Chapter 5: Sussex County Ten Year Vision

The work presented in the previous chapters have led to the development of a strategy that will serve as a 'vision' for transportation services in Sussex County for the coming ten-year period. The study team has worked closely with county staff and study oversight committee members to develop a set of principles and strategies that will serve as the basis for this vision. These strategies and principles are presented in this chapter in order to provide insight and guidance into the more specific concepts that will be presented in subsequent chapters.

Vision Elements

This section provides an overview of the Vision elements that will be utilized to develop the overall strategy for transportation growth in and around Sussex County over the coming ten year period. The basis for the plan involves elements that seek to use methods other than roadway expansion to address congestion issues. Roadway expansion should be considered as a final step to addressing issues rather than an initial consideration. In order to continue to strengthen the transportation network utilized by Sussex County residents, considerations will need to be made in four key categories, which are as follows:

- *Smart Growth*
- *Transportation Demand Management*
- *Transit Options*
- *Traffic Operations & Roadway Management*

These strategies will be introduced and described separately below. The purpose of these four strategies is to address transportation needs in the coming years for Sussex County and approach them in an intelligently planned manner. Roadway expansion, as has been noted, should be a last measure for addressing transportation needs. To the extent possible, the County should attempt to reduce the number of trips that are being made, which is a cornerstone of the New Jersey Congestion Management System. This system seeks to use alternative methods to address congestion by:

- Eliminating trips
- Shifting trips to public transit
- Shifting trips to multi-occupant vehicles, and
- Improving highway operations prior to considering expansion of general capacity on roadways.

Through the four elements of the strategy, and with Smart Growth as a basis, Sussex County can strive to make significant gains in the strength of their transportation network.

One major issue that will need to be considered prior to any implementation is the fact that many of the transportation issues faced by Sussex County residents are not located within the jurisdiction of Sussex County. Some of the congestion 'hot spots' that were identified by survey respondents and that create travel issues for Sussex County residents are outside of the county

boundaries. Sussex County will need to work closely with the state and neighboring counties to develop plans to address congestion and to provide solutions at these out-of-county locations.

Each plan element is presented below as a general concept. These concepts will be tied to specific locations and programs in Sussex County in the next chapter.

Smart Growth

Smart Growth will be the cornerstone strategy for the plan. Many of the concepts that will be presented in the other three Vision elements directly relate to Smart Growth. This encompassing term encourages communities to address development that is rooted in sensible land use, transportation, and economic analysis. This section will present Smart Growth and Transit Oriented Development (TOD).

In developing transit oriented development policies (TOD) that support the State of New Jersey's overall smart growth strategy, Sussex County should strive to achieve the overall goal set forth in the State of New Jersey's Development and Redevelopment Plan (March, 2001), which is to encourage development, redevelopment and economic growth in locations that are well situated with respect to present or anticipated public services or facilities and to discourage development where it may impair or destroy natural resources or environmental qualities, and to reduce sprawl.

Specific TOD policies and initiatives should be developed utilizing the guidelines set forth in the State's Plan, which defines categories of planning areas and centers in each County, as well as criteria for future development and redevelopment.

In Sussex County, the SDRP indicates that land falls in five of the Planning Area categories:

- Planning Area 2, Suburban Planning Area
- Planning Area 4 – Rural Planning Area
- Planning Area 4B – Rural/Environmentally Sensitive Area
- Planning Area 5 – Environmentally Sensitive Planning Area; and
- Parks and Natural Areas

The small portion of Planning Area 2 is found in Stanhope Borough. The PA 4 and 4B lie generally in the central portion of the County while PA 5 and Parks generally are located in the western and eastern regions of the County.

Using the definitions and development criteria developed as part of the State's plan for the above areas and centers, Sussex County should use the following guidelines when developing specific TOD policies and initiatives:

- Rural Planning Areas (PA4) and Rural Environmentally Sensitive Areas (PA4B
    - Maintain large contiguous areas of farmland, and other lands

  - Revitalize cities and towns; accommodate growth in Centers
  - Promote a viable agricultural industry
  - Protect the character of existing stable communities
  - Confine programmed sewers and public water services to Centers.

