Air Quality Conformity Determination Statement for the Poughkeepsie Ozone Non-attainment Area

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1. INTRODUCTION

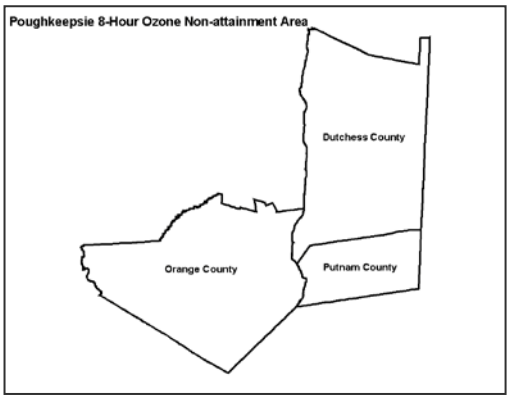
The New York Metropolitan Transportation Council (NYMTC), the Orange County Transportation Council (OCTC) and the Poughkeepsie-Dutchess County Transportation Council (PDCTC), have completed this Draft Air Quality Conformity Determination as the result of the proposed NYMTC 2011-2015 Transportation Improvement Program (TIP). This Draft Conformity Determination covers the PDCTC and OCTC 2011-2015 TIPs and Metropolitan Transportation Plans (MTP) as well as the new 2011-2015 NYMTC TIP and MTP.

2. OVERVIEW

2.1. Background

In recognition of the close relationship between air quality and transportation, Federal legislation – the Clean Air Act Amendments of 1990 (CAAA) and the Safe, Accountable, Flexible, Efficient Transportation Equity Act (SAFETEA) – require that transportation activities conform to State air quality implementation plans before receiving federal transportation funding. Specifically, the CAAA establishes air quality standards through the designation of National Ambient Air Quality Standards (NAAQS). These standards set limits on the levels of air pollution (e.g. ozone, Particulate Matter, Carbon Monoxide, and Nitrogen Dioxide) that can exist in a region. In regions where these standards are not met (i.e. in non-attainment), 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. The CAAA further requires that a conformity determination must be less than four years old in non-attainment areas. If a conformity determination does expire, the region goes into a conformity lapse 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 that are exempt. The lapse would occur one year after the previous determination expires.

Three separate MPOs serve the Mid-Hudson Valley: NYMTC, OCTC, and PDCTC. Federal regulations require that all Urbanized Areas, metropolitan areas with over 50,000 people, be represented by a MPO – which is responsible for ensuring that Federal transportation dollars (highway and transit) are committed through a locally driven, comprehensive planning process. To guide this transportation planning process, each MPO must regularly develop three critical documents: a Metropolitan Transportation Plan (MTP) (usually a twenty-five year plan), a Transportation Improvement Program (TIP), and a Unified Planning Work Program (UPWP).



2.2. Attainment/Non-Attainment History and Status

In 1991, Dutchess County, Putnam County, and Upper Orange County were classified as a Moderate Non-attainment Area under the 1-hour ozone standard, while in attainment for all other Clean Air Act criteria pollutants. The Lower Orange County Metropolitan Area (LOCMA), consisting of the Towns of Blooming Grove, Chester, Highlands, Monroe, Tuxedo, Warwick, and Woodbury were 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 (USEPA) 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 USEPA set the standard at 0.08 parts per million (ppm). Specifically, the design value for 8-hour ozone is the 3-year average of the annual 4th-highest daily maximum 8-hour ozone concentrations. 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 USEPA designated Dutchess, Orange, 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 2008-2010 monitoring data is 0.076 ppm as monitored at both the Mt. Ninham monitor in Putnam County and Millbrook monitor in Dutchess County. The Valley Central Monitor in Orange County has a 2008-2010 design value of 0.073 ppm. On March 12, 2008, EPA once again strengthened the 8-hour ozone NAAQS to a level of 0.075 ppm. 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.

2.3. Process To complete the conformity determination, interagency consultation is required. The Interagency Consultation Group (ICG) includes representatives from the USDOT (Federal Highway and Transit Administrations), USEPA – Region 2, NYS Department of Environmental Conservation (NYSDEC) – Main Office, NYSDOT Environmental Science Bureau (ESB), and the Metropolitan Planning Organizations (MPOs). The group provides multi-agency concurrence on the assumptions and methodologies used in the NYMTC, OCTC and the PDCTC Travel Demand Models; the results of which formed the basis of the regional emissions analysis. In general terms, the model outputs are used to forecast the amount of air pollution created when the projects in the MTPs and TIPs are expected to be operational.

This statement details the conformity determination process that the NYMTC, OCTC and the PDCTC undertook for their respective MTPs and TIPs, by addressing each of the regulatory criteria stipulated in the federal transportation conformity regulation, 40 CFR Part 93, as amended April 23, 2010, which forms the basis of this determination statement. The State requirements under 6 NYCRR Part 240, especially 240.6 consultation process have been met as well.

3. FORMAT The USEPA requires that the following information or conditions be submitted or met in a conformity determination statement:

- ✓ Latest Planning Assumptions
- ✓ Latest Emissions Model
- ✓ Consistency with each Metropolitan Transportation Plan
- ✓ Identification of Exempt/Non-Exempt & Regionally Significant Projects
- ✓ Timely Implementation of Transportation Control Measures (TCMs)
- ✓ Documentation of Interagency Consultation Requirements
- ✓ Public Involvement

- ✓ Results of Emissions Analysis
- ✓ Evidence of MPO resolutions
- ✓ Statement of Conformity with SIP

4. LATEST PLANNING ASSUMPTIONS Federal and State regulations require that a conformity determination be based on the latest planning assumptions available at the time. Specifically, information on five general areas must be provided: demographic data, transit operating policies, transit service levels, transportation control measures, and key assumptions. The importance of providing this information relates to the fact that Travel Demand Modeling depends on such data to accurately forecast future amounts of Vehicle Miles of Travel (VMT). The forecasted VMT calculations for Dutchess, Orange, and Putnam Counties, as calculated by each MPOs travel demand model, formed the basis of the regional emissions analysis.

Vehicle Miles of Travel:
Unit of measure for vehicle travel made by a private vehicle (car, van, pickup truck, or motorcycle) Each mile traveled is counted as one vehicle mile, regardless of the number of persons in the vehicle.

4.1. Demographic Data In order to accurately forecast future VMT, the Travel Demand Models rely on demographic data – related to population, employment, housing, and vehicles – to measure how the transportation systems envisioned by the MTPs and TIPs will be used. Simply put, the models do this by first replicating the key components of the existing transportation system into the software: road networks, functional classifications, turning lanes, vehicle speeds, and traffic control devices. Then, the models incorporate the required demographic data to simulate current and forecasted travel patterns, recognizing that certain population characteristics impact the transportation network in different ways. (Table 1 shows forecast data for Dutchess, Orange, and Putnam Counties)

Table 1. Demographic Forecasts for Dutchess, Orange, and Putnam Counties

Dutchess	2000	2012	2020	2030	2035	% Annual Growth	% Total Growth
Population[1]	261,951	288,132	310,850	344,429	358,590	1.1%	37%
Employment	114,099	124,743	132,651	142,168	146,964	0.8%	29%
Housing Units	106,103	121,130	130,020	140,562	146,379	1.1%	38%
Households	99,536	113,146	127,456	132,971	138,486	1.1%	39%
Vehicles	180,155	207,057	235,794	252,645	264,508	1.3%	47%

Orange	2000	2012	2020	2030	2035	% Annual Growth	% Total Growth
Population[1]	341,367	395,026	421,133	465,125	482,045	1.2%	41%
Employment[2]	110,242	144,878	155,362	173,293	182,259	1.9%	65%
Housing Units	122,754	142,896	154,317	171,000	177,417	1.3%	45%
Households	114,788	133,623	144,303	159,903	165,903	1.3%	45%
Vehicles	200,879	233,840	266,180	279,830	290,330	1.3%	45%

Putnam	2000	2012	2020	2030	2035	% Annual Growth	% Total Growth
Population	95,745	103,904	110,571	120,699	125,019	0.9%	31%
Employment	32,889	41,656	45,270	48,758	50,293	1.5%	53%
Households	32,700	36,633	39,919	43,530	44,798	1.1%	37%

[1] *Total population excludes group quarters (e.g. colleges, correctional facilities).*

[2] *Employment = people working in Orange County.*

Most demographic data are based on census tract or Minor Civil Division (MCD) level, but the analysis units of travel demand models are Traffic Analysis Zones (TAZs). In order to provide the travel demand model a way to relate the transportation system with available demographic data, it is important to identify and create TAZs within each county. A TAZ is a geographical area, often based on U.S. Census geographies (tracts, block groups, and blocks), that represents a land use pattern with significant or unique travel characteristics. More information on the TAZs can be found in section 5.3.

4.1.1. Population

4.1.1.1. Dutchess County Source: Census 2000, Summary File 1. The PDCTC Model uses population counts to calculate the Average Household Size or Persons per Household (PPH) for each TAZ; the PPH by TAZ are used to generate Trip Productions in TransCAD. Population forecasts were obtained by extrapolating historic annual growth rates; forecasts were then adjusted by the Dutchess Country Department of Planning and Development in 2007, based on known future development projects in each municipality. They were then divided into forecasted household data (see 4.2.4) to determine PPH counts for each municipality in Dutchess County. When looking at total population in Dutchess County, note that over six percent reside in group quarters (primarily three colleges and three State correctional facilities). Population data from the 2010 Census was released in late-March 2011, which was too late to incorporate into the analysis used for this determination. The PDCTC anticipates revising its planning assumptions and forecasts as more data from the 2010 Census is attained and analyzed in the coming months, culminating with the update and demonstration of transportation/air quality conformity for the next Metropolitan Transportation Plan. Population forecasts are expected to slightly decline in the next update, given that the actual household population for 2010 was 3.8 percent lower than previously forecasted.

4.1.1.2. Orange County Source: Census 2000, Summary File 1. Population and housing information from the 2000 Census together with Census population and housing estimates (July, 2006), building permit data and population growth trends over the past 20 years were used as the basis for determining the population and housing forecasts in the OC Travel Demand Model for future analysis years. Population data from the 2010 Census was recently received and the level of geography and detail of this information is inadequate to amend the planning assumptions and forecasts with confidence at this time. OCTC anticipates revising its planning assumptions and forecasts as more data from the 2010 Census is attained and analyzed in the coming months, culminating with the update and demonstration of transportation/air quality conformity for the OCTC Metropolitan Transportation Plan in the fall of 2011. Population, housing and employment forecasts are expected to decline somewhat in this update given that the overall OC population for the year 2010 was approximately 3% lower than previously estimated by the US Bureau of Census.

4.1.1.3. Putnam County Source: Census 2005 Population Estimates. Population data from the 2005 Census Population Estimates along with

Socioeconomic and Demographic (SED) forecasts from the NYMTC 2035 Forecasts adopted by NYMTC's Program Finance and Administration Committee (PFAC) in February 2009 were used in the NYMTC Best Practice Model. Group Quarters Population was also derived from Census 2005 Population Estimates. Population in households was derived by subtracting the group quarter population estimate from the total population estimate for all areas.

4.1.2. Employment

4.1.2.1. Dutchess County Employment by TAZ serves as an important travel attraction component in the Model. To account for variations in travel patterns, the PDCTC categorized employment as either being retail or non-retail based. Employment forecasts were obtained by taking annual employment growth rates from the Dutchess County Forecasting Project (1996) and revising them based on the knowledge of the planning staff at the Dutchess County Department of Planning and Development; staff analyzed the forecasts for each TAZ, ensuring the data accurately reflected expected land use conditions. The revised growth rates were then applied to Census Transportation Planning Package 2000 (CTPP 2000), Part 2: Data by Place of Work which formed the base data. These revisions were completed in 2007. Data from the most recent 2006-2008 CTPP, which is based on the 2006-2008 ACS 3-year estimates, was not available until January 2011. Note also that this ACS data is of limited value since it only covers areas with a population of 20,000 or more; for Dutchess County this means that commuter flow data is only available for 6 out of 30 municipalities. Greater data coverage will be available with the 2006-2010 CTPP, which should be released in 2012.

4.1.2.2. Orange County Source: NYS Department of Labor. Employment information indicating the type and location of all businesses in Orange County, along with the number of employed persons in each business, was obtained from the NYS Department of Labor for the year 2002. This information was separated into six categories (retail, non-retail, mall, office, school, and institutional), and then aggregated by type and location to determine peak hour trips by Traffic Analysis Zone (TAZ) in the OC Travel Demand Model. Employment projections were first based upon expected employment from approved development projects yet to be constructed, and then upon average growth rates in commerce by municipality throughout the county. The basic underlying assumption is that growth in employment will be directly related to the influx of new people and increased demand for products and services by future growth in population.

4.1.2.3. Putnam County Source: 1. Census Transportation Planning Package 2000 (CTPP 2000), Part 2: Data by Place of Work. 2. Department of Labor's ES-202 data 2000-2005.

2000 CTPP Employment estimates were used as the basis for 2005 employment estimates by applying yearly growth rates from the Department of Labor's ES-202 data for year 2000-2005. Employment estimates for 2005 along with the SED forecasts from the NYMTC 2035

Forecasts adopted by NYMTC's Program Finance and Administration Committee (February, 2009) were used in the NYMTC Best Practice Model.

4.1.3. Housing Units

4.1.3.1. Dutchess County Source: Census 2000, Summary File 3. Housing unit data serves as another important traffic generator in the PDCTC Model. In this case, housing units refer to the total number of occupied and vacant units in a location. For the Model, the PDCTC used the annual housing unit growth rates from the Dutchess County Forecasting Project (1996) and revised them based on observations from the planning staff at the Dutchess County Department of Planning and Development; this was done for each TAZ. The revised growth rates were then applied to Census 2000 data and the revised housing forecasts completed in 2007. Housing data from the 2010 Census was released in late-March 2011, which was too late to incorporate into the analysis used for this determination. The PDCTC is currently reviewing the 2010 data, which will be considered and incorporated in the forecasts used in the analysis for the next Metropolitan Transportation Plan.

4.1.3.2. Orange County Source: NYS Office for Real Property Services (RPS). Land use information for each parcel in Orange County was obtained from the NYS Office for Real Property Services for the year 2000, 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 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.

4.1.3.3. Putnam County NYMTC forecasts the number of occupied housing units, defined as households. The Best Practice Model is person based micro simulation model. Trip generation in BPM is a choice model instead of traditional regression or cross classification method.

4.1.4. Households

4.1.4.1. Dutchess County Source: Census 2000, Summary File 3. The PDCTC used household data to complement traffic generation factors in the Model. As defined by the U.S. Census Bureau, a household refers to an occupied housing unit. For the Model, the PDCTC used the revised housing unit growth rates from the Dutchess County Forecasting Project (1996) and applied them to Census 2000 household data, maintaining the 2000 distribution of households through the forecasted years. This was accomplished for each TAZ and completed in 2007. Accurate household data will not be available until mid-2011, when 2010 household population data is released (the current data includes group quarters populations).

4.1.4.2. Orange County Source: Census 2000, Summary File 3. Household information from the 2000 Census was used as a means of checking and verifying the housing data from the NYS Office of Real Property.

4.1.4.3. Putnam County Source: 2005 American Community Survey New York's census tract households were distributed from the 2005 American Community Survey county totals using the 2000 decennial census tract to county proportion of total households. Connecticut's total number of households by county subdivision was gathered from 2005 town profiles prepared by the State of Connecticut. In view of the fact that no such data were available for New Jersey, that state's total number of households was determined by dividing population in households by the average household size.

4.1.5. Vehicles Available

4.1.5.1. Dutchess County Source: Census 2000, Summary File 3 and NYS Department of Motor Vehicles. The forecast of the number of vehicles available for each TAZ represents another important component of the Travel Demand Model. The PDCTC calculated vehicle forecasts by applying historical vehicle registration growth rates (1990-2005) from NYS DMV to Census 2000 vehicle availability data.

4.1.5.2. Orange County Source: Census 2000, Summary File 3. Information from the 2000 Census 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, because people there tend to rely more on mass transit for travel than in other areas of Orange County.

4.1.5.3. Putnam County The NYMTC Best Practice Model has a sub model which forecasts vehicle ownership.

4.2. Transit Operating Policies

4.2.1.1. Dutchess County Three mass transit providers serve Dutchess County: the Dutchess County Mass Transit (LOOP) bus system, the City of Poughkeepsie bus system, and Metro-North Railroad and among the three, the Dutchess County Mass Transit (LOOP) and Metro-North Railroad recorded some changes in their operating policies, fares, service levels, and ridership since the previous conformity determination statement completed in 2009. These changes include marginal service changes for Metro-North commuter rail services, and a schedule change for Dutchess County Mass Transit LOOP. According to the 2005-2009 ACS 5-year estimate for Dutchess County, mass transit accounts for 4-5 percent of all commuter trips taken by Dutchess County workers; this is unchanged from 2000. Given this low rate transit service is not modeled given the low rate of utilization in the county

4.2.1.2. Orange County Coach USA, MTA-Metro North Railroad, the Newburgh-Beacon Bus Company, Middletown Transit, the Monroe Bus Company, and Kiryas Joel Transit provide the majority of mass transit services in Orange County, along with nine local dial-a-bus operators. According to Census 2000 Journey-to-Work information, only 4.7% of work related travel had a mass transit component, with a majority of this travel involving vehicular trips to park-and-rides throughout Orange County.

