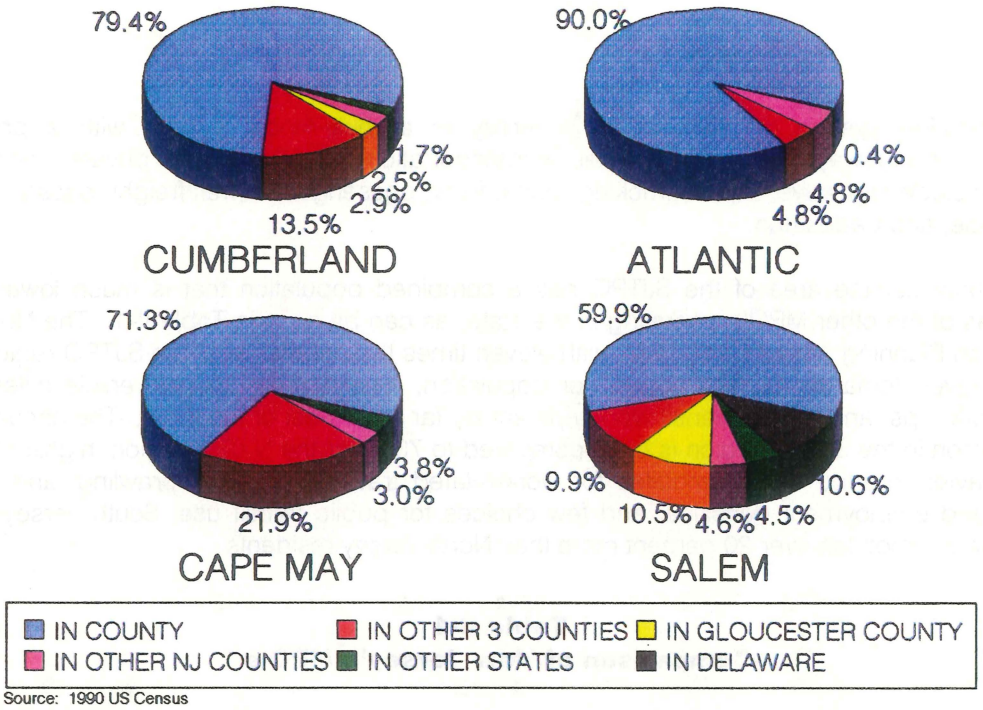
MPO	Population	Employment	Annual VMT (million vehicle miles)	Annual Transit Trips (millions)
SJTPO	522,763	259,718	4,626.74	6.9
DVRPC	1,453,769	631,311	12,216.05	17.7
NJTPA	5,753,629	2,709,738	42,079.87	143.9

Source: 1990 US Census and SJTPO

This chapter opens with a discussion of journey-to-work travel data in the region, moves on to a description of the various modes operating in the region, and closes with a discussion of population and per capita income and employment in the region.

Journey-to-Work

Figure II-1 shows the employment mobility for each of the counties in the SJTPO Regions. Atlantic County has the highest number of workers living and working within the county and Salem County has the lowest. In Atlantic County, 90 percent of the total workers in the County live there, and only 4.8 percent of Atlantic County residents work in the three remaining SJTPO counties. In Salem County, 59.9 percent of the total workers live in the county, while 9.9 percent of the residents work in the three remaining SJTPO counties.



Source: 1990 US Census

Figure II-1
South Jersey Commuting Patterns

In Cape May County, 71.3 percent of its residents work within the county. Many residents work in Atlantic County (19.6 percent) and Cumberland County (2.3 percent). It is interesting to note that although the residents' work destinations are spread out, 22.5 percent of the total workers who travel to work have a short commute (less than ten minutes). Only 10 percent of Cape May workers who do not work at home have a commute longer than 45 minutes. This is due to the great number of employment sites that are within 45 minutes, either within Cape May County or in Atlantic City. Refer to Table II-2 for data concerning travel time to work.

The percentage of Cumberland County residents who work in Cumberland County is 79.4 percent. A relatively large percentage the county's workers 16 years or older (1990 US Census) travels to Atlantic County (9 percent), with Cape May County (1.8 percent) and Salem County (2.7 percent) accounting for 4.5 percent. See Figure II-1 for data on each of the counties. Those workers who do not work at home have a relatively short commute: 60.2 percent of all Cumberland County residents' commutes are less than 20 minutes. Table II-2 shows travel time to work characteristics in the region. Essex County, located in northern New Jersey, is shown as a comparison. In every county in the SJTPO region, the majority of the commuters travel less than 30 minutes to get to work. In contrast, a majority of Essex County residents travel more than 30 minutes.

Table II-2
Travel Time to Work

	ATLANTIC		CAPE MAY		CUMBER-LAND		SALEM		ESSEX	
	Total	% of total	Total	% of total	Total	% of total	Total	% of total	Total	% of total
Workers who did not work at home	109,132		40,027		58,615		28,706		349,734	
Less than 10 min.	17,054	15.6%	9,017	22.5%	13,451	22.9%	5,318	18.5%	37,266	10.7%
10 to 14 min.	18,887	17.3%	7,073	17.7%	12,428	21.2%	4,359	15.2%	45,273	12.9%
15 to 19 min.	21,052	19.3%	7,223	18.0%	9,432	16.1%	4,682	16.3%	52,568	15.0%
20 to 29 min.	27,286	25.0%	6,913	17.3%	9,833	16.8%	6,331	22.1%	75,210	21.5%
30 to 44 min.	16,470	15.1%	5,781	14.4%	6,740	11.5%	5,125	17.9%	76,375	21.8%
45 or more min.	8,383	7.7%	4,020	10.0%	6,731	11.5%	2,891	10.1%	63,042	18.0%

Source: 1990 US Census

Just over half of Salem County residents travel more than 20 minutes to get to work (excluding those who work at home). Only 59.9 percent of Salem County residents actually work in Salem County. Many residents are bound for areas outside New Jersey (15.1 percent). The second largest destination is New Castle County, Delaware, at 10.6 percent.

A majority of workers in the region travel to work alone, as shown in Table II-3. The means of transportation for each county in the SJTPO region is very similar. Within the SJTPO region a full 73.4 percent of workers drive alone to work compared to 71.6 percent of workers overall in the State. In the SJTPO region, Salem County has the highest percentage of workers traveling to work alone, at 78.2 percent. Along with a higher drive-alone share when compared to the State, the region has a higher carpool share than the State (13.7 percent versus 12.38 percent).

Because of low population densities, transit is only sporadically available for the work trip and captures only 1 to 7 percent of work trips by county in the region. Within the region, the transit mode share is 4.4 percent, which is much lower than the overall State share of 8.66 percent for transit. Within specific markets, however, higher transit shares are present, especially in the resort areas that are well served by transit. For example, according to the 1990 Census, the journey-to-work transit share for work trips to Atlantic City was 14.68 percent.

Table II-3
Means of Transportation

	ATLANTIC		CAPE MAY		CUMBER-LAND		SALEM		ESSEX	
	Total	% of total	Total	% of total	Total	% of total	Total	% of total	Total	% of total
Workers 16 years and over	111,467		41,117		59,774		29,320		356,562	
1. Car, truck, or van	92,441		36,407		54,460		27,124		268,090	
Drive Alone	78,406	70.3%	31,181	75.8%	44,930	75.2%	22,923	78.2%	218,813	61.4%
Carpool	14,035	12.6%	5,226	12.7%	9,530	15.9%	4,201	14.3%	49,277	13.8%
2. Public Transit	8,271		676		1,346		387		60,846	
Bus	7,327	6.6%	560	1.4%	1,115	1.9%	326	1.1%	44,616	12.5%
Train	236	0.2%	17	0.0%	18	0.0%	24	0.1%	11,240	3.2%
Ferryboat	0	0.0%	0	0.0%	0	0.0%	3	0.0%	33	0.0%
Other	708	0.6%	116	0.3%	213	0.4%	34	0.1%	4,957	1.4%
3. Non-motorized	7,252		2,584		2,220		913		18,089	
Bicycle	463	0.4%	401	1.0%	182	0.3%	104	0.4%	441	0.1%
Walked	6,789	6.1%	2,183	5.3%	2,038	3.4%	809	2.8%	17,648	4.9%
4. Other	1,168	1.0%	360	0.9%	589	1.0%	282	1.0%	2,709	0.8%
5. Worked at home	2,335	2.1%	1,090	2.7%	1,159	1.9%	614	2.1%	6,828	1.9%

Source: 1990 US Census

Bicycling and walking to work capture relatively small percentages of work trips in the region compared to the share captured by SOVs. Walking to work in the region is more prevalent than bicycling. However, the shares of bike and walk in the region (0.47 percent and 4.9 percent, respectively) are higher than the overall state shares of 0.24 percent for bike-to-work and 4.11 percent for walk-to-work. Within the region, the greatest shares of walk and bike work trips are found in Atlantic and Cape May counties. A number of factors contribute to the higher bike/walk shares found in the region, especially in Atlantic and Cape May counties. The barrier islands in Atlantic and Cape May have high population and employment densities as well as mixed land uses and a resort economy, which foster an excellent environment for bicycle and pedestrian traffic. There are also some high density population centers in Cumberland County (Bridgeton, Millville, and Vineland) and Salem County (Penns Grove and Salem City) where walking or biking can be used for some work, school, and shopping trip purposes. Additionally, according to the 1990 Census, the region also had higher percentages of intra-county work trips than the state overall, shorter travel times, and lower motor vehicle availability.

Highways

The highway system is the primary provider of mobility and accessibility in the region. The total roadway centerline mileage within the four-county region, excluding Authority roadways, is 4770 miles. The breakdown of road mileage per county is shown in Table II-4. This system serves commuter and recreational users, as well as goods movement. Major population centers such as Philadelphia, New York City, Atlantic City, and Wilmington, Delaware are all accessible from the southern counties via state and county roads. Major north-south arterials serving these centers and the entire region are: US 9, which runs along the east coast; the Garden State Parkway, which runs along the eastern coast of New Jersey; I-295 and the New Jersey Turnpike, which run through the center of New Jersey. Major east-west arterials serving these centers and the entire region are: US 322, US 40, US 30 and the Atlantic City Expressway, which serve commuters and recreational traffic traveling to and from Atlantic City, to the shore and west into Philadelphia; and NJ 55, NJ 47 and NJ 49, serving Cumberland and Cape May Counties.

Table II-4
Total Roadway Miles (Centerline)

County	Total Roads (Mileage)
Atlantic County	1816
Cape May County	874
Cumberland County	1232
Salem County	848
Total	**4770**

Source: 1989 New Jersey Transportation Plan; Mileage based on 1987 figures and excluding Authority mileage

Atlantic County

Within the region, Atlantic County has the largest travel demand. During the summer, the daily VMT for Atlantic County outweighs the total for the other three counties in the region combined. Refer to Table II-5 for a summary of daily travel demand in the region. In the winter, the daily VMT will decrease in the recreational areas in Atlantic and Cape May counties, but it is clear that Atlantic County's travel demand is the greatest in the region year-round. The significant employment opportunities that exist in Atlantic County and in Atlantic City create a strong commuter demand on the transportation system. Given the gaming industry in Atlantic City and the shore areas, there is also a strong demand of recreational traffic -- both recurring and seasonal in nature. The region contains several major highway arterials providing access to Atlantic City. The recreational, employment and population densities are also high enough to support a wide range of traditional transit services. Additionally, the diverse mix of land use encourages walking or biking as feasible transportation alternatives. Clearly, there are far more transportation choices available for Atlantic County residents than are available in any other county in the region.

The roadway network within Atlantic County is extensive. The Atlantic City Expressway (ACE) traverses the entire county in an east/west direction, carrying its passengers to and from Atlantic City and the shore into western New Jersey and Philadelphia. US 30 and US 40/US 322 run parallel to the ACE; US 30 runs along the north side and US 40/US 322 runs along the south side. These roads form the primary access to Atlantic City. The Garden State Parkway (GSP) and US 9 traverse the county in a north/south direction, offering access to northern New Jersey and New York. Both the ACE and the GSP are toll roads.

Table II-5
Summary of Daily VMT During the Summer

County	Daily VMT (millions)
Atlantic	7.89
Cape May	2.45
Cumberland	2.72
Salem	2.24

Source: NJDOT's Highway Performance Monitoring System, 1990

Mobility in Atlantic County is further provided through a well-developed county road system that includes Shore Road (CR 585), Tilton Road (CR 563), Delilah Road (CR 646), Fire Road (CR 651), and Wrangleboro Road (CR 575). These roadways are typically 2 to 4 lane signalized roadways. Local streets in Atlantic City distribute traffic from the ACE, US 30 and US 40. Main east/west avenues include Baltic, Arctic, Atlantic, and Pacific Avenues. Significant cross traffic and a substantial number of traffic signals limit the street grid capacity in the city. The highway system in the county serves multiple trip purposes, including passenger and goods movement.

Cape May County

The existing road network within Cape May County provides access from the north and the west to the resort beach areas along the entire coastline, and to the surrounding counties, but not without its share of seasonal congestion and capacity problems. The Garden State Parkway and US 9 are the two main arterials into the county from the north. These two highways carry the majority of the seasonal recreational travel and are congested for extended periods on summer weekends. NJ 47 is also a large conduit for traffic traveling in and out of the county from the west. State routes 52, 147 and 47, in conjunction with Ocean Drive (CR 621, Stone Harbor Boulevard (CR657), Avalon Boulevard (CR 601), Sea Isle Boulevard (CR 625), and Roosevelt Boulevard (CR 623) carry traffic to the barrier islands. During the summer seasons, the concentration of vehicles traveling to the beaches more than triples, causing severe seasonal congestion along these routes and on many of the local roads in Cape May, Wildwood and Sea Isle.

Cumberland County

The roadway network within Cumberland County is sufficient in providing access to its population concentrations, the surrounding counties, and into Philadelphia and Atlantic City. NJ 49 traverses the entire county in an east/west direction, providing access through Cumberland from Salem County into Cape May. NJ 55 and NJ 47 traverse the county in a north/south direction. The three urban areas in Cumberland (Bridgeton, Millville, and Vineland) are served by regional arterials, State routes 49, 77, 47 and 55. NJ 55 and NJ 47 draw a high volume of vehicles during the summer seasons, as well as county routes 552 and 540 into Atlantic County. The most significant traffic congestion is recreational traffic enroute to the Jersey shore, particularly on NJ 55. The main highways into the Philadelphia region are NJ 55 and NJ 77.

Salem County

One of the major gateways into southern New Jersey is the Delaware Memorial Bridge, located in Salem County. This bridge is the only highway access between Delaware and New Jersey, and serves the NJ Turnpike, US 130, US 40 and NJ 49. Recreational traffic from Delaware, heading to the beaches of New Jersey cross the bridge and travel NJ 49 across the county. During the summer seasons, this route becomes congested with recreational travelers. NJ 45 traverses the county in a northeast -- southwest direction, providing access to Gloucester County. US 40 runs directly through the center of Woodstown and Elmer Boroughs, and to the Cowtown Rodeo and Market, and provides a direct route from the Delaware Memorial Bridge to the east. Other major arterials, such as US 130, the New Jersey Turnpike, and I-295 provide access north into the Philadelphia metropolitan area, New York City, and the Northeast Corridor. A more specific concern within the county is the center of Woodstown Borough. The intersection of US 40 and NJ 45 is often congested and overrun with trucks, causing hazardous conditions, high concentrations of noise and vibrations within the Borough's historical and residential districts.

Transit Services

Transit is available in every county of the region; however, most transit services are centralized in Atlantic City and Atlantic County. The tens of thousands of commuters and tourists that work and visit the city daily provide demand that is necessary for successful transit operations. Among the available modes of transit in the region are buses, rail lines, jitney service, and ferry service. A further description by county is offered below.

Atlantic County

NJ TRANSIT bus routes provide service from Atlantic City to several areas including: Cumberland County, Cape May County, Wildwood, Brigantine, Longport, Somas Point, and Lakewood. Buses also provide service to the neighboring cities of Philadelphia and New York. There are a total of 15 NJ TRANSIT bus lines in Atlantic County with an approximate monthly ridership of 660,000 persons.

On a monthly basis, the NJ TRANSIT bus traveling from Atlantic City to Longport (Line 505) has the largest number of passengers in the region. The ridership on this line was 115,137 persons during October 1993. Also notable was the NJ TRANSIT bus traveling from Atlantic City to Ocean City in Cape May County (Line 507), with a ridership of 78,959 persons during October 1993. In Cumberland County, the bus from Bridgeton to Atlantic City (Line 553) had the highest ridership in October of 1993 with a ridership of 88,594 persons. For more information regarding transit ridership in the region, refer to Table II-6.

NJ TRANSIT also provides drop-off and pickup service for long distance casino employees at the bus intercept parking lot located on the Atlantic City Expressway, about four miles outside downtown Atlantic City. From there, service into Atlantic City is provided by individual casino shuttle buses.

The Atlantic City Jitney Association provides further mobility within Atlantic City. The Jitney fleet, which includes 190 individual-owned jitneys, was established early in this century by local entrepreneurs to service the local resident and visitor trips in Atlantic City. There is one main uptown route that runs along Pacific Avenue. There are a number of cross-town routes which were created to service the specific needs of Atlantic City. Since 1980, the ridership on the Jitney System has grown from about 4 million passengers per year to over 8 million passengers per year.

Table II-6
Transit Ridership in the SJTPO Region

Counties	Number of Bus Lines	MONTHLY RIDERSHIP ON			
		All Bus Lines	Highest of Bus Lines	NJ Transit Trains*	Amtrak Trains*
Atlantic	15	602,953	115,137	74,200	26,000
Cape May	5	149,473	78,959	N/A	N/A
Cumberland	4	144,389	88,594	N/A	N/A
Salem	3	49,153	23,051	N/A	N/A

* Summer Monthly Average
Sources: SJTPO and NJ TRANSIT (1993)

The passenger rail service that is provided in the region is located in Atlantic County. NJ TRANSIT offers local commuter service on the Atlantic City Rail Line between Philadelphia (30th Street Station) and Atlantic City, with intermittent service stops along the way in Hammonton, Lindenwold, Atco, Egg Harbor, Absecon, and Cherry Hill. NJ TRANSIT's rail service makes connections in Philadelphia with SEPTA buses and trains, AMTRAK trains at 30th Street Station, and the PATCO Hi-Speed Line in Lindenwold. NJ Transit has an average summer ridership of about 75,000 passengers per month. In the recent past, AMTRAK provided express service between 30th Street Station, Philadelphia and Atlantic City. However, AMTRAK service was discontinued in April 1995. Before service was discontinued, AMTRAK's monthly summer ridership was approximately 25,000 passengers per month. NJ TRANSIT will now be placing additional trains into service to fill the void left by AMTRAK in an effort to maintain rail service on the line. Ridership will be monitored by NJ TRANSIT and a decision will be made next year on the future of NJ TRANSIT's rail service to Atlantic City.

Finally, NJ TRANSIT recently instituted a new non-traditional suburban service in Atlantic County in August 1994. The new innovative suburban service is part of NJ TRANSIT's WHEELS program. As part of this program, a demand-responsive employer circulator is available for work trips along the Rt. 575 corridor, serving employers such as the FAA Technical Center, Stockton State College, Betty Bacharach Rehabilitation Hospital and the Atlantic County Medical Center.

Cape May County

Cape May County is well known for its beach-front resort areas, and the area relies heavily on tourism. In the summer season, the population densities swell to a level that could support additional transit. However, during the off-season, population and destination densities plummet, so year-round service is extremely limited. Currently, there are four NJ TRANSIT lines running in Cape May County. Bus service is provided from Cape May City to Wildwood and on to Philadelphia. Services are also provided to Atlantic City, New York, and into Ocean City. Even though there are few bus lines in the county, the ridership on these lines is significant. The average monthly ridership (summer) in Cape May totals 150,000 persons on NJ TRANSIT buses.

Also within Cape May County, the Five Mile Beach Electric Railway Corporation offers public passenger bus service year round in Ocean City. During the summer season, this corporation also provides service in Sea Isle City. Finally, as a service to its citizens, Cape May County provides Fare Free Transportation. This organization operates a fleet of buses, vans and well-equipped handicapped vans to provide local transportation for workers in the Cape May Court House and Rio Grande areas. A shopping route, an escort demand-responsive service, and meal delivery runs are a few of the services provided by this county organization.

Cape May County has a bi-state ferry service. The Cape May-Lewes Ferry, owned and operated by the Delaware River and Bay Authority (DRBA), provides service via a fleet of five vessels. The ferry runs year round from Cape May to Lewes, Delaware. Eleven regular daily trips are scheduled during the summer peak season with an additional five trips on peak summer days. Service is continued through the remaining portion of the year with less frequency (5-9 trips/day). This ferry serves a great deal of tourist traffic and provides an alternative to crossing the Delaware Memorial Bridge for interstate travel into Delaware.

DRBA also provides a summer season shuttle bus service from the Cape May Ferry Terminal to Cape May City. The schedule for the shuttle service is coordinated with the arrivals and departures of the Cape May-Lewes Ferry. The shuttle travels along Ferry Road to Seashore Drive to the Cape May Transportation Depot.

Recently, there has been an effort by a private developer, Cape May Seashore Lines Railroad, to restore rail service in the Tuckahoe to Cape May City corridor. There are thirty-seven miles of active rail lines in Cape May County. At present, these lines are only used for freight from Tuckahoe to Rio Grande. The developer proposes to provide tourist and passenger rail service between Rio Grande, Historic Cold Springs Village, and the City of Cape May. Eventually, this service could be expanded to connect with other rail lines in the county and the Atlantic City Rail Line, and bring viable passenger rail service back into Cape May County.

Cumberland County

Although Cumberland County covers a large geographic area, it is sparsely populated. The majority of its population and employment are centered in three communities, Millville, Vineland, and Bridgeton. The only transit services provided in this county are four NJ TRANSIT bus lines. Line 313 runs from Cape May, through Cumberland and into Philadelphia. Line 408 originates in Millville, passes through Vineland, and continues into Philadelphia. In addition, service is provided from Bridgeton into Philadelphia via Line 410. Only one route, Line 553, offers service to the east originating in Bridgeton and traversing through Millville and Vineland into Atlantic City. The county also provides special services transit for seniors and disabled residents (Cumberland Area Transit System).

Salem County

Salem County is the least populated of the counties, and as such, has few transit services available. Currently there are only three NJ TRANSIT bus lines offering service. All three lines travel into Philadelphia. The 401 originates in Salem, travels through Woodbury and Camden. The 402 originates in Pennsville. The 410 originates in Bridgeton, Cumberland County and stops in Upper Pittsgrove Township (the only stop in Salem County) before going on to Mullica Hill, Camden City, and Philadelphia. There is no service offered in Salem County to New York City or Atlantic City.

Along with NJ TRANSIT, Salem County provides bus service, via Salem County Transit, that runs from Penns Grove into Mannington and from Penns Grove into Wilmington, Delaware. There is also local services for disabled persons and senior citizens. Salem County Transit also offers services in Penns Grove, Carney Point, Pennsville, and Salem City.

In addition to the above, NJ TRANSIT and its consultant, through NJ TRANSIT's WHEELS II program, are examining corridors in Salem County for a new non-traditional suburban service specifically designed to meet the travel needs of employees in selected corridors.

Bicycle and Pedestrian

Most current bicycle or pedestrian facilities in the region are oriented toward recreational trips and provide important links for travel between tourist attractions. Many of the bikeways or pedestrian ways constructed are within parks, or are connected to parks, or are along boardwalks in Cape May and Atlantic Counties. Most facilities in the region do not provide easy access to employment centers, town centers, rail stations or bus terminals.

Passenger Air Travel

Atlantic City International Airport offers an effective alternative to the large regional hubs of Philadelphia International and Newark International. The airport is strategically located on 5,143 acres just outside of Atlantic City. Co-owned by the South Jersey Transportation Authority and the Federal Aviation Administration, Atlantic City International offers service on three carriers to over 75 cities worldwide. Beginning October 1, 1995, US Customs will open an office at the facility which is expected to improve the movements of international passengers and goods. The only other Atlantic County airport of regional significance is Bader field, which is in the planning stages of being phased out in its use as a commercial airport in favor of other recreational activities (e.g., an amusement park or professional baseball stadium).

The South Jersey region contains a number of small private and municipal airports. There are three municipal airports in Cape May County, the largest of which is the Cape May County Airport, located in Erma. In Cumberland County, the Millville Municipal Airport, which supports charter air carrier and corporate traffic as well as general aviation services, is the largest of eight airports registered in the county. Salem County does not contain any publicly owned airports, but does contain several private landing strips. All the above mentioned airports support mostly instructional and recreational flying, as well as aerial application (crop dusting and vector spraying).

Goods Movement

Rail Freight

Rail freight services in the SJTPO region are provided by CONRAIL, Winchester and Western Railroad and the Southern Railroad of New Jersey. CONRAIL is the principal operator of rail freight services, providing both interstate and intrastate services. The other three operators provide shortline services over lines CONRAIL abandoned or over rights-of-way owned by NJ TRANSIT, NJDOT or county governments. The shortline operators provide important distribution services to local industries off the main line and consequently, can save local jobs and benefit the regional economy.

CONRAIL's major lines extend from Camden via Winslow to Tuckahoe in Cape May County, and from Glassboro to Millville in Cumberland County. CONRAIL operates the Penns Grove Secondary, running from Woodbury in Gloucester County through Oldmans Township and Penns Grove into Deepwater in Salem County. CONRAIL also operates on a branch of the Cape May Line between Tuckahoe and Miramar in Cape May County that is owned by NJ TRANSIT. Another line, from Norma in Salem County to Vineland in Cumberland County, is also operated by CONRAIL.

The Winchester and Western Railroad owns and operates several rail lines mostly in Cumberland County. Service is provided through Bridgeton, Deerfield, Upper Deerfield, and along the bayshore townships on trackage owned by the railroad. A rail spur owned by the railroad provides access to the Waterfront Industrial Park in Bridgeton and is used for small deliveries. The railroad also owns and operates on the Seabrook line between Seabrook and Bridgeton. Another line owned by the railroad, the Cumberland

and Maurice River Branch, runs through Pittsgrove Township in Salem County enroute from Norma to southern Cumberland County. Winchester and Western rail freight services connect to CONRAIL in Norma, Vineland and Millville.

The Southern Railroad of New Jersey (SRNJ) operates on the Salem Secondary owned by Salem County. This line extends from Swedesboro in Gloucester County through Woodstown and Alloway Junction to a terminus at the Port of Salem. Connecting CONRAIL service is available at Swedesboro. The SRNJ also operates lines in Atlantic and Cape May counties. A track owned by NJ TRANSIT (the Atlantic City Rail Line) runs from Winslow to Atlantic City, with spurs in Pleasantville and Linwood on which SRNJ provides freight movements. Another line, owned by NJDOT, is operated by SRNJ between Winslow and Vineland. In Cape May, SRNJ operates a line on NJ TRANSIT track between Tuckahoe and Rio Grande.

Many of the rail freight operators have seen increases in volume over the past few years. However, rail freight is an under-utilized mode for goods movement in the region -- the volume does not compare to the maximum carload capacity of the system.

Air Freight

Philadelphia International Airport handles the principal portion of air cargo destined to or originating in South Jersey. However, the region does contain a number of smaller private and municipal airports, including the Millville Municipal Airport and Cape May County Airport. Most airports support instructional and recreational flying or charter air and corporate traffic, not air cargo. However, of significance, Millville Municipal Airport was designated in 1987 as a Foreign Trade Zone, and resulting demand for industrial space and airport usage is anticipated by Cumberland County.

Atlantic City International Airport does support air cargo movements in the region. In 1991, Atlantic City International Airport enplaned 11,340 pounds of air cargo, a relatively low volume of air cargo. This volume amounted to an average of 0.8 pounds per passenger aircraft departure. All the air cargo is carried as belly cargo on scheduled passenger flights.

Trucking

Trucking is the major mover of goods in the region. Trucks are also the dominant mode of transport in the intermodal freight business -- truck to rail, truck to ship, and truck to air. Major truck routes in the region include I-295, US 130, US 40 and the New Jersey Turnpike through Salem, NJ 47 through Cumberland and Cape May Counties; NJ 77 in Cumberland County; NJ 109 in Cape May County; and US 322, US 206 and NJ 54 in Atlantic County. A number of truck terminals are in the region with the majority of major truck terminals located in Vineland, Cumberland County.

Ports

Two major waterports supporting goods movement in southern New Jersey are The Port of Salem and The Port of Bridgeton. The Port of Salem complex consists of warehousing and a floating barge that serves as a dock for both domestic and international ocean-going vessels containing bulk cargoes. The Port of Salem is easily accessible from the Delaware Bay, the Chesapeake Bay and the Delaware and Chesapeake Canal. However, currently the port is underutilized and can only accept shallow draft vessels and barges with a channel depth at 12 feet. The US Army Corps of Engineers is dredging the channel to a depth of 16 feet. This action will provide new opportunities for the Port to serve heavier vessels. The Southern Railroad of New Jersey serves the port and provides connections to CONRAIL. Truck access is readily nearby with I-295 and the New Jersey Turnpike. The Port has an additional

advantage of being designated as a Foreign Trade Zone and thus, excluded from the guidelines of US Customs regulations, greatly reducing costs for shippers or importers.

The Port of Bridgeton is located in Cumberland County. In 1984 the City of Bridgeton initiated the development of a barge port. In 1986, the US Army Corps of Engineers dredged the Cohansey River to a channel depth of 14 feet and the port supports barge traffic that transports gravel, lumber, oil and other bulk items. The Waterfront Industrial Park in Bridgeton is served by the Winchester and Western railroad and provides opportunity for intermodal operations between the barges and the freight lines that serve the park. According to NJDOT in their draft plan, Transportation Choices 2020: Part One Draft Statewide Long Range Transportation Plan (December 1994), both the Port of Salem and the Port of Bridgeton are limited in size and channel depth compared to other New Jersey ports and need substantial improvements to reach their potential.

The other two ports in the region, Ports of Cape May and Atlantic do not handle any significant freight movements beyond trucking to support commercial fishing. The Port of Cape May is home to a substantial commercial fishing fleet that ranks as high as tenth nationally and fourth on the east coast in terms of value of catch. The last port of note, Atlantic City, continues to be one of the world's largest producers of surf clams on the Atlantic Ocean. Additionally, the Maurice River in Cumberland County supports a large oyster fleet and associated industries.

Population and Employment

Overview

Demographics within the region vary quite a bit. The population densities of the shore areas in Atlantic and Cape May Counties resemble North Jersey figures, averaging over 3000 persons per square mile. These areas, located on the barrier islands, are substantially built out with little or no remaining available land. On the other hand, some areas in Salem County average less than 50 persons per square mile.

Total SJTPO regional population grew from 416,300 in 1970 to 473,900 in 1980, and then to 522,800 in 1990. There was 13.8 percent growth from 1970 to 1980 and 9 percent growth from 1980 to 1990. Major employment centers in the region include Atlantic City, Bridgeton, Millville, and Vineland.

Tourism is a major industry in Atlantic and Cape May counties, and is very important economically to the State of New Jersey. Per capita income in all four counties is low, and well below the state average.

The demographics for each county in the region are discussed in more detail below.

Atlantic County

Atlantic County is made up of two distinct parts: the mainland and the beach resort areas. A large portion of the mainland is characterized by an environmentally sensitive forest area known as the Pinelands. Much of this land is undeveloped. The core of the Pinelands is protected under the Pinelands Protection Act (1979), but there still remains some limited designated growth areas within the boundaries of Atlantic County. In contrast, the beach resort communities were the first areas in Atlantic County to be settled, so development is slowing down considerably as these areas approach build-out.

Figure II-2 shows the population growth experienced by each county in the region from 1970 to 1990. Atlantic County is by far the most populated county, with a total 1990 resident population of 224,327. Along with Cape May County, it experienced the highest annual growth in population (1.46 percent) during the latest census period (1980-1990).

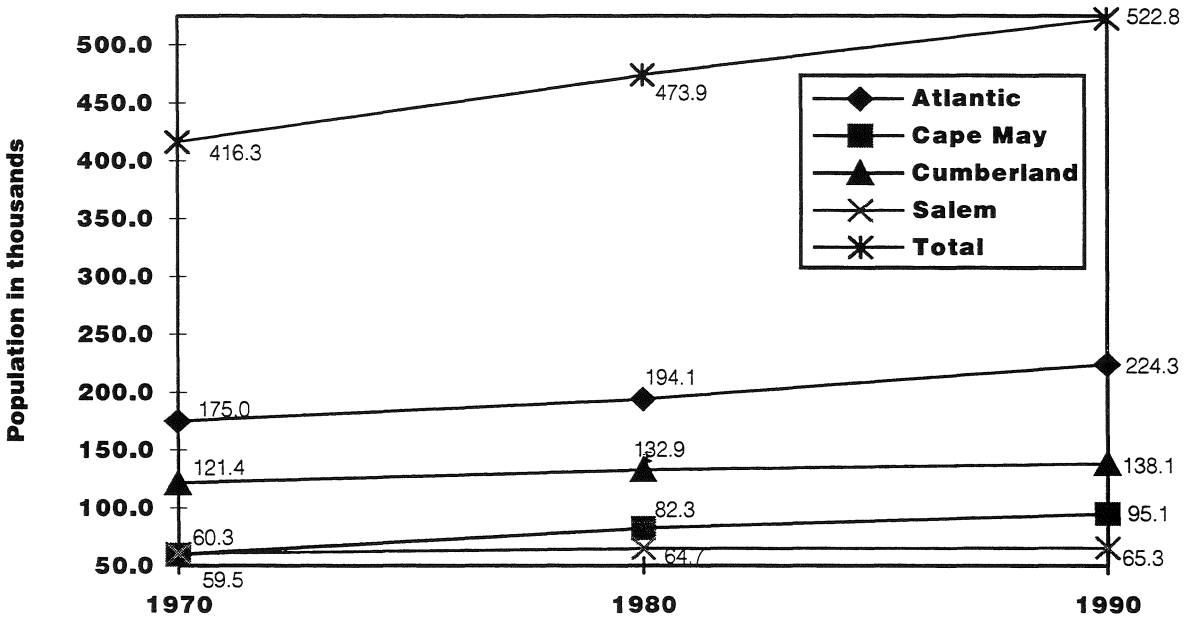


Figure II-2
Population by County

According to statistics found in the 1990 Census, the density of Atlantic County is 399.7 persons per square mile of land area. Although it is the most densely populated county in the region, it is low when compared to the rest of New Jersey. For example, the densities (in population per square mile of land area) of Bergen County, Essex County, and nearby Camden County are 3524.3, 6161.6, and 2261.9, respectively. It is important to note, however, that the density of the mainland and the beach resort areas differ significantly. The resident population density of the beach resort area, including Atlantic City, Brigantine, Longport, Margate City, and Ventnor City is 3240.7 persons per square mile. The remaining mainland portion of the county has a density of 286.0 persons per square mile of land area.