- Environmentally Sensitive Planning Area (PA5) –
  - Protect environmental resources through the protection of large contiguous areas of land
  - Accommodate growth in Centers
  - Protect the character of existing stable communities
  - Confine programmed sewers and public water services to Centers; and revitalize cities and towns

- Parks and Natural Areas
  - Provide for the protection of critical natural resources;
  - Provide public recreational and educational opportunities;
  - Ensure the maintenance of associated facilities; and
  - Ensure the connection of these areas into a system of open lands.

- Regional Centers and Towns - Centers (including both regional and towns) are the State Plan's preferred vehicle for accommodating growth. Center-based development patterns are superior to sprawl for the following reasons:

  - Save land
  - Reduce number of vehicular trips
  - Reduce vehicle miles traveled (VMT)
  - Reduce commute times
  - Reduce commuting costs
  - Reduce postal distribution costs
  - Reduce energy consumption
  - Reduce water and gas consumption
  - Support transit
  - Support pedestrians and bicycles
  - Improve air quality
  - Improve water quality
  - Reduce infrastructure costs
  - Enhance sense of place
  - Enhance civic engagement
  - Enhance community

This plan will primarily address regional centers and towns in order to focus on transportation and transit issues within the county. Planning for existing centers should incorporate the following:

- Centers in the Fringe, Rural and Environmentally Sensitive Planning Areas have Center Boundaries delineating the geographic focus of development and redevelopment activities, infrastructure and other investments.
- Centers should contain a sufficient amount of land to support their projected growth both in the short run and to the Year 2020. This should include an appropriate multiple of land area to serve growth projections, new or expanded capital facilities, and affordable housing allocations, without constraining the market or allowing monopoly land pricing.
- In the aggregate, Centers should be planned to accommodate regional growth projections, providing a reasonable multiple of land. However, within the region, specific Centers may not necessarily require growth. Municipalities or counties with these places should identify sufficient amounts of available and developable land within other Centers to serve the market area while accommodating projected levels of growth.
- Locate affordable housing within Center Boundaries in Fringe, Rural and Environmentally Sensitive Planning Areas.
- Consider land banking to ensure that growth within a Center beyond the planning horizon is not unnecessarily constrained. This land may be within or just outside of the Center Boundary.
- Design neighborhoods with a distinct identity as the fundamental building block of Centers, with a central focus (shopping, transit service, school or green) and an edge marking transitions. Neighborhoods are characterized by short walking distances from edge to center.
    - Design streets and blocks to:
    - maximize connectivity;
    - establish a comfortable pedestrian environment;
    - function as high-quality public spaces as well as means of circulation;
    - balance the needs of different transportation modes, with an emphasis on pedestrian and bicycles;
    - serve the needs of everyday users (pedestrians, cars), rather than of occasional users (fire trucks, snow plows);
    - minimize cartway width and impervious coverage, while maximizing energy-efficient building sites;
    - maximize the use of traffic calming and traditional traffic control devices (roundabouts, T-intersections);
    - maximize the sense of enclosure, using continuity of building walls and appropriate building height-to-street-width ratios to reinforce street space in ways appropriate to the block and the neighborhood; and
    - reflect adjacent land-use conditions as well as the volume of traffic which the street is expected to carry.
        - Encourage quality streetscape treatments that adequately reflect public commitment to the community and its built environment, with trees and other appropriate plant material, statuary, fountains and other features that animate the public and semi-public realm, along with appropriate street furniture.

- Encourage neighborhoods that integrate both large and small buildings and facilities. To achieve a seamless integration of larger facilities into the surrounding neighborhood:
  - consider complementary uses to soften transitions from residential to nonresidential;
  - design large facilities to resemble a series of smaller buildings;
  - calm vehicular access and egress to avoid disruption to pedestrian circulation and to neighborhood activities;
  - develop and enforce performance standards to maintain desirable quality of life features;
  - provide incentives, where appropriate, for multi-story buildings with smaller footprints, instead of single-story buildings with vast floorplates;
  - schedule activities to minimize disruptions to the surrounding neighborhood; and
  - maintain a constant dialogue between the neighborhood and the large user and require public involvement in every step of decision making.

