Orange County Transportation Council

Long Range Transportation Plan

2011-2040

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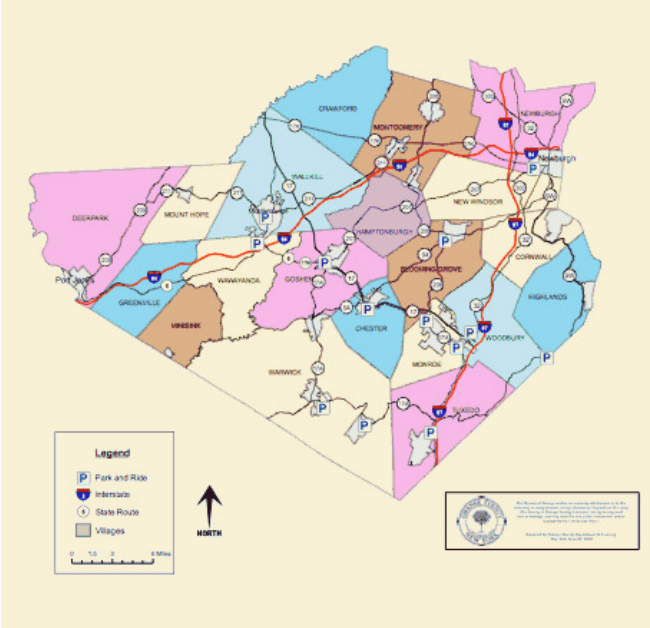
Chapter 1 – Introduction

In recent years Orange County has been one of the fastest growing counties in New York State. Increasing residential development, population growth, commercial development, and all the cars and trucks that come along with those things have contributed to making Orange County a visibly different place than it was not very long ago. Of late there has been substantial slowing in the pace of development with the recession and other factors. Orange County is in an important phase of land development and evolution of its regional identity. A combination of features -- notably varied and attractive landscapes, ready accessibility to metropolitan New York and a four State region, and high quality, safe communities -- have made the County a leader in growth and development in recent decades. Recently, the pace of new home and retail center construction seemed to have never been quicker. Job growth, retail sales, and real estate values were strong. Several large regional projects -- highway and commuter rail improvements, medical facilities and distribution centers, new housing -- all symbolized opportunity and prosperity.



Yet growth has real costs. Several of our historic cities and villages still struggle for a role in that prosperity, and six of these historic centers had losses of population in the last decade. Relative affordability stimulated significant in-migration, but diminished housing affordability. Economic realities continue to force more and more farm families to consider the option of selling their farms. A growing number of people complain about traffic congestion, the rising cost of providing education and other public services.

Orange County received its charter as one of the original counties of New York State in 1687. Today, the County has 20 towns, 19 villages and 3 cities. Transportation is deeply rooted in its history, beginning with Henry Hudson's exploration of the river bearing his name and his anchorage off Cornwall Landing on a September night in 1609. A progression of transportation systems has defined the county's settlement pattern and, from an overall perspective, the framework for its continued evolution.

Located at the geographic center of the Boston to Washington corridor of 40 million people and the northern fringe of the 20-million New York-northern New Jersey-Long Island, NY-NJ-CT-PA Consolidated Metropolitan Statistical Area (CMSA), Orange County has both regional and metropolitan transportation connections.

Transportation is defined as the physical movement of people and goods from one place to another. Dispersed origins and destinations for freight and the desire of people to reside away from where they work and trade has fostered the expanded use of motor vehicles. This evolution in demand has resulted in the continuous call to expand capacity on the highway network. It has both contributed to and has been fostered by dispersed land use patterns in residential and non-residential development, commonly

characterized as sprawl. One view is that today's settlement patterns are simply the response to a fundamental human desire for personal space, realized only because freedom of movement is provided by the individual vehicle.

Regardless of the basic causes, the dispersion of activity and development, from central cities to suburbs, has been apparent in Orange County. Population increased from 221,647 in 1970, to 307,647 in 1990, and to 372,813 in 2010.

The nature of activity in the County has also defined the character of its development. It is not simply a "bedroom suburb" of the New York City Metropolitan area; Orange County has its own employment base. Residents fill about 65.2 percent of these jobs. Much of the employment, housing and shopping is dispersed, making transit and other modes of travel difficult and therefore reinforcing dependence on personal vehicles for work trips. There is on average one vehicle available for every licensed driver in Orange County. This is typical of most suburban counties in New York State. For now, the primary exception to reliance on personal vehicles is for commuting trips to New York City, Westchester County and New Jersey. These trips are made on a variety of modes.

As shown in this figure, New York City is about 50 miles from the Village of Goshen (the County seat and approximate geographic center of the county). Proximity to the largest metropolitan center on the East Coast, as well as higher wage jobs and higher housing prices in areas in the more immediate New York metropolitan area, have fostered growth in Orange County's population.

Increasingly, Orange County is being integrated into the larger New York metropolitan region. The continued expansion of regional transportation systems, coupled with the relative affordability of housing and the attractive, safe living environment, have encouraged the in-migration of a population that often works in Westchester and Rockland Counties, New York City, and northern New Jersey. These same transportation systems, notably three interstate highways, a passenger rail line, and an international airport poised for growth, have also helped to attract businesses into the County seeking buildable, affordable sites with ready access to the largest market in the United States.

Orange County is indeed at a crossroads, figuratively (land use / economy) as well as literally. It has what few counties and regions, and many states, don't have, three intersecting interstate highways: Interstate 84, Interstate 87 (the NYS Thruway) and future Interstate 86 (NYS 17). These highways give Orange County unparalleled highway access to the Northeast, the Midwest and the South. A byproduct of the County's interstate road access is a clustering of big box distribution and retail uses near the interstate highways. This clustering provides important economic benefits as well as challenges regarding truck access and safety, and a reminder of the need to maintain economic diversity. Three regional shopping center areas have been built at the strategic locations near the intersections of these interstate arterials:

- Woodbury Common Premium Outlet Center (1985; expanded twice; 800,000 sq.ft.) at the intersection of I-87 and NYS Route 17
- Galleria at Crystal Run (1992; 1,100,000 sq. ft.) at the intersection of I-84 and NYS 17.
- Newburgh Mall

The areas around each of these large commercial developments have seen additional commercial development including smaller shopping centers and "big box" retail stores. Another large regional shopping mall ('Marketplace Mall') proposed near the intersection of I-87 and I-84 adjacent to the

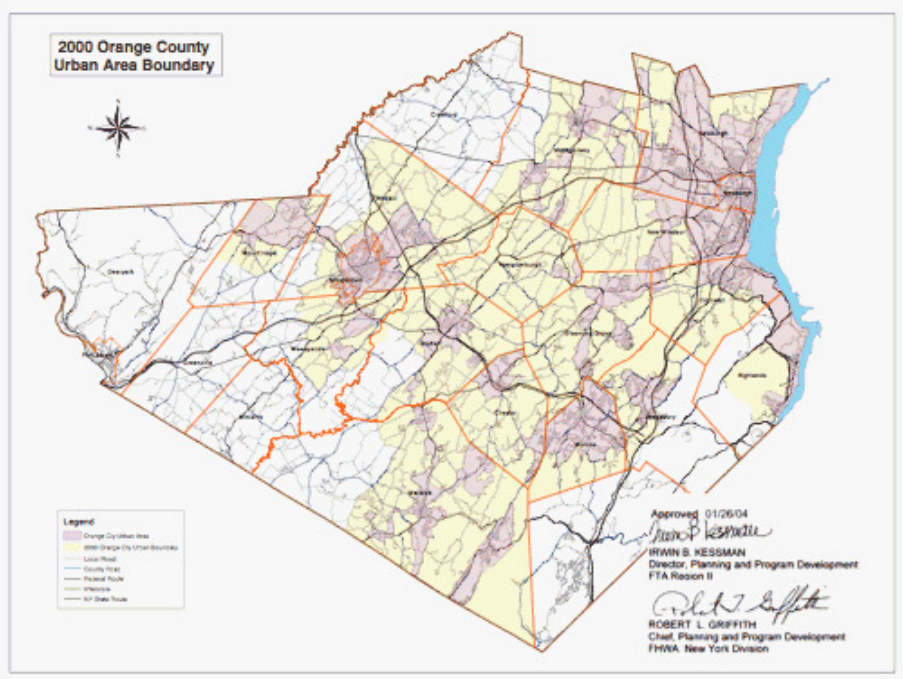
Newburgh Mall received development approval but has yet to begin construction due to the state of the economy. These commercial developments have altered shopping patterns, challenging efforts to reinvigorate the commercial centers of traditional downtowns and weakening older suburban shopping centers.

Many towns have experienced significant residential and commercial development, with development often encroaching on the surrounding country-side. New housing in the county was being occupied as quickly as it could be built, though the residential construction and real estate markets have slumped. The pace of redevelopment of older housing has slowed. Redevelopment efforts in the cities and older villages in Orange County are ongoing with notable success in Cornwall, Warwick, Goshen, Montgomery, and Washingtonville among others. The City of Newburgh, which recently updated its master plan, hosted a week-long planning charette focused on waterfront redevelopment, added to a surge for overall city revitalization; however that waterfront development has not occurred

Fortunately, past development patterns in the county mostly extended historic patterns focusing on areas served by central water and sewer systems. This left significant undeveloped areas, including prime agricultural lands, undisturbed forests and other environmentally sensitive areas along with significant rolling, rural landscapes. This pattern may serve the County well in the future.

Chapter 2 -- OCTC & the Long Range Transportation Plan

Urbanized areas, as defined by the Census Bureau, with a population of over 50,000 are currently required to form or be part of a Metropolitan Planning Organization (MPO). The U.S. Census Bureau defines an Urbanized Area as a central place(s) and adjacent territory with a general population density of at least 1,000 people per square mile of land area that together have a minimum residential population of at least 50,000 people.



The Orange County Transportation Council (OCTC) is the MPO for Orange County, NY. It was formed in July 1982 with the name Newburgh Orange County Transportation Council, but was shortened to OCTC when the 2000 Census determined that the Middletown urban area exceeded a population of 50,000 (instead of adding a city name, the existing city name was dropped).

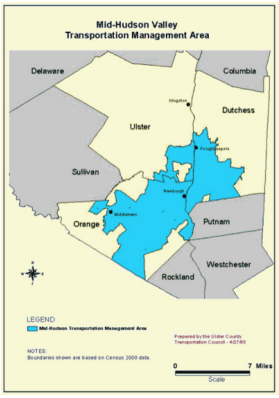
Like all other MPOs in the country, OCTC is a multi-agency consortium which is tasked with certain responsibilities in accordance with Federal transportation legislation. The most recent legislation took effect in August 2005; the bill was titled the Safe, Accountable, Flexible, Efficient Transportation Equity Act of 2005 or SAFETEA. This legislation was effectuated by the US Department of Transportation through Federal regulations. Development of a new five year extension is overdue.

Like previous Federal transportation legislation, SAFETEA requires that MPOs produce three major products: a Long Range Transportation Plan; a Transportation Improvement Program (TIP) that sets out a schedule of capital projects to be funded and built/undertaken; and a Unified Planning Work Program (UPWP). Given that the consortium is not an entity which can enter into agreements, each MPO has a host agency; here it is Orange County.

While there are numerous urbanized locations in Orange County, the transportation council together with the State and Federal governments developed a generalized urbanized area boundary which includes all the urban areas as of the 2000 Census plus those areas which were reasonably expected to become urbanized over the subsequent twenty year period. Nevertheless, the OCTC planning area comprises all of Orange County. Update of this generalized urban boundary follows each decennial census.

Mid-Hudson Valley Transportation Management Area

Due to the nature of Census urban area designations, the urbanized areas on either side of the Hudson River in Orange and Dutchess Counties are connected. This area is known as the Poughkeepsie-Newburgh Urbanized Area. With the 2000 Census, this multi-county urbanized area was found to have grown to encompass parts of Ulster County, across the Hudson from the City of Poughkeepsie in Dutchess County. The population of the Poughkeepsie-Newburgh urbanized area was 351,000 in 2000 according to the Census Bureau. A population of 200,000 is the threshold the Federal government has set for establishing a Transportation Management Area (TMA). The Mid-Hudson TMA is a joint activity of the Orange, Dutchess, and Ulster County Transportation Councils. There is no separate governing entity for the TMA; the three MPOs coordinate actions, primarily through their staff.



TMA activities include the sub-allocation of certain Federal transit funds, improved coordination of inter-county transit operations, and undertaking a Congestion Management Process which was initiated in 2005. The FHWA and FTA completed the first TMA certification review in 2005 and another in 2010. The findings of the certifications can be fairly summarized as being generally positive with some recommendations for improvement. These certification reports are posted on the OCTC website (www.orangecountygov.com/planning/octc).

OCTC Structure

Two documents set forth the makeup of OCTC and how it operates: (1) An agreement between New York State and host agency Orange County and (2) the OCTC Operating Procedures which were last revised in November 2007. The Council meets as necessary during the year. A Technical Committee comprised of staff from the various OCTC members meets monthly. The Executive Committee (voting body or 'policy board' as termed by other MPOs) of the Council is comprised of the following members and voting representatives:

1. Permanent Voting Members:
   - Orange County Executive, Permanent Chairperson
   - NYSDOT Region 8 Director, Permanent Secretary
   - Metropolitan Transportation Authority Executive Director
   - NYS Thruway Authority Executive Director
   - City of Middletown Mayor
   - City of Newburgh City Manager
   - City of Port Jervis Mayor

2. Two Town Supervisors from the following areas on a 2-year rotating basis:

- Newburgh Urbanized Area (Cornwall, Montgomery, New Windsor, Newburgh)
- Southern Area (Blooming Grove, Chester, Highlands, Monroe, Tuxedo, Warwick, Woodbury)
- Western Gateway Area (Crawford, Deerpark, Goshen, Greenville, Hamptonburgh, Minisink, Mt. Hope, Wallkill, Wawayanda)

3. Two Mayors from any two of Orange County's Villages for a 2-year rotating term. [Though co-located Villages and Towns cannot be voting members at the same time.]

Non-Voting Members of the Council are:

- All other Towns and Villages
- NYS Bridge Authority Director
- Federal Transit Administration Regional Administrator
- Federal Highway Administration Division Administrator
- Port Authority of New York and New Jersey

The Technical Committee is responsible for assisting the Council and staff regarding proposed programs and projects to be addressed in the Long-range Transportation Plan, the UPWP and the TIP, and for making recommendations to the Council regarding policy issues. The Committee is made up of technical staff from each of OCTC's members.

The OCTC Staff functions are performed by the Orange County Planning Department and the NYSDOT Regional Office in Poughkeepsie. The OCTC County Planning Staff assumes primary responsibility for the development and administration of the UPWP and the coordination of data collection activities. While all members participate in TIP development, NYSDOT Regional Office staff play a key role in development and are responsible for TIP maintenance. Long-range transportation planning, including the maintenance/update of the Long Range Transportation Plan, is the joint responsibility of both agencies in coordination with the Transportation Council.

OCTC has a public participation plan which is part of the OCTC Operating Procedures. This plan is integrated with the voting representation structure for the Council. In addition to general county level participation opportunities (i.e. single events or meetings for the entire planning area), the participation plan outlines three geographic sub-regions for outreach. The towns in the county are represented on the MPO for voting purposes based on these same sub-regions (two town votes per sub-region). In completing this plan update, OCTC will conduct sub-regional public meetings in these areas, in addition to planning meetings of the Executive and Technical Committees. Materials are also posted at the OCTC website.

OCTC staff and member agencies routinely use visualization techniques in their planning efforts and public participation activities. These include standard techniques such as graphs, charts, photographs and maps. Newer techniques include software presentation tools, video, and static photo simulations. Software travel simulations using VISSIM, Synchro and others are also valuable for enabling the display of visual, animated simulations of current and alternative, potential future traffic and roadway configuration scenarios.
OCTC is a member of the New York State Association of MPOs (NYSAMPO). Through collaboration and joint work activities, all MPOs in New York are able to enhance their transportation planning efforts. NYSMPO activities are supported directly with FHWA and FTA planning funding which is matched by New York State. In addition to monthly staff director meetings, NYSAMPO has formed staff working

groups to address common issues and annually undertakes shared cost initiatives (SCI's) to examine specific topics from which all MPOs in New York will benefit. The New York State Department of Transportation participates in the selection of SCI projects and customarily provides half of the funding for such initiatives. The UPWP provides for the participation of OCTC members and staff in NYSAMPO activities which further its overall transportation planning efforts and capacity. Staff participate in monthly MPO Director's meetings, participate in the various staff level working groups as necessary, assist and participate with the conduct of SCI's as necessary and able, and otherwise collaborate with other NY MPOs and NYSDOT through this avenue. More information is available at the NYSAMPO website (www.nysmpos.org).

Long Range Transportation Planning Process

Transportation provides the linkages among the places in which we live, work and play. The Orange County Transportation Council provides a forum for ensuring that transportation planning and program decisions address the needs of the County's residents and visitors. The overall goal of the planning process is to provide safe, balanced and efficient transportation in Orange County as well as complementary transportation connections to the rest of the world. Guidance for how the transportation planning process is to be carried out and what, at a minimum, is to be examined is provided in Federal legislation. This legislation includes eight planning factors which are to be considered in State and Metropolitan transportation planning programs and projects. The OCTC Long Range Transportation Plan was last updated in 2007, and must be updated every four years.

The 1995 Long Range Transportation Plan ("2020 Vision Plan") considered a number of questions related to transportation and patterns of development in Orange County. That plan was updated in 1998 to provide new information where it was available and to continue to address those questions related to the interaction between transportation and land development patterns in the County. The 1998 update formed a framework for identifying studies and projects to be undertaken. The 2003 plan update reaffirmed the previous plans and was entitled "Vision 2025". The 2007 update of the OCTC Long Range Transportation Plan built on the foundation of earlier transportation plans and generally reaffirmed the previous plan policies and recommendations. It updated information and fiscal outlooks based on budget assumptions at the time. In addition to revised organization, the 2007 plan update also differed in the following ways:

- Presented a single future development (not three) based on the County Comprehensive Plan
- Updated to reflect new Federal surface transportation legislation (SAFETEA)
- Plan horizon year pushed from 2025 to 2035
- Recognition of partnership with Dutchess and Ulster Counties through the TMA including the implementation of a Congestion Management Process
- Goals and objectives – a distinct chapter with recommendations added by topic
- Eight planning factors instead of seven (security emphasized by being made its own factor; separated from safety)

As with the previous plans, the 2007 plan update acknowledged the significant and substantial interrelationship between transportation systems and the land uses and activities which they connect. It also acknowledged the planning of the multiple entities and agencies in and serving Orange County. These include the agency plans and funding outlooks of the major transportation agencies which utilize Federal funding as well as the planning which is supported by Federal funding (through the Unified Planning

Work Program or UPWP). The UPWP efforts are coordinated by the OCTC host agency staff at the Orange County Planning Department. The foundation for that planning is Orange County's Comprehensive Planning program and its priority growth area strategies. Major transportation agency planning is discussed in part within the chapters describing the various components of the transportation system. UPWP planning and related activities are discussed in Chapter 11.

This 2011 update of the OCTC Long Range Transportation Plan has relied on the document structure created in 2007. It most respects this is essentially a minor update, with the planning effort working primarily to update the information in the document, while extending the planning horizon to 2040 and developing new air quality conformity analyses. At the same time, however, due to the fiscal and economic problems in the state and nation, the program planning of its member agencies and related factors, this plan has been revised to acknowledge the increased fiscal constraints on transportation funding. The reduced levels of funding and acknowledgement that maintenance of the present transportation system infrastructure and services is outpacing that funding, there is only a single system expansion project explicitly noted in the plan and which was included as one of the four non-exempt projects in the accompanying air quality conformity analysis. That project (the Schutt Road Extension between the Galleria and Orange Plaza) is currently on the TIP and in design. The other three non-exempt projects are transportation demand management related programs, not physical infrastructure projects.

Chapter 3 – Population, Housing, & Travel Characteristics

Population

As of April 1, 2010, Orange County's population of 372,813 ranked it as the 12th most populous county of the 62 counties in New York. When compared to neighboring counties in the Hudson Valley Region, the estimated average annual growth rate of 0.92% since the 2000 Census continues to place Orange County in the forefront of growth. Although rates of population growth may fluctuate, it is anticipated that Orange County's growth will continue to outpace that of its neighbors.

Regional Population Growth, 2000-2010

County	Census 2000	Census 2010	% Change
Orange	341,367	372,813	9.21%
Dutchess	280,150	297,488	6.18%
Rockland	286,753	311,687	8.69%
Ulster	177,749	182,493	2.67%
Putnam	95,745	99,710	4.14%
Sullivan	73,966	77,547	4.84%

Historic census data reveals Orange County experienced the largest rates of growth from 1950-1970, when the average annual increase was 2.1%. From 1960-2010, Orange County's average annual population increase was 2.06%, far exceeding both the State (0.31%) and Nation (1.44%).

In 1940, 45% of the County's residents were located in its cities, and only about 38% of the resident population located in the towns outside the villages. From 1940 to 1950 population shifted away from the cities and by 1970 56% of the County's population resided in its towns. During this time, the village share of the population remained fairly stable at 18%. In 2006, two new villages were created in the County, the Villages of South Blooming Grove and Woodbury. Due in part to the new villages, the 2010 Decennial Census shows that while the majority of the County's population, 56%, resides in the towns outside the villages, and the city population has remained steady at about 18%, the villages' share of the population has increased to approximately 26%.

From 2000 to 2010, the Village of Kiryas Joel, which was established in 1977, grew 53.56%, leading the County in growth. Although the County saw a population increase of 9.2% during this time period, one city, nine towns and six villages exceeded this growth rate. From 2000 to 2010, the average growth rate of the cities was 4.14%, with the city of Newburgh being the most populous in 2010, with 28,866 residents and the city of Middletown having the highest growth rate, at 10.63%.

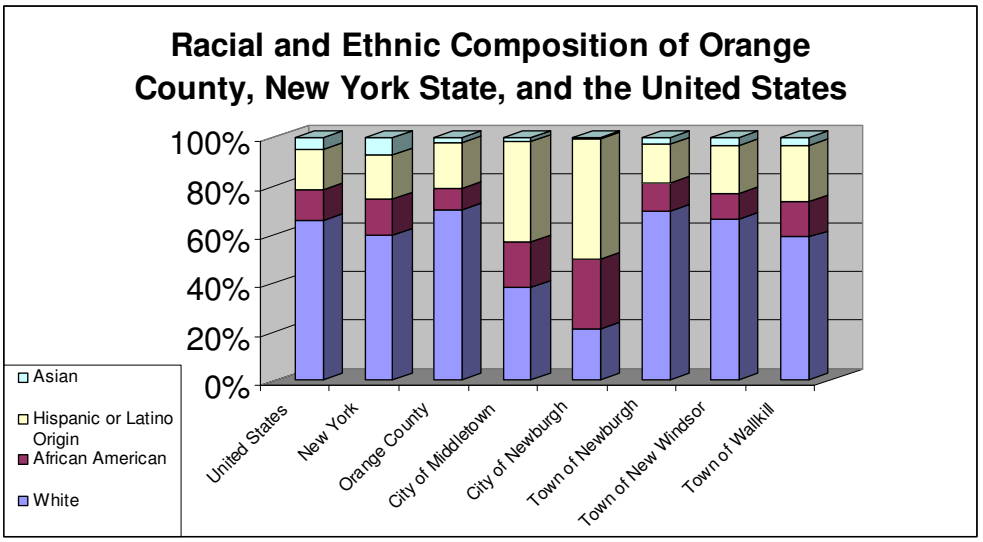
Based upon Census 2010 data, Orange County, comprised of 811.7 square miles, had an average population density of about 460 persons per square mile. The cities of Newburgh and Middletown and the Village of Kiryas Joel have the highest population densities.

When incorporated places in New York are ranked according to their 2010 population, six communities in Orange County placed among the top 100 in New York State. The Town of Monroe ranks the highest at position 48, with an estimated population of 39,912, while the Town of New Windsor with an estimated population of 25,244 placed 97th.

In 2009, the Census Bureau estimated the median age of Orange County to be 36.4, among the youngest counties in the region. It parallels the national median age of 36.8, while slightly younger than the State's median age of 38.1. The County has 'aged' 6 years since 1980, when the median age was 30.2. Like the nation, it is expected to continue to slowly age for some time. Census data and proprietary data sources indicate the trend in age distribution for approximately the next twenty-five years to be a slow gradual decline in those aged 45-54, with an increase in those aged 65 and over. The County's estimated population in 2009 aged 65 and over was 10.4%; by 2020, this number is expected to grow to 13.4% of the County population.

Race and Ethnicity

In the New York metropolitan region, ethnic diversity varies inversely with proximity to New York City. Orange is less diverse than its southern neighbors, but more diverse than its neighbors to the north. This inverse correlation is also evident in regard to immigration; approximately 11% of Orange County residents are foreign-born, compared to over 20% of residents of Rockland County to the south, and 7% of residents of Ulster County to the north.



Census figures show Orange is racially and ethnically diverse. Although changes in methodologies have affected racial comparisons, the trends occurring within the County regarding racial composition mirrors those changes which are occurring on both the National and State levels. Orange County residents choosing to report a single race in the 2010 Census show the County's population as 77% white, 10% African-American, 2.4% Asian, 0.46% Native American and Alaska Native, 0.03% Native Hawaiian and Pacific Islander, and 6.6% "other", with 3.1% of residents reporting two or more races. Hispanic or Latino, an ethnic category that may include all categories of race, was estimated to be 18%.

The increase in the Hispanic/Latino population is consistent with the growth of this segment in neighboring counties such as Westchester and Rockland, and follows the national trend. The Hispanic or Latino population of Orange County has increased 69.1% since the 2000 Census, followed by a 68.4% increase in Asian residents and a 22.8% increase in African American residents. The white non-Hispanic or Latino population saw a decline of 4.1%.

According to the 2010 Census redistricting data, approximately 40% of both the African-American population and the Latino population in the County reside in the County's three cities. Census 2010 data indicated that 67% of the County's African American population and 61% of its Hispanic/Latino

population resided in the cities of Newburgh and Middletown and the Towns of Newburgh, New Windsor and Wallkill. The Towns of Newburgh, New Windsor, and Wallkill also contain approximately 30% of the Asian population.

Housing

There were approximately 137,000 housing units in Orange County according to the 2010 Census, of which 8.1% were vacant. The ratio of owner-occupied to renter-occupied units has risen over the last ten years from about 2 to 1 to about 2.5 to 1. Of the owner-occupied units, 44.1% had two vehicles and 28.6% had three vehicles or more, according to the 2009 American Community Survey 1-year data. In 1980, 42% of Orange County's 93,274 units of housing were designated as 'rural', that is, they were located outside the census designated urbanized areas. By 2000, only 24% of the housing units were classified as being in rural areas. Regionally, in 2000, both Sullivan and Ulster Counties continued to have more than 50% of their housing stock in the rural designation, while Rockland County is the most urban (with .9% of its housing in rural classified areas).

Income

According to the 2005-2009 American Community Survey 5-year estimate, the median income of households in Orange County was approximately $69,255. The median household income for New York State in the same timeframe was about $55,233. Nationally, the median household income was approximately $51,425. Among the Hudson Valley counties, the Orange and Dutchess County median household incomes were in the middle, lower than Rockland and Putnam Counties, yet slightly more affluent than either Sullivan or Ulster. The Town of Chester, the Town of Hamptonburgh, the Town and Village of Woodbury, and the Village of Tuxedo Park were the only communities in Orange County where the median household income exceeded $100,000. Although the median income in the majority of municipalities exceeded the County's median household income, there were a number in which this was not the case. Among these were the County's three cities. For many in the County, including current residents, senior citizens, younger adults and families, and people with more modest incomes, housing in the County is increasingly unaffordable.

Income and Poverty

	Median Household Income	% of Population below federal poverty level
New York State	$51,425	13.85%
Orange County	$69,255	11.70%
City of Middletown	$52,813	18.40%
City of Newburgh	$37,391	25.48%
City of Port Jervis	$40,841	16.45%

Newburgh and Middletown have very high rates of individuals who live below the poverty level. The east end of Newburgh has been designated as a federal enterprise zone. There were 6,644 recipients of Temporary Aid for Needy Families (TANF) in Orange County in 2010. In the City of Newburgh, 50.5% of families earned less than $41,700 a year, roughly the local poverty line for a family of four in 2010, as estimated by Regional Economic and Community Action Partnership in Middletown. 23.75% of families earn below the Federal poverty line ($22,350 for a family of four in 2011). 31.9% of people in the City of Newburgh aged 16 and over are not in the workforce; 9.6% of those in the workforce are looking for work but cannot find it. 28.9% of adults over age 25 have no high school diploma. 49.54% of households in Newburgh pay at least 35% of their income in rent.

Orange County has a higher share of blue-collar workers (25.3%) than the State as a whole (17.8%), and a higher concentration of jobs in wholesale-retail trade (18.9% compared to the State's 13.3%), reflecting

the County's status as a retail hub. The County and the State have the same percentage (5.3%) of the population employed in transportation-warehousing-public utilities, reflecting some measure of success in attracting trucking and warehouse operations.

Place of Work and Commuting Patterns

As Orange County's population has increased, so too has the number of total workers. According to the 2005-2009 American Community Survey 5-year estimate, approximately 143,421 workers reside in the County. In that same timeframe, workers age 16 and over who did not work at home reported an average travel time to work of 33.3 minutes, an increase of about 6 minutes from 1990. In 1980, the average journey to work was a little more than 24 minutes. In 2003, for workers aged 16 and over and not working at home, the average travel time to work was 32.5 minutes, which when nationally ranked, positioned Orange County as 9th longest travel times, behind the number one ranked Queens County with an average time of 41.7 minutes. The average commute time nationally was 25.2 minutes.

Commuting Patterns Into and Out of Orange County
All Workers Age 16 & Over

Residence County	Commuting In Into OC	% of Total
Ulster	9,670	31%
Sullivan	5,345	17%
Dutchess	4,365	14%
Pike (PA)	2,585	8%
Rockland	1,945	6%
Westchester	1,090	4%
Sussex (NJ)	885	3%
Passaic (NJ)	550	2%
Bergen (NJ)	500	2%
Queens	440	1%
Putnam	420	1%
Bronx	315	1%
Kings	295	1%
Wayne (PA)	245	1%
Manhattan	215	1%
Morris (NJ)	210	1%
Fairfield (CT)	185	1%
Richmond	145	1%
All Others	1,863	6%
Total	31,268	100%

Workplace County	Commuting Out	% of Total
Manhattan	11,590	19%
Rockland	10,235	17%
Bergen	8,360	14%
Westchester	6,715	11%
Dutchess	6,515	11%
Bronx	3,370	5%
Ulster	2,790	5%
Sullivan	1,670	3%
Queens	1,405	2%
Kings	1,155	2%
Passaic (NJ)	1,140	2%
Pike (PA)	985	2%
Morris (NJ)	975	2%
Sussex (NJ)	845	1%
Hudson (NJ)	710	1%
Essex (NJ)	645	1%
Fairfield (CT)	385	1%
Putnam	350	1%
All Others	2,189	4%
Total	62,029	100%

Source: Census Transportation Planning Package 3-year data based on 2006-2008 ACS data
By worker (not by type of vehicle or mode)
Orange County residents working in Orange County = 116,375

Release of the 2003 American Community Survey estimates popularized the concept of the "extreme" commute, defined as traveling 90 minutes or longer to work. Among the top 10 counties whose in-household population was included in the sample, Orange County placed 2nd, with 10% of its workers aged 16 and over traveling 90 minutes or more to work in 2003. Commuting in Orange County is

facilitated by its close proximity to New York City and parts of New Jersey, all within 60 miles, and which serve as employment destinations for its residents. About 9.9% of county residents commuted to New York City

The increase in travel time to work is attributable to a combination of increased traffic congestion during peak travel times coupled with longer distance work trips by Orange County residents. For example, between the 2000 Census and the 2006-2008 American Community Survey 3-year estimate, the number of work related trips by Orange County residents to outlying counties increased by 12,563, and of these, 3,454 (27.5%) were to NYC. People are moving to Orange County from other counties in the region while maintaining their jobs in and around New York City. In part, the exceptional regional transportation system of highways and mass transit facilities allow people to live greater distances from their places of work. Overall, this results in a greater percentage of longer work trips and longer travel times.

Another factor affecting travel time is traffic congestion. As Orange County grows in population and employment, so do the overall vehicular trips for work, shopping and other purposes, thereby reducing available capacity while increasing traffic congestion and travel times.

In 1980 about 22% of Orange County residents worked outside of the County, and about 5% worked outside of New York State. The 2005-2009 American Community Survey 5-year estimates show that both of these figures had increased to 27% and 8.5% respectively. 72% of workers drove alone to work, and from 1990–2000 this category experienced an increase of 12%. Census data shows that carpooling has decreased over the years. In 1980, 22% of workers carpooled. By the 2005-2009 ACS 5-year estimates, this number had dropped to 11%.

Travel Demand and Modes of Travel

Transportation facilities and services provide links between trip origins and trip destinations. Residential locations are often referred to as "trip production locations," and commercial and employment locations are referred to as "trip attractors." The sum of "productions" and "attractions" in travel corridors determine the total number of trips. The transportation modes that are feasible to connect different locations are determined by auto availability, development density, traffic congestion, quality and frequency of transit service, and parking availability and cost.

An overall estimate of non-commercial automobile travel can be computed using the number of single-family and multi-family housing units as a base. Defining a trip as a one-way movement from an origin to a destination (e.g., home to work), it is estimated that approximately 1.30 million vehicle trips are made in Orange County per day currently (2011), and this number is estimated to rise to 1.75 million vehicle trips by the year 2040. These trips are currently made primarily by auto because, like many suburban locations in this country, Orange County's trip-generating residential land uses are spread widely across the landscape and transit service is limited. Simply knowing the number of potential origins and destinations in an area is helpful, but it is also necessary to determine the relative attractiveness between them to examine transportation needs. A number of sources have been used to obtain data about these connections.

The 2005-2009 American Community Survey 5-year estimates were used to produce the following data regarding work trips. Following the 2000 census, the "long form" (which was mailed to one-sixth of households and asked questions on a variety of topics) was eliminated, to be replaced by the American

Community Survey (ACS). ACS data is also a sample of households—3.5 million households nationally participate in the ACS—but the survey data is collected by the Census Bureau on a continual basis, allowing more current data to be provided for smaller areas. This sample information is then extrapolated by the Census Bureau to generate estimates for the county and its municipalities. Areas over 65,000 in population have data collected every year; areas between 20,000 and 65,000 have data collected every year and then averaged together over a three-year period to provide more sample data, which is then provided to the public as a three-year estimate, and for areas smaller than 20,000 down to the block group level, five-year estimates are provided. This sampling method provides relatively current data on travel demand. Although the data are limited to work trips, this is helpful because it provides information on travel patterns during periods of maximum congestion. Also, these trips are of a routine and predictable nature and so might be served by transit. The census information was used to establish the proportions of work travel between different areas.