In addition to a large resident population, it has been estimated that tourists increase the number of people in Atlantic County by 60.6 percent during the summer months. Even during the winter months, the average number of people present in Atlantic County increases 35.8 percent due to tourism (Atlantic County, NJ Population Projections and Seasonal Population Estimates, 1990 to 2010). This can be seen in varying increases and decreases in average daily tourist traffic counts. Between May and September, the summer months, the traffic counts increased by 10.3 percent above the annual average. Between October and November, traffic count volumes dropped by 7.4 percent below the annual average.

Areas of major employment include Atlantic City (74,652), Hammonton (8,364), and Pleasantville (7,398).

The per capita income in the county is fairly low at $16,016 (New Jersey State Data Center, March 1992). This is below New Jersey's per capita income of $18,714. The lowest per capita municipalities are located in Atlantic City ($12,017) and Buena Borough ($11,923). Atlantic City is particularly unusual because 25 percent of all persons live below the poverty level, which is by far the highest percentage in the county. The highest per capita income levels are located in Margate City ($27,939) and Linwood ($25,197).

Cape May County

Like Atlantic County, Cape May County itself is divided into two types of land, the mainland, and the barrier islands. The barrier islands are the focus of the tourist attractions.

Early population centers were located on the mainland because of the agricultural opportunities. However, once the barrier islands were made accessible (at the turn of the century) the permanent population on the islands became larger than that of the mainland until the early 1980's. With property values on the rise and the scarcity of undeveloped land on the barrier islands, the mainland has become more inviting, so the population there has once again surpassed the islands. In 1980, the county population was 82,266. In 1990, the population rose to 95,089, a 15.6 percent growth rate for the 10 year period. This growth is illustrated in Figure II-2.

Cape May County is similar to Atlantic County in its seasonal population shifts and the important role tourism plays. It is estimated that the population of Cape May County increases by 6.5 times the permanent population from winter to summer (Cape May County Department of Planning). The county faces unusual transportation problems in justifying its need for an extensive transportation system that is only fully utilized four months out of the year.

According to the 1990 Census, the resident population density of Cape May County is 372.6 persons per square mile of land area. Much of the population lives in the resort areas. Population density (in population per square mile) is highest in the communities of Wildwood (3449.2), Wildwood Crest (3025.8) and North Wildwood (2787.2). Population density is lowest in Upper Township (169.0) and Dennis Township (90.8).

Areas of employment include Middle Township (8,619) and Ocean City (5,605).

The per capita income for Cape May County is $15,536 according to the 1990 US Census. Like Atlantic County, this is below New Jersey's per capita income. The percentage of the population in the county living below poverty level is 8.3 percent, which is higher than New Jersey's value of 7.4 percent.

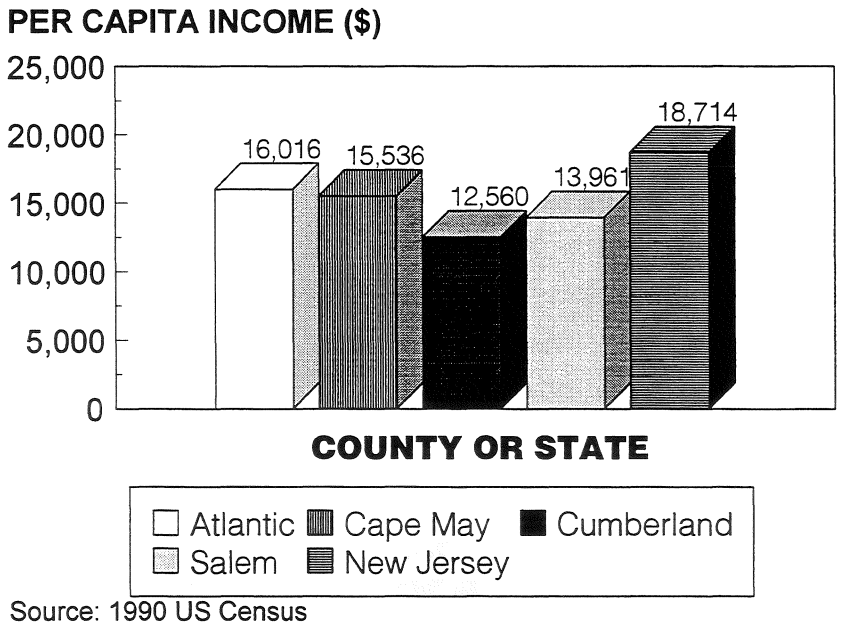
Cumberland County

Cumberland County does not have the developed tourist attractions of Cape May and Atlantic Counties, but offers several natural resources to support its economy. The attraction to the natural resources results in a new industry for the region, eco-tourism. CONRAIL and Winchester and Western are able to offer export services for gravel, sand, glass, as well the food products produced in the county.

Cumberland County has the second highest population in the region, as illustrated in Figure II-2. Between 1960 and 1990, most municipalities experienced low but steady growth. Exceptions were Bridgeton, Downe, Greenwich, and Shiloh, which experienced small losses. Almost 89 percent of the growth occurred in Maurice River, Millville, and Vineland. Considering that the population increase in Maurice River was related to the state prison, only the urban areas showed appreciable growth in the county. Between 1970 and 1980, the county had an annual growth rate of 0.91 percent; however, between 1980 and 1990, the rate dropped to 0.38 percent.

The population density for Cumberland County is low, with only 282.1 persons per square mile of land area. The population is concentrated in the urban areas of Bridgeton, Millville, and Vineland. The population density for Bridgeton is 3055.2 persons per square mile of land area, which is similar to population centers of Atlantic and Cape May counties. However, the rest of the county's municipalities are all below a density of 500 persons per square mile, except for Seabrook Farms CDP, which has a value of 728.5 persons per square mile. Five municipalities have population densities under 100 persons per square mile, with Downe Township having the lowest value at 33.5 persons per square mile.

Areas of significant employment include Vineland (29,735), Millville (12,051) and Bridgeton (10,552). According to 1990 Census data, the per capita income for Cumberland County is $12,560, which is only 76 percent of New Jersey's per capita income. Cumberland has the lowest per capita income level within the region. See Figure II-3 for a comparison of the counties. The percentage of the persons living below poverty level in the county is 13.0 percent, compared to New Jersey's average of 7.4 percent.



Source: 1990 US Census

Figure II-3
1990 Per Capita Income

Salem County

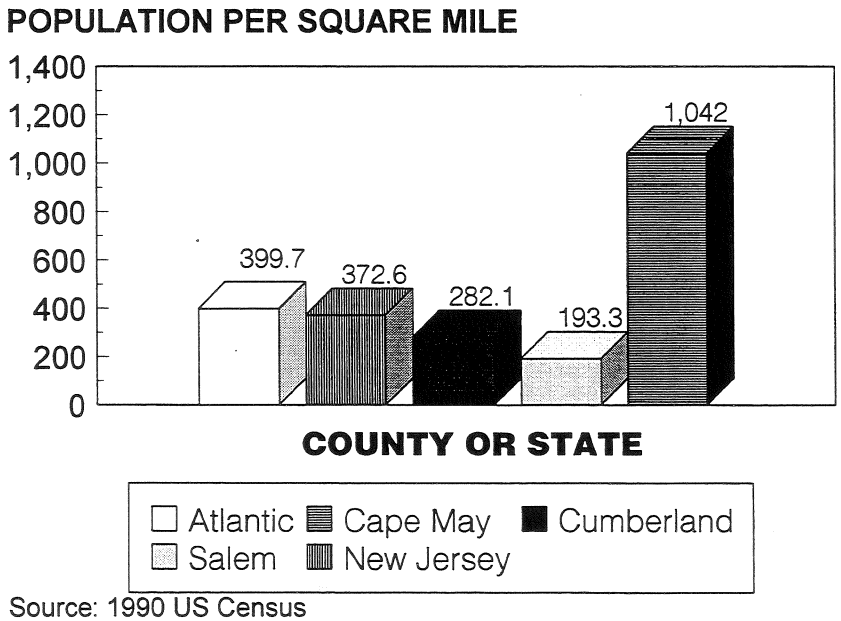
Salem County is the least populated of the counties found in the region. It is also the least densely populated area in the region as well as the state. Refer to Figure II-4.

From 1980 to 1990 there has been less than 1 percent growth in permanent population. The most populated areas of Salem County are Carneys Point, Pennsville, and Pittsgrove. Except for Carneys Point, all of these areas showed a population decrease from 1980 to 1990. Carneys Point showed a modest gain of 0.6 percent over the ten year period. The areas of Lower Alloways Creek (LAC), Pittsgrove, and Pilesgrove all showed a change of over 15 percent in the period from 1980 to 1990. Recently, there has been a slow down in development in LAC. The large population growth in LAC in the last census period (20.1 percent) was largely attributable to growth in employment opportunities at the nuclear power plant, which have now stabilized (Growth and Development Report, Salem County Planning Board, March 1994).

The area of highest population density is Penns Grove, which is comparatively high in the region, at 5808.9 persons per square mile of land area. Salem City is also high in population density, at 2647.3 persons per square mile. The least dense areas are LAC and Mannington townships, with population densities of 40.2 and 44.6 persons per square mile, respectively.

Although the county does not contain many developed tourist attractions, Salem County is host to the only professional rodeo found in New Jersey, the Cowtown Rodeo. Areas of significant employment include Pennsville (6,798), Salem City (3,571) and Lower Alloway (3,110).

According to the 1990 US Census, the per capita income for Salem County is $13,961. The percentage of county residents who live below poverty status is 10.6 percent. This is comparable to other income statistics in the region.



Source: 1990 US Census

Figure II-4
1990 Population Density

III. BASELINE CONDITIONS

Overview

The purpose of this chapter is to present current, or baseline conditions of the transportation system. This information establishes the state of the existing system, and will be used in subsequent chapters to compare existing conditions to forecasts of future conditions. Work conducted to establish base air quality is discussed in Chapter VIII: Conformity. However, this chapter does provide a discussion of air quality issues facing the region.

Information gathered throughout the Plan's development process was used to depict the condition of the existing system. In addition, the South Jersey Highway Model (SJHM), an analytical tool originally developed for NJDOT, was used to simulate highway travel conditions in the SJTPO region. The SJHM is a travel demand model that utilizes characteristics of the highway system and trips on the system to simulate traffic flow. The model produces indicators of the quantity and quality of flow, including roadway volumes, speeds, and level of service. It can also feed other analytical tools, including tools to assess regional mobile source emissions.

Baseline Highway Conditions

Information was gathered to assess the present state of the road system, including locations of congested roadways and intersections, bridge problems, and safety concerns. Appendix II contains a listing of the information assembled for each county. Data sources included NJDOT and the four counties. Information was also obtained during the initial round of public meetings held as part of the Plan's public outreach process.

The data was assembled onto county maps, included as Maps III-1 through III-4 at the end of this chapter. These maps display: existing congested highway segments and intersection locations; deficient or problem bridges, and high accident locations. They also depict bus and rail lines; park and ride lots; regionally significant facilities including airports, ports, and marinas; and a limited number of existing and proposed land uses.

The SJHM was used to assess existing transportation conditions and to forecast future transportation conditions on the highway system. The process used to forecast future conditions is discussed in subsequent chapters of this plan.

The base year of the SJHM is 1990. Demographic data is readily available for 1990 from the US Census. As such, this year serves as Regional Transportation Plan's base year.

The ability of the SJHM to replicate existing conditions was initially tested to determine the validity of the travel demand forecasting process. The baseline 1990 highway network and trip tables were input to the model. The simulated highway volumes and conditions were compared to the baseline conditions to assess the quality of the traffic model. It was determined that the SJHM produced adequate results and was suitable for use in the Regional Transportation Plan development process.

It is important to note that in its current form the model lacks the traditional steps designed to develop a trip interchange matrix through the generation and distribution of zonal trips. It also lacks the ability to estimate transit demand. Therefore, only vehicle trip tables are loaded onto the highway network by the model. Trip assignment for transit is not performed by the model.

The SJHM covers the six southern counties of New Jersey, the four counties under the jurisdiction of the SJTPO, along with Gloucester and Camden counties. The portion of the network that is within the SJTPO area has 2,137 links, representing 2,839 lane-miles of roadways. The zonal system consists of 400 internal traffic analysis zones, representing the 129 municipalities within the six county area. All of southern New Jersey and the Philadelphia area are included in the zonal system. External zones account for longer distance travel, including trips from northern New Jersey, Western Pennsylvania and Canada.

The trip tables for the baseline conditions are based upon information obtained in the 1990 US Census, combined with origin/destination information collected by the NJDOT. The total number of trips assigned to the network for the entire region is approximately 2,573,956 vehicle-trips for the 24 hour period and 224,181 vehicle-trips for the PM peak hour (5-6 PM, Friday) for the base year of 1990. The network performance measures given in this section are based on a model run of the PM peak hour of the base year, unless otherwise stated.

The standard performance measure for roadways is the Level of Service (LOS) criteria. For the purposes of this section, this performance measure is loosely based on the LOS definition contained in the *1985 Highway Capacity Manual (1985 HCS)*. LOS is defined in the 1985 HCS as a "qualitative measure describing conditions within a traffic stream, and their perception by motorists and/or passengers." However, there are differences in the LOS performance measures between facility types. To overcome these differences and to simplify computational procedures, the LOS is based solely on the volume to capacity ratio (v/c ratio). The capacity is measured as the maximum number of vehicles that can be accommodated by a facility in an hour. For the highway network assignment, the v/c ratio relates directly to all LOS criteria contained in the 1985 HCS. LOS is divided into six categories, ranging from LOS A (traffic flows are free-flow) to LOS F (traffic flows break down, volumes exceed capacity of the facility). Table III-1 lists the LOS criteria and the corresponding v/c ratio.

Table III-1
Level of Service (LOS) Criteria

LOS	v/c Ratio
A	0.00-0.35
B	0.36-0.54
C	0.55-0.77
D	0.78-0.93
E	0.94-1.00
F	>1.00

Source: Table 3-1. Levels of Service for Basic Freeway Sections, The 1985 Highway Capacity Manual

Baseline model runs indicate that, on a system-wide basis, the highway network operates very well. Appendix III contains tables showing baseline model performance measures. It is important to note that over 98 percent of the total roadway lane-miles contained in the network operate at LOS D or better. A

majority of the network, 69 percent, operates at LOS A showing that most of the highway system contained in the model operates with a good LOS.

There are five different types of facilities contained in the network: freeways, highways, major arterials, minor arterials and local roads. To show how well each of the different facilities in the region operate, the percentage of roadway miles by LOS are generated for each facility type and can be found in Appendix III. The highway facility type was found to be operating the worst, with 4 percent of the lane-miles (37 lane-miles) operating at a LOS E or F. The major arterial links operate fairly well, with only 2 percent (22 lane-miles) of the links operating at LOS E or F. The freeways, minor arterials and local roads all operate at a LOS D or better.

Network links which operate at an unacceptable LOS include: the southbound Garden State Parkway, south of the Atlantic City Expressway (in Atlantic County); NJ 47, north of NJ 49 (in Cumberland County); southbound NJ 49, south of the New Jersey Turnpike (in Salem County); and southbound NJ 47, east of CR 610 (in Cape May County).

Assessment of the system completed at the county level showed that the percentage of roadway lane-miles operating under a LOS E or F is about the same in each county (see Appendix III). All of the counties operate very well, with 97 to 98 percent of the roadway mileage operating within an acceptable range (LOS D or better).

Another important performance measure is vehicle-miles traveled (VMT). The total VMT in the region during the summer PM peak period is 1,047,586 VMT. The VMT can also be summarized for each LOS, providing a measure of how well each vehicle travels through the network. This statistic is a good measure of motorist perception of traffic conditions. If a high percentage of the VMT is operating at LOS E or F, the drivers' (and passengers') perception is that the network is failing or near failure. Statistics on VMT for each LOS are summarized in Appendix III. The baseline results show a majority of the VMT, 64 percent, travels under LOS A or B. The percentage of VMT operating at LOS E or F is 5 percent. This indicates that the majority of travelers experience acceptable travel conditions.

Another statistic which is relevant to a county-wide assessment of the study region is VMT by county. These values are reported to provide a basis for comparison of future scenarios, and to gain a general understanding of where most of the travel is done. Total VMT for each county can be found in tables in Appendix III. Atlantic County accounts for more than half of the VMT generated in the region during a PM peak period, with a value of 584,747 VMT. The VMT for the remaining three counties are comparable. These network statistics are consistent with actual VMT, which show Atlantic County with a 52 percent share of the VMT in the region, as listed in Table III-2 below.

Table III-2
Summary of Daily VMT During the Summer

County	Daily VMT (millions)
Atlantic	7.89
Cape May	2.45
Cumberland	2.72
Salem	2.24

Source: NJDOT's Highway Performance Monitoring System, 1990

To gain an understanding of the motorists' perception of traffic conditions on a county basis, VMT by LOS is summarized for each county. These results are also shown in Appendix III. Cumberland County has the highest percentage of VMT which is traveled under LOS E or F conditions, at 9 percent. The remaining counties' operate similarly, with 4 to 6 percent of the VMT operating at LOS E or F. Atlantic County contains the highest amount of travel done under LOS E or F, at 25,569 VMT. All in all, when examining both the percentage of roadway miles and the percentage of VMT at each LOS, it appears that most of the congestion is focused on a relatively small number of highway links. While few roadway links operate at a poor LOS (E or F), these roadways carry a higher proportion of VMT, which affects a more significant portion of the motorists.

Summary

The South Jersey Model simulated the baseline condition of travel demand within acceptable limits and provided a good regional assessment of transportation conditions on the highway system. Travel demand in the major corridors in the region was simulated well. Nevertheless, there is a lack of network and zonal detail in some areas of the model which causes some localized trip assignment problems. For example, the local road system of downtown Atlantic City lacks detail, and some of the local routes in Cape May County do not contain enough zonal detail to successfully replicate existing travel demand. In addition, it is important to note that the peak period being analyzed, the Friday PM peak, may not coincide with the localized peak hour of a particular facility. Some facilities may peak after 6 PM on Friday evening, or on Saturday morning, in which case the facility, while highly congested, may not show significant congestion during the analysis period utilized in this assessment. Overall, however, the traffic model was able to successfully predict the baseline conditions, and is thus, a valuable tool for assessing future transportation conditions on the highway system. The model does not replicate current transit trip-making nor can it predict future travel demand for transit.

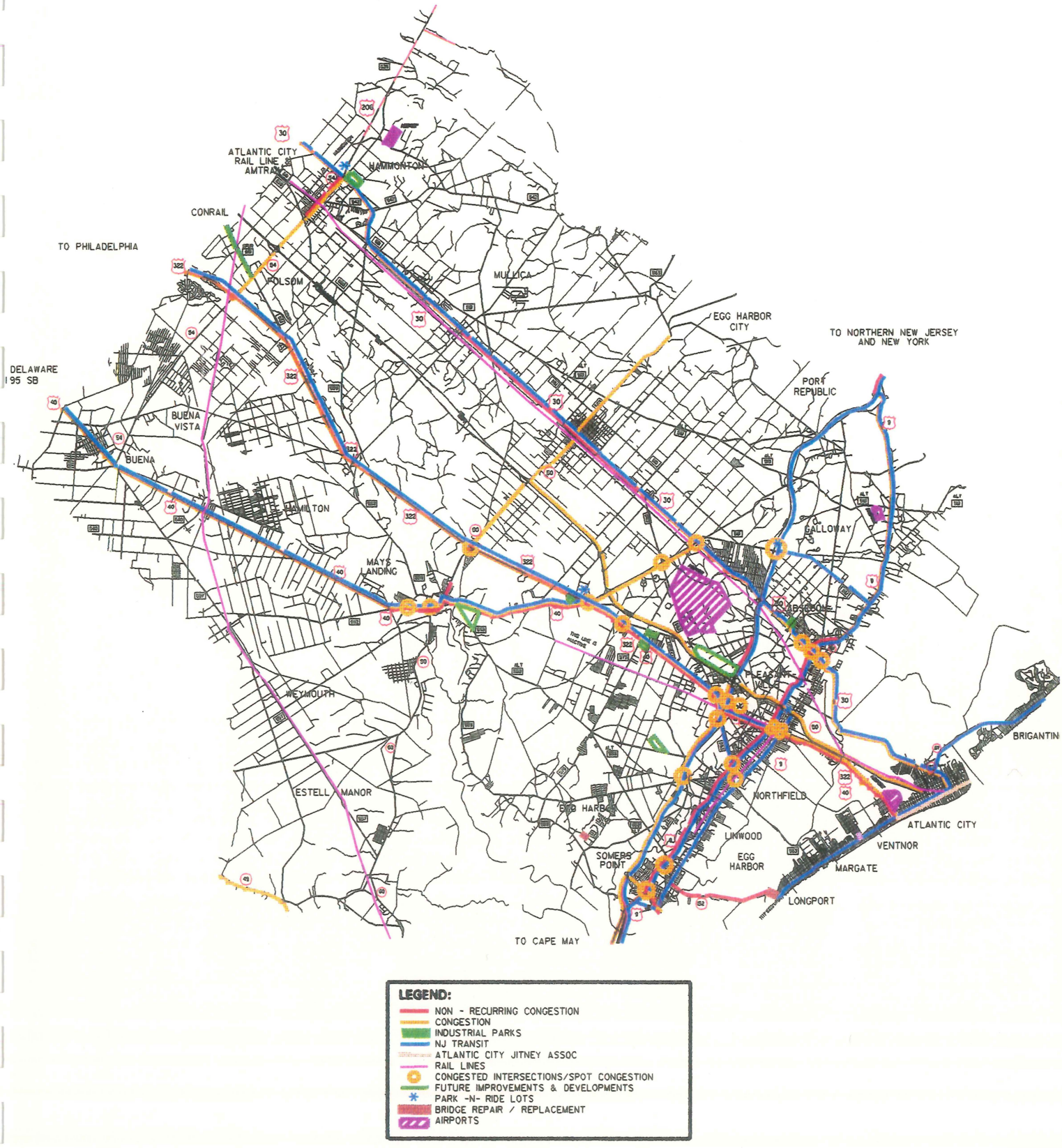
Air Quality Issues

The Federal Clean Air Act Amendments of 1990 set new standards for air quality and particularly for transportation planning, set objectives for transportation related improvements. A key feature of the law is that it classifies ozone non-attainment areas into different levels of severity. Ozone, also known as smog, is primarily a transportation-related pollutant. The Act established five categories of ozone non-attainment. These categories are: marginal, moderate, serious, severe (I & II) and extreme, and are based on readings conducted in the period 1988 - 1990. Areas classified as either "severe" or "extreme" are required to implement Employer Trip Reduction Programs. Under this program, employers with 100 or more employees are required to implement trip reduction programs designed to raise the average vehicle occupancy for employee work trips at least 25 percent above a regional average through a variety of ways such as encouraging workers to use alternative modes, offering telecommuting, instituting compressed work weeks, among others. In the SJTPO region, both Cumberland and Salem counties are classified as "severe non-attainment" and thus, employers in the rural counties must implement trip reduction plans. These two rural counties are required to comply because of their inclusion in the Philadelphia-Wilmington-Trenton Consolidated Statistical Management Areas (CSMA), a Census definition.

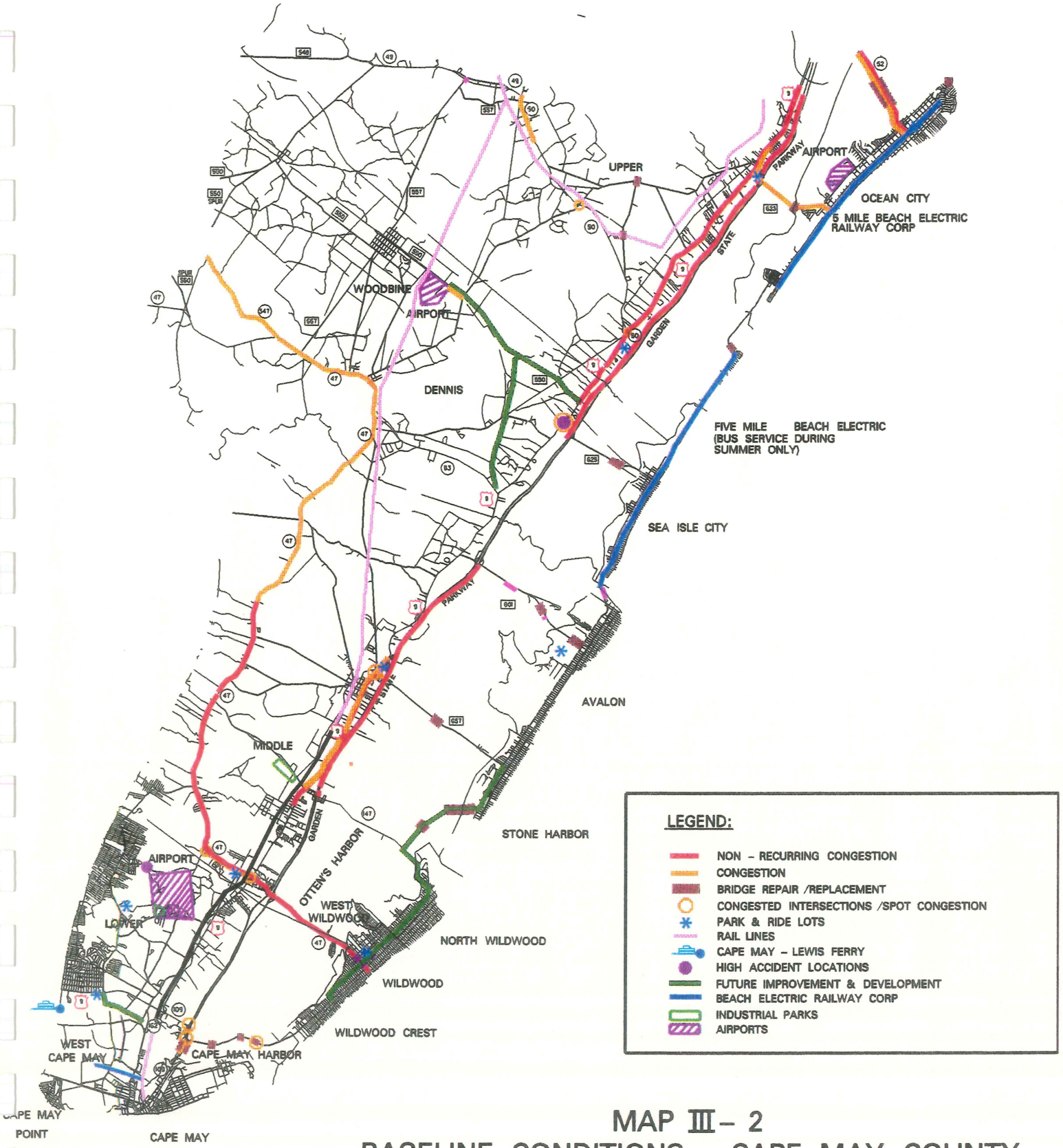
Actual readings in 1988 - 1990 for ozone at Cumberland County's Millville monitoring station show "moderate" levels of ozone and 1993 air quality readings show Cumberland County at the "attainment" level. It is the position of Cumberland County, Salem County and the SJTPO that there should be a reclassification of the two counties. This position is taken for a number of reasons: air quality in the counties is virtually at attainment, the two counties have distressed economies and compliance with the Employer Trip Reduction Program (ETRP) is a hardship to area employers, and the lack of mass transit options compounds the problems with complying with the program. Additionally, the New Jersey Department of Environmental Protection estimates that less than 4 percent of the reduction in statewide

ozone pollution will come from the results of the Employer Trip Reduction Program. Recent acts by the State of Pennsylvania have suspended indefinitely the submission and implementation of employer trip reduction plans. Thus, an employer in Philadelphia, the largest urban center in the CSMA with numerous transit options, is no longer required to comply with ETRP, while employers in the rural counties of Cumberland and Salem are required to comply. Taken together, there appears to be little regional justification for the program.

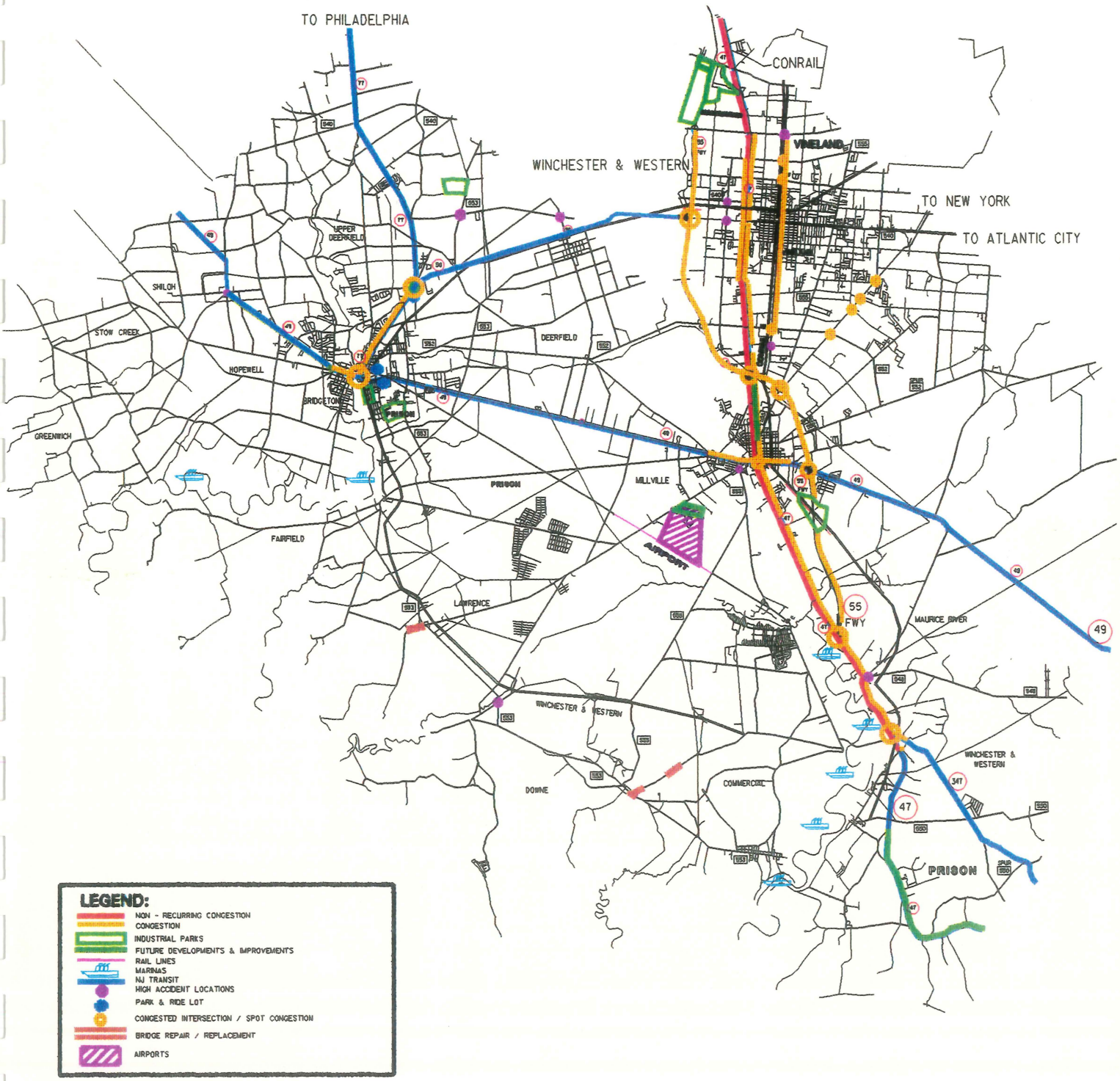
Under federal law, Regional Transportation Plans must demonstrate conformity with air quality standards. In the SJTPO region, the Plan must demonstrate conformity for the year 2015, the twenty year horizon of the plan, and for the interim years of 1996 and 2005. Chapter VIII of this plan contains the conformity assessment.