Although park-and-rides are included as traffic generators in the OCTC Travel Demand Model, transit service is not modeled given the low rate of utilization in the county.

4.2.1.3. Putnam County Putnam Area Rapid Transit (PART), MTA-Metro North Railroad, and a number of private operators provide the majority of mass transit services in Putnam County. According to Census 2000 Journey-to-Work information, 7.2 % of work related travel by Putnam County workers had a mass transit component. The NYMTC Best Practice Model includes a mode split component for mass transit travel. The Transit fares for Metro North Railroad were updated as part of this analysis.

4.2.2. Transit Service Levels

4.2.2.1. Dutchess County On June 28, 2010 Dutchess County implemented a schedule change to the LOOP bus system. Renaming several routes and implementing recommendation from the PDCTC Transit Development Plan. These changes focused on serving the areas of greatest usage and provide more consistent reliable service on nine 9 routes.

4.2.2.2. Orange County OCTC does not anticipate significant changes in future transit service within Orange County. This position may change as economic or environmental conditions unexpectedly influence travel behavior and patterns. Though at a minimum, projected transit funding is expected to allow the transit systems to expand to meet increases in future demand.

4.2.2.3. Putnam County NYMTC does not anticipate significant changes in future transit service within Putnam County. This position may change as economic or environmental conditions unexpectedly influence travel behavior and patterns. Though at a minimum, projected transit funding is expected to allow the transit systems to expand to meet increases in future demand.

4.2.3. Transportation Control Measures. No transportation control measures (TCMs) are identified for Dutchess, Orange, and Putnam Counties as part of the applicable State Implementation Plan. Therefore, the TCM implementation conformity criterion does not apply to these MPOs. Nothing in the NYMTC, OCTC and PDCTC 2011-2015 TIPs and MTPs will interfere with the timely implementation of TCMs in other areas.

4.3. Key Assumptions

4.3.1. Demographics. All three models assume that Dutchess, Orange, and Putnam counties will experience some level of growth over the next 24-years. This growth will be greatest with respect to population and housing and less so with respect to employment, which is reflective of recent development patterns in the three counties and the continued impacts of the 2008-2010 economic recession. For example, between 2000 and 2010, the total population of Dutchess County grew by 6.2 percent, whereas its total employment stayed constant. This disparity is partly due to the recent recession, but is also reflective of the region's attraction as a residential hub rather than employment center. Though the MPOs

expect the rate of population growth to slow due to the economy, higher costs of living, and credit barriers, it will likely grow at a slower rate. It should be noted that the amount of developable land is slowly evaporating, which will also impact the rate of population growth.

4.3.2. Transportation System. The three models further assume that the regional transportation network will retain its ability to adjust to changes in travel patterns, specifically with regard to vehicle traffic. This naturally assumes that future transportation funding rates will maintain current apportionment levels, as adjusted for inflation. This assumption is also aided by the ever-expanding use of technology in transportation, as evidenced by the proliferation of Intelligent Transportation Systems (ITS) in the Mid- and Lower-Hudson Valley. It seems reasonable to expect that advances in ITS will improve upon the efficiency of the network.

4.3.3. Planning Assumptions "Lock-in" Date. The Clean Air Act requires that transportation investments be based on the most recent information that is available in order to protect public health over the long-term. Therefore, conformity determinations must be based upon the most recent planning assumptions in force at the time the conformity analysis begins. NYMTC began the regional emissions analysis for its proposed 2011-2015 TIP and amended MTP on January 31, 2011. Since there were no significant changes to the OCTC and PDCTC TIPs and MTPs, PDCTC and OCTC made no revisions to the emissions analysis for Dutchess and Orange counties that was used to support the conformity determination that was approved on September 30, 2010.
The planning assumptions used in the regional emissions analysis to support this conformity determination are the most recent planning assumptions that were in force at the time the analysis began. Population and housing data from the 2010 Census and estimates from the 2006-2008 CTPP were received after the analysis had begun, but will be considered and incorporated as appropriate.

5. LATEST EMISSIONS MODEL

As stated earlier, the goal of the conformity process is to ensure that the transportation system envisioned by the NYMTC, OCTC, and PDCTC do not create new air quality violations or worsen existing violations. Modeling provides a quantifiable method of proving that and requires the use of two programs: a Travel Demand Model (e.g. TransCAD, Visum) to calculate future Vehicle Miles of Travel (VMT) and average speeds, and a second model (MOBILE6.2) to conduct the actual emissions analysis. Determining VMT and Average Speeds represent the most important products of a Travel Demand Model, because 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.

5.1. Travel Demand Models

5.1.1. Dutchess County To determine the impact of future transportation projects, the PDCTC uses a three-step gravity model without the mode split component. The PDCTC uses TransCAD software for its travel demand model. The model requires replicating the existing and proposed transportation networks through spatially accurate digital mapping - GIS (Geographic Information Systems). This is also done to replicate current and predicted land use conditions. The base network then incorporates demographic data, along with trip generation, trip

distribution, and trip assignment data to simulate travel patterns.

5.1.2. Orange County The traditional gravity modeling process incorporated within VISUM software by PTV of America was utilized to forecast future travel demand and the impact of transportation projects in the OCTC TIP and MTP on air quality. The OC Travel Demand Model incorporates housing, employment, highway, along with trip generation and Census 2000 Journey-to-Work information to replicate existing travel patterns in OC. 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. Using the trip generation and trip length parameters of the calibrated base year (2002) model, future travel conditions, vehicle miles traveled (VMT) and vehicular emissions were forecast using projected increases in housing, employment and vehicle trips in OC for each analysis year being evaluated. Transit was not modeled given that transit service does not comprise a significant portion of travel in OC.

The four time period approach was utilized to calculate vehicle miles traveled (VMT) for each analysis year being evaluated. With this approach, VMT for the morning, midday and nighttime hours is estimated as a proportion of that occurring during the PM peak hour and then factored into VMT by time period based upon the VMT percentages used in the OC portion of NY SIP to determine emissions budgets. This methodology differs from previous conformity determinations in that VMT was calculated using hourly percentages determined from traffic counts taken in OC. In June 2007, the NYSICG concurred that this change in methodology is a more accurate means to estimate VMT.

5.1.3. Putnam County To determine the impact of future transportation projects, NYMTC uses the third generation of travel demand models which are commonly referred to as activity based models. This model, known as the New York Best Practice Model (NYBPM), attempts to predict and simulate detailed travel patterns for every individual residing inside the study area over a 24-hour period. The model uses journeys (travel between two primary locations including stops) as a unit of travel rather than just home-to-work trips. The model also looks at the daily activity agenda of each household member and intra-household interactions between them, and other constraints that affect the choice of travel with respect to time and space. The model requires replicating the existing and proposed transportation networks through spatially accurate digital mapping - GIS (Geographic Information Systems). The model uses the digitizes networks and demographic data, along with journey generation, destination and mode choice, time of day travel, and trip assignment data to simulate travel patterns. For more information on the NYBPM please visit: http://www.nymtc.org/project/BPM/model/bpm_finalrpt.pdf.

5.2. Road Network The simulated road network consists of two components: links, which represent roads, and nodes, which represent intersections. Each of these components is characterized by relevant data concerning the number of lanes, traffic control devices, turning lanes, and speed limits; these characteristics help determine the vehicle capacity of each link and node. Furthermore, the models assign a functional classification to all roads; in accordance with the National Highway Classification

System (see Appendix A).

5.2.1. Dutchess County The highway network in the PDCTC Travel Demand Model includes all roadways that have a functional classification of Collector or above. Local roads that act as essential connectors have been included where appropriate; especially in places such as the City of Poughkeepsie, where local roads carry a significant amount of traffic. The 2002 base street network is based upon the NYS Data Product GIS Street Centerline files from New York Cyber Security and Critical Infrastructure Coordination (NYCSCIC). PDCTC staff also used aerial imagery from 2000 to verify intersection configurations (turning lanes, signalization). Link capacities are shown in Appendix B.

5.2.2. Orange County 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, however, only those that facilitate the through movement of vehicles and feed and augment collectors, arterials and interstates in OC. 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 OC's primary road network. Information concerning intersection signalization and number of turning lanes was collected in the field and from aerial imagery to determine capacity. Link capacities are shown in Appendix B.

The functional classification of roads in the OC Travel Demand Model was updated, reflecting changes in area (urban/rural) and function of roads as depicted on the functional classification maps approved by the Federal Highway Administration on June 26, 2006. The urban/rural split of roads under the old classification was 38% urban and 62% rural. With the new classification, 30% of the roads in OC are classified as rural while 70% are classified as urban.

5.2.3. Putnam County The NYBPM highway network is maintained and applied with TransCAD, which features a GIS (Geographic Information Systems) framework that provides a realistic representation of highway route system. The highway network has more than 53,000 links and includes most minor arterial and above roadway facilities. The database includes information on number of lanes, functional class, speed, parking restriction, and truck usage.

5.3. Land Use Patterns Traffic Analysis Zones (TAZs) act as the basis for replicating land use patterns in the Model. These zones represent areas with significant or unique travel characteristics and are often based on U.S. Census geographies (tracts, block groups, and blocks).

5.3.1. Dutchess County The PDCTC model incorporates a total of 190 TAZ's: 156 TAZs within Dutchess County (internal), 20 outside the county (external), and 14 special generators. A special generator refers to a distinctive land use, such as a college or regional shopping mall, with atypical travel characteristics.

5.3.2. Orange County Traffic Analysis Zones (TAZs) divide OC geographically into areas describing different land use types and intensities. Centroids are the points within TAZs where trips commence and terminate based upon the land use activities therein. 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 roads and intersections being analyzed. The OCTC model incorporates a total of 550 TAZs, 515 internal zones and 35 external zones connecting OC with surrounding counties. The 515 internal TAZs were created by first delineating limited access highways, rail and power line rights-of-way, federal, state and county preserves and parklands, as well as natural features such as rivers and mountains which serve to restrict directional traffic flow. These districts were then further subdivided into TAZs bounding residential neighborhoods and activity centers such as malls, major residential neighborhoods and central business districts where vehicular trips commence and terminate.

5.3.3. Putnam County The NYBPM Transportation Analysis Zone (TAZs) system is the underlying data structure for the socioeconomic and demographic inputs to the BPM zonal files for its transportation networks and trip tables, and for the framework of reporting model results on a geographic basis. Supporting a fully multi-modal integrated regional modeling system, the BPM system of TAZs is common to both the Highway and Transit networks.

The total number of zones used for regional modeling should not be excessive, given the many large matrices used in the model and the computational resources needed to run it (disk storage and processing time) increases exponentially with the number of zones. For the 28-county modeling area 3,583 zones were created. These zones were based on Census tracts and varied from 1 census tract per zone to several tracts per zone. In Putnam County there are 14 zones with an average of 1.39 tracts per zone. In 1996, a land use data collection was undertaken for model development. For Putnam County 86 % floor space was found to be occupied by residential buildings and 14 % by non residential buildings.

5.4. Analysis Years Consistent with 40 CFR Part 93, vehicle miles traveled (VMT) and vehicular speeds were forecast by functional classification for the years 2012, 2020, 2030 and 2035, complying with the federal transportation conformity regulations that: the first analysis year be no more than five years from the year a conformity determination is made (2012), consecutive analysis years be no more than ten years apart (2020 and 2030), and that the horizon year (2035) of each MPO's Metropolitan Transportation Plan (MTP) be analyzed. Effective August 17, 2010, the EPA found the motor vehicle emissions estimates for volatile organic compounds (VOC) and nitrogen oxides (NO_X) in the submitted state implementation plan for the Poughkeepsie, NY 8-hour ozone nonattainment area to be adequate for transportation conformity purposes. As a result of this adequacy finding, OCTC, PDCTC, and NYMTC (Putnam County only) must compare emissions in the future conformity analysis years to the emission level of VOC and NOX in the submitted 2009 8-hour ozone "budgets" for VOC and NO_X.

5.5. Trip Generation The goal of trip generation is to predict the number of trips that are generated by and attracted to each TAZ. In trip generation, methods are applied to predict productions and attractions. The zone that contains the home end of home-based trips or the origin end of non-home-based trips is considered to have produced the trip, while the destination zone where an out-of-home activity will be undertaken is considered to have attracted the trip.

5.5.1. Dutchess County The PDCTC uses traditional trip production and attraction

rates as explained in sections 5.6.1 and 5.7.1.

5.5.2. Orange County Trip generation is the means of quantifying the number and type of trips in a model based upon the amount and type of land uses in each TAZ. The overall purpose is to quantify the number of trips made for a specific time period such as a day or peak hour. Trip generation rates from the Institute of Transportation Engineers, *Trip Generation Guide, 7th Edition* were used to estimate trips for commercial, office and industrial land uses. For residential land uses, trip generation rates were derived from traffic counts taken at the driveways of residential developments throughout OC.

5.5.3. Putnam County The NYMTC Best Practice Model does this through a special Household, Auto-Ownership and Journey-Frequency (HAJ) Model.

5.6. Trip Production

5.6.1. Dutchess County Trip Production rates for the PDCTC were obtained from the New York Metropolitan Transportation Council *1997/1998 Regional Travel - Household Interview Survey (RT-HIS).* Those rates were compared with those from the *2001 National Household Travel Survey* and found to still be consistent with regional travel patterns. PDCTC is cooperating with NYMTC to supplement their upcoming Household Travel Survey with additional surveys in Dutchess County to update our trip production rates; the survey will be complete in 2012. The Model uses the Cross-classification method, where the population is separated into demographically homogenous groups, to determine the number of person trips produced. Average trip production rates per household are then estimated for each classification, which creates forecasted trip productions (Table 2).

Table 2 Dutchess County Trip Production Rates

Number of Vehicles	Household Size				
	1 Person	2 Person	3 Person	4+ Person	Total
Zero Vehicles	2.9	4.7	8.5	9.6	**4.2**
1 Vehicle	3.9	6.9	7.5	11.3	**6.1**
2 Vehicle	4.4	7.1	10.6	14.4	**10.5**
3 Vehicle	3.4	5.7	13.2	13.1	**11.8**
4+Vehicles	4.0	9.9	8.7	14.2	**13.8**
Total	**3.5**	**6.9**	**10.3**	**14.2**	

5.6.2. Orange County Trip production 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 OC. Trip productions 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.

Table 3. Orange County Trip Production Rates

Type	Origins	Destinations	Total Trips
Single-Family	0.30	0.55	0.85
Multi-Family	0.21	0.39	0.60
Retail	1.38	1.25	2.63
Mall	1.22	1.10	2.32
Non-Retail	0.54	0.07	0.61
Office	0.50	0.07	0.57
School	0.35	0.33	0.68
Institutional	0.13	0.05	0.18

5.6.3. Putnam County The NYBPM generates trips by applying a set of models called the Household, Auto-Ownership and Journey-Frequency (HAJ) Model that simulates total journeys for every household for all travel purposes over a 24-hour period. A journey is defined as travel between two primary locations, where one end is always home and the other end is work, school or other primary location. Market segmentation is used to group households by income, auto availability, household-size, and type of person (children, workers, and non working adults). A multinomial logit model, combined with Monte Carlo technique is used to generate discrete journeys for individual member of the households after evaluating interaction between household members in combination with time and space constraints that each person experiences in view of multiple-journey daily activity pattern.

This HAJ model comprises of a set of sub-models applied in sequence: 1) household-synthesizing model, 2) auto-ownership model, and 3) journey production (frequency) model.

a. Household Model. This model forecasts the number and distribution of households in each zone. Using Census data, the model calculates probability for each possible combination of the household characteristics, including income, size, number of workers, non-working adults, and number of children. These probabilities are then used in combination with the aggregate demographic forecasts in order to produce a number of households of each category, for each zone, for target years.

b. Auto-Ownership Model. This model determines the number of automobiles available in each household. The model considers the influence of household income and composition, vehicle-maintenance cost, parking availability, transit and highway accessibility and density as well as residential area type.

c. Journey-Frequency Model. This model determines the daily number of paired journeys (outbound and inbound) each person in each household makes for each purpose. Each person is categorized as a worker, non-working adult, or a child. This model evaluates intra-household interrelationships among

different household members, transit accessibility, and auto availability to come up with journey frequency for each person. Linkage of journey-frequency models across different household members allows for forecasting a realistic set of journeys made by each household.

5.7. Trip Attraction

5.7.1. Dutchess County Trip Attraction rates were generated from *National Cooperative Highway Research Program (NCHRP) Report 187*. For attractions, the Models use a regression equation that estimates the number of person-trips attracted to a zone based on employment (retail and non-retail) and households in the zone.

5.7.2. Orange County 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 OC. 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.

5.7.3. Putnam County The journey attraction model for NYBPM uses linear regression equations with contributing land use variables such as population, households, total employment, retail employment, office employment, school enrollment, and university enrollment. The attraction model is segmented by land use type for six travel purposes resulting in a set of journey attraction rates that are used for destination choice model.