At the County level, 2005-2009 ACS 5-year estimate data indicates that:

- 55.5 % of daily work trips have both origin and destination within the County borders
- 29.6% of daily work trips are by County residents to locations outside County borders
- 14.9% of daily work trips are made into the County by non-residents

The existing 'modal split' of work travel provides insight into the current service provided by the different modes of travel in the transportation system (e.g., automobile, rail transit, bus transit, bike, pedestrian, air) as well as the relationship between land use and travel demand. Mode splits differ between in-county work trips compared with those leaving or entering the County for work. There are also differences related to the different densities of land use (e.g., city, villages, suburbs, and rural areas). Some interesting highlights (based on Census 2000 data as the ACS data has only been calculated for municipalities in excess of 20,000):

- More than 10% of the work trips made by residents of Towns of Blooming Grove, Chester, Monroe, Tuxedo, Warwick, and Woodbury are to New York City. Those six municipalities account for 57% of all Orange County resident trips to New York City.
- For these six towns, the predominant mode varies. Single occupant vehicle trips to NYC range from 27% for Tuxedo to 48% for Blooming Grove and Woodbury.
- For County residents in the workforce taken as a whole, about 10.4% of the work trips are to New York City.
- Public transit accounted for 5.3% of county work trips. Another 10.9% carpooled.

The highest proportion of single-occupancy trips are generated by the suburban and rural areas of the county. The lowest proportion of work travel by single-occupancy vehicles is found in trips originating in Newburgh, Middletown, and Port Jervis, a reflection both of lower income levels in these areas as well as a higher density of development (it's easier to walk to work, school, and other places in a city). There is a notable contrast in mode between work trips into cities compared with trips out of the cities. For example, 80 percent of the trips into the City of Newburgh are made in drive-alone autos versus 52 percent of the trips from the city. Because much of the current employment base has been developed outside of the cities, it can be difficult for city residents to get to such job locations if they are without a car and if there is no transit service to where the jobs are. Because of this situation, 19 percent from Newburgh carpool and 3.1 percent use taxi services.

Orange County is presently utilizing Job Access / Reverse Commute (JARC) funds from the FTA. The program transports low-income individuals residing in the inner cities of Newburgh and Middletown to employment opportunities in other areas of the county. Employment opportunities are with businesses that the Orange County Workforce Investment Board has identified as demand occupations. These include Warehouse/Distribution, Health Care and Manufacturing. The project uses leased vans to transport eligible individuals to employment, primarily on 2nd and 3rd shift work schedules. This service is delivered by the Orange County Employment and Training Administration; the FTA grant is administered by the Orange County Planning Department.

The American Community Survey data provide some insight into commuter trip patterns to New York City. However, the ACS questionnaire only allows one mode to be specified for each trip; therefore the proportion of multi-modal trips is unknown (e.g., car to the train or car to the bus). This situation is illustrated particularly well in the Village of Kiryas Joel, where census data indicate that 29% of workers walk to work. In all likelihood, many of these trips probably rely upon more than one mode since there are simply not that many jobs within the village itself and because other data shows substantial public transit use from the village to other locations within and outside of Orange County. Walking to work is a more common mode of travel in more dense municipalities:

Town of Highlands	34%
Village of Kiryas Joel	29%
Town of Monroe	9%
City of Newburgh	8%
City of Port Jervis	8%
Village of Tuxedo Park	7%
City of Middletown	7%
Village of Chester	5%
Village of Warwick	5%

The American Community Survey walk-to-work data shows that these higher percentages of walking commuters are balanced by fewer walk-to-work trips in other municipalities. On average countywide, walk-to-work trips only encompass about 4% of all work-related trips. The greatest number of these trips is in the Town of Highlands where the US Military Academy at West Point is located. Of the 7,691 work trips, some 2,624 were pedestrian trips, representing 34% of all trips there.

Orange County Residents -- Journey to Work by Mode of Travel American Community Survey 2005-2009, 5-year Estimates									
Geographic Area	Total	Car, Truck, or Van		Public Transit	Bicycle	Walked	Other	Work at Home	Mean travel time (min.)
		alone	*carpool*						
Orange County	**173,414**	125,489	18,819	9,123	335	7,644	3,304	8,700	31.62
Blooming Grove town	**8,724**	6,949	1,038	329	26	34	62	286	41.61
South Blooming Grove village	1,611	1,289	138	83	0	24	50	27	40.55
Washingtonville village	2,965	2,363	334	183	26	0	0	59	44.17
Chester town	**6,860**	5,081	363	841	11	189	11	364	41.12
Chester village	1,676	1,251	163	120	11	78	0	53	38.54
Cornwall town	**6,139**	4,976	546	142	10	133	72	260	32.73
Cornwall-on-Hudson village	1,445	1,007	114	83	0	57	18	166	30.69
Crawford town	**4,468**	3,492	573	78	0	104	26	195	33.48
Deerpark town	**4,025**	3,161	472	126	0	16	0	250	34.7
Goshen town	**5,803**	4,056	924	214	8	58	30	513	29.75
Goshen village	2,285	1,678	410	62	8	37	0	90	26.12
Greenville town	**2,072**	1,693	245	68	0	38	0	28	40
Hamptonburgh town	**2,742**	1,975	235	317	0	28	0	187	34.38
Highlands town	**7,691**	2,202	202	84	83	2,624	45	2,451	9.36
Highland Falls village	1,341	1,087	65	22	6	137	4	20	21.38
Middletown city	*11,423*	7,421	1,970	725	60	754	291	202	27.7
Minisink town	**2,213**	1,661	304	24	0	65	32	127	37.21
Unionville village	255	227	17	0	0	2	0	9	*
Monroe town	**13,395**	8,345	1,470	1,628	30	1,215	212	495	35.58
Harriman village (total)	1,242	970	110	108	0	15	0	39	*
Kiryas Joel village	3,743	999	410	947	0	1,069	161	157	28.57
Monroe village	3,573	2,849	382	202	30	28	19	63	39.9
Montgomery town	**11,297**	9,073	1,026	593	0	230	114	261	31.43
Maybrook village	1,790	1,430	124	205	0	7	0	24	31.87
Montgomery village	2,350	2,032	138	36	0	83	0	61	25.8
Walden village	2,998	2,350	240	240	0	66	18	84	33.19
Mount Hope town	**3,093**	2,644	263	72	0	13	5	96	32.11
Otisville village	707	596	96	8	0	2	0	5	29.41
Newburgh city	*11,599*	6,017	2,214	534	87	932	1,458	357	21.12
Newburgh town	**15,140**	12,210	1,299	744	0	81	344	462	29.57
New Windsor town	**12,747**	10,131	1,381	811	0	123	66	235	33.14
Port Jervis city	*3,617*	2,565	472	112	7	271	44	146	31.38
Tuxedo town	**1,851**	1,233	150	179	0	28	11	250	31.91
Tuxedo Park village	345	171	40	56	0	23	2	53	*
Wallkill town	**13,541**	10,808	1,506	510	0	125	288	304	29.7
Warwick town	**16,315**	12,823	1,523	497	13	463	98	898	35.45
Florida village	1,477	1,152	166	45	5	54	22	33	29.25
Greenwood Lake village	1,835	1,483	249	16	0	45	0	42	36.47
Warwick village	3,011	2,322	248	57	8	154	0	222	30.71
Wawayanda town	**3,643**	3,184	227	64	0	29	0	139	34.7
Woodbury town	**5,016**	3,789	416	431	0	91	95	194	40.47
Woodbury village	4,738	3,557	408	404	0	91	95	183	40.52

Note: Town totals *include* Village totals

Note: "Other" category includes taxicabs and motorcycles; "Total" refers to total number of workers age 16 and over

*: No mean travel time can be provided for the Villages of Harriman, Tuxedo Park, and Unionville due to small sample size

Chapter 4 – The Roadway System

The roadway network in Orange County includes more than 2,400 centerline miles of roadway. The roads that comprise the network fall under the jurisdiction of the New York State Department of Transportation (NYSDOT), New York State Thruway Authority (NYSTA), Orange County, and its forty two municipalities. Over 67% of the roadway mileage in Orange County is under the jurisdiction of municipal governments. NYSDOT has jurisdiction for about 19% of the mileage; Orange County about 15%.

The highway system in Orange County serves travel by automobile, freight movement by truck, and transit movement by bus. Travel by individual vehicle is the dominant transportation mode in Orange County. Data collected from the 2000 Census shows that 76.6 percent of travel to work was by single occupant private vehicles, 11.1 percent was in carpools, and 4.7 percent by public transit. As compared to the 1990 census, the percentage of single occupant vehicles increased by 2.9% and transit use increased slightly by 0.3%, while the percentage carpooling decreased by 3%. For non-work trips, the overall proportion of personal travel by single occupant motor vehicle is even higher.

NOTE: The flooding from the rains of Hurricane Irene and Tropical Storm Lee in August and September 2011 caused substantial and significant damage to State, County, and Local highways and bridges. This damage is still being assessed. Emergency aid may become available through the Federal Highway Administration and/or the Federal Emergency Management Agency. This chapter has not been rewritten for these damages or the costs of repair or replacement.

Functional Classification

Functional classification establishes a hierarchy of highways. This hierarchy is a valuable planning tool because it defines roadway function.

Non-Limited Access Arterial System: The non-limited access arterial system includes four categories of roadway; a mix of two-lane and four-lane roadways with a variety of design standards. Arterials are intended to move through traffic, not local service. Having a lot of development along arterials compromises the ability to move through traffic. Adding local trips to through trips on an arterial causes congestion and safety problems. Access management practices are intended to address these issues. In many cases, past (and current) land use decisions have led (and are leading) to congested arterials with many commercial curb cuts, and sometimes even residential driveways. All of these things reduce the ability to carry through traffic smoothly. This type of congestion is common along NYS Routes 17K and 300 in the Town of Newburgh, NYS Route 211 in Wallkill and numerous other locations.

Collector System: In urban areas, the collector system may service land identified for residential purposes as well as providing connections between local streets in residential neighborhoods and the arterial system. In rural areas, the collector routes generally serve intra-county travel rather than through travel. Examples of urban collectors are West Street and Carpenter Avenue in the City of Newburgh.

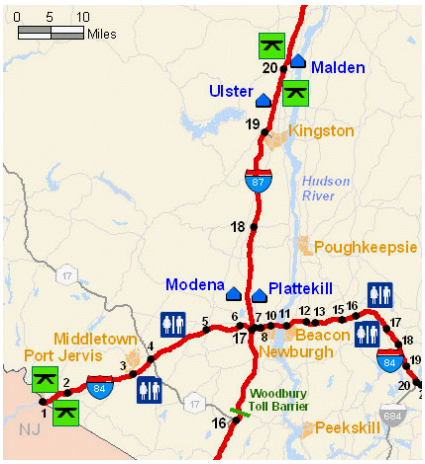
Local System: The primary function of local roads is to provide access to land. A secondary function is to serve short trips. Service for through traffic on these streets is generally inefficient. If there is heavy congestion on higher functional class facilities, local roads sometimes become short cuts. This can result in reduced safety and quality of life. This shortcutting seems to be frequent on Old Temple Hill Road in Vail's Gate, Dolsontown Road in Wawayanda and Cheechunk Road in Goshen. While it is a State highway, NYS Route 17M as it traverses villages functions more as a collector and even a local road. Traffic volumes are increasing on 17M, perhaps as a result of construction presently being done on Route 17 (future I-86). As Route 17/I-86 becomes more heavily-traveled with the potential for more frequent back-ups, Route 17M may take on increased importance as an alternate route, serving shorter, more local trips previously made on Route 17.

All roadways on the Federal Aid System need to be included in the OCTC Long Range Transportation Plan. The Federal Aid System is, by definition, all roadways which are eligible for Federal Aid. This typically includes all roadways in urban areas, except those classified as local, and all roadways in rural areas except those classified as minor collector or local. The Federal Aid System classification accounts for 646 miles of highway in the County, or about 27 percent of the total mileage. These highways are the higher volume highways and carry the vast majority of the annual vehicle miles of travel in Orange County. All publicly owned bridges on public roads are eligible for Federal Aid.

The following table shows the road mileage by functional class in Orange County.

		City		Village		Town		County		NYS DOT		Other		ALL	
Highway Functional Class		Mi.	Lane Mi.	Mi.	Lane Mi.	Mi.	Lane Mi.	Mi.	Lane Mi.	Mi.	Lane Mi.	Mi.	Lane Mi.	Mi.	Lane Mi.
1	Rural Interstate									10	38	8	48	17	86
2	Rural Principal Arterial									8	24	7	20	15	44
6	Rural Minor Arterial							15	29	31	82	2	4	48	116
7	Rural Major Collectors					1	1	24	48	20	39	0	1	45	89
8	Rural Minor Collectors			0	0	14	27	47	95			13	26	74	148
9	Rural Local			3	6	350	699	7	15			11	13	371	732
11	Urban Interstate									31	128	23	96	54	224
12	Urban Freeways / Expwys.									12	51	13	53	25	105
14	Urban Principal Arterial	5	13					0	1	30	63	3	7	39	83
16	Urban Minor Arterial	14	40			6	12	24	49	174	411	9	20	227	531
17	Urban Collectors	25	75	12	25	95	192	174	349	49	99	1	2	356	742
19	Urban Local	119	313	212	482	936	1876	22	45	2	3	12	14	1302	2733
		163	441	227	513	1401	2807	315	631	366	939	101	302	2573	5633
Totals in the ALL column may appear higher or lower due to rounding															

Interstate Highway System. The County is served by two major limited access interstate highways -- The New York State Thruway (I-87) and I-84. Route 17 is a limited access highway on the National Highway System that may eventually be designated as I-86 as it is reconstructed to meet Interstate standards. The Thruway provides some north/south circulation in the eastern part of the County, and has interchanges at Route 17 / 32 (Harriman) and I-84 / Route 300 (Newburgh). In addition to the major regional through traffic on Thruway, local trips are utilized between the two state highways. Therefore, it tends to be used more for longer-distance through trips. Routes 17 and I-84 provide more of a combination of localized service and long-distance service because they both have more frequent interchanges. I-84 is recognized as one of the primary commercial spines of the County.



Route 17 to I-86 Conversion. NYS Route 17 serves as the primary east-west highway corridor across the southern part of the State, from the NYS Thruway interchange in Harriman west to Interstate 90 near Erie, Pennsylvania. The section within Orange County and stretching to Binghamton is known by many as the "Quickway". It was constructed in sections over the course of many decades beginning in the 1920's. Through the efforts of former Senator Daniel P. Moynihan, federal transportation legislation included authority for the re-designation of Route 17 as Interstate 86 as sections are reconstructed to meet interstate standards. The most recently built sections in the western parts of the state were initially constructed to meet those standards, however the older sections will require significant redesign and reconstruction before they can be designated as part of the Interstate System by the Federal Highway Administration. The NYS Department of Transportation is in the process of carrying out limited segments of this I-86 conversion project.

The first 177 miles of Route 17 between the Pennsylvania State line and Exit 48 in East Corning were designated as Interstate 86 in December 1999. As of late 2006, more than half of NYS Route 17 had been upgraded to federal interstate standards, with 195 miles designated and 186 miles remaining. Because of funding concerns and cost the conversion plan has been adjusted in the short term to address the sections of Route 17 with at-grade intersections providing a true limited access route prior to a complete conversion to I-86.

Route 17 in Orange County is a limited access facility. The series of projects to convert Route 17 to I-86 previously planned has been revised to reflect the changes to the statewide I-86 program. The new program for Route 17 includes the following:

a. Complete the reconstruction of Route 17 from the Sullivan County line (Route 17K) to I-84 to Interstate standards. Complete.
b. Complete the reconstruction of Exit 122 in the Town of Wallkill. Stage 2 is under construction and Stage 3, the final stage, is planned for 2017.
c. Reconstruct Exit 131 (Route 32, Route 6, and I-87) in two stages in 2017 and 2019.
d. Complete the Route 17 Transportation Study to develop a future scope for Route 17 improvements which may include transit and other TDM improvements, widening to six lanes, and possible sustainable land use changes. All Route 17 projects are being designed not to preclude future improvements.

All future Route 17 beyond preservation improvements will depend upon there being adequate future funding.

New York State Department of Transportation

The New York State Department of Transportation's Region 8, a seven county region, which includes Orange County has developed a five year preservation emphasis capital program for April 2012 through March 2017 based upon *Strategies for a New Age: New York State's Master Plan for 2030,* the long range plans of its four metropolitan planning organizations, and anticipated flat federal transportation funding. The five year program emphasizes preserving the existing infrastructure and keeping the National Highway System (NHS) and other critical transportation links in satisfactory condition.

Region 8's strategy for its previous five year program was to maintain the Trade and Commuter corridors in satisfactory condition; maintain other corridors as well as resources permit; improve safety; improve mobility/reliability by deploying Intelligent Transportation Systems (ITS), expand Transportation Demand Management (TDM) and transit, continue emphasis on sustainable development, and making limited capacity improvements; and improve the environment.

The new program concentrates on preserving bridges, pavements, culverts, and other components of the state highway infrastructure such as guiderail, pavement markings, traffic signals, signs, and drainage. It also emphasizes safety and environmental responsibility. As this program is a transition from the previous corridor based program to a program that seeks to preserve what we have emphasizing the NHS and other critical links (NHS Plus System), a limited number of lower cost non-preservation projects from the previous program which are far along in development, have a private funding commitment, or are sustainable development projects where towns have changed their land use policies have been retained. The other non-preservation projects retained are bridge rehabilitations and replacements.

Infrastructure

PAVEMENT

To address the goal to bring pavements to a state of good repair, an average surface score of "7" (Good), in an environment of increasing unit costs and constant financial resources the Region has a pavement strategy based upon keeping the NHS Plus system at an average surface score of "7" and the remainder of the state highway system at an acceptable surface score. In Orange County there are 1,084 lane miles of state highway which had Average Surface Score in 2010 of 6.90. Of this, 3.3% was scored as Poor Pavement. Other Infrastructure includes signs, pavement markings, guide rail, culverts, lighting, drainage, and roadside features (trees, vegetation). The strategy is to preserve these features.

BRIDGES

There are 458 public roadway bridges in Orange County. Of these, 201 are owned or maintained by NYSDOT and 257 are owned by others. Overall, approximately one-third of the bridges in the County have some level of deficiency rating (35.6% of the NYSDOT owned bridges, 38.6% of the other bridges).

NYSDOT maintains 7 bridges that are owned by the Palisades Interstate Parks Commission, 3 of which (43%) are deficient.

The NYSDOT Bridge Strategy is to extend the service life of existing bridges as long as possible and to rehabilitate or replace only when a bridge can no longer be economically preserved. Emphasis is on preserving bridges on the NHS Plus system. The strategy also seeks to keep all NHS Plus system links non-"R" rated or non load posted.

Bridge Strategy Objectives:

a. No load posted or "R" rated bridges on trade corridors
b. No load posted bridges on commuter corridors
c. All critically deficient bridges addressed
d. No load posted bridges on critical commercial corridors
e. Low volume/low criticality bridges may be load posted
f. 10% deficient carrying trade corridor routes
g. 20% deficient carrying commuter corridor routes
h. Remainder of Principal Arterials, Minor Arterials, and Local held at best % deficient can.

How to Accomplish the Bridge Strategy:

a. Bridges carrying trade routes are prioritized for preventive maintenance work and potentially more extensive repairs
b. Bridges carrying commuter routes are prioritized for preventive maintenance work and potentially more extensive repairs
c. Critically deficient bridges are identified and prioritized based upon corridor type, traffic volume, and criticality
d. Bridges on commercial corridors are prioritized on the basis of criticality to truck access to businesses
e. All bridges will be washed and sealed on cycle
f. Bridges that are paint critical, such as trusses and other structural components not under a deck, will be painted on reasonable cycle, recognizing the ongoing problems with containment and paint durability. For components under a deck the focus would be on keeping joints watertight.
g. As many bridges as possible will be brought to a non-deficient condition by NYSDOT-designed contractor-performed maintenance (under the Maintenance By Contract (MBC) and Job Order Contract (JOC) programs).
h. Long span bridges will receive specific attention because of their high cost to replace.

The estimated cost of carrying out the work in sub-paragraphs e, f, g, and h above amounts to $35 million annually. Addressing bridge emergency needs costs about $4 million annually.

While it is not in Orange County, the Tappan Zee Bridge (owned by the NYS Thruway Authority) continues to be the focus of significant efforts by various agencies and stakeholders to investigate alternatives for reconstruction or replacement of the bridge. The entire I-287 corridor is also being examined because of its relationship to the traffic crossing the bridge and other deficiencies of the roadway. The New York State Department of Transportation is

leading this effort. An extensive alternatives analysis was completed in 2005. Work is currently underway to prepare a Draft Environmental Impact Statement on the selected alternatives and a financial analysis of the potential costs. This work is scheduled to be completed in 2011.

In addition to the aforementioned bridges, the New York State Bridge Authority owns and operates two bridges which serve Orange County. The Bear Mountain and Newburgh-Beacon bridges provide essential access across the Hudson River and link Orange County with Dutchess, Putnam and Westchester Counties. Over the next several years in addition to general maintenance to keep both bridges in a state of good repair, the Bridge Authority will be redecking the south span of the Newburgh Beacon Bridge at a programmed cost of $81M. Currently, there are no plans to change the capacity of either bridge or add additional bridges to serve Orange County.

Mobility/Reliability

NYSDOT Region 8's strategy for mobility/reliability is to preserve the NHS Plus system ; selectively supplement the ITS instrumentation already in place and actively operate the system; address railroad grade crossing problems; and continue and maintain its TDM program including continuing the Region's partnership with the Metro North Railroad.

This strategy does not address the Region's areas of recurring congestion (in Orange County identified by the OCTC's congestion management system) by adding lanes as it only seeks to preserve the existing highway system. The Region's intent is to use ITS, TDM, and limited operational or capacity improvements from the transitional projects to ameliorate some recurring and non-recurring congestion and via safety programs reduce non-recurring congestion by reducing the amount of congestion caused by accidents.

Intelligent Transportation Systems

Ongoing technological advances are expected to improve the management of congestion, the capacity of roadway systems, and potentially reduce travel demand. These advances as a group are identified as Intelligent Transportation Systems (ITS). A study evaluating ITS in the Lower Hudson Valley has been prepared for NYSDOT Region 8 entitled "Hudson Valley Intelligent Transportation Systems Business Plan and Development Concept". The Plan provided a framework for providing real-time traffic and traveler information in the Lower Hudson Valley region for the highway and public transportation system.

Currently, NYSDOT Region 8 operates a Transportation Management Center (TMC) in Hawthorne, Westchester County, which became operational in 2004. The deployment of ITS has initially been in the lower Hudson Valley. Critical locations in Orange County such as the Hudson River crossings and interchanges of the Thruway with I-84 and Route 17 and Route 17 with I-84 have been instrumented.

Intelligent Transportation Systems are comprised of a combination of the following subcomponents:

Advanced Traffic Management Systems (ATMS). Focusing on managing the system to maximum capacity, ATMS involves using advanced technologies to advise travelers of current conditions and alternate routes (using communication systems such as highway advisory radio, changeable message signs, kiosks, and teletext), improving emergency response and providing coordinated interagency traffic management.

Advanced Traveler Information Systems (ATIS). These systems provide on-board navigation information that can provide route selection capabilities via satellite and other communications. ATIS also possesses the ability to relay congestion and accident information and provide alternate travel routes based upon current location and destination.

Commercial Vehicle Operations (CVO). This is a program that restricts the hours of operation of commercial vehicles (restricting use in commute periods) and the facilities on which commercial vehicles may travel. It also involves use of advanced technologies to establish route choices for commercial vehicles to avoid incidents.

Electronic Toll Collection (ETC) and Automated Vehicle Identification (AVI). These systems allow for automated toll collection and vehicle identification which expedites vehicles through toll areas, thus easing congestion, improving capacity, reducing bottlenecks, and improving air quality. An example of an ETC system is the E-Z Pass system.

Advanced Vehicle Control Systems (AVCS). These systems include on-board and in-road guidance systems to maximize the speed, minimize the spacing, and control merge / diverge movements of vehicles. Vehicles are actually controlled by outside systems in order to maximize the capacity of a roadway segment.

Advanced Public Transportation Systems (APTS). These are systems intended to enhance the capabilities of public transit in four major areas: increase the market share of transit and ride sharing; improve safety and security on transit systems; reduce operating costs and increase revenues for transit systems, and; assist transit agencies in the response to legislative mandates, such as Clean Air Act Amendments of 1991 and the Americans with Disabilities Act.

Wide-Area Information Network System (WINS). The New York State Energy Research and Development Authority is studying the capabilities of a real-time travel information system that would provide warnings on congestion and incidents using a new type of EZ-Pass transponder. This system is called New York Wide-Area Information System or NY-WINS. If successful, this system could be extended to the Thruway and I-84 in Orange County.

Traffic Signal Systems. Advanced traffic signal systems consist of interconnected signals and loop detectors that are connected to computer systems that respond to changes in traffic demand. Candidate locations should be evaluated in Middletown, Port Jervis, and Newburgh. Other possible locations for these systems would be Routes 17K, 9W, 211, 32, 207, 52 and 17M.

Application of various ITS actions in Orange County was also evaluated in the Lower Hudson Valley report based on interviews and surveys conducted during the study. The highest ranking was for improvements in traffic control systems. Other high-ranking actions included Traveler Service Information, Public Transportation Management, En Route Transit Information, Public Travel Safety on Transit Systems, On-Board Safety Monitoring for Commercial Vehicles, and Emergency Vehicle Management. The County should evaluate how these actions can be taken in the context of future ITS studies in the Lower Hudson Valley.

The ability to quantify the potential reductions in current transportation demand through these alternatives will require more detailed modeling efforts. There have been some national studies to quantify the benefits of these systems. The report, "Intelligent Transportation Infrastructure Benefits: Expected and Experienced", provided estimates of positive impacts of ITS on various transportation measures of effectiveness. The report stated that arterial traffic signal systems could reduce travel time by 8-to-15 percent and reduce fuel consumption by 6-to-12 percent. Other types of ITS technology were forecast to produce significant savings as well.

The Region's strategy will be to continue rolling out ITS following the program originally outlined in its Early Deployment Plan and followed up in the *Hudson Valley Intelligent Transportation Systems Business Plan and Development Concept*. The plan identified the critical network for diversion of traffic

approaching the mid-Hudson Valley from the north, west, and east. Traffic approaching from the south needs to be diverted in New York City.

It is anticipated that this implementation will be slowed due to funding constraints and the need to keep bridges and pavements in satisfactory condition. As more privately developed traffic applications are made available to the public the role of the public sector in gathering and providing traffic information is being rethought. This may also slow public investment in ITS.

The general strategy is to use I-84 as the northern distributor of traffic from the north, east, and west among the various north/south corridors. The Cross County Parkway would be the southern distributor and I-287 the middle distributor. Variable message signs would be located in advance of these diversion points on the north/south and east/west facilities to allow diversion. All limited access facilities from I-84 south to New York City would need to be instrumented so traffic conditions could be monitored in real time.

Safety

The objectives of the Region's strategy are to prevent transportation system related fatalities and injuries. This will be accomplished through infrastructure improvements, operational improvements, and through human factor based education and enforcement initiatives.

The strategy is driven by a continuous analysis of accident statistics for the state highway system. The Region investigates locations with a significantly higher than average accident rate. The recommendations from these accident investigations are then used to implement changes to improve safety by our maintenance forces or by contract. Reinforcing this would be specialty programs including the Skid Accident Reduction Program (SKARP) to address accidents which are attributable to slippery pavement and mowing/tree/brush/sight distance clearing projects to maintain safe sight distances. Railroad grade crossings because of their potential for injury and fatal accidents would also receive emphasis. Supplementing these efforts would be specific physical improvements by maintenance, inclusion of safety improvements in capital projects, and normal safety projects.

New York State Thruway Authority

Short Term

The Authority is in the final year of its 2005-2011 $2.6 billion multi-year Capital Plan, and in the process of developing the next 5 year plan, to begin in 2012. The Capital Plan is a major component to continue to provide high levels of safety and service, and maintain good road and bridge conditions system wide. In Orange County, major projects completed under the current Plan included the I-84/I-87 Interchange Reconstruction Project and Woodbury Toll Barrier Modification with Highway Speed EZPass.

Projects for the next few years will mainly focus on preservation of the existing system features. They include pavement reconstruction / rehabilitation for 28 of the 31 miles of highway, reconstruction / rehabilitation work on 9 bridges, and Intelligent Transportation System (ITS) devices installation and upgrades. Completion of the Authority's multi-year Capital Plan in this TIP cycle, together with the

Authority's ongoing extensive and regular maintenance programs, will ensure that the operational and structural integrity of the Authority's facilities are maintained.

Mid and Long Term Thruway Planning

Preservation of the highway and implementation of various improvements does not complete the process. The Thruway Authority will continue to look for opportunities for further improvement in operations, as well as staying up-to-date with the current construction, maintenance, and roadside safety practices. The Authority will continue to be involved in the MPO process by participating in the area studies developed in the UPWP, updating the TIP, and contributing to other actions of the organization.

While specifics have not been developed for the long term, the Authority recognizes its role in the transportation network to provide acceptable levels of service (LOS) for its highways in the region. We will continue to look for new innovations in optimizing the use of the existing infrastructure to handle the increased demand of traffic. The Authority will consider adding capacity wherever necessary and as funding may allow. This may include consideration of a fourth lane on I-87 from Exit 15A in Suffern to the Woodbury Toll Barrier, and /or a third lane from the Woodbury Toll barrier to Exit 18 in New Paltz. In addition, the feasibility study of the proposed Interchange 15B (at C.R. 106 (serving Route 17A)) was completed during the previous plan. Anticipated toll revenues generated from this proposed interchange would adequately cover the operation and maintenance costs. However, projected revenues are not sufficient to provide a reasonable rate of return on the proposed capital investments. Therefore, funding from non-Thruway Authority sources would be required for the Authority to implement this project.

Utilizing new advancements in toll collection technology, traffic monitoring, incident response, and vehicles themselves will play a major role in maintaining adequate LOS. Improving the highway and its operation, while minimizing the impact to the environment, is a challenge the Authority takes seriously, and will continue to do so in the future.

Orange County Department of Public Works

Orange County owns and maintains approximately 315 centerline miles of roadway. With the exception of a few roads, all County roads are two lane roads. Generally, County roads connect to other County roads or State roads. Orange County also owns and maintains 151 bridges.

HIGHWAY PROJECTS

Short Term Need Projects

- CR 1B and Foley Road – Intersection Improvement Project.
  Cost estimate $350,000
- CR 48 at Andrews Road – Sight Distance Improvement Project.
  Cost estimate $100,000
- CR 1B and CR 41 Intersection. Intersection Improvement Project.
  Cost estimate $200,000
- CR 85 and Lake Osiris Road intersection – Intersection Improvement Project.
  Cost estimate $300,000

Medium Term Need Projects

1. CR 106 – Guiderail Improvement Project from NY 17A to the Kanawauke Circle. On TIP. Cost estimate $2,590,000
2. CR 14 at Searsville Road and Beemer Road. Sight distance improvement project.
3. CR 89 at Searsville Road. Sight distance improvement project.
4. CR 18 at Schoolhouse Road. Intersection improvement.

Long Term Need Projects

The County is administering the preliminary design for an extension of Larkin Drive north from its current terminus CR 105 to NY 208. The idea for this proposed 1.75 mile roadway extension stemmed from the Southeastern Orange County Traffic and Land Use Study and would provide a vital link in this the transportation corridor, which will upgrade transportation and emergency access. This road will be a direct access road to commerce along the existing Larkin Drive corridor, as well as provide relief to NY 17 (future I-86) east during peak commuting times. A very preliminary cost estimate for this road is approximately $27M. Given the current fiscal constraints, no funding for the construction of this new roadway capacity has yet been identified. At such time that funding may be found, this project would need to be added as a non-exempt project to both TIP and Plan and incorporated into an updated air quality conformity analysis.

COUNTY BRIDGE PROJECTS

Short Term Need Projects

Project	Type	Cost estimate
Cornwall Bridge	Replacement	$ 740,000
Ford Bridge	Replacement	740,000
Rutgers Glen Bridge	Replacement	740,000
Willow Ave Bridge	Replacement	855,000
Crystal Run Bridge	Replacement	5,170,000
Maple Glen Bridge	Replacement	840,000
Millsburgh Bridge	Replacement	600,000
Taylor Bridge	Replacement	830,000
Searsville School Bridge	Replacement	600,000
Grove Drive Bridge	Replacement	2,400,000
Dwaar Kill Bridge	Replacement	640,000
Logtown Bridge	Replacement	740,000
Horan Bridge	Replacement	600,000
Orange Farm Bridge	Replacement	640,000

Medium Term Need Projects

Approximately $2.0 million worth of projects (approximately 2 per year).

Long Term Need Projects

Approximately $2.5 million worth of projects (approximately 2 per year).

County Pavement Management System
The Department of Public Works carries out a pavement management system for highways under the authority and jurisdiction of Orange County. The County pavement management program is a combined field observation and computer system that results in rating of the roads. The rating is on a scale from 0 to 100.

Highway Safety and Accidents

In an effort to reduce the frequency and severity of automobile crashes, federal, state and local traffic safety organizations combined their efforts to create the 2007 NYS Strategic Highway Safety Plan. The plan uses a comprehensive approach that focuses on perpetual improvement in the areas of: engineering, education, and enforcement. A central focus of the 2007 NYS Strategic Highway Safety Plan is to reduce high accident locations.

A high accident location is defined as a location which exhibits an abnormally high percentage of accidents compared to other locations with similar roadway classifications. Identifying high accident locations within Orange County will specify which areas of the transportation network need improvement. Studying the design of the deficient segments will help determine what actions are needed to rectify the problem and prevent future hazardous conditions.

SAFETEA requires that every state submit an annual report on highway safety. As part of this report the state must identify a minimum of 5% of the sections of road or intersections which exhibit the most severe safety needs. New York State's 2009 report identified four locations in Orange County that need improvement.

- Route 9W @ Route 32, Town of Newburgh
- Route 32 @ Route 17, Town of Woodbury
- Route 32: Nininger Road to Turners Road, Town of Woodbury
- Route 300: Route 17K to Orr Avenue, Town of Newburgh

New signal timing and pavement markings, which are currently scheduled for completion, will hopefully eliminate the problematic intersections of Route 9W & Route 32. Exit 131 on Route 17, which is the interchange of Route 17 and Route 32, is planned to be reconstructed starting in 2017 and will address the two Town of Woodbury locations. The Route 300 location should be addressed through highway work permits issued to developments in the area.