MAP III – 1
BASELINE CONDITIONS – ATLANTIC COUNTY

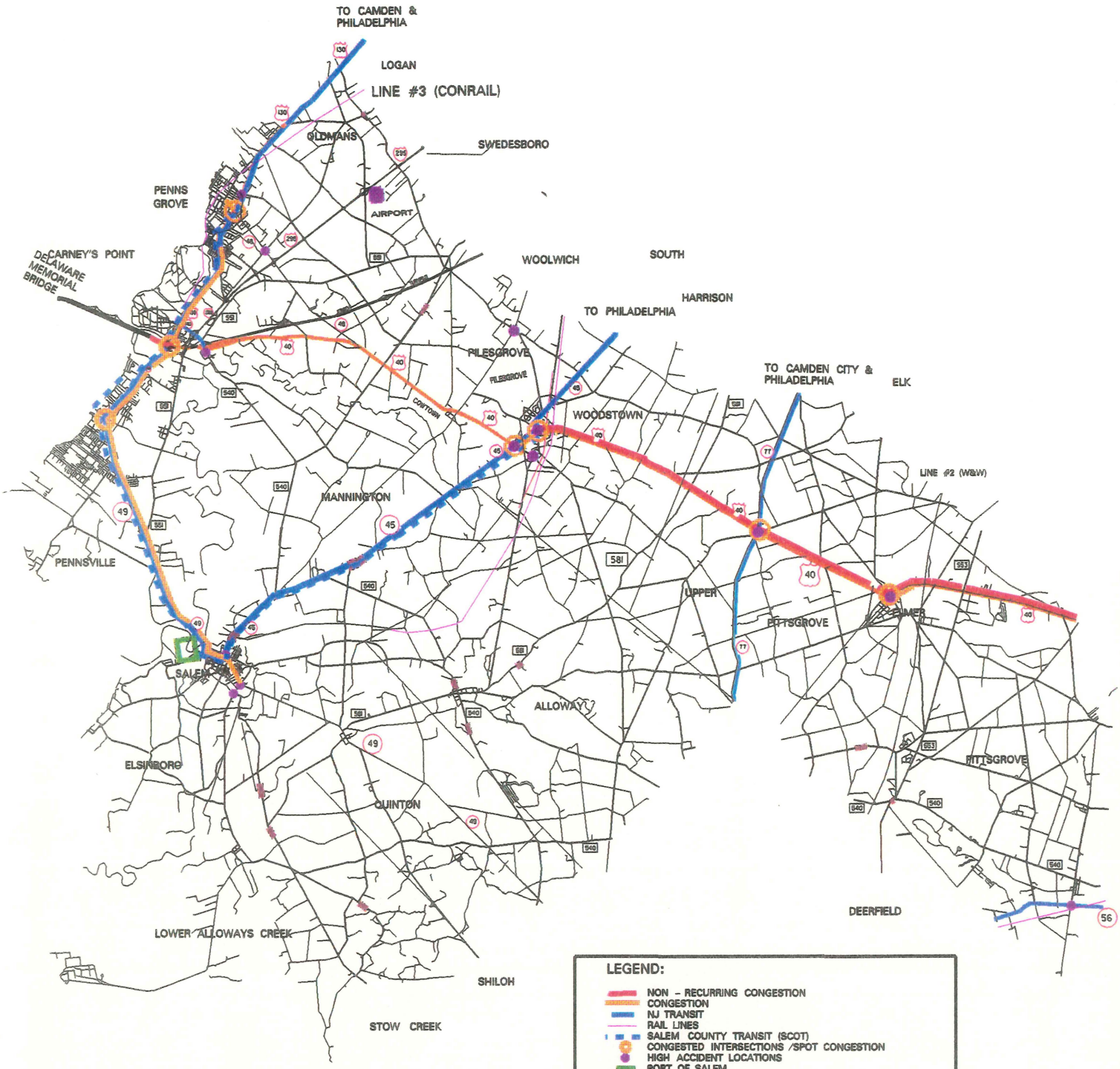


MAP III - 2
BASELINE CONDITIONS - CAPE MAY COUNTY



MAP III- 3

BASELINE CONDITIONS - CUMBERLAND COUNTY



MAP III - 4
BASELINE CONDITIONS - SALEM COUNTY

IV. HIGHWAY SYSTEM OUTLOOK

Overview

In order to develop a twenty year Regional Transportation Plan, it is necessary to predict how the transportation system will fare in the future. The process used to develop the future year (2015) conditions is explained in this chapter. The current and forecasted population and employment figures used in the modeling process are outlined, as well as the process whereby future trips are estimated from the population and employment forecasts.

After future growth in the region is outlined, the methodology used to predict the future highway traffic conditions in the SJTPO region is presented. Future system deficiencies and changes in operating parameters are highlighted. The future year assessment includes problems that are predicted by the South Jersey Highway Model, as well as problems that are beyond the model's predictive capabilities. The SJHM is limited to the highway network only, as the model does not have the capability to project current or future transit demand. Transit assessment is included in Chapter V.

Base Year and Forecasted Population and Employment

A base year trip table was supplied by NJDOT. This trip table was a SJHM combined purpose trip table updated to 1990 based on changes in population and employment in the South Jersey region as reported by the 1990 US Census. In order to develop (or forecast) a future year trip table, estimates of future population and employment for the SJTPO region were required. Given that the Regional Transportation Plan has a twenty year horizon, municipal level population and employment forecasts for the year 2015 were needed.

Population and employment forecasts for the year 2015 were derived from forecasts promulgated by NJDOT for general use in State transportation studies. More significantly, the forecasts are the basis for NJDOT's on-going conformity analysis. Population and employment forecasts were derived from a long-term collaboration of NJDOT and a consulting firm, Urbanomics Associates, whose intent was to arrive at a universal set of demographics for broad use statewide. These figures were based, in turn, on assumptions of future statewide development patterns.

The County planners in the SJTPO region updated and refined the municipal breakdown of the population and employment forecasts for the year 2015. The forecasts were adjusted at the municipal level to better reflect the amount of developable land, market realities, and absorption anticipated in the region.

The 1990 population and employment figures and the forecasts for 2015 for each municipality in the SJTPO region follow.

Table IV-1
Atlantic County Forecasts

	POPULATION		EMPLOYMENT	
MUNICIPALITY	**1990**	**2015**	**1990**	**2015**
Absecon	7298	7540	3254	4892
Atlantic City	37986	44173	74652	112225
Brigantine	11354	14077	1607	2416
Buena	4441	5506	1708	2568
Buena Vista	7655	9492	1321	1986
Corbin City	412	399	30	45
Egg Harbor Twp.	24544	38469	6746	10142
Egg Harbor City	4583	5683	1870	2811
Estelle Manor	1404	1741	153	230
Folsom	2181	2704	927	1394
Galloway	23330	34967	6415	9645
Hamilton	16012	23354	6806	10233
Hammonton	12208	15136	8364	12574
Linwood	6866	7951	3559	5351
Longport	1224	991	298	449
Margate	8431	6791	1620	2436
Mullica	5896	6919	953	1433
Northfield	7305	6583	3732	5611
Pleasantville	16027	19872	7398	11122
Port Republic	992	1207	161	242
Somers Point	11216	12173	4708	7078
Ventnor	11005	10015	1916	2881
Weymouth	1957	2427	165	248
ATLANTIC COUNTY	224327	278170	138363	208012

Table IV-2
Cape May County Forecasts

	POPULATION		EMPLOYMENT	
MUNICIPALITY	**1990**	**2015**	**1990**	**2015**
Avalon	1809	3011	1437	1674
Cape May City	4668	5525	4443	5882
Cape May Point	248	319	61	66
Dennis	5574	8000	1096	1866
Lower	20820	28500	2313	6000
Middle	14771	22500	8619	11432
North Wildwood	5017	6644	1971	2088
Ocean City	15512	21283	5605	6152
Sea Isle City	2692	3825	1121	1434
Stone Harbor	1025	1425	1248	1591
Upper	10681	17000	2547	3932
West Cape May	1026	1143	151	213
West Wildwood	453	595	60	60
Wildwood City	4484	5125	4605	4210
Wildwood Crest	3631	4750	2088	2462
Woodbine	2678	3122	1780	1666
CAPE MAY COUNTY	95089	132767	39145	50728

Table IV-3
Cumberland County Forecasts

	POPULATION		EMPLOYMENT	
MUNICIPALITY	**1990**	**2015**	**1990**	**2015**
Bridgeton	18942	22711	10552	14576
Commercial	5026	6289	616	844
Deerfield	2933	4193	853	1173
Downe	1702	1747	228	312
Fairfield	5699	7687	592	812
Greenwich	911	874	83	113
Hopewell	4215	5590	123	172
Lawrence	2433	3145	663	910
Maurice River	6648	8386	2109	2904
Millville	25992	33193	12051	16602
Shiloh	408	524	118	164
Stow Creek	1437	1747	154	200
Upper Deerfield	6927	8735	1652	2272
Vineland	54780	69800	29735	40972
CUMBERLAND COUNTY	138053	174621	59529	82026

Table IV-4
Salem County Forecasts

	POPULATION		EMPLOYMENT	
MUNICIPALITY	**1990**	**2015**	**1990**	**2015**
Alloway	2795	3095	386	406
Carneys Point	8443	14096	882	1927
Elmer	1571	1399	1701	1799
Elsinboro	1170	1518	103	108
Lower Alloway	1858	1548	3110	3460
Mannington	1693	1938	1574	1737
Oldmans	1683	1360	929	1279
Penns Grove	5228	4930	1679	1768
Pennsville	13794	17601	6798	7148
Pilesgrove	3250	4522	390	682
Pittsgrove	8121	11528	497	747
Quinton	2511	2201	168	171
Salem	6883	8053	3571	3760
Upper Pittsgrove	3140	2633	490	516
Woodstown	3154	4212	1524	1624
SALEM COUNTY	65294	80634	23802	27132

Future Year Trip Table Development

The trip generation and trip distribution steps of the traditional transportation demand modeling process are not supported by the South Jersey Highway Model. NJDOT developed a process to predict travel demand in lieu of the missing steps. A formula is used to manually adjust the 1990 trip table to generate future year trip tables. The equation to determine the municipal growth factor is based on forecasted population and employment and is outlined below:

$$\text{Growth Factor} = \frac{(4 \times \text{Population} + 2 \times \text{Employment}) \text{ for forecast year}}{(4 \times \text{Population} + 2 \times \text{Employment}) \text{ for year 1990}}$$

Population increases are weighted more than employment increases in this growth factor equation. The rationale is that as each new job is added to a zone, two trips are created (home to work, work to home); but as each new person is added, the number of trips created is larger (at an average of four trips per person), as people make trips for a multitude of purposes.

Each vehicle trip associated with a certain municipality, either as an origin or as a destination trip-end, is multiplied by a growth factor to develop a future year trip. The growth factors were applied to the 1990 trip table using a FRATAR process to develop a trip table for the year 2015. This table served as input into the model forecasting process. The 1990 and 2015 trip tables are contained in Appendix IV along with the growth factors for each municipality.

The base 1990 trip table for the entire region totals 321,259 vehicle-trips (including intrazonal trips) that are assigned to the network for the PM peak-hour (5-6 PM on a summer Friday). The 2015 trip table for the entire region totals 409,463 vehicle-trips (including intrazonal trips) in the PM peak-hour. This represents a growth of 88,204 trips, which is a 27 percent increase over 1990.

Future Year Methodology

The South Jersey Highway Model was used to forecast traffic conditions in the SJTPO region. Inputs into the forecasting process included the future year trip table described above and a future year highway network. The future year network was derived from the base 1990 highway network with roadway enhancements/improvements added for the future years. For the Regional Transportation Plan, 1996 and 2005 highway networks used by NJDOT in the 1996 TIP/SIP Air Quality Conformity Analysis were obtained and utilized. For each year two networks were reviewed, a "baseline" network that contained improvements assumed completed by the specific year from the FY 1996-2000 TIP, and an "action" network that included both the baseline improvements and a series of action improvements identified from the recommended TIP. A listing of the projects in the 1996 and 2005 baseline and action networks are included in Appendix V.

The 2015 baseline, or no-build network is identical to the 2005 "action" network. It incorporates all baseline and action projects from the 1996 and 2005 networks. It was assumed that no new projects would be constructed beyond those in the 2005 action network. The portion of the 2015 network that is within the study area represents 2,846 lane-miles.

The SJHM was run using the 2015 trip table and highway network to assess future year highway system performance measures and air quality. The air quality assessment is discussed in Chapter VIII. The year 2015 system performance assessment is discussed in the next section.

Future Year Assessment

The SJHM forecasted future year (2015) traffic volumes on each highway link for a typical summer Friday 5-6 PM peak hour. The future year model outputs were compared to the base year (1990) model outputs to assess changes in traffic conditions on each link. The data was summarized into county and area-wide performance measures including volume to capacity ratio (v/c), level of service (LOS), and vehicle-miles traveled (VMT).

The projected link traffic volumes were used with the link capacities to calculate v/c ratios. The standard performance measure for roadways, the LOS, is based on the v/c ratios. LOS is divided into six categories, ranging from LOS A (traffic flows are free-flow) to LOS F (traffic flows break down, volumes exceed capacity of the facility). Another performance-generated measure is vehicle-miles traveled. The VMT of a particular roadway link is the product of the projected link traffic volume (vehicle-trips) and link distance. All of the link VMT values were summed to arrive at total VMT.

The model performance measures summarized in this section and have not been adjusted to account for travel not captured by the network, i.e. local roads. The network performance measures are reported only to provide a basis for the future year assessment, and should not be construed as actual future measures.

On a system-wide basis, the highway network is forecasted to perform fairly well in the year 2015, but there is some degradation in the operation of the network from 1990. Table IV-5 lists the roadway miles by LOS for the 2015 network, as well as the corresponding percentages for 1990. The percentage of roadway lane-mileage which operates at LOS E or F increases from 2 percent in 1990 to 5 percent in 2015. Only 55 percent operates at LOS A, down from 68 percent in 1990. The roadway lane-mileage which operates in the unacceptable range (LOS E or F) increases from 62 lane-miles in 1990 to 162 lane-miles in 2015.

Table IV-5
SJHM Roadway Lane-Mileage by LOS

	2015 NETWORK		1990 NETWORK
LOS	ROADWAY LANE-MILES	PERCENTAGE OF LANE-MILES	PERCENTAGE OF LANE-MILES
A	1575	55 %	68 %
B	506	18 %	15 %
C	440	16 %	12 %
D	163	6 %	3 %
E	37	1 %	1 %
F	125	4 %	1 %

The percentage of roadway miles by LOS are shown for each facility type in Table IV-6 and depict the operating characteristics of the different facilities in the region. Problems begin to arise in the operation of local roads, highways, and major arterials in 2015. For local roads, 11 percent of the roadway links will operate at LOS E or F. Most of these links represent roadways in downtown Atlantic City, so it appears that this portion of the network will experience operational problems in 2015. The share of major arterials which will operate at LOS E or F is 5 percent. Major arterials are the highest proportion of roadway links in the network, so this share is significant.

Table IV-6
Percentage of SJHM Roadway Lane-Miles by LOS for Each Facility Type

	2015 NETWORK PERCENTAGE OF LANE-MILEAGE BY FACILITY TYPE				
LOS	FREEWAY	HIGHWAY	MAJOR ARTERIAL	MINOR ARTERIAL	LOCAL ROADS
A	36 %	44 %	69 %	61 %	54 %
B	13 %	28 %	12 %	23 %	7 %
C	39 %	13 %	10 %	9 %	21 %
D	10 %	6 %	4 %	3 %	7 %
E	> 1 %	1 %	2 %	0 %	4 %
F	2 %	8 %	3 %	4 %	7 %
TOTAL LANE-MILES	475	893	1359	91	28
% OF LANE-MILES	17 %	31 %	48 %	3 %	1 %

The problem areas within the system begin to come into focus when the roadway lane-mileage by LOS are summarized at a county level. Table IV-7 shows that, in general, all of the counties operate fairly well, with 92 to 96 percent of the roadway mileage operating within the acceptable range (LOS D or better). Cape May County has the highest proportion of roadway lane-miles operating at LOS E or F at 8 percent, for a total of 42 lane-miles. Atlantic County has the highest amount of lane-mileage operating at LOS E or F, at 75 lane-miles.

Table IV-7
Percentage of SJHM Roadway Lane-Miles by LOS for Each County

	ATLANTIC % OF LANE-MILES		CAPE MAY % OF LANE-MILES		CUMBERLAND % OF LANE-MILES		SALEM % OF LANE-MILES	
LOS	**YEAR 2015**	**YEAR 1990**	**YEAR 2015**	**YEAR 1990**	**YEAR 2015**	**YEAR 1990**	**YEAR 2015**	**YEAR 1990**
A	51 %	67 %	58 %	65 %	61 %	75 %	62 %	68 %
B	20 %	13 %	16 %	20 %	20 %	12 %	10 %	15 %
C	17 %	15 %	15 %	9 %	9 %	5 %	16 %	13 %
D	7 %	3 %	3 %	3 %	4 %	5 %	8 %	2 %
E	2 %	1 %	2 %	1 %	0 %	1 %	0 %	1 %
F	3 %	1 %	6 %	2 %	6 %	2 %	4 %	1 %
TOTAL LANE-MILES	1464	1463	497	491	475	475	410	410

An important performance measure is vehicle-miles traveled (VMT). The total regional VMT forecasted for the year 2015 is 1,327,783 VMT, an increase of 27 percent from 1990. The VMT was summarized for each LOS, providing a measure of how well each vehicle travels through the network. These statistics are found in Table IV-8. A large share of the VMT, 25 percent, travels under LOS A. The percentage of VMT operating at LOS E or F is 11 percent. This is a large increase over the percentage of vehicles traveling at an unacceptable LOS in 1990. Since this statistic measures the traffic conditions from a motorists standpoint, the traffic conditions will be noticeably worse.

Table IV-8
SJHM Vehicle-Miles Traveled By LOS

LOS	2015 NETWORK		1990 NETWORK
	VMT	PERCENTAGE OF TOTAL VMT	PERCENTAGE OF TOTAL VMT
A	331,349	25 %	39 %
B	300,629	23 %	25 %
C	387,068	29 %	25 %
D	155,587	12 %	6 %
E	29,887	2 %	1 %
F	123,263	9 %	4 %
TOTAL	1,337,783	100 %	100 %

The percent of VMT by LOS for each county was also summarized and is listed in Table IV-9. Atlantic County accounts for more than half of the VMT generated in the region during the PM peak period, with a value of 737,512 VMT. This is consistent with the results of the 1990 baseline conditions.

Cape May County has the highest proportion of VMT operating at LOS E or F, with Cumberland County close behind. Atlantic County contains the highest amount of VMT operating at a LOS E or F, with 72,942 vehicle-miles traveled.

The average network trip length (ignoring intrazonal travel) for both 1990 and 2015 is 4.7 miles. This statistic indicates that the existing travel patterns are not expected to shift dramatically in the future. In addition to travel patterns remaining similar, motorists will likely use the same routes as today. This is to be expected in the absence of widespread congestion. Widespread congestion causes motorists to shift to alternate routes to avoid delay.

Similar to existing conditions, the percentage of VMT and roadway lane-miles at each LOS indicates that future congestion will be limited to a relatively small number of links. While only 5 percent of the network is operating under an unacceptable LOS, 11 percent of all travel will take place on that portion of the network.

Table IV-9
Percentage of SJHM Vehicle-Miles Traveled By LOS for Each County

	ATLANTIC % OF VMT		CAPE MAY % OF VMT		CUMBERLAND % OF VMT		SALEM % OF VMT	
LOS	YEAR 2015	YEAR 1990	YEAR 2015	YEAR 1990	YEAR 2015	YEAR 1990	YEAR 2015	YEAR 1990
A	21 %	36 %	30 %	37 %	31 %	53 %	30 %	38 %
B	22 %	21 %	23 %	37 %	32 %	19 %	13 %	33 %
C	33 %	34 %	24 %	14 %	15 %	9 %	34 %	22 %
D	14 %	5 %	6 %	6 %	7 %	10 %	15 %	3 %
E	3 %	1 %	4 %	1 %	>1 %	2 %	>1 %	2 %
F	7 %	3 %	13 %	5 %	15 %	7 %	8 %	3 %
TOTAL VMT	737,512	584,747	208,741	159,148	187,749	148,037	193,781	155,654

Identification of Highway System Problem Areas

The model performance measures for 2015 were used to identify future problem areas. The most important performance measure used was level of service, with problem areas identified as those areas with an LOS of E or F. Problem areas are corridor-specific or intersection-specific. It was possible to identify spot intersection problems as the capacity of links leading into an intersection containing a traffic control device (i.e. traffic signal or stop sign) were adjusted for to account for delay.

The problem areas identified via the model are listed in Table IV-10.

The SJHM model does not contain all of the roadway network in the region, and in some areas lacks the detail necessary to identify potential capacity problems. Therefore, an additional analysis was performed using the list of existing problem areas contained in the Baseline Conditions chapter of the Plan. This list contains locations that were identified from several sources including the SJTPO Steering Committee and through the Public Outreach process. Verification of these problem areas was not done in accordance with analytical procedures. However, given the model's shortcomings, it is important to include problem areas from the list that merit further study.

Existing problem areas identified as future problem areas via the model were not subject to additional assessment, as they were included in Table IV-10. The remaining base year problem areas were subject to the following process. Future year traffic forecasts in the vicinity of the existing problem areas were compared to the base year volumes. If traffic growth was predicted to occur and no projects were contained in the year 2015 network to address the problem, the location was identified as a potential future problem area. The problem areas identified through this process, external to the model, are listed in Table IV-11.

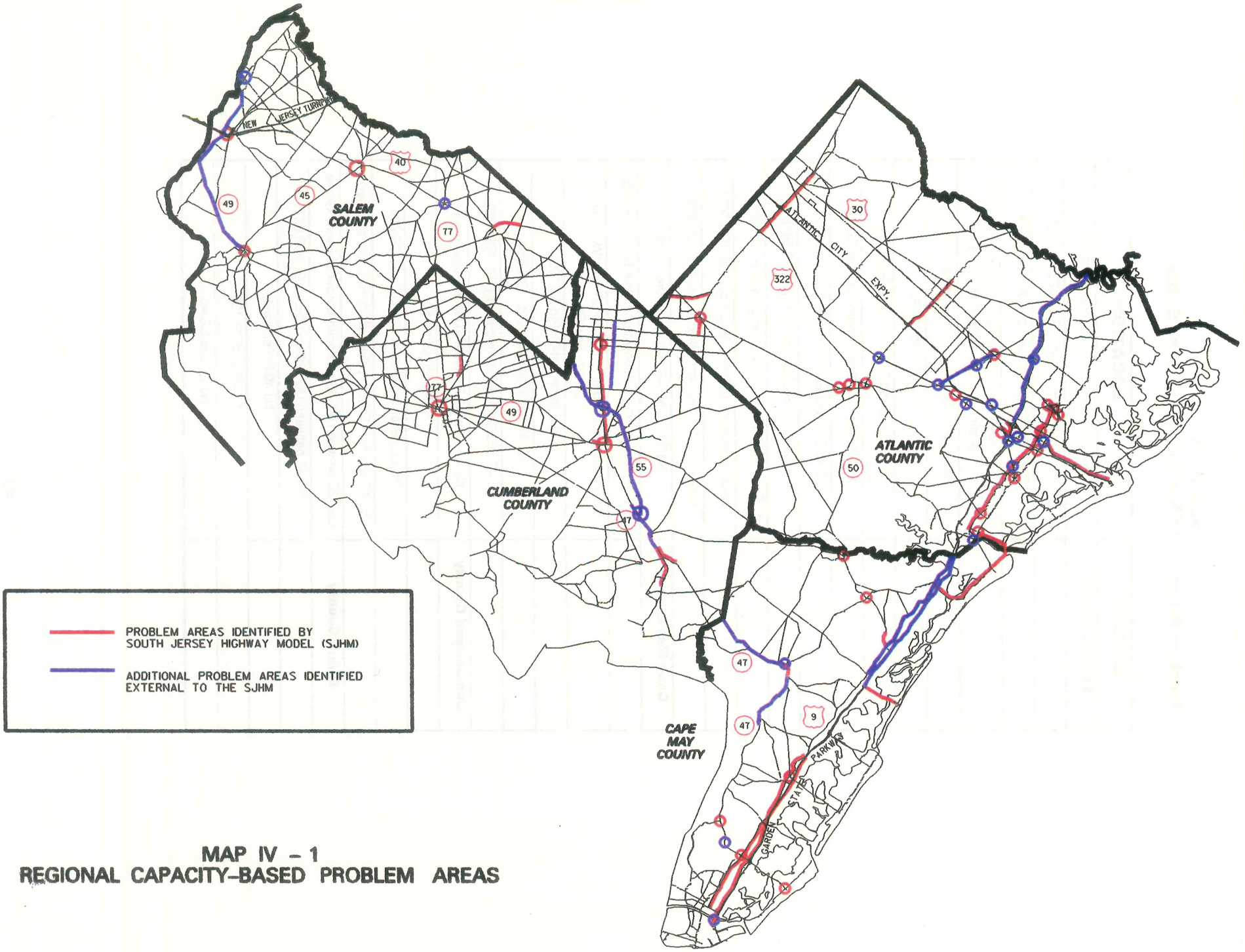
The future problem areas are shown graphically on Map IV-1. Areas identified via the model are depicted in red, and areas identified external to the model are depicted in blue.

Table IV-10
Summary of Capacity-Based Problems Identified via the SJHM

COUNTY	LOCATION
Atlantic County	Atlantic City Expressway and the Garden State Parkway interchange
	Atlantic City Expressway corridor (ACE, US 30, US 40/US 322) leading into Atlantic City
	US 9 corridor from Laurel Drive to US 30
	US 9 and Delilah Road intersection
	US 9 and US 30 intersection
	US 40/322 and Delilah Road intersection
	US 30 and Mill Road (CR 651)
	US 40/322 and Shore Road (CR 585) intersection
	Delilah Road and Shore Road (CR 585) intersection
	Junction of US 30, NJ 157 and Shore Road (CR 585)
	US 40, at NJ 50 and Somers Point-Mays Landing Road (CR 559)/Old River Rd. -- Sugar Hill Circle
	US 40, CR 559 (Weymouth Rd.)
	US 40 and Lincoln Ave. (CR 655) corridor in Buena
	US 30 and CR 575 (Pomona/Wrangleboro Rd.)
	NJ 54 corridor between US 322 and US 30
	US 9 and Ocean Heights Ave. intersection
	US 40/322 and Tilton Road (CR 563) and Washington Ave. (CR 608) -- Cardiff Circle
	NJ 50 corridor betw. ACE and Moss Mill Rd.
	US 40 and CR 552 (Bears Head Rd.)
	Weymouth-Malaga Road (CR 690) in Buena
	Junction of Tilton Rd (CR 563) , CR 585 (Shore Road) and Mill Road (CR 662)
	CR 585 (Shore Rd.) and NJ 152
Cape May County	US 9/GSP corridor between NJ 147 and GSP interchange 12S, leading into Cape May City
	NJ 47 and US 9
	Individual Congested Locations: Sections of NJ 47, Sea Isle Blvd., NJ 50, and Roosevelt Blvd.
	NJ 47 and Bay Shore Rd. (CR 603)
	NJ 47 and Pacific Ave.
	US 9 and Court House-South Dennis Rd. (CR 657)
	NJ 49 and NJ 50 intersection
	Inbound Roads to Ocean City
	NJ 50 and Dennisville-Petersburg Rd. (CR 610)
Cumberland County	NJ 47 Corridor between Almond Rd. and NJ 49 in Millville
	NJ 49 west of NJ 47
	NJ 49 and NJ 77
	NJ 77 around Bridgeton
	NJ 47/CR 347/CR 681
	NJ 47 (Delsea Drive) and Landis Ave.(CR 622) in Vineland
Salem County	NJ 45 and US 40 in Woodstown
	NJ 49 and NJ 45 in Salem City
	US 40 west of CR 553
	US 40 interchanges with NJ 49/US 130

Table IV-11
Problem Areas Identified External To the SJHM

COUNTY	LOCATION
Atlantic County	GSP from ACE to south end of county
	Wrangleboro Rd. From US 40/322 to US 30
	Tilton Road and Delilah Rd. -- Airport Circle
	NJ 52 and Shore Rd. (CR 585) and Somers Point-Mays Landing Rd. -- Somers Point Circle
	Jimmie Leeds Rd. (CR 561) and the GSP
	US 322 and NJ 50
	US 9 and Tilton Rd. (CR 563)
	US 40/322 and Wrangleboro Rd. (CR 575)
	US 40/322 and English Creek Ave. (CR 575)
	Tilton Rd. (CR 563) and Fire Rd. (CR 561)
	Fire Rd. (CR 651) and Washington Ave. (CR 608)
	Wrangleboro Rd. (CR 575) and Tilton Rd. (CR 563)
	Shore Rd. (CR 585) and Washington Rd. (CR 608)
Cape May County	NJ 347 to NJ 47 throughout the county
	GSP from north end of county to Sea Isle Blvd. (CR 625)
	US 9 from north end of county to CR 550 (Woodbine - Ocean View Rd.
	GSP (milepost 0) and NJ 109
	NJ 47 and Fulling Mill Rd. (CR 654)
	NJ 47 and Dennisville-Petersburg Rd. (CR 610)
Cumberland County	NJ 47 from NJ 55 south to NJ 347 (summer)
	NJ 55 (summer)
	The Boulevards between CR 552 and CR 674
	NJ 47 and NJ 55 (both points of intersection, summer)
Salem County	US 130 between US 40 and north border of Penns Grove
	NJ 48 between US 130 and Broad St. (CR 607)
	NJ 49 in Pennsville
	NJ 48 and US 130
	NJ 77 and US 40



MAP IV – 1
REGIONAL CAPACITY-BASED PROBLEM AREAS

Future Problem Area Highlights

In Atlantic County, the existing areas of congestion expand in the future. Many of the critical routes leading to and contained within Atlantic City show a marked increase in congestion. The downtown area's traffic operations, which operated under an acceptable LOS in 1990, are predicted to fail. In 1990, on the critical routes leading into downtown (US 30 and the Atlantic City Expressway), only a few scattered links operate at LOS D or worse in the base case. By 2015, all of these inbound links are forecasted to operate at LOS D or below, and several links fail. CR 646 (Delilah Road), depicted as failing during the base year, is predicted to further decline in terms of traffic operations. Other trouble spots include the Atlantic City Expressway, from the US 50 interchange to its terminus in Atlantic City, and the Garden State Parkway, noted as congested in the baseline conditions, from US 40 (Black Horse Pike) to the Atlantic City Expressway. Further, US 9 (New Road) and CR 585 (Shore Road) show isolated trouble spots in the base year case, but in 2015 most of the links from Northfield to Absecon in both corridors operate with LOS D or worse. Several intersections along US 9 -- including Ocean Heights Avenue, Zion Road, Tilton Road, and the White Horse Pike (US 30) -- are predicted to be congestion spots in 2015.

Other existing problem areas include Mays Landing. In the base year, many roadway links in Mays Landing are LOS E/F; in 2015, all of these roadway links, including portions of NJ 40 (Harding Highway) and NJ 50 (Cape May Avenue) leading into the area, are predicted to fail (LOS F). The Black Horse Pike (US 322) also experiences a substantial increase in volume in the future, causing some additional congestion at intersections along this busy corridor. In Pomona, the intersection of US 30 (White Horse Pike) and CR 575 (Pomona Road) worsens in 2015, affecting a large area surrounding the intersection. CR 575 (Pomona/Wrangleboro Road) was cited as an existing congested corridor in the base condition. The existing congestion problems on NJ 54 in the area of CR 561 (Egg Harbor Road) also begin to spread, and affects adjacent intersections between US 322 and US 30 in 2015. Congestion problems also occur in Buena at some of the intersections with US 40 in 2015.

In Cape May County, there are problems in the base year on roads inbound to Ocean City, especially on the bridges. The SJHM network is not detailed in this area, but the links that are modeled are predicted to experience some congestion. In the future case, congestion problems intensify as these roads are predicted to experience failing traffic operations.

The NJ 47 (Delsea Drive) corridor through Cape May County is a congested corridor today, and there is a marked increase in traffic volume (approximately 15 percent) predicted in Cape May County. The SJHM does not depict unacceptable levels of service along this stretch, but the model does predict that traffic conditions will worsen in 2015. Particular sections of this roadway which is extremely congested are the intersections of US 9 and Pacific Avenue.

The US 9/Garden State Parkway (GSP) corridor is known to be congested today, from CR 657 (Stone Harbor Boulevard) to NJ 47. In 2015, the travel demand will increase, and the traffic operations are predicted to get worse. NJ 109 at the interchange with GSP (milepost 0.0) is predicted to operate at unacceptable levels of service. Although the SJHM does not show congestion problems on the GSP at this key interchange, this area is a known congestion problem today. Given the model's prediction that traffic on NJ 109 will increase, the entire interchange will continue to be a problem. US 9 and Fulling Mill Road will also be a problem. Another congested area is NJ 50, particularly at the intersections CR 610 (Dennisville-Petersburg Road) and NJ 49. Levels of service will continue to deteriorate at both of these locations.

In Cumberland County, the NJ 47 (Delsea Drive) corridor is congested in the base year from Vineland to Millville, with several roadway links depicted as LOS D, E and F. In the 2015 model run, the entire corridor operates at LOS E or F. The SJHM network does not contain detail in downtown Vineland, but given the proximity of the routes, the Boulevards in Vineland (a known congestion spot today) will probably be affected by the shortage of capacity in the corridor. An intersection in Vineland that is

included in the SJHM is NJ 47 and Landis Avenue (CR 622), which is predicted to experience congestion in 2015.