5.8. External Trips The Models use external loading links to account for traffic that enters from an area outside of each county. These links represent the first link of an existing road where the external traffic can enter into the area. 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).

5.9. Trip Distribution Trip distribution is the process where trip origins are apportioned throughout the study area, based on the number of trip destinations in each TAZ and the distance/travel time impedance involved. In the gravity model, 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.

5.9.1. Dutchess County Accordingly, TransCAD routes vehicles on the fastest, shortest routes first, and then onto other routes as congestion makes those paths less desirable.

5.9.2. Orange County Accordingly, Visum routes vehicles on the fastest, shortest routes first, and then onto other routes as congestion makes those paths less desirable.

5.9.3. Putnam County In NYBPM, the Mode, Destination and Stop Choice (MDSC) model replaces the traditional trip distribution and mode choice model. The two

steps are combined together as most choices regarding destination and mode are co-dependent. The travel purposes forecasted are work (low, medium, high income), school, university, maintenance, discretionary, and at work journeys.

This model comprises pre-mode choice, destination and mode choice, intermediate stop frequency and location choices modeled in sequence. In addition to combining the destination and the mode choice model this step also introduces the concept of intermediate stops in a journey. Explicitly modeling the number and location of the stops on a journey enables for a realistic representation of the interrelated decisions made by the traveler regarding all destinations (primary and secondary) and modes.

a. Pre-Mode Choice Model. This model distinguishes between motorized and non-motorized travel based on the person and household characteristics and land-use densities around the journey origin.

b. Destination Choice Model. Different destination-choice models are applied to motorized and non-motorized subsets of journeys. They take into account available attractions for each zone in retail, office and other employment categories along with school and university enrollments and then distribute journeys to the destination zones.

c. Motorized Mode Choice Model. The motorized mode-choice model predicts traveler decisions based on various time and cost factors as well as person and household characteristics. This model includes nine modes: drive alone; shared ride - 2 (driver and passenger); shared ride - 3 (driver and two passengers); shared ride - 4+ (driver and three or more passengers); walk to transit (including bus, subway and ferry); drive to transit; walk to commuter rail; drive to commuter rail; and taxi.

d. Stop-Frequency Choice Model. The stop-frequency model considers four combinations: direct journeys without stops, stop on the inbound journey only, stop on the outbound journey only, and stops on both inbound and outbound journeys.

e. Stop-Location Choice Model. The stop-location choice model predicts a location zone for each modeled stop based on the density of potential attractions along the journey route from origin to destination and the deviation (relative additional impedance) from the base journey route that is associated with visiting the stop zone.

The choice models are either multinomial or nested logit constructs. Multinomial logit models are applied for journey frequency, pre-mode, and destination choices. They are based on the assumption that all choice alternatives are equally similar and thus choice can be made according to their utility functions. Nested logit models are applied for mode and car-ownership choice where choice alternatives have a differential degree of similarity and should be grouped by characteristics in the choice modeling procedure (for example transit modes are grouped together while drive alone and shared ride choices form a separate group).

5.10. Calibration

5.10.1. Dutchess County To test the validity of the models, the PDCTC calibrated its model through an analysis of the road network, land-use data, and gravity model factors. This effort included a reasonableness test, to ascertain whether the models accurately represented known traffic flows; in this case, the known data came from 2002 Average Daily Traffic directional counts from Dutchess County and NYSDOT. Specifically, two calibration tests were used: a screen line analysis and a scatter gram analysis. For the former, PDCTC staff verified that the simulated traffic flowed in generally plausible directions, using screen lines to measure the flow of traffic from North to South and West to East.

5.10.2. Orange County The travel parameters of OC Model were adjusted to reflect traffic counts and travel characteristics of drivers in OC for the 2002 base year. Traffic volumes assigned by the OC Model were compared to actual traffic counts through regression analysis. The differences between traffic counts and traffic volumes were used as the basis to modify trip generation rates, trip length exponents and, in some instances, land use quantities where errors were evident. One or two variables were modified followed by a model run to determine the effect of such modifications. This was 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.

5.10.3. Putnam County Based on the revised full set of input data and new calibration target data developed as part of the BPM 2002 Update, and using the improved application procedures implemented in this update, the BPM was re-calibrated, with a marked improvement in the model's demonstrated ability to replicate observed highway and transit travel in the region's 28 county model area, and to provide reliable future year forecasts.

5.11. Seasonal Adjustment Seasonal adjustment of daily vehicle miles traveled from Travel Demand Model results is required to account for increases in traffic volumes and vehicle miles traveled during the ozone season (May through September). Seasonal or monthly adjustment factors convert average daily traffic (ADT) to annual average daily traffic (AADT). The work week seasonal factors are developed from NYSDOT continuous counter data collected for a three year period. Factor Group 30 is characteristic of highways carrying heavy commuter traffic with only a small variance of traffic throughout the year. Factor Group 60 is characterized by large seasonal traffic variations. Factor Group 40 highways lie between these two extremes.

The New York State Implementation Plan developed by the NYSDEC designates the following seasonal Adjustment factors Table 4.

Table 4 Seasonal Adjustment Factors

	Summer Conditions	Winter Conditions
Factor Group 30	1.12	1.00
Factor Group 40	1.16	0.87
Factor Group 60	1.21	0.80

Source: NYSDEC – SIP

5.11.1. Dutchess County To produce emissions analysis for Dutchess County each link is assigned a functional classification and based upon that classification it is adjusted based on seasonality factors to account for the summer season. The adjustment factors represent the ozone season (May through September).

5.11.2. Orange County Seasonal adjustment of daily vehicle miles traveled from the OC Travel Demand Model is required to account for increases in traffic volumes and vehicle miles traveled during the ozone season (May through September). A list of State and County Roads by Factor Group was obtained from NYSDOT Region 8. The 9,400+ street segments in the OCTC Travel Demand Model were then coded with the appropriate factor group category. Local roads not listed were assumed to exhibit FG 30 characteristics. DVMT and vehicle emissions were seasonally adjusted on a link by link basis accordingly.

5.11.3. Putnam County To produce emission analysis, the output from NYBPM is fed into a post processor PPSUITE. PPSUITE processes the trip assignment files from NYBPM to reconcile with HPMS data and seasonal factors followed by speed adjustments for intersection approaches. After these adjustments, the data is converted into appropriate format to run Mobile 6.2 to produce desires emission analysis.

5.12. MOBILE6.2 The USEPA developed the MOBILE emissions model, with the latest revision occurring on January 27, 2002 through the official release of MOBILE6.2; this version has been required of all states (except California) since January 27, 2004. The emissions model predicts gram per mile emissions of Hydrocarbons (HC), Carbon Monoxide (CO), Nitrogen Oxides (NOx), Carbon Dioxide (CO2), and Particulate Matter (PM) under various seasonal and operating conditions. Emission factor tables developed by NYSDOT-EAB based on MOBILE 6.2 were used to measure the air quality impacts of implementing the proposed projects in the MTPs and TIPs. The modeling inputs used to develop the emission factor tables are the most recent inputs that have been established in consultation with the New York State Department of Environmental Conservation (NYSDEC) and the New York State Air Quality Conformity Interagency Consultation Group (ICG). These model inputs include the latest existing and future emissions control programs included in the SIP, and the latest MOBILE 6.2 input assumptions on characteristics of the existing and future vehicle fleets traveling on roadways.

In order to conduct the required regional emissions analyses for Dutchess and Orange Counties, emission factor tables developed by the NYSDOT Environmental Science Bureau in April 2008 were used. In order to conduct the required regional emissions analysis for Putnam County, NYMTC generated its own emission factors. All of the emission factors were generated using the EPA motor vehicle emissions model, MOBILE6.2. The modeling inputs and parameters used to develop the emission factor tables are the most recent inputs for Dutchess, Orange and Putnam Counties established in consultation with the New York State Department of Environmental Conservation (NYSDEC) and the New York State Air Quality Conformity Interagency Consultation Group (ICG). The MOBILE6.2 input files and modeling parameters used for this regional emissions analysis are the most recent inputs that were available for use at the time the NYMTC modeling process began on January 31, 2011. Specific modeling inputs and parameters used to develop the emission factors for Dutchess, Orange and Putnam Counties are described below:

5.12.1.1. Evaluation Month The month of July (i.e., summertime conditions) was specified in the VOC and NOx emission factor input files.

5.12.1.2. Vehicle Registration Distribution Year 2002 registration data were used to model the 2002 base year. Year 2007 registration data were used to model all future analysis years.

5.12.1.3. Vehicle Mileage Accumulation Rate The EPA default mileage accumulation rate data (provided with the MOBILE6.2 model) was used for all modeling years.

5.12.1.4. I/M Programs NYSDEC inspection and maintenance (I/M) program data were used in the emission modeling. The NYSDEC file, NYVIPup.d, contains data for the Upstate NY I/M program. This file was used for modeling all future analysis years. No I/M program was in place in Dutchess, Orange, and Putnam Counties in the 2002 base year.

5.12.1.5. Anti-Tampering Program The anti-tampering program data described in the table below was used to model all analysis years:

ANTI-TAMPERING PROGRAM DATA	
Parameter	**Years 2002 – 2035**
Beginning calendar year	1984
Earliest model year	(Current yr – 25 yrs)
Final model year	(Current yr – 2 yrs)
Light-duty vehicles subject to inspection	LDGV, LDGT1, LDGT2, LDGT3, LDGT4
Heavy-duty vehicles subject to inspection	HDGV2B, HDGV3, HDGV4
Annual or biennial	Annual
Compliance rate	98%
Component inspections (see MOBILE6.2 User's Guide)	All except tailpipe lead deposit test

5.12.2. Fuel Program and Fuel RVP. Average and maximum fuel sulfur levels and fuel Reid Vapor Pressure (RVP) levels were specified in the input files (as listed in the below).

Fuel Sulfur and RVP Levels				
Dutchess, Orange and Putnam Counties				
Year(s)	Season	Fuel Sulfur Levels (ppm)		RVP (psi)
		Average	Maximum	
2002 - 2003	Summer	85.0	1000.0	6.8
	Winter	137.0	1000.0	12.5
2004	Summer	85.0	303.0	6.8
	Winter	120.0	303.0	12.5
2005	Summer	90.0	303.0	6.8
	Winter	90.0	303.0	12.5
2006 - 2007	Summer	30.0	87.0	6.8
	Winter	30.0	87.0	12.5
2008 - 2009	Summer	30.0	80.0	6.8
	Winter	30.0	87.0	12.5
2010 - 2035	Summer	30.0	80.0	6.8
	Winter	30.0	80.0	12.5
	Winter	30.0	80.0	12.5

Gasoline fuel oxygenate data were also specified in the input files (as listed in the Table below).

Gasoline Fuel Oxygenate Data				
Dutchess, Orange and Putnam Counties (Reformulated Gasoline Program)				
Year(s)	Season	Oxygenate Type	Oxygenate Content (% by volume)	Market Share Fraction of Oxygenate
2002 - 2003	Summer	MTBE	10.4%	0.98
		TAME	1.01%	0.02
	Winter	MTBE	8.7%	0.96
		TAME	0.3%	0.04
2004 - 2035	Summer/Winter	Ethanol	10%	1.00

5.12.3. Temperature and Humidity For the summer season, county-specific hourly temperatures and relative humidity levels as verified by NYSDEC in May 2009 were used in the modeling.

5.12.4. Diesel Sale Fractions Diesel sale fractions for NYSDOT Region 8 were used in the modeling. Year 2002 diesel fractions were used to model the 2002 base year. Year 2007 diesel sale fractions were used to model all future analysis years.

5.12.5. Vehicle Start Distribution County-specific vehicle start distribution data as received from NYSDEC in May 2009 were used in the modeling.

5.12.6. VMT by Hour County-specific VMT data (allocated by hour of day) as verified by NYSDEC in May 2009 were used in the modeling.

5.12.7. Low-Emission Vehicle (LEV) Standards The following files were used to model the effects of implementing California's LEV I/LEV II programs in New York State:

- L2CERT.d – Specifies the LEV II 50,000-mile certification standards
- L2EVAP.d – Specifies the phase-in schedule for the LEV II evaporative emission standards
- L2EXH.d – Specifies the phase-in schedule for the LEV II exhaust emission standards
- LEV2.d – Provides fleet penetration fractions for light-duty gasoline vehicles under the LEV I/LEV II programs.

5.12.8. Weighted emissions by vehicle type The emission factors for each individual vehicle type were weighted according to the NYSDOT Region 8 vehicle distributions by roadway functional class and then summed to obtain composite emission factors.

These model inputs include the latest existing and future emissions control programs included in NYSDEC's statewide mobile source emission inventory, and the latest MOBILE6.2 input assumptions for the existing and future vehicle fleets traveling on roadways in the PONA. The MOBILE6.2 input and external data files are available by contacting the NYSDOT Environmental Science Bureau.

5.13. Mobile 6.2 and PPSUITE To produce the emission analysis, the output from NYBPM is fed into a post processor PPSuite. PPSuite processes the trip assignment files from NYBPM to reconcile Vehicle miles traveled (VMT) with HPMS data and seasonal factors, followed by speed estimates for intersection approaches. After these adjustments, the data is converted into appropriate format to run Mobile 6.2 to produce the emission rates. In August 2005, the ICG concurred that the PPSUITE process is an appropriate method to estimate emissions for use in NYMTC conformity determinations. The following are the major steps of post processing before running Mobile 6.2:

5.13.1.1. Expand assigned 24 hour volumes (daily volume, minus transit buses) from the NYBPM output to 24 one-hour volumes. PPSuite applies VMT hourly distribution data (NY_HourPat_03A.dat) to the daily and peak period volumes from the BPM.

5.13.1.2. Adjust the 24 one-hour volumes to match Assigned Peak Volumes and to account for the impacts of off-peak Spreading.

5.13.1.3. Disaggregate to Vehicle Types – The vehicle pattern files were created using the NYSDOT 'Vehicle Mix 2002D.xls' file to breakdown the one hour traffic volume into five vehicle classes.

5.13.1.4. Apply VMT Adjustments to Hourly Link Volumes - The assigned traffic volumes input from the network are adjusted to account for a variety of factors, such as accounting for daily/seasonal variation, reconciling VMT totals with totals reported by the Highway Performance Monitoring System (HPMS), and accounting for off-model projects (including TDM) which change VMT.

5.13.1.5. Calculate Link and Approach Capacities - Link (mid-block) carrying capacities are calculated off-line by the user, reflecting the facility type, area type, and number of lanes, and then a lookup table is built.

5.13.1.6. Calculate Link (mid-block) Delay - Using the above capacity and hourly volumes as input, link speeds are calculated.

5.13.1.7. Calculate Approach Delay - On those links where control devices (signals, stop signs) are either coded or implied by defaults, intersection approach delay is calculated.

5.13.1.8. Calculate VMT, Aggregate Link Speed - Once mid-block and intersection approach V/C ratios and speeds are finalized, the delays that result on both the link and the intersection approach, are summed. The average link speed is calculated from the combination of link and intersection delay.

5.13.1.9. Accumulate VMT, VHT, Average Speed - Vehicle miles traveled (VMT) and vehicle hours traveled (VHT) are accumulated by area type, facility type, and time period.

5.13.1.10. Apply Post-Speed VMT Adjustments - Similar to the VMT adjustments performed before speed calculations (Step 5 above), additional VMT adjustments are applied after the speed calculations (to account for such items as local street VMT not in the model).

5.13.1.11. MOBILE Input Vehicle Types – Calculated in step 3, five vehicle type classes are expanded to 16 classes using the 16-Vehicle Composite which is based on 2002 Vehicle Mix file. In the MOBILE module of the PPSuite, these 16 classes (after the appropriate number of express and local buses are added to represent the HDBT class), are further expanded to 28 classes by using the Diesel Fractions provided by NYSDOT.

5.13.1.12. Prepare and Run MOBILE6.2 to calculate emission rates. PPSuite assembles VMT, speed, vehicle type fractions, meteorological, I/M, and other related data into a MOBILE input file. This file contains several run scenarios for each area (county) and facility group. Input data also varies for the downstate and upstate counties.

5.13.1.13. Emission Estimates. PPSuite applies emission rates to the VMT by county and facility group to calculate area and regional emissions.

6. CONSISTENCY WITH METROPOLITAN TRANSPORTATION PLANS The projects proposed in the 2011-2015 TIP for NYMTC, 2011-2015 amended TIPs for OCTC and PDCTC adhere to the goals and objectives of the MTPs for the New York City metropolitan area *2010-2035 Regional Transportation Plan*, Orange County OCTC Long Range Transportation Plan (2007-2035), and Dutchess County *New Connections* respectively. The proposed projects follow through with the three main areas of each plan: 1) maintaining infrastructure and improving safety; 2) meeting future needs by increasing capacity, reducing demand, and expanding travel options; and 3) ensuring that the future transportation system complements and reinforces the land use goals of local communities and their respective county. On September 24, 2009, NYMTC adopted its updated plan, the OCTC adopted its plan on November 28, 2007 and the PDCTC adopted its plan on November 29, 2007. FHWA/FTA approved the NYMTC Plan on October 01, 2009, the PDCTC and OCTC Plans were approved on December 19, 2007.