The reduction of high accident locations is inherently based on identifying and tracking the locations. Over the last several years NYSDOT has been working to implement a system that will provide comprehensive geographic crash data for the state and local roadway systems. There are three major components of this system: Traffic and Criminal Software (TraCs), Accident Location Information Systems (ALIS) and the Post Implementation Evaluation System (PIES).

> **Tracs** has become the way the New York State Police and over 400 other police agencies in New York do business. Police officers today across New York write tickets and accident reports on a computer in the patrol car, print copies for the involved citizens, and electronically transmit the data to the courts, and involved state agencies. Officers can also complete a magnitude of law

enforcement forms in the vehicle and import case data directly into their records management system.

The New York State Police has taken the lead in the TraCS program and currently, there are over 400 agencies using TraCS and transmitting data electronically. Each year, TraCS transmits over 2,000,000 traffic citations and 200,000 crash reports. Electronic transmissions of tickets and crash reports continue to grow, breaking all previous records.

The TraCS team continues to add forms and functionality to TraCS. This program has been successful due to the continual efforts and coordination of New York State Police, Governors Traffic Safety Committee, Department of Motor Vehicles, Office of Court Administration, Department of Transportation and several other governmental agencies. The implementation of new forms and the distribution of new technology have not only increased productivity and enforcement but have also made our roadways safer for all those that live and travel throughout New York State. The new and improved version, "TraCs 10" has been released and is in the process of being customized for New York State and due for release towards the end of the year.

ALIS- The Accident Location Information System is comprised of three applications. One application is used exclusively by the Department of Motor Vehicles to geographically locate highway crashes. This application is capable of utilizing a variety of different location elements that can be entered on a crash report to translate these different location elements into a universal coordinate location that can be used in a variety of GIS applications. Another application lets users do simple queries/reports and allows for the refinement/correction of crash locations in older legacy data. By using this application the Department of Transportation can significantly improve the precision/accuracy of where legacy crashes are located. Additionally, a third application allows users to do more complex queries/analysis functions involving both geographic features in combination with multiple crash characteristics at the event, vehicle and contributing factor levels. The query/analysis capabilities of ALIS are used by highway safety professionals at both the state and local (county, MPO, city, town and village) levels to identify crash histories at specific sites as well as sites with unusually high crash experience. The application is currently being upgraded to improve performance and workflow. The new version is expected to be released sometime next year.

PIES – This application offers actual before and after evaluations allowing:

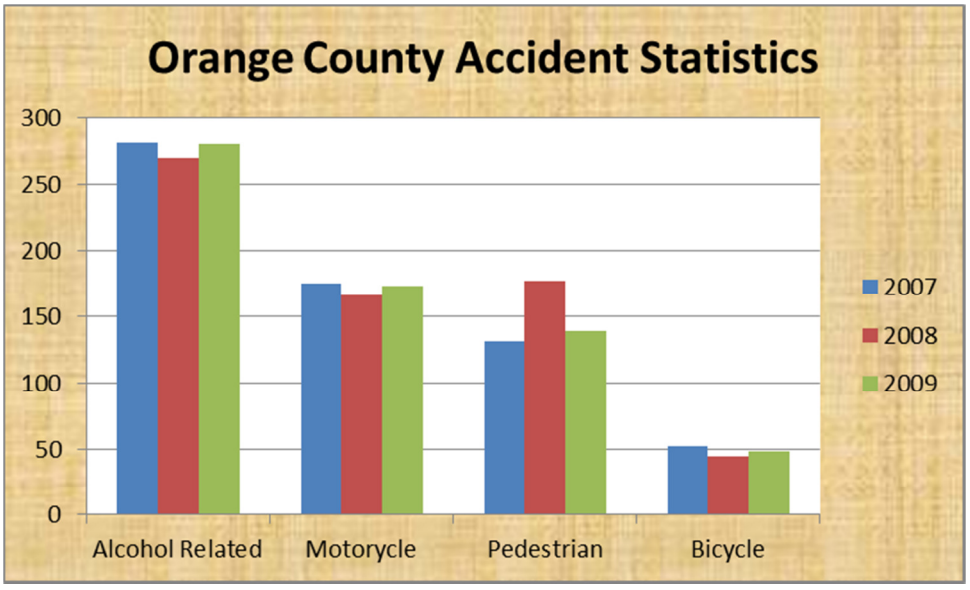
- Verification that projected accident reductions reported as part of the New York State Department of Transportation's Safety Goal are reasonable and accurate;
- Quantitative measurements of the effectiveness of the NYSDOT's overall capital program in improving highway safety (reducing accidents and safety benefit cost ratio);
- Continued development of new accident reduction factors for innovative accident counter measures (shoulder rumble strips, roundabouts, and pavement surface treatments); Significant reduction in the manual effort currently required for doing before/after evaluations for individual projects and NYSDOT programs.

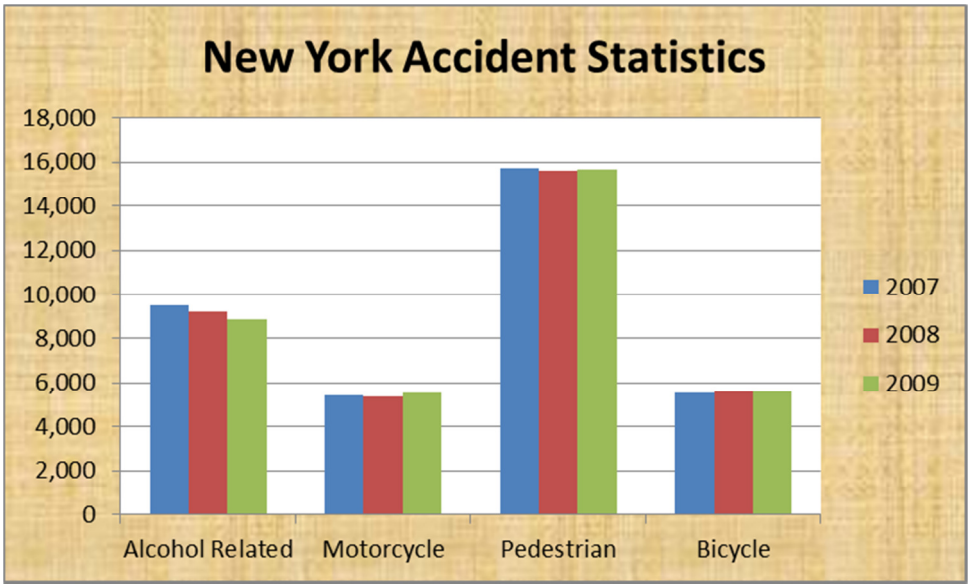
These new systems will be used to increase safety and efficiency on the transportation network. Identifying high accident locations and implementing solutions will allow for the strategic elimination of hazardous sections of the transportation network.

The following tables and graphs provide non-location-specific statistical information about New York State and Orange County.

Orange County	2007	2008	2009
Total Accidents	10,000	9,914	10,427
Alcohol Related	281	270	280
Speed Related	1,022	1,105	1,081
Motorycle	175	166	173
Pedestrian	131	177	139
Bicycle	52	44	48

New York State	2007	2008	2009
Total Accidents	323,106	316,231	314,974
Alcohol Related	9,480	9,202	8,873
Speed Related	31,729	32,234	28,877
Motorcycle	5,426	5,396	5,550
Pedestrian	15,701	15,620	15,682
Bicycle	5,535	5,646	5,620





According to the statistics above, total crashes in New York State slowly decreased from 323,106 in 2007 to 314,974 in 2009. Total crashes in Orange County decreased slightly in 2008 from the 10,000 crashes in 2007 but then increased to 10,427 in 2009.

When comparing percentages, on average, alcohol related crashes accounted for 2.7% of all crashes in Orange County. This figure is consistent with the 2.9% of crashes involving alcohol in New York State. Crashes involving motorcycles accounted for 1.7% of all crashes in New York State as well as Orange County.

Crashes involving pedestrians were significantly less in Orange County at 1.5% of all crashes compared to 4.9% in New York State. This trend is also seen in crashes involving bicycles, which account for only 0.5% of all crashes in Orange County and 1.8% of crashes in New York State.

The New York State Association of MPOs created a Safety Working Group in 2006. OCTC staff have monitored NYSMPO Safety Working Group activities, which have identified several goals and objectives to advance safety initiatives including providing input on the development of the State's Strategic Highway Safety Plan (SHSP).

Chapter 5 – Transit Systems

Public transit encompasses a variety of modes: commuter rail, intercity and local bus services, van pools, dial-a-bus services and other demand-responsive services (not taxis). Over the road transit is influenced by traffic congestion. Rail service is not directly affected by road congestion, though ridership might be higher with greater recurring road congestion. The current transit service in the County is described below.

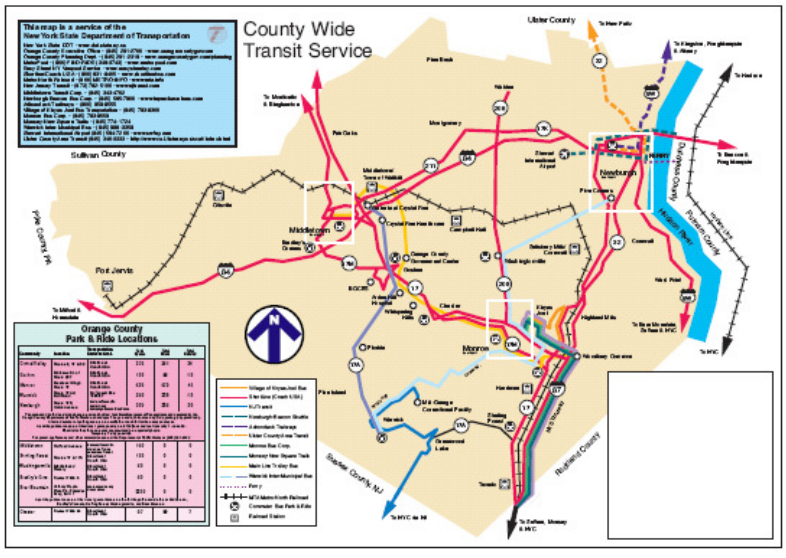
Transit provides commuter rail and bus service within the County and to parts of northern New Jersey, Westchester County, and New York City. Rail commuters in Orange County are served by Metro-North's Port Jervis and Hudson Lines. The Port Jervis Line, which is operated by NJ TRANSIT under contract with Metro-North, operates from Port Jervis in Orange County to Secaucus Junction and Hoboken, New Jersey where connecting PATH and ferry service is provided to New York City. Metro-North's Hudson Line at Beacon can be accessed from Orange County across the Hudson River via ferry, bus, automobile, or even by foot over the Newburgh-Beacon Bridge. The Hudson Line provides direct service to Grand Central Terminal.

At the present time, three kinds of intermodal connection facilities exist in Orange County: park-and-ride lots, rail stations with substantial parking, and bus terminals. Park-and-ride lots allow transfers between single occupant vehicles, carpools, and local, commuter and intercity bus services. Parking is provided at all seven rail stations in the County. The bus terminals offer similar opportunities and serve taxis and pedestrians. A total of 5,194 parking spaces are currently provided at these facilities.

NOTE: The flooding from the rains of Hurricane Irene and Tropical Storm Lee in August and September 2011 caused substantial damage to the Metro North Port Jervis Line, especially south of Harriman Station. This damage is still being assessed. This chapter has not been rewritten to account for these damages, nor for the costs of repair or replacement.

Commuter and Local Bus Service

Bus transit service is provided in and for Orange County through regional, local, paratransit and dial-a-bus services. Fixed route bus service is of three main types -- a) regional inter-county service including commuter service, b) intra-county transportation, and c) local services in major population centers. The local routes are largely limited to service within commercial and retail areas in the cities of Newburgh and Middletown and the Villages of Monroe and Kiryas Joel.



Coach USA/Shortline (Hudson Transit): This is the largest provider of bus service in and through Orange County. Coach USA serves over 1,280,000 Orange County passengers with operating expenses in excess of $20,000,000 annually. County-wide service is provided for intercity travelers and commuters. Most of the service is provided along the I-84, Route 17, and Route 32/I-87/Route 9W corridors. Coach USA also serves a number of major trip generators including the Galleria at Crystal Run (Middletown), Playtogs Plaza (Middletown), and Woodbury Common Premium Outlet Center. Coach USA provides major commuter service to New York City running 76 trips per day to and from Orange County during the morning and evening peak hours. Coach USA also provides service to the East Side of Manhattan via the George Washington Bridge and operates the Orange Westchester Link (OWL) which provides service to the White Plains area. Both of these services are provided via five daily weekday round trips.

Monroe Bus Corporation: provides commuter and off-peak service to Manhattan and Brooklyn to and from the Village of Kiryas Joel. In 2010, Monroe Bus recorded over 280,000 trips.

Monsey Trails: Connects Kiryas Joel and Monsey in Rockland County with five daily round trips. Ridership on this route has been steadily increasing with an average of 200 riders per day in 2010.

NJ Transit: Provides commuter and off-peak service to New York City and northern New Jersey from Warwick and Greenwood Lake. This bus service is provided along Route 210 and Route 17A and serves the Greenwood Lake and Warwick park & rides. In 2010 New Jersey Transit provided over 150,000 trips to and from Orange County.

Other regional transit service

Adirondack Trailways: Provides service to New York City, Poughkeepsie, and Kingston where connections can be made to Albany and Oneonta and other destinations around New York State. This service is provided along the Route 9W corridor and crosses the Mid-Hudson Bridge to reach Poughkeepsie.

Ulster County Area Transit (UCAT): UCAT provides five daily weekday round trips between Newburgh and New Paltz in Ulster County along the NYS Route 32 corridor. This service also has stops on Broadway in Newburgh, the Shortline Bus Terminal on 17K and the Newburgh Mall.

Park & Ride Lots. At its most basic, a "park and ride lot" is a place where someone can park a car in order to take another transportation trip. Informally that might be any parking lot or even a friend's driveway. In Orange County there are two formal park and ride lot systems which are owned, maintained and promoted as locations to park cars in order to make connections to transit services. One is the system of rail station parking lots owned and maintained by MTA Metro North, which are described later in the section on passenger rail. The other is a system of park & ride lots owned and maintained by the cooperative efforts of one or more public and private entities, especially the New York State Department of Transportation, Orange County, and Coach USA/Shortline. The principal connecting transit services at

these park and ride lots are for commuter, regional and local bus services. There are eleven lots in this system, ranging in size from 330 parking spaces with shelters and other amenities to small parking lots with no amenities. These lots are maintained by the Orange County Department of Public Works, CoachUSA / Shortline or others as shown in the following table.

Commuter Park & Ride Lots

	Spaces	Ownership	Ops/Maint	Fee?	Service
Central Valley (3 lots)					
Central Valley 1 (north)	90	NYSDOT	OCDPW	No	Coach
Central Valley 2 (middle)	168	NYSDOT	OCDPW	No	Coach
Central Valley 3 (south)	38	NYSDOT	OCDPW	No	Coach
Chester	97	NYSDOT	Village of Chester	No	Coach
Circleville	90	NYSDOT	Town of Wallkill	No	Coach
Goshen	94	NYSDOT	OCDPW	No	Coach
Greenwood Lake	40	Greenwood Lk	Greenwood Lk	Yes	NJT
Harriman Rt 17M / Rt 32	80	Leased by Coach	Coach	No	Coach
Middletown -- Railroad Ave.	150	Middletown	Middletown	No	Coach
New Hampton -- Citgo Station 17M	50	Leased by Coach	Coach	No	Coach
Monroe (2 lots)					
Monroe A	330	NYSDOT	OCDPW	No	Coach
Monroe B	259	NYSDOT	OCDPW	No	Coach
Monroe Village	36	Village of Monroe	Village of Monroe	Yes	Coach
Newburgh / 17K	289	NYSDOT	OCDPW	No	Coach, UCAT, NB local, Airport Shuttle, Trailwys
Sterling Forest -- Tuxedo	75	NYSDOT / PIPC	Coach	Yes	Coach
Warwick	245	NYSDOT	OCDPW	No	NJ Transit
Washingtonville	50	Leased by Coach	Coach	No	Coach
	2131				

As of 2007 the permit system for county-maintained lots was eliminated and parking in all but the Greenwood Lake lot is free. As it does for the lots maintained by Shortline, NYSDOT has agreed to reimburse Orange County for the cost of maintaining the lots. For various reasons, including the growth in Orange County, growth in transit use, and the transition to free parking, there is a need to prepare a park and ride improvement plan. This effort will begin with an inventory and analysis of the park and rides lot system in the county, followed by an analysis of current and future needs for the system, and the development of physical, management, and fiscal plans to achieve the recommendations.

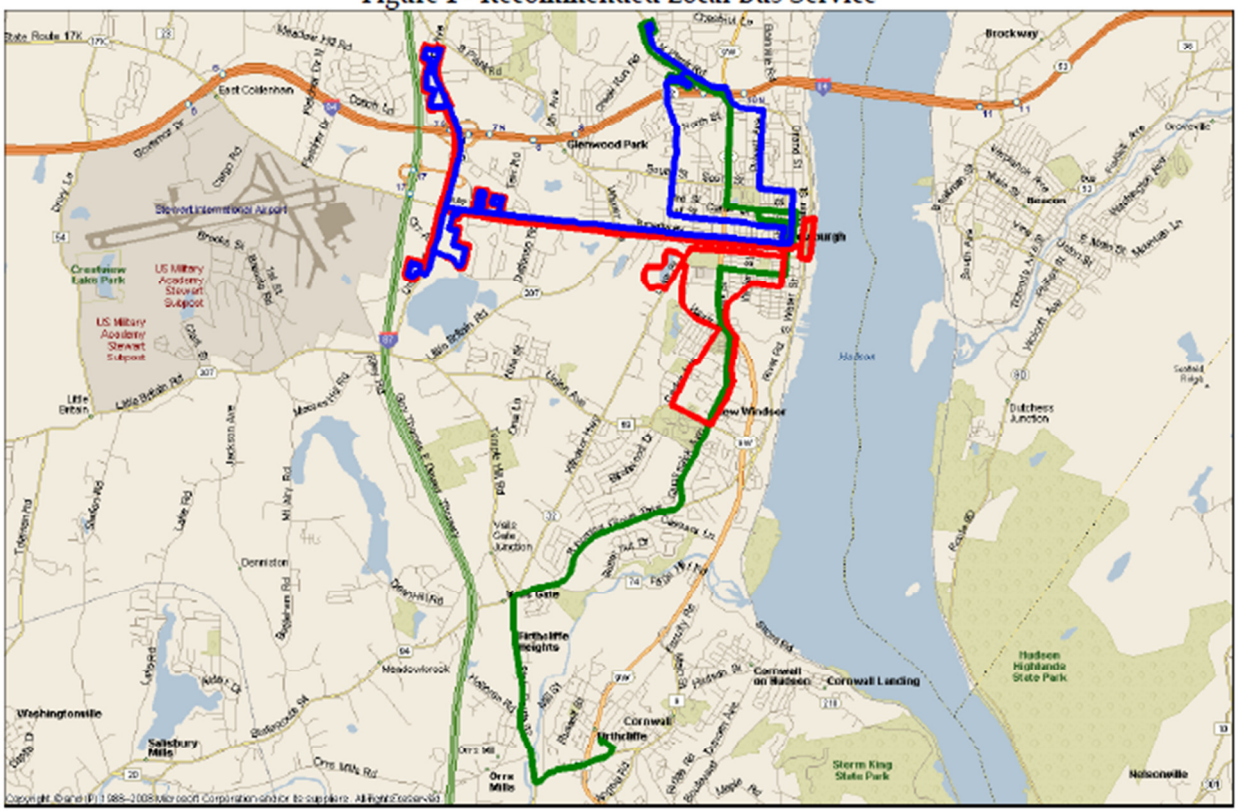
Local Public Transit Bus Services

The Newburgh-Beacon Bus Corporation has operated two local routes in the City of Newburgh and its environs since 1934. Service is provided within the City as well as to the Newburgh Mall and Wal-Mart on Route 300, the Shop-Rite on Route 32, and the Five Corners area of Vails Gate. Under contract with NYSDOT it also operates a route connecting Stewart International Airport with downtown Newburgh and Metro-North Railroad Beacon Station. Currently the Newburgh-Beacon Bus Corporation leases four County-owned buses to help provide these services, which recorded 77,688 passengers in 2010.

The Newburgh area local bus service was the subject of planning undertaken as part of the Newburgh Area Transportation and Land Use Study. The resulting plan recommended that the two bus routes be expanded to three routes, with an increase from two buses to four buses. Orange County is presently

purchasing hybrid diesel-electric transit buses for this service using FTA ARRA Stimulus funds (and for the Newburgh-Beacon Shuttle, the Middletown area service and the Village of Kiryas Joel). A recently received FTA grant will assist in making the expanded service a reality. A map showing the recommended transit plan is pasted below. Details on the transit study and the recommended plan are available for viewing at the study website: www.newburghareastudy.info.

Figure 1 - Recommended Local Bus Service



The Middletown Transit Corporation has been in service since 1935 and leases three County-owned transit buses which provide service on four different bus routes in and around the City of Middletown. In 2010 Middletown Transit averaged nearly 200 trips per day for an annual total of 49,485 trips. Study and planning for the Middletown area service is currently being undertaken, together with study of the other intra-county services, paratransit service, and the park and ride lot system.

The Village of Kiryas Joel currently leases seven County-owned buses which provide service in the Village as well as destinations in Monroe and Woodbury. In 2010 the Village recorded nearly 62,000 passenger trips.

Town of Warwick Inter-municipal Bus: operates a fixed-route between Warwick and Goshen Wednesday through Friday. The Town of Warwick also operates local fixed-route service to the Middletown area that connects the medical services on Crystal Run Road, the retail centers at the Galleria and a mini hub at Orange Plaza, where riders can connect with Middletown Transit, the Main Line Service and other service provided by Coach USA.

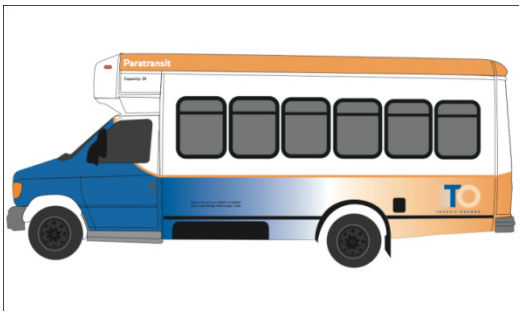
CoachUSA/Shortline (Hudson Transit) operates "the Main Line" bus service, which harks back to the former Erie Railroad line, which served the villages along NYS Route 17 (this rail bed is now the location of the Heritage Trail). The Main Line buses purchased in 2007 were the first to use new

"Transit Orange" logo. The new Transit Orange logos were developed in late 2006 as a way to unify our diverse transit system of 16 separate bus operators. The new logos are being placed on all County-owned buses and appear in printed materials related to County transit, such as schedules, and will be incorporated in other transit promotion and on bus stop signs and shelters.

County-sponsored buses traveled a total of 5,528,581 revenue miles and provided 2,219,632 revenue trips in 2010, with a total operating expense well in excess of $20 million.

Dial-a-Bus Services

There are presently nine Dial-a-Bus services in Orange County, all municipally-operated, which currently lease 39 County-owned vehicles. Dial-a-Bus services are generally non-fixed route systems that provide transportation services to meet the needs of the general public as well as particular individuals such as the disabled and elderly. While these operations vary in size they provide an essential service for the transit dependent and are open to all potential users.



The Orange County Transit Improvement Study completed in 2001 suggested an eight step approach to the implementation of improved transit in the County; this work is complemented by ongoing planning and special studies such as the intra-county, paratransit, and park & ride system planning getting underway this year:

- Establishment of Transit Hubs. Orange County, Coach USA/Shortline and the City of Middletown, are working together to design and reconstruct the Middletown Transportation Center. This project will be followed by reconstruction of the Newburgh Transportation Center on Route 17K. Additional transit hubs, possibly in Goshen, Woodbury, or other village centers need further definition and operational implementation.
- Increase Newburgh and Middletown transit service by increasing frequencies and providing special employment-oriented services. In 2007 Middletown added Saturday service and a new route on East Main Street to the Galleria. Orange County now operates the JARC program. Newburgh Area expanded service is being implemented.
- Consolidate Local Dial-a-Bus Systems - This was one of the primary recommendations of the Transit Improvement Study, which suggested five groupings. Some municipalities have increased operational coordination, including adding routes spanning multiple municipalities however consolidation of operations and management has yet to occur.

- Modification of ADA Paratransit Service – The County now operates this service under a contract arising from a competitive bidding process. Paratransit system reassessment and planning is underway.
- Develop a Coordinated Marketing Campaign – The County developed and launched a transit brand in 2007 – Transit Orange, together with the use of this logo and color scheme for newly-purchased buses. Further marketing planning is underway as part of the County's intra-county transit planning effort.
- Coordinate Human Service Agency Transportation – A suggestion in 2001, this is now a SAFETEA-LU mandate, leading to the development of the first OCTC Coordinated Public Transit Human Service Transportation Plan in 2008. The update of this plan was initiated in 2011.
- Streamline County Administration of Public Transportation Services – The County has taken a number of steps to better manage and coordinate transit. County staff have worked to make a number of administrative improvements and have taken advantage of contracting for outside assistance with program management responsibilities and planning. The County now conducts annual meetings of all the operators and has considerably stepped up its oversight visits.
- Develop a Process for Evaluating Service Requests and Suggestions – The County has created a new Transit Orange website and regularly documents service-related complaints. The current transit planning effort will involve significant public participation and surveys to assess cost-effective means to meet the demand for service by setting priorities and developing service standards.

NYSDOT Transportation Demand Management (TDM) / Transit

NYSDOT Region 8 has a large TDM program averaging around $11 million annually (STP, CMAQ, and SDF) to sponsor inter-county bus services, ferries, railroad and ferry feeder services, ridesharing, guaranteed ride home programs, employee trip reduction programs, transit promotion, transit guides, and TDM branding. The Region also supports the use of CMAQ and STP funds for TDM and transit by other agencies. The Region has worked with the Hudson Valley TMA and the Main Office on qualifying for more FTA 5307 funds for the TMA and on formulas to allocate those funds. This effort brought more FTA funding to Dutchess, Orange, and Ulster Counties for their public and private transit operators and reduces the burden of using highway funds to meet transit needs. Our TDM Unit actively seeks out opportunities to reduce single occupant auto trips.

Transit operators both public and private have had adequate funding for normal replacement, state of good repair, and expected service expansions using available FTA funds supplemented by reasonable amounts of CMAQ, STP, SDF transit, and federal earmarks. The Region has good relations with our public and private transit operators including Metro North with whom we partner in many efforts: increasing station parking, operating feeder services to railroad stations, operating two ferry services (Newburgh service from Orange County and Haverstraw service from Rockland), guaranteed ride home programs, Uni-Ticket programs, and transit promotion/information programs. Ferries are currently funded through December 2012 via an MOU (Memorandum of Understanding) between Metro-North and NYSDOT that uses a mix of State and Federal monies to fund the services; Orange County contributes 5307 funds toward this effort. Beyond 2012, NYSDOT will work with Metro-North and other partners to identify funds to continue the ferry services at an annual cost of approximately $3.5M.

Region 8's TDM/transit strategy is to continue to actively seek out further TDM opportunities. Region 8 also monitors existing programs to see if they need changes to improve service and performance. Region 8 seeks to provide needed services that counties do not provide such as inter-county express bus and ferry service and operate services for Metro North such as feeder buses to railroad stations which are easier for NYSDOT to operate.

Region 8 also develops park and ride sites for bus and carpool/vanpool use. These sites are a combination of Department owned and sites leased either by the Region directly or through transit operators. Most of the Department owned park and rides are operated and maintained by the local municipal governments. In Orange County the Orange County Department of Public Works has partnered with the NYSDOT to maintain NYSDOT owned park & ride lots. Increasingly NYSDOT is being asked to reimburse the municipalities for the costs of maintenance and operation. NYSDOT Region 8 is approaching $1 million annually in lease and maintenance/operation costs for park and ride lots. NYSDOT reimburses Orange County for park & ride lot maintenance and operation so that the lots can be provided at no cost to users to encourage carpooling, vanpooling, and transit use.

Passenger Rail Service

Orange County is served by MTA Metro-North Railroad's Port Jervis Line through a service contract with New Jersey Transit (NJT). This service currently runs from seven stations in Orange County to Hoboken New Jersey. Prior to 2003, Orange County customers were required to transfer to the Port Authority Trans Hudson (PATH) service in Hoboken for access to Manhattan (or ferry service to lower Manhattan). In late 2003 New Jersey Transit opened the Secaucus Transfer Station, which allows Orange County commuters to access to NYC via a transfer in Secaucus to New Jersey Transit service to Penn Station New York. This improvement saves West of Hudson customers traveling to mid-town Manhattan approximately 15 to 20 minutes each way. Ferries operated by New York Waterways continue to provide a water connection for commuters from Hoboken to lower Manhattan and the financial district.

Metro-North serves over 81 million customers annually in the New York Metropolitan area, but a relatively small portion are from Orange County due to the configuration of the rail lines and the barrier presented by the Hudson River. Data collected by Metro-North in the Spring of 2010 showed a total of 1,880 riders during the AM peak period on the Port Jervis Line versus approximately 1,750 prior to the opening of Secaucus (over 7% growth). The Pascack Valley Line also located on the west side of the Hudson River provides service which is used by some Orange County residents from the station in Spring Valley, in Rockland County.

Metro-North assumed control of the 65 mile Port Jervis Line under a long term lease agreement with Norfolk Southern. Metro-North

provided significant capital investments including purchase of 65 new Comet V coaches, additional locomotives, significant station rehabilitation including 945 new and 1,420 rehabilitated parking spaces since 2000 (42% increase), and the start of right of way improvements to rail, ties, line structures and signal system. This allowed Metro-North to increase service levels from 106 weekly trains to 158 weekly trains currently (49% growth).

Metro-North rail service on the east side of the Hudson River is also used by Orange County residents. Metro-North's east of Hudson service terminates at Grand Central Terminal on the east side of Manhattan. This service is more frequent and more direct. Due to its proximity to the Newburgh-Beacon Bridge, the station in Beacon is easily accessible for Orange County residents by car, the fixed-route Newburgh-Beacon bus shuttle, and as of 2005 a connecting ferry between Newburgh and Beacon. Metro-North provides security for customers and employees by working with the MTA Police Department in the development and implementation of deterrence, detection, mitigation, response and recovery initiatives. The security program is designed to eliminate or minimize risks wherever possible, minimize the potential consequences from those risks that cannot be eliminated and respond to and recover from any risks that are actualized.

Parking -- MTA Metro North Rail Stations

Station	Spaces	Ops/Maint	Utilization
Port Jervis RR Station	110	LAZ Parking	59%
Otisville RR Station	151	LAZ Parking	33%
Middletown RR Station	750	LAZ Parking	44%
Campbell Hall RR Station	231	LAZ Parking	57%
Salisbury Mills-Cornwall RR Station	677	LAZ Parking	65%
Harriman RR Station	985	LAZ Parking	69%
Tuxedo RR Station	219	Viilage of Tuxedo	*unknown*
Total	**3123**		

Newburgh Beacon Ferry

Ferry service between Newburgh and Beacon resumed in 2005, forty-two years after it stopped as a result of the opening of the Newburgh Beacon Bridge. The ferry service is completing its sixth full year of service and is now part of the regional transportation network. It is operated by NY Waterway under contract to Metro-North using state and federal funds through a Memorandum of Understanding between NYSDOT and Metro-North. In 2010 the ferry service averaged approximately 300 rides a day (this number reflects a slight drop in ridership vs. earlier years due to the downturn in the economy over the last several years). In recent years, FTA 5307 funding has been allocated by the Mid-Hudson Valley MPOs as a component of overall service funding.

[*Picture taken by Daniel Case; Wikipedia*]

There is no intercity Amtrak passenger service in Orange County. That line runs on the east side of the Hudson River between New York City and Albany, and west to Buffalo or north to Montreal. From an intercity perspective, a parallel line providing these services on the west side of the river would be redundant. Neither of the closest Amtrak Stops – Poughkeepsie or Croton-Harmon – is easily accessible to Orange County residents. However, Orange County residents can use the Port Jervis Line to connect to the Amtrak station at the joint Amtrak/NJT transit hub at Newark Penn Station (transfer at Secaucus Junction). Both Amtrak's high speed Acela service and the regular Metroliner service are available in Newark.

NOTE: The flooding from the rains of Hurricane Irene and Tropical Storm Lee in August and September 2011 caused substantial damage to the Metro North Port Jervis Line, especially south of Harriman Station. This damage is still being assessed. This chapter has not been rewritten to account for these damages, nor for the costs of repair or replacement.

In the 2010-2011 time frame, Metro-North continued right of way infrastructure improvements including the installation of continuous welded rail replacing stick rail, ties, line structures such as improvements to the Moodna and Woodbury Viaducts. With continued capital investment, track infrastructure will reach a State of Good Repair by 2014. Bridge and structures work to date has been focused on keeping the structures safe and serviceable, so many of these facilities will ultimately be replaced. Work on the Moodna and Woodbury Viaducts will continue into future capital programs.

Metro- North will begin installation of a new bi-directional cab signal system on the Port Jervis Line (between Suffern, NY and Sparrowbush, NY), with a new signal block design to provide the necessary track capacity for the intended future operating plan and installation of a Positive Train Control (PTC) system. Cab signal installation is anticipated to be complete in 2013.. Metro-North will continue right of way improvements on undergrade bridges and signals and will add new service where possible to accommodate ridership growth.
For the long term there are two major studies ongoing that would provide benefits to Orange County residents. They are as follows:

- Tappan Zee Hudson River Crossing Project – The New York State Thruway and NYSDOT are currently performing an Environmental Impact Study for a replacement of the Tappan Zee Bridge that would not preclude transit. A separate and independent environmental review process will be developed at the appropriate time in the future for the 30-mile I-287 Corridor between Suffern and Port Chester that would consider Bus Rapid Transit across the entire corridor and a direct one-seat ride from Orange and Rockland Counties to Grand Central Terminal (Manhattan's East Side) via the Hudson Line.
- West of Hudson Regional Transit Access Study - (WHRTAS) – transit access to central Orange County including Stewart Airport. WHRTAS could result in the recommendation of major new capital improvements, e.g., a new rail spur between Salisbury Mills/Cornwall and Stewart Airport that would serve both commuters and airport passengers. In 2003, Metro-North and NYSDOT completed a joint feasibility study that evaluated a number of transit alternatives for access to Stewart International Airport (SWF). Currently, Metro-North and PANYNJ are completing Phase 1 of WHRTAS, an Alternatives Analysis (AA) that will result in a short list of alternatives to be carried to the next Phase. Phase 2 of the WHRTAS AA will result in a Locally Preferred Alternative that can be evaluated further in a NEPA study. Following this environmental analysis,

Metro-North may commence work on implementation of capital improvements and/or protecting the Right-of-Way for future construction. Also, as part of WHRTAS Phase 2, Metro-North will evaluate options for capacity improvements to the Port Jervis Line, including a new PJL Mid-Point Yard and double-tracking between Sloatsburg and the eastern approach to Moodna Viaduct.