By 2015, further south at the NJ 47/NJ 347 split (which is a congestion problem today), all of the southbound roadway links either entering or leaving the split are predicted to operate at LOS D. Since the model appears to be underestimating v/c in this particular area, as it is a point of known congestion, it is reasonable to assume that traffic conditions will operate at an unacceptable LOS in 2015.

Other areas which experience degradation in LOS in Cumberland County are located in Bridgeton. The NJ 77 (Pearl Street) corridor operates at an unacceptable LOS in 2015. In addition, NJ 49 (Broad Street) in Bridgeton experiences a congestion problem at NJ 77. In Millville, NJ 49 in the vicinity of NJ 47 is predicted to experience poor levels of service in the future.

In Salem County, NJ 49 from the southern most intersection with CR 551 (Hook Road) into Salem is depicted as LOS D/E in the base year. In 2015, travel demand is predicted to grow, and operations degrade to LOS F. This failure occurs primarily at the intersection of NJ 49 with NJ 45.

US 40 (Harding Highway) is known to be congested and the model depicted the stretch from NJ 48 to NJ 45 (Salem-Woodstown Road) as failing in the base case. By 2015, the failing traffic conditions extend into Woodstown, and conditions from Woodstown to Elmer begin to deteriorate. In addition, US 40 (Wiley Road) also experiences a poor LOS in Penns Grove at the interchanges with NJ 49 and US 130.

Summary

Overall, the existing problem areas throughout the region are predicted to intensify and extend their limits. Travel patterns are not predicted to shift dramatically. All of the problem areas identified in the base year continue to be areas of congestion in the future. New problems in the future are basically extensions of these existing problem areas.

It should also be noted that the peak period that was analyzed (5-6 PM) may not coincide with the localized peak hour of a particular facility. In some areas, therefore, the analysis tends to understate the magnitude of the problems and overlooked some problem areas entirely. It is important to recognize these limitations of the traffic model, and include additional problem areas identified external to the model when developing improvement scenarios.

V. DEVELOPMENT OF FUTURE TRANSPORTATION STRATEGIES

Overview

This chapter first presents the focal issues and driving forces that will help shape the future transportation system in accordance with the desires of the region. Previous chapters of the Plan addressed the existing and future problem areas of the highway system, particularly capacity related problems. This chapter will also present an assessment of other system needs. After the needs are distinguished, strategies are formulated to address the system deficiencies and to achieve the transportation goals of the region.

On the highway system, improvement scenarios to address capacity problems are formulated and tested. Other transportation system needs that are beyond the model's testing ability are also discussed including: transit assessment, passenger intermodal needs, bicycle/pedestrian, and freight. As such, this chapter represents the results of a broad-based systems planning effort based on projected system deficiencies. Projects and specific improvements will be more fully defined as the SJTPO and its member agencies embark on further technical work on these deficient locations and corridors.

Focal Issues and Driving Forces

The region's focal issues and driving forces were identified as a means to think more systematically about the type of future transportation desired and needed in southern New Jersey. Focal issues are statements of regional concern or points of consensus that were voiced repeatedly during the public participation process or issues repeatedly brought to the forefront at Regional Transportation Plan Steering Committee meetings. Driving forces are regional trends that are affecting the region and are factual in nature. These focal issues and driving forces were considered during the development of future transportation strategies.

Focal Issues

Many of the focal issues in the region promoted mobility and transportation choices:

- There is a need for special services transit to be integrated with conventional and rural transit.
- There is sparse public transit service in the region, with the exception being within Atlantic County, particularly within Atlantic City.
- There are limited travel choices in the region.

Other focal issues called for the need to address specific highway needs or deficiencies, keeping in mind environmental issues:

- Extensive maintenance and/or reconstruction is needed on bridges in the region, especially in Cape May County.
- Environmental problems at the intersection of US 40 and NJ 45 in the Borough of Woodstown's historical district, which is located in an area of high truck volumes that caused detrimental noise and vibration problems.
- There is strong public support for the completion of NJ 55, with a recognition of major environmental concerns deterring completion and a recognition of the need to identify a range of workable actions to alleviate the severe seasonal congestion problems in Port Elizabeth and other towns along NJ 47.

Finally, some focal issues concentrated on the government's and the transportation system's role in the region:

- There is a lengthy and bureaucratic process to improve the region's transportation system - there are many players and many roles.
- There is a need to balance development and environmental concerns.

Driving Forces

In addition to the above mentioned focal issues, driving forces were identified in the region. These are described below:

- There is strong travel demand in and around Atlantic City and Atlantic County as compared to the rest of the region.
- Tourism is a major industry in Atlantic and Cape May counties, which is very important economically to the State of New Jersey.
- There is a newly developing eco-tourism in Cumberland and Salem counties.
- The four counties all have rail freight services provided by private lines that are not used to their maximum capacity. A majority of goods movement is done by trucks.
- Per capita income in all four counties is low and well below the state average, especially in Cumberland and Salem counties. A full 25 percent of Atlantic City residents live below the poverty level.
- Since 1960, the highest rate of population growth was in Cape May County, with a 96 percent increase in population. The second highest increase was in Atlantic County, at 39 percent (albeit over a much larger base). Cumberland had a 29 percent growth and Salem had a 11 percent growth.
- Population shifts have been noted in Atlantic and Cape May counties from the barrier islands to the mainland areas. Barrier islands are substantially built-out with little or no available land.
- Atlantic County is by far the most populated and the most densely populated county in the region, at 400 persons per square mile. Within the county, however, there are significant differences between the mainland and beach resort areas. The population density for the mainland is 286 persons per square mile, while the density in the beach areas is 3,241 persons per square mile.
- Like Atlantic County, Cape May has varied population densities. Overall, the population density is 373 persons per square mile, but Wildwood has a density of 3,449 persons per square mile. Cape May has the highest density of housing units in the region and this reflects the importance of residential land use in the county. A full 20 percent of Cape May County residents commute to Atlantic County, while 72 percent work in Cape May County.
- Cumberland County has the second highest population in the region but has experienced lower growth rates, and the density is relatively low at 282 persons per square mile. Again, similar to other counties in the region, population is concentrated in a few centers, namely Bridgeton, Millville and Vineland. For example, Bridgeton has a population density of 3,055 persons per square mile. About 78 percent of Cumberland residents work in Cumberland, while nine percent work in Atlantic County and 2 percent travel to Cape May County.
- Salem County is the least populated county in the region, has the lowest population density, and has experienced the lowest growth rate. The population is centered in a few areas. Penns Grove has the highest population density at 5,808 persons per square mile. Salem City is also high. Only 60 percent of Salem's residents work in the county. Most other residents are bound for other areas of New Jersey, and a full ten percent work in New Castle County, Delaware.
- In all four counties, there has been a shift from manufacturing to service industries.

- Growth in the region has been largely auto dependent which has led to increases in auto traffic. The interstate and toll roads in the region offer high speeds and capacity but have been overwhelmed by additional traffic, slow speeds and congestion, especially in Atlantic County. The increases in both congestion and suburban and rural travel demands, plus the pervasive presence of lower income households (within Atlantic City and within Cumberland and Salem Counties) have given rise to requests for more transit services which are difficult to provide efficiently in suburban and rural markets with traditional transit services.

Strategies Development

Future transportation improvement strategies were formulated based on the goals of the Regional Transportation Plan, the focal issues and the driving forces. The strategies are intended to address needs related to highways, transit, passenger intermodal, bicycle/pedestrian, and freight.

Highway Strategies

The primary goals of the highway strategies are to reduce congestion on the roadway system and produce a positive impact on the SJTPO's regional air quality. The future problem areas identified by the South Jersey Highway Model are capacity deficiencies. Strategies to reduce congestion on the highway system were formulated and tested using the SJHM.

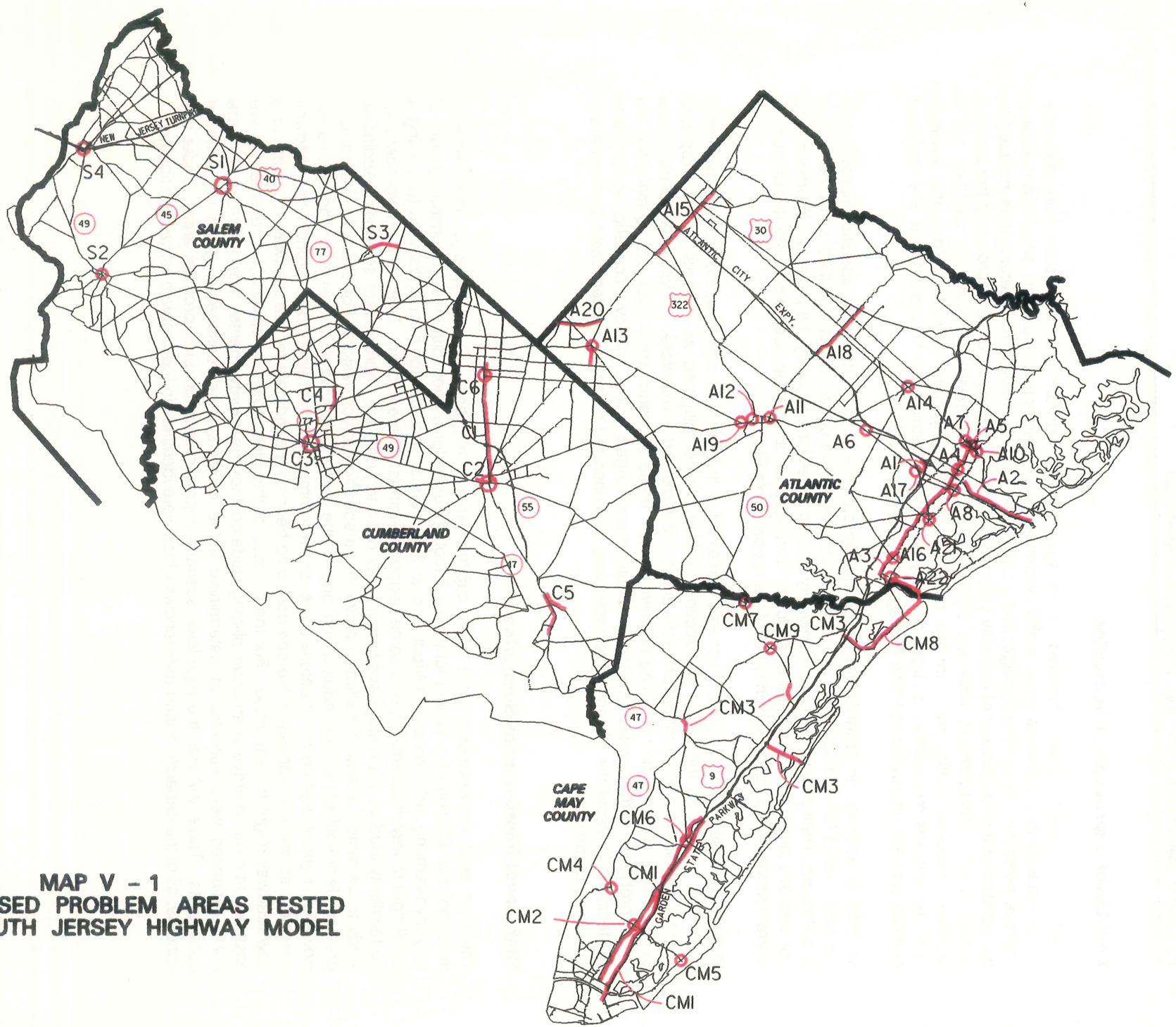
While additional problem areas were identified external to the modeling process (Table IV-11), these areas could not be addressed using the model. In some instances the locations are not included in the model network, as the network covers only a portion of the roadway system of Southern New Jersey. In other cases, the model did not adequately simulate traffic flow conditions at that particular location, and formulating and testing an improvement would likely produce erroneous results and falsely alter trip making patterns in the region.

Map V-1 shows graphically in red the general location of the problem areas where conceptual improvements were tested using the SJHM. The extensive list of problem areas defined in Table V-1 made it difficult to evaluate the individual effect that each had on the transportation network. Therefore, all problems areas were grouped and evaluated together as a package and used to represent a future "build" scenario. Two separate future build scenarios were developed for evaluation, characterized as a "high"-level type of investment and a "low"-level type. The objective of building the low-level scenario was to select mitigating improvements that, while not likely to solve all congestion problems, could yield acceptable levels of service through relatively low cost improvements. The objective of the high-level scenario was to solve most of the highway capacity problems within the region.

The low level scenario proposed only moderately priced solution, while the high-level scenario proposed a more capital intensive program. Although the high-level scenario would require a larger financial outlay, the proposed mitigation measures were limited to reasonable improvement measures -- additions of a lane and shoulder, traffic signal improvements, and geometric improvements, given the desire to be financially plausible. Both scenarios were evaluated in terms of their effect on congestion and air quality. The cost for each scenario was also estimated. The financial feasibility of the scenarios will be evaluated in Chapter VII, Financing Plan.

Table V-1
Summary of Capacity-Based Problems Tested via the South Jersey Highway Model

COUNTY	REFERENCE	LOCATION
ATLANTIC	A1	Atlantic City Expressway and the Garden State Parkway interchange
	A2	Atlantic City Expressway corridor (ACE, US 30, US 40/US 322) leading into Atlantic City
	A3	US 9 corridor from Laurel Drive to US 30
	A4	US 9 and Delilah Road intersection
	A5	US 9 and US 30 intersection
	A6	US 40/322 and Delilah Road intersection
	A7	US 30 and Mill Road (CR 651)
	A8	US 40/322 and Shore Road (CR 585) intersection
	A9	Delilah Road and Shore Road (CR 585) intersection
	A10	Junction of US 30, NJ 157 and Shore Road (CR 585)
	A11	US 40, at NJ 50 and Somers Point-Mays Landing Road (CR 559)/Old River Rd. -- Sugar Hill Circle
	A12	US 40, CR 559 (Weymouth Rd.)
	A13	US 40 and Lincoln Ave. (CR 655) corridor in Buena
	A14	US 30 and CR 575 (Pomona/Wrangleboro Rd.)
	A15	NJ 54 corridor between US 322 and US 30
	A16	US 9 and Ocean Heights Ave. intersection
	A17	US 40/322 and Tilton Road (CR 563) and Washington Ave. (CR 608) -- Cardiff Circle
	A18	NJ 50 corridor betw. ACE and Moss Mill Rd.
	A19	US 40 and CR 552 (Bears Head Rd.)
	A20	Weymouth-Malaga Road (CR 690) in Buena
	A21	Junction of Tilton Rd (CR 563) , CR 585 (Shore Road) and Mill Road (CR 662)
	A22	CR 585 (Shore Rd.) and NJ 152
CAPE MAY	CM1	US 9/GSP corridor between NJ 147 and GSP interchange 12S, leading into Cape May City
	CM2	NJ 47 and US 9
	CM3	Individual Congested Locations: Sections of NJ 47, Sea Isle Blvd., NJ 50, and Roosevelt Blvd.
	CM4	NJ 47 and Bay Shore Rd. (CR 603)
	CM5	NJ 47 and Pacific Ave.
	CM6	US 9 and Court House-South Dennis Rd. (CR 657)
	CM7	NJ 49 and NJ 50 intersection
	CM8	Inbound Roads to Ocean City
	CM9	NJ 50 and Tuckahoe-Mt. Pleasant Rd.
CUMBERLAND	C1	NJ 47 Corridor between Almond Rd. and NJ 49 in Millville
	C2	NJ 49 west of NJ 47
	C3	NJ 49 and NJ 77
	C4	NJ 77 around Bridgeton
	C5	NJ 47/CR 347/CR 681
	C6	NJ 47 (Delsea Drive) and Landis Ave.(CR 622) in Vineland
SALEM	S1	NJ 45 and US 40 in Woodstown
	S2	NJ 49 and NJ 45 in Salem City
	S3	US 40 west of CR 553
	S4	US 40 interchanges with NJ 49/US 130



MAP V - 1
CAPACITY-BASED PROBLEM AREAS TESTED VIA THE SOUTH JERSEY HIGHWAY MODEL

Low-Level Improvement Scenarios

Low-level improvements were focused on managing the existing transportation system more efficiently. These types of improvements were: a short widening of an intersection approach; small channelization improvements, restriping; new signage; and a traffic signal improvement. This scenario was modeled by the addition of a small amount of capacity (150-300 vehicles per hour) on each approach at the problem areas. These improvements were not envisioned to add appreciable amounts of capacity, but to simulate improved traffic flow. In one case, the Atlantic City Expressway corridor, the low-level improvement was modeled as a larger capacity addition to simulate the implementation of a managed corridor concept via advanced traffic management systems (ATMS).

In order to estimate an order-of-magnitude pricing scheme for the scenarios, specific improvements were formulated for each location. Since the actual design of a project is not specified within the context of a Regional Transportation Plan, no feasibility studies were done to justify the proposed improvements, nor was any project development or scoping completed for any of the scenarios. Additional study is warranted for each location, which is out of the scope of this Plan.

In general, under the improvement scheme contained in the low-level scenario, the network performed fairly well. Many of the minor intersection problems were mitigated as a result of the proposed improvements. However, major problem areas still remained. Therefore, a high-level scenario was developed to address the remaining problem areas. Those elements which successfully mitigated the traffic problems in the low-level scenario remained unchanged in the high-level scenario, so as not to waste financial resources. Specific elements were only changed on an as-needed basis to mitigate any remaining problems.

High-Level Improvement Scenarios

The high level improvements were more capital-intensive solutions. These types of improvements included: the addition of a 12-foot lane plus 8-foot shoulder for a short distance (assuming no right of way involvement); addition of a 12-foot lane and an 12-foot shoulder for a long distance (assuming a small right of way involvement); and some bridge widenings (where known). Like the low-level scenario, no feasibility studies or project development was done to justify the improvement schemes. Additional study is warranted at each location to arrive at the specific project design. For example, if a corridor problem is identified, a lane addition on one of the existing highways is assumed and estimated. However, right of way costs, structure costs, or environmental constraints could prohibit this roadway widening, so another highway in the corridor could become a candidate for the roadway widening, or a new roadway might be warranted. For the purpose of this plan, however, specific improvements were assumed in order to arrive at an order-of-magnitude cost for the improvements. The order-of-magnitude costs estimates were essential in determining if the projects were reasonable, given the financial constraints. Table V-2 lists the high-level scenario improvements for each problem area. Under this scheme, all of the capacity-based deficiencies which were identified in the problem list were mitigated.

Table V-2
Summary of High-Type Improvements (High Scenario)

	LOCATION	HIGH-LEVEL IMPROVEMENT
A1	Atlantic City Expressway and the Garden State Parkway interchange	Lane Addition on the GSP and Intersection Geometrics
A2	Atlantic City Expressway corridor (ACE, US 30, US 40/US 322) leading into Atlantic City	Managed Corridor concepts thru ATMS, and Modification of Beach Thorofare Bridge to carry an Additional Lane
A3	US 9 corridor from Laurel Drive to US 30	Lane Addition in Each Direction
A4	US 9 and Delilah Road intersection	Signal Rework, Geometrics, Addition of a Lane
A5	US 9 and US 30 intersection	Signal Rework and Intersection Geometrics*
A6	US 40/322 and Delilah Road intersection	Signal Rework and Intersection Geometrics*
A7	US 30 and Mill Road (CR 651)	Signal Rework and Intersection Geometrics*
A8	US 40/322 and Shore Road (CR 585) intersection	Signal Rework and Intersection Geometrics*
A9	Delilah Road and Shore Road (CR 585) intersection	Signal Rework, Geometrics, Addition of a Lane
A10	Junction of US 30, NJ 157 and Shore Road (CR 585)	Signal Rework and Intersection Geometrics*
A11	US 40, at NJ 50 and Somers Point-Mays Landing Road (CR 559)/Old River Rd. -- Sugar Hill Circle	Signal Rework, Geometrics, Addition of a Lane
A12	US 40, CR 559 (Weymouth Rd.)	Signal Rework, Intersection Geometrics, Addition of a Lane
A13	US 40 and Lincoln Ave. (CR 655) corridor in Buena	Signal Rework and Intersection Geometrics
A14	US 30 and CR 575 (Pomona/Wrangleboro Rd.)	Signal Rework and Intersection Geometrics*
A15	NJ 54 corridor between US 322 and US 30	Signal Rework and Intersection Geometrics for the extended corridor
A16	US 9 and Ocean Heights Ave. intersection	Signal Rework and Intersection Geometrics*
A17	US 40/322 and Tilton Road (CR 563) and Washington Ave. (CR 608) -- Cardiff Circle	Signal Rework and Intersection Geometrics*
A18	NJ 50 corridor betw. ACE and Moss Mill Rd.	Signal Rework and Intersection Geometrics for extended corridor
A19	US 40 and CR 552 (Bears Head Rd.)	Signal Rework and Intersection Geometrics*
A20	Weymouth-Malaga Road (CR 690) in Buena	Signal Rework and Intersection Geometrics*
A21	Junction of Tilton Rd (CR 563) , CR 585 (Shore Road) and Mill Road (CR 662)	Signal Rework, Intersection Geometrics, Addition of a Lane
A22	CR 585 (Shore Rd.) and NJ 152	Signal Rework and Intersection Geometrics*
CM1	US 9/GSP corridor between NJ 147 and GSP interchange 12S, leading into Cape May City	Signal Rework and Intersection Geometrics*
CM2	NJ 47 and US 9	Signal Rework and Intersection Geometrics
CM3	Individual Congested Locations: Sections of NJ 47, Sea Isle Blvd., NJ 50, and Roosevelt Blvd.	Signal Rework, Intersection Geometrics, Addition of a Lane
CM4	NJ 47 and Bay Shore Rd. (CR 603)	Signal Rework and Intersection Geometrics*
CM5	NJ 47 and Pacific Ave.	Signal Rework, Intersection Geometrics, Addition of a Lane
CM6	US 9 and Court House-South Dennis Rd. (CR 657)	Signal Rework and Intersection Geometrics
CM7	NJ 49 and NJ 50 intersection	Signal Rework and Intersection Geometrics*
CM8	Inbound Roads to Ocean City	Signal Rework, Intersection Geometrics, Addition of a Lane
CM9	NJ 50 and Tuckahoe-Mt. Pleasant Rd.	Signal Rework and Intersection Geometrics*
C1	NJ 47 Corridor between Almond Rd. and NJ 49 in Millville	Addition of a Lane
C2	NJ 49 west of NJ 47	Signal Rework, Intersection Geometrics, Addition of a Lane
C3	NJ 49 and NJ 77	Signal Rework, Intersection Geometrics, Addition of a Lane
C4	NJ 77 around Bridgeton	Signal Rework, Intersection Geometrics, Addition of a Lane
C5	NJ 47/CR 347/CR 681	Signal Rework, Intersection Geometrics, Addition of a Lane
C6	NJ 47 (Delsea Drive) and Landis Ave.(CR 622) in Vineland	Signal Rework, Intersection Geometrics, Addition of a Lane
S1	NJ 45 and US 40 in Woodstown	Signal Rework, Intersection Geometrics, Addition of a Lane
S2	NJ 49 and NJ 45 in Salem City	Signal Rework, Intersection Geometrics, Addition of a Lane
S3	US 40 west of CR 553	Signal Rework and Intersection Geometrics*
S4	US 40 interchanges with NJ 49/US 130	Signal Rework and Intersection Geometrics*

* NO CHANGE FROM LOW SCENARIO

It is important to note that safety problems were not identified as part of this process; the deficiencies are capacity-based problems only. Highway system maintenance needs, including bridge repair/replacement needs were also not directly evaluated. The need to maintain the highway system is addressed in subsequent chapters of the Plan.

Transit Strategies

Direct assessment of transit needs using the South Jersey Highway Model was not possible as the model does not contain a transit network. Thus, much is unknown about future transit demand in the SJTPO region. In order to identify potential transit markets that may emerge in the SJTPO region, an assessment of both the forecasted 2015 employment levels and the 2015 trip table were undertaken.

Please note that employment levels in a given county or municipality do not provide a complete picture of potential transit demand. Population density and local land use patterns are also critical factors in determining transit usage. Potential transit riders are generally unwilling to walk large distances to transit facilities and it is difficult to provide attractive transit services in areas with low population densities.

Methodology

Several assumptions were made about the necessary employment levels required and trip flows needed to support intra-city (local) and inter-city (commuter) bus service. An employment level of approximately 12,000 jobs was assumed to be required to support bus transit service (with 30 minute peak frequency). Employment at the level of 10,000 to 12,000 jobs was described as a core area requirement in the State Development and Redevelopment Plan for Regional Centers. For this analysis, the assumption was made based on the premise that there would be four directions of travel to the employment center and approximately 3000 work trips would originate in any one direction (four directions or 25 percent of trips in any one corridor). Of the 3000 work trips, it was assumed that 40 percent would occur in the peak hour or about 1200 peak hour trips per corridor. A ten percent transit share would produce 120 peak hour transit trips. At this level of transit ridership, 20 minute peak hour service could be provided (3 buses). A five percent transit share would produce 60 peak hour transit trips, about two buses per hour or 30 minute service. The assumption of five to ten percent transit share is reasonable, albeit even optimistic, based on the 1990 Census. Overall, in New Jersey, the residential transit mode share is nine percent. Within specific markets however, transit mode share can be higher especially if an area is well-served by transit. For example, according to the 1990 Census, the journey-to-work transit share for trips to Atlantic City is 14.68 percent. Transit mode shares by county for the SJTPO region are provided in Chapter II.

The first level of analysis was to inspect the 2015 future year employment by municipality as listed in Chapter IV for municipalities that are forecasted to have employment approximately equal to 12,000 jobs or greater. Municipalities were examined individually to see if employment reached the threshold criteria and also if combinations of municipalities adjacent to each other met the criteria collectively. However, special care was given to examining only those combinations of municipalities where combined land area did not become too large.

The second level of analysis was to examine the 2015 peak hour trip table to locate travel corridors where the level of peak hour trip making is forecasted to be approximately 1200 peak hour trips or greater. The 2015 trip table can be found in Appendix IV. All potential markets that were revealed through this analysis should be further examined in a technical transit study in the SJTPO region.

Results

An examination of the 2015 employment estimates reveal a number of municipalities that are forecasted to have employment approximate to 12,000 jobs or greater. The analysis revealed no combinations of adjacent municipalities. In Atlantic and Cumberland Counties three municipalities have employment forecasts approaching or exceeding 12,000 jobs. In Cape May County, there is one municipality, while in Salem County there are none. The highest level of employment forecasted in Salem County is for the municipality of Pennsville at 7,148 jobs. The following table displays municipalities with forecasted employment approaching or exceeding 12,000 jobs or greater.

Table V-3
Municipalities with 2015 Employment of 12,000 or More

Municipality	2015 Employment
Atlantic City	112,225
Hammonton	12,574
Pleasantville	11,122
Middle Twp.	11,432
Bridgeton	14,576
Millville	16,602
Vineland	40,972

Examining the trip table yields further light on potential bus transit markets. Within Atlantic County, there are six trip interchanges where the 2015 peak hour trips exceed or nearly meet the 1200 trips per peak hour criteria. The table below displays the trip interchanges and the 2015 trips estimated by the model.

Of the six potential markets listed, four currently have bus service (Galloway to Atlantic City, Atlantic City to Galloway, Egg Harbor to Galloway, and Galloway to Egg Harbor). For these market areas, increases in service frequency may be warranted in the future. The markets of Galloway to Margate and Margate to Galloway are only served by one bus route that currently serves only some municipalities in these districts. The future trip table indicates the potential for bus service in this corridor by the year 2015.

Table V-4
Atlantic County Potential Markets

Trip Interchange (Model Districts)	2015 Peak Hour Trips
Galloway (9) to Margate (7)	1220
Galloway (9) to Atlantic City (8)	1620
Egg Harbor (11) to Galloway (9)	1250
Atlantic City (8) to Galloway (9)	1920
Margate (7) to Galloway (9)	1260
Galloway (9) to Egg Harbor (11)	1140

Additionally, based on both the level of employment (greater than 12,000 jobs) and the level of internal trip making (greater than 1200 peak hour trips), three markets appear to have the potential to support intra-city circulator bus service to employment areas -- Atlantic City (District 8), Pleasantville (within District 9), and Hammonton (within District 27). Currently, Atlantic City has intra-city bus and jitney services. Pleasantville is also served by many of the Atlantic City local buses. Future increased service levels may be warranted. An internal circulator service to centralized employment areas in Hammonton may have potential for effective service in year 2015.

Within Cape May County, an analysis of the trip table yields no apparent potential bus transit markets. However, given both the employment forecasted for Middle Township (11,432) and the level of internal peak hour trips forecasted within this district (District 2 -- including Lower Township and Middle Township) of 10,640 trips, an internal circulator service to employment areas may have potential.

Similar to Cape May County, an analysis of the 2015 trip table yields no apparent potential markets in Cumberland County. However, given both the level of employment forecasted for Vineland (40,972 jobs), Millville (16,602 jobs), and Bridgeton (14,576 jobs) and the level of internal peak hour trips forecasted within the three districts (District 14 contains the single municipality of Vineland with 19,010 trips, District 15 includes the single municipality of Millville with 7,920 trips, and District 18 containing Bridgeton, Upper Deerfield and Hopewell with 9,440 trips), an internal circulator may have some potential for successful service in these markets.

In Salem County, there are two trip interchanges where peak hour trip making only begins to approach the 1200 trips per peak hour criteria. The interchanges are listed below.

Table V-5
Salem County Potential Transit Markets

Trip Interchange (Model Districts)	2015 Peak Hour Trips
Pennsville (23) to Oldmans (25)	1060
Oldmans (25) to Pennsville (23)	1040

Potentially the level of service could approach two buses an hour or 30 minute frequency during the peak hour. However, the districts are large geographically and if future employment is dispersed within, the potential for limited bus service diminishes drastically. Currently this market is served by bus (Salem County Transit). Given the level of trip-making anticipated in the future, increases in bus service frequency may be warranted by 2015.

Non-Traditional and Specialized Transit Services

The previous analysis of the peak hour trip table helped to identify potential new markets for future year traditional bus transit services. While pursuing additional transit services may be warranted in the region by 2015, the impact of the existing and proposed transit services on traffic flow will be minimal. Transit service in South Jersey will provide increased mobility but is not an answer for congestion.

The previous section focused on an analysis of a peak hour trip table. However, analyzing a peak hour trip table does not yield sufficient information to identify non-traditional transit services and specialized transit service needs.

Traditional transit services can not be supported in most suburban areas because of the lack of concentrated corridors of demand. To alleviate congestion and to provide mobility options to suburban commuters, NJ TRANSIT has begun to develop suburban-based transit services (WHEELS programs). These non-traditional transit services serve smaller employment centers where concentrations of trip ends either on the home or work side is often not sufficient to support a traditional transit route. Typically these types of services require the support of local governments (municipal and county), major employers and a transportation management association (if available) for planning and implementation because transit is a "tough sell" where lower densities and higher auto dependency exist.

These non-traditional services can take many forms: as a transit connector linking commuters to existing line-haul bus or rail; as a demand responsive service; as a flex route; as a circulator service linking employment areas with retail areas or could include park-and-ride development in suburban areas with shuttles to suburban office parks, among others.

Traditional transit services do not offer meaningful mobility to the majority of southern New Jersey residents because the existing services serve only a few markets well (Atlantic City, Philadelphia, etc.). Moreover, work trips are not the only southern New Jersey transit issue. The same demographic changes that brought about the suburban commuter crisis (dispersion of homes and jobs; rise in auto ownership) has also given the SJTPO region, like other areas in New Jersey, suburban and rural areas full of transportation disadvantaged individuals: the young, the elderly, the disabled, the second worker in a one-car household, and low income households. Because of these factors, mobility issues and services designed to increase mobility become critical and are needed in the region.

The elderly is a particularly important group because it has been a growing one. As noted in Table V-6, the "over 75" age group is growing significantly in the region. They are also the fastest growing component of the US population, with the very old the fastest growing component of the elderly. As the general age of the population increases, special attention to the needs of the elderly must be given to ensure their mobility needs are met. Currently, the elderly are, out of necessity, more reliant on the car than ever before.

Table V-6
Age Distribution in the Region

	1980				1990			
Age (Years)	Salem County	Cumberland County	Atlantic County	Cape May County	Salem County	Cumberland County	Atlantic County	Cape May County
0-55	77.4 %	78.1 %	73.1 %	66.3 %	75.9 %	77.4 %	76.3 %	69.2 %
55-64	11.0 %	10.2 %	11.1 %	13.4 %	9.4 %	9.1 %	9.2 %	10.7 %
65-74	7.5 %	7.3 %	9.3 %	12.9 %	8.6 %	8.2 %	8.2 %	11.7 %
over 75	4.1 %	4.4 %	6.5 %	7.4 %	6.1 %	5.3 %	6.3 %	8.5 %

The public and Steering Committee members alike articulated the need to integrate specialized and rural transit with traditional transit services thus, providing critical links between the special services and existing transit. Moreover, in light of the mobility needs of the region, non-traditional transit solutions should be further examined which could serve both employment and non-employment travel in suburban areas of the region. Overlapping employment and non-employment travel markets in the planning for non-traditional services will be important for two reasons. First, it is difficult to promote alternatives to the

single-occupant automobile without sufficient mid-day transportation options. Secondly, individuals with limited or no auto availability also have important travel needs. Non-traditional transit services developed in the SJTPO region should consider both commuter and non-commuter travel needs to provide more mobility options in the rural and economically depressed areas of the region. Broadening the base of users for these services and providing flexible funding options ensures that the benefits of and mobility provided by a publicly funded transit service are equally available to all.