7. IDENTIFICATION OF EXEMPT/NON-EXEMPT AND REGIONALLY SIGNIFICANT PROJECTS A crucial step in the modeling process involves identifying which projects might affect regional air quality. In most instances, projects such as safety improvements, resurfacing, bridge repairs, and bus replacements, which maintain current levels of service or capacity, are considered Exempt from the conformity analysis. Similarly, projects that result in operations improvements, but do not increase capacity - an intersection widening - 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:

- **Non-exempt**: highway and road projects that change capacity by at least one travel lane or transit projects that change capacity on a fixed route system. A non-exempt determination is made if the project type is not found in the list of exempt projects derived from "Table 2- Exempt Projects" in 40 CFR Part 93.126, 93.127 and NYCRR Part 240.27.

- **Regionally Significant**: any project, regardless of funding source, on a facility that serves regional transportation needs and that would normally be included in the modeling of a metropolitan area's transportation network. Includes, at a minimum, all principal arterial highways and all fixed guide way transit facilities that offer an alternative to regional highway travel.

7.1. Project Listing. All of the projects in the MTPs and TIPs were first evaluated for applicability using the guidance contained in Appendices B and C of The Air Quality Conformity Determination Process, issued by NYSDOT-EAB on December 10, 2003 and updated on April 23, 2010.

7.1.1. Dutchess County PDCTC staff developed the list of Non-exempt and Regionally Significant projects and forwarded it to NYSDOT-EAB on May 28, 2010 for dissemination to the ICG. On June 17, 2010 the PDCTC received concurrence from the ICG on the list of Non-exempt and Regionally Significant projects to be included in the Regional Emissions Analysis (Table 5). There have been no significant changes to the project list since that time.

7.1.2. Orange County OCTC staff developed the list of Non-exempt and Regionally Significant projects and forwarded it to NYSDOT-EAB on June 28, 2010 for dissemination to the ICG. On July 1, 2010 the OCTC received concurrence from the ICG on the list of Non-exempt and Regionally Significant projects to be included in the Regional Emissions Analysis (Table 3). There have been no

significant changes to the project list since that time.

Table 5. Non-exempt and Regionally Significant Projects

Dutchess County

PIN	Project	Agency
806207	I-84 @ NY 9D - Reconstruction	NYSDOT
875739	US 9 Service road: Construction - Hollowbrook Dr. to Imperial Blvd.	DCDPW
881053	Ozone Action Days	NYSDOT
882038	511NY Ridehsare (Enhanced Regional Commuter Choice)	NYSDOT
M502-03-01	Wassaic Train Station – Parking improvements	MNR
M502-03-BC	Beacon Train Station – Parking improvements	MNR
MTP	I-84 - Widening, NY 9D to US 9	NYSDOT
MTP	US 9 - Widening, CR 93 (Myers Corners Rd.) to Meseir Ave.	NYSDOT
MTP	US 9 - Widening, NY 52 to CR 93 (Myers Corners Rd.)	NYSDOT

Orange County

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
8T0397	I-86: Widening, I-84 (Exit 129) to I-87 (Exit 131)	NYSDOT
MTP	NYS Thruway (I-87) – Construction of interchange at Route 17A	NYSTA
MTP	Route 17A – Widening, Route 17 to Route 94	NYSDOT
MTP	Route 17(Future I86) - Widening, Exit 131(NYS Thruway) to Exit 120 (Route 211)	NYSDOT
MTP	Route 17M – Widening, Route 17 (Exit 123) to I-84	NYSDOT
MTP	Route 17M – Widening, Route 17 to Route 208	NYSDOT
MTP	Route 17M – Widening, South St. to CR13 (Kings Highway)	NYSDOT
MTP	Route 9W – Widening, I-84 to Ulster County Line	NYSDOT
MTP	CR 67 (East Main St.) – Widening, Route 17 to Dunning Rd	OCDPW
MTP	Broadway St. – Widening, West St. to Newburgh Town/City Line	C/Newburgh
MTP	Construction of new arterial road, Route 17M to Main St.	C/Middletown

Putnam County

PIN	Project	Agency
808804	Integrated 511/ Regional Branding	NYSDOT
811356	Advanced Transportation Management Systems (ATMS) - I-684: Exit 2 to I-84	NYSDOT
813064	Route 22 - Reconstruction, from I-84 to CR 65	NYSDOT
880546	Variable message signs - regional highways- interstate 684.	NYSDOT
880697	Park & Ride lots expansion, 100 spaces at I-84 and Route 311. Construct new park & ride lots at various locations along I-84 and Route 6.	PUTNAM
881030	Ozone Action Days	NYSDOT
882038	Metropool TDM services	NYSDOT
882384	Trips 123	NYSDOT
I0096	ITS Equipment Expansion	NYSTA
M402-02	South- East Parking Expansion	MNR
M502-03	Parking improvements at locations to be determined	MNR

7.1.3. Putnam County NYMTC staff developed the list of Non-exempt and Regionally Significant projects and forwarded it to NYSDOT for dissemination to the ICG. NYMTC received concurrence from the ICG on the list of Non-exempt and Regionally Significant projects based upon their reviews at various meeting in the Winter of 2011. (Table 5).

7.2. Other Projects. Completing the air quality analysis on the MTPs and TIPs meant

analyzing some projects that are still in the conceptual stage. In accordance with the final transportation conformity rules issued by the USEPA, if adequate information was available to produce reasonable assumptions, then forecasts of the project impacts on vehicle miles traveled and average vehicle speeds could be produced.

7.2.1. Dutchess County Future projects with insufficient data to model include those still in the early development stages, such as the Taconic State Parkway and CR 29 (Carpenter Rd.) Interchange and the Route 9-Route 44/55 interchange.

7.2.2. Orange County No such projects in Orange County.

7.2.3. Putnam County No such projects in Putnam County.

8. TIMELY IMPLEMENTATION OF TRANSPORTATION CONTROL MEASURES (TCMS) No TCMs are identified for Dutchess, Orange, or Putnam County as part of the applicable State Implementation Plan (SIP). Therefore, the TCM implementation conformity criterion does not apply to these MPOs. Nothing in the NYMTC, OCTC, and PDCTC MTPs or TIPs will interfere with the timely implementation of TCMs in other areas.

9. DOCUMENTATION OF INTERAGENCY CONSULTATION REQUIREMENTS This conformity determination relied on a high degree of coordination between federal, state, and local agencies. The Interagency Consultation Group (ICG) facilitated this need by ensuring that the appropriate agencies were involved at the required steps. Throughout the development of each Travel Demand Model and the entire conformity determination process, NYMTC, OCTC and the PDCTC routinely updated the ICG on the status and methodologies being used. ICG feedback was sought on any issue that MPO staff believed potentially problematic.

10. PUBLIC INVOLVEMENT Recognizing the importance of public involvement in the transportation planning process, NYMTC, OCTC, and PDCTC Operating Procedures stipulate that private citizens, including public and private agencies, be afforded the opportunity to review and comment on an Air Quality Conformity Determination Statement prior to its adoption. Accordingly, NYMTC, OCTC, and PDCTC sought public input on this Conformity Statement during the following public comment periods:

- NYMTC: began on June 8, 2011 and ended on July 8, 2011
- OCTC: began on June 13, 2011 and ended on July 12, 2011
- PDCTC: began on June 8, 2011 and ended on July 8, 2011

NYMTC, OCTC and PDCTC sought public commentary through notification to all known interested parties and media outlets to review and comment on the draft conformity determination for their respective TIPs and MTP/RTPs. The conformity determination was required to reflect the update of the PDCTC and the OCTC TIPs. No comments were received during the comment period.

11. RESULTS OF EMISSIONS ANALYSIS The OCTC and PDCTC estimated the emissions impacts of their TIPs and applicable MTPs using NYSDOT's MOBILE 6.2 Emission Factor Tables dated April 2008. On May 21, 2008 the air quality transportation conformity Interagency Consultation Group (consisting of representatives of FHWA, FTA, EPA, NYSDEC, and NYSDOT) concurred that use of these emission factor tables in the Mid Hudson Area constitutes use of the latest USEPA approved motor vehicle emissions model, MOBILE 6.2. Methodology. Emission estimates were determined using the MOBILE6.2

Emission Factors Tables dated April 2008.

11.1. Dutchess County PDCTC began its analysis on June 9, 2010. As described previously the model output VMT is adjusted to reflect the ozone season using factors. That adjusted VMT, average speed and functional classification are used in a lookup table of Emission Factors described above to produce emissions on a link by link basis and by direction. The individual link emissions were then grouped by Functional Classification for summary purposes.

11.2. Orange County The OCTC portion of the regional emissions analyses was initiated on June 1, 2010. The emissions analysis was based on speed dependent emissions rates calculated by the NYSDEC using MOBILE 6.2. Each link in the OC Travel Demand Model network was analyzed for the morning peak hour, midday peak hour, evening peak hour and night off-peak hour. Hourly vehicle miles traveled (VMT) and vehicular emissions were then factored using percentages for each time period from the NYS SIP and adjusted to account for seasonal fluxes in traffic to establish total daily VMT and vehicular emissions for the summer ozone season (June-August).

11.3. Putnam County NYMTC began its regional emissions analysis on January 31, 2011. To produce the emissions analysis for Putnam County, MOBILE 6.2 was used to generate vehicle emissions factors which were applied to the Putnam County portion of the NYMTC Best Practices Model (BPM) network generated vehicle miles of travel. A post processor, PPSUITE, was employed to link the BPM to the MOBILE 6.2 model. In June 2005, the ICG concurred that the MOBILE 6.2 input parameters used in PPSUITE are appropriate for use in conformity determinations for the NYMTC planning area. Revised MOBILE6.2 input files provided to NYMTC by NYSDOT ESB in May 07, 2009 were used for the regional emissions analysis for the 2011-2015 TIP and 2035 MTP.

Emissions tests for the Poughkeepsie 8-hour ozone non-attainment area. The boundary of the Poughkeepsie moderate eight hour ozone non-attainment area 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 (NO_X) in the submitted State Implementation Plan for the Poughkeepsie, NY 8-hour ozone nonattainment area to be adequate for transportation conformity purposes. As a result of this adequacy finding, OCTC, PDCTC, and NYMTC (Putnam County only) must compare emissions in the future conformity analysis years to the emission level of VOC and NOX in the submitted 2009 8-hour ozone “budgets” for VOC and NO_X.

Table 6 summarizes the emission test results for PONA, providing a comparison of the motor vehicle emissions budget emissions for VOC and NOx under “Build” and “No-Build” scenarios; these results are presented for informational purposes. Table 7 shows the combined results for PONA. The tables show that “Build” scenario emissions of VOC and NOx generated by on-road motor vehicles in the Moderate 8-hour Ozone Non-attainment Area will be lower than the emissions budgets for VOC and NO_X. We therefore determine that the TIPs and MTPs in PONA meet the applicable emissions reduction standards and conform to the applicable State Implementation Plan for the 8-hour ozone standard.

Table 6. Emissions Detail Summary by MPO (County) and Analysis Year

Volatile Organic Compounds (VOC)								
MPO	Future Analysis Years							
	2012		2020		2030		2035	
	Build	No-Build*	Build	No-Build*	Build	No-Build*	Build	No-Build*
PDCTC (Dutchess County)	2.65	2.73	1.60	1.67	1.33	1.39	1.43	1.50
OCTC (Orange County)	5.78	5.93	3.91	4.01	3.51	3.60	3.82	3.94
NYMTC (Putnam County)	3.41	3.52	2.34	2.41	2.16	2.25	2.27	2.34
TOTALS:	**11.85**	**12.18**	**7.85**	**8.08**	**6.99**	**7.24**	**7.52**	**7.78**
Budget Test Result	*Pass*		*Pass*		*Pass*		*Pass*	

Oxides of Nitrogen (Nox)								
MPO	Future Analysis Years							
	2012		2020		2030		2035	
	Build	No-Build*	Build	No-Build*	Build	No-Build*	Build	No-Build*
PDCTC (Dutchess County)	4.00	4.12	1.73	1.82	1.13	1.19	1.15	1.20
OCTC (Orange County)	10.52	10.78	4.99	5.09	3.18	3.24	3.13	3.17
NYMTC (Putnam County)	6.38	6.58	2.89	2.99	1.73	1.79	1.64	1.69
TOTALS:	**20.89**	**21.48**	**9.61**	**9.89**	**6.04**	**6.22**	**5.92**	**6.06**
Budget Test Result	*Pass*		*Pass*		*Pass*		*Pass*	

* Build vs. No-build results are shown for informational purposes.

Table 7. Emission Budget Test for PONA 8-hour ozone non-attainment area (tons/day)

PONA					
Ozone Precursor	Year 2009 Emissions Budget	Future Analysis Years			
		2012	2020	2030	2035
		Build	Build	Build	Build
VOC	17.63	11.85	7.85	6.99	7.52
NOx	29.77	20.89	9.61	6.04	5.92
Budget Test Result		*Pass*	*Pass*	*Pass*	*Pass*

The satisfactory regional emissions analysis results for the required budget tests presented above quantitatively demonstrate that implementation of the NYMTC, OCTC, and PDCTC 2011-2015 TIPs and MTPs will not: cause or contribute to any new violation of the ozone standard; increase the frequency or severity of any existing violation of the ozone standard; or delay timely attainment of any standard or any required interim emissions reductions or other milestones in any area.

Appendix C contains further detailed Regional Emissions Analysis results.

Conclusions In conclusion, conformity of the current NYMTC, OCTC, and PDCTC TIPs and MTPs has been demonstrated for the Poughkeepsie Moderate 8-hour Ozone Non-attainment Area. The quantitative analysis of forecasted regional emissions demonstrates that the 2011-2015 TIP and Metropolitan Transportation Plan for each MPO will result in net emission reductions in all actions years, and that future year emissions in the action years will remain below the budgeted emissions level prescribed by the SIP. Given that there are no applicable Transportation Control Measures, this satisfies the conformity review requirement. The NYMTC, OCTC, and PDCTC therefore determine that the 2011-2015 TIPs and MTPs are in conformance with the existing State Implementation Plan for air quality (SIP), and meet the

requirements of the Clean Air Act Amendments of 1990 and the EPA's Transportation conformity rules.

12. EVIDENCE OF MPO RESOLUTIONS The NYMTC, OCTC, and PDCTC Executive Committees expect to approve this Air Quality Conformity Determination Statement in summer 2011. Copies of the resolutions are included at the end of Appendix C.

Table 8. Specific MPO conformity actions to be included for finalization of this conformity analysis

MPO Product	MPO Approval Date	FHWA/FTA Approval Date
NYMTC MTP	September 17, 2009	October 1, 2009
NYMTC MTP conformity update	July 28, 2011	September 2011*
NYMTC 2011-2015 TIP	July 28, 2011**	September 2011*
OCTC MTP	November 29, 2007	December 19, 2007
OCTC MTP conformity update	July 19, 2011	September, 2011*
OCTC 2011-2015 TIP, as amended	July 19, 2011	September, 2011*
PDCTC MTP	November 29, 2007	December 19, 2007
PDCTC MTP conformity update	July 13, 2011	September 2011*
PDCTC 2011-2015, as amended	July 13, 2011	September 2011*

* denotes *anticipated* approval date(s)
** The NYMTC Council approved the 2011-2015 NYMTC TIP on August 4, 2011

Conformity Determination Statement:

The results of the regional emissions analysis demonstrate that the MTPs and amended 2011-2015 TIPs of the Orange County Transportation Council, and the Poughkeepsie-Dutchess County Transportation Council and the MTP and 2011-2015 TIP of the New York Metropolitan Transportation Council, achieve and maintain National Ambient Air Quality Standards (NAAQS), as required by the Clean Air Act Amendments of 1990 and the New York State Implementation Plan (SIP) for air quality.