- Access to the Region's Core (ARC), which would have provided a one seat ride to NY Penn Station, was unfortunately terminated by New Jersey Governor Christie. This project would have provided significantly more rail capacity under the Hudson River and a new terminal to compliment Penn Station New York (PSNY) for the NJT Rail System. A loop track from the Main/Bergen/Pascack Valley Line trackage into the North East Corridor Line at Secaucus Junction would have provided a one-seat ride to PSNY.

Passenger Rail Feasibility Study – Walden Branch Line

A locally driven planning study examining another potential rail spur from the Port Jervis Line was being undertaken by the Village of Walden in 2008. This study was funded in part through the OCTC Unified Planning Work Program. This study assessed the feasibility of providing passenger service along the Walden branch line from the Port Jervis Line and estimated the cost of upgrading the 9 mile branch freight line from Campbell Hall to its terminus in the Village of Walden. The study determined that it would cost over $30M to improve the line and operate an independently power shuttle train car between Walden and the MNR Campbell Hall station; passengers would transfer from the shuttle car to the MNR platform via a pedestrian bridge. The Village of Walden's 2005 Comprehensive Plan and the Village of Montgomery 2009 Comprehensive Plan both support the concept of extending passenger rail service in order to enhance transportation opportunities for residents and to stimulate reinvestment.. The area around the proposed new station in Walden has been rezoned to Mixed Use and the Village has created a Master Plan for "A New Traditional Neighborhood at Railroad Place" in the vicinity of the proposed train station.

Chapter 6 – Air & Freight Services

Orange County has four airports: Stewart International Airport, Orange County Airport, Randall Airport, and Warwick Airport. The largest by far is Stewart International Airport, which serves both the County and the region, facilitating the movement of both freight and people. The significance of air transportation in Orange County and the relationship to surface transportation and land use will be an increasing subject of interest, primarily due to the future development of Stewart International Airport.

Privatized for a short time under a 99-year lease agreement between New York state and National Express, Stewart provides commercial passenger and freight service. In 2006, the National Express Group announced its intent to sell its lease and since 2007 the airport has been operated by the Port Authority of New York – New Jersey. By virtue of this new relationship, the Port Authority has become a non-voting member of the council.

Stewart International Airport, with its twelve-thousand foot main runway, still partly serves a military purpose, for which it was originally constructed. It is the home of the 105th Airlift Wing of the New York Air National Guard and two Marine Air Squadrons. It is the only airport in the area which operates twenty-four hours and has a control tower. Major renovations at Stewart have increased the passenger service area, constructed a new tower, and have added jet bridges. Passenger service is currently provided by US Airways, Delta, and JetBlue.

Access to the Stewart International Airport facility is provided along Bruenig Road from NYS Route 207 and an entrance from newly-constructed NYS Route 747 (completed in 2008). Route 747 provides access from Interstate 84 at Exit 5A, and extends from a new intersection with NYS Route 17K to NYS Route 207 on the south. Bruenig Road is a three-lane roadway which originates at the signalized intersection with NYS Route 207 and goes north toward the terminal. NYS Route 207 is a two-lane rural highway running east-west along the southern boundary of the airport. There is currently bus transit service to and from the airport, via the Newburgh-Beacon Shuttle service operated by NYSDOT. Due to the cost of the shuttle service and the current low ridership, the level of service was reduced in 2011. Traffic issues along 207, potential capacity improvements, and related traffic and land use issues were the subject of study and planning during the Newburgh Area Transportation and Land Use Study (see www.newburghareastudy.info). Regional transit access to the airport is the subject of study through the West of Hudson Regional Transit Access Study (See: www.mta.info/mta/planning/whrtas).

The previous private airport operator, National Express Group, completed a master plan in 2006. The Port Authority has been reviewing the overall plans for the airport.

Stewart International Airport continues to grow as a major air cargo facility. The development of land in the surrounding area and the provision of air cargo storage and handling facilities at the Airport are

expected to continue this growth. Freight services at the airport are offered by Federal Express, United Parcel Service, and the US Postal Service.

Current activities at the airport generate approximately 1 million vehicle trips per year. With growth of this facility, the level of trips can be expected to increase grow as well. Projects to improve Route 207 between Bruenig Road and Route 300 are programmed in the TIP; the width of the bridge which carries NYS Thruway traffic over Route 207 is a key constraint for these efforts. This area was the subject of focused analysis and planning as part of the Newburgh Area Transportation and Land Use Study (www.newburghareastudy.info).

As mentioned previously, MTA Metro-North is presently carrying out a detailed alternatives analysis for regional transit access, which might include the potential of extending rail to the airport from the Port Jervis Line. The existing MTA feasibility study points to the need for a new rail yard and maintenance facility. This yard would make it possible for MTA Metro-North to provide increased service for this portion of the Port Jervis Line. Improved transit access would make Stewart Airport more accessible to potential airline passengers in NYC, Westchester, Rockland and Northern New Jersey. It would also make commuting and other travel to the NY/NJ metropolitan area more convenient and less time-consuming for residents in Orange County, Ulster County and surrounding areas.

Orange County Airport is a medium size airport which has the ability to serve both smaller commercial operators and general aviation, including corporate users and flight school users. Orange County is working to continually make improvements to the airport, including the expansion of support facilities such as hangars. The airport is located just south of the Village of Montgomery on NYS Route 211. Although I-84 passes within one mile of the airport, the nearest interchange is five miles away (Exit 5, Maybrook). Based on its airport master plan forecast of 107,000 ground trips/year to and from the airport at 2005 operation levels, an interchange should not be necessary unless significant other local development warrants it.

Warwick Airport is a small airport serving general private aviation, providing rentals, instruction, and charter services. Only one of its runways is paved. Existing access to Warwick Airport is from (CR 13) King's Highway. Airport plans include more parking areas and, fueling facilities for aircraft, an area for helicopters, and a longer runway to allow utilization by more types of aircraft. Based on the projected levels of aircraft activity in its master plan, the Warwick Airport will probably not generate more than 100,000 annual vehicle trips on the local road system.

Randall Airport is a small airport in the Town of Wallkill. Providing a soaring school as well as tie-down and hangar facilities, the airport is on Airport Road about two miles southeast of Middletown, between I-84 and Schutt Road. The 1995 Randall Airport Master Plan forecasted airport operations to increase to 70,700 by 2014, well within its existing capacity.

FREIGHT SERVICES

Because of its location at the crossing of Interstates 84, 86, and 87 which are main routes to and from New York City, New England, Canada and the mid-West, Orange County is an important center and conduit for freight movements. Truck freight serves local businesses and a growing number of distribution and warehousing operations, some of which are also served by rail. A substantial number of trucks are simply

passing through. NYSDOT estimates that 25% of the traffic volume on I-84 is truck traffic. Efficient movement of goods in and through Orange County is important to both the regional economy and to New York State and beyond. Over-the-road freight movement is also a significant factor in regard to traffic, congestion, safety, security, road and facility design, and air quality.

County and local efforts will have an additional resource that provides a regional context on freight issues in 2012, when the Port Authority, New York State Department of Transportation, and New Jersey Department of Transportation expect to complete a collaborative Long Term Regional Goods Movement Plan. Their objective is a phased action plan that will support development of a modern freight system for the greater bistate region. The jointly scoped, PANYNJ-funded plan will incorporate strategies to address projected regional goods movement needs and related economic opportunities with strategies for more efficient, sustainable, and safer goods movement by road, rail, and water.

Over-the-Road Trucking

The majority of freight delivered to and shipped from the County is carried by truck. There are numerous motor carrier terminals serving for-hire carriers and specific industries located in Orange County.

According to NYS Department of Labor there were 42 Local General Freight Trucking companies operating in Orange County in 2002, and 12 long distance freight companies identified. Other companies with significant levels of freight activity were also identified by local officials. The largest of these companies are concentrated near I-84 in the Towns of Montgomery and Newburgh. The majority of shipments passing through these facilities have origins and destinations outside Orange County, via travel on the interstate system. NYSDOT Region 8 reports that there are approximately 10,000 trucks a day traveling on I-84 east near East Fishkill in Dutchess County and estimates that a similar number are traveling daily on I-84 with in Orange County. The major freight, distribution, and warehousing operations are clustered near I-84 Exit 5 in Montgomery, near I-84 and I-87 near Stewart International Airport in the Towns of Newburgh and New Windsor, and near NY Route 17 (future I-86) in the Town of Chester.

Rail Freight Operations

The rail freight operators in the County are CSX, Norfolk Southern, New York Susquehanna and Western (NYS&W), and Middletown & New Jersey (MNJ). CSX and Norfolk Southern are the only Class I operators within the County, operating over 100 miles of track. The largest carrier is CSX which operates approximately 52 trains per day on the west shore River Line along the Hudson River. This line passes the length of the county (22 miles) extending north and south into Ulster and Rockland Counties. CSX also operates a six mile short line known as the Newburgh Industrial Track, extending from the Newburgh waterfront to Cornwall with one train per day.

Norfolk Southern (NFS) operates from Port Jervis to Tuxedo on the same track owned by MTA Metro North used for the Port Jervis Line passenger service. Norfolk Southern operates approximately 2 to 4 freight trains each day. NFS also operates three short lines. One of these, the Hudson Secondary, extends twenty miles from the Town of Montgomery to the Town of Warwick with approximately two trains operating per day. Two additional short lines run from Hamptonburgh to Montgomery and Walden. These lines are known as the Maybrook Industrial Track (7 miles in length) and the Walden Secondary (6 miles in length). Approximately one train operates on each of these lines per week. NFS also operates a one mile section of track within the Town of Warwick. One train runs on this track per week, which is known as the Belvidere Industrial Track.

There are two other short line railroads operated by NYS&W and M&NJ. NYS&W has trackage rights over Norfolk Southern's Southern Tier Line and also owns about 4 miles of track between Warwick and the New Jersey state line. M&NJ operates over 19 miles of track. The operating costs of the rail system are the responsibility of the private carriers. The State currently contributes toward improving rail clearances on the existing systems that will eventually allow inter-modal and double-stack services and thereby expand market share. Double-stack cars are currently being used by CSX on the River Line.

Marine Freight

There is little marine freight activity on the Hudson River in Orange County. The port is served by rail service that is currently operated by CSX. Highway access is limited to local streets.
The Hudson River Waterfront in Newburgh has access to multiple transportation systems and resources. Industrial access to the Hudson River waterfront can be supplied by barge via the Hudson River, by rail or by highway via interstates 84 and 87, however, trucks must use local roads to reach the highway access points. Power plants and oil terminals have capitalized on the infrastructure in Newburgh.

The Danskammer and Roseton power plants are owned and operated by Dynegy Inc. and are located in the city of Newburgh on the banks of the Hudson River. Danskammer is a 500-megawatt facility capable on running fuel oil, natural gas or coal. Roseton power plant is a 1,200-megawatt facility which can run simultaneously on fuel oil and natural gas or solely on either source. Both facilities are located on the same 380 acre site. The site can access four interstate gas transmission systems. Coal can be delivered to the Danskammer plant via rail or barge and there are several oil terminals in Newburgh that can provide access to fuel oil. In addition to providing possible fuel sources to the Roseton power plant, oil terminals utilize the transportation network for distribution of their product throughout the region.

Freight Service Needs

Present and future freight trends for Orange County are not as well understood as they should be, and anecdotal evidence indicates the same is true elsewhere in the region. Because of its proximity to major interstate, rail, air, river and even trans-national transportation routes, the amount of freight originating within or traveling through the county is anticipated to grow. What the nature and quantity of that growth will be by sector, what goods are being transported in, out and through Orange County, and what the related impacts will be on capacity and environmental quality are questions that need to be answered. The quality of freight service in and through the County in the future will depend on the condition and capacity of the highway network, the rail network, the facilities at Stewart Airport, as well as the development of the Port of Newburgh. The efficiency of interconnections between these facilities will also be critical. To address these issues, OCTC needs to devote planning resources to conduct a detailed freight study. This study must:

a) inventory the present regional freight system for all modes and determine the general types and volumes of through-freight shipments and freight shipments to and from businesses in the County
b) evaluate the adequacy of the existing transportation system, together with already programmed improvements, to meet multimodal freight needs in the future and assess the need for additional facilities such as intermodal terminals
c) determine the economic benefits of improvements recommended
d) provide a set of actions that can be taken by public agencies in the region to address the needs identified.

Specific aspects to be examined include:

- Traffic congestion
- Air quality and practical methods for reducing freight related emissions
- Potential for increased use of rail service (and related competition with passenger service)
- Truck restrictions on Routes 284, 94, & 17A (due to restrictions on Rt 209 in Pennsylvania).
- Collection of data on the volume and characteristics of freight movements in the County including tons moved, average trip length and trip length distribution, and through freight volumes compared to freight with an origin and/or destination in Orange County.
- Access to Stewart International Airport and the Stewart Industrial Park; access to other distribution and warehousing centers
- Impact of restricted turning radii and islands on truck movements
- Need for more freight forwarders at Stewart and additional carriers serving New York and New Jersey airports
- Pavement conditions
- Tolls and tolling collection systems
- Assessment of marine freight operations, opportunities, and land-side connections
- Development of methods and operating procedures to improve local truck service in villages without creating on-street congestion
- Access to local shipping terminals and industrial parks from the NYS Thruway (I-87), Route 17 (future I-86) and I-84 that would minimize local road impacts
- Need for and potential location of intermodal terminals
- Truck impact on local streets such as Union Avenue
- Condition of and responsibility for repair of structures separating rail lines and highways

Completion of this freight study will provide guidance to County and State officials responsible for the prioritization and funding of transportation projects as they plan for the future of the County.

Chapter 7 -- Bicycle and Pedestrian Transportation

There are a number of off-road, unpaved trails suitable for walking and biking in Orange County. These trails are generally recreational routes with limited commuter potential. The number of on-road bicycle and pedestrian facilities in Orange County is limited. However, on many roadways, shoulders are available for non-motorized travel. On these roads, non-motorists share highway space with automobiles, which is considered by the County to not be as safe as dedicated facilities. Bike use is further inhibited by lack of bicycle storage facilities and limited options for carrying bikes on trips that combine bicycling and bus or train travel.


Heritage Trail

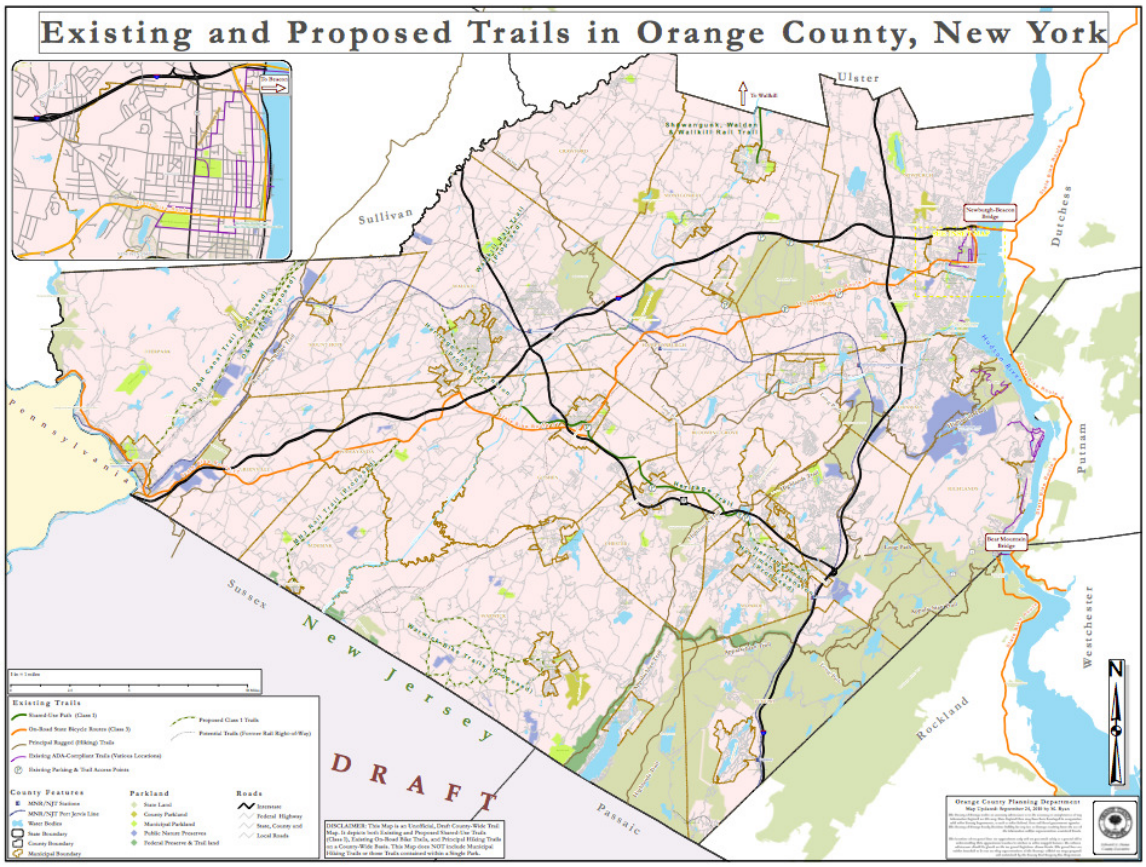
OCTC County Planning Staff began the update of the 1997 OCTC Bicycle and Pedestrian Plan in 2010, through inclusion of a limited task in the Newburgh Area Transportation and Land Use Study. An open house was conducted in October 2010 to kick off this effort. The framework document which is nearing completion discusses countywide issues generally while focusing primarily on the Newburgh Study area. The framework document is expected to guide the preparation of the countywide non-motorized transportation plan which is hoped to be completed by the end of 2012.

This work has found that, while many of the existing centers within the Study Area do have networks of sidewalks, the extent and condition of that sidewalk network varies extensively. Of the seven NYSDOT designated bicycle routes, only two had any formal signage and none had any pavement markings or other devices to indicate that the road was used by both bicycles and cars. Further, many of the roads along which these bike routes ran often times had traffic volumes or speeds that were not conducive to safe bicycle use. As a consequence, non-motorized trips (e.g., walking or bicycle trips), while observed within the study area, were not prevalent and were conducted in less-than-optimal conditions for safety and convenience.

Orange County Planning mapped the existing route network and the study team assessed where users were most interested in improving these networks or making new connections. Important to the identification of these opportunities was an understanding of where existing and potential transit connections are, or could be located, and where centers of land use are or could be located.
Some of the recommendations could be implemented with low-cost signage or road painting to indicate the location of the bike routes or modifications to traffic signals to provide protection for turning cyclists. Other routes may require modest investments to widening of shoulders or repaving of roads to make the routes safer for the bicyclists. Finally, higher-cost improvements may be necessary where existing or proposed bike routes coincide with higher volume or higher speed traffic.

One example from the study of a fairly easy solution to implement would be to reroute the bike route between Walden, Montgomery, and Maybrook that currently runs along NY 208 and create a safer route along River Road (CR 29) south from Walden, onto NY 211 and Boyd Street in Montgomery, and then along Beaver Dam Road to bypass the busy I-84 Exit 5 area. These roads are not only less trafficked, but also more scenic, and the new route could link each of the three villages together in a safe manner.

Following is the updated county-wide bicycle route and trail map created by Orange County Planning as part of the non-motorized transportation planning process.



The Orange County Heritage Trail, running along the former Erie Railroad right of way, is the county's premier paved pedestrian multipurpose trail. Presently about half of the trail has been completed, running from the Village of Monroe to the Town of Goshen. This section of the completed trail was designated in 2007 by the Secretary of the Interior as a National Recreation Trail. A small section east of Monroe is close to the construction stage. A design and engineering project is being commenced with Transportation Enhancement and other funding for the remainder of the western section of the Heritage Trail from Goshen to the vicinity of the hamlet of Howells. OCTC County Planning staff work directly with the non-profit group Orange Pathways, Inc. and other groups and individuals regarding pedestrian and bicycle facility planning. Orange Pathways has been instrumental in advocating for, constructing, and funding the Heritage Trail. The City of Middletown, Orange County Land Trust, and the National Park Service Rivers & Trails Program are also working closely in support of further trail development.

This map shows the former Erie Railroad right of way and the likely route for most of the western section of the Heritage Trail

The Town of Wallkill is presently working to develop a rail trail which will start at Beverly Drive in Circleville and extend to Lybolt Rd at the Town of Crawford line.

The Village of Walden and Town of Montgomery have recently completed a four mile section of the Wallkill Valley Rail Trail, connecting into Ulster County and the hamlet of Wallkill.

Pedestrian access varies by location in the County. Sidewalks are provided along commercial and residential streets in most of the cities and villages, and handicap accessible sidewalks are installed in many of these places. Towns and rural areas in the County generally lack sidewalks, as do many suburban commercial corridors.

The following intra-city trails provide pedestrian facilities and may have some commuter potential, although they were originally designed for recreation and tourism: The Trail of Two Cities (Newburgh), the Frederick Douglas Trail (Newburgh), Quassaick Creek corridor (Newburgh), the Delaware River Heritage Trail (Port Jervis), The West Point Trail (Highland Falls), the Highland Falls Trail (Highland Falls), and the Stillman and Howells Trail (Cornwall). These trails are also considered bicycle routes, but a cyclist may have to share road space with motorists.

Because facilities are so limited, sharing highway space with motorists is the only option for non-motorists in most parts of the County. According to motor vehicle and traffic law, all roads are open and available to cyclists and pedestrians except for the expressway system, totaling 97.1 miles in the County, where they are prohibited. However, a bike/pedestrian facility exists on I-84 linking Beacon-Newburgh across the Hudson River. While cyclists by law are allowed to use public roadways, realistically highways with no special provision for cyclists or pedestrians are less safe. OCTC non-motorized transportation planning is intended in part to help garner agency and municipal commitments to widening and marking shoulders for bicyclists.

On the Port Jervis Line operated by NJ Transit for MTA Metro-North, bicycles may be brought aboard during non-peak weekday periods and on weekends. Folding bicycles may be carried on the train at any time.

Bicycle/ Pedestrian Accident reports in Orange County show that in 1994, 171 pedestrians were injured, three pedestrians were killed, and 79 bicyclists were injured. The NYSDOT Safety Information Management System shows that in 2000, 88 bicyclists or pedestrians were injured, but no one was killed in Orange County. Viewed in terms of person-miles of travel, these are very high proportions.

Safe Routes to School (SRTS) programs educate students, parents, and community members on the value of walking and bicycling for school travel. Successful SRTS programs use the five Es: education, encouragement, enforcement, engineering, and evaluation to increase the number of students walking and bicycling to school creating healthy lifelong habits. Students and communities benefit from reduced congestion, air pollution and transportation costs, increased physical activity, and a safer environment for students.

Together, OCTC will work with the Orange County Department of Planning to plan, design, and apply for assistance and funding for volunteer school districts. Improvements may include crosswalks, striping, signage and sidewalk improvements, educating students and municipalities about the long-term benefits and cost savings, installing appropriate lighting and traffic signals, and training volunteers as crossing guards, safe houses, and "walking school bus" leaders.

OCTC will support local communities in the development of a complete system of bikeways, pedestrian facilities and shared use paths, bicycle parking and safe crossings connecting the region's residences, businesses and public places. OCTC will promote bicycling and walking for health, exercise, transportation and recreation.

Bicycle and pedestrian facilities should be provided in new construction, reconstruction and maintenance projects as appropriate unless bicyclists and pedestrians are prohibited by law from using the roadway or the cost of establishing bikeways or walkways would be excessively disproportionate to the need or probable use. Bicycle and Pedestrian facilities should be constructed and maintained in accordance with guidelines adopted by the USDOT, NYSDOT and AASHTO.

The 1997 OCTC Bicycle/Pedestrian Plan provides the foundation for developing and maintaining an effective network for these forms of transportation. Among its conclusions, the plan recommended the completion of the Heritage Trail, development of a trail along the D&H canal towpath from Port Jervis to the Basha Kill, reuse of the abandoned Maybrook Line Railroad right of way, and changes in county and municipal policies regarding the incorporation of pedestrian and bicycle facilities in future planning and highway projects. As described above, this plan is being updated.

NYSDOT Region 8 Bicycle and Pedestrian Strategy

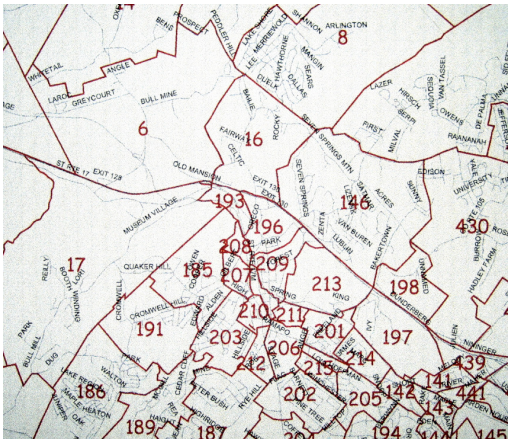
The Region's strategy is to complete the Region's network of trailways, improve Bike Routes 9 and 17, continue Regional policy of minimum 4 foot shoulders and 6 foot shoulders on bridges, designate and sign bike routes as routes are improved, improve existing sidewalks along state highways to insure ADA compliance, address bike/ped needs in all projects as appropriate, identify and construct needed sidewalk projects, and support local governments with federally aided local projects to complete trailways and sidewalks. NYSDOT will support Hudson Valley Greenway and Quality Communities efforts. NYSDOT also publishes a popular guide to bicycle and pedestrian facilities, *Hudson Valley Bikeways & Trailways*.

The Region intends to construct the remaining stages of the Palisades Interstate Trailway and support the completion of the Orange County Heritage Trail, the Harlem Valley Rail Trail, the Putnam Trailway, the Maybrook Trailway, the Dutchess Rail Trail, the Hudson Valley Trailway, the Delaware and Hudson Canal Heritage Trailway, the Wallkill Valley Rail Trail, and the South County Trailway. These efforts will include a bike path from the George Washington Bridge to Bear Mountain using the right of way of the Palisades Parkway. The path in Orange County would be about four miles long from the Rockland County border to the Bear Mountain Bridge. NYSDOT's bicycle and pedestrian goal is a regional system of interconnected trailways that when combined with state bike routes will provide reasonable bicycle and pedestrian access to most areas of the region. The trailways will also be linked to rail stations in many locations.

Chapter 8 – OCTC Travel Demand Modeling

To determine the impact of future transportation projects, OCTC utilizes a "gravity model" process to replicate (in a computer) the existing traffic conditions and forecasted future travel demand. For this, OCTC uses the VISUM software package by PTV of America. Like most programs of this type, spatially accurate digital mapping is required to identify current and future land use conditions and highway characteristics for the modeling software. The OC Travel Demand Model incorporates housing data, employment data, and highway characteristics along with trip generation, trip distribution, and trip assignment inputs to replicate existing travel patterns within the computer travel model. Trips are distributed and assigned to the least time travel paths between traffic analysis zones based primarily on the methodology recommended in National Cooperative Highway Research Program Report 365 (NCHRP 365), Travel Estimation Techniques for Urban Planning. This model has been used for completed and on-going corridor studies, for air quality analysis, and for the development of this plan.

Traffic Analysis Zones. An important part of travel demand modeling is the creation of Traffic Analysis Zones (TAZs). TAZ's are geographic areas that describe different types and quantities of land use. These zones represent areas with significant or unique travel characteristics and are often based on U.S. Census geographies (tracts, block groups, and blocks). Essentially, TAZs provide a means to aggregate different land use types geographically, convert such information into vehicular trips and determine the location where vehicular trips start and end in a roadway network. To accurately replicate base year traffic conditions, it is necessary to accurately describe the location of land use activities relative to where traffic actually enters and leaves the highway network. Not every driveway need be represented, however, only the significant local and collector roads channeling traffic to the roads and intersections being analyzed.



The OCTC Travel Demand Model incorporates 550 TAZs (515 internal zones and 35 external zones) connecting OC roads and highways with neighboring counties. The 515 internal TAZ's were created by first delineating limited access highways, rights-of-way (rail and power lines), state lands (Stewart Properties and Parks) and natural features (rivers and mountains) which divide OC by restricting directional traffic flow. These districts were then further subdivided into TAZs bounding residential neighborhoods and centers of activity (e.g. Malls and Central Business Districts) where vehicle trips tend to start and end. Housing and employment forecasts are made for each analysis year being evaluated. The forecasts are based on historic growth trends in OC, as well as projections made by other agencies. When used for air quality conformity purposes, the model is used to forecast vehicle miles traveled (VMT) and vehicular speeds for a set of analysis years as required by federal transportation regulations.

Population. Population and housing information from the 2000 Census (Summary File 1) are used as a basis for verifying the projections used in the OC Travel Demand Model for transportation conformity. It is assumed for travel demand purposes that OC will experience near constant levels of growth over the next twenty-years similar to those experienced over the past 30 years.

Employment. Employment information indicating the type and location of all businesses in the county along with the number of employed persons in each was obtained from the NYS Department of Labor for the year 2002. This information was separated into six categories (retail, mall, non-retail, office, school and institutional) and aggregated by type and location to determine peak hour trips for each TAZ in the OCTC Travel Demand Model. Employment projections were based upon expected employment from approved development projects yet to be constructed, as well as average commercial growth rates. The basic underlying premise is that future employment levels will be directly related to the influx of new people and increased demand for products and services created by the future growth in population and housing in the county.

Housing Units. Land use information from the NYS Office for Real Property Service for each parcel in the county was obtained for the year 2002 and aggregated by type and location to determine peak hour trips generated for both single-family and multifamily housing in each TAZ of the OC Travel Demand Model. Future single-family and multifamily housing units were projected based upon: proposed residential projects yet to be constructed in each TAZ, average growth rates in housing by municipality and the availability of sewer and water facilities. The resulting housing projections were compared to those made by the New York Metropolitan Transportation Council for reasonableness and deemed to be acceptable.

Households. Household information from the 2000 Census (Summary File 3) was used as a means of checking and verifying the housing data and occupancy information from the NYS Office of Real Property.

Vehicles Available. Information from the 2000 Census (Summary File 3) indicating the average number of vehicles available per housing unit was used to further refine the number of trips generated in each TAZ. This was done for TAZs primarily in urban areas, where high numbers of housing units exist without a corresponding high number of vehicular trips generated.

Transit Operating Policies. Coach USA, MTA-Metro-North Railroad, Newburgh-Beacon Bus Company, Middletown Transit, Monroe Bus Company and Kiryas Joel Transit provide the majority of mass transit services in Orange County along with 9 local dial-a-bus operators. According to Census Journey-to-Work information, only 4.7% of work related travel in OC had a mass transit component, with a majority of this travel involving vehicular trips to and from park and ride lots in OC. While park and ride lots are included in the OC Travel Demand Model as trip generators, transit service is not modeled given the low rate of utilization in OC.

Transit Service Levels. The travel demand model does not incorporate significant changes in travel attributable to increased future transit service in Orange County. This assumption could change if economic or environmental conditions change unexpectedly so as to influence travel behavior and patterns.

Transportation System. The OC Model assumes that the regional transportation network will retain its ability to adjust to changes in travel demand with regard to vehicular traffic and mass transit services. This assumes that future transportation funding rates will be maintained and that technological advances in Intelligent Transportation Systems (ITS) will further improve the efficiency of the transportation system.

Road Network. The simulated road network within the OC Travel Demand Model consists of two components: links, which represent roads, and nodes, which represent intersections. Each is characterized by relevant data concerning the number of lanes, traffic control devices, turning lanes, and posted speed limits and area type (i.e. urban/rural) which determine the vehicle capacity of each link and node. In addition, each road segment (link) is assigned a functional classification in accordance with the National Highway Classification System. The road network in the OC Travel Demand Model is based on the NYS Data Product GIS Street Centerline file.

The highway network in the OCTC Travel Demand Model includes all roadways that have a functional classification of interstate, arterial or collector. Not every local road is included -- only those that facilitate the through movement of vehicles and feed and augment collectors, arterials and interstates in the county. For example, roads to regional shopping malls, office parks and major residential developments are included because they are important locations where traffic enters and leaves the primary road network. Information concerning intersection signalization and number of turning lanes was collected in the field and from aerial imagery to determine capacity.

Trip Generation. Trip generation is the means of quantifying the number and type of trips to and from each TAZ in the OC Travel Demand Model based upon the type and amount of land use activity therein. Essentially, the purpose of trip generation is to have the model accurately reflect the average trip making characteristics of people over a specific timeframe. In this case, the average trip making characteristics of people in OC were determined for the PM peak hour, the time of day when traffic congestion tends to be the heaviest. Trips in the OC Travel Demand Model are first calculated for each TAZ and then separated into different types based upon purpose. The reason for separating trips by purpose is to account for variable trip lengths. Numerous travel surveys indicate that people are willing to drive farther between home and work than they are between home and shopping. Thus, the purpose of a trip determines its length; trip length, together with the number of trips generated in a model, determine traffic volumes and vehicle miles traveled.

Trip Production & Attraction. Trip production and trip attraction rates were obtained from the Institute of Transportation Engineers, Trip Generation Guide, 7th Edition for commercial, office and industrial land uses while origin rates for residential land uses were calculated from traffic counts taken at the entrances to major residential development throughout the county. Trip productions and trip attractions in the OC Model were then separated by purpose to account for variable trip length characteristics of drivers as documented in NCHRP 365, Travel Estimation Techniques for Urban Planning. Trip length is important because it influences traffic volumes, vehicle miles traveled and vehicular emissions.

External Trips. The Model uses external loading links to account for traffic that enters from an area outside of each county. External trips to and from areas outside OC were determined by the directional split of traffic on each major highway and road segments (external links) connecting Orange with the surrounding counties. Trips traveling through OC between external links were estimated using journey-to-work information from the Census 2000 Transportation Planning Package. External trips include those that start in the model area but leave it (Internal-External trips), start outside the model but end in it (External-Internal trips), or pass through on their way between two external points (External-External trips).

Trip Distribution. Trip distribution is the process by which trip origins are apportioned throughout a study area based on the number of trip destinations in each TAZ and the distance/travel time impedance between them. In so-called “gravity model” such as this, the assumption is that people tend to interact

more when the travel time between them is less – the shorter the travel time, then the higher the frequency of interactions. Thus, there are a greater number of trips between places that are densely developed and located near one another than those less densely developed miles apart. Accordingly, vehicles in the OC Travel Demand Model are routed on the shortest distance/time routes between TAZs first, and then to other more circuitous routes as traffic congestion makes the shorter distance routes more time consuming.