In addition to planning for existing centers, any new Regional Centers that are developed should be located in the state's major corridors and designed to organize growth that otherwise would sprawl throughout the corridor. They should be compact and contain a mix of residential, commercial and office uses at an intensity that will make a variety of public transportation options feasible as the Centers are built out. New Regional Centers should have a core of commercial activity, and the boundaries of the Centers should be well defined by open space or significant natural features. Also, the development of any new Town should emulate, to the extent possible, the most cherished features of the traditional New Jersey towns, that is, the comfortable, human scale of blocks, streets and open spaces; easy walking access to civic and community activities; and a collection of neighborhoods offering diversity of housing choice.

- The wider view of Smart Growth presented above is a general guiding concept for the county provides great opportunity for the strengthening of the county's transportation network. Development will affect the future needs of the transportation network and intelligent growth can fuel ridership for current and emerging transit services and lead the way in controlling congestion. Based on the information gathered as part of the demographic analysis in the study process, Sussex County will continue to have a large share of persons employed outside of the county who travel in single occupant vehicles. As people move to Sussex County to enjoy the quality of life, the County should be prepared for the increased stress that this will put on county services. There is already significant growth in population and development in the county which has not been monitored for Smart Growth principles as it has developed.

- Retail development is another issue for the county. The need for goods and services has increased with the population. Retail centers are emerging in Sussex County as well as in adjacent counties. As the population continues to grow, this can be expected to be a major part of the Sussex County landscape.

The implementation of Smart Growth techniques will assist the County to address these transportation issues and maintain the strength of the transportation network.

- Transit Oriented Development (TOD) is a category of smart growth and refers to residential and commercial areas designed to maximize access by transit and nonmotorized transportation, and with other features to encourage transit ridership. A TOD neighborhood has a center with a rail or bus station, surrounded by relatively high-density development, with progressively lower-density spreading outwards. For example, the neighborhood center may have transit stations and a few multi-story commercial and residential buildings, surrounded by several blocks of townhouses and small-lot single-family residential and larger-lot single-family housing farther away. TOD neighborhoods typically have a diameter of one-quarter to one-half mile (stations spaced half to 1 mile apart), which represents pedestrian scale distances. It includes these design features:

- Compact, mixed-use development

  - Site and design transit station facilities to maximize development opportunities
  - Establish a compact mix of land uses within a defined station area
  - Concentrate commercial retail near station
  - Establish an employment base close to the station facility
  - Promote residential development opportunities near transit
  - Encourage infill and/or redevelopment of undeveloped land
  - Encourage mix of uses both within buildings and adjacent sites
  - Encourage pedestrian-oriented land uses in station area
  - Locate public buildings within the station area
  - Establish adequate park space in station area
  - Consider the importance of land uses outside station area
  - Protect and preserve important natural features and historic character

- Pedestrian-Friendly Land Use Design

  - Identify and enhance pedestrian streets within the station area
  - Design street right-of-way for pedestrian travel
  - Establish continuous and uninterrupted walking routes
  - Ensure safe, convenient, and frequent street crossings
  - Design intersections that balance pedestrian and auto movements
  - Locate building entrances close to public walkways
  - Orient commercial establishments based on their different needs
  - Design parking areas for pedestrian movement
  - Establish a coordinated system of bikeways
  - Provide attractive, safe, and convenient transit stops
  - Provide pedestrian amenities within the station areas

- Parking and Access Management

    - Carefully control the total supply of parking
    - Use parking charges to control demand for parking
    - Keep the size of surface lots small
    - Design and plan surface lots to convert to other uses over time
    - Encourage the development of parking structures
    - Encourage the development on street-side edges of parking structures
    - Carefully plan and design park and ride lots
    - Locate parking lots behind buildings or in interior of a block
    - Design parking lots and garages with pedestrians in mind
    - Provide adequate bicycle parking
    - Encourage joint use of parking spaces
    - Support the creation of public community parking lots
    - Provide on-street parking on pedestrian streets
    - Ensure convenient access for transit vehicles