Appendix A

2002 Base Year Mileage by Functional Classification

NYMTC Best Practice Model (Putnam County)

Functional Class		Area	Centerline Miles	Lane Miles
11	Interstate	Urban	32	108
12	Principal Arterial Expressway	Urban	27	55
14	Principal Arterial Streets	Urban	32	72
16	Minor Arterial	Urban	70	150
17	Collector	Urban	110	219
1	Rural Interstate	Rural	1	3
2	Rural Principal Arterial	Rural	10	20
6	Rural Minor Arterial	Rural	21	42
7	Rural Major Collector	Rural	17	33
8	Rural Minor Collector	Rural	22	43
20	Ramp	All	8	13
998	Premium Transit Station "Zone" Connector	All	2	3
999	Centroid Connector	All	76	153
Total			**427**	**916**

OCTC Travel Demand Model (Orange County)

Functional Class		Area	Centerline Miles
11	Interstate	Urban	104
12	Principal Arterial (Expressway)	Urban	20
14	Principal Arterial (Street)	Urban	143
16	Minor Arterial	Urban	122
17	Collector	Urban	190
19	Local	Urban	39
1	Interstate	Rural	160
2	Principal Arterial	Rural	16
6	Minor Arterial	Rural	135
7	Major Collector	Rural	149
8	Minor Collector	Rural	172
9	Local	Rural	353
Total			**1,603**

PDCTC Travel Demand Model (Dutchess County)

Functional Class		Area	Centerline Miles	Lane Miles
11	Interstate	Urban	38	79
12	Principal Arterial (Expressway)	Urban	28	56
14	Principal Arterial (Street)	Urban	89	228
16	Minor Arterial	Urban	72	149
17	Collector	Urban	163	331
19	Local	Urban	334	651
1	Interstate	Rural	0	0
2	Principal Arterial	Rural	135	280
6	Minor Arterial	Rural	23	46
7	Major Collector	Rural	81	163
8	Minor Collector	Rural	106	212
9	Local	Rural	214	425
TOTAL			**1,285**	**2,621**

Appendix B

NYMTC Best Practice Model - Link Capacities (hourly by lane)

	Area Type										
Physical Link Type	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
1	350	400	450	450	500	500	550	600	650	700	700
2	1,850	1,900	2,000	2,050	2,200	2,250	2,200	2,300	2,350	2,350	2,400
3	1,850	1,900	2,000	2,050	2,200	2,250	2,200	2,300	2,350	2,350	2,400
4	2,250	2,300	2,300	2,350	2,300	2,350	2,250	2,350	2,400	2,400	2,450
5	2,200	2,250	2,250	2,300	2,250	2,300	2,200	2,300	2,350	2,350	2,400
6	2,200	2,250	2,250	2,300	2,250	2,300	2,200	2,300	2,350	2,350	2,400
7	2,000	2,050	2,100	2,150	2,150	2,200	2,100	2,200	2,250	2,300	2,350
8	1,800	1,850	1,850	1,900	2,000	2,050	2,000	2,100	2,150	2,250	2,300
9	1,800	1,850	1,850	1,900	2,000	2,050	2,000	2,100	2,150	2,250	2,300
10	1,700	1,750	1,800	1,850	1,950	2,000	1,950	2,050	2,100	2,200	2,250
11	1,650	1,700	1,800	1,850	1,900	1,950	2,000	2,100	2,200	2,300	2,350
12	1,300	1,350	1,500	1,550	1,750	1,800	2,000	2,100	2,200	2,100	2,150
13	1,100	1,150	1,300	1,350	1,500	1,550	1,750	1,850	1,950	1,900	1,950
14	1,000	1,050	1,200	1,250	1,400	1,450	1,600	1,700	1,800	1,850	1,900
15	900	950	1,100	1,150	1,350	1,400	1,500	1,600	1,700	1,750	1,800
16	800	850	1,000	1,050	1,250	1,300	1,450	1,550	1,650	1,700	1,750
17	1,200	1,200	1,200	1,200	1,200	1,200	1,300	1,300	1,300	1,500	1,500
18	700	700	750	750	800	800	900	900	900	1,050	1,050
19	400	400	450	450	500	500	600	600	600	750	750
20	400	500	550	550	600	600	700	700	700	850	850
21	100	100	100	100	100	100	100	100	100	100	100

OCTC Travel Demand Model - Link Capacities

Link Type	**Link Capacities**
Interstate	2,100
Arterial	1,400
Collector	1,100
Local	850

PDCTC Travel Demand Model-Link Capacities

Functional Class		Area					
		Rural	**Commercial**	**Village**	**Suburban**	**City of Poughkeepsie**	**City of Beacon**
11	Interstate	na	1,900	1,900	1,900	1,900	1,900
12	Principal Arterial (Expressway)	na	1,400	1,400	1,400	1,400	1,400
14	Principal Arterial (Street)	na	1,400	1,400	1,400	1,400	1,400
16	Minor Arterial	na	1,100	1,200	1,200	1,000	1,000
17	Collector	na	1,000	1,100	1,100	800	800
19	Local	na	900	900	900	800	800
01	Interstate	1,900	1,900	1,900	1,900	na	na
02	Principal Arterial	1,400	1,400	1,400	1,400	na	na
06	Minor Arterial	1,200	1,100	1,200	1,200	na	na
07	Major Collector	1,100	1,000	1,100	1,100	na	na
08	Minor Collector	1,100	1,000	1,100	1,100	na	na
09	Local	900	900	900	900	na	na
20	On-Ramp	1,100	1,000	1,100	1,100	na	na
25	Ramp	1,100	1,000	1,100	1,100	na	na
30	Off-Ramp	1,100	1,000	1,100	1,100	na	na
40	Centroid Connector	800	800	800	800	na	na

Appendix C

NYMTC Emission Tables

Putnam County Summer Emissions Report for the Build Scenario

2012 Summer Emissions Report

FACILITY	DAILY VMT	VHT	SPEED	VOC	NOx
1) Freeways	1,796,944	28,033	64.1	0.76	3.32
2) Arterials	2,371,822	206,245	11.5	1.47	1.94
3) Locals	2,586,122	71,837	36.0	1.18	1.12
Total	**6,754,888**	**306,116**	**22.1**	**3.41**	**6.38**

2020 Summer Emissions Report

FACILITY	DAILY VMT	VHT	SPEED	VOC	NOx
1) Freeways	1,991,448	31,312	63.6	0.53	1.49
2) Arterials	2,500,297	238,124	10.5	1.02	0.85
3) Locals	2,864,514	81,610	35.1	0.79	0.56
Total	**7,356,259**	**351,046**	**21.0**	**2.34**	**2.89**

2030 Summer Emissions Report

FACILITY	DAILY VMT	VHT	SPEED	VOC	NOx
1) Freeways	2,256,022	35,981	62.7	0.47	0.70
2) Arterials	2,771,674	282,824	9.8	0.98	0.57
3) Locals	3,161,509	93,813	33.7	0.72	0.46
Total	**8,189,205**	**412,618**	**19.8**	**2.16**	**1.73**

2035 Summer Emissions Report

FACILITY	DAILY VMT	VHT	SPEED	VOC	NOx
1) Freeways	2,385,542	38,230	62.4	0.49	0.61
2) Arterials	2,886,146	307,037	9.4	1.03	0.56
3) Locals	3,284,664	98,343	33.4	0.74	0.47
Total	**8,556,352**	**443,610**	**19.3**	**2.27**	**1.64**

Putnam County Summer Emissions Report for the No Build Scenario

2012 Summer Emissions Report

FACILITY	DAILY VMT	VHT	SPEED	VOC	NOx
1) Freeways	1,846,392	28,760	64.2	0.78	3.43
2) Arterials	2,422,851	210,683	11.5	1.53	1.99
3) Locals	2,658,690	74,058	35.9	1.21	1.16
Total	**6,927,933**	**313,501**	**22.1**	**3.52**	**6.58**

2020 Summer Emissions Report

FACILITY	DAILY VMT	VHT	SPEED	VOC	NOx
1) Freeways	2,026,425	31,912	63.5	0.54	1.49
2) Arterials	2,631,888	248,291	10.6	1.08	0.93
3) Locals	2,866,616	81,207	35.3	0.80	0.56
Total	**7,524,929**	**361,411**	**20.8**	**2.41**	**2.99**

2030 Summer Emissions Report

FACILITY	DAILY VMT	VHT	SPEED	VOC	NOx
1) Freeways	2,297,753	36,588	62.8	0.48	0.71
2) Arterials	2,902,571	299,234	9.7	1.05	0.62
3) Locals	3,173,224	92,245	34.4	0.72	0.47
Total	**8,373,548**	**428,067**	**19.6**	**2.25**	**1.79**

2035 Summer Emissions Report

FACILITY	DAILY VMT	VHT	SPEED	VOC	NOx
1) Freeways	2,435,464	39,093	62.3	0.50	0.62
2) Arterials	3,024,856	321,793	9.4	1.10	0.60
3) Locals	3,313,779	97,752	33.9	0.75	0.47
Total	**8,774,099**	**458,637**	**19.1**	**2.34**	**1.69**

OCTC Emission Tables

OCTC 2011-2015 TIP Analysis Summary: Analysis Year 2035 No-Build Scenario, June 1, 2011

Functional Classification	1	2	6	7	8	9	11	12	14	16	17	19	Total
Analysis Year 2012													
DVMT	556	94	233	214	165	86	895	544	270	1,092	917	374	5,440
Speed	59.7	49.6	47.5	49.9	46.6	34.0	62.0	56.6	38.9	41.9	39.3	30.9	
VOC tons/day	2.01167E-04	3.47587E-05	8.60993E-05	7.87708E-05	6.12021E-05	3.36832E-05	3.22646E-04	1.96707E-04	1.04202E-04	4.10803E-04	3.48417E-04	1.50343E-04	0.0020
NOX tons/day	2.14047E-04	3.42066E-05	8.51908E-05	7.89204E-05	6.06786E-05	2.98097E-05	3.46487E-04	2.05446E-04	9.44551E-05	3.88494E-04	3.23257E-04	1.30119E-04	0.0020
Analysis Year 2020													
DVMT	556	94	233	214	165	86	895	544	270	1,092	917	374	5,440
Speed	57.7	48.8	44.8	49.6	45.9	33.9	61.7	57.5	35.3	41.2	38.0	30.8	
VOC tons/day	1.13692E-04	2.03178E-05	5.01391E-05	4.54216E-05	3.53612E-05	1.97660E-05	1.80426E-04	1.10948E-04	6.35242E-05	2.38345E-04	2.03413E-04	8.79365E-05	0.0012
NOX tons/day	9.72878E-05	1.56546E-05	3.81916E-05	3.57893E-05	2.76341E-05	1.3562E-05	0.000159003	9.47552E-05	4.39845E-05	0.000176632	0.000145302	6.02331E-05	0.0009
Analysis Year 2030													
DVMT	556	94	233	214	165	86	895	544	270	1,092	917	374	5,440
Speed	54.1	41.6	28.6	49.6	38.7	33.8	63.4	55.9	38.4	39.6	33.5	29.5	
VOC tons/day	9.0501E-05	1.60169E-05	4.15096E-05	3.57679E-05	2.79752E-05	1.54487E-05	0.000142086	8.63591E-05	6.03517E-05	0.000191398	0.000162968	6.95217E-05	0.0009
NOX tons/day	7.58218E-05	4.07963E-05	4.50466E-05	3.40258E-05	3.49857E-05	3.39648E-05	5.00549E-05	7.45941E-05	3.44556E-05	6.86295E-05	6.56607E-05	4.46274E-05	0.0006
Analysis Year 2035													
DVMT	556	94	233	214	165	86	895	544	270	1,092	917	374	5,440
Speed	53.9	38.5	20.1	29.4	35.9	32.6	63.1	56.6	37.3	38.7	36.3	28.9	
VOC tons/day	8.97731E-05	1.62795E-05	4.39587E-05	3.57457E-05	2.77034E-05	1.5493E-05	0.000142086	8.63591E-05	7.44512E-05	0.000192602	0.000161777	6.95217E-05	0.0010
NOX tons/day	7.59364E-05	1.2042E-05	2.98582E-05	2.79124E-05	2.16417E-05	1.06598E-05	0.000123481	7.49645E-05	3.87748E-05	0.000136346	0.000114255	4.69417E-05	0.0007

OCTC 2011-2015 TIP Analysis Summary: Analysis Year 2035 No-Build Scenario, June 1, 2011

Assignment Postprocessor Run

Emission rates from sheet
Disaggregated link results into sheet
VISUM network and assignment in file

VMT	NYSDOT_Class												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	1,274,279	226,745	506,339	595,426	329,249	200,510	2,091,389	1,208,091	625,219	2,488,865	1,971,972	787,749	12,305,835

VHT_op	NYSDOT_Class												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	20,731	4,805	10,313	12,262	6,782	5,967	34,630	20,686	15,780	57,491	48,422	24,625	262,496

VOC	NYSDOT_Class												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	1,234,057	227,302	501,821	591,016	327,198	220,291	2,004,114	1,164,550	649,387	2,528,258	2,037,714	873,239	12,358,947

NOx	NYSDOT_Class												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	4,460,099	357,120	771,891	801,943	445,410	262,329	4,829,915	2,708,309	866,405	3,475,826	2,526,509	990,647	22,496,403

Ave. Speed	NYSDOT_Class												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Ave. Speed**
	61.47	47.18	49.10	48.56	48.55	33.60	60.39	58.40	39.62	43.29	40.72	31.99	46.88

VMT = Vehicle Miles Traveled
VHT=Vehicle Hours Traveled
VOC=Volatile Organic Compounds
Nox=Nitrogen Oxides

OCTC 2011-2015 TIP Analysis Summary: Analysis Year 2035 No-Build Scenario, June 1, 2011

Assignment Postprocessor Run

Emission rates from sheet
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VOC	3.0	1.82	tons
Nox	5.6	3.69	tons

VMT	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	1,440,320	247,335	579,153	545,239	400,973	216,503	2,350,483	1,393,822	699,020	2,867,196	2,363,447	983,280	14,086,771

VHT_op	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	24,142	5,252	12,161	11,053	8,326	6,424	38,819	24,698	19,197	67,922	59,828	31,558	309,378

VOC	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	550,248	90,816	213,175	196,162	145,011	85,247	846,812	505,545	270,085	1,066,090	886,193	390,492	5,245,877

NOx	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	1,941,406	143,073	324,291	268,276	196,381	101,424	2,062,993	1,169,874	354,725	1,454,225	1,087,909	441,531	9,546,108

Ave. Speed	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Ave. Speed**
	59.66	47.09	47.62	49.33	48.16	33.70	60.55	56.43	36.41	42.21	39.50	31.16	45.53

VMT = Vehicle Miles Traveled
VHT=Vehicle Hours Traveled
VOC=Volatile Organic Compounds
Nox=Nitrogen Oxides

OCTC 2011-2015 TIP Analysis Summary: Analysis Year 2035 No-Build Scenario, June 1, 2011

Assignment Postprocessor Run

Emission rates from sheet
Disaggregated link results into sheet
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VOC	3.0	1.86	tons
Nox	5.6	3.78	tons

VMT	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	1,475,280	254,594	593,058	560,214	412,526	222,479	2,415,810	1,427,787	716,054	2,941,800	2,431,357	993,199	14,444,159

VHT_op	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	24,812	5,254	12,496	11,368	8,595	6,601	39,931	25,343	19,880	70,026	61,784	31,906	317,995

VOC	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	563,221	92,921	218,906	201,504	149,214	87,561	870,058	517,718	276,468	1,094,218	911,599	394,383	5,377,770

NOx	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	1,988,617	145,864	332,201	275,433	201,899	104,179	2,119,442	1,197,237	363,244	1,491,367	1,118,644	445,812	9,783,939

Ave. Speed	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Ave. Speed**
	59.46	48.45	47.46	49.28	48.00	33.71	60.50	56.34	36.02	42.01	39.35	31.13	45.42

VMT = Vehicle Miles Traveled
VHT=Vehicle Hours Traveled
VOC=Volatile Organic Compounds
Nox=Nitrogen Oxides

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Assignment Postprocessor Run

Emission rates from sheet
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VOC	3.0	1.24	tons
Nox	5.6	1.73	tons

VMT	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	1,594,725	269,683	667,512	612,226	474,311	245,286	2,565,623	1,559,367	773,680	3,129,991	2,629,061	1,070,671	15,592,136

VHT_op	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	27,798	5,864	14,934	12,498	9,927	7,287	42,632	27,109	25,251	75,634	68,366	34,426	351,726

VOC	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	386,290	59,907	151,615	131,414	102,276	58,533	564,634	344,007	191,149	696,768	599,960	260,530	3,547,081

NOx	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	862,656	68,047	165,081	133,684	103,506	51,379	951,111	558,950	177,819	700,876	542,668	214,661	4,530,437

Ave. Speed	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Ave. Speed**
	57.37	45.99	44.70	48.99	47.78	33.66	60.18	57.52	30.64	41.38	38.46	31.10	44.33

VMT = Vehicle Miles Traveled
VHT=Vehicle Hours Traveled
VOC=Volatile Organic Compounds
Nox=Nitrogen Oxides

OCTC 2011-2015 TIP Analysis Summary: Analysis Year 2035 No-Build Scenario, June 1, 2011

Assignment Postprocessor Run

Emission rates from sheet
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VOC	3.0	1.10	tons
Nox	5.6	1.04	tons

VMT	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	1,808,237	301,587	803,478	709,368	586,944	291,476	2,897,172	1,763,002	878,315	3,537,573	3,054,835	1,224,716	17,856,703

VHT_op	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	33,939	6,868	21,953	14,688	12,637	8,721	48,702	31,322	45,958	90,082	84,163	39,879	438,912

VOC	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	316,487	51,860	144,088	117,077	97,722	54,195	465,163	286,053	236,280	621,034	557,188	234,673	3,181,821

NOx	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	401,080	46,379	120,399	100,653	83,411	40,545	528,694	312,205	139,794	513,444	427,641	165,858	2,880,103

Ave. Speed	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Ave. Speed**
	53.28	43.91	36.60	48.30	46.45	33.42	59.49	56.29	19.11	39.27	36.30	30.71	40.68