Calibration. Generally, model calibration is the process by which the travel parameters of a model are adjusted to reflect actual base year traffic counts. Traffic volumes assigned by the model are compared to actual traffic counts through regression analysis. The differences between the counts and the assignment traffic volumes are used to modify trip generation rates, trip length exponents and, in some instances, land use quantities where errors become evident. One or two variables are modified followed by a model run to determine the effect of such modifications. This is repeated, iteratively, until volumes assigned by the model meet acceptable error deviation levels as defined in National Cooperative Highway Research Report 255, Highway Traffic Data for Urbanized Area Project Planning and Design.

The OCTC Travel Demand Model is an invaluable tool for helping to understand how the highway transportation system functions and how it might function in the future under different development scenarios and changes to the system. The model is routinely used to forecast potential air quality emissions in the future in order to demonstrate conformity to Federal air quality regulations as administered by New York State and OCTC.

Travel Model Visualization.

Through OCTC, the County Planning Department has acquired the visualization component to the travel demand modeling software in order to be able to simulate and display model results and dynamic interactions in a manner that is more readily understood. This simulation software – VISSIM – will be used in traffic analyses for OCTC transportation and land use studies. The department has increased it's staffing to, in part, be able to dedicate the resources to making good use of this tool. VISSIM generated animations were used for both analysis and to enhance public participation as part of the Newburgh Area Transportation and Land Use Study.

Chapter 9 – Congestion Management Process

One of the primary functions of a Transportation Management Area under Federal law is the development and use of a Congestion Management Process or CMP. A CMP is used in identifying, evaluating, and managing traffic congestion in the regional transportation network. The process empowers Metropolitan Planning Organizations to develop viable strategies to mitigate the causes and effects of congestion, and to press forward with implementing these strategies by working with the region's elected officials, private citizens, and transportation professionals.

The three MPOs in the Mid-Hudson Valley TMA agreed to develop and implement a single CMP for the TMA, which would outline the overall commonalities among the three MPOs – such as a single definition for congestion and common types of data collection – but also allow for locally derived methods to manage congestion in their individual communities.

There are six core components of a CMP:

1) Creating methods to monitor and evaluate the performance of a transportation network
2) Using quantifiable parameters to identify congestion
3) Establishing a program for data collection
4) Identifying and evaluating the benefits of congestion management strategies
5) Developing an implementation schedule
6) Instituting a process to periodically assess the CMS program

In addition to these basic tenets, the CMP for a TMA located in an ozone non-attainment area must meet additional criteria. These include the requirement for an appropriate analysis of all reasonable (including multimodal) travel demand reduction strategies where an increase in Single Occupant Vehicles (SOVs) capacity is proposed. If the analysis shows that the capacity cannot be met through demand strategies, then the CMP must identify strategies to effectively manage the expanded SOV facility. Federal regulations also state that federal funds cannot be programmed for any highway SOV project in a non-attainment area unless it is based on an approved CMP. These requirements apply to PDCTC and OCTC, since they are part of the EPA-designated Poughkeepsie Moderate Ozone Non-attainment Area; the UCTC lies outside this area. Additionally, OCTC is part of the multi-state non-attainment area for fine particulate matter.

Understanding Congestion

In general, there are two types of congestion: recurring and non-recurring congestion. Recurring congestion refers to congestion that arises on a routine basis at the same place and generally at the same time, a condition that may hint at a systemic imbalance between roadway capacity and existing demand – otherwise known as a "bottleneck." Some refer to this as volume based congestion. Non-recurring congestion, on the other hand, occurs when a vehicle crash, road construction, or poor weather impedes traffic. This also includes traffic resulting from heavy demand associated with a special event, such as a County fair or holiday shopping. This is sometimes referred to as incident-based congestion. Our ability to formulate viable management solutions begins with an understanding of these two types of congestion. It also underscores the complexities of trying to measure and manage congestion, especially with regard to non-recurring or incident-based congestion, which can be extremely difficult to predict. For this reason the

MHVTMA CMP focuses on recurring, peak hour congestion in the short term and then work towards addressing non-recurring congestion in the long term.

CMP Strategy

Embracing the flexibility surrounding the process, the CMP addresses the statutory requirements through a four-step strategy tailored to the Mid-Hudson Valley. The purpose of using this methodology is two-fold: it is hoped that this format will ease the reader's understanding of this new congestion management system and, accordingly, plant the seed for taking action to manage severely congested areas. In the short term, the mission is to locate and manage severe, recurring congestion on road corridors and intersections in the tri-county, Mid-Hudson Valley Transportation Management Area. In the longer range, the mission is to expand the CMP to analyze non-recurring congestion, and to also identify congestion related to other modes of transportation (public transit, bicycle, and pedestrian) with the reality that financial and staff resources remain finite and that they must compete with other MPO requirements. Following are the four CMP steps:

1. *Measure and Define: understanding the transportation system*
2. *Locate: finding severe congestion in the Mid-Hudson Valley*
3. *Manage: identifying realistic solutions and taking action on them*
4. *Integrate and Evaluate: making this CMP work in existing planning processes*

The TMA agreed upon two methods to measure congestion: Volume-to-Capacity (V/C) ratios and Travel Time Surveys. The first method, V/C ratios, will serve as the short-range method for defining congestion among the three MPOs, while the latter will serve as the long-range method, pursued as time and resources become available.

Measuring traffic against V/C ratios tackles the issue of defining congestion from the perspective of supply and demand. A particular road has a finite physical capacity, a limit to the number of vehicles that can safely travel on the road at any one time. At a given point, the sheer number of vehicles on the road creates congestion and an unacceptable level of service: usually, but not limited to, morning and evening peak commuting periods. To quantify this level of service, a V/C ratio – or percent of capacity – is calculated for roadways and then translated into a descriptive level of congestion. Travel demand models can calculate current and future V/C ratios by taking traffic volume and dividing it by roadway capacity, which is primarily based on the road type (functional classification); this is a relatively simple calculation for today's modeling software.

The TMA uses a system of V/C measurements similar to ones employed in other areas around the country. These systems are variants of nationally accepted Level of Service (LOS) designations as defined by the Transportation Research Board in its *Highway Capacity Manual (HCM)*. In general, the *HCM* rates the efficiency of transportation facilities on a scale of A through F, with LOS A representing the ideal of free flow traffic and LOS F the worst with forced or breakdown flow. Building upon this type of rating system, many MPOs translate numeric V/C ratios into qualitative terms that better convey the level of congestion on a facility. A typical and effective approach classifies congestion into three general categories such as moderate, high, and serious, with each category equated to a range of V/C ratios. The Mid-Hudson TMA CMP uses a system that classifies recurring weekday, peak hour (e.g. 4-5 p.m.) congestion into three categories: moderate, heavy, and severe (Table 1). The categories relate to three simple ranges of V/C

ratios. A facility operating between 80 to 89-percent of its capacity during peak periods is classified as having moderate congestion, while a facility operating at 90 to 99-percent of capacity is classified as experiencing heavy congestion. When the measured V/C ratio exceeds the 100-percent threshold, the facility is classified as having severe congestion. The over 100-percent threshold equates to LOS F.

The benefit of using such a classification system is that it makes it easier for individuals and organizations to understand the levels of congestion on the region's roadways, and consequently easier to prioritize problem locations and better focus management strategies. It is also similar to a previous system used by NYSDOT-Region 8 to define congestion.

Vehicle-to-Capacity Ratio Designations for the Mid-Hudson Valley TMA CMP

Level of Congestion	Vehicle-to-Capacity Ratio[1]
Moderate	V/C ratio = 0.80 – 0.89
Heavy	V/C ratio = 0.90 – 0.99
Severe	V/C ratio >= 1.00

[1] *As calculated for weekday peak hour volume.*

In addition to using V/C ratios to identify congestion, the three MPOs agreed to pursue a second approach that incorporates travel time measurements in defining congestion. Incorporating the time component in our understanding of congestion acknowledges the importance of time to travelers, which can often be a better gauge of real-time congestion than traditional V/C calculations. The three MPOs will also work to: Incorporate NYSDOT Congestion Needs Analysis Model into the CMP; pursue advanced travel demand modeling; and work to adapt to changing trends and integrate new technology.

Traffic Congestion in Orange County

For the most part, Orange County roads and highways facilitate the efficient and safe flow of people and goods, with a few exceptions during the pm peak hour, which coincides with people leaving work and making their way home, and during seasonal travel peaks and crisis events. This includes periodic delay along stretches of NYS Route 17, US Route 6, and the NYS Thruway (I-87) during Friday and Sunday evenings, which are attributable to spikes in traffic from recreational travel including people traveling to and from the Catskills and destinations beyond. It also does not account for traffic congestion around Orange County's regional shopping malls at select times of the year (e.g. holiday shopping).

The second CMP step focuses on the identification of roads with moderate, heavy, and severe congestion during the weekday afternoon, peak hour period (4:00-5:00 pm). These were identified through the OCTC travel demand model. Because it is a computer model it will likely overlook some areas of congestion due to changes in travel patterns, other variables, or an inability to fully realize the dynamics of the system. The long range strategy of using travel time surveys to measure congestion on high volume roads will help in this effort. The following table identifies the location of congestion as modeled.

The OCTC model identified 31 lane miles of congested roads. Of this total, 29 miles are under NYS jurisdiction and roughly 2 miles under Orange County jurisdiction. In terms of congestion, 4.8 miles experienced heavy congestion, while 26.4 miles fell under moderate congestion. The on ramp from US 9W onto eastbound I-84 in the Town of Newburgh experienced the highest level of congestion with a V/C

ratio of 0.97. Other heavily congested roads include the off ramp from I-87 northbound to US 17 westbound in the Town of Woodbury (Woodbury Open Tolling project has relieved some of this congestion), and NYS 211 from Wisner Ave. to Beattie Ave. in the City of Middletown. The OCTC model also identified 42 congested intersections in Orange County, with 11 experiencing heavy congestion and 31 experiencing moderate congestion. The data from this report is available on the OCTC website; in addition the congestion in the Newburgh area was the subject of additional analysis through the Newburgh Area Transportation and Land Use Study, available through the OCTC website or directly at www.newburghareastudy.info.

The **Mid-Hudson Valley Travel Time Survey** was a Global Positioning System (GPS)-based travel time data collection study on all major roadways in support of the Mid-Hudson CMP and other transportation planning activities. The data collected in this project will allow the TMA to advance the CMP and provide "real-world" travel time data that can be used in developing projects, prioritizing funding, and calibrating the travel demand models to further improve reliability. The data can be used to identify congested routes. Those routes could be studied further to determine the root cause of the congestion -- whether it is operational issues, recurring incidents, insufficient capacity, or other causes, and additional studies could be conducted to identify potential roadway improvements. The data from this report could also be used to prioritize Transportation Improvement Program (TIP) projects. This database provides a baseline of travel time information which should be expanded and maintained in order to support congestion management-related decision making in the future.

Survey Design

All routes were surveyed during "typical" weekday periods (Tuesdays, Wednesdays, and Thursdays on non-holiday school days) and some were surveyed on weekends. The following time periods were used during the data collection process.

- Weekday Morning (AM) – 6:00 AM to 9:00 AM
- Midday/Off-Peak – 9:00 AM to 11:00 AM
- Evening (PM) – 4:00 PM to 7:00 PM
- Saturday – 9:00 AM to 3:00 PM
- Sunday – 4:00 PM to 7:00 PM

County MPO staff from Ulster, Dutchess and Orange Counties, identified the routes and time periods to be surveyed. Each route was identified by the starting point and ending point and divided into segments bound by traffic signals or just the starting or ending point.

Travel time data was collected via a hybrid of the floating car method and the average speed method. Both methods have been deployed in numerous studies and are acceptable forms of travel time sampling. Here the two methodologies were combined to better simulate a "real-life" scenario. With the floating car method, the test vehicle stays in the center or right lane and the driver attempts to pass as many cars as pass the test vehicle. With the average car method, the driver tries to maintain the average speed of the traffic by traveling in either lane. The hybrid methodology maintains the average speed of the roadway, but if many cars are passing, the driver will pass some cars also. A Travel Time Index was used, which is the ratio of the peak period travel time to free-flow travel time. For example, a value of 1.30 indicates that

what is a 30-minute free-flow trip actually required 39 minutes because of traffic congestion. Generally, a road segment is considered congested if the Travel Time Index (TTI) exceeds 1.30. Twenty-eight of the forty-four Orange County Routes surveyed had TTIs over 1.3 during one or more surveyed time periods, which indicates the roadways experience congestion. Thirteen routes experienced TTIs over 1.3 during all of the surveyed time periods.

The extensive data tables and analytical narratives are posted in the report on the OCTC website.

Chapter 10 – Air Quality / Transportation Conformity

The Clean Air Act Amendments of 1990 (CAAA) and SAFETEA require that transportation activities conform to State air quality implementation plans before receiving federal transportation funding. The CAAA establishes National Ambient Air Quality Standards (NAAQS) for specific pollutants (e.g. ozone, Particulate Matter, Carbon Monoxide, and Nitrogen Dioxide). In regions where these standards are not met (non-attainment areas), it must be demonstrated that all future transportation plans and projects do not produce new air quality violations, worsen existing conditions, or delay timely attainment of the NAAQS. This is accomplished through transportation network modeling and calculation of estimated future emission, which is documented in a conformity determination. If conformity cannot be demonstrated or if an existing conformity determination expires, the non-attainment area lapses and restrictions are placed on the use of federal transportation funds; exceptions to this rule include funding for safety, mass transit, and air quality improvement projects. Orange County is presently included in two non-attainment areas, one related to the 8-hour Ozone standard, the other related to fine particulate matter, or PM2.5.

The overall goal of transportation conformity is to ensure that transportation projects and the transportation system as a whole do not create new air quality violations or worsen existing violations. Travel demand modeling provides a means of quantifying vehicle miles traveled (VMT) and average vehicular speeds by functional classification of roadway. These outputs are utilized to calculate vehicular emissions using a motor vehicle emissions model. Forecasted VMT and speeds, combined with pollution rates per mile traveled, provide an estimate of the total amount of vehicle pollution in a given time period. Vehicle Miles Traveled or VMT is a unit of measure which expresses the number of miles traveled by vehicles (e.g., cars, vans, trucks, motorcycles), regardless of the number of persons in the vehicle. One motorcycle with no passengers traveling one mile would be measured as 1VMT, just as a van with a driver and 5 occupants traveling one mile would also be measured as 1 VMT.

Ozone Attainment/Non-Attainment Background and Status. In 1991, Dutchess County, Putnam County, and Upper Orange County were classified as a Marginal Non-attainment Area under the former 1-hour ozone standard, while (at the time) in attainment for all other Clean Air Act criteria pollutants. Lower Orange County was classified as a Severe Ozone Non-attainment Area, falling within the New York Metropolitan Ozone Non-attainment Area.

On July 16, 1997, the U.S. Environmental Protection Agency (EPA) concluded that the 1-hour standard did not adequately protect the public from the adverse health effects of ground level ozone. In establishing a new "concentration-based" 8-hour standard, the EPA set the standard at 0.08 parts per million (ppm). An area attains the standard when the 3-year average of the annual 4th-highest daily maximum 8-hour concentrations is less than or equal to 0.08 ppm. Effective June 15, 2004, the EPA designated Dutchess, Orange (in its entirety), and Putnam County to be a Non-attainment Area under the 8-hour ozone standard. Based on 2001-2003 data, the 8-hour ozone design value for the Poughkeepsie Ozone Non-attainment Area was 0.094 ppm, and Dutchess, Orange and Putnam County were classified as a Moderate Ozone Non-attainment Area under the 8-hour ozone standard.

The current ozone design value for the area based on 2005-2008 monitoring data is 0.080 ppm as monitored at the Valley Central Monitor in Orange County. The Mt. Ninham monitor in Putnam County has a 2005-2008 design value of 0.079 ppm. On March 12, 2008, EPA once again strengthened the 8-hour

ozone NAAQS to a level of 0.075 ppm from 0.08 ppm standard to further protect public health. It is likely that the Poughkeepsie, NY area will be classified non-attainment under the new standard. However, USEPA has not made final area designations for the new ozone standard and the conformity requirements for the new standard do not yet apply.

Emissions test for the Poughkeepsie 8-hour ozone non-attainment area. The boundary of the Poughkeepsie moderate eight hour ozone non-attainment area (PONA) encompasses all of Dutchess, Orange, and Putnam Counties. Effective August 17, 2010, the EPA found the motor vehicle emissions estimates for volatile organic compounds (VOC) and nitrogen oxides (NOX) for PONA to be adequate in the NYS Implementation Plan (NYSIP) to improve air quality. As a result, OCTC, PDCTC, and NYMTC (Putnam County only) must compare emissions in the future conformity analysis years to the emission levels of VOC and NOX budgeted in the NYSIP.

The table below summarizes the emissions budgets and test results from the PONA transportation/air quality conformity statement for this plan update. It shows that VOC and NOx vehicle emissions are lower than VOC and NOX emissions budgeted for PONA, and that the transportation projects in the TIPs and MTPs of MPOs in PONA meet EPA regulations to improve air quality and protect public health.

Poughkeepsie Ozone Nonattainment Area (PONA) **Emission Budget Test Results in Tons Per Day**						
		Future Analysis Year Daily Emissions				
Ozone Precursor	**2009 Budget**	**2014**	**2020**	**2030**	**2035**	**2040**
Pollutant		**Build**	**Build**	**Build**	**Build**	**Build**
VOC	17.63	10.09	7.85	6.84	7.43	7.98
NO_X	29.77	16.22	9.66	5.92	5.81	6.19
Conclusion		***Pass***	***Pass***	***Pass***	***Pass***	***Pass***

Fine Particulate Matter Attainment/Non-Attainment Background and Status.
Fine particulate matter is a mixture of microscopic solids and liquid droplets suspended in the air less than 2.5 micrometers in size, hence called PM2.5 (this is about one-thirtieth the diameter of a human hair). Fine particulates can be emitted directly (such as smoke from a fire, or as a component of automobile exhaust) or be formed indirectly in the air from power plant, industrial and mobile source emissions of gases such as sulfur dioxide and nitrogen oxides. Scientific studies have shown a strong relationship between elevated fine particulate matter and decreased lung function, asthma attacks, as well as certain cardiovascular problems such as heart attacks and cardiac arrhythmia. While fine particulates are unhealthy for anyone to breathe, people with already compromised heart or lung function, as well as older adults and children are particularly at risk.

In July 1997, EPA issued NAAQS for fine particulate matter to protect the public from exposure to levels that may cause health problems. The 24-hour standard for PM2.5 is set at 65 micrograms per cubic meter based on a 3-year average of the 98th percentile of 24-hour PM2.5 concentrations. The annual standard for PM2.5 is set at 15 micrograms per cubic meter based on the 3-year average of annual mean PM2.5 concentrations.

Regions not meeting the PM2.5 NAAQS or that contribute to violations of the standard in other regions are deemed to be PM2.5 non-attainment areas by the EPA. On April 5th, 2005, the EPA designated Orange County to be part of the NY-NJ-CT PM2.5 Non-Attainment Area along with New York City, Rockland County, Westchester County, Long Island, Northern New Jersey and Southwestern Connecticut.

Since transportation conformity for the NY-NJ-CT PM2.5 Non-Attainment was first demonstrated in 2006, motor vehicle emissions budgets for PM2.5 were approved by the EPA for the states of New Jersey and Connecticut, excluding the MPOs in these states from demonstrating transportation/air quality conformity when Orange County and/or NYMTC adopt new TIPs or LRTPs with new transportation projects that might significantly impact air quality.

The table below summarizes the emissions budgets and test results from the PM2.5 transportation/air quality conformity statement for this plan update. It shows that annual PM2.5 and NOx vehicle emissions are lower than PM2.5 and NOx emissions budgeted, and that the transportation projects in the TIP and Plan meet EPA regulations to improve air quality and protect public health.

New York Metropolitan $PM_{2.5}$ Non-Attainment Area Emission Budget Test Results in Tons Per Year						
		Future Analysis Year Annual Emissions				
	2009 Budget	2014	2020	2030	2035	2040
Pollutant		Build	Build	Build	Build	Build
PM2.5	1,750	1,058.00	919.77	927.79	949.05	980.50
NO_X	77,571	36,719.61	20,760.36	13,888.71	13,418.70	13,900.85
Conclusion		*Pass*	*Pass*	*Pass*	*Pass*	*Pass*

Interagency Consultation & Coordination. As part of EPA's Transportation Conformity Regulations, interagency consultation and coordination are required. The NYS Interagency Consultation Group (ICG) is comprised of representatives from the U.S. Department of Transportation (Federal Highway and Transit Administrations), EPA – Region 2, NYS Department of Environmental Conservation (NYSDEC), the NYS Department of Transportation-Environmental Services Bureau (NYSDOT-ESB) and OCTC. The group provides multi-agency guidance concerning the conformity process, as well as concurrence on the assumptions and methodology used to forecast vehicle miles traveled (VMT) and vehicular speeds with the OCTC Travel Demand Model. Generally, these outputs (VMT and vehicular speeds) form the basis for the "regional emissions analysis" using the most current version of EPA's vehicle emissions computer model, MOBILE6.2 to calculate vehicle emissions and the air quality impact of nonexempt projects in the OCTC LRTP and TIP. NYS ICG procedure is part of NY State Implementation Plan to reduce emissions and improve air quality. Failure to comply with established NYS ICG procedures constitutes a violation of the NYS SIP.

Latest Emissions Model. MOBILE6.2 is the latest emissions model developed by the EPA to calculate vehicular emissions. This software model predicts gram per mile emissions of Hydrocarbons (HC), Carbon Monoxide (CO), Nitrogen Oxides (NOx), Carbon Dioxide (CO2), and Particulate Matter (PM) under various meteorological and vehicle operating conditions. These predictions are used to develop the emission factors and are established through consultation with the NYSDEC and the NYS ICG. Inputs

include 2002 vehicle registration, the latest existing and future emissions control programs included in the SIP, diesel fraction data for the 2002 base year and 2005 vehicle registration and diesel fraction data for all future analysis years, 2002 VMT mix for all analysis years, as well as the most recent DEC input files for 24-hour temperature and humidity distributions; the Upstate vehicle I/M program, anti-tampering and fuel programs; start distributions; and mileage accumulation rates applicable to the county, and the latest MOBILE 6.2 input assumptions on characteristics of the existing and future vehicle fleets traveling on roadways.
For ozone, the seasonal adjustment of daily vehicle miles traveled from the model is required to account for increases in traffic volumes and vehicle miles traveled during the ozone season (May through September).

Identification of Exempt/Non-exempt and Regionally Significant Projects. An important part of transportation conformity involves identifying transportation projects that may affect regional air quality. In most instances, projects such as safety improvements, resurfacing, bridge repairs, promote existing ridesharing programs, improving bicycle and pedestrian modes of travel, and/or operation/replacement of existing transit facilities and bus replacements, which maintain current levels of service or capacity, are considered exempt from conformity analysis. Similarly, projects that result in operations improvements, but do not increase capacity, are also excluded from the analysis. Inversely, there are two types of projects (Non-exempt and Regionally Significant) that have the potential to affect air quality. Nonexempt transportation projects are those, for the most part, that increase the capacity of the transportation system. Examples include the construction of new roads, highway interchanges and train stations, as well as the widening of existing roads and the significant expansion of transit services and facilities such as park and ride lots. Regionally significant projects are those, regardless of funding source, that serve regional transportation needs and that would normally be included in the modeling of a metropolitan area's transportation network. They include all principal arterial highways and all fixed guideway transit facilities that offer an alternative to regional highway travel. A non-exempt determination is made if the project type is not found in the list of exempt projects derived from 40 CFR Part 93.126, 93.127 and NYCRR Part 240.27. OCTC develops lists of projects for review and concurrence by other members of the ICG. Following are the non-exempt projects included for this plan update.

OCTC Nonexempt Transportation Projects -- 2011 Long Range Transp. Plan Update

PIN	Project	Agency
814522	Schutt Rd. – Construction, Dunning Rd. to North Galleria Dr.	T/Walkill
881054	Ozone Action Days	NYSDOT
882038	Metropool Ridesharing Program to Van & Carpool Commuters	NYSDOT
882383	Enhanced Commuter Choice	NYSDOT

Methodology. Emissions analyses are based on speed specific emission factors generated by MOBILE 6.2 for each link in the OCTC Travel Demand Model network for the morning peak hour, mid-day peak hour, afternoon peak hour and night off-peak hour. Vehicle miles traveled and ozone emissions for each of the four peak hours were factored into peak period values using hourly VMT percentages for OC from the NYS SIP. The resulting peak period VMT and emissions were then adjust to account for seasonal fluxes in traffic during the summer ozone season (June, July & August) and summed to establish total daily VMT and precursor ozone emissions. Annual direct PM 2.5 and NOX Emissions were calculated based on 182 days under winter conditions (October 1 – March 31) and 183 under summer conditions

(April 1 – September 30). As discussed previously, the inputs of the emissions model are traffic volume and speed data provided by OCTC and the most recent fleet characteristics, seasonal meteorological factors and assumptions concerning reformulated fuel and other control programs established by NYSDEC and through consultation and agreement with the Multi-State Interagency Consultation Group for the Ozone and PM2.5 Non-Attainment Areas.

For further and more detailed information the conformity analyses for this update and for travel modeling and air quality conformity in general, please visit the OCTC website.

Chapter 11 – Current & Future Planning

This update of the OCTC Long Range Transportation Plan, being a snapshot in time of a combination of planning processes, describes existing plans (short and long range) as well as planning which is underway or is to be undertaken in the future. The existing plans include the previous long range plan, completed OCTC and member agency plans, and the current OCTC TIP. Current and future planning is comprised of activities which are either funded through the OCTC UPWP or will be undertaken using member agency funding (or a combination of both). All of these plans, to one degree or other, are comprised of various types of implementation elements. In general, these elements can be grouped in two principal categories, the first being specific projects which will be undertaken with Federal and other funding in order to construct, maintain, improve, or operate transportation systems in the County. The other category is comprised of all other types of implementation which do not expressly identify a specific project to be carried out or constructed. These include: goals, objectives, policy statements, and non-project recommendations, including those for future planning studies (some of which will eventually result in specific project proposals and other recommendations).

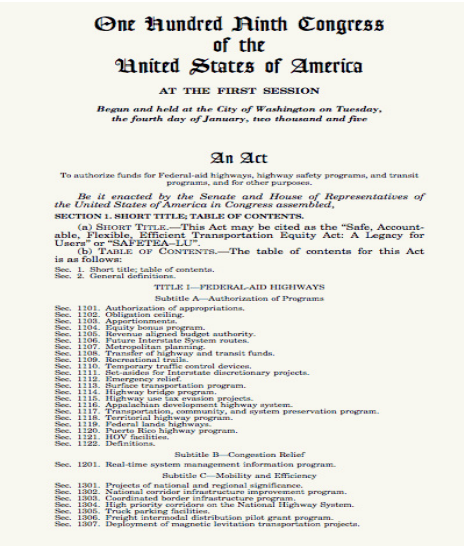
This chapter will outline and discuss these various plans, planning activities and implementation measures. It will begin with a review of the foundation of the required MPO planning process, followed by a discussion about the previous long range plan and the local foundation for planning within the County Comprehensive Plan. The explicit, project-oriented short range plan which is the TIP will be described, as will the project-oriented elements of the previous long range plan which are being carried forward. The chapter concludes with a discussion of current and future planning funded through the UPWP. Chapter 13 details OCTC goals and objectives, together with recommendations grouped by topic.

Federal Planning Guidance

Guidance for how the transportation planning process is to be carried out and what, at a minimum, is to be examined is provided in Federal legislation. The preamble from the 2005 Safe, Accountable, Flexible, Efficient Transportation Equity Act (SAFETEA) states:

"It is in the national interest to:

a) Encourage and promote the safe and efficient management, operation, and development of surface transportation systems that will serve the mobility needs of people and freight and foster economic growth and development within and between States and urbanized areas, while minimizing transportation-related fuel consumption and air pollution through metropolitan and statewide transportation planning processes identified in this chapter; and
b) Encourage the continued improvement and evolution of the metropolitan and statewide transportation planning processes by metropolitan planning organizations, State departments of transportation, and public transit operators as guided by the planning factors identified (in this legislation)."



One Hundred Ninth Congress
of the
United States of America

AT THE FIRST SESSION

Begun and held at the City of Washington on Tuesday, the fourth day of January, two thousand and five

An Act

To authorize funds for Federal-aid highways, highway safety programs, and transit programs, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) SHORT TITLE.—This Act may be cited as the "Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users" or "SAFETEA–LU".

(b) TABLE OF CONTENTS.—The table of contents for this Act is as follows:

Federal Planning Factors. There are eight planning factors identified by SAFETEA which are to be considered in State and Metropolitan transportation planning programs and projects:

1. support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency
2. increase the safety of the transportation system for motorized and non-motorized users
3. increase the security of the transportation system for motorized and non-motorized users
4. increase the accessibility and mobility of people and for freight
5. protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns
6. enhance the integration and connectivity of the transportation system, across and between modes, for people and freight
7. promote efficient system management and operation
8. emphasize the preservation of the existing transportation system

The planning factors of previous Federal transportation legislation were already incorporated into the goals and objectives of previous long range transportation plans. The goals and objectives have been updated to reflect the changes made by the SAFETEA legislation. In additions, the goals and objectives have been made into a separate chapter; recommendations of the plan are included in the new chapter, organized by topic.

Previous OCTC Long Range Plans

The OCTC long range plans prior to the 2007 plan (being updated now in 2011) were organized in part based on a presentation of three alternative future growth scenarios: the incremental future, the land use planning future, and the technology future. The incremental future described essentially business as usual without significant changes in factors affecting transportation. The land use planning future was based on a profound shift of planning and development investment away from 'sprawl' and toward a more nodal pattern of multi-use 'pedestrian pockets' which would support substantial transit use. The technology future explored a 'what if' scenario based on telecommuting. The experience over the last decades has been essentially incremental change overall, with some aspects of all three occurring. The usual business of transportation planning, programming, construction and management has been met with some changes in the land use planning arena toward 'smart growth' but not nearly to the degree discussed in the land use planning future scenario. By the same token, computer, phone, and networking capabilities have expanded substantially but telecommuting is far from replacing actual commuting. Following are descriptions of these previous scenarios:

The Incremental Future: Assumed that transportation in the County would continue to reflect the pattern of development that had occurred in the previous 25 years. The vast majority of trips would continue to be made by private vehicles and investment in expanded roadway capacity would continue. Land use patterns and policies would not change dramatically; then current development trends and patterns would continue incrementally.

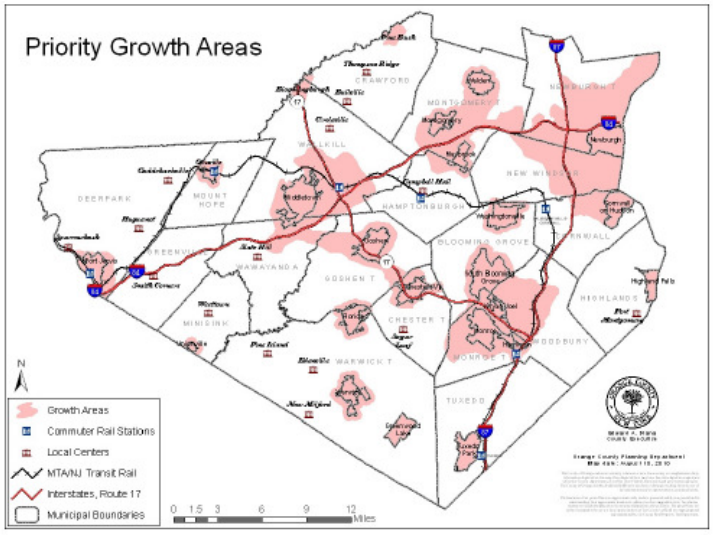
The Land Use Planning Future: Assumed that environmental impacts and the desire for a higher quality of life required major changes in land use. Those land use changes could be dramatic enough to significantly reduce the amount of travel by personal vehicle. Potential investment in that future focused on financial incentives as well as education/marketing to foster efficient settlement patterns consistent with transit investment and associated infrastructure for alternative modes. The plan discussed the potential of recreating rail service on a line that was abandoned twenty five years ago and focusing new mixed use development 'pedestrian pockets' there.

The Technology Future: Two advances in technology were discussed in regard to their potential to affect the transportation system in the County. One, major advances in communication/ information technology would be significant enough to lower the demand for personal mobility, alleviating requirements for individuals to be physically located where they work, shop, or recreate. Two, a combination of technologies would be integrated to allow more efficient use of the highway system. Those included non-polluting energy sources, navigational guidance systems, crash-avoidance radar, and electronic pricing.

Instead of three scenarios (with three somewhat separate examinations of needs), the 2007 plan and this update acknowledge that the future will, like the recent past, most likely bring incremental efforts and incremental progress in a number of areas. As with the previous plans, it acknowledges the significant and substantial interrelationship between transportation systems and the land uses and activities which they connect. It looks to the Orange County Comprehensive Planning program and its priority growth areas as a foundation; it suggests a pragmatic outlook on the future which blends business as usual and the promotion of smarter growth with an awareness that technology will continue to shape how people and systems operate.

Orange County Comprehensive Plan

The Orange County Comprehensive Plan is intended to provide a county-wide context for decisions on how land might be best used, developed, protected or preserved and how financial, technical and infrastructure resources might be effectively provided. It also helps to define a common understanding about the trends, assets and challenges faced by the county and its partner municipalities. The Orange County Comprehensive Plan was last updated in 2010 and is required by County Charter to be updated every five years. The County Open Space Plan and, as of 2010, the Water Master Plan are also components of the County's Comprehensive Plan.



The County Comprehensive Plan is built around the concept of priority growth areas – areas to which future county development is to be focused due to the presence of existing development centers, the availability of existing infrastructure and services, and the protection of environmental resources, open spaces and rural areas. Priority growth areas are part of an urban-rural growth concept which has been at the heart of the Orange County Comprehensive Plan for over twenty-five years. This concept encompasses many of the planning and design tenets which are now referred to as "smart growth".

The county plan calls for future major growth in housing, business and industry to locate in and around existing cities, villages, and urbanizing areas, where major highways are nearby and where central water and sewer services are available. The basic thesis of this concept is that the economy of existing facilities will be maximized, public transit will be fostered, and it will provide the most economical and environmentally-sound form of development. By focusing development to these areas, a major portion of the County can be kept green, and those areas will

not have extensive public services. This priority growth area strategy is somewhat loosely related to the pedestrian pocket concept of the 'land use planning future' scenarios described in prior OCTC transportation plans. This connection is understandable because the county plan is itself based partly on the findings of previous OCTC transportation plans.