TOD generally requires about 7 residential units per acre in residential areas and 25 employees per acre in commercial centers, and about twice that for premium quality transit, such as rail service (Ewing, 1999). These densities create adequate transit ridership to justify frequent service, and help create active street life and commercial activities, such as grocery stores and coffee shops, within convenient walking distance of homes and worksites. However, other factors are also important beside simple density. Transit ridership is also affected by factors such as employment density and clustering, demographic mix (students, seniors and lower-income people tend to be heavy transit users), transit pricing and rider subsidies, parking pricing and road tolls, the quality of transit service, the effectiveness of transit marketing, walk ability, and street design. A particular density may be inadequate to support transit service by itself, but becomes adequate if implemented with a variety of transit encouragement and smart growth strategies. The assumption that transit cannot be effective except in large cities with high population densities can be a self-fulfilling prophecy, because it results in transport and land use decisions that favor automobile travel over transit.

In the event that Andover Township and Hardyston Township are inclined and able to capitalize on the potential for TOD adjacent to Rail Stations on the Lackawanna Cut-Off & NYS & W Railroads, multi modal facilities would be reestablished in the County. These, once widely available, were destroyed in the late 1960's and early 1970's through the elimination of passenger rail service to the County.

TOD can do more than simply shift some car trips to transit: it also increases accessibility and transportation options through land use clustering and mix, and nonmotorized transportation improvements. This reduces the distance required for car trips, allows a greater portion of trips to be made by walking and cycling, and allows some households to reduce their car ownership, which together can result in large reductions in vehicle travel. This reduces total transportation costs and helps create a more livable community, in addition to supporting TDM objectives.

TOD can often increase Property Values in an area, (Kockelman, 1997; Lewis and Fred Laurence Williams, 1999; Diaz, 1999; Weinberger, 2001; RICS, 2002). As a result, such projects can often be funded through "value capture" strategies, in which the costs of improvements are

paid through the additional tax revenue or a special local improvement district (LID) tax assessment in the affected area (Smith, 2001).

Transportation Demand Management

One major step in addressing transportation issues will be Transportation Demand Management (TDM) techniques. TDM, also known as mobility management, is a set of strategies aimed at maximizing the use of alternative travelmodes to reduce congestion. TDM techniques are addressed on the State of New Jersey's Smart Growth website (www.smartgrowthgateway.com). TDM measures are considered an important element of Smart Growth efforts based on their ability to influence commuting patterns. In this respect, TDM should be considered key to addressing Sussex County needs based on principles set forth for the entire state, which may affect future funding.

The overall goal of TDM is to manage the commuter trip in an effort to reduce Single Occupant Vehicles (SOVs) on roadways by promoting rideshare techniques and other measures. While there tends to be a call for new and faster modes of transportation to address congestion and commuting issues, TDM seeks to use proven methods to address transportation issues. In Sussex County, based on the demographics and commuting patterns of residents, TDM measures will be of critical importance to the overall strategy for the coming ten-year period. It is highly unlikely that reasonably available efforts to provide roadway expansion or to introduce additional mass transit will be sufficient to reduce congestion levels on major roads in and around Sussex County. TDM techniques can complement those larger initiatives, and can be implemented much more quickly and at lower cost than roadway expansion or additional mass transit services.

Currently, a Transportation Management Association (TMA) addresses TDM issues for Sussex County. TransOptions, located in Morris County, is the TMA for Sussex, Morris, Passaic, and Warren Counties. Based on the results of the origin-destination survey that was performed as part of this study effort, which demonstrates a large percentage of Sussex residents are employed outside of the county, TransOptions should be well suited to maximize TDM programs for Sussex County. Travel patterns and employment sites that cause congestion for Sussex County residents tend to be located in Morris and Passaic County.