VMT = Vehicle Miles Traveled **VOC=Volatile Organic Compounds**
VHT=Vehicle Hours Traveled **Nox=Nitrogen Oxides**

OCTC 2011-2015 TIP Analysis Summary: Analysis Year 2035 No-Build Scenario, June 1, 2011

Assignment Postprocessor Run

Emission rates from sheet
Disaggregated link results into sheet
VISUM network and assignment in file

VOC	3.0	1.12	tons
Nox	5.6	1.05	tons

VMT	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	1,848,373	307,849	822,397	726,326	603,984	300,892	2,992,603	1,720,326	891,302	3,626,719	3,148,115	1,273,071	18,261,958

VHT_op	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	35,224	6,864	22,961	15,048	13,034	9,011	50,412	32,497	49,219	93,792	87,474	42,164	457,699

VOC	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	323,423	51,994	147,485	119,854	100,564	55,945	480,904	283,964	242,572	642,001	575,380	245,629	3,269,713

NOx	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	408,913	46,906	123,244	103,017	85,815	41,840	545,165	300,124	142,055	527,774	440,618	173,112	2,938,584

Ave. Speed	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Ave. Speed**
	52.48	44.85	35.82	48.27	46.34	33.39	59.36	52.94	18.11	38.67	35.99	30.19	39.90

VMT = Vehicle Miles Traveled
VHT=Vehicle Hours Traveled
VOC=Volatile Organic Compounds
Nox=Nitrogen Oxides

OCTC 2011-2015 TIP Analysis Summary: Analysis Year 2035 No-Build Scenario, June 1, 2011

Assignment Postprocessor Run

Emission rates from sheet
Disaggregated link results into sheet
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VOC	3.0	1.17	tons
Nox	5.6	1.01	tons

VMT	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	1,915,535	332,702	871,536	770,174	651,027	315,345	3,214,763	1,943,713	927,186	3,740,035	3,168,475	1,302,059	19,152,548

VHT_op	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	35,817	8,086	30,281	17,191	14,367	9,548	54,311	34,026	69,270	99,548	86,087	43,168	501,701

VOC	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	333,043	57,953	162,460	129,819	109,064	59,013	516,793	314,413	300,495	664,369	570,166	250,810	3,468,396

NOx	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	361,074	48,189	123,257	105,242	89,027	42,182	513,402	306,979	143,314	512,001	420,090	170,139	2,834,895

Ave. Speed	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Ave. Speed**
	53.48	41.15	28.78	44.80	45.31	33.03	59.19	57.12	13.39	37.57	36.81	30.16	38.18

VMT = Vehicle Miles Traveled
VHT=Vehicle Hours Traveled
VOC=Volatile Organic Compounds
Nox=Nitrogen Oxides

OCTC 2011-2015 TIP Analysis Summary: Analysis Year 2035 No-Build Scenario, June 1, 2011

Assignment Postprocessor Run

Emission rates from sheet
Disaggregated link results into sheet
VISUM network and assignment in file

VOC	3.0	1.22	tons
Nox	5.6	1.01	tons

VMT	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	1,962,544	326,769	902,140	784,370	670,883	326,486	3,193,767	1,814,826	946,250	3,836,094	3,374,170	1,361,326	19,499,624

VHT_op	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	39,737	7,507	31,106	16,420	14,890	9,890	54,308	35,243	75,355	104,376	98,023	45,725	532,581

VOC	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	352,768	56,271	164,518	129,716	112,437	61,050	513,616	300,302	306,301	690,097	621,828	263,350	3,572,252

NOx	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	371,859	46,848	127,009	106,868	91,668	43,627	509,238	280,580	146,435	527,833	448,922	178,308	2,879,196

Ave. Speed	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Ave. Speed**
	49.39	43.53	29.00	47.77	45.06	33.01	58.81	51.50	12.56	36.75	34.42	29.77	36.61

VMT = Vehicle Miles Traveled
VHT=Vehicle Hours Traveled
VOC=Volatile Organic Compounds
Nox=Nitrogen Oxides

ORANGE COUNTY COMMUTER MODEL RESULTS

SCENARIO INFORMATION

Description	Commuter Choice Poughkeepsie
Scenario Filename	Orange CC June 2010 FINAL.vme
Emission Factor File	
Performing Agency	NYSDOT
Analyst	Patrick Lentlie
Metropolitan Area	
Area Size	3 - Small (under 750,000)
Analysis Scope	1 - Area-Wide (e.g., MSA, county)
Analysis Area/Site	Poughkeepsie
Total Employment	1,558

PROGRAMS EVALUATED

	Site Walk Access Improvements
	Transit Service Improvements
X	Financial Incentives
	Employer Support Programs
	Alternative Work Schedules
	User-Supplied Final Mode Shares

MODE SHARE IMPACTS

Mode	Baseline	Final	%Change
Drive Alone	78.2%	69.7%	-8.6%
Carpool	12.1%	10.8%	-1.3%
Vanpool	0.5%	2.4%	+2.0%
Transit	4.9%	13.3%	+8.4%
Bicycle	0.4%	0.4%	-0.0%
Pedestrian	3.0%	2.7%	-0.3%
Other	0.8%	0.7%	-0.1%
No Trip	-	0.0%	+0.0%
Total	100.0%	100.0%	-

Shifted from Peak to Off-Peak	0.0%

TRAVEL IMPACTS (relative to affected employment)

Quantity	Peak	Off-Peak	Total
Baseline VMT	31,429	19,758	51,187
Final VMT	28,089	17,658	45,747
VMT Reduction	3,340	2,100	5,440
% VMT Reduction	10.6%	10.6%	10.6%
Baseline Trips	1,601	1,007	2,608
Final Trips	1,431	899	2,330
Trip Reduction	171	107	278
% Trip Reduction	10.6%	10.6%	10.6%

2002 DVMT	12,305,835
% Reductic	0.04%

Orange Scenario Inputs:

Commuter saves $3.10 per day for mode change to vanpool or transit
*$3.10 corresponds to slightly less than a $65/month benefit of federally allowable pretax benefit of $230 per month (0.28 tax rate * $230 allowable = $65 monthly benefit)*
100% participation = 1,558 employee participants, based on OCTC population-based corrected MHSTCC SOV diversion rate in Commuter Choice Business Plan
19 mile SOV and Vanpool trip length
All other inputs were default
This is the 2007 diversion rate, due to limits in analysis years in COMMUTER model
Local emission factors will be applied to the trip reduction calculated by the COMMUTER Model

Enhanced Commuter Choice Emissions Credits

Countywide

OCTC benefits

Year/Scenaric	2012 Build	2020 Build	2030 Build	2035 Build
VOC tpd	0.0018	0.0011	0.0008	0.0009

OCTC benefits

Year/Scenaric	2012 Build	2020 Build	2030 Build	2035 Build
NOx tpd	0.0018	0.0008	0.0006	0.0006

PDCTC Emission Tables

2002 PDCTC Base

Functional Class		Centerline Miles	Lane Miles	TOTAL DVMT	TOTAL ADJ DVMT	% of Total VMT	Avg. Speed mi/hr	VOC g/day	NOx g/day	CO g/day
01	Interstate	0	0	0	0	0.0%	0.0	0	0	0
02	Principal Arterial	135	280	527,454	611,847	10.2%	51.6	600,792	933,469	18,622,021
06	Minor Arterial	23	46	56,138	65,120	1.1%	51.5	63,427	100,449	1,997,233
07	Major Collector	81	163	374,519	434,442	7.2%	49.7	422,254	601,365	13,417,944
08	Minor Collector	106	212	106,750	123,829	2.1%	44.3	124,135	162,639	3,679,473
09	Local	214	425	254,999	295,399	4.9%	31.6	334,939	384,427	8,440,030
11	Interstate	38	79	950,137	1,064,154	17.7%	58.0	1,024,165	2,423,730	33,495,177
12	Principal Arterial (Expressway)	28	56	168,969	189,246	3.1%	53.1	185,964	388,416	5,675,891
14	Principal Arterial (Street)	89	228	1,035,410	1,160,215	19.3%	43.3	1,173,785	1,597,756	34,216,694
16	Minor Arterial	72	149	573,918	643,649	10.7%	40.3	662,630	873,701	18,719,536
17	Collector	163	331	784,944	879,300	14.6%	39.9	900,928	1,095,862	25,748,923
19	Local	334	651	487,333	547,231	9.1%	19.5	764,080	786,509	16,996,285
TOTAL		**1,285**	**2,621**	**5,320,572**	**6,014,432**	**100%**		**6,257,100**	**9,348,322**	**181,009,207**
								6.897	**10.305**	**199.525 tons/day**

2012 PDCTC Scenarios

No-Build Scenario 2012

Functional Class		Centerline Miles	Lane Miles	TOTAL DVMT	TOTAL ADJ DVMT*	% of Total VMT	Avg. Speed mi/hr	VOC g/day	NOx g/day	CO g/day
01	Interstate	0	0	0	0	0.0%	0.0	0	0	0
02	Principal Arterial	135	280	803,336	931,870	14.2%	51.6	339,641	524,292	12,016,752
06	Minor Arterial	23	46	97,586	113,200	1.7%	51.5	41,074	64,568	1,471,959
07	Major Collector	81	163	455,845	528,780	8.1%	49.6	186,847	267,427	6,903,530
08	Minor Collector	106	212	124,268	144,151	2.2%	44.3	51,981	68,060	1,813,285
09	Local	214	425	296,418	343,443	5.2%	31.6	136,259	160,344	4,122,463
11	Interstate	38	79	924,311	1,035,229	15.8%	58.1	374,342	892,609	13,636,343
12	Principal Arterial (Expressway)	28	56	244,286	273,600	4.2%	53.1	99,481	212,459	3,458,670
14	Principal Arterial (Street)	89	228	992,697	1,112,661	16.9%	43.3	410,071	556,577	13,964,143
16	Minor Arterial	72	149	588,231	659,998	10.1%	40.3	246,317	324,198	8,165,184
17	Collector	163	331	775,030	868,289	13.2%	39.9	318,964	386,904	10,835,920
19	Local	334	651	494,647	555,547	8.5%	19.5	268,369	283,848	7,161,095
TOTAL		**1,285**	**2,621**	**5,796,656**	**6,566,769**	**100%**		**2,473,347**	**3,741,286**	**83,549,344**
								2.726	**4.124**	**92.096 tons/day**

Scenario 1 : 2012 Build Model (TransCAD) results)

Functional Class		Centerline Mileage	Lane Miles	TOTAL DVMT	TOTAL ADJ DVMT*	% of Total VMT	Avg. Speed mi/hr	VOC g/day	NOx g/day	CO g/day
01	Interstate	0	0	0	0	0.0%	0.0	0	0	0
02	Principal Arterial	135	280	803,563	932,133	14.2%	51.6	339,735	524,447	12,020,236
06	Minor Arterial	23	46	97,616	113,235	1.7%	51.5	41,087	64,588	1,472,416
07	Major Collector	86	172	470,960	546,313	8.3%	49.5	193,085	276,035	7,129,068
08	Minor Collector	106	212	116,735	135,413	2.1%	44.3	48,836	63,953	1,703,431
09	Local	211	420	294,937	341,725	5.2%	31.5	135,639	159,537	4,100,912
11	Interstate	38	79	923,986	1,034,864	15.8%	58.1	374,211	892,290	13,631,501
12	Principal Arterial (Expressway)	28	56	249,177	279,078	4.3%	53.0	101,457	216,772	3,528,443
14	Principal Arterial (Street)	89	228	991,722	1,111,568	16.9%	43.3	409,688	555,992	13,949,693
16	Minor Arterial	70	142	563,156	631,336	9.6%	39.8	236,106	309,377	7,795,668
17	Collector	169	344	797,122	893,354	13.6%	40.1	328,042	398,430	11,155,695
19	Local	328	638	485,748	545,601	8.3%	19.1	264,817	279,320	7,033,450
TOTAL		**1,285**	**2,618**	**5,794,723**	**6,564,621**	**100%**		**2,472,703**	**3,740,741**	**83,520,512**
								2.726	**4.123**	**92.064 tons/day**

Scenario 2 - Seasonally Adjusted Model Output & Ozone Action Days

Ozone Action Days

Methods: *The reduction in VMT is distributed based on the percentage of VMT in each functional class from the model results.*

Assumptions: *1.39% reduction in daily VMT* **1.39%**

Calculated reduction in VMT **91,248**

Functional Class		TransCAD ADJ DVMT	% of Total VMT	Reduction in VMT	New Adjusted VMT	Avg Speed mi/hour	VOC Emission Factor g/mi	VOC Sum g/day	NOx Emission Factor g/mi	NOx Sum g/day	CO Emission Factor g/mi	CO Sum g/day
01	Interstate	0	0.0%	0	0	0.0	0.00	0	0.00	0	0.00	0
02	Principal Arterial	932,133	14.2%	12,957	919,176	51.6	0.36	330,903	0.55	505,547	12.80	11,765,455
06	Minor Arterial	113,235	1.7%	1,574	111,661	51.5	0.36	40,198	0.55	61,414	12.80	1,429,260
07	Major Collector	546,313	8.3%	7,594	538,719	49.5	0.35	188,552	0.49	263,973	12.91	6,954,869
08	Minor Collector	135,413	2.1%	1,882	133,531	44.3	0.36	48,071	0.47	62,759	12.57	1,678,483
09	Local	341,725	5.2%	4,750	336,975	31.5	0.39	131,420	0.46	155,009	11.89	4,006,633
11	Interstate	1,034,864	15.8%	14,385	1,020,480	58.1	0.36	367,373	0.85	867,408	13.17	13,439,716
12	Principal Arterial (Expressway)	279,078	4.3%	3,879	275,199	53.0	0.36	99,072	0.79	217,407	12.76	3,511,541
14	Principal Arterial (Street)	1,111,568	16.9%	15,451	1,096,118	43.3	0.37	405,563	0.50	548,059	12.57	13,778,197
16	Minor Arterial	631,336	9.6%	8,776	622,561	39.8	0.37	230,348	0.48	298,829	12.24	7,620,145
17	Collector	893,354	13.6%	12,418	880,936	40.1	0.37	325,946	0.44	387,612	12.35	10,879,565
19	Local	545,601	8.3%	7,584	538,017	19.1	0.45	242,108	0.48	258,248	12.46	6,703,691
Total		**6,564,621**	**100%**	**91,248**	**6,473,373**			**2,409,554**		**3,626,264**		**81,767,556**
								2.656 tons/day		**3.997 tons/day**		**90.132 tons/day**

Scenario 3 - Seasonally Adjusted Model Output & Ozone Action Days & Enhanced Commuter Choice

Methods: *The reduction in VMT is distributed based on the percentage of VMT in each functional class from the model results.*

Assumptions: *Reduction of 3,486 VMT over entire day.* ***3,486***

	Change in VOC	*Change in NOx*	*Change in CO*
	-0.001 tons/day	*-0.001* tons/day	*-0.051* tons/day
Total	**2.655 tons/day**	**3.996 tons/day**	**90.081 tons/day**

2020 PDCTC Scenarios

No-Build Scenario 2020

Functional Class		Centerline Miles	Lane Miles	TOTAL DVMT	TOTAL ADJ DVMT*	% of Total VMT	Avg. Speed mi/hr	VOC g/day	NOx g/day	CO g/day
01	Interstate	0	0	0	0	0.0%	0.0	0	0	0
02	Principal Arterial	135	280	554,608	643,345	9.7%	51.6	138,021	161,327	7,120,245
06	Minor Arterial	23	46	65,995	76,554	1.2%	51.5	16,271	19,424	852,436
07	Major Collector	81	163	362,780	420,825	6.4%	49.6	89,275	94,748	4,722,567
08	Minor Collector	106	212	120,508	139,790	2.1%	44.3	30,778	29,461	1,508,121
09	Local	214	425	283,708	328,679	5.0%	31.6	80,691	66,998	3,383,751
11	Interstate	38	79	1,063,800	1,191,456	18.0%	57.1	263,063	434,642	13,446,784
12	Principal Arterial (Expressway)	28	56	192,188	215,251	3.3%	53.1	48,109	71,066	2,323,138
14	Principal Arterial (Street)	89	228	1,172,569	1,313,810	19.9%	43.2	288,769	288,342	14,132,146
16	Minor Arterial	72	149	615,631	690,427	10.5%	40.2	153,834	148,580	7,326,252
17	Collector	163	331	856,289	959,226	14.5%	39.9	213,683	191,688	10,271,076
19	Local	334	651	553,509	621,527	9.4%	19.5	188,420	144,343	6,856,451
TOTAL		**1,285**	**2,621**	**5,841,586**	**6,600,890**	**100%**		**1,510,915**	**1,650,619**	**71,942,967**
								1.665	**1.819**	**79.302 tons/day**

Scenario 1 : 2020 Build Model (TransCAD) results)