Adoption of the County Comprehensive plan has two key effects, both of which can be significant in looking at implementation of planning policies at all levels:

1. **All county land acquisitions and public improvements shall be in accordance with the County Comprehensive Plan.**
2. **All plans for capital projects of a municipality (including the County) or state governmental agency on land included in the county must take this plan into consideration.**

It must be emphasized that New York is a home rule state where the primary control over land-use policy, regulation, and development review rests with municipal governments. Nevertheless, through general municipal law regarding county comprehensive plans and inter-municipal coordination of planning and zoning actions, and through the work of such cooperative forums such as the transportation council, a certain degree of coordination is required. The 2003 Orange County Comprehensive Plan states, "The County and its municipalities should coordinate local planning efforts with their neighbors, and work closely with regional agencies, such as the State Department of Transportation (DOT), the New York Thruway Authority and NJ Transit, as they plan for transportation facilities that affect local conditions."

The Orange County Open Space plan, a component of the Comprehensive Plan, was first adopted by the Orange County Legislature in 2003. The purpose of the Open Space Plan is to outline strategies for maintaining the county's scenic beauty, rural character, and ecological health while providing for increased recreational opportunities. This was accomplished through a thorough county-wide inventory of the locations of preserved lands, parklands and recreation facilities and of natural resources (e.g. rare species, valuable habitats, scenic landscapes). This was followed by prioritization of those areas and resources in regard to the need for protection. As a planning tool and as a component of the comprehensive plan, the open space inventory and plan is relied on to generate positive impacts on private and public land use, development, transportation and other decisions in specific areas.

Orange County, through its Planning Department and other agencies, has responsibilities and carries out other planning initiatives which support comprehensive planning and therefore affect transportation planning and decision-making. These include on-going agricultural and farmland protection planning, watershed and riparian corridor studies and planning, and water and sewer infrastructure planning. The County worked with other counties in the region to assess housing affordability issues, which informed the housing element of the 2010 Comprehensive Plan.

Among its other duties, two key responsibilities of the County Planning Department involve staff support for the Orange County Transportation Council, which includes overseeing and carrying out the Unified Planning Work Program, and reviewing municipal actions related to zoning, planning, and subdivisions.

The County Planning Department also manages the county's transit program, overseeing the payments of state and federal operating assistance (and preventive maintenance funding), programming and expenditure for transit capital equipment and projects, coordination of local transit activities, and related planning.

New York State Smart Growth Infrastructure Policy Act

On August 30, 2010, Governor Paterson signed the Smart Growth Public Infrastructure Policy Act into law and it took effect 30 days later. The Act is intended to minimize the "unnecessary cost of sprawl development" and requires State infrastructure agencies, including NYSDOT, to ensure public infrastructure projects undergo a consistency evaluation and attestation using 10 Smart Growth criteria set out in the Act (see below). NYSDOT supported the Smart Growth Public Infrastructure Policy Act Legislation and since the Act became Law in 2010, NYSDOT has undertaken a comprehensive, agency-wide, phased implementation effort to integrate the requirements of Law into the existing, federally-required transportation project development process.

To the extent practicable, projects must align with the following:

- To advance projects for the use, maintenance or improvement of existing infrastructure
- To advance projects located in municipal centers
- To advance projects in developed areas or areas designated for concentrated infill development in a municipally approved comprehensive land use plan, local waterfront revitalization plan and/or brownfield opportunity area plan
- To protect, preserve and enhance the state's resources, including agricultural land, forests, surface and groundwater, air quality, recreation and open space, scenic areas, and significant historic and archaeological resources
- To foster mixed land uses and compact development, downtown revitalization, brownfield redevelopment, the enhancement of beauty in public spaces, diversity and affordability of housing in proximity to places of employment recreation and commercial development and the integration of all income and age groups
- To provide mobility through transportation choices including improved public transportation and reduced automobile dependency
- To coordinate between state and local government and intermunicipal and regional planning
- To participate in community based planning and collaboration
- To ensure predictability in building and land use codes
- To promote sustainability by strengthening existing and creating new communities which reduce greenhouse gas emissions and do not compromise the needs of future generations, by among other means encouraging broad based public involvement in developing and implementing a community plan and ensuring the governance structure is adequate to sustain its implementation.

Unified Planning Work Program

A portion of the Federal funding for surface transportation is dedicated for planning. It is in large part through this funding that MPOs like the Orange County Transportation Council undertake planning studies and continuing staff activities. Funding for planning is provided to the states by both the Federal Highway Administration and Federal Transit Administration. New York State divides this funding annually among the thirteen MPOs in the state based on a formula developed in consultation with the

MPOs. Each MPO is required to annually develop and carry out a Unified Planning Work Program (UPWP) to identify how it will undertake planning and support for MPO activities. The annual cycle for the UPWP is based on the New York State fiscal year which begins in April.

Federal funding authorization for transportation planning has been increasing under SAFETEA. It remains to be seen how planning funding will be addressed during reauthorization. In addition to new annual funding for the UPWP budget year, OCTC still has available funds for programming from prior UPWP budget years. These are funds which were apportioned to OCTC but which were not programmed or expended during the UPWP budget year in which they were first made available. Due to the level of planning undertaken by OCTC in recent years, this 'backlog' or 'savings' is substantially reduced and will soon be eliminated.

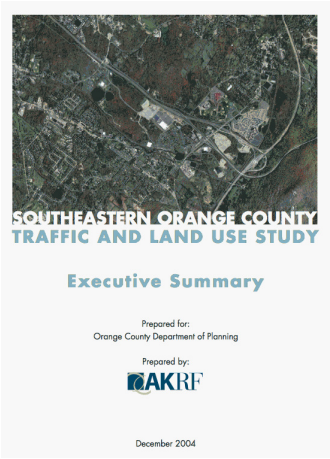
This planning funding, like other Federal transportation funding, is administered through the NYS Department of Transportation as a reimbursement program. OCTC (through host agency Orange County) must first undertake the planning activities, after which it is reimbursed for the Federal share of the activity. The match rate overall is 80% Federal to 20% Local (15% State & 5% Local). OCTC staff in the Orange County Planning Department administers UPWP activities and submit reimbursement requests and activity reports to NYSDOT quarterly. A portion of the UPWP allocations for Orange, Dutchess and Ulster County's represents dedicated funding for planning activities related to the Mid-Hudson Valley Transportation Management Area.

Aside from coordinated planning activities funded through the OCTC UPWP, each transportation agency and each municipality necessarily carries out planning specific to their responsibilities, consisting of a combination of operational, facility, and financial planning. Planning of the transportation council and its member agencies is continuing and dynamic. As members and participants in OCTC activities, and due to the fact that Federal, State and Authority funding implementation projects are programmed through the OCTC TIP, the transportation planning activities of member agencies are necessarily coordinated to some degree even though the operational planning and detailed facility planning of the various individual agencies is not funded through the UPWP.

The OCTC planning work program describes both recurring, regular staff activities that support the operation of the MPO as well as special planning projects which are either special staff-level projects or larger scale planning studies involving the use of outside transportation planning consultants. The analyses and recommendations from these studies are used to inform transportation investment and related community decisions. Two examples of completed studies are the 2001 Transit Improvement Study (discussed in Chapter 5) and the 2005 Southeast Orange County Traffic and Land Use Study. The Newburgh Area Transportation and Land Use Study is wrapping up as this plan update is being prepared. Significant future projects include transportation and land use studies of the Middletown urbanized area and western Orange County, building on the experiences and lessons learned from the SEOC and Newburgh Area efforts. These and other studies are described below.

Southeast Orange County Studies. The Orange County Department of Planning in conjunction with NYSDOT and the Southeastern Orange County Traffic Task Force carried out a UPWP supported study of the land use trends and transportation needs for the areas in and around the Towns of Monroe, Woodbury and Blooming Grove. The study was undertaken due to the growth in commercial and residential development and the significant traffic congestion which has been generated along State Routes 17, 17M,

32, and 208, County Route 105, and other roads and intersections in the area which impede the safe and efficient movement of people and goods.



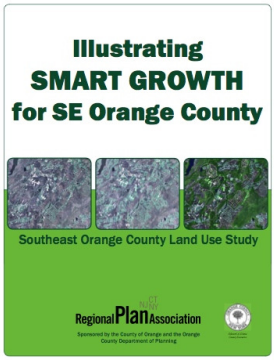
The study was prepared by a consultant team led by AKRF, Inc. One facet of the study was to formulate short-term transportation improvements to enhance pedestrian safety and the movement of traffic through the Route 17, 32,17M and 208 corridors. These improvements included the retiming and synchronization of traffic signals, the implementation of traffic calming techniques and the construction of service roads to enhance access and egress.

The SEOC Traffic and Land Use Study, completed in January 2005:

- Identified existing transportation problems in the study area
- Determined the impact of commercial, industrial and residential growth
- Forecasted likely future problems in the highway network utilizing the OCTC Travel Demand Model
- Investigated the need for a new interchange along Route 17 (I-86) with County Route 105
- Explored the possibility of establishing an inter-modal center in the study area
- Recommended transportation management strategies, access management techniques, infrastructure improvements, and changes in land use to mitigate traffic problems including an extension of Larkin Drive to County Route 105
- Developed, in cooperation with local governments, priority transportation projects and land use recommendations for the Towns of Blooming Grove, Monroe and Woodbury, as well as the Villages of Harriman, Kiryas Joel and Monroe that complement and protect the transportation capacity of the improvement alternatives

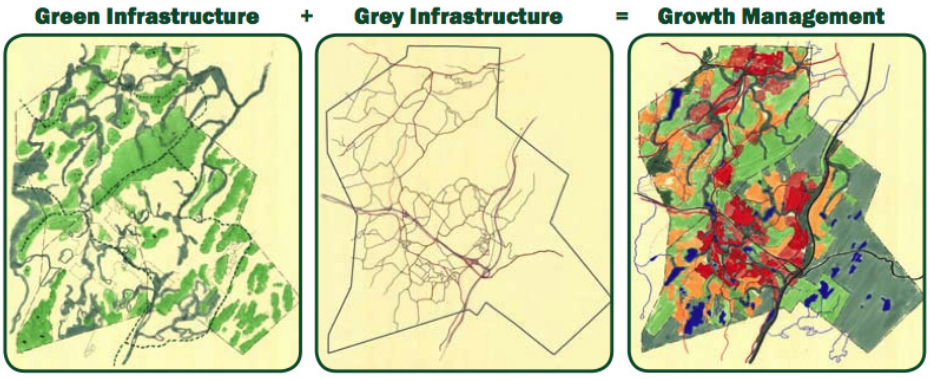
The AKRF prepared study, its executive summary and other information is available on the OCTC website: www.orangecountygov.com/planning/octc.

The SEOC Traffic Task Force continues to meet monthly to discuss common issues, coordinate planning activities, and follow up on implementation of the AKRF recommendations. As a UPWP activity, OCTC County Planning Staff provide support for these continuing efforts.



As a result of this continuing southeast area inter-municipal, inter-agency networking, and follow-up to the AKRF study process, Orange County subsequently provided a Community Planning Grant to the SEOC municipalities to more fully examine land use and community design issues. The Regional Plan Association (RPA) was engaged to facilitate that effort, designed to include a two day visioning charette. Leading up to the charette, RPA community design professionals reviewed AKRF and other planning analyses and recommendations, then engaged community leaders in discussions about development trends, local resources and municipal plans. The visioning charette was held in September 2006 for which RPA was able to attract a small group of nationally recognized community design and land use planning professionals.

A central focus of the charette was the identification and description of "green infrastructure" and "gray infrastructure" systems within the SEOC area. Green infrastructure is a term that is used to describe natural, recreational, and open space resources. Gray infrastructure refers to roadways, and water, sewer and other utility systems. Through awareness, respect and use of these systems, the professionals and assembled community participants outlined potential alternatives for smarter growth. In preparation for the charette (and finalized after), RPA planning and design professionals developed a 'business as usual' plan drawn on wall sized aerial photos of the southeast area showing a likely result of subdivision development following the current planning and zoning in the area. The charette design team incorporated these gray/green infrastructure and business as usual ideas into the charette, first illustrating in general terms the gray and green infrastructure and then illustrating smarter growth potential land use plan concepts and site-scale sketch designs . These included development focused on existing centers and hamlets, the potential for new hamlet development centers, focusing development away from the green infrastructure, taking advantage of and enhancing the gray infrastructure.



The RPA staff continued to develop and complete the concept plans and site design drawings which were created during the charette. One of these drawings was a smarter growth wall size aerial photo drawing as a counterpoint to the pre-charette business as usual version. In addition, RPA worked to write a report on the visioning process and charette, which incorporated the design drawings. This work culminated in presentations to the planning, zoning, and governing boards of each SEOC community. This report is available on the OCTC website. The SEOC Task Force and OCTC planning staff will continue to work together to advance these efforts and keep focus on the implementation of the transportation and land use recommendations of both studies.

Through this effort, the potential for Transit Supportive Development at Harriman Station was emphasized, which was further examined as part of a NYSMPO Shared Cost Initiative. The recommendations from the case study were incorporated in a set of zoning regulations developed with funding from Orange County and which have been adopted by the Village of Woodbury.

Newburgh Area Transportation & Land Use Study. The Newburgh Area Transportation and Land Use study was a multi-year effort to examine transportation and land use within the northeastern portion of the county, while looking certain key areas and topics in more detail. The goal was to develop a multi-modal plan for transportation, integrated with local and regional land use planning policies. The overall context of the Study recognizes the potential for growth in this key portion of the county stemming from:

- Its strategic location along two major interstates (I-84 and I-87) and the revised interchange of those two roadways that makes this area a crossroads for freight travel (and jobs);

- The proximity of Stewart Airport and the potential for increased utilization of the airport for passenger and freight services as well as the attendant economic development that might serve the different needs of those user groups;
- Other regional transportation studies that are seeking to improve connections with the downstate and New York metropolitan regions through transit access and/or improvements to the Tappan Zee Bridge;
- The County's own comprehensive planning efforts that focus on Priority Growth Areas, Open Space protection, water supply, and congestion management; and
- The comprehensive plans of each of the communities in the Study Area that each look to promote revitalization of existing centers and improvement of the quality-of-life for area residents.

The study area included all of the municipalities which make up the OCTC Newburgh / northeast region: the City of Newburgh, the Towns of Newburgh, New Windsor, Cornwall and Montgomery and their respective Villages. Certain smaller areas and transportation corridors were highlighted in the scope of work for more detailed investigation, analysis, design exploration and recommendations including Route 17K, Route 32, Route 52, Route 207, Route 9W, and Route 300.

The primary elements of the Study were:

- A land use build-out to look at growth patterns in the future combined with a regional Travel Demand Model to assess future traffic flows and patterns
- A series of corridor studies looking at land use and roadway conditions and identifying where strategic investments could be made to improve traffic flow
- A transit study looking at the Newburgh area local bus service
- A bicycle/pedestrian study that sought new opportunities for improving connections for non-motorized trips
- Illustrative examples of what a Smart Growth land use pattern would look like in the Study Area communities

The Study Team comprised a group of planners, engineers, and transportation experts who were guided by interaction with each of the Study Area municipalities and the general public through a series of focused interviews, roundtable discussions, and public design workshops and open houses.
The Study Team also met with elected officials, local planners and engineers, and members of the interested public to understand key concerns of the community. Overall, several hundred individuals participated in meetings of one form or another – and many of those individuals participated at more than one meeting. There were nearly 500 people on the Study mailing list receiving updates and notifications for upcoming meetings. People were also able to obtain project information from the Study website: www.newburghareastudy.info.

At the core of the Study Team's integrated transportation and land use planning process were the principles of Smart Growth and Sustainable Development – both of which seek to encourage appropriate levels of investment in roadway, infrastructure, and land development based upon historic community patterns and desirable patterns of development that seek to minimize costs to the community and costs to the environment while enhancing the quality-of-life for the community.

The analysis of regional traffic conditions and potential local improvements was based on an analysis of projected year 2035 traffic growth that was developed from a set of regional land use build-out analyses. The 2035 projection used population projections prepared by Orange County that indicate that the Study Area will likely see the need for another 13,000 new housing units and about 15,000 new jobs over the next 25 years. The land use build-out analyses looked at several different patterns of development including "business as usual" and two smart growth alternatives based on the municipal comprehensive plans.

Based on input from municipal officials, the public and observations by the study team, 18 traffic "hot spots" were identified where congestion is known to occur or is likely to occur given future land use patterns. At each of those hot spots, future traffic volumes were assessed and a volume/capacity ratio was calculated to assess the level of congestion anticipated in the future. That analysis shows that, of the 18 locations examined, some would be minimally affected or could have added traffic accommodated via low-cost, readily-implementable traffic improvements such as lane striping or introduction of left turn lanes. Other intersections could accommodate projected traffic growth via more moderate cost improvements such as converting shoulder areas to travel lanes, minor roadway widening without right-of-way (ROW) acquisition plus the low-cost measures cited above. Still others would be more substantially congested and would need more extensive roadway widening and lane additions and possible ROW acquisition—the intersection of Route 207 and Route 300 is a prime example of this. There were some locations where even substantial roadway improvements might not be sufficient to accommodate traffic—the intersection of Route 300 and Route 17K and the length of Route 300 from south of Route 17K to north of the Thruway on/off ramps is a prime example of this. This range of easy-to-improve locations to difficult-to-improve locations is not unusual, and can also be used to help guide land use development decisions going forward.

The travel demand model also identified a few locations where traffic growth could have an acute effect on roadway conditions and operations. One is the Route 207 corridor from Route 300 to west of Stewart Airport; it is clear that some significant level of roadway treatment is warranted, either with the addition of through travel lanes in each direction at some locations, the inclusion of left- and/or right-turn lanes at other locations, and a reconstruction of the bridge carrying the Thruway over Route 207 coupled with significant widening of Route 207. A second is the length of Route 300 approaching Route 17K from the south to as far north as Route 52. Segments of Route 300 may need to be widened, while other more "creative" treatments may be needed to deal with the issues at Route 300/Route 17K where widening itself may not be desirable or sufficient. Similar issues may be expected along Route 9W from the vicinity of Fostertown Road to south of Route 52. Detailed planning and engineering studies are warranted at these locations.

Finally, the Study Team evaluated the potential benefit of new roadway connections—links in the network that may not have been built as part of incremental subdivision or development of land to date, and which may be considered for the future. While natural features preclude the creation of a dense network of interconnections, there may be some opportunities to create strategic linkages to take pressure off existing points of congestion or congested corridors. The travel demand model did show that a parallel roadway east of Route 300 would serve to reduce congestion along Route 300, especially at the most congested intersections such as Route 52 and Route 17K. Additional study would be required to determine the feasibility of creating new roadway links such as this one. However, at a minimum, municipalities should

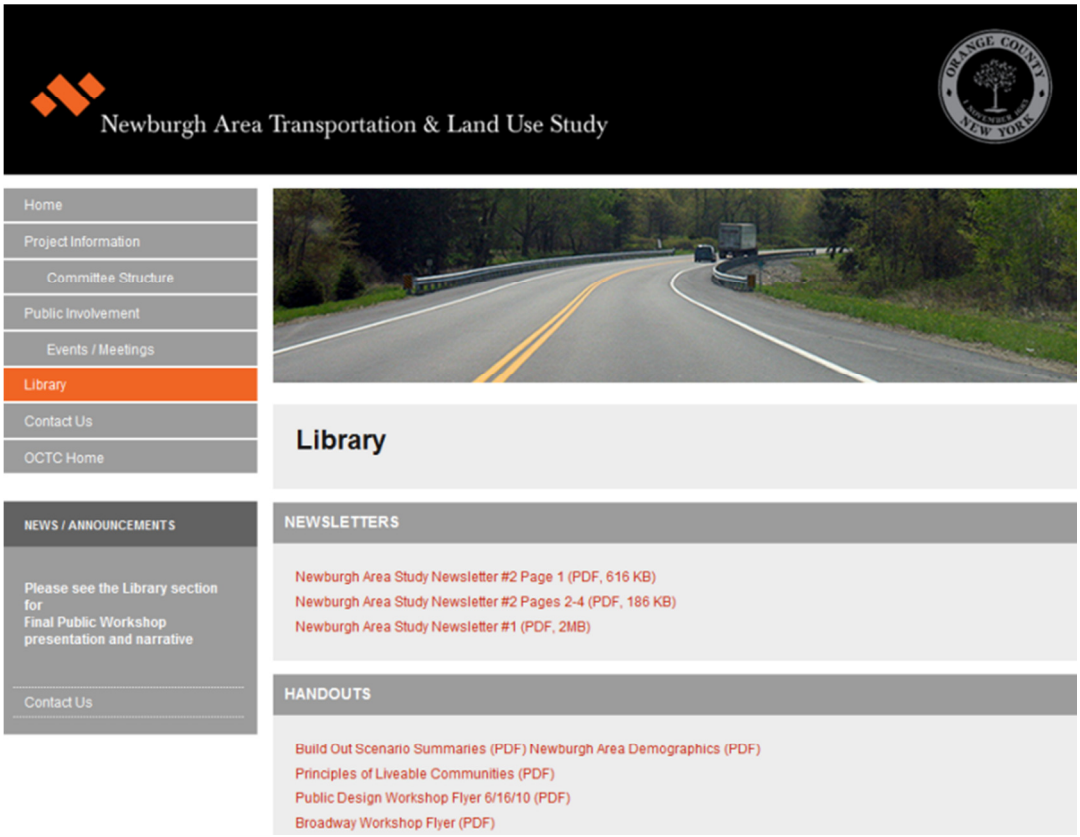
be encouraged to retain existing roadways for through traffic and to identify opportunities to make new connections as part of the land subdivision process.

The prevalent lesson learned from the analysis of regional land use and traffic growth is that even with significant levels of investment in new roadway infrastructure, traffic congestion will continue to be a problem into the future. Only with a balanced set of enhancements to regional land use patterns can long-term value from roadway investments be achieved.

There are locations within the Study Area where there are opportunities to dramatically improve the area's land use/development, urban design and transportation, all as part of a package of treatments. Two very prominent locations that come to mind are the Broadway corridor within the City of Newburgh and the Vails Gate area. The Broadway corridor can be redesigned for better use of its overly-generous curb-to-curb width to incorporate various roadway or urban design treatments such as a landscaped median, bike lanes, bus lanes, and corner "bulb-outs". Reconstruction based on a new streetscape design approach could result in an exceptionally attractive urban corridor (or "Complete Street") for the city. Vails Gate, with its five-legged intersection, multiple curb cuts, and congestion, would need a major planning and design effort but doing so could vastly improve intersection operation and therefore add value to the commercial properties; even more so if the intersection and roadway reconfigurations were designed in concert with redesign of the adjacent commercial areas.

Several of the corridors in the study area have opportunities for significant new development and several of the communities have specifically modified their comprehensive plans to identify this potential for growth. Route 17K west of Route 300 and Route 207 between Routes 300 and 747 are two areas of particular note where new economic development activity is envisioned by the local communities. While there is certainly room in those corridors to expand the right-of-way to handle additional traffic demand, in some cases the level of investment needed to handle all of the projected traffic could alter community character. The communities should proactively determine if such an infrastructure improvement is consistent with long-term community visions. The Metro North/Port Authority WHRTAS study alternatives include a potential new connection for buses between the Thruway main line and the southern entry to the Stewart International Airport complex in this vicinity, which may create an opportunity for cooperative planning among the concerned agencies to address both local and airport accessibility needs.

As mentioned above, the Newburgh Area Study included some additional components including a more focused look at potential streetscape design on Broadway, transit planning for the Newburgh area local service, an examination of potential streetscape redesign along the Rt 218 / Hudson St corridor in Cornwall-on-Hudson, and bicycle and pedestrian planning. The materials generated for these efforts and the various roundtables and public workshops held for them are posted on the study website: www.newburghareastudy.info.



Mid-County and Western County Planning. In the Middletown area the factors calling for study and planning include, as in the Newburgh area, expanding commercial development especially in Wallkill along the NY Route 211 corridor, the pending reconstruction of the Exit 122 Route 17 interchange and the ramps connecting Route 17 and Interstate 84, construction of a new regional hospital on East Main Street near Exit 122, and the expected construction of a direct connection of the Galleria Mall area with the Orange Plaza area commercial developments (underneath Route 17). This planning study will build on and complement the water and sewer infrastructure planning efforts currently being coordinated by Orange County for the mid-County area as well as the related visioning and community design projects funded by the county and carried out by the Regional Plan Association.

This project will examine the area overall in terms of transportation and land use, as well as specific transportation corridors and subject areas in greater detail. Aspects to be studied include: Impact of accelerating commercial and residential development in and adjacent to area, access to and from development along major roads and highways, truck/freight mobility issues, real estate market & development trends and responses to significant changes, multimodal transportation connectivity, local land use policies and regulations, and potential impacts and/or opportunities related to things happening external to study area.

NYSMPO Shared Cost Initiatives. For a number of years as part of the process of allocating UPWP planning funding to the New York Association of Metropolitan Planning Organizations (NYSMPO), the State has agreed to dedicate some of the funding together with State Planning & Research funds for a

small number of joint planning activities of common interest that will benefit all New York MPOs, the State, and may assist in transferring ideas for transportation planners and MPOs in other states. These activities are termed "shared cost initiatives". The potential for transit supportive development at Harriman Station was explored through a recent SCI as described above. Training is another example of a shared cost initiative – whereby educational programs to develop MPO staff skills or provide special training is scheduled and made available to MPO and NYSDOT staff members from across the state. This training has included advanced courses in working with travel demand modeling software, geographic information system software, and regarding congestion management systems. Other recent shared cost initiatives have examined statewide data needs, integrating safety in transportation planning, long term funding, interesting examples of community design in transportation projects, and have sponsored a colloquy on the future of transportation and planning. Information on the SCI Program is available on the website of the Association of New York State Metropolitan Planning Organizations: www.nysmpos.org.

Regular and Ongoing Planning Activities. The regular and recurring activities undertaken with UPWP funding may not always be as visible as the large scale planning projects described above, but they are vital to the operation of the transportation council. These include planning for and conducting meetings of the Executive and Technical Committees, preparing and administering the UPWP, structuring and managing planning studies, and ongoing staff responsibilities such as maintenance and improvement of the travel demand model and its software. Transit planning activities are another recurring and regular staff activity. These are described below.

OCTC General Administration & Agency Coordination

This work involves the administrative tasks necessary to manage the activities of the Orange County Transportation Council (OCTC). These tasks include:

- Meeting preparation and staff support for the Executive and Technical Committees
- Coordination with the Orange County Executive (OCTC Chairman), Orange County Legislature, and other county administrative departments to carry out OCTC activities including submission and administration of operating budget and capital budget items within host agency (Orange County Government) processes
- Preparation and administration of the UPWP including tracking of eligible expenses and quarterly submission of reimbursement requests and activity reports
- OCTC public participation activities including creation and maintenance of OCTC internet presence
- Coordination with Federal, State, regional and local transportation agencies and providers
- Coordination with the other MPOs in the Mid-Hudson Valley TMA regarding sub-allocation of FTA funding, the Congestion Management Process, and other matters
- Participation with NYSMPO activities, including various working groups focusing on specialized topics such as travel demand modeling, safety, geographic information systems, and transit
- Staff development and training
- Liaison and participation as necessary regarding various special interest areas and planning

OCTC Program Support

Travel Demand Forecasting, Traffic Simulation Modeling, and Air Quality Attainment Modeling & Analysis. OCTC Staff regularly update, improve and use travel demand model for use in planning studies, providing assistance to other agencies, and performing transportation / air quality analyses (as described in Chapters 9 and 10). Work on both the travel model and the related air quality conformity processes is complex and time-consuming. The travel demand model is built on the PTV Vision Suite which consists of two integrated software packages: VISUM and VISSIM. As described in the preceding chapters, OCTC staff use the travel model to: determine the impact of proposed development projects on the capacity of transportation facilities; identify transportation improvement projects for the Transportation Improvement Program (TIP); estimate existing and future vehicle miles traveled and vehicle hours traveled for use in determining air pollution emissions and energy consumption from motor vehicles in ozone and PM2.5 non-attainment areas; determine compliance of the TIP and LRTP with air quality regulations and prepare air quality determinations; identify future traffic congestion based on current land use policies, test the effect of alternative highway improvements on relieving traffic congestion, and demonstrate the travel model graphically. Staffing at the Orange County Planning Department has recently been expanded to provide additional support and redundancy for this important work, as well as to facilitate improvements to the modeling program and more extensive use of the VISSIM traffic simulation software.

Geographic Information System & Demographic Analysis. Geographic information systems (GIS) and demographic data are used by the OCTC County Planning Staff as vital analytical and visualization tools for transportation, land use and most other planning functions. Not only is the mapping and analysis of transportation and land use information a foundation for plan production, use of the system provides inputs for the travel demand model. In addition, census and demographic data can be displayed and analyzed to assess needs and service for our various communities, including specific examinations of populations identified in environmental justice policies. A number of OCTC Planning Staff members have GIS skills and training, which utilizes various ESRI ArcMap products provided by NYSDOT.

Traffic Counting & County Pavement Management. The Orange County Department of Public Works (DPW) carries out a local traffic count program to provide inputs to the OCTC travel demand model and for use by various transportation agencies. The traffic count data collected through this program is in addition to traffic counts provided by NYSDOT and the Thruway Authority. Using traffic counting equipment supplied by NYSDOT, DPW carries out traffic counts for roads and bridges in the county every two years (alternating) using the minimum NYS standards for time-indexed traffic movement data. Counts indicate hourly vehicular traffic by direction. DPW also carries out a pavement management program for county roadways using a combined field observation and computer system that results in rating of the roads on a scale from 0 to 100.

Implementing Transportation Policies Through Review Of Municipal Land Use Actions. This is a UPWP activity which seeks to leverage the implementation of transportation plans, policies and strategies through the required County Planning review of certain proposed municipal land use actions. The Orange County Planning Department is authorized by State law (Section 239 of General Municipal Law) and County Charter to review certain municipal land use related actions. The referral of these proposed actions is triggered primarily by geographic location, especially the proximity of the proposed action to State and County Highways. Through this required referral process, local municipalities must follow County Planning recommendations to make changes to proposed development plans and proposed land use related

regulations and plans, or they must override the recommendations with a supermajority vote (together with findings explaining why it was necessary to override the county recommendation). OCTC County Planning Staff have developed a staff guide and a checklist of access management and other transportation/land use policy elements to guide the review of such proposed actions . The County Planning Department coordinates its reviews and recommendations as necessary through consultation with other agencies such as OCDPW and NYSDOT Region 8. Following are descriptions of some transportation concepts which inform reviews of proposed development and municipal actions.

Access Management

Access management is a term for the process of managing access to land while simultaneously preserving the flow of traffic on the surrounding road system in terms of safety, capacity and speed. It means more effectively planning and designing the number and location of driveways and intersections along major thoroughfares. Access management is particularly important where the through movement of traffic is the primary function of a roadway, especially where dense commercial and residential developments are planned and posted speed limits are high. The overall purpose is to reduce traffic congestion and the potential for accidents attributable to conflicts between through traffic and vehicles turning into and out of numerous, closely-spaced driveways and/or intersections. The benefits of access management include: improved safety, increased capacity, shorter travel times, better air quality and pedestrian/bicycle/transit friendly communities.
The basic principles of *access management* are to:

- Limit the number of conflict points
- Separate basic conflict areas
- Reduce interference with through traffic
- Provide adequate on-site and inter-lot circulation and storage
- Prohibit direct access onto higher speed roads to the greatest extent possible

Access Management Design Guidelines

The following access management guidelines should be followed to reduce turning movements and conflicts created by motorists along a roadway corridor:

- Regulate the location, spacing and design of driveways and new intersections
- Consolidate (pair) driveways and connect parking lots wherever possible
- Provide residential access by means of neighborhood streets
- Promote interconnected street systems rather than cul-de-sacs and dead end streets
- Increase minimum lot frontages on major thoroughfares to separate and reduce potential conflicts
- Locate driveways as far as possible from intersections
- Prohibit left turns in the functional area (queuing or storage area) of exiting intersections
- Utilize preexisting roads and driveways for access and egress wherever possible
- Encourage mixed-use development and the construction of sidewalks to reduce vehicular travel between places

Traffic Sensitive Driveway and Intersection Separation Standards

Driveway and intersection spacing are means of reducing and separating the number of potential conflicts between through traffic and traffic generated by development. The purpose is to avoid future traffic problems in lightly to moderately developing highway corridors. The spacing required is a function of the size of the proposed development, the volume of traffic generated by the development in question and the traffic characteristics and function of the road supplying access. Thus, the greater the amount of traffic generated by a project and the higher the permitted speed limit of the road in question, the greater the spacing required. Guidelines can be implemented through zoning.

Traffic Calming

Traffic Calming measures seek to improve safety by managing vehicular speeds and raising driver awareness while maintaining the operational capacity of the roadway. The measures include pedestrian refuges, sidewalk 'bump outs' at intersections, entrance gateways, streetscaping, and the careful placement and design of crosswalks. With pedestrian refuges, pedestrians do not have to wait to cross the entire roadway because they can stand on the island between travel directions at intersections or mid-block. When properly designed, median treatments improve the appearance of the roadway. Entrance gateways may be defined by landscaping and signage and help foster a sense of place. Streetscaping also buffers property from traffic, and can give the impression of traveling at greater speeds, causing vehicular traffic to maintain speeds that allow safe pedestrian activity. Pedestrian crossings should be located apart from signalized intersections to alert motorists to the continuing presence of pedestrians. Crosswalks should be highly visible through the use of effective signing, markings, pavement textures/materials or other techniques that will communicate to drivers the possibility of pedestrians.

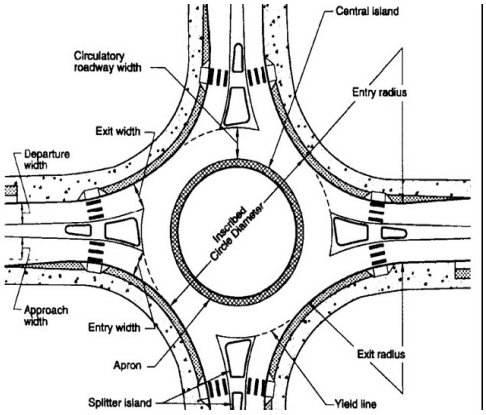
Other traffic calming devices include measures with names such as "neckdowns", nubs, bulb-outs, bus bulbs, bump-outs and curb extensions. Bulbs and "neckdowns" are sidewalk extensions that provide havens for pedestrians waiting to cross the street, shorten the crossing distance, and can function as entry points. Bus bump-outs prevent traffic from coming up from behind the bus while passengers board. This helps protect passengers and slows traffic on the rest of the street. These design elements, when formed using sculpture and attractive planting can enhance the appearance of the street.