The SJTPO has advocated a long-range objective to further light rail passenger service to the Vineland-Millville area. A high future year priority for the region will be to re-visit the need for light rail service to Vineland, especially if PATCO service is extended to Glassboro, using updated population, employment and trip forecasts with a more refined travel demand model.

Passenger Intermodal Strategies

Overview

An intermodal transportation facility is a transportation hub that connects different modes of travel. Intermodal facilities vary in size and significance from large regional transportation terminals such as the Atlantic City Rail Terminal in Atlantic City to local bus stops. Intermodal facilities play a crucial role in providing linkages between origins and destinations and as such, are vital to regional economic health and growth.

NJDOT has embarked upon the development of a statewide Intermodal Management System - Passenger (IMS/P) that will:

- Evaluate how well each intermodal facility functions in terms of meeting customer expectations of performance;
- Develop a series of improvement measures and strategies for facilities that are found to be deficient; and,
- Include a regular and continuous monitoring program.

As the MPO for southern New Jersey, the SJTPO is directly participating in the development of the IMS/P, as mandated by federal regulations through ISTEA. Future renditions of the Regional Transportation Plan for the SJTPO will need to be reflective of the recommendations resulting from the IMS and the results will be integrated into the SJTPO planning and decision-making process.

All intermodal facilities will be evaluated in the IMS through the use of performance measures for each category of facility such as parking availability, frequency of service, among others and short-term and long-term improvement strategies will be developed to enhance the facility along with a long-term monitoring program. As results of the IMS become available they will be reflected in future year Regional Transportation Plans.

Intermodal Issues and Needs

Intermodal passenger facilities allow transit and other modal operators to reach a larger segment of the population because they allow for linkages between origins and destinations. Reducing the dependence on single-occupancy vehicles requires creating intermodal alternatives - alternatives to only using an auto or only using transit by creating more park-and-rides where the highway system can feed travelers to transit services or facilitate carpooling, establishing feeder bus routes to commuter bus or rail lines, creating multi-modal transportation centers where several transit lines converge to facilitate transfers

between routes, and linking bicycle/pedestrian facilities with transit. Providing quick and easy transfers between modes can make transit services more competitive with driving. However, creating opportunities for connections between modes is not enough. Marketing intermodal facilities and services is important as clearly travelers cannot use a service or facility if they do not know of its existence and do not know how to use a service or facility.

Recognizing the importance of intermodal facilities and the need to create more opportunities for intermodal linkages, the SJTPO has allocated $1.0 million in the FY 95 Transportation Improvement Program for a new Vineland Bus Terminal at 4th and Landis Avenue in Vineland. The terminal will include retail, auto parking facilities, bicycle facilities and will be a stop for the Vineland downtown shuttle if a shuttle bus service is implemented per a feasibility determination.

Bicycle and Pedestrian Strategies

Overview

The current transportation system does not facilitate the easy use of bicycle or pedestrian modes in the SJTPO region or elsewhere in New Jersey. On the roadway system, the absence of shoulders, narrow or unpaved shoulders, or shoulders usurped by turn lanes are physical impediments to effective bicycle and pedestrian use of these facilities. Additionally, the presence of drainage grates and rumble strips on roadways also impede non-motorized use of these facilities. Of particular concern especially in this region, are the narrow and deficient bridges on roadways, particularly in Cape May County.

In the SJTPO region, many existing bikeways are along boardwalks and are closed to bike traffic for most of the day except for early morning hours. Other bikeways in the region typically serve recreational purposes or provide critical links to tourist attractions. Most do not serve employment centers, rail stations, bus stops or town centers.

Additionally, bike-on-transit access is limited. Even though NJ TRANSIT allows for bicycles on board the Atlantic City Rail Line there are significant barriers such as hours available, permits, etc. Currently, NJ TRANSIT allows up to two standard frame bicycles on some Atlantic City Rail Line trains with a permit. However, the standard frame bike-on-rail service is only allowed on off-peak trains. Collapsible bicycles are permitted on every Atlantic City Rail Line train. However, reservations are needed for both types of bikes and the reservation must be made at least 24 hours in advance. Bike-on-bus is not available in the region or elsewhere in New Jersey.

Current land use patterns in the region limit the ability of commuters to walk to work except in the few densely developed cities. The more typical suburban and rural patterns of development in the region and elsewhere within New Jersey do not promote the use of either biking or walking for personal transportation because land uses are separated and typically separated by significant distances. However, there are a number of areas in the SJTPO region where there are a mix of land uses and sufficient densities where non-motorized travel can be a feasible alternative such as Cape May City, Atlantic City, Salem City and Bridgeton, among others. The South Jersey Transportation Planning Organization has recognized that bicycle and pedestrian access and facilities should be an integral part of the region's transportation network. Providing convenient pedestrian access and safe facilities for bicycles can provide options for non-automobile travel and help reduce congestion and improve air quality. The challenge to the region will be to support the development of bicycle and pedestrian programs and facilities so that these two travel modes are perceived as real choices that can meet the needs of travelers and the region as a whole.

NJDOT has recognized the importance of bike and walk modes by establishing a State Bicycle and Pedestrian Coordinator and by developing a State-Wide Bicycle/Pedestrian Transportation Master Plan.

The SJTPO has been actively involved in the state planning effort and supports and adopts the strategies and goals and target usage goals that are part of NJDOT's Statewide Bicycle and Pedestrian Master Plan.

The target usage goals from the state plan are listed below:

- Increase the number of people bicycling or walking to work as the primary mode of transportation by 50 percent by the year 2000.
- Increase the percentage of bicycle and pedestrian trips that are 5 miles or less from 12.5 percent to 20 percent of all trips by the year 2000 (based on the 1990 Nationwide Personal Transportation Study).
- Increase the number of commuter bicycling to transit stations at least once a week to 2.5 percent of total ridership by 2000.
- Place bicycling and walking for pleasure in the top three most popular outdoor recreation activities by 2000 (based on an attitude survey conducted by NJDEP).

Thus, the SJTPO, like the NJDOT, recognizes that it is important that bicycling and walking become a routine part of the transportation system rather than being treated as modes separate from other transportation systems. It is necessary to address both bicycle and pedestrian transportation issues in a more systematic manner to achieve a transportation infrastructure that is capable of accommodating the transportation and recreational needs of both bicyclists and pedestrians.

The statewide goals are as follows, which have been adopted by the region:

- Create a bicycle and pedestrian friendly transportation infrastructure by planning, designing, Constructing and managing facilities which will accommodate and encourage use by bicyclists and pedestrians and be responsive to their needs.
- Make community destinations, transit facilities and recreation facilities accessible and convenient or use by all types and skill levels of bicyclists and pedestrians.
- Reform land use planning policies, ordinances and procedures to maximize opportunities for walking and bicycling.
- Develop education and enforcement programs that will result in reduction of accidents and a greater sense of security and confidence for bicyclists and pedestrians.
- Increase bicycling and walking by fostering a pro-bicycling and pro-walking ethic in individuals, private sector organizations and all levels of government.

Potential Routings/Facilities

Based upon work being completed in the Cape May County Bicycle/Pedestrian Plan and the completed Bicycle Element for the Atlantic County Master Plan, the following section outlines proposed routes and facilities within these two counties.

In order to be considered a true alternative for commuting, bike routes must directly serve residential, employment and activity centers. In Atlantic County the majority of employment centers are located on or very near state highways and thus, the county plan advocates bicycle compatible state highways that are signed, striped and mapped to provide the most direct route to and from employment centers. According to the Atlantic County plan, the primary role of county and municipal bike routes would be to distribute cyclists to the state highways and a secondary goal would be to provide access to employment centers not directly served by state highways such as the FAA Technical Center and the casinos.

The Atlantic County plan indicates that Routes 40, 322, 30 and 9 are essential to provide adequate opportunity for commuter trips to major employment centers in the county. Additionally, Routes 152, 54, 50, and 87 would also serve as important linkages. The following table describes the sections of State highway in Atlantic County that should be designated, signed and striped as bicycle facilities:

Table V-7
Atlantic County Proposed Commuter Bike Routes - State Highways

Route	Starting Point	Ending Point	Treatment
Rt. 9	County Line, Somers Point	Garden State Parkway, Port Republic	Shoulder Bike Lane
Rt. 30	County Line, Hammonton	Illinois Avenue, Atlantic City	Shoulder Bike Lane
Rt. 40	County Line, Buena Borough	Rt. 322, Hamilton Township	Shoulder Bike Lane
Rt. 50	County Line, Corbin City	Rt. 30, Egg Harbor City	Shoulder Bike Lane
Rt. 54	Rt. 40	Rt. 206	Shoulder Bike Lane
Rt. 152	Bay Avenue, Somers Point	Ventnor Avenue, Longport	Shoulder Bike Lane
Rt. 187	Brigantine Boulevard	Rt. 30	Shoulder Bike Lane
Rt. 322	County Line, Folsom	Rt. 40, Hamilton	Shoulder Bike Lane
RT. 40/322	Pomona Road, Hamilton Township	Monument, Atlantic City	Shoulder Bike Lane

There are several major employment centers that are accessible only by way of county and municipal roadways. Examples of such are the FAA Technical Center, Stockton State College, the mainland facility of the Atlantic City Medical Center and the Expressway Corporate Center. The county plan identified the following roadways for proposed bicycle compatible facilities:

- Tilton Road from Route 30 to Route 9
- Delilah Road from Route 40/322 to Route 9
- Washington Avenue from Cardiff Circle to Route 9
- Pomona Road from Route 40/322 to Jim Leeds Road
- Jim Leeds Road from Route 30 to Route 9

There are several existing bike facilities that provide limited commuter opportunities as well as recreational use in Atlantic County. The plan identified the facilities and made recommendations to improve the potential for commuter use of the facilities. Outlined below are the recommendations for each bikeway:

Somers Point - Linwood Bike Path

The bike path runs from Maryland Avenue in Somers Point to Poplar Avenue in Linwood along the abandoned South Jersey Seashore Line - Somers Point Spur. Currently there are plans to extend the bike path to the Northfield City line along a portion of the same railroad line that remains inactive. The path runs parallel to, and between Rt. 9 and Shore Road and offers dedicated bicycle and pedestrian access between the two residential communities. To improve the commuter potential of the bike path, the path should be extended along the available right-of-way from the existing terminus in Linwood to the end of the Seashore Line Spur in Pleasantville. This extension would offer improved access to job centers in Northfield, Pleasantville, and Egg Harbor Township as well as residential communities.

Atlantic City - Ventnor Boardwalk

An existing facility dedicated to exclusive bicycle and pedestrian use is the boardwalk in Ventnor and Atlantic City. The boardwalk is in an excellent location for commuting use on the island. However, the commuter potential is diminished by the 6:00 am to 10:00 am time limit on bike use imposed by the municipalities. A reversal of local ordinances should be considered and bike lanes on the boardwalk delineated. Many casino trips could be served by bicycle commuting on the boardwalk. These trips cannot be accommodated safely on Pacific or Atlantic Avenues in Atlantic City because of the narrow street configurations and/or high volumes of traffic.

Atlantic County has also proposed a bikeway from Buena Vista Township to Egg Harbor Township. This separate bicycle facility would run along the abandoned West Jersey Seashore Line that is roughly parallel to Route 40 from the Country Club Drive in Buena Vista Township to the Shore Mall in Egg Harbor Township. A facility of this type would provide for commuters and recreational cyclists in the Route 40 corridor. Commuter use would be served primarily by the portion from Mays Landing east.

Cape May County is also undertaking a bicycle and pedestrian planning effort. The Cape May County effort is expected to be completed during 1996. Cape May County has a few existing bike routes. One existing route is on County Route 626, just North of the Canal leading to West Cape May, which serves recreational purposes. Another exists in the County Park and connects the Park and Zoo to the Middle Township Recreation Complex. Additionally, the boardwalks along the beach fronts in municipalities such as Wildwood and Ocean City, among others, are dedicated pedestrian ways. Typically, bike use of the boardwalks is limited, similar to Atlantic County, to hours before 10:00 am by local ordinance. Again, as in Atlantic County, a reversal of local ordinances should be pursued and bike lanes should be posted on boardwalks where bike use could be accommodated.

To date, the planning effort in Cape May has identified seven potential bike routes. The bike routes would serve primarily recreational and other trip purposes with limited commuter use. The proposed routes are:

- The continuation of the existing bike route on County Route 626 to the intersection with County Route 606 and continue to County Route 629 to serve Cape May Point State Park and Cape May Lighthouse.
- A proposed route on the Atlantic Electric Company right-of-way parallel to NJ 9 starting at Cold Spring Village and proceeding south to Ferry Road, then west along Ferry Road to Seashore Road (CR 626), then south to the existing bike lanes on Seashore Road. Another proposed branch will begin at Seashore Road and go west on Ferry Road to the Ferry Terminal.

- A route in North Wildwood, along John F. Kennedy Boulevard (Beach Drive) to the boardwalk to the Wildwood City Line.
- A route in Cape May Court House along County Route 615 to the fairgrounds and to the County Park.
- A route in Woodbine, along County Route 550, from the intersection with County Route 557 to County Route 660.
- A route in Upper Township on CR 667 (Stagecoach Road) from CR 623 (Old Roosevelt Boulevard) south through Palermo to CR 671 (Hope Corson Road).
- In Ocean City, along Haven Avenue (a former railbed) from 18th Street south to 24th Street.

Freight Strategies

Overview

This section is a brief discussion of freight and freight intermodal issues and needs. It is not intended to be a comprehensive discussion of issues surrounding the movement and intermodal movement of goods in the region. It is only intended to be a first-cut at identifying issues and needs. Much remains unknown about this component of travel. A regional freight system needs study may be warranted in the future. A more comprehensive discussion will take place in the triennial update of this long-range plan incorporating the data, issues and strategies that will be identified through both the Intermodal Management System - Freight and the Statewide Intermodal Strategic Plan - Goods Movement that NJDOT has embarked upon and any regional needs study conducted.

The movement of goods is of vital concern to the region. Goods movement impacts the regional economy and has become an increasingly complex enterprise. Freight is increasingly moved by multiple modes and between intermodal terminals providing more options in the movement of freight. Recognizing the unique needs of goods movement, the SJTPO has freight industry representatives on it's Citizens Advisory Committee representing the needs and interests of freight railroads, the trucking industry, and shippers of goods. Representatives from CONRAIL, the Southern Railroad of New Jersey and the Winchester and Western Railroad and other freight carriers have been strongly represented at Citizens Advisory Committee meetings regarding plan development and have attended public meetings held during the development of the plan.

As a result of the importance of freight movement to the region, a discussion of the issues and needs affecting goods movements is essential. Freight movements in the region can be organized into four basic categories: rail operations and facilities, trucking operations, port operations and air freight.

Rail Freight

Rail freight services are provided by CONRAIL, Winchester and Western, and the Southern Railroad of New Jersey in the SJTPO region. CONRAIL is the principal operator of rail freight services, providing both interstate and intrastate services. The other two operators provide shortline services over lines which CONRAIL abandoned or over rights of way owned by NJ TRANSIT, NJDOT or county governments. The shortline operators provide important distribution services to local industries off the main line and thus save local jobs, benefiting the regional economy.

Many of the rail freight operators have seen increases in volume over the past few years and believe that improving the railroads would open significant economic opportunities to the region and help remove some truck movements from congested highways. However, currently rail freight is an under-utilized

mode for goods movement in the region - the volume does not compare to the maximum carload capacity of the system.

Truck Freight

Trucking is the major mover of goods in the region as in the remainder of New Jersey. Trucks are also the dominant mode of transport in the intermodal freight business - truck to rail, truck to ship and truck to air. Major truck routes in the SJTPO region are I-295, US 130, US 40 and the New Jersey Turnpike through Salem, NJ 47 through Cumberland and Cape May counties; NJ 77 in Cumberland County; US 9 through Atlantic and Cape May counties, NJ 109 in Cape May County; and US 322, NJ 54 and US 206 in Atlantic County. A number of truck terminals are in the region with the majority of major truck terminals in Vineland, Cumberland County.

Ports

According to the NJDOT in their December 1994 -Transportation Choices 2020: Part One Draft Statewide Long Range Transportation Plan, both the Port of Salem and the Port of Bridgeton are quite limited in size and channel depth and require substantial improvement to reach their potential. Yet, each provide for important movement of goods in the region. The West Jersey Railroad serves the Port of Salem providing an important intermodal linkage and the Waterfront Industrial Park in Bridgeton is served by the Winchester and Western Railroad and provides opportunity for intermodal operations between the barges and freight line that serves the park.

Air Cargo

Philadelphia International Airport handles the principal portion of air cargo destined to or originating in South Jersey. However, of significance, Millville Municipal Airport was designated in 1987 as a Foreign Trade Zone, along with the Port of Salem and resulting demand for industrial space and airport usage is anticipated by Cumberland County.

Atlantic City International Airport does support air cargo movements in the region. In 1991, Atlantic City International Airport enplaned 11,340 pounds of air cargo, a relatively low volume of air cargo. This volume amounted to an average of 0.8 pounds per passenger aircraft departure. All the air cargo is carried as belly cargo on scheduled passenger flights. According to the 1993 Atlantic City International Airport Master Plan Update, air cargo is forecasted to grow to 33,000 pounds by 2013. It is expected that throughout the forecasted period air cargo at Atlantic City International Airport will continue to be accommodated as belly cargo and no all-cargo flights are projected by air carrier aircraft. It is expected, however, that some flights providing small package express service, such as Federal Express or United Parcel Service, will operate between Atlantic City International Airport and the larger regional airports of Newark and Philadelphia.

Freight Issues and Needs - Institutional Issues

Goods movement issues are multi-faceted. There are several modes operating in the region (rail, truck, port and air) overlaid with may private companies, public authorities and intermodal connectivity issues.

According to NJDOT in the Draft Statewide Long Range Transportation Plan, a significant shortcoming of the freight network is the lack of a coordinated institutional mechanism in the public sector to address goods movement problems. As a result:

- There is an absence of coordinated freight planning and an absence of understanding by the freight industry of the role of the public sector;
- There are conflicting federal, state and local environmental and site development regulations that often impede intermodal operations;
- Data is severely limited about freight markets and freight needs; and,
- The lack of public understanding of the economic importance of freight, leading to inaction on the political front to solve problems.

Operating Issues

Roadway conditions especially in older cities (Salem City, Atlantic City, Woodstown, etc.) can present difficulties to truck drivers with narrow streets and sharp turning radii. Weight and clearance restricted roadways and bridges also hamper efficient movements. Several communities in the region are impacted negatively from the noise, vibration and exhaust generated by heavy truck movements in downtown areas.

Obviously the same roadway congestion that adversely impacts motorists is a major concern to carriers of freight. Congestion on roadways especially those leading to or from port, rail, air or truck terminals can add significant cost and delay to intermodal freight movements.

A long-standing operating issue in rail freight is the facilitation of rail freight movements from southern New Jersey to north Jersey and other markets north. Currently, all interstate rail freight traffic from southern New Jersey is routed by CONRAIL over the Delair Bridge in Pennsauken. This same corridor is shared by passenger trains (Atlantic City Rail Line). The circuitous movement to Allentown, Pennsylvania for freight headed northward adds substantial time to movement of goods than a more direct routing.

Many rail freight operators in the region have seen increases in volume over the past few years. Many are developing new customer bases and expanding their existing customer base, thereby removing many loaded and unloaded truck movements from congested highways in the region. This increase in rail freight volume requires substantial upgrading of existing railroad facilities to handle greater loads and the opening of new trackage to serve new markets. As an example, the Southern Railroad of New Jersey (SRNJ) has developed a new customer base in Woodbine and seeks to develop a Woodbine Industrial Track to serve new rail freight customers. SRNJ estimates that developing this track would remove about 5088 loaded truck movements from area roadways. In addition to developing the Woodbine Industrial Track, the effort to serve new customers would require rehabilitating and upgrading the existing Cape May Branch to handle heavier carloads along the line and empty car movements at Dennisville Yards. A similar situation exists on SRNJ's Pleasantville Branch. A new and expanded customer base requires significant upgrading and rehabilitation of the existing branch and yard facilities, along with the construction of additional yard track. As part of this development, the SRNJ needs to construct a covered transloading dock, an important intermodal connector, which would allow rail freight to be transferred to trucks for local delivery.

Similar capital improvements have been identified by the Winchester and Western Railroad to include rehabilitation of overhead railroad bridges and improvement of existing trackage in Bridgeton. The Winchester and Western has also identified the need to improve and extend track within the Port of Bridgeton to serve new (to be built) and existing warehouses. Similar to the SRNJ, the Winchester and Western has been expanding its customer base in Cumberland County. As a result of this growth, the railroad has identified a number of needs: the construction of rail siding to accommodate unloading of tank cars of propane gas, the construction of siding to accommodate the unloading of tank cars of fuel oil, the construction of semi-permanent rail siding of track panels to reach sand processing areas, and the construction of separate rail siding to accommodate the unloading of tank cars of corn sweetener.

At the Ports, waterborne freight is hampered by the relative shallow depth of the channels at the Port of Salem (12 feet) and Port of Bridgeton (14 feet). However, the ports are strategically located for certain niche cargoes and could, with substantial improvements, serve as spillover ports for bulk cargoes from Baltimore, Philadelphia or Camden.

Another significant goods movement issue is intermodal activity. Intermodal goods movement have increased dramatically. Intermodal goods movements benefit from combining the efficiencies of different modes for a single shipment. Improving facilities to support intermodal movements is critical. NJDOT has recently embarked on a strategic planning effort for goods movement and freight intermodal needs (Statewide Intermodal Strategic Plan). The state planning effort will consider all parts of the goods movement network, current commodity flows and intermodal activity among air cargo, trucking, ports and rail freight and the effort will provide a context for recognizing and assessing freight and freight intermodal network needs.

VI. FRAMEWORK FOR ACTION

Overview

The purpose of this chapter is to present the policy and action statements that are elements of the Regional Transportation Plan. The various policy and action statements have been adopted by the Policy Board of the SJTPO. As previously stated, the goals for the Plan were crafted by members of the Policy Board. The goals are statements reflecting where the region wants to be in the year 2015. Each goal has a policy statement or a series of policy statements designed to achieve the goal. As such, policy statements set the direction for achieving a specific goal and provide guidance to planning activities to address the needs of the transportation system. Policy statements are supported by a number of action steps which provide a description of the next steps needed to implement a policy (or policies) and related goal.

Taken together, the goals, policy statements and action steps provide the framework to guide transportation improvements in the region.

At the outset of the development of the Regional Transportation Plan, the Policy Board adopted the following planning process policy:

> "Clearly define the transportation planning process which establishes both a regional action agenda for transportation using a broad-based consensus of public and private interests and cost-effective measures."

The development of the policy and action framework was accomplished with a proactive public involvement process to take into account both public and private interests to develop a consensus on future system needs. As a result the action steps outlined in this Plan have been discussed, reviewed and refined during the public involvement process.

Transportation Improvement Program - Short Range Planning

A Transportation Improvement Program (TIP) is a list of transportation system improvements that are proposed within a short time period, usually five years. The current TIP for the SJTPO covers FY 1996-2000 and contains definitive projects that were prioritized through a ranking process. The TIP represents the short range "Action Plan" for the region. The TIP development process, ranking criteria, and project list is available from the SJTPO for review.

Goals, Policies and Action Steps - Long Range Planning

The Regional Transportation Plan sets the direction for long range project development and selection. It represents the results of a broad-based systems planning effort based on projected system deficiencies. The Plan identifies a number of action steps needed to implement a policy (or policies) and related goal.

The following page is a table listing the eight goals established by the Policy Board for the Regional Transportation Plan. Along with Plan goals are the associated supporting policy statements. The subsequent pages contain descriptions of the action steps required to implement a policy to reach a specific goal. Many action steps are supportive of more than one policy and thus appear under multiple policy statements.

SJTPO POLICY FRAMEWORK

GOAL	POLICY STATEMENTS
Improve Safety	Ensure the safety and security of users of highway, transit, bicycle, pedestrian and freight systems.
Support the Regional Economy	Advance projects to interconnect the transportation system. Improve access to areas of major employment and tourism.
Reduce Congestion	Optimize the efficiency of the existing transportation system. Invest in new highway capacity only if it can be shown that other measures are not able to address existing and projected need.
Promote Transportation Choices	Expand other (non-auto) transportation systems as needed: aviation, rail, marine, bicycle, pedestrian, and public transit. Provide for affordable mobility options to all segments of the transportation disadvantaged (young, elderly, handicapped and poor).
Protect and Improve the Environment	Encourage the use of alternative transportation modes that have a lesser environmental impact than SOVs. Minimize environmental impacts of transportation improvements.
Restore, Preserve and Maintain the Existing Transportation System	Ensure that key elements of the transportation system are restored, preserved, and maintained.
Secure Dependable, Reliable Sources of Funds	Pursue all avenues for transportation funding.
Recognize the Interrelationships between Transportation and Land Use Plans	Concentrate development in existing or planned centers or corridors.

For the goal of ***improve safety***, the following policy statement and action steps are advocated:

Policy: **Ensure the safety and security of users of highway, transit and freight systems.**

Action Steps:

1. Continue supporting the NJDOT on work efforts to develop a Safety Management System. Future renditions of the Plan will reflect the standards and strategies of the Safety Management System (SMS) and will use the results of the SMS to identify needed safety actions.
2. Encourage county and state support of the Office of Highway Safety such as "block grant" funding and pilot projects to disseminate new technology and innovative practices.
3. Continue identifying needed safety improvements through the use of accident studies and prioritize needed corrective actions.
4. Afford local public safety officials, on the advice of licensed professional engineers, the authority to employ engineering judgment to override warrants for signalization, speed limits and zones, and other traffic control devices when local conditions indicate high accident potential.
5. Work with NJ TRANSIT on bicycle/pedestrian access plans to rail and bus stations/terminals/stops. Maximizing pedestrian traffic near stations/terminals adds to the security of the transit system.
6. Identify needed grade crossing improvements in the region. An example is the needed retiming and coordination of traffic signals and railroad flashers as advocated by the Southern Railroad of New Jersey at the intersection of the Southern Branch with Rt. 40 and North and South Boulevards in Buena (Landisville).

For the goal of ***support the regional economy***, the following policy and action steps are advocated:

Policy: **Advance projects to interconnect the transportation system.**

Action Steps:

1. Continue work on establishing a network of feeder or shuttle bus service to and from express (commuter-oriented) bus and rail lines. Examples are the feasibility studies currently being conducted: linking outlying areas of Bridgeton; linking Buena and Vineland to the 553 line; shuttles to Atlantic City Rail Line stations (Hammonton), and shuttles to the 553 from outlying areas of Millville (Port Norris, Laurel Lake).
2. Advocate and advance the connectivity of the region's highway system. Examples include: a full interchange at Rt. 30 and the Garden State Parkway, and a connector for the New Jersey Turnpike and Atlantic City Expressway.
3. Explore needed freight intermodal improvements in the region. Examples include: development of a freight intermodal trans-load center in SRNJ yard in Pleasantville (a new Urban Enterprise Zone) where rail freight cars can be unloaded to truck; improving rail freight trans-loading of bulk goods from rail to barge at the Port of Salem (designated as a Foreign Trade Zone), and improvements for barge to rail movements at Port of Bridgeton.

4. Explore rail freight and passenger access options to the Atlantic City International Airport.

5. Advance the re-opening of rail freight movements on the abandoned Jersey Central Line (Winslow to Woodmansie) to Lakehurst to facilitate rail freight access from South Jersey to North Jersey markets and other points north.

6. Support and work with NJDOT on the State's Goods Movement Strategic Plan. Future long-range transportation plans for the SJTPO region should reflect strategies advanced by the statewide effort.

7. Coordinate future renditions of the SJTPO regional plan with the standards and strategies identified in the Intermodal Management System, both Passenger and Freight.

8. Continue developing new multi-modal transportation centers, such as the new Vineland Bus Terminal. Advocate that NJ TRANSIT and NJDOT undertake evaluations of other markets to determine the demand for potential transportation centers.

9. Support the Atlantic City International Airport Master Plan and the pursuit of airline hub and carrier development activities by the SJTA and support the SJTA in their forthcoming planning study of ground transportation services to the Atlantic City Airport. Use the results of the study to move forward proposed short-term and long-term services into the funding process.

10. Work with modal operators in the region to more clearly convey and communicate the transit and intermodal opportunities available in the region to the traveling public.

11. Support the development of a long-range economic development plan for the Port of Salem (SJTA to conduct in FY 1995 Unified Planning Work Program) to include intermodal planning.

12. Support the Delaware River and Bay Authority Five-Year Capital Improvement Program and planning efforts on intermodal facilities at the Cape May Ferry Terminal to include facilities to improve bike access.

13. Undertake a comprehensive region-wide study to rationalize and integrate the specialized and rural transit with existing transit services.

14. Work with NJ TRANSIT to: 1.)Provide bike/pedestrian. facilities at rail and bus stations/terminals/stops - including new Vineland Bus Terminal, 2.)Encourage a more barrier-free bike-on-rail policy and to develop a bike-on-bus policy and, 3.)Develop bike/pedestrian. access plans for transit stations/terminals/stops.

15. Advocate that the Southern Railroad of New Jersey (SRNJ) fully study the feasibility of instituting passenger service (from Shore Mall to Atlantic City) to include estimates of passenger demand, capital costs, operational costs, station and parking development and impacts on existing bus and rail service. SRNJ service proposal includes a Fire Road park-and-ride at interchange of AC Expressway and Garden State Parkway.

16. Use the results of the upcoming South Jersey Transportation Authority Park-and-Ride Study (includes 4 county SJTPO region) to move forward proposed park-and-rides into the funding process and ultimately into future year TIPs. Additionally, consider development of parking plans at major passenger intermodal facilities: Vineland Bus Terminal, Cape May Bus Terminal, Atlantic City Rail Line stations, etc. to facilitate auto-to-bus and auto-to-rail travel.

17. Work with NJDOT to identify policy for bike access on roadways and identify roadways where access is feasible and compatible.

The following policy statement is also advocated for the goal of supporting the regional economy.

Policy: Improve access to areas of major employment and tourism.

Action Steps:

1. Determine the feasibility of establishing transit services to new markets. Examples include: Salem County bus service to Atlantic City, local bus service in Middle and Lower Townships in Cape May County, and local bus service in Vineland/Millville and Bridgeton/Upper Deerfield.
2. Investigate innovative non-traditional transit services and advocate a service in Cape May and Cumberland Counties.
3. Determine potential increases in the level of service on transit routes serving Galloway, Ventnor, Egg Harbor, Pleasantville, Linwood, Northfield and Margate and Salem County Transit #108 route.
4. Promote the development of needed transportation infrastructure to support the developing eco-tourism in the region.
5. Continue work on establishing a network of feeder or shuttle bus service to and from express (commuter-oriented) bus and rail lines. Examples are the feasibility studies currently being conducted: linking outlying areas of Bridgeton; Buena and Vineland to the 553 line; shuttles to Atlantic City Rail Line stations (Hammonton), and shuttles to the 553 from outlying areas of Millville (Port Norris, Laurel Lake).
6. Advocate and advance the connectivity of the region's highway system. Examples include: a full interchange at Rt. 30 and the Garden State Parkway, and a connector for the New Jersey Turnpike and Atlantic City Expressway.
7. Undertake a comprehensive region-wide study to rationalize and integrate the specialized and rural transit with existing transit services.
8. Work with NJ TRANSIT to: 1.)Provide bike/pedestrian. facilities at rail and bus stations/terminals/stops - including new Vineland Bus Terminal, 2.)Encourage a more barrier-free bike-on-rail policy and to develop a bike-on-bus policy and, 3.)Develop bike/pedestrian. access plans for transit stations/terminals/stops.
9. Explore the possibility and needed institutional approaches (to include providing counties with flexible funding options) to open up the eligibility requirements of paratransit and other specialized transit to a broader base of users especially in the rural and economically depressed areas of the region - i.e., include low income persons, autoless households.
10. Develop bike facilities, routes, and bikeways per County master plans - Atlantic and Cape May Counties.
11. Working with the counties, develop a regional (SJTPO) bicycle and pedestrian plan and assign the administration of bicycle and pedestrian issues to an SJTPO staff member.
12. Advocate that the Southern Railroad of New Jersey (SRNJ) fully study the feasibility of instituting passenger service (from Shore Mall to Atlantic City) to include estimates of passenger demand, capital costs, operational costs, station and parking development and impacts on existing bus and rail service. SRNJ service proposal includes a Fire Road park-and-ride at interchange of AC Expressway and Garden State Parkway.

13. Use the results of the upcoming South Jersey Transportation Authority Park-and-Ride Study (includes 4 county SJTPO region) to move forward proposed park-and-rides into the funding process and ultimately into future year TIPs. Additionally, consider development of parking plans at major passenger intermodal facilities: Vineland Bus Terminal, Cape May Bus Terminal, Atlantic City Rail Line stations, etc. to facilitate auto-to-bus and auto-to-rail travel.

14. Work with NJDOT to identify policy for bike access on roadways and identify roadways where access is feasible and compatible.

15. Work from county and regional planning efforts to identify and incorporate bike/pedestrian projects in TIP's.

16. Provide needed transportation infrastructure improvements to provide access to planned and existing industrial parks. An example is a needed interchange at Weymouth Road and Rt. 55 to serve the Vineland Industrial Park.