Work destinations tend to be dispersed throughout these counties, indicating that express bus and transit options would have difficulty serving them efficiently and in a manner that will attract new transit users. A trip that includes excessive travel times and multiple transfers will not attract commuters in the numbers that are needed to reduce the congestion faced by Sussex County commuters. Express services are designed to best serve urban core areas with high job concentrations. New Jersey Transit currently provides this service for Sussex County directly and through contract. There is definitely a role for express bus service in the Vision and strategies for Sussex County, but TDM measures may be a more successful and short-term strategy element.

Sussex County should work closely with TransOptions to increase support for many programs that benefit both commuting employees and their employers. There are many well-tested

programs currently being utilized by TransOptions that should be promoted heavily to Sussex County based commuters in the near term. These include:

- *Ridesharing & Vanpooling* – Carpool and vanpool programs are inexpensive to introduce, and are an integral part of TDM efforts. There are financial benefits to these programs that can be introduced to Sussex County residents and their employers to promote the program. In a rural county such as Sussex, where home locations are fairly spread out, these programs may be more applicable than shuttle or express bus services that either require vehicles to pick people up at their homes or serve a central destination in a rural area.
- *Emergency Ride Home Programs for Transit & Rideshare Users* – Emergency ride home programs for commuters and rideshare users encourage these activities by offering service for family or other emergencies for commuters. These programs act as an insurance policy for transit use or ridersharing.
- *Park & Ride Lot Ride Information, Vanpooling, & Transit Options* – Increased Park & Ride options for Sussex County commuters will be important to continue promoting TDM measures. The county should consider space expansion where necessary and view Park & Ride opportunities at proposed rail, intermodal, and Transit Oriented Development centers.
- *Telecommuting* – Telecommuting options for employees allow trips to be removed from roadways. While telecommuting has not proved overwhelmingly successful among employers, it is an option to be considered.
- *Work Shift Distribution* – The distribution of work shifts, particularly among larger employers, can reduce overall congestion at peak hours by modifying the travel habits of commuters.
- *Commuter Financial Incentive Programs* – The benefit to the automobile owner for participating in TDM programs can be extensive based on reduced vehicle usage, increased safety, reduced congestion, and financial incentives associated with these programs. The State of New Jersey and the federal government both offer tax incentives for TDM programs which should be promoted among Sussex County based employees and their employers.
- *Mobility Management* – Mobility management programs that assist commuters to change their travel habits will be an important factor of TDM success. Sussex County residents should be aware of TransOptions ability to link them to ridesharing and public transit options. By acting as a mobility manager, TransOptions can add to the success of TDM measures.

These TDM techniques will help to reduce the vehicle trips made by Sussex County residents, by shifting trips from the single occupant vehicle to multi-occupant vehicle or transit mode. By shifting a relatively small percentage of SOV riders, the congestion that is currently experienced by Sussex County residents exiting the county could be reduced. A 1992 Brookings Institute study that is highlighted on the state's Smart Growth website indicates that a 10% shift of SOV users switching to a 2-person carpool would likely reduce peak period travel by 3.4%. This would have a positive impact on the congestion hot spots faced by Sussex County residents.

TDM measures will require cooperation from employers since this will be the major focus of TDM techniques. TDM measures are often more successful when promoted on the business end. These programs also provide benefit to employers for the promotion of ridersharing and other commuting modes. Transportation is becoming a larger concern of employers as congestion worsens. TransOptions will need to work closely with employers to encourage these programs among Sussex County based residents. The benefits of the programs must be adequately communicated in order to get "buy-in" on these programs. There are tax advantages for employers that implement transportation programs for their employees. These include:

- Transit Pass or Van Pool Reimbursement
- Pre-Tax Payroll Savings
- Fare Price Sharing

TDM measures have been available for many years, and are considered an important part of the overall plan Vision. There are successful TDM programs that have been implemented locally and nationally that can serve as a catalyst for the increase promotion of TDM measures. In addition, TDM is an important part of New Jersey Smart Growth, which will provide increased focus on these measures as Sussex County continues to develop. Communities will need to address and promote TDM as funding becomes more reliant on Smart Growth measures. The short-term and low-cost nature of these programs make them suitable for an area such as Sussex County.