Roundabouts

Many communities in the United States are beginning to embrace the concept of "roundabouts." A roundabout is an intersection control measure used successfully in Europe and Australia for many years. A roundabout is composed of a circular, raised, center island with deflecting islands on the intersecting streets to direct traffic movement around the circle. Traffic circulates in a counter-clockwise direction making right turns onto the intersecting streets. There are no traffic signals; rather, entering traffic yields to vehicles already in the roundabout.

Advantages of roundabouts include reduced traffic delays, increased safety and reduced right of way requirements. They can reduce delays because, without a traffic signal, the stop signal phase (when vehicles entering the intersection are unable to move) is eliminated. At the same time, roundabouts can improve safety because the numbers of potential impact points and of conflict points drivers must monitor are both substantially reduced over conventional four-way intersections. The number of vehicle-vehicle conflict points for four-leg intersections drops from thirty-two to eight with roundabouts, a 75 percent decrease. The potential for hazardous conflicts, such as right angle and left turn head-on crashes is eliminated with roundabout use. Pedestrian safety can be improved because pedestrians need only cross one direction of traffic at a time at each approach as they traverse roundabouts, as compared with signalized and un-signalized intersections; vehicle speeds are also much lower. Roundabouts may reduce noise and air quality impacts and fuel consumption significantly by reducing the number of acceleration/deceleration cycles and the time spent idling. Properly designed roundabouts can also accommodate emergency vehicles, trucks and snow plowing equipment.

Unlike the typical "traffic circle" or "rotary," design standards for roundabouts are very specific. Good roundabout design places a high priority on speed reduction and speed consistency. Such designs require that vehicles negotiate the roundabout through a series of turning maneuvers at low speeds, generally less than 30 km/h (20 mph). Speed consistency refers to the design objective of slowing vehicles in stages down to the desired negotiating speed to be consistent with the expectations of drivers. Speed control is provided by geometric features, not only by traffic control devices or by the impedance of other traffic. Because of this, speed reduction can be achieved at all times of day.



Official Map

Another tool to better plan the location and number of road intersections along major thoroughfares is the use of an "official map". With an official map, municipalities may reserve and protect rights-of-way from encroaching development. Such maps may show the pre-planning of road networks, trail systems, and drainage ways as well as the future location of municipal facilities such as town halls, schools, and parks. While adopted zoning maps are official, the term "official map" is one specific to the purpose of reserving and protecting sites or corridors into the future; they are prepared and adopted in accordance with municipal comprehensive or master plans pursuant to Section 270 of NYS Town Law, Section 7-724 of NYS Village Law, or Section 239-e of NYS General Municipal Law. Official maps are also effective in fulfilling the design objectives of a community by serving to better direct development to appropriate locations. For example, internal loop roads, parallel service roads and interconnecting residential streets can be pre-planned along major roadways and highway corridors and then reserved through incorporation into an official map. In so doing, strip commercial and residential development with numerous associated driveways can be prevented or limited, thereby preserving the capacity, safety and overall function of an arterial roadway for mobility as a thoroughfare. It also protects the community's investments into its transportation infrastructure.

Complete Streets

In 2011 New York State enacted Complete Streets legislation, which promotes the consideration and implementation of complete streets design in highway project funded and overseen by the State Department of Transportation. The law was signed on August 15, 2011 and becomes effective on February 10, 2012. Within two years of the effective date, the State Department of Transportation is to report on its progress in implementing the provisions of the new law. While previous and current OCTC planning has included complete streets concepts, OCTC, NYSDOT and other member agencies will need to work together to implement this new law. Following is the complete text of the legislation:

Section 1. Legislative findings. It is hereby found and declared that to achieve a cleaner, greener transportation system the transportation plans of New York state should consider the needs of all users of our roadways including pedestrians, bicyclists, public transportation riders, motorists and citizens of all ages and abilities, including children, the elderly and the disabled. By encouraging good planning, more citizens will achieve the health benefits associated with active forms of transportation while traffic congestion and auto related air pollution will be reduced. Therefore, it shall be the policy of the state to consider people of all ages and abilities and all appropriate forms of transportation when planning roadway projects.

Section 2. The Highway Law is amended by adding a new Section 331 to read as follows:

Section 331. Consideration of Complete Street Design.

(a) For all state, county and local transportation projects that are undertaken by the department or receive both federal and state funding and are subject to department of transportation oversight, the department or agency with jurisdiction over such projects shall consider the convenient access and mobility on the road network by all users of all ages, including motorists, pedestrians, bicyclists, and public transportation users through the use of complete street design features in the planning, design, construction, reconstruction and rehabilitation, but not including resurfacing, maintenance, or pavement recycling of such projects.

(b) Complete street design features are roadway design features that accommodate and facilitate convenient access and mobility by all users, including current and projected users, particularly pedestrians, bicyclists and individuals of all ages and abilities. These features may include, but need not be limited to: sidewalks, paved shoulders suitable for use by bicyclists, lane striping, bicycle lanes, share the road signage, crosswalks, road diets, pedestrian control signalization, bus pull outs, curb cuts, raised crosswalks and ramps and traffic calming measures; and recognize that the needs of users of the road network vary according to a rural, urban and suburban context.

(c) This section shall not apply if it has been determined and set forth in publicly available documents that one of the following exists:

(i) use by bicyclists and pedestrians is prohibited by law, such as within interstate highway corridors; or
(ii) the cost would be disproportionate to the need as determined by factors including, but not limited to, the following: land use context; current and projected traffic volumes; and population density; or
(iii) demonstrated lack of need as determined by factors, including, but not limited to, land use, current and projected traffic volumes, including population density, or demonstrates lack of community support; or
(iv) use of the design features would have an adverse impact on, or be contrary to, public safety.

(d) Nothing in this section shall be construed to require the department or agency with jurisdiction over a project to expend monies in accordance with subdivision (a) of this section that exceed the amount of state and federal funding for complete street design features.

Section 3.

(a) No later than two years after the effective date of this act, the department of transportation shall publish a report showing how it has complied with section 331 of the Highway Law and changed its procedures to institutionalize complete street design features into planning, project scoping, design and implementation of

the required highway and road projects. The report shall include, but not be limited to, a discussion of the review of and revisions to various guidance documents regarding lane width, design speed, average daily traffic thresholds, level of service and roadway classification. The report shall also show any best practices that the department of transportation utilized in complying with section 331 of the highway law.

(b) In identifying such best practices, consideration shall be given to the procedures for identifying the needs of the mix of users, including primary and secondary users and the identification of barriers. The department of transportation shall consult with transportation, land-use and environmental officials, including representatives from:

(i) Counties, cities and towns;
(ii) Metropolitan planning organizations;
(iii) Public transit operators;
(iv) Relevant state agencies; and
(v) Other relevant stakeholders, including, but not limited to, representatives from disability rights groups, aging groups, bicycle and pedestrian advocates, and developers.

Section 4. This act and/or any failure to comply with the provisions of this act shall not be admissible as evidence against the state, any municipality or public authority in any claim for monetary damages against the state, a municipality or a public authority.

Section 5. This act shall take effect on the one hundred eightieth day after it shall have become a law; provided, however, that this act shall not apply to transportation projects undertaken or approved prior to the date on which this act shall have become a law.

Context Sensitive Design

In the past, transportation planners and engineers were often more concerned with the efficiency, capacity, and safety of a roadway for motor vehicles than on the impacts such roads might have on the surrounding environment and communities. That approach often created undesirable conditions, including excessive vehicle travel speeds, unsafe environments for pedestrians, the loss of convenient on-street parking, and other adverse effects on local businesses.

Recently, transportation planners and engineers have begun utilizing a new approach to roadway design called Context Sensitive Design (CSD). CSD seeks to design new roadways or modify existing ones to suit all users – motor vehicles, bicyclists, pedestrians, and public transportation passengers. Additionally, CSD seeks to preserve and enhance the community character while balancing economic, social, and environmental objectives with operational improvements of a roadway.

The NYS Department of Transportation defines Context Sensitive Design as "a philosophy wherein safe transportation solutions are designed in harmony with the community. It is not a separate process or set of standards... [but] is a philosophy that guides NYSDOT in all phases of project development." CSD strives to balance environmental, scenic, aesthetic, cultural, and natural resources, as well as community and transportation service needs. Overall, CSD strives to simultaneously advance the objectives of transportation safety and mobility while enhancing the natural environment and preserving community values.

In considering ways to address the issue of high volumes of traffic, CSD changes the process that may have previously limited options to widening the road, narrowing or excluding sidewalks, and other remedies that focus only on the safe and efficient passage of increased motor vehicle traffic, possibly at

the expense of other roadway users and the community at-large. CSD takes the process beyond this to include specific design solutions that address the concerns of local residents, businesses, and/or others. It also looks at the context in which the roadway is or will be located. Context is everything related to the people and place where the road is located.

Another trademark of CSD is the use of a collaborative planning process involving transportation professionals, local officials, and the public. It stresses the early involvement of key stakeholders to ensure that transportation projects are not only safe and efficient for motor vehicles but that they are also safe and efficient for other roadway users as well as in harmony with the natural, social, economic, and cultural environment.

Local Transit Planning & Administration. As briefly described in Chapter 5, Orange County is responsible for local transit coordination and the administration of Federal, State and other funding for local transit operations. These coordination and administrative functions reside principally within the Orange County Planning Department, which also provides principal staff support for the Transportation Council. In this manner the department has two interrelated but distinct roles: that of a local transit agency and that of MPO transit planner. To the extent that both of these roles involve planning and related activities, they are supported through the auspices of the UPWP. Support of the local transit agency functions are provided by Orange County and through State and Federal grants that are administered by the Planning Department. Orange County is the local Designated Recipient of FTA funding. Overall, these program management and planning functions functions (which are a mixture of recurring activities and special projects) include:

System Level Transit Management. This involves on a general, system-wide basis the collection of operating statistics to constantly gauge the status of the existing transit services and, where appropriate, suggest ways to improve service delivery; implementation of recommendations from county-wide transit planning; oversight of transit operators; continual monitoring and assessment of schedules, routes, stops, amenities, service areas, frequency of service, service delivery statistics, types of vehicles used in the provision of the service, and maintenance schedules; and the continuing responsibility of meeting Federal and State program requirements. To accomplish these things staff, as time permits, periodically ride the system, conduct surveys of transit riders, review schedules, suggest marketing strategies, and visit the offices of the bus operators to review pertinent records. Particular attention is paid to compliance with FTA guidelines. Various administrative, management and financial planning tools are used to carry out these functions. There is an ongoing need for further development of these tools and systems. Included in system level effort are periodic publishing of a county transit guide, maintenance of the Transit Orange website, provision of transit information and schedules, and the promotion of transit use.

There are a number of transit planning activities which are grouped in the UPWP as part of FTA 'planning emphasis areas'. For the purposes of this long range plan discussion they will be related here as they correspond to overall, system level transit efforts. These activities include:

- Participation of Transit Operators in Metropolitan & Statewide Planning
- Planning for Transit System Management / Operations to Increase Ridership
- Support Transit Capital Investment Decisions Through Effective Systems Planning
- Incorporating Safety & Security in Transportation Planning

Project Level Transit Management. On an as-needed, project by project basis, transit staff work to secure funding for new/ or replacement buses and related equipment which are leased to transit operators, as well as for vehicle maintenance. Funding is secured through the submission of Federal and State assistance applications and identification of local funding sources. On a case-by-case basis, staff investigates and works to implement new initiatives for transit equipment and expanded services resulting from recommendations contained in the OCTC long range plan, the local transit program of projects, countywide transit planning and transit operations data.

FTA Job Access Reverse Commute (JARC), Elderly/Disabled, and New Freedom Programs & the Coordinated Public Transit Human Services Transportation Planning Requirement. The County currently operates a JARC program (FTA Section 5316). The Elderly/Disabled Program (FTA Section 5310) is administered by NYSDOT. The County does not currently utilize the New Freedom program (FTA Section 5317). With the passage of SAFETEA, two significant changes have resulted for these programs: Section 5316 & 5317 funding (*not 5310*) is allocated by formula to the TMA for sub-allocations to designated recipients and all the programs are required to be undertaken on the basis of an approved Coordinated Public Transit Human Services Transportation Plan. This planning includes assessing and improving County's Complementary Paratransit services. The first Coordinated Public Transit Human Service Transportation Plan was completed in 2008; an update has been initiated.

The current JARC program was initiated through two special congressional appropriations, and continues with Section 5316 formula funding. The program is operated by the Orange County Employment and Training Administration; overall grant administration is provided by the County Planning Department. The program, using Temporary Assistance to Needy Families (TANF) funding as a match, transports eligible workers from the Newburgh & Middletown areas to distribution cluster jobs in the Maybrook/Montgomery and Chester areas.

Using a mix of planning and program administration funding, the County retained the services of a team of transit consultants beginning in 2008. The contract for this work includes tasks in these same two areas (planning & program management). Completed tasks include an analysis of alternative fuel/propulsion transit vehicles (which supported the programming of ARRA stimulus funds for the purchase of hybrid diesel-electric transit buses), STOA Program Audit and Recommendations (which led to internal management improvements for that program), and development of an updated Title VI compliance plan. Assistance with design programming and implementation of the Middletown Transportation Center and the Warwick Bus Garage is continuing. Work getting underway in 2011 includes Intra-county transit service planning (which includes focused planning for the Middletown area system as well as examining marketing), Park & Ride system planning, and Paratransit planning. These three efforts will be completed as a coordinated effort. The consulting services also include assistance carrying out the operator oversight program and a general on-call component for discrete efforts of a short term nature as directed by the Deputy Planning Commissioner. For example, assistance in preparing and responding to the FTA Triennial Reviews is undertaken as an on-call effort.

Chapter 12 – Funding & Fiscal Constraint

This chapter describes the sources of funds for OCTC multimodal transportation programming and outlines estimates of future revenues and costs of carrying out programming to the year 2040. The primary sources of estimates are the OCTC Transportation Improvement Program (TIP) and estimates prepared by NYSDOT, MTA Metro North, NYS Thruway Authority, and Orange County.

Federal transportation law requires that regional transportation plans be fiscally constrained. That is, financial commitments to specific projects in the plan must be within reasonably expected resource levels. Extensions of current funding sources can be assumed, but creation of new funding sources (such as supplemental sales taxes) cannot be reasonably assumed. For the purposes of this plan, the OCTC revenue estimates are limited to:

1. Extension of current categorical federal funding levels (as apportioned by SAFETEA)
2. Extension of current state funding programs and levels
3. Continuation of County and municipal commitments to match Federal and State funding
4. Extension of current MTA & NYSTA multi-year capital programs

Assumptions are required regarding each of the individual funding sources. These are enumerated below. This overview begins with descriptions of the Federal funding sources, sources of state and local matches for Federal funding, and the processes by which these funds are apportioned and allocated. This is followed by a summary of short term funding related to the OCTC 2011-2015 TIP and then a discussion about the long-term term outlook.

A. Sources of Funds

Federal Fund Sources

Federal funding for surface transportation derives from apportionments within periodic Federal legislation. The current legislation is entitled the Safe, Affordable, Flexible and Efficient Transportation Equity Act – A Legacy For Users (SAFETEA-LU) which was enacted by Congress in 2005. In addition to creating or amending various policy frameworks, the legislation created, continued and revised various funding programs. Funds in these programs were apportioned by legislation to the various states; annual appropriations by Congress are necessary in order that the funds may be programmed and expended. Two agencies of the U.S. Department of Transportation are primarily responsible for carrying out surface transportation programs and overseeing the expenditure of Federal funds: the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA). Congress has extended the current legislation but has yet to prepare and enact a new five-year transportation funding act.

Funding related to highways, bridges, the interstate system, and related facilities and programs are distributed to states through FHWA processes. NYSDOT then allocates those funds, along with state funds from various sources, to its eleven regions. Funds related to all forms of passenger transit are distributed directly to designated recipients through FTA processes. For certain programs related to transit affecting non-metropolitan areas (that is, areas outside MPOs), NYSDOT oversees programming and expenditure of funds. For transit programs serving Orange County, there are only two FTA Designated

Recipients: the Metropolitan Transportation Authority (MTA) and Orange County. In the case of MPOs within Transportation Management Areas (as with Orange, Dutchess and Ulster Counties), funding is initially allocated to the TMA; the MPOs within the TMA subsequently sub-allocate funds to Designated Recipients.

The political and fiscal underpinnings of the Federal transportation legislative and apportionment processes are complex and complicated. So too are the regulations and processes by which Federal transportation funding must be planned, programmed, obligated and expended. Those underpinnings and processes are for the most part beyond the scope of this long range plan document. Nevertheless, a few important points deserve mention and highlighting:

- Beginning with the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) and subsequent Federal surface transportation legislative acts, Congress has provided a certain percentage of overall transportation funding for metropolitan transportation planning. Originally 1%, SAFETEA increased the planning funding to 1.25%. These funds, split between FHWA and FTA based on the relative proportion of their funding programs within the legislation, are apportioned first to the states. The states then sub-allocate planning funds to support metropolitan transportation planning activities of MPOs and TMAs.
- Similarly, ISTEA and subsequent surface transportation legislation has required that a portion of funding be used for transportation 'enhancements'. This covers a broad range of activities that include beautification, scenic or historic programs (including provision of tourist and welcome center facilities), establishment of transportation museums, and pedestrian and bicycle safety education and facilities. In New York, NYSDOT provides for enhancements using FHWA funds through a state-controlled competitive program – the Transportation Enhancement Program. Ten percent of STP funding must be dedicated to enhancements. For transit funding, the FTA requires that the TMA demonstrate that 1% of Section 5307 funds will be dedicated to enhancements.
- Congressional practice has included the 'earmarking' of funds for various transportation and related purposes. A large proportion of the funding apportioned under SAFETEA consisted of earmarked projects (up to 10% by some estimates reported by the Transportation Research Board). Projects funded through earmarks are in many cases planned and designed outside normal planning processes. Nevertheless, if they are to be carried out, all earmark projects must appear on an approved TIP and STIP.
- All Federal surface transportation funding is provided on a reimbursement basis. Implementing State, local, transit and other responsible agencies must first carry out the projects and activities using non-Federal revenues. Provided that projects and activities are carried out in the manner specified by Federal laws and regulations, the Federal agencies will then make reimbursements to the maximum level of Federal participation (in many cases 80%, though it can be higher or lower within certain programs).
- The discussions in this document describe 'revenues' as those funds which are obtained from the Federal agencies. Those funds (that is, Federal government revenues) of course derive from a number of sources, including the Highway Trust Fund, excise taxes, fuel taxes, and other taxes.

Federal Highway Administration Funds

There are various funding programs under FHWA auspices. The core funding programs are:

- Surface Transportation Program (STP)
  STP is the most flexible of all transportation federal-aid programs, allowing for the widest array of projects. This includes construction, reconstruction, resurfacing, restoration, rehabilitation, and operational improvements for highways (including Interstate highways) and bridges (including Interstate bridges), including any project necessary to accommodate other transportation modes; mitigation of damage to wildlife, habitat, and ecosystems caused by any transportation project; capital cost of eligible transit projects; publicly-owned intra-city and intercity bus terminals and facilities; highway and transit safety improvements and hazard elimination; surface transportation planning; highway and transit research and planning and technology transfer activities; capital and operating costs for traffic monitoring, management, and control; fringe and corridor parking facilities; carpool and vanpool projects; bicycle and pedestrian facilities; transportation control measures; transportation enhancement activities; development of certain required management systems; and a variety of wetland mitigation efforts.
- National Highway System (NHS)
  The National Highway System (NHS) is a 163,000 mile network of interconnected principal arterial routes that serves major population centers, international border crossings, ports, airports, public transportation facilities, and other inter-modal transportation facilities and major travel destinations. The NHS is intended to meet national defense requirements and serve both interstate and interregional travel. The designated NHS includes all Interstate System segments; other urban and rural principal arterials meeting the goals of the NHS; and all strategic highways and strategic highway connectors. Federal funds provided for the NHS Program may be used for a wide variety of projects on the NHS, including: construction, reconstruction, resurfacing, restoration, and rehabilitation; operational improvements; construction of and operational improvements for a non-NHS highway; construction of a transit project eligible for assistance under the Federal Transit Act (if the project is in an NHS corridor and in proximity to a fully access controlled NHS highway, if the project improves the level of service on the access controlled highway, and the project is more cost-effective than improvements to the highway); highway safety improvements; transportation planning; highway research and planning; technology transfer activities; start-up costs for traffic management and control; fringe and corridor parking facilities; carpool and vanpool projects; bicycle and pedestrian facilities; development of certain required management systems; publicly owned intra-city and intercity bus terminals; intelligent transportation system (ITS) capital improvements and a variety of wetland and natural habitat mitigation efforts.
- Interstate Maintenance (IM)
  The Interstate Maintenance Program provides funds to states to maintain the Interstate System, and includes resurfacing, restoration, rehabilitation, and reconstruction. Interstate Maintenance funds may not be used for the expansion of the capacity of any Interstate highway or bridge unless the capacity expansion consists of one or more travel lanes that are High Occupancy Vehicle (HOV) or auxiliary lanes.

- Highway Bridge Replacement and Rehabilitation Program (HBRR)
  The Bridge Replacement and Rehabilitation Program provides funds to states for the replacement or rehabilitation of deficient bridges (bridges that are unsafe because of structural deficiencies, physical deterioration, or functional obsolescence) both on and off the federal-aid highway system. The state maintains an inventory of all bridges, classified according to serviceability, safety, and importance for public use. Based on that classification, each bridge is assigned a priority and cost to either replace or rehabilitate. The state, in cooperation with city and county agencies, selects bridges for replacement or rehabilitation, according to the funds available. Under federal law, apportioned funds must be split with not less than 15% and not more than 35% being expended on public off-system bridges. Bridge seismic retrofitting, bridge structure painting, and the application of calcium magnesium acetate and certain anti-icing and de-icing compositions and installation of scour countermeasures are also eligible uses of federal bridge funds.
- Congestion Mitigation / Air Quality (CMAQ)
  The CMAQ Program provides funds to states for transportation programs and projects that are likely to contribute to the attainment and maintenance of national ozone, carbon monoxide, or particulate ambient air quality standards. Examples of such projects are programs for improved transit; construction of lanes for use by buses or HOVs; employer-based transportation management plans; traffic flow improvement programs; fringe and corridor parking facilities; carpool and vanpool programs; flexible work schedule programs; alternative fuels programs; and non-motorized transportation facilities.

There are a number of other separate highway-related funding programs, as well as sub-programs and allowable permutations which are beyond the scope of this document to describe. [*For those readers seeking further information on the subject, the March 2007 FHWA document "Financing Federal-aid Highways" (FHWA-PL-07-017) available on the FHWA website is a good starting point.*]

Federal Transit Administration Funds

There are several funding programs administered by the FTA. It is important to remember that transit funding is provided directly to Designated Recipients, which may operate public transit services or which may pass through funding to agencies and companies that operate public transit services. The FTA core programs include:

SECTION 5307- This program makes Federal resources available to urbanized areas and to States for transit capital and operating assistance in urbanized areas and for transportation related planning. All preventive maintenance and some Americans with Disabilities Act complementary paratransit service costs are considered capital costs. Section 5307 capital assistance is available to MTA Metro North and (via Orange County) to bus operators providing service in and through the urbanized portions of the County. The Section 5307 eligible areas of the County include the City and Town of Newburgh, the City of Middletown, and the Towns of Cornwall, New Windsor, Highlands, Blooming Grove, Monroe, Woodbury, Wallkill, Mt. Hope, and Wawayanda. The Newburgh urbanized area, because it is connected to the Poughkeepsie and Kingston urbanized area, is considered a 'large urban area' and the Middletown urbanized area is considered a 'small urban area'.

As mentioned above, with the establishment of the Mid-Hudson Valley Transportation Management Area as a result of the 2000 Census, Section 5307 funds are first allocated to the large urban area for sub-

allocation by the three MPOs in this area. The method used to allocate funds to the TMA is based upon the population, population density and transit service statistics of the urbanized areas in the TMA. The three MPOs in the TMA must then work cooperatively, with the assistance of the NYSDOT Passenger Transit Division, to sub-allocate these funds to the Designated Recipients. The MPOs in the Mid-Hudson Valley TMA have agreed to a method of distribution which includes the retention of a portion of the funding to projects as may be agreed by the MPOs.

SECTION 5309 - This transit capital investment program provides capital assistance for three primary activities: modernization of existing rail systems, new and replacement buses and facilities, and new fixed guideway systems. Eligible recipients for capital investment funds are public bodies and agencies (transit authorities and other state and local public bodies and agencies thereof) including states, municipalities, other political subdivisions of states; public agencies and instrumentalities of one or more states; and certain public corporations, boards, and commissions established under state law. Funds are allocated on a discretionary basis by Congress ("earmarking"); fixed guideway funding is allocated by formula. While many public bodies and agencies are ultimately eligible for these funds, all funding must flow through an FTA Designated Recipient.

SECTION 5310 (Elderly and Individuals with Disabilities Program) – This program provides formula funding to States for the purpose of assisting private nonprofit groups in meeting the transportation needs of the elderly and persons with disabilities when the transportation service provided is unavailable, insufficient, or inappropriate to meeting these needs. Funds are apportioned based on each State's share of population for these groups of people. These funds are provided directly to eligible service providers by NYSDOT which is the designated recipient for this program, not through Orange County. In New York State these funds can only be used for the purchase of vehicles. In recent years AHRC and Occupations have received 5310 funding. OCTC's Coordinated Public Transit Human Service Transportation planning involves engaging with these and other agencies.

SECTION 5311 - This program provides formula funding to states for the purpose of supporting public transportation in areas with an urban population of less than 50,000. State apportionments are based on each State's non-urbanized population. Funding may be used for capital, operating, State administration, and project administration expenses. Each state prepares an annual program of projects, which must provide for fair and equitable distribution of funds within the states, including Indian reservations, and must provide for maximum feasible coordination with transportation services assisted by other Federal sources. Section 5311 funds are allocated to Orange County by NYSDOT which is the designated recipient for this program. The State then distributes the funding to Orange County for local administration. Section 5307 funds can be transferred to 5311 projects and vice versa. Both capital programs allow for 80% Federal funding, 10% State funding, and 10% local funding. Section 5311 capital assistance is available for the non-urbanized portions of the County which includes Towns of Deerpark, Greenville, Minisink, Warwick, Tuxedo, Goshen, Chester, Crawford, Montgomery, and Hamptonburgh; the area also includes the City of Port Jervis because its contiguous urban area population is less than the 50,000 population MPO threshold.

SECTION 5316 (Job Access / Reverse Commute, JARC) **–** This program provides funding, as the name implies, for services which transport welfare recipients and low and moderate income persons to and from jobs (Job Access) and/or services which provide transportation to residents of urban centers to job locations which are away from or in the opposite direction from areas to which rush hour commuting

schedules have customarily been dedicated (Reverse Commute). Orange County began its JARC program utilizing earmarked funding; the program supports van transportation of eligible clients from the Newburgh and Middletown urban areas to warehousing and distribution center jobs primarily outside of the urban areas. With the passage of SAFETEA, JARC funding (along with funding for the new Section 5317 New Freedom program) has become formulaic. Further, because OCTC is now in a TMA, these funds, like Section 5307 funds, are now being allocated first to the TMA and the three MPOs must collectively determine how to sub-allocate or spend the funds. The amount of funding to the TMA is relatively small; even less if it would be divided among the MPOs. In recent years, due primarily to its existing program and the present lack of such programs in the other counties, Orange County has made use of the JARC funding which flows into the TMA.

Capital funding for transit can also be made available through the Surface Transportation Program (STP) and the Congestion Mitigation / Air Quality (CMAQ) program.

Operating Assistance: Most bus operations in Orange County have been eligible in the past for Federal Sections 5311 and/or 5307 Operating Assistance. The particular funding source for which each is eligible is a factor of its identification as being in a rural portion of the County or one of the two urbanized areas of the County. Only the rural portions of Orange County (those eligible for 5311 Federal Operating Assistance) receive an annual allocation for operating assistance through the NYS Dept. of Transportation. Bus operations in the urbanized areas of the County may or may not be eligible for Federal Operating Assistance depending on their location and the amounts made available by Congressional appropriation. Federal operating assistance was supposed to be phased out in the Poughkeepsie-Newburgh large urban area. However, Congress continues to appropriate amounts for operating assistance. The Middletown small urban will remain eligible to receive Federal funds which can be utilized for either capital or operating assistance needs.

The operating costs of the public transportation systems in Orange County (aside from MTA Metro North) are partially funded through fare box revenues and available State and Federal capital and operating assistance. The local match required by the NY Statewide Mass Transportation Operating Assistance (STOA) Program is provided by the operators themselves. The local match required for Federal Transit Administration funding is provided by local operators, county and municipal budgets, and from the NY State Dedicated Fund for transit. All operating losses incurred by the local operators above and beyond the available State and Federal operating assistance are borne by the operators. Operating funds for demonstration purposes are available through the Federal Congestion Mitigation and Air Quality (CMAQ) funding program. CMAQ funds are limited to three years.

State Fund Sources

There are a number of funding programs and fund sources which support transportation system operations, maintenance, and capital investment. These include direct funding for and by NYSDOT as well as other special funding sources available to the State's transportation operating authorities, some of which have facilities and operations serving Orange County. These include the Metropolitan Transportation Authority, the New York State Thruway Authority, and the New York State Bridge Authority. The various fund sources are briefly described below.

State Dedicated Funds (Highway & Transit)

Highway State Dedicated Fund (SDF)

These are 100% State funds for 100% State funded highway and bridge projects on the state highway system and for matching federal aid for federally aided projects on the state highway system.

Transit State Dedicated Fund (SDF) Program.

The Governor's multi-year Transportation Plan includes 100% State funds to address capital needs - for systems other than the Metropolitan Transportation Authority (MTA) - that exceed available federal and local resources. Local Transit sponsors and designated recipients of funding from the Federal Transit Administration (FTA) - other than the MTA (Non-MTA) are eligible recipients. Funding from this program is provided from the State's Dedicated Mass Transportation Trust Fund within the Dedicated Highway and Bridge Fund. Annually, NYSDOT develops a program based upon the transit systems' identified unfunded needs. Eligible mass transportation capital projects identified in the needs analysis include replacement buses; facility/garage modernization; transit-related equipment (bus washers; service vehicles); and other federally-eligible projects. Transit SDF program funding may not supplant available federal, State and local funding.

Special Purpose New York State Bond Acts

The $2.9 billion Rebuild and Renew New York Transportation Bond Act of 2005 provides funding for specific highway and bridge projects identified in the bond issue. Funding is also available for New York's transit systems, freight and passenger rail network, airports, canals, and port facilities. Bond projects in Orange County:

800674	RT 17 EXIT 126 RECONST, STAGE 2: RT 17 & RT 94 BRIDGES
800680	CR 105/ROUTE 17
800654	ROUTE 17/ABANDONED ELRR

Marchiselli Program

Marchiselli funding is available to offset a portion of the non-federal share of project costs. The final funding for projects that meet the eligibility requirements for the Marchiselli program is 80% federal, 15% Marchiselli, and 5% local. Marchiselli eligible work includes roadways, bridges, sidewalks, shared use paths, pedestrian bridges, and bikeways that are located within an existing local highway right-of-way. Due to the high demand for limited funds, Marchiselli aid may not be available for every project phase. Generally, annual Marchiselli funds are allocated first to projects in the construction phase, then to other projects in earlier phases.

Consolidated Highway Improvement Program (CHIPS)

The Consolidated Local Street and Highway Improvement Program (CHIPS) was established by the State Legislature in 1982. The applicable rules for the program are contained in Section 10-c of the State Highway Law. Apportionments to municipalities are calculated annually by NYSDOT according to formulas specified in this section of the Law. The objective of CHIPS is to assist localities in

financing the construction, reconstruction, or improvement of local highways, bridges, highway-railroad crossings, and/or other local facilities in accordance with Section 4 of Chapter 84 of the Laws of 2002.

NYS Thruway Authority: The Thruway Authority is a public corporation organized and existing pursuant to Article 2, Title 9 of the New York State Public Authorities Law for the purpose of financing, constructing, reconstructing, improving, developing, maintaining and operating a highway system. Each year, the Authority Board approves the Authority/Canal Corporation budget for the ensuing fiscal year. This financial blueprint sets forth the sources and uses of funds necessary for the Authority's operations, Capital Program, mandated projects and debt service requirements. The financing components are primarily Thruway revenues, bond proceeds, Federal Aid and Other funds, listed in the Annual Reports. Annual Reports and additional financial information can be found the Thruway Authority's web site - www.thruway.ny.gov - under Financial Information (in the "About Us" category).

Metropolitan Transportation Authority (MTA) – Metro-North Railroad, a division of the MTA, is a public benefit corporation. Metro-North's revenues are primarily from passenger collections (ticket sales), rents, and concessions. The Railroad also receives subsidies from MTA to support its operations. The 2010-2014 Capital Program identified over $1.7 billion in projects (2010-2011 projects are funded; 2012-2014 projects are not yet funded).

The MTA's 2012 budget will be proposed to the MTA Board in November 2011 and adopted in December 2011. However, preliminary versions of the 2012 budget and 2012-2015 financial plan were presented to the MTA Board for review in July 2011. The preliminary plan reaffirmed the MTA's commitment to making every dollar count and to establishing fiscal stability for the MTA's finances. That plan continued the cost cutting initiatives begun in 2010, which are projected to achieve $3.8 billion in cumulative savings by 2014. When implemented, the plan will achieve stability moving forward without reducing service. The MTA's Capital Program, which invests in renewing MTA's infrastructure and expanding our transportation network for the future, is integral to MTA's ability to deliver services. The lack of funding for the 2012-14 years of the program presents a significant risk to the ongoing reliability of the system. The preliminary financial plan proposed in July 2011 presented a pragmatic financial strategy to fully fund the MTA's critical capital program. For more information, see www.mta.info/mta/budget/july2012.

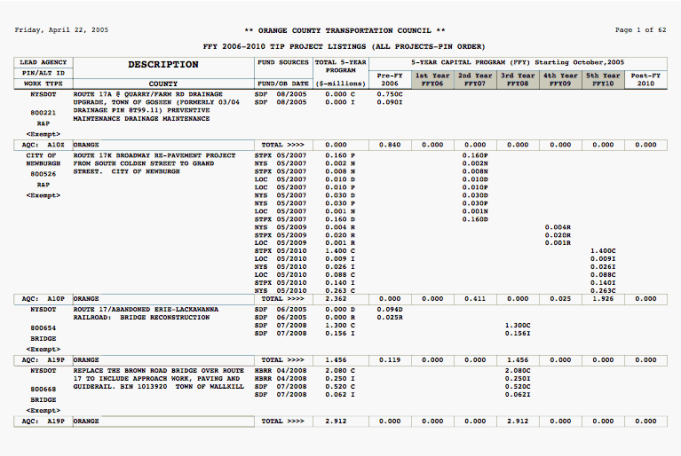
Local Fund Sources

Local funding for the transportation system includes County, Village, City and Town revenues from various sources, including property taxation, excise taxes, and bonds. These revenues are utilized for first instance funding of OCTC programmed local projects which will in part be reimbursed by Federal and State funds. There is no assured means by which to ascertain local government commitments or projections. However, experience has shown that local resources will be provided, given the limited amount of Federal funding available for local projects combined with the low level of local match required (customarily 10% for transit, 5% for highway, or 20% for bridges or non-highway). Therefore, especially given the reduced level of Federal and State revenues expected to be available, adequate local resources are assumed to be available for match requirements of the 2011-2015 TIP and beyond.