For the goal of ***reducing congestion***, the following policy and action steps are advocated:

Policy: Optimize the efficiency of the existing transportation system.

Action Steps:

1. Reduce traffic congestion along travel corridors and at critical intersections: all problem locations identified in Plan via either low or high improvement scenario. This requires study on feasibility, scoping and project development.

2. As part of the above, conduct corridor studies: Rts. 47, 49, 40, 77, 50, 30 and 9.

3. Along with corridor studies conduct critical intersection studies: Rt. 49 & 45 & 665 in Salem; Rt. 49 & 47 in Millville, Rt. 47 and 55 in Port Elizabeth, Rt. 9 & 47 in Middle Township and advocate study of Rt. 42 and 55 (in DVRPC region).

4. Conduct a comprehensive study on approaches to Ocean City; Mays Landing Rt. 40/50 and Buena.

5. Conduct a comprehensive study on all approaches to Atlantic City: ACE, US 30, US 40/322, GSP, CR 646, and CR 585 and also approaches to and travel within Cape May City.

6. Continue work with NJDOT on the development of the Congestion Management System (CMS) and future renditions of the Regional Transportation Plan should reflect standards and strategies identified in the CMS and other management systems.

An additional policy and subsequent action steps are also advocated for the goal of reducing congestion.

Policy: Invest in new highway capacity only if it can be shown that other measures are not able to address existing and projected need.

Action Steps:

1. Implement managed corridor concepts along the Atlantic City Expressway, through Advanced Traffic Management Systems (ATMS).

2. Undertake a study to examine the feasibility and operational impacts of establishing a seasonal, peak-period HOV/Exclusive Bus Lane Toll Approach on the Atlantic City Expressway.

3. Study innovative travel demand management strategies to improve traffic conditions in downtown Atlantic City.

4. Continue work with NJDOT on the Congestion Management System (CMS). Future renditions of the Plan should reflect CMS strategies.

For the goal of ***promoting transportation choices***, the following policy and action steps are supported.

Policy: **Expand other (non-auto) transportation systems as needed: aviation, rail, marine, bicycle, pedestrian, and public transit.**

Action Steps:

1. Adopt all goals, objectives, strategies, usage goals and performance measures as outlined in the State's Bicycle and Pedestrian Master Plan.

2. Support the development of a long-range transportation needs assessment for the Port of Salem (SJTA to conduct in FY 1995 Unified Planning Work Program) to include intermodal planning.

3. Support the Atlantic City International Airport master plan and the pursuit of airline hub, carrier development, and multi-modal ground transportation activities by the SJTA.

4. Support the Delaware River and Bay Authority's Five-Year Capital Improvement Program and planning efforts on intermodal facilities at the Cape May Ferry Terminal to include facilities to improve bike access.

5 Advance the re-opening of rail freight movements on the abandoned Jersey Central Line (Winslow to Woodmansie) to Lakehurst to facilitate rail freight access from South Jersey to North Jersey markets and other points north.

6. Work with regional rail freight carriers to identify and evaluate needed improvements to the rail freight system (both rehabilitation and new construction).

7. Determine feasibility of establishing transit services to new markets. Examples include: Salem County bus service to Atlantic City, local bus service in Middle and Lower Townships in Cape May County and, local bus service in Vineland/Millville and Bridgeton/Upper Deerfield.

8. Investigate innovative non-traditional transit services and advocate a service in Cape May and Cumberland Counties.

9. Determine potential increases in the level of service on transit routes serving Galloway, Ventnor, Egg Harbor, Pleasantville, Linwood, Northfield and Margate and Salem County Transit #108 route.

10. Develop bike facilities, routes, and bikeways per County master plans - Atlantic and Cape May Counties.

11. Working with the counties, develop a regional (SJTPO) bicycle and pedestrian plan and assign the administration of bicycle and pedestrian issues to an SJTPO staff member.

12. Work with NJDOT to identify policy for bike access on roadways and identify roadways where access is feasible and compatible.

13. Work with NJ TRANSIT to maintain commuter rail service on the Atlantic City Rail Line and examine alternative methods to increase ridership (increasing service frequency, improving access to boardwalk areas, establishing new stations (Pomona, etc.).

14. Work from county and regional planning efforts to identify and incorporate bike/pedestrian projects in TIP's.

Additionally, for the goal of promoting transportation choices, the following policy and action steps are supported.

Policy: **Provide for affordable mobility options to all segments of the transportation disadvantaged (young, elderly, handicapped and poor).**

Action Steps:

1. Recommend to NJ TRANSIT that non-traditional (innovative) transit service planning consider non-commuter as well as commuter travel.

2. Undertake a comprehensive region-wide study to rationalize and integrate the specialized and rural transit with existing transit services.

3. Work with NJ TRANSIT to: 1.)Provide bike/pedestrian. facilities at rail and bus stations/terminals/stops - including new Vineland Bus Terminal, 2.)Encourage a more barrier-free bike-on-rail policy and to develop a bike-on-bus policy and, 3.)Develop bike/pedestrian. access plans for transit stations/terminals/stops.

4. Explore the possibility and needed institutional approaches (to include providing counties with flexible funding options) to open up the eligibility requirements of paratransit and other specialized transit to a broader base of users especially in the rural and economically depressed areas of the region - i.e., include low income persons, autoless households.

5. Develop bike facilities, routes, and bikeways per County master plans - Atlantic and Cape May counties.

6. Working with the counties, develop a regional (SJTPO) bicycle and pedestrian plan and assign the administration of bicycle and pedestrian issues to an SJTPO staff member.

7. Adopt all goals, objectives, strategies, usage goals and performance measures as outlined in the State's Bicycle and Pedestrian Master Plan.

8. Work from county and regional planning efforts to identify and incorporate bike/pedestrian. projects in TIP's.

9. Work with NJDOT to identify policy for bike access on roadways and identify roadways where access is feasible and compatible.

For the goal of ***protect and improve the environment***, the following policy and actions are advocated.

Policy: **Encourage the use of alternative transportation modes that have a lesser environmental impact than SOVs.**

Action Steps:

1. Continue supporting state research on the identification and selection of an effective set of Transportation Control Measures (TCMs).
2. Advocate that the Southern Railroad of New Jersey (SRNJ) fully study the feasibility of instituting passenger service (from Shore Mall to Atlantic City) to include estimates of passenger demand, capital costs, operational costs, station and parking development and impacts on existing bus and rail service. SRNJ service proposal includes a Fire Road park-and-ride at interchange of AC Expressway and Garden State Parkway.
3. Use the results of the upcoming South Jersey Transportation Authority Park-and-Ride Study (includes 4 county SJTPO region) to move forward proposed park-and-rides into the funding process and ultimately into future year TIPs. Additionally, consider development of parking plans at major passenger intermodal facilities: Vineland Bus Terminal, Cape May Bus Terminal, Atlantic City Rail Line stations, etc. to facilitate auto-to-bus and auto-to-rail travel.
4. Work with NJDOT to identify policy for bike access on roadways and identify roadways where access is feasible and compatible.
5. Continue work on establishing a network of feeder or shuttle bus service to and from express (commuter-oriented) bus and rail lines. Examples are the feasibility studies currently being conducted: linking outlying areas of Bridgeton; Buena and Vineland to the 553 line; shuttles to Atlantic City Rail Line stations (Hammonton), and shuttles to the 553 from outlying areas of Millville (Port Norris, Laurel Lake).
6. Determine feasibility of establishing transit services to new markets. Examples include: Salem County bus service to Atlantic City, local bus service in Middle and Lower Townships in Cape May County and, local bus service in Vineland/Millville and Bridgeton/Upper Deerfield.
7. Investigate innovative non-traditional transit services and advocate a service in Cape May and Cumberland Counties.
8. Support the Counties' specialized transit services for the elderly and disabled, as it provides a valuable service to this growing segment of the population.
9. Determine potential increases in the level of service on transit routes serving Galloway, Ventnor, Egg Harbor, Pleasantville, Linwood, Northfield and Margate and Salem County Transit #108 route.
10. Support the Delaware River and Bay Authority's Five-Year Capital Improvement Program and planning efforts on intermodal facilities at the Cape May Ferry Terminal to include facilities to improve bike access.
11. Work with NJ TRANSIT to: 1.)Provide bike/pedestrian. facilities at rail and bus stations/terminals/stops - including new Vineland Bus Terminal, 2.)Encourage a more barrier-free bike-on-rail policy and to develop a bike-on-bus policy and, 3.)Develop bike/pedestrian. access plans for transit stations/terminals/stops.
12. Develop bike facilities, routes, and bikeways per County master plans - Atlantic and Cape May Counties.

13. Working with the counties, develop a regional (SJTPO) bicycle and pedestrian plan and assign the administration of bicycle and pedestrian issues to an SJTPO staff member.

Additionally, the following policy statement and action steps are also advocated for the goal of protecting and improving the environment.

Policy: Minimize the environmental impact of transportation improvements.

Action Steps:

1. Continue to follow all federal and state environmental regulations when developing and implementing transportation system improvements to mitigate environmental impacts.
2. Seek to identify environmental concerns and issues early in the initial stages of project development.
3. Continue the proactive and straightforward SJTPO policy for public participation in the transportation planning process to foster early and continued involvement of environmental groups and interests.

For the goal of ***restore, preserve and maintain the existing transportation system,*** the following policy and action steps are issued.

Policy: Ensure that key elements of the transportation system are restored, preserved and maintained.

Action Steps:

1. Prioritize funding for other Plan elements such as system preservation and maintenance as existing areas of congestion will expand in the future but will still only affect a small proportion of travel (less than 15%).

2. Continue to work with NJDOT on the management systems, required by ISTEA, to preserve and better manage the region's transportation infrastructure.

3. Work with NJDOT and the counties to identify and preserve abandoned rail corridors and existing freight for future transportation uses and examine funding mechanisms to allow such preservation. Examples of potential projects include the currently owned SRNJ Linwood Branch for bike/pedestrian. uses and the existing rail freight line to Vineland/Millville for future passenger use.

4. Work with NJ TRANSIT to maintain commuter rail service on the Atlantic City Rail Line and examine alternative methods to increase ridership (increasing service frequency, improving access to boardwalk areas, establishing new stations (Pomona, etc.).

5. Continue and encourage the expansion of NJDOT's pilot program to provide resources for local jurisdictions/counties to prepare bridge projects and local corridors for federal funding. Resources could include funding for local management of consultants, staff "on loan" from NJDOT, training of local staff, or other innovative approaches.

6. Advocate that NJDOT expedite and complete the Bridge Management System and expand Local Aid resources to better process and prepare projects for funding.

7. Advocate streamlining and simplification of review processes to include NJDEP review, specifically the State Historic Preservation Office review and Pinelands Commission review, among others.

For the goal of ***secure dependable, reliable sources of funds,*** the following policy and action steps are advocated.

Policy: Pursue all avenues for transportation funding.

Action Steps:

1. Work to pursue stable state funding for transportation for both capital and operating expenses.

2. Foster the use of public/private partnerships (joint public/private programming) to fund solutions to transportation problems especially in the development of freight, port and aviation system needs.

3. Work from county and regional planning efforts to identify and incorporate bike/pedestrian projects in TIP's.

4. Advocate the expansion of funding options for rural municipalities.

5. Advocate that NJDOT simplify and streamline the Transportation Development District (TDD) qualification process.

6. Explore the possibility and needed institutional approaches (to include providing counties with flexible funding options) to open up the eligibility requirements of paratransit and other specialized transit to a broader base of users especially in the rural and economically depressed areas of the region - i.e., include low income persons, autoless households.

For the goal of ***recognize the interrelationships between transportation and land use plans***, the following policy and action steps are promoted.

Policy: Concentrate development in existing or planned centers or corridors.

Action Steps:

1. Development of the SJTPO Plan: Reflects consideration of county master plans and the State Development and Redevelopment Plan and NJDOT for population and employment projections.

2. Expand traditional bus transit services in established or planned centers such as Pleasantville, Northfield, Vineland, Millville, Bridgeton, among others.

3. Implement the future non-traditional transit services advocated by the Plan in the suburban growth areas/corridors in the four counties.

4. Provide needed transportation infrastructure improvements to provide access to planned and existing industrial parks. An example is a needed interchange at Weymouth Road and Rt. 55 to serve the Vineland Industrial Park.

5. Encourage transit-friendly land use in the region and mixed-use development at transit stations by advocating higher density development in the region, and by working with NJ TRANSIT and counties/municipalities to develop plans for land surrounding station areas.

VII. FINANCING PLAN

Overview

This chapter describes the financing plan for the SJTPO region. Information was collected and analyzed for the Fiscal Year 1992 through 1995 Capital Programs of NJDOT. From this data, estimates of future funding availability by budget category were developed, which included federal and State Transportation Trust Fund dollars. In addition, the methodology and results of NJDOT's revenue estimating process for the state and its three MPOs for the Fiscal Years 1996 through 2000 are presented and discussed as applied to the SJTPO. The two different estimates are then compared to help define a likely funding level for the SJTPO.

The two principal sources of funds for the South Jersey Transportation Planning Organization are federal funds provided under ISTEA and state funds provided under the New Jersey Transportation Trust Fund (TTF). The challenge facing the SJTPO is to develop a transportation investment program, including the Transportation Improvement Program, within the confines of existing ISTEA and TTF funding.

Estimating SJTPO Funding

Approach

With respect to the availability of funds, a future estimate was developed using average levels of past years' funding and distribution of funding by program category such as National Highway System (NHS), Surface Transportation Program (STP), etc. obtained from NJDOT Capital Program database for the period FY1992 through FY1995.

The first step in developing a future estimate was to establish a historic funding base data for the SJTPO region. The second step was to translate the old Surface Transportation Assistance Act (STAA) funding categories that existed in 1992 into ISTEA funding categories that have existed from 1993 onward. Since the SJTPO is a relatively new entity, and historic data was needed for a period extending farther back than the SJTPO existed, it was necessary to disaggregate the funding data on a county-by-county basis and then reassemble it to conform to the current regional boundaries of the SJTPO. The results were reviewed manually on a line-item basis for all four fiscal years to be sure that funds had been correctly assigned to one of the three MPOs or to the State.

Regarding the Statewide programs, these are programs such as long-life pavement markings (line striping), traffic signal re-lamping and so on that are not broken out on a county-by-county basis. It was assumed that the funds for these programs would probably be divided amongst the three MPOs in the same proportions that specific funds are divided.

For the second data analysis task, funding categories were translated from STAA to ISTEA as indicated in Table VII-1.

Other funding categories from 1992, such as Highway Program Research, State, State-Match, Various Federal, Other and so on, that existed in both 1992 and later years, were simply maintained as shown in Table VII-2. With respect to state-match, there was a change with ISTEA from "hard-match" (mandatory state contribution) to "soft-match" (100 percent state or 100 percent federal funds, depending upon the project). Hence, to make 1992 data comparable to the other years, only the federal portion is shown under the different program categories, with all state-match dollars shown under state-match.

Table VII-1
Translating STAA Fund Categories to ISTEA Categories

Old STAA Fund Category	New ISTEA Fund Category
Consolidated Primary (CP)	National Highway System (NHS)
Bridge	Bridge
Hazard Elimination System (HES) ICSI Railroad Crossings (RRO) Rural Secondary Urban System	Surface Transportation Program (STP)
Interstate Interstate 10	Interstate Completion
Interstate 4R	Interstate Maintenance
State	State
State-Match	State-Match
TRANSIT	Federal Transit Administration (3, 9, 18)

Results

After the four years of capital program data was regrouped by region into one of the three MPOs or Statewide, placed into uniform categories such as NHS or STP, estimates of funding levels by geographic area for each funding category were developed. As an example, it was determined that funds received by the SJTPO geographic area in the NHS funding category amounted to an average of 7.74 percent of total NHS funding for New Jersey over the four year period FY1992 to FY1995. This is shown in the "Average SJTPO Percentage" column in Table VII-2. Hence, it is reasonable to expect that the NHS program for the SJTPO will be budgeted at about the same level in the future. Similar proportions were developed for the SJTPO for each funding category, such as STP and others. These proportions were then be applied to average historic levels of federal and state funds by category for the whole state to develop estimates of future funding availability by category for the SJTPO. This is shown in the far right column of Table VII-2.

The funding estimation steps are summarized below:

1. Determine the historic percent allocation of funds received by the SJTPO by program category (i.e., NHS, STP, etc.). Using the example described previously, the SJTPO's NHS program category was estimated to receive 7.74 percent of total NHS funding for New Jersey. The "Average SJTPO Percentage" column of Table VII-2 shows the result.

2. Estimate an average historic level of federal and state funding, including the Transportation Trust Fund, by category for New Jersey based on previous capital programs. For example, the four year average total for federal and state funding from FY1992 to FY1995 is $1,365.6 million, with a breakout by category as shown in the "Average Annual Dollars for New Jersey" column of Table VII-2. Funding levels have been fairly constant over this period.

3. Apply the historic program category percent estimates in Step 1 above to the historic average federal and state funding levels by category for New Jersey in Step 2 above. This yields the total expected funding for each program category for the SJTPO, shown in the "Estimated FY1996 SJTPO Dollars" column of Table VII-2. It should be noted that this column includes federal and Transportation Trust Fund dollars.

Table VII-2
New Jersey's Capital Program

Fund Category	Statewide Programs Total Dollars	NJTPA Total Dollars	DVRPC Total Dollars	SJTPO Total Dollars	FY92 - FY95 Total Dollars	Average Annual $ for New Jersey	Average SJTPO Percentage	Estimated FY1996 SJTPO Dollars
Air Safety	0.700	0.000	0.000	0.000	0.700	0.175	0.00%	0.000
Bridge	108.530	244.734	23.002	17.633	393.899	98.475	4.48%	4.408
Congestion Mitigation/Air Quality	73.633	101.814	13.284	1.305	190.036	47.509	0.69%	0.326
Demonstration	38.440	183.892	13.700	1.000	237.032	59.258	0.42%	0.250
Federal Aviation Administration	3.300	0.000	0.000	0.000	3.300	0.825	0.00%	0.000
Federal Transit Administration (3, 9, 18)	150.390	790.340	23.410	42.700	1006.840	251.710	4.24%	10.675
Highway Program Research	27.900	0.000	0.000	0.000	27.900	6.975	0.00%	0.000
Interstate Completion	4.500	221.087	126.427	0.000	352.014	88.004	0.00%	0.000
Interstate Dedesignation	1.700	20.950	0.103	0.000	22.753	5.688	0.00%	0.000
Interstate Maintenance	38.348	99.160	0.000	8.306	145.814	36.454	5.70%	2.077
Interstate Transfer	0.000	6.075	3.120	0.000	9.195	2.299	0.00%	0.000
National Highway System	20.532	145.318	93.646	21.773	281.269	70.317	7.74%	5.443
Other	6.250	30.000	2.000	0.000	38.250	9.563	0.00%	0.000
Partner	0.000	29.486	1.460	1.321	32.267	8.067	4.09%	0.330
State	1555.192	240.610	17.284	46.036	1859.122	464.781	2.48%	11.509
State-Match	151.781	241.289	37.903	5.397	436.370	109.093	1.24%	1.349
Surface Transportation Program	147.720	135.621	25.427	97.855	406.623	101.656	24.07%	24.464
Various Federal	18.818	0.000	0.000	0.000	18.818	4.705	0.00%	0.000
TOTAL:	2347.734	2490.376	380.766	243.326	5462.202	1365.551		60.832
	43.0%	45.6%	7.0%	4.5%				4.5%

Future Implications

Reliable estimates of expected funding for the SJTPO are important because the more closely the funding requirements of the SJTPO's Plan and future year TIP's match the levels of available funds, the more likely it is that projects will actually be implemented.

It is important to note that the funding levels shown in the "Estimated FY1996 SJTPO Dollars" column represent a "benchmark" of the amount of baseline funding which should be expected on a recurring basis in the absence of exceptional projects. Exceptional projects would be included in the category of major investments, ones that involve adding substantial capacity to facilities that are important to regional travel, such as the construction of a major highway or rail facility. Accordingly, the funding level estimate provided here should be considered a floor and not a ceiling.

Where the ceiling will be in any given year will depend upon the existence of exceptional projects. One indication of an exceptional project would be the initiation of a Major Investment Study (MIS). An MIS is required for any project considered a major metropolitan transportation investment, and for which federal funds are potentially involved. An MIS is undertaken to refine the transportation plan or lead to decisions by the MPO, in cooperation with participating agencies, on the design concept and scope of the investment. A major investment refers to a high-type highway or transit improvement that involves substantial cost and that is expected to have a significant effect on capacity, traffic flow, level of service, or mode share at the transportation corridor or subarea level.

In summary, the estimate of funds contained in Table VII-2 represents the baseline of funding that will likely occur on an ongoing basis. The need for additional funds to support exceptional projects will likely occur in the future, but as of yet, the timing, scale, and scope remain uncertain. One leading indicator of such need, however, would be the initiation of a MIS, which would include an evaluation of funding sources.

Comparison of Analysis Results with NJDOT Capital Plan Revenue Estimates

After the analysis results shown in Table VII-2 were calculated, NJDOT published its estimate of what it expects to be available both to support the whole FY1996 - FY2000 State Transportation Improvement Program and to support each individual MPO. The process and assumptions that NJDOT used to make these estimates is presented in the next section. A comparison to the previous results is then presented. The final section draws conclusions about revenue estimates for the SJTPO's planning process.

NJDOT Revenue Estimating Process

NJDOT employed the following process in developing its estimate of potential revenues. With respect to supporting the entire FY1996 - FY2000 State Transportation Improvement Program, NJDOT used the following assumptions.

1. Dollar amounts for each federal funding category were based (except as noted in the assumptions below) on a straight-line continuation of federal-aid authorizations or apportionments from the currently available estimates for FY1995.

2. One-half of the apportionment for Congestion Mitigation/Air Quality (CMAQ) was made available to NJ TRANSIT projects and therefore is shown on NJ Transit's revenue estimates.

3. Surface Transportation Program (STP) funds were broken down into the allocations and minimums required by federal law. In addition to the regular STP apportionment, these amounts also include funds which are authorized under Section 1014 of ISTEA for "Reimbursement for Segments of the Interstate System Constructed Without Federal Assistance." Under ISTEA, one-half of these funds are allocated directly to the "STP Statewide" category and the remaining half are run through the regular STP fund allocation process.

4 "Demonstration" funds were included only as authorized by ISTEA or by federal appropriations act.

5. "Partnership" funds are funds anticipated from participation by other agencies in NJDOT projects under existing agreements.

6. Except as noted in 7 below, the New Jersey Transportation Trust Fund was assumed to continue to provide appropriations to NJDOT of $565 million annually. It was further assumed that $200 million annually will be made available to NJ TRANSIT and, based on this assumption, will be accounted for in the NJ TRANSIT revenue estimate.

7. The dollar estimates for FY1999 and FY2000 were inflated by 30 percent. This "overprogramming" is intended to permit the programming of more projects in these two years than could be funded under a constrained resource estimate. Since projects scheduled that far into the future tend to be subject to unforeseen delays, an expanded project list is necessary to ensure that an adequate number of projects is available when the implementation year arrives.

Regarding MPO revenue estimates, NJDOT took the following approach as outlined below. However, it is important to note, that with two exceptions, federal and state funds are not "allocated" to -- that is, required to be spent within the boundaries of -- the three MPOs. The first exception is STP funds, some of which are required to be allocated to the MPOs under a formula in ISTEA. The second exception is the $100 million per year in TTF state-aid funds, which are allocated on a county-by-county basis under a statutory and regulatory formula.

The actual budgeting of federal and state funds for projects within the MPO areas is a product of the development of the three regional Transportation Improvement Programs, the State Transportation Improvement Program, and the Annual Capital Program. On a statewide basis, the cost of projects programmed for a particular fiscal year must equal the anticipated revenue for that year. Each project must also be assigned to a funding strategy which is appropriate for the project and has adequate funds. From year to year, however, there may be significant variations in the amount of funds actually programmed within an MPO area, as needs and specific project implementation schedules dictate. These programming decisions are made on a cooperative basis with the participation of NJDOT, NJ TRANSIT, local government representatives, and other agencies (all of whom are members of the MPOs), the State Legislature, citizen's groups, and the general public.

In the budgeting of funds in NJDOT's FY1995 - FY1999 State Transportation Improvement Program (STIP), most of the funds in the State funding category and approximately 28 percent of the funds in the various federal categories fall under "statewide" and are used to support programs in the "statewide" section of the STIP.

NJDOT stressed that although the actual budgeting of funds by MPO area is a product of the planning process, not a precursor to it, it is appropriate to provide early revenue estimates to MPO staff so that they can undertake their responsibilities with the same information available to NJDOT staff.

NJDOT's fundamental assumption underlying the attribution of revenue estimates by MPO area was that the FY1996 - FY2000 state and regional transportation improvement programs will, to the extent possible, provide funding for projects programmed in the fiscal years 1995 through 1999 and not yet completed.

Therefore, in projecting expenditures to an MPO area within a particular funding category, the methodology followed was to assume full funding of projects shown in years FY1996 through FY1999 in the current FY1995 - FY1999 TIP. The difference between these amounts, by category, and the expected total revenue, by funding category, for the FY1996 - FY2000 period was used to produce an unassigned balance for each funding category. The unassigned balance for each funding category was then assigned to the three MPO areas according to the proportion of total funds programmed within the MPO area in the FY1995 - FY1999 State Transportation Improvement Program, with the NJTPA at 74 percent, DVRPC at 21 percent, and the SJTPO at 5 percent.

NJDOT reiterates, however, that the actual budgeting of funds within the funding categories will be a product of the planning process: needs analysis, prioritization, project selection, and the TIP negotiation process.

The results of NJDOT's revenue estimating procedure for the SJTPO are shown in Table VII-3, where they may be directly compared with the results of Table VII-2 earlier. The NJDOT estimate shown in Table VII-3 is the yearly average for the five-year total, FY1996 - FY2000, prepared by NJDOT.

Comparison of Estimated Results

Examining the two totals in Table VII-3 indicates that the total annual funding the SJTPO may expect to receive is in the range of $50 to 60 million. Closer scrutiny reveals that these two values are essentially identical, as the following discussion describes.

Most, if not all, of the $10 million difference can be explained by taking a closer look at the funding levels by category. In this regard, the breakout of funds used in Table VII-2 included applicable NJDOT state funds to the Transit Category as well as NJ TRANSIT revenues; neither was done in the NJDOT estimate. Hence, taking the $200 million annual TTF distribution to NJ TRANSIT and assigning it to the three MPOs by the same generic percentage used above (NJTPA - 74 percent; DVRPC - 21 percent; SJTPO - 5 percent) implies about $10 million for the SJTPO. However, since the SJTPO has only a small amount of existing transit services compared to the other two MPO areas, a more realistic assignment is probably about half the usual share, or about $5 million. This appears to explain the difference between the two estimate totals. Given this, the likely level of annual SJTPO funding will be $55 million.

Regarding the differences in the individual category estimates, some categories did not appear in the relatively short baseline time period used to develop the Table VII-2 estimate and were thus excluded. This is not as important as the total, however, in that NJDOT contends that the actual budgeting of funds within the funding categories will be a product of the planning process: needs analysis, prioritization, project selection, and the TIP negotiation process.

Table VII-3
Comparison of Revenue Estimates ($ millions)

Fund Category	Table VII-2 Estimate FY1996	NJDOT Estimate Yearly average of FY1996 - 2000
Air Safety	0.000	0.540
Bridge	4.408	9.960
Congestion Mitigation/Air Quality	0.326	0.800
Demonstration	0.250	0.280
Federal Aviation Administration	0.000	0.420
Federal Transit Administration	10.675	See "State" Category
Highway Program Research	0.000	0.540
Interstate Completion	0.000	0.000
Interstate Dedesignation	0.000	0.000
Interstate Maintenance	2.077	0.460
Interstate Transfer	0.000	0.000
National Highway System	5.443	3.360
Other	0.000	0.000
Partnership	0.330	0.000
State	11.509	20.280
State-Match	1.349	0.000
Surface Transportation Program	24.464	13.420
Various Federal	0.000	0.000
TOTAL:	60.832	50.060

Cost Estimation of Scenarios

Order-of-magnitude cost estimates were prepared using unit prices for construction items related to the transportation improvement scenarios tested via the South Jersey Highway Model. Since a comprehensive review of each roadway was not feasible, major right of way or structure costs could not be accounted for in the analysis. However, the analysis does estimate a cost for each improvement scenarios to provide a comparison to likely funding levels available to the SJTPO. A summary of cost estimations on a county-wide basis is listed in Table VII-4. Individual project costs are shown in Appendix VI.

Total project costs for the low level improvement scenario would require a total capital outlay of approximately $59 million (in 1996 dollars). This translates to an annual outlay of approximately $4.5 million.

If all projects were completed under the high scenario, the total capital outlay would be approximately $142 million (in 1996 dollars). This translates to an annual capital outlay of approximately $10.5 million, which is about 19 percent of the annual revenue estimate.

Table VII-4
Summary of Order-of-Magnitude Cost Estimates

	LOW SCENARIO		HIGH SCENARIO	
COUNTY	**COST ESTIMATE (MILLIONS OF $)**	**ANNUAL COST OVER 20 YEARS (MILLIONS OF $)**	**COST ESTIMATE (MILLIONS OF $)**	**ANNUAL COST OVER 20 YEARS (MILLIONS OF $)**
Atlantic	28.774	2.118	67.926	4.999
Cape May	10.124	0.745	17.466	1.285
Cumberland	10.326	0.760	40.095	2.951
Salem	10.011	0.737	16.558	1.219
Totals	59.235	4.360	142.045	10.454

Finally, there were additional problem areas which came to light during the public outreach sessions and during the development of baseline conditions that were not tested via the SJHM. Although improvement scenarios could not be developed, tested and subsequently included in the financial analysis, these areas should be studied further, and justified projects may have significant costs.

Adequacy of Resources

Given the yearly funding estimates to the SJTPO of approximately $55 million, the recent renewal of the Trust Fund, and the fact that some of the projects contained in the high-level scenario would likely be "exceptional projects" with potential funding outside of the baseline SJTPO share, the price tag for both the low and high scenarios for highway capacity problems appears to fall within the SJTPO's resource limits. However, actual projects cost could be substantially higher than the estimates for the conceptual improvements and additional projects to address areas not tested by the model may have substantial costs.

Although the capacity problems appears to require a small proportion of the total projected funds, other important elements, such as system preservation and maintenance, alleviating safety problems, and increasing mobility via non-highway modes, are not accounted for in the assessment. Funding for highway infrastructure maintenance and rehabilitation, transit capital and operating, bridge repairs or replacement, and freight system improvements in the SJTPO region will have significant funding requirements. Given this, it is impossible to determine if the SJTPO resources will be adequate. Much is unknown about future levels of funding and there is a great deal of uncertainty about future revenue sources. It will be important for further work to be done in these areas in future plan updates in order to determine the overall adequacy of project funding.

VIII. CONFORMITY

Overview

The Regional Transportation Plan must demonstrate conformity with federal clean air standards as established by EPA conformity regulations. Failure to achieve conformity jeopardizes state and federal funds for transportation projects for the SJTPO.

In order to demonstrate conformity, an assessment of air quality in the SJTPO region was performed. The purpose of the assessment was to show that the improvements proposed in the Plan are in conformity.

Computer models were used to generate estimates of mobile source emissions resulting from the highway system. Conformity was determined by testing estimated emission levels against established emission budgets and by performing "build" versus "no-build" tests, where the impacts of the improvement scenarios were evaluated.

The analysis years established included the Plan's interim years of 1996 and 2005 and the Plan's horizon year of 2015. As the SJTPO region is designated as an ozone non-attainment area, emissions of hydrocarbons and oxides of nitrogen, precursors of ozone, must be evaluated.

Methodology

Carbon monoxide (CO) is a colorless gas formed by the incomplete combustion of fuel. Anywhere combustion takes place (i.e. industrial processes, home heating, etc.) high concentrations of CO can develop. Since vehicles can produce up to 90 percent of CO emissions in urban areas, mobile source emissions have been a focus in the Federal Air Quality Improvement Program. Ozone (O_3) is a colorless gas associated with smog or haze conditions. Ozone is not a direct emission, but a secondary pollutant formed when precursor emissions, hydrocarbons (HC) and oxides of nitrogen (NOx), react in the presence of sunlight.

As part of the CAAA of 1990, Federal officials grouped areas into Census Metropolitan Statistical Areas (CMSA) for the purpose of identifying air quality problems. In the SJTPO region, Atlantic and Cape May Counties were grouped into the Atlantic City CMSA. Cumberland and Salem Counties, along with Burlington, Camden, Cumberland, Gloucester, and Mercer Counties, were included in the Philadelphia CMSA. Recently, however, both Salem and Cumberland Counties have challenged their CMSA classification with regard to air quality.

In the 1991 Environmental Protection Agency (EPA) Ozone Designations for New Jersey, the Atlantic City CMSA was classified as a "Moderate" non-attainment area with regard to ozone. In the same report, the Philadelphia CMSA was classified as having "Severe" non-attainment ozone problems. This translated into the need for the SJTPO region to evaluate levels of HC and NOx generated from mobile sources, as these pollutants are precursors of ozone. The SJTPO region does not have specific requirements regarding CO.

A combination of computer programs centered around MOBILE5a and PPAQ (Post Processor for Air Quality) were used to assess air quality in the SJTPO region. MOBILE5a is a software package developed by the United States Environmental Protection Agency (USEPA) to calculate mobile source emissions. PPAQ is a software package used to pre-format and post-format data to and from MOBILE5a. It provides a linkage between MOBILE5a and the transportation model, the SJHM.