Transit Options

Transit options are an interesting challenge for a county such as Sussex that combines rural and suburban areas with small town and regional centers. The travel patterns that were identified in the origin-destination survey indicate disparate travel patterns that are less favorable to transit. However, this survey was done to address the needs of current roadway commuters. Current transit options and information that have been gathered for non-auto modes stress the current and future importance of transit as part of the overall strategy. The strengthening of New Jersey Transit rail, bus, and contract bus service, as well as the strengthening of Sussex County Transit Services will benefit the County as it continues to grow and develop.

These transportation options will be presented below as inter-county and intra-county transportation. These are two distinct issues that are faced by Sussex County. There are a large and growing share of Sussex County residents who are employed outside of the county, which is evidenced in both the O-D survey and the web based survey that were performed as part of the study process. These respondents have noted congestion during peak hours while entering or exiting the county as the major issue facing commuters. A combination of TDM techniques and transit options will be required to address these market segments. There are also a growing number of employment opportunities within the county, particularly in segments that benefit the Sussex County resident including the service and retail economies. This is expected to grow as Smart Growth efforts advance and as the population of the county increases. A TransOptions survey shows that Sussex County Transit Services (SCTS) is doing an excellent job of transporting these workers. However, limited schedules and decreased funding over the years

have reduced the ability of SCTS to continually respond to growing transit needs, with a particular focus on work trips.

Inter-County Transit Options

Inter-County Transit Options are provided directly by New Jersey Transit and under contract to express bus operators. Rail service is an important facet of the overall transportation network. Rail service is also a target of Smart Growth and Transit Oriented Development as an economic vehicle to drive intelligent development patterns. There are currently no active commuter rail stations in Sussex County but there are planning efforts to implement service within the county. Even without this service in the county, rail options in surrounding counties will be important. The following elements of rail service will be important to consider in the ten-year planning period.

- *Rail Schedules* – Ensuring that service is available at a level of convenience attractive to Sussex County commuters will be important as efforts to move people into mass transit modes are applied
- *Rail Station Parking* – Adequate parking at current and future rail stations will be important as the majority of people will drive to the stations. Rail shuttles, in areas like Sussex County, tend to be sparsely utilized based on widely spread origins and the multiple of transfers that must be made during the entire work trip.
- *Transit Oriented Development* – TOD will be an important element in the establishment of new rail stations, but should also be considered at existing stations. The establishment of housing, retail, and commercial development within close proximity of rail stations will enhance the likelihood of success of that particular station and the rail line as a whole.
- *Multi-Modal Opportunities* – Multi-modal opportunities, such as Park & Ride and express bus services at rail stations provides a mode choice for commuters for whom rail trips are not convenient. Within the concept of Smart Growth and Transit Oriented Development, multi-modal opportunities can add to the overall benefit of a new or existing rail station.
- *Access to Out-of-County Rail Stations* – Besides the future rail service that is planned within the County, access to the more intense rail service on NJ Transit's Morris & Essex Line is an important component of Sussex County's transportation package. Nearby out-of-county rail stations are located in Dover, Mount Arlington (a future station), Netcong, and Mount Olive, and these are reachable from the Route 206, Route 607 and 616 (Landing), and Route 15 corridors. Attention needs to be given to enhancing and encouraging access to these stations both by auto and through enhanced park-ride and shuttle bus services.

In addition to strengthening inter-county rail, current express bus services should be identified for strengthening. Some but not all of the largest origin-destination pairs that were found in the survey are presently served by express bus, but further services are possible and would be effective. The current services are not experiencing a large rider population. Strengthening

these services with increased frequency and the implementation of Guaranteed Ride Home programs should be favored over the introduction of new services that may create long travel times for Sussex County residents. The programs should also be marketed through employers as a part of TDM measures to offer options to commuters that reside in Sussex County.

Intra-County Transit Options

The on-board survey conducted by TransOptions during the period of this study highlighted the importance of the Sussex County Transit Services in providing intra-county services. These services, which are considered as a social service by many, are actually an important employment connection for many low-income residents of the county. The potential increase in service and retail economy jobs will further highlight the need for these services. About 40% of respondents indicated that they use SCTS to travel to their place of work. Many of these people consider themselves transit dependent and rely on these services for access to employment and other purposes.