B. Short Term Fiscal Outlook -- OCTC 2011-2015 TIP

Transportation Improvement Program

The Orange County Transportation Council is required to prepare and maintain a capital investment planning program showing how all available Federal Highway and Federal Transit funding will be utilized. This capital investment plan is called the Transportation Improvement Program or TIP. Preparation of the TIP is a critical task because it is in essence the OCTC short range plan. This task is supported to a degree by the UPWP, but even more so through individual member agency participation, especially through the work of staff at the NYSDOT regional office. The OCTC TIP covers a five year period and is updated every two years. The most current TIP adopted August 24th 2010, covers the period of Federal Fiscal Years from 2011 through 2015.



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FFY 2006-2010 TIP PROJECT LISTINGS (ALL PROJECTS-PIN ORDER)

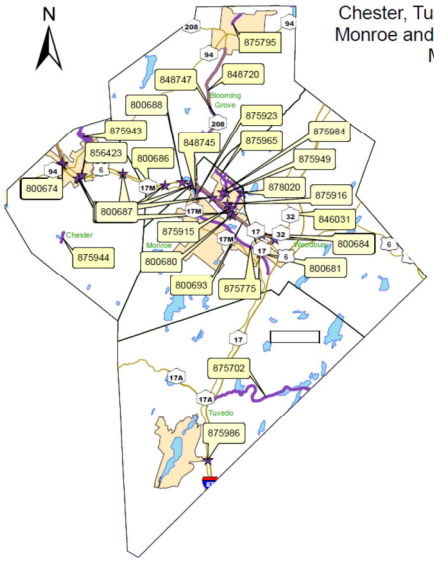
LEAD AGENCY / PIN/ALT ID / WORK TYPE	DESCRIPTION / COUNTY	FUND SOURCES / FUND/OB DATE	TOTAL 5-YEAR PROGRAM ($-millions)	5-YEAR CAPITAL PROGRAM (FFY) Starting October,2005						
				Pre-FY 2006	1st Year FFY06	2nd Year FFY07	3rd Year FFY08	4th Year FFY09	5th Year FFY10	Post-FY 2010
NYSDOT	ROUTE 17A @ QUARRY/FARM RD DRAINAGE	SDF 08/2005	0.000 C	0.750C						
800221	UPGRADE, TOWN OF GOSHEN (FORMERLY 03/04	SDF 08/2005	0.000 I	0.090I						
RAP	DRAINAGE PIN #759.11) PREVENTIVE									
<Exempt>	MAINTENANCE DRAINAGE MAINTENANCE									
AQC: A10I	ORANGE	TOTAL >>>>	0.000	0.840	0.000	0.000	0.000	0.000	0.000	0.000
CITY OF	ROUTE 17K BROADWAY RE-PAVEMENT PROJECT	STPX 05/2007	0.160 P			0.160P				
NEWBURGH	FROM SOUTH COLDEN STREET TO GRAND	NYS 05/2007	0.002 M			0.002M				
800526	STREET. CITY OF NEWBURGH	STPX 05/2007	0.008 M			0.008M				
RAP		LOC 05/2007	0.010 D			0.010D				
<Exempt>		LOC 05/2007	0.010 P			0.010P				
		NYS 05/2007	0.030 D			0.030D				
		NYS 05/2007	0.030 P			0.030P				
		LOC 05/2007	0.001 M			0.001M				
		STPX 05/2007	0.160 D			0.160D				
		NYS 05/2009	0.004 M					0.004M		
		STPX 05/2009	0.020 M					0.020M		
		LOC 05/2009	0.001 M					0.001M		
		STPX 05/2010	1.400 C						1.400C	
		LOC 05/2010	0.009 I						0.009I	
		NYS 05/2010	0.026 I						0.026I	
		LOC 05/2010	0.088 C						0.088C	
		STPX 05/2010	0.140 I						0.140I	
		NYS 05/2010	0.263 C						0.263C	
AQC: A10P	ORANGE	TOTAL >>>>	2.362	0.000	0.000	0.411	0.000	0.025	1.926	0.000
NYSDOT	ROUTE 17/ABANDONED ERIE-LACKAWANNA	SDF 06/2005	0.000 D	0.094D						
	RAILROAD: BRIDGE RECONSTRUCTION	SDF 06/2005	0.000 M	0.025M						
800654		SDF 07/2008	1.300 C				1.300C			
BRIDGE		SDF 07/2008	0.156 I				0.156I			
<Exempt>										
AQC: A19P	ORANGE	TOTAL >>>>	1.456	0.119	0.000	0.000	1.456	0.000	0.000	0.000
NYSDOT	REPLACE THE BROWN ROAD BRIDGE OVER ROUTE	NBRR 04/2008	2.080 C				2.080C			
	17 TO INCLUDE APPROACH WORK, PAVING AND	NBRR 04/2008	0.250 I				0.250I			
800668	GUIDERAIL. BIN 1013920 TOWN OF WALLKILL	SDF 07/2008	0.520 C				0.520C			
BRIDGE		SDF 07/2008	0.062 I				0.062I			
<Exempt>										
AQC: A19P	ORANGE	TOTAL >>>>	2.912	0.000	0.000	0.000	2.912	0.000	0.000	0.000

The TIP is necessarily the most explicit description of the short term plan of projects for OCTC, prepared in consistency with the long range plan. Normally a new TIP is developed every two years. The long range plan will be updated if substantial and significant projects are to be programmed in the TIP which are not described in the scope of this plan.

The TIP is a multi-modal capital program that assigns Federal funds to highway, bridge, bikeway, pedestrian, transit, travel demand management and other projects that will be undertaken in the five year period following adoption. Individual project listings identify the proposed schedule, scope, costs, and federal, state and local fund source assignment. Both federally and non-federally funded projects are shown to provide a comprehensive view of the transportation capital and operating projects in the region. Inclusion of a project in the TIP allows environmental study, project development and construction to proceed according to the schedule presented in the detailed project listing.

The TIP is a federally required product of the transportation planning process and is developed by the Metropolitan Planning Organization in cooperation with State and local officials, regional and local transit operators, and other affected transportation and regional planning and implementing agencies. The program indicates the priority of proposed projects for implementation during the program period, and provides realistic estimates of total project costs versus the anticipated available resources (i.e., shows realistic fiscal constraints).

The TIP document is comprised of project listings, summary narratives, tables, and charts. The OCTC TIP documents also now include maps allowing readers to visualize the location of programmed projects; an example of which is shown here. There are five sets of project listings in the OCTC TIP, which are separated by agency and geographic area. The Orange County project listings include only those highway and transit projects contained entirely within the planning boundaries of the OCTC (all of Orange County).



Chester, Tuxedo, Woodbury Monroe and Blooming Grove Map 4

The Multi-County project list includes those which are programmed by NYSDOT to be undertaken throughout Region 8 and for practical purposes cannot be easily described, programmed, or carried out in a strict county-by-county manner. The County and Multi-County project listings include only NYSDOT projects, local projects carried out with Federal Aid administered by NYSDOT, and projects administered by Orange County using matched FTA funding. Projects programmed and to be implemented by MTA Metro North, the NYS Thruway Authority, and the NYS Bridge Authority make up the other TIP project listings (some of which may include projects identified as multi-county in nature or specific to Orange County).

As of the last TIP update, the OCTC TIP is published in a digital-only format and made available over the Internet; paper copies of the TIP or sections of the TIP may be provided by request.

Initial environmental review for projects to be carried out through the Transportation Improvement Program is conducted during the preliminary design phase. Full environmental review is carried out during the design and preliminary engineering phases. Design reports created prior to Federal agency approval and project implementation identify any environmental mitigation which would be required in carrying out projects. Required NEPA reviews would customarily be completed by the overseeing Federal agency (or by NYSDOT if agreed to by FHWA for FHWA funded projects) during design report & approval. New York State Environmental Quality Review (SEQR) processes are carried out by the Lead Agency in coordination as necessary with other Involved Agencies. In consultation for the 2011 long range plan update, the Army Corps of Engineers emphasized the importance of coordinating with them during project implementation, which must be undertaken in accordance with Federal (and State) wetlands laws and regulations.

The TIP development process includes four major activities 1) determining reasonably expected Federal and State funding, 2) updating the costs and schedules of existing TIP projects, 3) soliciting new projects for the Congestion Mitigation Air Quality (CMAQ) program and the Surface Transportation Program-Urban (STP Urban) program if funding is available beyond already programmed projects, and 4) identifying new transit projects for local and regional transit agencies administered by Orange County. This information is considered by staff and the OCTC Technical Committee in order to prepare a new five year program, for review and adoption by the OCTC Executive Committee. Following local adoption, the TIPs of each MPO in the state, together with the transportation programs of non-metropolitan areas of the state prepared by NYSDOT, are combined into an overall New York State Transportation Improvement Program or STIP. The STIP is submitted to the Federal Highway Administration and the Federal Transit Administration for their approval. The New York STIP is a four-year program and includes only four of the five years of the OCTC TIP.

NYSDOT Region 8 staff provides the MPO with the ability to implement specific FHWA-funded projects listed in the TIP by the work it does in translating the projects from the TIP to the NYSDOT Capital

Program, and helping project sponsors with implementation. TIP development and administration is coordinated as necessary for the purpose of air quality conformity. The TIP and STIP are amended as necessary during the course of carrying out the program and to address changing project circumstances, funding adjustments and exigencies. The TIP document is available on the OCTC website: www.orangecountygov.com/planning/octc.

A total of approximately $333M is programmed in the 2011-2015 TIP for transportation projects in Orange County. This includes approximately $224M in Federal funding and$109M in state and local funding. Of this total, $79M supports bus transit and $254M supports highway projects. MTA-Metro-North Railroad anticipates approximately $301M in projects entirely or partially in Orange County.

Overall, the 2011-2015 TIP emphasizes the preservation of the existing transportation system. To that end, approximately $118M supports pavement and bridge preservation projects, $1Mis dedicated to highway capacity improvement projects, $120M goes to other highway projects such as safety and intersection improvements including the upgrade of Route 17 to Interstate 86, and $15M goes to mobility projects. Funding for mass transit (other than Metro-North Railroad) amounts to$79M, of which $76M supports maintenance and operations, and $3M goes to enhancements and upgrades.
The 2011-2015 TIP includes an additional $457M in multi-county, system-wide highway projects that will partially benefit Orange County. These multi-county projects support cyclical maintenance projects across NYSDOT-Region 8 and include traffic signal replacements, highway sign improvements, guiderail maintenance, and pavement marking initiatives.

As previously mentioned, the OCTC TIP also includes project listings from three regional authorities: MTA/Metro-North Railroad, NYS Bridge Authority, and NYS Thruway Authority. Like the NYSDOT Multi-County projects, these projects often provide an indirect benefit to Orange County; though there are some projects specific to or completely within Orange County. MTA/Metro-North Railroad expects to program approximately $301M in system-wide projects which will benefit the County. In addition over $114M is programmed by the NYS Bridge Authority for projects partially with the County, and about $30M is programmed by the Thruway Authority for projects in Orange County.

A number of projects were reauthorized by OCTC in the 2011-2015 TIP. These include projects funded under Congestion Mitigation and Air Quality improvement program (CMAQ), Surface Transportation Program (STP) and Highway Bridge Rehabilitation and Replacement (HBRR) program. There are also thirteen Projects funded wholly or partially by SAFETEA High Priority Program (HPP) funds, and two projects with Federal DEMO Trust Funds from TEA-21, the previous federal transportation legislation. These are carry-overs from the 2008-2012 TIP. As previously mentioned, there were no new highway projects due to lack of available highway funding.

It should be noted here that the development of a new TIP to succeed the 2008-2012 TIP did not occur when first expected. Shortly after adoption of that TIP and of the 2007 LRTP, the national financial and banking crisis became evident. Deliberations at the national level resulted in the American Recovery and Reinvestment Act (ARRA) or the ‘stimulus bill’. Planning, programming and implementing ARRA projects became the focus of MPO and member agency efforts in 2009; that and the extreme uncertainty about funding led to a collective decision by the State and MPOs to delay development of new TIPs and the STIP by one year. Due to an expectation of reduced Federal funding as compared to the estimates used for TIP development, and unless some Federal action occurs which would restore confidence in the earlier

estimates, the development of the 2013-2017 TIP will be based on significantly lower estimates of reasonably expected Federal funding. Because the new TIP overlaps years in the 2011-2015 TIP, the reduced funding estimates will necessarily lead to changes in how projects may be currently programmed.

A very brief overview of ARRA and the stimulus projects programmed by OCTC follows. More detailed information is provided on the OCTC website and the State website noted below. In 2009, the Federal government adopted legislation which provided for extraordinary 'stimulus' funding for certain transportation projects. This legislation was titled the American Recovery and Reinvestment Act of 2009 (ARRA). As required by that legislation and standing Federal surface transportation legislation, the Orange County Transportation Council sought, considered and programmed ARRA funds to eligible transportation projects. This work occurred primarily in the first five months of 2009, followed by considerable work and coordination by the Governor's office, the New York State Department of Transportation, project sponsors, the US Department of Transportation, and others to implement ARRA projects. Twelve projects in the OCTC region were certified and funded under the ARRA Stimulus program. The table below provides a summary of these projects. Detailed project descriptions and status reports are available on the NYSDOT website www.nysdot.gov/recovery The NYSDOT website also includes comprehensive reports on all statewide Recovery Act efforts including funding distributions and requirements, performance metrics, answers to frequently asked questions, presentations and guidance materials.

HIGHWAY & BRIDGE STIMULUS PROJECTS Short Project Name	Project Cost at Certification (Millions)	ARRA Funding Amount (Millions)	Project Type	Project Location	Project Sponsor	Project Status 10/1/2011
Orange County Paving Projects	3.088	3.088	hwy (pave)	Various	OCDPW	Construction Started
Paving of Peenpack Trail	0.500	0.500	hwy	Deer Park	Deer Park	Completed
Replacement of Petticoate Lane Bridge	2.000	1.980	bridge	Crawford	OCDPW	Construction Started
Orange County Bridge Painting (20 bridges)	0.770	0.770	bridge	Various	OCDPW	Construction Started
Robinson Ave: Broadway to North City Line	8.580	8.580	hwy	Newburgh (C)	Newburgh (C)	Construction Started
Park & Ride Lot (Bakertown Rd / CR 105)	1.685	1.600	hwy	Kiryas Joel	Kiryas Joel	Construction Started
Bridge Painting I-84, various locations	4.870	4.870	hwy	various	NYSDOT	Construction Started
I-84 / Taft Avenue, Route 52/I-84, Gidney Ave/I-84 MBC	6.601	2.800	hwy	various	NYSDOT	Completed
State Hwy Paving	4.400	4.400	hwy	various	NYSDOT	Completed
Sidewalks Phase 6	1.252	0.501	bike/ped	Kiryas Joel	Kiryas Joel	Construction Started
East Shore Road Improvements	1.613	0.903	hwy	Warwick	Warwick	Construction Started
South Street Pedestrian Improvements	0.570	0.500	bike/ped	Newburgh (C)	NYSDOT	Construction Started
Total Hwy/Brdg Programmed	35.929	30.492				

B. Post-TIP

Beyond the period of the 2011-2015 TIP, there is an intermediate term for which there are agency and/or OCTC plans which point to a small number of specific, identifiable projects. These projects are aside from regular and continuing capital, maintenance and operating needs in the various program areas. This intermediate time period extends from beyond the current TIP to at least the end of the NYSDOT program period. Different agencies have different intermediate term planning horizons.

Funding for any projects identified for this period has not been committed and, in fact, the complexion and scale of Federal surface transportation funding is not known beyond a very short time frame. There is a hope of continued funding for routine maintenance, operations, and capital investment which will be required to achieve and maintain all systems in a state of good repair, however there are no guarantees.

Projects which may be programmed or undertaken during that long range period remain to be explicitly identified through current and future OCTC and member agency planning and analyses.

To the extent that those changes would be beyond the scope of what is discussed in this document, the OCTC Long Range Transportation Plan would need to be amended to reflect those changes.
This long range plan document has a "horizon" out to 2040. However, in practical terms, very little can be said about what the County's transportation needs will be three decades hence. Provided that the cost of petroleum-based fuels and/or their replacement alternatives can retain the same relative proportion of disposal income as they do today, and no catastrophic changes on a national or global scale occur, it seems reasonable to assume the populace would likely continue to expect a transportation system in 2040 that supports a high degree of personal freedom using single and multiple occupant vehicles on an extensive surface road network. Given the increasing use of petroleum based fuels by a number of rapidly developing economies in Asia and elsewhere, projections that global supply will not be able to meet the increased demand, and the present weak political and economic will to rapidly and greatly expand our national capacity to use alternative fuels or technologies for our trucks, SUV's and automobiles, it also seems reasonable to assume that there is fair potential that the future may be one where fuel costs are much higher in relative terms than they are today. In the end – looking very long term – to a great degree, the economic, political and technological factors, decisions and initiatives which will affect that future are beyond the capacity of this plan to review, and beyond the capacity of this county to influence.

A critical factor in looking ahead, even in the short term, is the present indebtedness of our nation (and state). The scale of indebtedness raises serious questions about the ability of current and future governments to fund investments in operation, maintenance and improvement of our transportation systems. It may be that this indebtedness will be managed by our political and financial systems so that it will have no negative impact on transportation funding. It might be that investment in transportation systems could even increase. On the other hand, the financial and fiscal situations could lead to decreasing real levels of investment in transportation. What the future of federal finance holds is necessarily uncertain and for the most part outside control from a county perspective. Nevertheless, the potential for increasing fuel costs and questions about future ability to pay for operation, maintenance and improvement, argue for promotion of more sustainable transportation systems. Given these circumstances, OCTC member agencies are faced with the fact that preservation of the existing system must take priority and that there may be no or extremely limited funds for anything else. Therefore, at the present time the cost of operations and maintenance are estimated to consume all of the available funding beyond the current TIP. In fact, as highlighted by NYSDOT program update instructions, agencies are faced with the potential future need for disinvesting in a portion of the existing system and must consider if and how to plan for this potential.

Given the lack of a new Federal transportation bill, the extreme uncertainties regarding government fiscal outlooks at all levels, and overall uncertainty about economic conditions, attempting to estimate even rough amounts of future funding is of questionable value. No matter what numbers result from the estimation, in the present environment, they will almost certainly be wrong. Nevertheless, in part to satisfy Federal planning requirements, the estimates from the 2007 plan have been updated. To determine potentially available highway resources over the plan period, funds were calculated by using the Annual Allocation Table from NYSDOT Main Office, which established NYSDOT Region 8 program levels by federal highway fund source and by year. These estimates were then adjusted to reflect the OCTC metropolitan area's historic percentages of NYSDOT Region 8 federal-aid resources and then refined by

NYSDOT Region 8 itself. This assumes that the metropolitan area's share of the state allocations for each of these fund sources will continue at 2011-2015 levels into the future. These estimates do not include MTA, Thruway or Bridge Authority.

	MEDIUM & LONG TERM FISCAL OUTLOOK 2016-2040				
	NEEDS		PROJECTED RESOURCES		Surplus or
Category	Base Year	For Period	Base Year	For Period	(Shortfall)
State Highways – Capacity / Major Reconst.	$52	$1,896			
State Highways – Other	$6	$219			
State Highways – Pavement	$26	$948			
State Bridges	$52	$1,896			
State Maintenance	$32	$1,167			
State Multi-County Projects (portion in OC)	$1	$36			
Sub-Total State	**$169**	**$6,162**	**$29.5**	**$1,076**	**($5,086)**
NYS Thruway – Projects	$12	$438	$12	$438	$0
NYS Thruway – Maintenance	$6	$219	$6	$219	$0
MTA Metro-North – State of Good Repair	$11	$401	$0	$0	($401)
MTA Metro-North – Improvements/Expansion	*n/a*	$1,400	$0	$0	($1,400)
Local – Capital Projects eligible for Federal Aid	$25	$912	$7	$255	($657)
Local – Maintenance eligible for Federal Aid	$1	$36	$0	$0	($36)
Transit Orange – Capital Needs	$4	$146	$3	$109	($37)
Transit Orange – Prev. Maint. / Operating Asst.	$10	$365	$6	$219	($146)
Innovative Transit/Land Use Projects	$2	$73	$1	$36	($37)
Sub-Total Non-State		**$2,589**		**$1,276**	**($1,313)**
Total State and Non-State		**$8,751**		**$2,352**	**($6,399)**

Notes
2016 - 2040 = 25 years inclusive
All values in $ Millions
Base Year 2016 estimates inflated by 3% annually to arrive at YOE expenditure totals for the period (a total factor of 36.46)
Some totals may vary due to rounding

Local Transit Financing

For the purposes of this plan, Federal transit capital and operating/preventive maintenance funding for Orange County is projected to continue at current level for the period of this plan. How these funds, along with carryover 5307 funds, will be allocated among capital and operating/preventive maintenance projects has yet to be determined. Local policy is to continue routine replacement of transit facilities and vehicles to at least maintain service at current levels and equipment in a state of good repair. OCTC works closely with transit operators to identify transit needs and funding estimates. Orange County is the local FTA Designated Recipient, which is administered within the County Planning Department. (MTA, which provides train service in the county, is also a Designated Recipient.)

The Metropolitan Transportation Authority (MTA) is also a designated recipient of Section 5307 funds in the Urbanized Area. The MTA Metro-North Railroad operates commuter train service in Orange County through a contract with New Jersey Transit. The MTA utilizes Section 5307 and other funds to make capital improvements on the Port Jervis Line. MNR is currently undertaking an Alternatives Analysis of

West of Hudson services. This AA is evaluating potential changes to West of Hudson service that may include a new storage facility and service expansion

As a subsidiary of the Metropolitan Transportation Authority (MTA), Metro-North Railroad projects are included in the MTA's Capital Program. MTA's 2010-2014 Capital Program identifies over $1.7 billion in projects to improve Metro-North service, including the purchase of new rolling stock (locomotives and cars), signal and power improvements to meet Positive Train Control requirements, the continued rehabilitation of stations, and track maintenance. Metro-North is developing system expansion projects such as double tracking the Port Jervis Line up to Moodna Viaduct and construction of a yard midpoint on the Port Jervis Line that will be financed as part of subsequent Capital Programs. The MTA is in the process of developing a 20-Year Capital Needs Assessment (2015-2034), which identifies $11.8 billion in system-wide capital needs for Metro-North. These needs are required to maintain a state of good repair and support projects such as replacing rolling stock and maintaining track.

Fiscal Constraint

The Orange County Transportation Council (OCTC) is one of four MPOs in NYSDOT Region 8 which also includes the NYMTC Mid-Hudson South Transportation Coordinating Committee (MHSTCC), the Poughkeepsie-Dutchess County Transportation Council (PDCTC) and the Ulster County Transportation Council (UCTC). MHSTCC is one of three TCC's – essentially sub-MPOs – of the 10 county NYMTC MPO area. NYSDOT Region 8 also includes non-metropolitan Columbia County, which has a Transportation Advisory Committee. The MPOs in Region 8 are grouped into two Transportation Management Areas (TMA): the Mid-Hudson area which encompasses the MPO areas of OCTC, PDCTC and UCTC and the New York Metro TMA encompassing all of the area overseen by the New York Metropolitan Transportation Council.

The multi-MPO and one rural county structure of Region 8 means that no one MPO has a direct allocation of federal funds to fiscally constrain. Fiscal constraint rests at the Region 8 level. Staff of the MPOs work with Region 8 program management staff to keep the four TIPs constrained. The four MPOs update their TIPs normally on the same biennial cycle. Region 8 provides the MPOs with current financial and schedule data for existing projects and estimates of funds available for programming over the next TIP period. This begins the cyclical TIP development processes in a constrained manner. Due to the fact that the amount of state first instance funding for federally-aided local highway projects is capped by the New York State Legislature, the historical OCTC experience has been that the estimated cost of proposed local projects for addition to the TIP has always exceeded the non-local (Federal & State) funding available. Federally-aided local highway projects on the TIP are already fiscally constrained to the Federal and State funds not already programmed in the TIP period. Available funds are allocated based on need, priority and other criteria, primarily through the biennial TIP development processes.

To keep the TIP fiscally-constrained as amendments are processed, offsets are determined for cost increases and schedule changes. According to the operating procedures of all four MPOs in Region 8, the search for an offset begins with the agency responsible for the project amendment. If no agency derived offset is available at that level, the next place to look for an offset is within the overall program with the county, then within the entire MPO (as is the case with NYMTC which comprises 10 counties (including the 5 boroughs of NY City), then within all of NYSDOT Region 8. The Region 8 program as adopted, and as shown in the State Transportation Improvement Program (STIP), is fiscally constrained.

Chapter 13 – Goals, Objectives, & Recommendations

This chapter presents the goals and objectives of the Transportation Council's and presents recommendations for working to achieve them through policies, strategies, planning or other actions. These recommendations for the most part do not describe specific infrastructure projects or system operation and maintenance activities, though they do describe the considerations involved in undertaking such projects. The aspirations and actions contained in this chapter are as much a part of the OCTC Long Range Transportation Plan as other more project-oriented or funding-oriented elsewhere in this document. [*Please note that while the statements of goals and objectives and of the various recommendations have been grouped in an attempt to relate to certain topics, there is some overlap between topic area and also some repetition of ideas.*]

A. GOAL: Adequate, safe, balanced and efficient multimodal transportation for motorized and non-motorized users at reasonable cost to the people of Orange County and New York State.

OBJECTIVES:

1. Preserve, rebuild and maintain existing and future transportation infrastructure so that it will meet applicable Federal, State, County and municipal standards.
2. Provide adequate transport system capacity with no highway segments operating above a volume to capacity ratio of 0.9.
3. Maximize transport system safety through improved design, construction and operations.
4. Investigate all high accident locations over a five-year period and take corrective actions as possible.
5. Continue to develop a transport system that balances the most cost-effective modes.
6. Provide for the travel needs of mobility-limited persons (elderly, disabled, economically disadvantaged) and meet ADA requirements.

Recommended Actions:

1. Continue to develop and implement the TMA Congestion Management Process
2. Participate in the NYSMPO Safety Working Group and related coordination with other agencies
3. Coordinate with and assist in the activities of the Orange County Traffic Safety Board
4. Gather, analyze and post information on the OCTC website regarding safety and accident data.
5. Update the Coordinated Human Services Transportation Plan as necessary in cooperation with all human service agencies and human service transportation providers.
6. Review and update as necessary County ADA paratransit policies; make service improvements as warranted.
7. Develop roadway safety monitoring system.
8. Program projects to rehabilitate and maintain the existing transportation infrastructure
9. Working with infrastructure owners, develop an asset management system.

B. GOAL: A multimodal transportation system that improves accessibility, allows reasonable choice of mode, and provides an adequate level of service for future travel and freight demands.

OBJECTIVES:

1. Promote and provide for the development and integration of all travel modes including highway, transit, pedestrian, and bicycle travel needs.
2. Where necessary and consistent with the County Comprehensive Plan, and only after system maintenance and preservation has been funded, reconstruct and widen major highway corridors, and construct service roads for access in order to optimize system capacity and safety.
3. Develop travel alternatives (rail, light rail, bus rapid transit, ferries, ridesharing (including van and carpooling), buses, pedestrian and bicycle facilities, etc.) to the single-occupant automobile in growth and commuter corridors to move more people in the peak hours and maximize capacity.
4. Establish criteria for mode split for different types of trips (e.g., to New York City, within the County, in critical corridors).
5. Develop and aggressively promote transportation-demand and systems-management techniques.
6. Link existing long distance commuter services with local communities.
7. Provide adequate freight facilities within the County.
8. Promote improved collaboration between municipalities in developing and implementing non-motorized transportation alternatives and infrastructure.

Recommended Actions:

1. Prepare a new non-motorized transportation plan (bicycle and pedestrian plan)
2. Develop an ongoing UPWP activity directed at assessing and planning for freight movements and infrastructure in and through the county ; begin this effort with a detailed assessment of freight as described in Chapter 6 of this plan document.
3. Continue working with NYSDOT, transit operators, FTA, MTA-MetroNorth and others to maintain and improve TDM programs
4. Include multi-modal analysis in all OCTC sponsored transportation studies
5. Develop programming criteria for TIP development that require coordination of multi-modal solutions.
6. Develop planning and policy recommendations to implement Complete Streets initiatives where required or desirable.

C. GOAL: A healthy and vital economy adequately supported for continued smart growth by the transportation system.

OBJECTIVES:

1. Retain existing businesses and foster continued economic development in appropriate areas based on the “priority growth area” concepts of the Orange County Comprehensive Plan.
2. Develop infrastructure necessary to service Stewart International Airport.
3. Provide convenient access to employment centers for all people, including economically disadvantaged

4. Minimize the displacement of people and businesses during the construction of new or expanded transportation facilities
5. Provide for equal opportunity in construction and other transportation programs

Recommended Actions:

1. Coordinate transportation planning activities related to Stewart International Airport with member agencies (NYSDOT, the Port Authority of New York & New Jersey, MTA Metro-North, local governments) and others.
2. Complete mid and western County Transportation and Land Use Study
3. Harmonize local land use decisions with a transportation system that can be economically provided.

E. GOAL: A balance of smart land-use development and adequate transportation infrastructure through comprehensive planning and growth management throughout the County.

OBJECTIVES:

1. Promote consistency between transportation improvements and State and local planned growth and economic development patterns.
2. Local governments develop and adopt new or revised master plans that will encourage transit, and pedestrian/bicycle-friendly developments in and around existing cities, villages and transportation corridors where adequate transportation, sewer and water services are available or planned.
3. Encourage inter-governmental cooperation and legislative initiatives needed to coordinate land-use and transportation infrastructure.
4. Local governments use land-use and zoning control to foster comprehensive planning and growth-management techniques: performance zoning (developer incentives), phase development, overlay districts, areas of critical planning and negotiated development agreements, etc.
5. Design and implement fiscal devices which will foster development patterns conducive to and consistent with transportation policy goals.

Recommended Actions:

1. Continue to implement and improve the transportation/land use planning coordination and development review functions through OCTC support staffing at the Orange County Planning Department, and related coordination with other agencies including the NYS Department of Transportation and the Orange County Department of Public Works.
2. Complete a Mid and western County Transportation and Land Use Study
3. Continue implementation of the Southeast Orange Transportation and Land Use Study; Update the analyses and recommendations of the AKRF study based on new data/information; Consolidate and synthesize the land use and planning recommendations of the AKRF study with the findings and recommendations of the county-supported RPA Visioning initiative.
4. Examine the transportation & land use characteristics of the OCTC planning areas which are outside the generalized urban area boundary.
5. Update the urban area boundary based on the results of the 2010 Census

6. Through the separate SEOC and Mid-County area initiatives or through as separate, corridor focused planning initiative, assess the land use and off-facility transportation influences which may be expected from the conversion of NY Route 17 into an Interstate Highway.
7. Develop educational programs and materials for local officials on transportation and land use.
8. Incorporate the Smart Growth Infrastructure Policy Act in planning and decisionmaking as it may be required or desirable

F. GOAL: Energy conservation; and environmental protection and enhancement.

OBJECTIVES:

1. Develop and promote travel alternatives to single-auto occupancy travel such as ridesharing (including van and car-pooling), transit, bicycling and walking to reduce traffic congestion through transportation-demand and systems-management techniques.
2. Improve air quality through promotion and development of transit and ridesharing alternatives to single-occupant automobile travel
3. Encourage the development and use of alternative vehicle types (i.e. those that require alternative fuels or vehicles that operate on cleaner fuels with improved emission standards).
4. Reconstruct and, if necessary and consistent with the County Comprehensive Plan, widen existing major transportation corridors rather than creating new ones to accommodate increasing travel demand while maximizing open spaces, minimizing requirements for new land for transportation, and encouraging clustered denser development that can be economically served by transit, bicycle, and pedestrian modes.
5. Minimize adverse environmental impacts (air, water, land and noise pollution) from transportation system and local land use development. Improve air quality to meet EPA goals.
6. Protect and preserve environmentally sensitive and agricultural lands.
7. Protect and promote scenic qualities, enhance man-made and natural environments throughout the County.
8. Encourage fleet turnover to increase percent of vehicles that are fuel efficient and low emitters of pollutants.

Recommended Actions:

1. Create a county level official map and assist in the creation of municipal official maps as a means of protecting future transportation rights-of-way.
2. Purchase only low emission transit vehicles
3. Continue efforts to convert traffic signal lamps to light emitting diodes (LEDs).
4. Convert / retrofit school buses.
5. Incorporate examination of potential environmental impacts during transportation planning to the extent possible.

G. GOAL: Create and maintain a cost effective, integrated, and secure multimodal transportation system for motorized and non-motorized users and obtain adequate financial resources to support it.

OBJECTIVES:

1. Cost-effective allocation of funds in order to rebuild and maintain the County's transportation infrastructure.
2. Private sector initiatives, public-private partnerships, and develop innovative financing mechanisms to fund transportation needs.
3. Integration of available transit services at multimodal transportation centers.
4. Incorporate examinations and actions to improve security in planning and funding of the transportation system
5. Enhance the relevancy and effectiveness of the Orange County Transportation Council, its staff and programs
6. Major limited access corridors actively managed using advanced traffic management system coordinated from Region 8 Traffic Management Center (TMC).
7. Transit operators implement transit ITS to provide vehicle and stop security, optimize operations and inter-operator coordination, and coordinate with Region 8 TMC.

Recommended Actions:

1. Expend at least the required 1% of FTA funding on security measures
2. Assist bus operators in the completion of bus storage and maintenance facilities in a manner that will improve transit system security.
3. Develop a process to dedicate a portion of UPWP allocations to planning initiatives of municipalities and groups of municipalities.
4. Through a UPWP funded project, review the overall funding of operation and maintenance of transportation systems in Orange County; identify practical recommendations to improve the cost effectiveness of transportation spending and seek to increase overall funding.
5. Assess the ongoing Pavement Management Program; improve as necessary
6. Undertake an assessment of the OCTC Travel Demand Model, possibly through the Travel Model Improvement Program.
7. Continue to improve the OCTC internet presence
8. Undertake an assessment of other local data gathering and analytical processes,
9. Develop and implement an OCTC records management program
10. Develop a system to coordinate NYSDOT and County highway work permit processes and local SEQR processes to ensure adequate transportation system mitigation is obtained from developers and opportunities for public/private partnerships are identified.