Emissions are calculated for three categories of pollutants: hydrocarbons, carbon monoxide, and oxides of nitrogen. The program summarizes emissions data, vehicle miles of travel (VMT), vehicle hours of travel (VHT), and average speed by geographic area, facility type, and time period.

Base Year (1990) Assessment

Overview

Atlantic County and Cape May Counties are currently classified as "Moderate" non-attainment areas and Cumberland and Salem Counties are classified as "Severe" non-attainment areas for ozone problems. Areas classified as either "severe" or "extreme" are required to implement Employer Trip Reduction Programs (ETRP), therefore employers in both Cumberland and Salem Counties must implement trip reduction plans. These two rural counties are required to comply because of their inclusion in the Philadelphia-Wilmington-Trenton Consolidated Statistical Management Areas (CSMA), a Census definition.

Actual readings in 1988 - 1990 for ozone at Cumberland County's Millville monitoring station show "moderate" levels of ozone and 1993 air quality readings show Cumberland County at the "attainment" level. It is the position of Cumberland County, Salem County and the SJTPO that there should be a reclassification of the two counties. This position is taken for a number of reasons: air quality in the counties is virtually at attainment, the two counties have distressed economies and compliance with the ETRP is a hardship to area employers, and the lack of mass transit options compounds the problems of complying with the program.

1990 Modeling Results

Table VIII-1 depicts the results of the baseline 1990 emissions modeling for the SJTPO region using MOBILE5a and PPAQ. Input to the computer models included the 1990 trip table and highway network. The data is presented as a benchmark for comparing interim and horizon year forecasts. Total VMT for the region was approximately 15 million, HC emissions approximately 29.2 tons, and NOx for the region was approximately 36.8 tons.

Table VIII-1
1990 Baseline Emissions Modeling Analysis

	VMT (veh-mi)	VHT (veh-hr)	SPEED (m.p.h.)	HC (tons)	NOx (tons)
Atlantic	8,103,614	252,743	32.1	15.645	19.165
Cape May	2,189,771	55,701	39.3	3.819	5.220
Cumberland	2,574,629	80,330	32.1	5.060	6.247
Salem	2,152,062	70,853	30.4	4.723	6.160
Totals	15,020,076	459,627	32.9	29.247	36.792

Interim Years Assessments

Overview

As required by federal regulation, interim year air quality must be assessed for the SJTPO region. Interim years established for the Plan are 1996 and 2005. Emissions for these years were estimated using the same process as the baseyear assessment: the SJHM, MOBILE5a, and PPAQ computer models. Inputs to the forecasting process included future year trip tables and future year highway networks. The methodology to develop the trip tables and networks for these years was the same as that outlined in Chapter IV of this Plan. Demographic forecasts for 1996 and 2005 were used to develop growth factors that were applied to adjust the 1990 trip table to generate the 1996 and 2005 trip tables. The future year networks were the 1996 and 2005 highway networks used by NJDOT in the TIP/SIP Air Quality Conformity Analysis. Both a baseline and action, or build, network were evaluated using the computer models.

A summary of the population and employment forecasts at the county level for the years 1990, 1996, 2005, and 2015 is presented in Table VIII-2 for reference.

Table VIII-2
County Population and Employment Forecasts

Population	**1990**	**1996**	**2005**	**2015**
Atlantic	224,327	224,963	256,620	278,170
Cape May	95,089	88,343	118,559	132,767
Cumberland	138,053	139,241	153,799	174,621
Salem	65,294	66,481	74,498	80,634
Totals	522,763	519,028	603,476	666,192
Employment	**1990**	**1996**	**2005**	**2015**
Atlantic	138,363	146,578	180,153	208,012
Cape May	39,145	34,219	46,094	50,728
Cumberland	59,529	59,772	73,027	82,026
Salem	23,802	23,159	25,800	27,132
Totals	260,839	263,728	325,074	367,898

1996 Modeling Results

Table VIII-3 depicts the results of the 1996 Baseline emission modeling. Total VMT for the region was forecasted as approximately 15 million, HC emissions approximately 15.7 tons, and NOx for the region as approximately 30.1 tons. While VMT in the region was forecasted to increase only slightly (around one percent), HC and NOx emissions decrease significantly over 1990 levels.

Table VIII-4 depicts the results of the 1996 Action scenario emission modeling. Total VMT for the region was unchanged from the baseline forecasts, while HC emissions decreased by 0.021 tons and NOx emissions decreased by .004 tons. The decrease was the result of the Atlantic City Signal project listed in Appendix V.

Table VIII-3
1996 Baseline Emissions Modeling Analysis

	VMT (veh-mi)	VHT (veh-hr)	SPEED (m.p.h.)	HC (tons)	NOx (tons)
Atlantic	8,276,234	257,938	32.1	8.493	15.361
Cape May	2,108,510	57,627	36.6	2.038	3.957
Cumberland	2,596,791	84,791	30.6	2.823	4.892
Salem	2,253,610	57,635	39.1	2.342	5.904
Totals	15,235,145	457,991	33.5	15.696	30.114

Table VIII-4
1996 Action Emissions Modeling Analysis

	VMT (veh-mi)	VHT (veh-hr)	SPEED (m.p.h.)	HC (tons)	NOx (tons)
Atlantic	8,276,234	257,938	32.1	8.472	15.357
Cape May	2,108,510	57,627	36.6	2.038	3.957
Cumberland	2,596,791	84,791	30.6	2.823	4.892
Salem	2,253,610	57,635	39.1	2.342	5.904
Totals	15,235,145	457,991	33.5	15.675	30.110

1996 Conformity Testing

Two tests are required for interim year 1996 to demonstrate conformity: a HC budget test and a build/no-build test. A 1996 budget of 17 tons of HC per day was established in the State Implementation Plan (SIP) for the four county SJTPO region. This is the only budget established by the SIP. The 1996 Action scenario HC estimate was 15.675 tons, within the region's budget. The build/no-build test indicated that lower levels of HC and NOx will result from the build, or Action scenario, resulting in a passing of the test.

2005 Modeling Results

Table VIII-5 depicts the results of the 2005 Baseline emissions modeling. Total VMT for the region was forecasted as approximately 18.5 million, HC emissions was approximately 11.3 tons, and NOx was approximately 24.7 tons for the region . While VMT in the region was forecasted to increase by about 3.5 million over 1996 levels, HC and NOx emissions will decrease significantly over both 1990 and 1996 levels. This decrease in pollutant emissions is the result of the proliferation of "cleaner" cars after 1996. Technological advances are expected to produce a fleet of automobiles that will produce significantly less pollutants, therefore negating increases in vehicle-miles traveled and vehicle-hours traveled.

Table VIII-5
2005 Baseline Emissions Modeling Analysis

	VMT (veh-mi)	VHT (veh-hr)	SPEED (m.p.h.)	HC (tons)	NOx (tons)
Atlantic	10,082,990	359,409	28.1	6.025	13.127
Cape May	2,842,984	93,280	30.5	1.653	3.685
Cumberland	2,948,105	103,864	28.4	1.847	3.947
Salem	2,611,053	92,310	28.3	1.795	3.970
Totals	18,485,132	648,863	28.5	11.320	24.729

Table VIII-6 depicts the results of the 2005 Action scenario emission modeling. Total VMT for the region decreased slightly from the baseline forecasts, while HC emissions decreased by 0.01 tons and NOx emissions decreased by 0.018 tons. The decreases were the result of Action projects listed in Appendix V.

Table VIII-6
2005 Action Emissions Modeling Analysis

	VMT (veh-mi)	VHT (veh-hr)	SPEED (m.p.h.)	HC (tons)	NOx (tons)
Atlantic	10,083,002	359,409	28.1	6.025	13.127
Cape May	2,826,676	93,947	30.1	1.643	3.667
Cumberland	2,948,088	103,863	28.4	1.847	3.947
Salem	2,611,053	92,310	28.3	1.795	3.970
Totals	18,468,819	649,529	28.4	11.310	24.711

2005 Conformity Testing

A build/no-build test is required for interim year 2005 to demonstrate conformity, as no budgets for 2005 have been established. The build/no-build test indicated that lower levels of HC and NOx will result from the build, or Action scenario, resulting in a passing of the test.

Interim Years Conformity Determination

The results of the interim years 1996 and 2005 conformity testing indicated that the Plan is in conformity.

Horizon Year (2015) Assessment

Overview

As required by federal regulation, the horizon year air quality must be assessed for the SJTPO region. The horizon year for the Plan is 2015. A trip table and baseline, or no-build network for 2015 were developed as outlined in Chapter IV of this Plan. Two improvement scenario networks, a low and a high scenario, were also developed as outlined in Chapter V. The baseline and improvement scenarios were evaluated using the computer models.

2015 Baseline Modeling Results

Table VIII-7 depicts the results of the 2015 Baseline emission modeling. Total VMT for the region was forecasted as approximately 20.6 million, HC emissions approximately 12.1 tons, and NOx for the region as approximately 26.5 tons. VMT in the region was forecasted to increase by about 2.1 million over 2005 levels and 5.6 million over 1990. HC and NOx emissions increase slightly over 2005 levels, however, both are significantly lower than the 1990 and 1996 levels.

Keep in mind that pollutant emissions are expected to drop drastically between now and 2005 because positive technological advances (cleaner cars) will outpace the negative impacts associated with increases in total trips, VHT and VMT. However, after 2005, the pendulum is expected to swing in the other direction, as total trip increases, as well as VMT and VHT increases begin to outpace incremental technological advances.

Table VIII-7
2015 Baseline Emissions Modeling Analysis

	VMT (veh-mi)	VHT (veh-hr)	SPEED (m.p.h.)	HC (tons)	NOx (tons)
Atlantic	10,711,551	427,942	25.0	6.287	13.509
Cape May	3,631,766	130,992	27.7	2.031	4.445
Cumberland	3,445,710	124,903	27.6	2.021	4.456
Salem	2,837,433	100,358	28.3	1.785	4.093
Totals	20,626,460	784,195	26.3	12.124	26.503

2015 Low Scenario Modeling Results

Table VIII-8 depicts the results of the 2015 low scenario emission modeling. Total VMT for the region decreased nearly 1 million from the baseline 2015 forecasts, HC emissions decreased by 1.36 tons and NOx emissions decreased by 1.433 tons.

2015 High Scenario Modeling Results

Table VIII-9 depicts the results of the 2015 high scenario emission modeling analysis. Total VMT for the region decreased nearly 1 million from the baseline 2015 forecasts and decreased slightly from the low scenario. HC emissions decreased by 1.245 tons and NOx emissions decreased by 0.89 tons over the baseline 2015 levels. HC also decreased slightly over the low scenario, while NOx increased slightly.

Table VIII-8
2015 Low Scenario Emissions Modeling Analysis

	VMT (veh-mi)	VHT (veh-hr)	SPEED (m.p.h.)	HC (tons)	NOx (tons)
Atlantic	10,831,851	412,825	26.2	5.897	13.361
Cape May	3,016,824	95,864	31.5	1.494	3.682
Cumberland	3,265,940	110,406	29.6	1.748	4.135
Salem	2,723,918	93,246	29.2	1.625	3.892
Totals	19,838,533	712,341	27.8	10.764	25.070

Table VIII-9
2015 High Scenario Emissions Modeling Analysis

	VMT (veh-mi)	VHT (veh-hr)	SPEED (m.p.h.)	HC (tons)	NOx (tons)
Atlantic	10,749,473	413,826	26.0	6.033	13.624
Cape May	3,018,457	90,845	33.2	1.480	3.773
Cumberland	3,284,054	104,600	31.4	1.723	4.261
Salem	2,721,890	92,348	29.5	1.643	3.955
Totals	19,773,874	701,619	28.2	10.879	25.613

2015 Conformity Testing

A build/no-build test is required for the horizon year 2015 to demonstrate conformity, as no budgets for 2015 have been established. The build/no-build test for both the low and high level improvement scenarios indicated that lower levels of HC and NOx will result as compared to the no-build, or baseline scenario. Thus, both scenarios passed the test.

Horizon Year Conformity Determination

The results of the horizon year 2015 conformity testing indicated that the Plan is in conformity.

Plan Conformity Determination

As the interim years and horizon year demonstrated conformity, the Regional Transportation Plan is a conforming plan.

IX. IMPLEMENTATION

Overview

The Regional Transportation Plan provides the framework for transportation planning and the direction needed to lead the SJTPO region to the year 2015. It contains information on existing conditions, forecasted trends, recommended improvements and suggested planning studies. The Plan will help to direct region-wide transportation decision-making over the next twenty years. As a long-range planning document, the Regional Transportation Plan does not indicate the actual design of projects or improvements. Conversely, the Plan identifies future transportation needs and problems areas so that further studies can occur. Actual project design and funding limits are resolved during the planning process to generate the region's Transportation Improvement Program (TIP). To produce this Plan, more than 10 technical memoranda have been prepared and a full listing can be found in Appendix VII.

Over time, through the planning process and future planning process products (TIP, future updates of this plan, etc.), the highway, public transit, freight and other systems must be altered to become an united intermodal transportation system that supports larger social goals.

As required by federal regulation, this Plan will be updated in three years. Subsequent sections of this chapter describe the enhancements that will be necessary to produce an update of this Plan and the process by which this Plan will be implemented.

Future Enhancement - Management Systems

This Plan was produced without the benefit of the strategies and data of the ISTEA mandated management systems. Future updates of this Plan will need to incorporate adopted strategies that are output from these systems, in particular the Congestion Management System (CMS) which will be a tool used by the SJTPO.

The management systems, along with the RTP, will be used as tools in project selection. The management systems are being developed and implemented with the MPOs in conjunction with the State. Three of the ISTEA management systems relate to the management of transportation system assets (Bridge, Pavement and Public Transportation). The three other ISTEA systems focus on performance aspects (Safety, Congestion and Intermodal). Additionally, NJDOT has embarked on one additional management system which focuses on the collection of travel data (Traffic Monitoring System).

A description of each system is included below.

Congestion Management System (CMS)

MPOs will take responsibility for the CMS. The purpose is to develop a systematic process that will provide information on transportation system performance to decision-makers for selecting and implementing cost-effective strategies to manage new and existing facilities which are designed to alleviate traffic congestion and enhance the mobility of persons and goods. The CMS includes:

- Identification of corridors where congestion is occurring or where the potential for congestion exists, based on an acceptable level of system performance established by the State and each MPO. Because data is limited, the initial version of CMS will use volume, capacity and average vehicle occupancy to screen for congestion.

- Establishment of performance measures that will provide for the identification and monitoring of the extent of both recurring and non-recurring congestion and the evaluation of the effectiveness of congestion reduction and mobility enhancement strategies. Performance measures will be person and goods based rather than vehicle based.
- Establishment of a continuous program of data collection and system monitoring so that the duration and magnitude of congestion can be determined. Both existing and new sources of data have been considered in order to meet the data requirements of the selected performance measures.

The CMS will be completed by October 1995.

Intermodal Passenger Management System (IMS - Passenger)

The purpose of IMS-Passenger is to develop a system to analyze and monitor the performance and efficiency of the intermodal passenger facilities and to prepare and implement plans for improving deficient facilities. Major areas of emphasis are: a comprehensive passenger facility inventory and database; customer perspectives on intermodal connections; plans and strategies that are compatible with the capabilities of NJDOT, MPOs, and transit operators; and integration of the intermodal facility analysis and conclusions with related management systems such as PTMS, CMS, and IMS-Freight. Work plan development included NJ TRANSIT and the MPOs. Components include:

- A comprehensive inventory of intermodal facilities;
- Creation of performance measures and standards which direct the facility evaluations;
- A list of recommended strategies to upgrade deficient facilities; and
- A system monitoring and tracking program to provide continuing data to measure the effectiveness of each intermodal facility's operation.

The anticipated completion date of the IMS-Passenger is 1996.

Intermodal Freight Transportation Facilities and Systems (IMS-Freight)

The objectives of IMS-Freight are to assist the state transportation planning process to better manage its intermodal freight connections; increase the use of performance measures; and facilitate outreach to freight transportation customers. The following factors are incorporated:

- Identification of freight facilities: highway elements, coastal ports, canals, pipelines, airports, marine and/or rail terminals, and major truck terminals.
- Identification of parameters that allow measurement and evaluation of the efficiency of the movement of goods from origin to destination. These parameters may include: total travel time, cost and volumes for moving cargo, origins and destinations, capacity, accidents, ease of access, perceived quality, and the average intermodal transfer time.
- A base year inventory consisting of physical condition and operational characteristics. The inventory may include: total travel time, cost and volumes for moving cargo, origins and destinations, capacity, accidents, ease of access, perceived quality, average intermodal transfer time, and environmental impact information for the facilities and systems.
- Data collection and system monitoring (performance evaluation) to determine the efficiency of the movement of goods.

- Strategies and actions will be developed and evaluated for improving intermodal efficiency (statewide and local) and will also include methods for increasing productivity, increasing the use of advanced technologies, and the use of innovative marketing techniques.
- Implementation strategies and actions (short and long range).

Completion of the IMS-Freight is expected in the fall of 1996.

Pavement Management System (PMS)

This system is intended to improve the quality and performance of highway pavements while minimizing their costs through use of good management practices. Data include ride quality, surface distress, rutting, surface friction, cost data, maintenance experience, and life cycle costs and includes performance measures. PMS includes a number of analyses:

- Condition analyses: ride quality, surface distress, rutting, surface friction and structural capacity.
- Performance analyses: relates conditions over time to different rehabilitation techniques, and various environmental and traffic levels.
- Priority assessment/ranking: a prioritized list of recommended candidate projects for one and multi-year periods.
- Economic analysis: an estimate of network level and project level investment strategies.
- Feedback analysis: annual evaluation and updating procedures and calibration of relationships and criteria

Completion of the PMS is expected in the fall of 1995.

Bridge Management System (BMS)

The principal goals of the BMS are to: improve the structural conditions of bridges in the state using all available funds, minimize the cost of system maintenance and repairs, maintain the bridge system so that there are no posted structure limits on the state system, ensure continuous service to all bridges considered as primary access routes, reduce the state of deterioration, and effect a reduction in unscheduled maintenance to reduce traffic impedances. Included in the system are a level-of-service concept for defining bridge improvement needs, methods for priority ranking of bridge projects, a procedure for determining optimal maintenance strategies and several approaches to bridge service life prediction and future need prediction. Methods for evaluating the costs and benefits of bridge improvement alternatives considering life cycle and user cost will be included along with an analytical approach to network level priority optimization.

The BMS is to be developed, established and implemented by the latter part of 1997.

Safety Management System (SMS)

The primary purpose of the SMS is to reduce accident frequency and severity on highways. An additional goal is to foster the use of safety improvement technology by localities. SMS includes vehicle and driver issues as well, so NJDOT is a partner with other agencies. The SMS is substantially completed but report mechanisms and data availability need to be worked out with local and county governments.

Public Transportation Equipment and Facilities Management System (PTMS)

The goal of PTMS is to provide needed information for the management of public transportation equipment and facilities. The PTMS will allow priorities for public transportation to be fully considered against priorities for other modes. The work plan was developed by NJ TRANSIT and spans all private and public services and work has been coordinated with related management systems including IMS, CMS, and TMS. PTMS includes:

- Identification of condition measures, including standards reflecting goals and objectives for safety, efficiency and reliability.
- Data collection and system monitoring (coordinated with IMS, CMS, and TMS) to include:
- Base year comprehensive inventory of all transit assets including age, condition, remaining useful life and replacement cost.
- Ridership data for dedicated transit rights of way (rail and busway) at the maximum peak load point and peak vehicles.
- Evaluation of proposed strategies and projects including status and condition of all assets, needs and schedules for major maintenance and replacement and estimated replacement costs.
- Implementation of strategies and projects, including costs, potential funding sources and priorities of proposed strategies and projects.

The PTMS should be essentially complete by the end of 1995.

Traffic Monitoring System - Highways (TMS/H)

The TMS/H is one component of a comprehensive Transportation Monitoring System which is to encompass all other modes of person and goods movement. The goal of TMS/H is to monitor the characteristics of highway travel and identify trends in travel at particular points and by extrapolation, through corridors, within counties, within regions, and at a network level. TMS/H builds on NJDOT Traffic Monitoring Program. The system will consist of a network of continuous and short-term counting, speed monitoring, vehicle type classification and weigh in motion stations. Average passenger occupancy data will be approximated using accident data, periodic visual observations of occupancy for special purposes and to validate the accident records method. Turning movement counts will be made manually to support air quality monitoring, and for other management systems. Target for full TMS/H is 1997.

Use of the Management Systems in the Regional Transportation Plan

The next Regional Transportation Plan should reflect the State use and adopted strategies from the various management systems. In particular, CMS strategies especially in use of travel demand reduction strategies and operation management strategies must be identified in the updated SJTPO long-range plan. The updated Plan will need to identify any Single-Occupancy-Vehicle projects that result from the CMS. Additionally the data and strategies from the management systems will help to strengthen and expand sections of the updated Plan, especially freight and intermodal.

The planning process will reconcile any differences or inconsistencies when management system outputs are less than optimal or inappropriate from the perspective of the MPO's long-range plan. The same will be true if insufficient funding is available to balance management system strategies and long-range plan improvements - the planning process will reconcile the differences to achieve consensus on future actions. Clearly, the management systems are only a tool in the decision-making process and only

focus on the "system" level. There are 14 other planning factors an MPO must consider (see Chapter 1 and Appendix I for the MPO planning factors). Figure IX-1 provides a diagram of the relationships that exist among different planning process products.

Thus, it will be important for the SJTPO to continue its work on the generation and analysis of data in the region so that both the TIP and future updates of this Plan are the result of a dynamic planning process. This dynamic process will be essential to fulfill the challenge of intermodalism

Future Enhancement - Use of Data, Strategies, Policies and Actions from Other Plans and Planning Activities in the State

A number of other studies should also be considered during the triennial update of this Plan. They are described below:

- **Availability of data from Strategic Goods Movement Database** - The goal is to have a goods movement information database to respond to questions regarding the movement of goods by various modes - closely coordinated with IMS-Freight. Data will be a proprietary database, provided by a consultant, to NJDOT.
- **Use of strategies and actions from Statewide Intermodal Strategic Plan - Goods Movement** - The NJDOT project will develop a strategic plan for the intermodal movement of goods throughout the state. Focus will be on state needs as well as a broad overview by mode of regional and global needs and trends. A strategic analysis of the system, strategic goals for remaining competitive and performance measures are included (closely connected to IMS - Freight).
- **Use of State Long-Range Plan** - NJDOT's plan has been completed and NJ TRANSIT's will be completed by October 1996.
- **Other Planning Efforts** - The South Jersey Transportation Authority is embarking on a seven element intermodal planning effort with results expected in one year. These include: Regional Park-and-Ride Plan; Atlantic City International Airport Ground Transportation System Plan; Visitor and Travel Information Program; Intermodal Directory; Convention Center Intermodal Linkage; Inter-Regional Summer Transit Study; and Cape May Intermodal Study. The studies focus on alternatives to Single-Occupancy-Vehicles and on creating linkages among transport modes.

Other Enhancements

Updates of the Plan should also include these enhancements:

- Refine/update the South Jersey Highway Model: A major revamp of the model is necessary to increase the accuracy and usefulness of the model. In its current form the model lacks the traditional steps designed to develop a trip interchange matrix through the generation and distribution of zonal trips. It also lacks the ability to estimate transit demand. These enhancements, along with increased network detail, will greatly improve the usefulness and accuracy of this important regional planning tool.
- Alternative land use and transportation policy scenario testing, a review of land development patterns especially relating to forecasted employment; the use of revised population and employment forecasts and changes in funding resulting from ISTEA re-authorization and Transportation Trust Fund renewal.
- Identify and fill data gaps: commodity flows, trucking needs, freight railroad capital improvement needs (sidings, signalization improvements), bridge repair and replacement.

Figure IX-1

Policy Making Framework as it Impacts the Management Systems

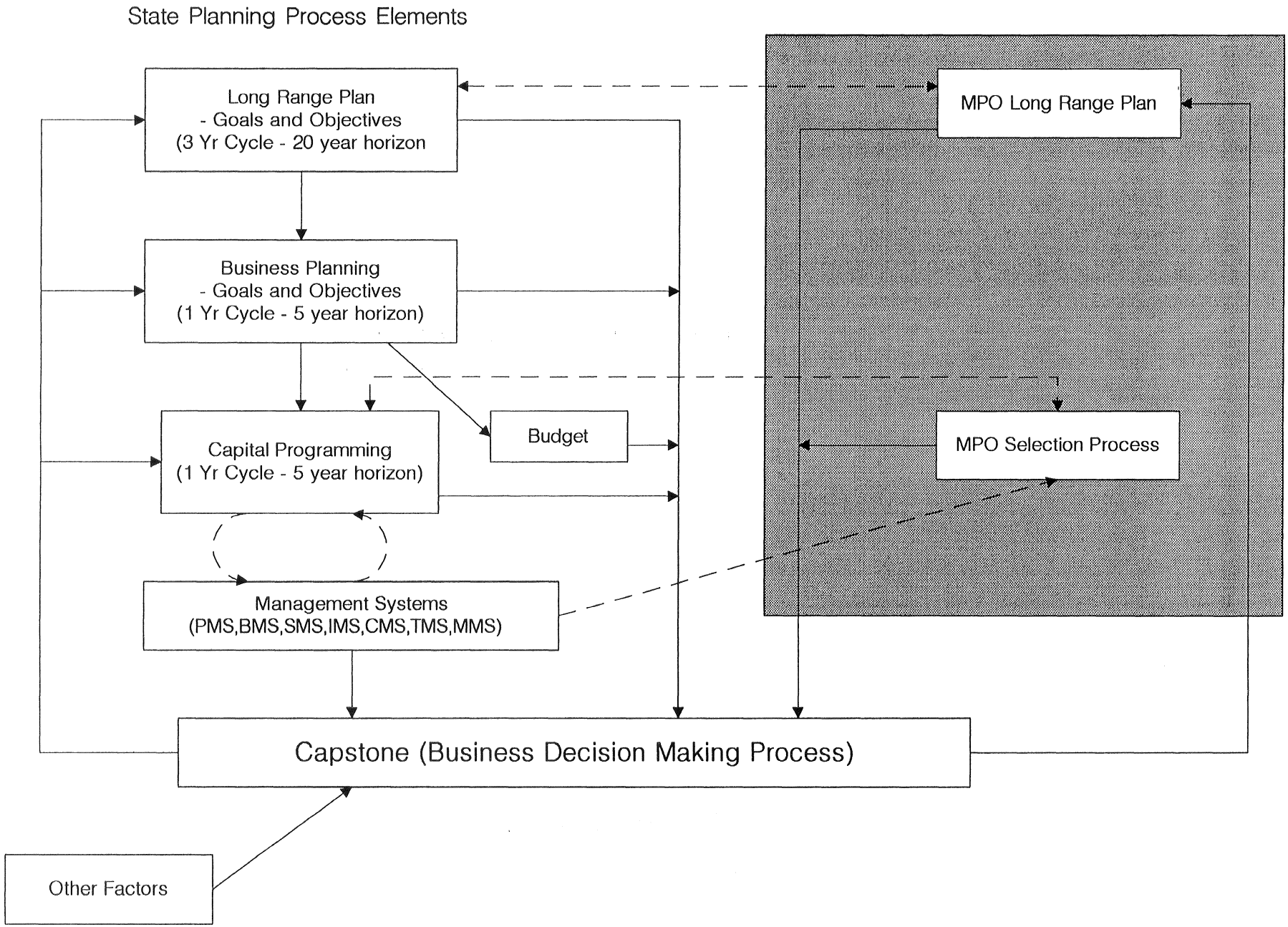


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Table AI-1
Table of 15 Planning Factors

Required Factor	SJTPO Goal, Policy or Action Step
Preserve and use more efficiently existing transportation facilities.	Goal: Restore, preserve and maintain the existing transportation system.
Consistency with energy conservation programs.	Policy: Expand other (non-auto) transportation systems as needed: aviation, rail, marine bicycle, pedestrian, and public transit. Policy: Encourage the use of alternative transportation modes that have a lesser environmental impact than SOVS.
Relieve existing and prevent congestion from occurring.	Goal: Reduce congestion.
Impacts on land use and development.	Goal: Recognize the interrelationships between transportation and land use plans. Policy: Concentrate development in existing or planned centers or corridors.
Program expenditures for transportation enhancement activities.	Policy: Expand other (non-auto) transportation systems as needed: aviation, rail, marine, bicycle, pedestrian and public transit. Action Step: Work from county and regional planning efforts to identify and incorporate bike/ped projects in TIPS.
Consider the effects of all transportation projects (public and private) and related impacts on communities.	Goal: Support the regional economy. Goal: Promote transportation choices.
Consider access to: ports, airports, intermodal facilities, major freight routes, national parks, recreation areas, monuments and historic sites, and military installations.	Policy: Advance projects to interconnect the transportation system. Policy: Improve access to areas of major employment and tourism. Action Step: Explore needed freight intermodal improvements.
Connectivity of roads within MPO with roads outside of region.	Policy: Advance projects to interconnect the transportation system.
Transportation needs as identified through the use of the ISTEA management systems.	Policy: Optimize the efficiency of the existing transportation system. Action Steps: Coordinate future renditions of the Regional Transportation Plan with the strategies identified.

Required Factor	**SJTPO Goal, Policy or Action Step**
Preservation of rights-of-way for future transportation projects.	Policy: Ensure that key elements of the transportation system are restored, preserved and maintained. Action Step: Work with NJDOT and the counties to identify and preserve abandoned rail corridors and existing freight lines for future transportation uses and examine funding mechanisms to allow such preservation.
Enhance the efficient movement of freight.	Action Step: Explore needed freight intermodal improvements in the region. Action Step: Support and work with NJDOT on the Statewide Intermodal Strategic Plan - Goods Movement. Action Step: Foster the use of public/private partnerships (joint public/private programming) to fund solutions to transportation problems especially in the development of freight, port and aviation system needs.
Consider life-cycle costs in the design and engineering of bridges, tunnels or pavement.	Policy: Optimize the efficiency of the existing transportation system.
Consider the social, economic, energy, and environmental effects of transportation decisions.	Policy: Encourage the use of alternative transportation modes that have a lesser environmental impact than SOVS. Policy: Minimize the environmental impact of transportation improvements. Policy: Improve access to areas of major employment and tourism. Policy: Concentrate development in existing or planned centers or corridors.
Expansion, enhancement and increased use of transit services.	Policy: Expand other (non-auto) transportation systems as needed: aviation, rail, marine bicycle, pedestrian and public transit. Action Step: Explore feasibility of establishing transit services to new markets. Action Step: Work with NJ TRANSIT to maintain commuter rail service on the Atlantic City Rail Line and examine alternative methods to increase ridership.
Increase the security in transit systems.	Policy: Ensure the safety and security of users of highway, transit, bicycle, pedestrian, and freight systems.