The SCTS services have been long neglected by the county as an integral part of the overall transportation network. Multiple studies over the past 10 years have pointed out the importance of SCTS services to the county's economy and as a critical link to jobs and other services. The New Jersey Statewide County and Community Transportation Planning Services Study (Multisystems 1999) identified work trip and other mobility needs for Sussex County, concurrent with previous planning efforts. These studies recommended expansion of some SCTS services that can assist in connecting low-income residents with work sites. In addition, county developments such as Mountain Creek will offer additional employment locations for low-income residents of the county.

Despite these identified needs, the SCTS budget has been reduced and the agency has been forced to juggle funding and services, which has resulted in inconsistent service for its patrons. The strengthening of SCTS services in planning, operations, capital, and customer service areas will provide the county with the necessary intra-county connections necessary to sustain its TOD and Smart Growth goals. Consideration should also be given to providing inter-county connections to employment and retail sites in adjoining counties, as the county borders are experiencing growth.

Traffic Operations & Roadway Management

The final strategy in the Vision for the Sussex County Mobility plan is roadway and access management. The techniques involved in roadway and access management should be considered as companions to the other vision strategies and as a part of Smart Growth and TOD techniques. Heavy use of the Single Occupant Vehicle (SOV), particularly during peak periods, has been a major contributing factor to the growth in congestion. This has been identified in all analytical work associated with this study, and all four strategies in the plan Vision are geared towards reducing SOV travel. Roadway expansion, however, has been designated as a final step that will not be addressed in this Vision plan. It is becoming increasingly evident that roadway expansion

tends to lead to higher volumes, decreased system safety, and increasing economic impact on both the commuter and those responsible for funding roadway repair and operations.

Sussex County has a unique issue in the fact that, in addition to some highways within the County, many roadways outside of the county boundaries represent congestion 'hot spots' that are faced by Sussex County based commuters. Commuters who are employed in Morris and Passaic Counties have identified this as a major issue when commuting to larger metropolitan areas. State of New Jersey figures (Texas Transportation Institute) have identified dramatic increases in congested travel, fuel utilization, and congestion costs for northeastern New Jersey. These dramatic increases, combined with sprawl that has driven Sussex County residency rates, have combined to push this issue into the forefront of Sussex County transportation system issues. These out-of-county problems will require Sussex County to work closely with the state and neighboring jurisdictions to address congestion mitigation efforts.

The county also has congestion and roadway issues within its boundaries. The increase in county population has resulted in an increased need for goods and services that has placed stress on the intra-county roadway network. There are safety and management issues throughout the county which are well-known to county officials and should be addressed in the coming years. This will likely be part of Smart Growth and TOD efforts throughout the county.

The following traffic operations and roadway management techniques have been identified as viable options for the county in the coming years:

- *Intersection Improvements* – There are numerous intersection locations within the county that require safety improvements. These will be presented in the following chapter.
- *Traffic Calming* – Traffic calming measures will be a focus of TOD and Smart Growth design. Traffic calming techniques are designed to improve overall vehicle and pedestrian safety within the roadway network.
- *Signalization Improvements* – Signalization improvements, which generally consist of the installation and development of computerized signalization, will improve traffic flow in Sussex County on roadways that have been identified as congestion problems.
- *Queue Bypass (for non-SOV & bus)* – Queue bypass techniques which offer preference to non-SOV and transit travel can act as a natural promotion of TDM measures. These measures generally apply to higher density roadways that lie on major corridors outside of the county boundaries.
- *Park & Ride Development* – Park & Ride has been identified in other strategies as an important facet of the transportation network to encourage ridesharing and express bus services.

These roadway techniques are intended to address congested locations in and around Sussex County and address system safety and flow issues. When addressed in tandem with the three previous strategies, traffic operations and roadway management will assist in addressing the strength and viability of the transportation network as a whole in Sussex County and in locations that affect Sussex County residents.