Functional Class		Centerline Mileage	Lane Miles	TOTAL DVMT	TOTAL ADJ DVMT*	% of Total VMT	Avg. Speed mi/hr	VOC g/day	NOx g/day	CO g/day
01	Interstate	0	0	0	0	0.0%	0.0	0	0	0
02	Principal Arterial	135	280	555,256	644,097	9.8%	51.6	138,173	161,539	7,129,055
06	Minor Arterial	23	46	66,019	76,582	1.2%	51.5	16,277	19,431	852,746
07	Major Collector	86	172	374,162	434,028	6.6%	49.5	92,129	97,622	4,867,897
08	Minor Collector	106	212	115,436	133,906	2.0%	44.3	29,486	28,224	1,444,635
09	Local	212	421	283,719	328,691	5.0%	31.5	80,728	66,977	3,382,726
11	Interstate	38	79	1,069,386	1,197,712	18.1%	57.1	264,440	436,780	13,515,499
12	Principal Arterial (Expressway)	28	56	198,039	221,804	3.4%	53.1	49,553	73,286	2,394,773
14	Principal Arterial (Street)	89	228	1,170,346	1,311,320	19.9%	43.2	288,236	287,861	14,107,020
16	Minor Arterial	70	142	592,634	664,250	10.1%	39.7	148,264	142,705	7,039,266
17	Collector	170	345	872,882	978,049	14.8%	40.1	217,748	195,590	10,479,262
19	Local	329	641	543,601	610,372	9.2%	19.2	185,965	142,086	6,734,523
TOTAL		**1,287**	**2,623**	**5,841,480**	**6,600,810**	**100%**		**1,510,999**	**1,652,104**	**71,947,403**
								1.666	**1.821**	**79.307 tons/day**

Scenario 2 - Seasonally Adjusted Model Output & Ozone Action Days

Ozone Action Days

Methods: *The reduction in VMT is distributed based on the percentage of VMT in each functional class from the model results.*

Assumptions: *1.39% reduction in daily VMT* **1.39%**

Calculated reduction in VMT **91,751**

Functional Class		TransCAD ADJ DVMT	% of Total VMT	Reduction in VMT	New Adjusted VMT	Avg Speed mi/hour	VOC Emission Factor g/mi	VOC Sum g/day	NOx Emission Factor g/mi	NOx Sum g/day	CO Emission Factor g/mi	CO Sum g/day
01	Interstate	0	0%	0	0	0.0	0.00	0	0.00	0	0.00	0
02	Principal Arterial	644,097	10%	8,953	635,144	51.6	0.22	139,732	0.24	152,434	10.98	6,973,878
06	Minor Arterial	76,582	1%	1,064	75,518	51.5	0.22	16,614	0.24	18,124	10.98	829,183
07	Major Collector	434,028	7%	6,033	427,995	49.5	0.21	89,879	0.22	94,159	11.07	4,737,900
08	Minor Collector	133,906	2%	1,861	132,044	44.3	0.22	29,050	0.21	27,729	10.78	1,423,437
09	Local	328,691	5%	4,569	324,122	31.5	0.24	77,789	0.20	64,824	10.20	3,306,047
11	Interstate	1,197,712	18%	16,648	1,181,064	57.1	0.22	259,834	0.34	401,562	11.31	13,357,834
12	Principal Arterial (Expressway)	221,804	3%	3,083	218,721	53.1	0.22	48,119	0.34	74,365	10.95	2,394,990
14	Principal Arterial (Street)	1,311,320	20%	18,227	1,293,093	43.2	0.22	284,480	0.22	284,480	10.79	13,952,471
16	Minor Arterial	664,250	10%	9,233	655,017	39.7	0.22	144,104	0.21	137,553	10.51	6,884,225
17	Collector	978,049	15%	13,595	964,455	40.1	0.22	212,180	0.20	192,891	10.61	10,232,862
19	Local	610,372	9%	8,484	601,888	19.2	0.28	168,529	0.22	132,415	10.67	6,422,142
Total		**6,600,810**	**100%**	**91,751**	**6,509,059**			**1,470,309**		**1,580,538**		**70,514,968**
								1.621 tons/day		**1.742 tons/day**		**77.728 tons/day**

Scenario 3 - Seasonally Adjusted Model Output & Ozone Action Days & Enhanced Commuter Choice

Methods: *The reduction in VMT is distributed based on the percentage of VMT in each functional class from the model results.*

Assumptions: *Reduction of 3,486 VMT over entire day.* ***3,486***

	Change in VOC	*Change in NOx*	*Change in CO*
	-0.001 tons/day	*-0.001* tons/day	*-0.043* tons/day
Total	**1.620 tons/day**	**1.742 tons/day**	**77.685 tons/day**

Scenario 4 - Seasonally Adjusted Model Output & Ozone Action Days & Enhanced Commuter Choice & Wassaic Station Parking Expansion

Methods: *The emissions reductions are subtracted from the total daily emissions.*

Assumptions: *PDCTC analysis June 2010.*

	Change in VOC	*Change in NOx*	*Change in CO*
	-0.009 tons/day	*-0.005* tons/day	*-0.404* tons/day
Total	**1.611 tons/day**	**1.736 tons/day**	**77.280 tons/day**

Scenario 5 - Seasonally Adjusted Model Output & Ozone Action Days & Enhanced Commuter Choice & Wassaic Station Parking Expansion & Beacon Station Parking Expansion

Methods: *The emissions reductions are subtracted from the total daily emissions.*

Assumptions: *PDCTC analysis June 2010.*

	Change in VOC	*Change in NOx*	*Change in CO*
	-0.010 tons/day	*-0.006* tons/day	*-0.481* tons/day
Total	**1.601 tons/day**	**1.730 tons/day**	**76.800 tons/day**

2030 PDCTC Scenarios

No-Build Scenario 2030

Functional Class		Centerline Miles	Lane Miles	TOTAL DVMT	TOTAL ADJ DVMT*	% of Total VMT	Avg. Speed mi/hr	VOC g/day	NOx g/day	CO g/day
01	Interstate	0	0	0	0	0.0%	0.0	0	0	0
02	Principal Arterial	135	280	620,653	719,957	10.1%	51.6	118,053	106,014	7,791,216
06	Minor Arterial	23	46	71,212	82,606	1.2%	51.5	13,433	12,233	899,144
07	Major Collector	81	163	405,272	470,116	6.6%	49.6	76,196	69,192	5,152,997
08	Minor Collector	106	212	133,418	154,764	2.2%	44.3	26,324	21,733	1,631,232
09	Local	214	425	322,207	373,316	5.2%	31.6	72,535	52,919	3,753,990
11	Interstate	38	79	1,171,077	1,311,607	18.3%	56.1	210,905	231,389	14,335,592
12	Principal Arterial (Expressway)	28	56	205,171	229,791	3.2%	53.0	37,589	38,242	2,425,160
14	Principal Arterial (Street)	89	228	1,251,575	1,402,344	19.6%	43.1	238,351	198,608	14,745,023
16	Minor Arterial	72	149	679,742	762,312	10.7%	40.0	131,942	107,097	7,906,922
17	Collector	163	331	879,241	984,948	13.8%	39.9	170,092	132,747	10,302,611
19	Local	334	651	584,223	656,057	9.2%	19.5	165,923	106,324	7,084,522
TOTAL		**1,285**	**2,621**	**6,323,791**	**7,147,819**	**100%**		**1,261,342**	**1,076,499**	**76,028,408**
								1.390	**1.187**	**83.806 tons/day**

Scenario 1 : 2030 Build Model (TransCAD) results)

Functional Class		Centerline Mileage	Lane Miles	TOTAL DVMT	TOTAL ADJ DVMT*	% of Total VMT	Avg. Speed mi/hr	VOC g/day	NOx g/day	CO g/day
01	Interstate	0	0	0	0	0.0%	0.0	0	0	0
02	Principal Arterial	135	280	620,872	720,212	10.1%	51.6	118,093	106,053	7,794,099
06	Minor Arterial	23	46	71,226	82,622	1.2%	51.5	13,435	12,235	899,324
07	Major Collector	86	172	417,394	484,177	6.8%	49.5	78,535	71,212	5,304,013
08	Minor Collector	106	212	127,896	148,359	2.1%	44.3	25,237	20,836	1,563,721
09	Local	212	421	322,520	373,680	5.2%	31.5	72,637	52,964	3,756,515
11	Interstate	38	88	1,175,966	1,317,081	18.4%	56.7	211,782	232,323	14,394,323
12	Principal Arterial (Expressway)	28	56	210,831	236,131	3.3%	53.0	38,605	39,318	2,492,937
14	Principal Arterial (Street)	89	236	1,252,086	1,402,916	19.6%	43.1	238,448	198,685	14,751,028
16	Minor Arterial	70	142	654,652	733,754	10.3%	39.5	127,179	102,965	7,599,321
17	Collector	170	345	896,231	1,004,235	14.0%	40.1	173,379	135,476	10,510,663
19	Local	330	642	575,134	645,800	9.0%	19.2	164,185	104,904	6,975,780
TOTAL		**1,287**	**2,641**	**6,324,807**	**7,148,968**	**100%**		**1,261,516**	**1,076,970**	**76,041,723**
								1.391	**1.187**	**83.820 tons/day**

Scenario 2 - Seasonally Adjusted Model Output & Ozone Action Days

Ozone Action Days

Methods: *The reduction in VMT is distributed based on the percentage of VMT in each functional class from the model results.*

Assumptions: *1.39% reduction in daily VMT* **1.39%**

Calculated reduction in VMT **99,371**

Functional Class		TransCAD ADJ DVMT	% of Total VMT	Reduction in VMT	New Adjusted VMT	Avg Speed mi/hour	VOC Factor g/mi	VOC Sum g/day	NOx Factor g/mi	NOx Sum g/day	CO Factor g/mi	CO Sum g/day
01	Interstate	0	0%	0	0	0.0	0.00	0	0.00	0	0.00	0
02	Principal Arterial	720,212	10%	10,011	710,201	51.6	0.16	113,632	0.15	106,530	10.74	7,627,558
06	Minor Arterial	82,622	1%	1,148	81,474	51.5	0.16	13,036	0.15	12,221	10.74	875,031
07	Major Collector	484,177	7%	6,730	477,447	49.5	0.16	76,392	0.14	66,843	10.81	5,161,206
08	Minor Collector	148,359	2%	2,062	146,297	44.3	0.17	24,870	0.14	20,482	10.53	1,540,506
09	Local	373,680	5%	5,194	368,486	31.5	0.19	70,012	0.14	51,588	9.97	3,673,803
11	Interstate	1,317,081	18%	18,307	1,298,774	56.7	0.16	207,804	0.17	220,792	10.71	13,909,869
12	Principal Arterial (Expressway)	236,131	3%	3,282	232,849	53.0	0.16	37,256	0.17	39,584	10.71	2,493,810
14	Principal Arterial (Street)	1,402,916	20%	19,501	1,383,415	43.1	0.17	235,181	0.14	193,678	10.55	14,595,029
16	Minor Arterial	733,754	10%	10,199	723,555	39.5	0.17	123,004	0.14	101,298	10.28	7,438,144
17	Collector	1,004,235	14%	13,959	990,276	40.1	0.17	168,347	0.13	128,736	10.37	10,269,161
19	Local	645,800	9%	8,977	636,824	19.2	0.23	146,469	0.15	95,524	10.44	6,648,441
Total		**7,148,968**	**100%**	**99,371**	**7,049,597**			**1,216,003**		**1,037,275**		**74,232,559**
								1.340 tons/day		**1.143 tons/day**		**81.826 tons/day**

Scenario 3 - Seasonally Adjusted Model Output & Ozone Action Days & Enhanced Commuter Choice

Methods: *The reduction in VMT is distributed based on the percentage of VMT in each functional class from the model results.*

Assumptions: *Reduction of 3,486 VMT over entire day.* ***3,486***

	Change in VOC	*Change in NOx*	*Change in CO*
	-0.001 tons/day	*-0.001* tons/day	*-0.043* tons/day
Total	**1.340 tons/day**	**1.143 tons/day**	**81.783 tons/day**

Scenario 4 - Seasonally Adjusted Model Output & Ozone Action Days & Enhanced Commuter Choice & Wassaic Station Parking Expansion

Methods: *The emissions reductions are subtracted from the total daily emissions.*

Assumptions: *PDCTC analysis June 2010.*

	Change in VOC	*Change in NOx*	*Change in CO*
	-0.007 tons/day	*-0.004* tons/day	*-0.400* tons/day
Total	**1.333 tons/day**	**1.138 tons/day**	**81.383 tons/day**

Scenario 5 - Seasonally Adjusted Model Output & Ozone Action Days & Enhanced Commuter Choice & Wassaic Station Parking Expansion & Beacon Station Parking Expansion

Methods: *The emissions reductions are subtracted from the total daily emissions.*

Assumptions: *PDCTC analysis June 2010.*

	Change in VOC	*Change in NOx*	*Change in CO*
	-0.008 tons/day	*-0.005* tons/day	*-0.475* tons/day
Total	**1.325 tons/day**	**1.133 tons/day**	**80.908 tons/day**

2035 PDCTC Scenarios

No-Build Scenario 2035

Functional Class		Centerline Miles	Lane Miles	TOTAL DVMT	TOTAL ADJ DVMT*	% of Total VMT	Avg. Speed mi/hr	VOC g/day	NOx g/day	CO g/day
01	Interstate	0	0	0	0	0.0%	0.0	0	0	0
02	Principal Arterial	135	280	1,007,650	1,168,874	15.0%	51.5	189,475	161,804	12,750,623
06	Minor Arterial	23	46	96,658	112,124	1.4%	51.4	18,199	15,504	1,222,273
07	Major Collector	81	163	409,549	475,077	6.1%	49.5	76,897	65,461	5,213,467
08	Minor Collector	106	212	138,362	160,500	2.1%	44.3	27,259	20,948	1,693,226
09	Local	214	425	335,123	388,289	5.0%	31.6	75,348	51,271	3,907,007
11	Interstate	38	79	934,248	1,046,358	13.5%	58.0	168,147	168,690	11,617,244
12	Principal Arterial (Expressway)	28	56	396,205	443,749	5.7%	52.6	71,816	66,066	4,716,756
14	Principal Arterial (Street)	89	228	1,372,797	1,538,492	19.8%	42.9	260,957	203,194	16,204,424
16	Minor Arterial	72	149	690,473	774,564	10.0%	40.0	133,824	101,537	8,055,869
17	Collector	163	331	880,447	986,390	12.7%	39.9	170,150	127,836	10,328,615
19	Local	334	651	600,569	674,637	8.7%	19.5	170,891	104,127	7,284,542
TOTAL		**1,285**	**2,621**	**6,862,082**	**7,769,054**	**100%**		**1,362,962**	**1,086,438**	**82,994,047**
								1.502	**1.198**	**91.484 tons/day**

Scenario 1 : 2035 Build Model (TransCAD) results)

Functional Class		Centerline Mileage	Lane Miles	TOTAL DVMT	TOTAL ADJ DVMT*	% of Total VMT	Avg. Speed mi/hr	VOC g/day	NOx g/day	CO g/day
01	Interstate	0	0	0	0	0.0%	0.0	0	0	0
02	Principal Arterial	135	280	1,007,699	1,168,931	15.0%	51.5	189,482	161,813	12,751,356
06	Minor Arterial	23	46	96,655	112,119	1.4%	51.4	18,198	15,503	1,222,222
07	Major Collector	86	172	424,187	492,057	6.3%	49.4	79,701	67,750	5,396,911
08	Minor Collector	106	212	132,749	153,989	2.0%	44.3	26,153	20,102	1,624,635
09	Local	212	421	335,733	388,996	5.0%	31.5	75,510	51,364	3,913,132
11	Interstate	38	88	937,069	1,049,517	13.5%	58.2	168,653	169,185	11,651,813
12	Principal Arterial (Expressway)	28	56	401,670	449,871	5.8%	52.5	72,799	66,982	4,782,174
14	Principal Arterial (Street)	89	236	1,371,525	1,537,066	19.8%	42.9	260,729	202,989	16,188,873
16	Minor Arterial	70	142	661,179	741,087	9.5%	39.6	128,420	96,993	7,693,499
17	Collector	170	345	900,337	1,009,046	13.0%	40.1	173,879	130,885	10,574,814
19	Local	330	642	592,980	666,047	8.6%	19.2	169,401	103,000	7,193,304
TOTAL		**1,287**	**2,641**	**6,861,782**	**7,768,726**	**100%**		**1,362,924**	**1,086,566**	**82,992,733**
								1.502	**1.198**	**91.482 tons/day**

Scenario 2 - Seasonally Adjusted Model Output & Ozone Action Days

Ozone Action Days

Methods: *The reduction in VMT is distributed based on the percentage of VMT in each functional class from the model results.*