Atlantic County

Areas of recurring congestion:

- US 40/US 322 from NJ 50 to Atlantic City
- Atlantic City Expressway tolls and interchanges
- US 30 from just west of the GSP into Atlantic City
- NJ 50 through Egg Harbor City
- NJ 54 from US 322 to US 30
- US 9 corridor from Laurel Drive to US 30
- US 40 in Buena
- The GSP from the ACE to the south end of the county
- Wrangleboro Road from US 40/322 to US 30

Examples of congested intersections within the county:

- Tilton Road & Delilah Road -- Airport Circle
- NJ 52 & Shore Road (CR 585) & Somers Point-May Landing Road -- Somers Point Circle
- Jimmie Leeds Road (CR 561) & the GSP
- US 322 & NJ 50
- US 9 & Tilton Road (CR 563)
- US 40/322 & Wrangleboro Road (CR 575)
- US 40/US 322 & CR 575 (English Creek Avenue)
- Tilton Road (CR 563) & Fire Road (CR 651)
- Fire Road (CR 651) & Washington Avenue (CR 608)
- Wrangleboro Road (CR 575) & Tilton Road (CR 563)
- Shore Road (CR 585) & Washington Road (CR 608)
- US 40/US 322 & Tilton Road (CR 563) & Washington Ave. (CR 608) -- Cardiff Circle
- Junction of US 9, NJ 52 & Laurel Drive
- US 40 & CR 552 (Bears Head Road)
- US 40 & NJ 50, Somers Point-Mays Landing Road (CR 559)/Old River Road -- Sugar Hill Circle
- US 9 & Black Horse Pike (US 40/US 322)
- US 9 & Ocean Heights Avenue (Alt CR 559), Bethel Road
- US 9 & US 30
- US 9 & Washington Avenue (CR 608)
- US 9 & Delilah Road
- US 50 & US 30
- Junction of US 30, NJ 157 & Shore Road (CR 585)
- US 30 & Mill Road (CR 651)
- Garden State Parkway Interchange 37 (ACE) & Washington Avenue (CR 608)
- US 30 & CR 575 (Pomona/Wrangleboro Road)
- Junction of Tilton Road (CR 563), Shore Road (CR 585) & Mill Road (CR 662)
- Junction of US 40/US 322 & Delilah Road (CR 646)

Atlantic County (continued)

- US 40/322 & Shore Road (CR 585)
- Delilah Road & CR 585 (Shore Road)
- CR 585 (Shore Road) & NJ 152

Cape May County

Congestion occurs on:

- Roosevelt Boulevard (CR 623) from US 9 to West Avenue
- US 9 from Stone Harbour Blvd. (CR 657) to NJ 147
- NJ 347 to NJ 47 throughout the county
- NJ 52 throughout the county
- NJ 50 from NJ 49 around Tuckahoe
- GSP from Avalon Blvd. (CR 601) to NJ 147
- GSP from north end of county to Sea Isle Blvd. (CR 625)
- US 9 from north end of county to CR 550 (Woodbine - Ocean View Road)

Several congested intersections are scattered throughout the county as well:

- Stone Harbour Blvd. (CR 657) & US 9
- US 9 & NJ 50
- GSP (milepost 0) & NJ 109
- NJ 50 & Dennisville-Petersburg Road (CR 610)
- NJ 47 & Dennisville-Petersburg Road (CR 610)
- NJ 47 & Fulling Mill Road (CR 654)

With 102 miles of intracoastal waterways, Cape May County contains numerous bridges. The majority of these bridges are in acceptable condition, but there are several that need extensive maintenance and/or complete reconstruction:

- Ocean City - Longport Bridge to Atlantic County
- Schellenger Landing on Lafayette Street (CR 633)
- Scotch Bonnet Bridge on Stone Harbour Blvd. (CR 657)
- Marshallville Road Bridge on Marshallville Road (CR 632)
- Tyler Road Bridge on New Bridge Road/Greenfield Road (CR 616)
- Great Channel Bridge on Ocean Dr. (CR 619)
- Corson's Inlet Bridge on Ocean Dr. (CR 619)
- Townsend's Inlet Bridge on Ocean Dr. (CR 619)
- Grassy Sound Bridge on Ocean Dr. (CR 619)
- Middle Thorofare Bridge on Ocean Dr. (CR 621)
- Upper Thorofare Bridge on Ocean Dr. (CR 621)
- George Redding (Grassy Sound) Bridge on NJ 47

Cumberland County

Congestion:

- NJ 77 just north of NJ 49
- NJ 47 from NJ 55 south to NJ 347 (during summer season and holidays)
- NJ 49 through downtown Millville
- NJ 55 during summer season and holidays
- NJ 47 through Vineland into Millville
- The Boulevards between CR 552 & CR 674

Congested intersections include:

- NJ 47 & NJ 347
- NJ 47 & NJ 55 (at both points of intersection during summer season & holidays)
- NJ 49 & NJ 47
- NJ 49 & NJ 77
- NJ 47 (Delsea Drive) & Landis Avenue (CR 622)

Several intersections within the county have higher than average accident histories. The data utilized has aged considerably, but still indicate safety problems:

- NJ 47 & NJ 55
- NJ 49 & NJ 55
- NJ 49 & Daiment Road (CR 696)
- Cedarville Road/Cedar Street (CR 610) & Dividing Creek Road/Race Street (CR 555)
- Almond Road (CR 540) & N. Orchard Road (CR 628)
- Weatherby Road (CR 548) & Port Elizabeth/Cumberland Road (CR 646)
- Sherman Avenue (CR 552) & West Blvd. (CR 615S)/East Blvd. (CR 615N)
- Garden Road (CR 674) & West Blvd. (CR 615S)/East Blvd. (CR 615N)
- East/West Blvd. (CR 615) & Wheat Road (CR 619)
- S. Lincoln Avenue (CR 655) & Sherman Avenue (CR 552)

Bridges listed in critical conditions:

- Washington Street Bridge in Bridgeton over the Cohansey River
- Silver Lake Road Bridge in Upper Deerfield over the Cohansey River
- Turkey Point Road/Weir Circle in Downe Township
- Tom's Bridge Road/Reubens Bridge in Downe Township
- Bayview Road/Division Cut in Downe Township

Salem County

Congestion:

- US 40 through Woodstown (trucks in particular) by Cowtown Rodeo, and through Elmer Borough
- NJ 49 in Salem City
- NJ 49 in Pennsville
- US 130 between US 40 & the north border of Penns Grove
- NJ 48 between US 130 & Broad Street (CR 607)

Congested intersections:

- NJ 48 & US 130
- NJ 77 & US 40
- US 40 & NJ 45 in Woodstown & Pilesgrove Township
- NJ 49/US 130 & the US 40 interchange
- US 40 & Main Street (CR 648) in Elmer Borough

Intersections with higher than average accident rates:

- US 130 & Golfwood Road (CR 641) in Carney's Point
- US 130 & CR 629 in Carney's Point
- US 40 & Deepwater-Slapes Corner Road (CR 540) in Carney's Point
- US 40 & NJ 45
- NJ 45 & Quaker Neck Road (CR 657)
- NJ 49 & Salem-Hancocks Bride Road (CR 658)
- NJ 56 & Gershell Avenue (CR 638)
- NJ 48 & Golfview-Pedricktown Road (CR 601)
- Auburn Road (CR 602) & Kings Highway (CR 620) in Pilesgrove
- Bailey Street (CR 616) & Alloway Road (CR 603) in Woodstown

Bridges in very poor condition:

- NJ 45 over Fenwick Creek and Mannington Creek
- US 40 over Majors Run
- NJ 49 over the Salem River and Alloway Creek
- CR 581 over Alloway Creek
- New Bridge Road (CR 623) over Alloway Creek, Cooper's Branch
- Lincoln Road (local) over Oldmans Creek
- CR 642 over Oldmans Creek
- US 130 over Oldmans Creek
- Stow Neck over Stow Creek
- Avis Mill Road over Salem Creek
- Willow Grove-Deerfield Road (CR 690) over Indian Run
- Witt Road over Alloway Creek

Table AIII-1
Roadway Lane-Miles by Level of Service (LOS)

LOS	Roadway Lane-Miles	Percentage of Lane-Miles in Network
A	1939	68 %
B	416	15 %
C	336	12 %
D	86	3 %
E	20	1 %
F	42	1 %

Table AIII-2
Percentage of Roadway Lane-Miles by LOS for Each Facility Type in the Network

LOS	PERCENTAGE OF LANE-MILES BY FACILITY TYPE				
	FREEWAY	HIGHWAY	MAJOR ARTERIAL	MINOR ARTERIAL	LOCAL ROADS
A	43 %	67 %	77 %	80 %	54 %
B	27 %	16 %	10 %	13 %	10 %
C	27 %	10 %	8 %	3 %	29 %
D	2 %	3 %	3 %	4 %	7 %
E	0 %	1 %	1 %	0 %	0 %
F	1 %	3 %	1 %	0 %	0 %
TOTAL ROADWAY LANE-MILES	475	886	1359	91	28
PERCENTAGE OF TOTAL ROADWAY LANE-MILES	17 %	31 %	48 %	3 %	1 %

Table AIII-3
Percentage of Roadway Lane-Miles by LOS for Each County

LOS	PERCENTAGE OF ROADWAY MILEAGE BY COUNTY			
	ATLANTIC	CAPE MAY	CUMBERLAND	SALEM
A	67 %	65 %	75 %	68 %
B	13 %	20 %	12 %	15 %
C	15 %	9 %	5 %	13 %
D	3 %	3 %	5 %	2 %
E	1 %	1 %	1 %	1 %
F	1 %	2 %	2 %	1 %
TOTAL ROADWAY MILES	1463	491	475	410

Table AIII-4
Model Output of VMT by LOS

LOS	VMT	PERCENTAGE OF TOTAL VMT
A	405,464	39 %
B	261,021	25 %
C	261,472	25 %
D	61,076	6 %
E	14,369	1 %
F	41,184	4 %
TOTAL	1,047,586	100 %

Table AIII-5
Percentage of Model Output VMT by LOS for Each County

LOS	PERCENTAGE OF VMT BY COUNTY			
	ATLANTIC	**CAPE MAY**	**CUMBERLAND**	**SALEM**
A	36 %	37 %	53 %	38 %
B	21 %	37 %	19 %	33 %
C	34 %	14 %	9 %	22 %
D	5 %	6 %	10 %	3 %
E	1 %	1 %	2 %	2 %
F	3 %	5 %	7 %	3 %
TOTAL VMT	584,747	159,148	148,037	155,654

Table AIV-1
Atlantic County Growth Factors

MUNICIPALITY	GROWTH FACTOR 2015
Absecon	1.119
Atlantic City	1.332
Brigantine	1.257
Buena	1.282
Buena Vista	1.261
Corbin	0.987
Egg Harbor Twp.	1.560
Egg Harbor City	1.285
Estelle Manor	1.254
Folsom	1.286
Galloway	1.499
Hamilton	1.466
Hammonton	1.307
Linwood	1.229
Longport	0.885
Margate	0.867
Mullica	1.198
Northfield	1.024
Pleasantville	1.289
Port Republic	1.238
Somers Point	1.158
Ventnor	0.958
Weymouth	1.251

Table AIV-2
Cape May County Growth Factors

MUNICIPALITY	GROWTH FACTOR 2015
Avalon	1.522
Cape May City	1.229
Cape May Point	1.264
Dennis	1.459
Lower	1.433
Middle	1.479
North Wildwood	1.281
Ocean City	1.330
Sea Isle City	1.396
Stone Harbor	1.347
Upper	1.587
West Cape May	1.134
West Wildwood	1.294
Wildwood City	1.065
Wildwood Crest	1.279
Woodbine	1.108

Table AIV-3
Cumberland County Growth Factors

MUNICIPALITY	GROWTH FACTOR 2015
Bridgeton	1.239
Commercial	1.258
Deerfield	1.423
Downe	1.048
Fairfield	1.350
Greenwich	0.977
Hopewell	1.327
Lawrence	1.302
Maurice River	1.277
Millville	1.296
Shiloh	1.298
Stow Creek	1.220
Upper Deerfield	1.273
Vineland	1.296

Table AIV-4
Salem County Growth Factors

MUNICIPALITY	GROWTH FACTOR 2015
Alloway	1.104
Carneys Point	1.695
Elmer	0.949
Elsinboro	1.287
Lower Alloway	0.960
Mannington	1.132
Oldsmans	0.931
Penns Grove	0.958
Pennsville	1.232
Pilesgrove	1.412
Pittsgrove	1.422
Quinton	0.881
Salem	1.146
Upper Pittsgrove	0.854
Woodstown	1.283

Table AIV-5
1990 PM Peak HourTrip Table

Destination District

Origin District		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	Total
1	Downe	107	1	0	0	0	1	0	1	1	0	1	1	6	11	19	3	1	10	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	167
2	Middle	0	723	39	37	12	8	1	0	1	0	0	11	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	8	1	0	0	2	1	849
3	CapeMay	0	39	196	11	2	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0	0	2	0	259
4	Wildwood	0	36	12	450	10	5	0	0	0	0	0	7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3	10	3	0	0	6	1	549
5	Avalon	0	12	2	10	134	7	1	0	1	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3	1	0	0	3	0	180
6	SeaIsle	0	8	2	5	7	428	4	7	4	1	5	21	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	7	2	0	0	8	1	515
7	Margate	1	3	0	1	2	16	540	61	118	22	74	8	1	1	2	1	0	0	0	0	1	1	1	0	0	4	7	9	3	12	10	22	5	0	0	17	2	941
8	Atlantic	1	1	1	2	1	17	68	720	149	16	20	10	1	7	6	0	0	1	1	0	2	0	0	0	1	6	10	19	7	23	18	59	24	0	0	27	5	1222
9	Galloway	1	1	0	1	0	11	112	127	927	45	82	6	2	2	7	0	0	1	0	0	1	0	0	0	0	10	30	17	3	20	16	48	9	0	0	10	2	1491
10	PortReb	0	1	0	0	1	4	20	11	44	473	12	3	1	3	3	0	0	0	0	0	1	0	0	0	0	6	8	10	2	10	9	18	4	0	0	4	1	649
11	EggHarb	0	1	0	1	1	13	69	18	82	12	195	6	1	2	3	0	0	0	0	0	1	0	0	0	0	5	21	13	2	7	7	16	3	0	0	3	0	480
12	Dennis	0	11	2	8	5	22	2	5	3	1	2	209	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	3	1	0	0	1	0	281
13	EstellMa	7	1	0	1	1	1	1	1	1	1	2	2	89	10	10	0	0	3	0	0	2	0	0	0	0	4	2	2	0	1	1	2	0	0	0	0	0	146
14	Vineland	11	1	0	1	0	1	2	6	3	2	2	2	10	1465	61	8	15	24	2	2	38	3	1	3	1	44	10	8	1	1	17	0	0	0	0	3	1	1746
15	Millvill	19	0	0	1	0	1	2	5	5	3	3	3	10	61	609	8	6	23	2	1	17	1	0	2	0	13	4	6	0	0	8	0	0	0	0	0	0	814
16	Fairfiel	3	0	0	0	0	0	0	0	0	0	1	0	0	8	8	58	0	30	1	1	1	2	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	116
17	Deerfiel	1	0	0	0	0	0	0	0	0	0	0	0	1	15	6	1	19	7	0	0	2	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	54
18	Hopewell	11	0	0	1	0	1	1	1	0	0	0	0	3	24	23	30	7	754	18	5	15	7	1	3	3	3	1	1	0	0	8	0	0	0	0	1	0	923
19	StowCree	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	1	0	16	14	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	39
20	Quinton	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	4	1	75	8	30	3	2	4	0	0	0	1	0	5	0	3	0	0	1	7	148
21	Alloway	1	0	0	1	0	0	1	1	1	0	1	0	2	38	17	2	2	15	1	8	166	12	2	6	7	5	2	1	1	1	11	6	2	0	0	2	13	328
22	SalemCit	0	1	0	1	0	0	0	0	1	0	0	0	0	2	1	2	1	6	1	30	12	256	27	7	18	0	0	0	1	1	11	0	8	0	0	1	19	409
23	Pennsvil	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	3	2	27	77	4	82	0	0	0	1	0	7	0	5	0	0	1	10	223
24	Pilesgro	0	0	0	1	0	0	0	0	0	0	0	0	0	3	1	0	0	3	0	1	5	8	4	120	9	1	0	0	1	0	6	0	5	0	0	1	9	179
25	Oldmans	1	1	1	2	1	0	0	1	0	0	0	0	0	1	1	1	0	2	1	4	7	18	82	9	574	0	0	1	4	2	24	0	16	0	0	3	43	797
26	BuenaVis	1	0	0	1	0	0	3	4	10	5	5	1	4	46	14	0	1	4	0	0	5	0	1	1	1	139	11	8	0	2	2	4	1	0	0	1	0	276
27	Mullica	0	0	0	1	0	1	4	9	23	7	15	1	2	10	4	0	0	0	0	0	2	0	0	0	0	12	397	19	1	6	3	13	3	0	0	2	1	535
28	Hamilton	0	0	0	0	0	2	8	15	16	8	11	1	2	8	7	0	0	0	0	0	1	0	0	0	0	8	22	227	1	3	4	7	1	0	0	2	1	355
29	WCamden	0	3	2	7	2	3	1	5	3	1	1	1	0	1	0	0	0	0	0	0	1	2	1	1	4	0	1	1	2839	701	304	2	311	0	0	298	12	4507
30	ECamden	0	2	1	11	3	3	5	23	14	5	7	2	1	1	1	0	0	0	0	0	0	2	1	0	2	2	4	4	710	3598	364	32	362	0	0	142	6	5309
31	Glouster	0	6	2	10	1	5	1	11	5	1	3	3	2	17	8	1	0	9	0	5	10	13	8	7	28	1	3	1	302	368	3513	10	70	0	0	180	34	4636
32	NEExtern	0	24	9	33	9	24	5	92	31	9	6	11	0	0	0	0	0	0	0	0	4	0	0	0	0	4	1	5	2	28	8	16	0	0	0	4	6	329
33	NWExtern	0	4	2	10	2	7	5	16	9	5	2	3	0	0	0	0	0	0	0	3	2	8	5	5	16	1	2	2	324	372	71	0	0	0	0	214	159	1250
34	GridExt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	AddExter	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	PhilBrdg	0	11	10	34	14	37	59	53	22	3	3	7	0	2	0	0	0	1	0	1	1	2	1	1	3	2	2	3	273	125	165	4	212	0	0	0	3	1050
37	DelBrdge	0	2	2	7	3	5	1	5	1	1	0	1	0	1	0	0	0	1	0	8	14	23	12	11	54	0	0	0	10	5	38	6	158	0	0	4	4	378
	Total	166	893	283	648	209	624	916	1200	1475	623	453	327	141	1743	813	118	53	916	41	150	322	417	227	184	811	273	540	357	4490	5289	4636	298	1210	0	0	941	339	32126

All trips shown have been divided by a factor of ten

Table AIV-6
2015 PM Peak HourTrip Table

Destination District

Origin District		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	Total
1	Downe	129	1	0	0	0	1	0	1	1	0	1	1	8	14	23	4	1	13	0	0	2	1	0	0	0	2	1	0	0	0	1	0	0	0	0	0	0	202
2	Middle	0	1064	51	49	18	12	1	0	1	0	0	16	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	13	1	0	0	3	1	1235
3	CapeMay	0	51	235	14	2	2	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	3	0	0	0	3	1	315
4	Wildwood	0	46	14	519	12	6	0	0	0	0	0	9	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	2	3	10	3	0	0	8	2	639
5	Avalon	0	17	3	13	194	10	1	1	1	0	1	9	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	4	1	0	0	5	1	262
6	SeaIsle	0	11	2	7	10	573	4	8	5	2	6	32	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	9	2	0	0	13	2	691
7	Margate	1	3	0	1	2	16	515	63	126	23	83	9	1	1	2	1	0	0	0	0	1	1	1	0	0	4	8	9	3	12	10	24	5	0	0	16	2	941
8	Atlantic	1	2	1	2	1	22	79	978	192	20	27	15	1	9	7	0	0	2	1	0	2	0	0	0	1	7	11	22	7	25	20	79	30	0	0	36	8	1605
9	Galloway	1	2	0	1	0	14	122	162	1212	57	114	8	2	3	8	0	0	1	0	0	1	0	0	0	0	12	33	18	3	21	16	62	11	0	0	11	2	1897
10	PortReb	0	1	0	0	1	6	23	13	57	612	17	3	1	4	4	0	0	0	0	0	1	0	0	0	0	8	10	13	2	12	10	24	6	0	0	6	1	831
11	EggHarb	0	1	0	1	1	18	79	25	125	17	248	9	2	2	3	0	0	0	0	0	1	0	0	0	0	7	31	18	2	8	9	22	4	0	0	4	0	639
12	Dennis	0	16	3	10	8	29	3	7	5	1	3	300	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	5	2	0	0	2	0	403
13	EstellMa	8	1	0	1	1	2	2	1	1	1	2	2	111	13	12	0	1	4	0	0	2	0	0	0	0	5	2	2	0	1	2	2	0	0	0	0	0	180
14	Vineland	14	1	0	1	0	1	2	7	4	2	2	3	12	1901	80	10	21	32	2	2	49	4	1	4	1	57	13	10	1	1	19	0	0	0	0	4	2	2263
15	Millvill	24	0	0	1	0	2	2	6	6	4	3	4	13	78	792	11	9	30	2	1	22	1	1	2	1	17	6	8	1	1	10	0	0	0	0	0	1	1055
16	Fairfiel	3	0	0	0	0	0	0	0	0	0	1	0	0	10	10	75	0	38	1	1	2	2	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	148
17	Deerfiel	1	0	0	0	0	0	0	0	0	0	0	0	1	21	8	1	28	10	0	0	3	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	76
18	Hopewell	13	0	0	1	0	1	1	1	0	0	0	0	3	31	29	39	10	944	23	6	19	9	1	4	3	4	1	1	0	0	9	0	0	0	0	1	1	1152
19	StowCree	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	1	0	20	18	1	1	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	49
20	Quinton	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	4	1	66	7	29	3	2	5	0	0	0	1	0	5	0	3	0	0	1	6	137
21	Alloway	1	0	0	1	0	0	1	1	1	0	1	0	2	48	21	2	3	18	1	8	182	14	2	6	8	5	3	2	2	1	12	9	2	0	0	2	14	372
22	SalemCit	0	1	0	1	0	0	0	0	1	0	0	0	0	3	1	2	1	7	2	27	13	301	30	9	24	0	0	0	1	1	12	0	9	0	0	1	23	471
23	Pennsvil	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	3	2	30	91	5	106	0	0	0	1	0	7	0	5	0	0	1	13	270
24	Pilesgro	0	0	0	1	0	0	0	0	0	0	0	0	0	4	2	0	0	4	0	2	6	10	5	160	13	1	0	0	1	0	7	0	6	0	0	2	12	236
25	Oldmans	1	1	1	2	1	1	0	1	1	0	1	1	0	1	1	1	0	3	1	5	8	22	104	13	877	0	0	1	6	5	33	0	22	0	0	5	65	1183
26	BuenaVis	1	0	0	1	0	0	4	4	12	7	7	1	5	60	17	0	1	5	0	0	6	1	1	1	1	179	15	10	0	2	2	6	2	0	0	1	0	349
27	Mullica	0	0	0	1	0	1	5	9	25	8	16	1	2	13	6	0	0	0	0	0	2	0	0	0	0	15	519	23	1	6	3	18	3	0	0	2	1	681
28	Hamilton	0	0	0	0	0	2	9	17	19	11	13	1	2	10	10	1	0	0	0	0	1	0	0	0	0	10	27	346	1	3	4	10	1	0	0	2	1	500
29	WCamden	0	3	2	7	2	3	1	5	3	1	1	1	0	1	0	0	0	0	0	0	1	2	1	1	4	0	1	1	2751	737	329	2	395	0	0	368	12	4633
30	ECamden	0	3	1	14	3	4	6	32	21	7	11	2	1	1	1	0	0	0	0	0	0	2	1	0	2	3	5	5	803	5067	501	43	496	0	0	200	8	7240
31	Glouster	0	7	2	13	2	6	2	15	7	2	4	3	2	20	8	1	0	10	0	7	12	16	10	8	37	1	4	2	365	505	4783	13	97	0	0	251	36	6250
32	NEExtern	0	35	11	37	12	31	4	123	41	12	9	18	0	0	0	0	0	0	0	0	6	0	0	0	0	6	2	7	2	38	10	24	0	0	0	6	8	442
33	NWExtern	0	6	3	13	3	11	6	21	12	6	4	4	0	0	0	0	0	0	0	3	3	8	5	6	21	1	2	2	399	502	105	0	0	0	0	317	222	1684
34	GridExt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	AddExter	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	PhilBrdg	0	17	13	44	22	55	58	77	30	3	4	12	0	3	0	0	0	1	0	1	1	2	1	1	4	2	2	3	308	169	249	6	316	0	0	0	5	1410
37	DelBrdge	0	3	3	8	4	7	1	7	1	1	0	2	0	1	0	0	0	1	0	7	16	29	16	16	86	0	0	0	10	6	41	8	220	0	0	6	5	507
	Total	202	1294	346	763	301	833	930	1585	1910	798	580	469	173	2255	1051	151	75	1148	52	142	370	488	274	242	1197	346	695	504	4671	7127	6215	395	1640	0	0	1276	450	40946

All trips shown have been divided by a factor of ten

1996 Baseline Projects

- There are no baseline projects.

1996 TIP Projects

- There are no physical TIP projects; however, an off-highway traffic signal project in Atlantic City was credited with emissions reductions for the 1996 TIP, as well as the 2005 Baseline and 2005 TIP.

2005 Baseline Projects

- US Route 30 (MP 50.7 -- 52.0): Widen lanes, center barrier
- US Route 40/322 (MP 59.8 -- 61.7): Widen lanes, center turn lanes, and traffic signals
- US Route 9: Traffic signal coordination along the corridor within Atlantic County
- US Route 30: Traffic signal coordination along the corridor within Atlantic County
- US Route 40: Traffic signal coordination along the corridor within Atlantic County
- Atlantic City Expressway: Electronic toll and traffic management

2005 TIP Projects

- NJ Route 47 (MP 3.2 -- 4.1): Center turn lane

Atlantic County

	Location	Low Improvement	Low Cost Estimate (1996 $)	High Improvement	High Cost Estimate (1996 $)
A1	Atlantic City Expressway and the Garden State Parkway Interchange	Geometric Improvements	$1,980,000	Lane Addition on the GSP	$4,002,000
A2	Atlantic City Expressway Corridor (ACE, US 30, and US 40/322) leading into Atlantic City	Managed Corridor concepts thru ATMS, and Modification of Beach Thorofare Bridge to carry an Additional Lane	$7,592,000	Addition of a Lane (approx. 5.16 miles)	$57,572,000
A3	US 9 Corridor from Laurel Drive to Route 30	Signal Rework and Intersection Geometrics	$3,780,000	Lane Addition in Each Direction (approx. 10 miles)	$35,777,000
A4	Delilah Road at US 9	Signal Rework and Intersection Geometrics	$1,305,000	Signal Rework, Geometrics, Addition of a Lane	$1,305,000
A5	US 30 at US 9	Signal Rework and Intersection Geometrics	$990,000	Signal Rework and Intersection Geometrics	$990,000
A6	US40/322 and Delilah Rd. Intersection	Signal Rework and Intersection Geometrics	$1,147,000	Signal Rework and Intersection Geometrics	$1,147,000
A7	US 30 and Mill Road (CR 651)	Signal Rework and Intersection Geometrics	$630,000	Signal Rework and Intersection Geometrics	$630,000
A8	US 40/322 and Shore Road (CR 585) Intersection	Signal Rework and Intersection Geometrics	$630,000	Signal Rework and Intersection Geometrics	$630,000
A9	Delilah Road and Shore Road (CR 585) Intersection	Signal Rework and Intersection Geometrics	$1,980,000	Signal Rework, Geometrics, Addition of a Lane	$2,925,000
A10	Junction of US 30, NJ 157 and Shore Road (CR 585)	Signal Rework and Intersection Geometrics	$630,000	Signal Rework and Geometrics	$630,000
A11	US 40, at NJ 50 and Somers Point-Mays Landing Road (CR 559)/Old River Rd. --Sugar Hill Circle	Signal Rework and Intersection Geometrics	$4,117,000	Signal Rework, Geometrics, Addition of a Lane	$6,637,000
A12	US 40, CR 559 (Weymouth Rd.)	Signal Rework and Intersection Geometrics	$2,790,000	Signal Rework, Intersection Geometrics, Addition of a Lane	$3,780,000
A13	US 40 and Lincoln Ave.(CR 655) corridor in Buena	Signal Rework and Intersection Geometrics	$1,800,000	Signal Rework and Intersection Geometrics	$2,137,000
A14	US 30 and CR 575 (Pomona/Wrangleborough Rd.)	Signal Rework and Intersection Geometrics	$1,305,000	Signal Rework and Intersection Geometrics	$1,305,000
A15	NJ 54 corridor between US 322 and US 30	Signal Rework and Intersection Geometrics	$1,260,000	Signal Rework and Intersection Geometrics	$2,205,000
A16	Ocean Heights Ave., Bethel Road at US 9	Signal Rework and Intersection Geometrics	$630,000	Signal Rework and Intersection Geometrics	$630,000
A17	US 40/322 and Tilton Rd.(CR 563) and Washington Ave. (CR 608) --Cardiff Circle	Signal Rework and Intersection Geometrics	$1,485,000	Signal Rework and Intersection Geometrics	$1,485,000
A18	NJ 50 corridor between ACE and Moss Mill Rd.	Signal Rework and Intersection Geometrics	$1,260,000	Signal Rework and Intersection Geometrics	$2,205,000
A19	US 40 and CR 552 (Bears Head Rd.)	Signal Rework and Intersection Geometrics	$472,000	Signal Rework and Intersection Geometrics	$472,000
A20	Weymouth-Malaga Rd.(CR 690) in Buena	Signal Rework and Intersection Geometrics	$630,000	Signal Rework and Intersection Geometrics	$630,000
A21	Junction of Tilton Rd. (CR 563), CR 585 (Shore Road) and Mill Road (CR 662)	Signal Rework and Intersection Geometrics	$630,000	Signal Rework, Geometrics, Addition of a Lane	$1,102,000
A22	CR 585 (Shore Rd.) and NJ 152	Signal Rework and Intersection Geometrics	$1,305,000	Signal Rework and Intersection Geometrics	$1,305,000
TOTAL SJTPO COST ESTIMATE			$28,774,000		$67,926,000

Not included in SJTPO costs

Cape May County

	Location	Low Improvement	Low Cost Estimate (1996 $)	High Improvement	High Cost Estimate (1996 $)
CM1	US 9/GSP corridor between NJ 147 and GSP Interchange 12 S: leading into Cape May City	Signal Rework and Intersection Geometrics	$1,260,000	Signal Rework and Intersection Geometrics	$1,260,000
CM2	NJ 47 and US 9	Signal Rework and Intersection Geometrics	$990,000	Signal Rework and Intersection Geometrics	$1,305,000
CM3	Individual Congested Locations: Sections of NJ 47, Sea Isle Blvd., NJ 50, and Roosevelt Blvd.	Signal Rework and Intersection Geometrics	$1,260,000	Signal Rework and Intersection Geometrics	$2,235,000
CM4	NJ 47 and Bay Shore Rd. (CR 603)	Signal Rework and Intersection Geometrics	$630,000	Signal Rework and Intersection Geometrics	$630,000
CM5	NJ 47 and Pacific Ave.	Signal Rework and Intersection Geometrics	$1,485,000	Signal Rework, Geometrics, Addition of a Lane	$5,849,000
CM6	Route 9 and Court House-South Dennis Rd. (CR 657)	Signal Rework and Intersection Geometrics	$630,000	Signal Rework and Intersection Geometrics	$967,000
CM7	NJ 49 and NJ 50 intersection	Signal Rework and Intersection Geometrics	$472,000	Signal Rework and Intersection Geometrics	$472,000
CM8	Inbound Roads to Ocean City	Signal Rework and Intersection Geometrics	$2,430,000	Signal Rework, Geometrics, Addition of a Lane	$3,780,000
CM9	NJ 50 and Dennisville-Petersburg Rd. (CR 610)	Signal Rework and Intersection Geometrics	$967,000	Signal Rework and Intersection Geometrics	$967,000
TOTAL SJTPO COST ESTIMATE			$10,124,000		$17,466,000

Cumberland County

	Location	Low Improvement	Low Cost Estimate (1996 $)	High Improvement	High Cost Estimate (1996 $)
C1	NJ 47 Corridor between Almond Rd. and NJ 49 in Millville	Signal Rework and Intersection Geometrics	$3,960,000	Addition of a Lane (approx. 5.97 miles)	$21,969,000
C2	NJ 49 west of NJ 47	Signal Rework and Intersection Geometrics	$1,485,000	Signal Rework, Intersection Geometrics, Addition of a Lane	$2,517,000
C3	NJ 49 and NJ 77	Signal Rework and Intersection Geometrics	$1,642,000	Signal Rework, Intersection Geometrics, Addition of a Lane	$3,721,000
C4	NJ 77 around Bridgeton	Signal Rework and Intersection Geometrics	$1,485,000	Signal Rework, Intersection Geometrics, Addition of a Lane	$5,656,000
C5	NJ 47, CR 347, CR 681	Signal Rework and Intersection Geometrics	$1,125,000	Signal Rework, Intersection Geometrics, Addition of a Lane	$3,172,000
C6	NJ 47 (Delsea Drive) and Landis Ave.(CR 622) in Vineland	Signal Rework and Intersection Geometrics	$630,000	Signal Rework, Intersection Geometrics, Addition of a Lane	$3,060,000
TOTAL SJTPO COST ESTIMATE			$10,326,000		$40,095,000

Salem County

	Location	Low Improvement	Low Cost Estimate (1996 $)	High Improvement	High Cost Estimate (1996 $)
S1	NJ 45 and US 40 in Woodstown	Signal Rework and Intersection Geometrics	$2,970,000	Signal Rework, Intersection Geometrics, Addition of a Lane	$3,352,000
S2	NJ 49 and NJ 45 in Salem City	Signal Rework and Intersection Geometrics	$2,137,000	Signal Rework, Intersection Geometrics, Addition of a Lane	$8,301,000
S3	US 40 west of CR 553	Signal Rework and Intersection Geometrics	$315,000	Signal Rework and Intersection Geometrics	$315,000
S4	US 40 interchanges with NJ 49/US 130	Interchange/ Intersection Geometrics	$4,589,000		$4,589,000
TOTAL SJTPO COST ESTIMATE			$10,011,000		$16,558,000

LIST OF TECHNICAL MEMORANDUM

TECHNICAL MEMORANDUM	PREPARED BY
Baseline Conditions	Parsons Brinckerhoff-FG, Inc.
Goal Setting	Lehr & Associates, Inc.
Future Conditions	Parsons Brinckerhoff-FG, Inc.
Public Participation	Lehr & Associates, Inc.
Financing Plan	Parsons Brinckerhoff-FG, Inc.
Transit Assessment	Lehr & Associates, Inc.
Passenger Intermodal Needs	Lehr & Associates, Inc.
Freight Needs	Lehr & Associates, Inc.
Bicycle and Pedestrian Element	Lehr & Associates, Inc.
Identification of Future Transportation Investments, Strategies & Actions	Parsons Brinckerhoff-FG, Inc.
Policy Framework	Lehr & Associates, Inc.
Conformity	Parsons Brinckerhoff-FG, Inc.

1996 VOC* Emission Budgets and Estimated Emissions (tons per day)

Nonattainment Area	Nonattainment Area Budget	DVRPC(New Jersey portion) Emissions	SJTPO (Cumberland/ Salem Counties) Emissions	SJTPO (Atlantic/Cape May Counties) Emissions	Total Emissions
Philadelphia	57	52	5		57
Atlantic City	13			11	11
TOTAL	**70**				**68**

* VOCs are the type of pollutants referred to as HCs throughout the Regional Transportation Plan.