Assumptions: *1.39% reduction in daily VMT* **1.39%**

Calculated reduction in VMT **107,985**

Functional Class		TransCAD ADJ DVMT	% of Total VMT	Reduction in VMT	New Adjusted VMT	Avg Speed mi/hour	VOC Emission Factor g/mi	VOC Sum g/day	NOx Emission Factor g/mi	NOx Sum g/day	CO Emission Factor g/mi	CO Sum g/day
01	Interstate	0	0%	0	0	0.0	0.00	0	0.00	0	0.00	0
02	Principal Arterial	1,168,931	15%	16,248	1,152,683	51.5	0.16	184,429	0.14	161,376	10.74	12,379,818
06	Minor Arterial	112,119	1%	1,558	110,561	51.4	0.16	17,690	0.14	15,479	10.74	1,187,423
07	Major Collector	492,057	6%	6,840	485,217	49.4	0.16	77,635	0.13	63,078	10.81	5,245,195
08	Minor Collector	153,989	2%	2,140	151,849	44.3	0.17	25,814	0.13	19,740	10.53	1,598,968
09	Local	388,996	5%	5,407	383,589	31.5	0.19	72,882	0.13	49,867	9.98	3,828,217
11	Interstate	1,049,517	14%	14,588	1,034,929	58.2	0.16	165,589	0.16	165,589	11.06	11,446,311
12	Principal Arterial (Expressway)	449,871	6%	6,253	443,617	52.5	0.17	75,415	0.15	66,543	10.71	4,751,141
14	Principal Arterial (Street)	1,537,066	20%	21,365	1,515,701	42.9	0.17	257,669	0.13	197,041	10.56	16,005,805
16	Minor Arterial	741,087	10%	10,301	730,786	39.6	0.17	124,234	0.13	95,002	10.29	7,519,783
17	Collector	1,009,046	13%	14,026	995,020	40.1	0.17	169,153	0.13	129,353	10.38	10,328,312
19	Local	666,047	9%	9,258	656,789	19.2	0.22	144,494	0.14	91,950	10.44	6,856,880
Total		**7,768,726**	**100%**	**107,985**	**7,660,741**			**1,315,003**		**1,055,017**		**81,147,854**
								1.450 tons/day		**1.163 tons/day**		**89.449 tons/day**

Scenario 3 - Seasonally Adjusted Model Output & Ozone Action Days & Enhanced Commuter Choice

Methods: *The reduction in VMT is distributed based on the percentage of VMT in each functional class from the model results.*

Assumptions: *Reduction of 3,486 VMT over entire day.* ***3,486***

	Change in VOC	*Change in NOx*	*Change in CO*
	-0.001 tons/day	*-0.001* tons/day	*-0.043* tons/day
Total	**1.449 tons/day**	**1.162 tons/day**	**89.405 tons/day**

Scenario 4 - Seasonally Adjusted Model Output & Ozone Action Days & Enhanced Commuter Choice & Wassaic Station Parking Expansion

Methods: *The emissions reductions are subtracted from the total daily emissions.*

Assumptions: *PDCTC analysis June 2010.*

	Change in VOC	*Change in NOx*	*Change in CO*
	-0.007 tons/day	*-0.004* tons/day	*-0.400* tons/day
Total	**1.442 tons/day**	**1.158 tons/day**	**89.006 tons/day**

Scenario 5 - Seasonally Adjusted Model Output & Ozone Action Days & Enhanced Commuter Choice & Wassaic Station Parking Expansion & Beacon Station Parking Expansion

Methods: *The emissions reductions are subtracted from the total daily emissions.*

Assumptions: *PDCTC analysis June 2010.*

	Change in VOC	*Change in NOx*	*Change in CO*
	-0.008 tons/day	*-0.005* tons/day	*-0.475* tons/day
Total	**1.435 tons/day**	**1.154 tons/day**	**88.531 tons/day**

Background

Within TransCAD individual emissions were calculated on a link by link basis using the functional classification, VMT and directional speed. This table is a summation of those values. Average Speed is a weighted average based on length.

VMT and Speed model output	PDCTC, June 2010.
DVMT	Daily VMT by link was summed by Functional Class to produce a total daily VMT
Seasonal Adjustment Factors	The models output of VMT needs to be adjusted to reflect the ozone season. To do this the VMT is factored based on factor groups. Urban facilities are factored by 1.12 and rural facilities are factored by 1.16.
ADJ VMT	*Seasonal Adjustment Factor multiplied by VMT from model.*
Emission Factors	NYSDOT ESB MOBILE 6.2 Emission Factor Tables dated April, 2008

PIN 881053 Ozone Action Days

Description:	PDCTC participation in the on-going Ozone Action Days program established by NYMTC and NYSDOT in the Downstate region, also known as Clean Air New York. These programs alert the public when air quality levels are expected to be unhealthy and seek their cooperation to change travel and other behaviors to reduce emissions on those days and throughout the year. Messages are broadcast by various media sources, employer organizations, and roadside variable message signs.
Timeframe:	Participation began in 2005-2006.
Assumptions:	Based on previous ICG concurrence, PDCTC is estimating a daily 1.39% reduction in VMT.

PIN m502-03-01 Wassaic Parking Expansion

Description:	Add 200 spaces to the existing 342 space lot.
Timeframe:	Construction is scheduled to begin in 2018. Benefits will be taken beginning in the 2020 analysis year.
Parking Spaces Created:	Approximately 200 additional spaces
Assumptions:	Every new parking space generates .34 additional riders Of the new riders, 80% are auto diverted Average vehicle occupancy is 1.08 passengers per car Average auto trip length is 164 miles (weighted average including intermediate trips) Average speed is 30.0 mph Life of project is 25-30 years Project benefits realized in 2020.

ANALYSIS YEAR	Veh Type	FC	# vehicles	trip length	DVMT	Speed	VOC Emission Factor g/mi	NOx Emission Factor g/mi	CO Emission Factor g/mi	VOC tons/day	NOX tons/day	CO tons/day
2020	LDGV	14	200	164	32,800	30	0.24	0.15	11.18	0.009	0.005	0.404
2030	LDGV	14	200	164	32,800	30	0.18	0.12	11.05	0.007	0.004	0.400
2035	LDGV	14	200	164	32,800	30	0.18	0.11	11.05	0.007	0.004	0.400

Assumptions and Sources of Data

Travel Data - CMAQ application dated 10/5/2005, ESB completeness determination 10/14/05
Emission Factors - NYSDOT ESB emission factor tables dated April 2008
Note: Dutchess County is only non-attainment for ozone, therefore, only VOC and NOx benefits should be counted toward conformity credit

PIN m502-03-BC Beacon Parking Expansion

Description:	Add 300 spaces to the existing 250 space lot on the east side of the tracks, install additional signage and lighting for the expanded lot.
Timeframe:	Construction is scheduled to begin in 2012. Benefits will be taken beginning in the 2020 analysis year.
Parking Spaces Created:	Approximately 300 additional spaces
Assumptions:	Every new parking space generates .34 additional riders Of the new riders, 80% are auto diverted Average vehicle occupancy is 1.08 passengers per car Average auto trip length is 65 miles (weighted average including intermediate trips) Average speed is 30.0 mph Life of project is 25-30 years Project benefits realized in 2020.

ANALYSIS YEAR	Veh Type	FC	# vehicles	trip length	DVMT	Speed	VOC Emission Factor g/mi	NOx Emission Factor g/mi	CO Emission Factor g/mi	VOC tons/day	NOX tons/day	CO tons/day
2020	LDGV	14	300	130	39,000	30	0.24	0.15	11.18	0.010	0.006	0.481
2030	LDGV	14	300	130	39,000	30	0.18	0.12	11.05	0.008	0.005	0.475
2035	LDGV	14	300	130	39,000	30	0.18	0.11	11.05	0.008	0.005	0.475

Assumptions and Sources of Data

Travel Data - CMAQ application dated 10/5/2005, ESB completeness determination 10/14/05
Emission Factors - NYSDOT ESB emission factor tables dated April 2008
Note: Dutchess County is only non-attainment for ozone, therefore, only VOC and NOx benefits should be counted toward conformity credit

PIN 882382 Enhanced Commuter Choice (ECC)

Description:	Enhanced Commuter Choice is a program being used by NYMTC, OCTC, PDCTC and NYSDOT in the Downstate region to increase awareness and use of commuting alternatives such as carpooling, vanpooling and walking. The program also looks to increase "employer support" for programs such as alternative work schedules and the use of pre-tax income to pay for transportation expenses such as Transit Chek.
Timeframe:	Participation began in 2005-2006.
Assumptions:	In the Westchester-Rockland portion of NYMTC, approximately 5,000 SOV trips would be targeted for diversion to other modes from this program. Based on this previously accepted diversion rate, PDCTC calculated a comparable level of program scale for Dutchess County. Using a combined 2000 population of 1,210,212, the rate of diversions is 4.1 trips per 1,000 population. Applying that rate to the Dutchess County population of 280,150 yields an estimated target diversion of 1,150 trips. PDCTC's model project a one-way trip length of 16.5 miles, which corresponds with survey results from the NHTS and the NYMTC HIS.
Calculations:	Those assumptions were then entered into the EPA COMMUTER model which estimated a VMT reduction of 3,486 miles per day (see detail below). This VMT was then distributed to roadways in Dutchess County proportionally to the VMT percentage by functional class in the PDCTC travel demand model "build condition" networks. This VMT was then split among the four main commuting vehicle types (LDGV, LDGT1, LDGT2, and LDGT3) in proportion to the SIP default VMT mix in NYSDOT Region 8. The NYSDOT MOBILE6 vehicle-specific emission factor look-up tables (Part B) dated April 2008 were used to generate emission factors for these vehicle types for the corresponding average speeds on each roadway type. These factors were then multiplied by VMT to estimate the total emissions reductions achieved by the program.

COMMUTER MODEL RESULTS

SCENARIO INFORMATION

Description	Commuter Choice Poughkeepsie
Scenario Filename	Poughkeepsie CC June 2010 Test 3.vme
Emission Factor File	
Performing Agency	NYSDOT
Analyst	Patrick Lentlie
Metropolitan Area	
Area Size	3 - Small (under 750,000)
Analysis Scope	1 - Area-Wide (e.g., MSA, county)
Analysis Area/Site	Poughkeepsie
Total Employment	1,150

PROGRAMS EVALUATED

	Site Walk Access Improvements
	Transit Service Improvements
X	Financial Incentives
	Employer Support Programs
	Alternative Work Schedules

	User-Supplied Final Mode Shares

MODE SHARE IMPACTS

Mode	Baseline	Final	%Change
Drive Alone	78.2%	69.7%	-8.6%
Carpool	12.1%	10.8%	-1.3%
Vanpool	0.5%	2.4%	+2.0%
Transit	4.9%	13.3%	+8.4%
Bicycle	0.4%	0.4%	-0.0%
Pedestrian	3.0%	2.7%	-0.3%
Other	0.8%	0.7%	-0.1%
No Trip	-	0.0%	+0.0%
Total	100.0%	100.0%	-

Shifted from Peak to Off-Peak	0.0%

TRAVEL IMPACTS (relative to affected employment)

Quantity	Peak	Off-Peak	Total
Baseline VMT	20,139	12,661	32,800
Final VMT	17,999	11,315	29,314
VMT Reduction	2,140	1,346	3,486
% VMT Reduction	10.6%	10.6%	10.6%
Baseline Trips	1,182	743	1,925
Final Trips	1,056	664	1,720
Trip Reduction	126	79	205
% Trip Reduction	10.6%	10.6%	10.6%

Poughkeepsie Scenario Inputs:

Commuter saves $3.10 per day for mode change to vanpool or transit

*$3.10 savings corresponds to slightly less than a $65/month benefit of federally allowable pretax benefit of $230 per month (0.28 tax rate * $230 allowable = $65 monthly benefit)*

1,150 participant target level, based on PDCTC population-based corrected MHSTCC SOV diversion rate in Commuter Choice Business Plan

16.5 mile SOV and Vanpool trip length

All other inputs were default

Local emission factors for each conformtiy analysis year are applied to the trip reduction calculated by the COMMUTER Model (https://www.nysdot.gov/divisions/engineering/environmental-analysis/repository/mobile6/cmaqb/cmaqdutc.html)

Light duty vehicle mix of Commuter Choice participants - Region 8

LDGV	54.71%
LDGT1	8.23%
LDGT2	27.40%
LDGT3	9.66%
	100.00%

ECC Emissions Analysis with DVMT reductions estimated by EPA COMMUTER model V2.0 June 22, 2010 for PDCTC
VMT reduced is from COMMUTER model runs

2012

Functional Class		ECC DVMT	% of Total VMT	Reduction in VMT	Avg Speed mi/hour	VOC Emission Factor g/mi	NOx Emission Factor g/mi	CO Emission Factor g/mi	VOC tons/day	NOX tons/day	CO tons/day
01	Interstate	3,486	0%	0	0.0	0.00	0.00	0.00	0.00	0.00	0.00
02	Principal Arterial	3,486	14%	495	51.6	0.332	0.334	13.613	0.000	0.000	0.007
06	Minor Arterial	3,486	2%	60	51.5	0.332	0.334	13.605	0.000	0.000	0.001
07	Major Collector	3,486	8%	290	49.5	0.334	0.330	13.461	0.000	0.000	0.004
08	Minor Collector	3,486	2%	72	44.3	0.339	0.325	13.090	0.000	0.000	0.001
09	Local	3,486	5%	181	31.5	0.364	0.316	12.371	0.000	0.000	0.002
11	Interstate	3,486	16%	550	58.1	0.328	0.346	14.077	0.000	0.000	0.009
12	Principal Arterial (Expre	3,486	4%	148	53.0	0.330	0.336	13.714	0.000	0.000	0.002
14	Principal Arterial (Stree	3,486	17%	590	43.3	0.340	0.324	13.019	0.000	0.000	0.008
16	Minor Arterial	3,486	10%	335	39.8	0.344	0.319	12.770	0.000	0.000	0.005
17	Collector	3,486	14%	474	40.1	0.344	0.319	12.791	0.000	0.000	0.007
19	Local	3,486	8%	290	19.1	0.413	0.315	12.539	0.000	0.000	0.004
Total			100%	**3,486**					**0.0013**	**0.0013**	**0.0508**

2020

Functional Class		ECC DVMT	% of Total VMT	Reduction in VMT	Avg Speed mi/hour	VOC Emission Factor g/mi	NOx Emission Factor g/mi	CO Emission Factor g/mi	VOC tons/day	NOX tons/day	CO tons/day
01	Interstate	3,486	0%	0	0.0	0.00	0.00	0.00	0.00	0.00	0.00
02	Principal Arterial	3,486	10%	340	51.6	0.191	0.153	11.685	0.000	0.000	0.004
06	Minor Arterial	3,486	1%	40	51.5	0.191	0.153	11.679	0.000	0.000	0.001
07	Major Collector	3,486	7%	229	49.5	0.193	0.152	11.557	0.000	0.000	0.003
08	Minor Collector	3,486	2%	71	44.3	0.198	0.150	11.244	0.000	0.000	0.001
09	Local	3,486	5%	174	31.5	0.213	0.142	10.641	0.000	0.000	0.002
11	Interstate	3,486	18%	633	57.1	0.186	0.158	12.019	0.000	0.000	0.008
12	Principal Arterial (Expre	3,486	3%	117	53.1	0.190	0.154	11.777	0.000	0.000	0.002
14	Principal Arterial (Stree	3,486	20%	693	43.2	0.198	0.148	11.177	0.000	0.000	0.009
16	Minor Arterial	3,486	10%	351	39.7	0.199	0.145	10.966	0.000	0.000	0.004
17	Collector	3,486	15%	517	40.1	0.198	0.145	10.991	0.000	0.000	0.006
19	Local	3,486	9%	322	19.2	0.249	0.147	10.747	0.000	0.000	0.004
Total			100%	**3,486**					**0.0008**	**0.0006**	**0.0435**

2030

Functional Class		ECC DVMT	% of Total VMT	Reduction in VMT	Avg Speed mi/hour	VOC Emission Factor g/mi	NOx Emission Factor g/mi	CO Emission Factor g/mi	VOC tons/day	NOX tons/day	CO tons/day
01	Interstate	3,486	0%	0	0.0	0.000	0.000	0.000	0.00	0.00	0.00
02	Principal Arterial	3,486	10%	351	51.6	0.149	0.123	11.426	0.000	0.000	0.004
06	Minor Arterial	3,486	1%	40	51.5	0.149	0.123	11.420	0.000	0.000	0.001
07	Major Collector	3,486	7%	236	49.5	0.151	0.122	11.303	0.000	0.000	0.003
08	Minor Collector	3,486	2%	72	44.3	0.154	0.121	10.998	0.000	0.000	0.001
09	Local	3,486	5%	182	31.5	0.167	0.115	10.410	0.000	0.000	0.002
11	Interstate	3,486	18%	642	56.7	0.144	0.126	11.727	0.000	0.000	0.008
12	Principal Arterial (Expre	3,486	3%	115	53.0	0.147	0.124	11.509	0.000	0.000	0.001
14	Principal Arterial (Stree	3,486	20%	684	43.1	0.156	0.120	10.927	0.000	0.000	0.008
16	Minor Arterial	3,486	10%	358	39.5	0.159	0.116	10.715	0.000	0.000	0.004
17	Collector	3,486	14%	490	40.1	0.159	0.116	10.750	0.000	0.000	0.006
19	Local	3,486	9%	315	19.2	0.201	0.112	10.512	0.000	0.000	0.004
Total			100%	**3,486**					**0.0006**	**0.0005**	**0.0425**

2035

Functional Class		ECC DVMT	% of Total VMT	Reduction in VMT	Avg Speed mi/hour	VOC Emission Factor g/mi	NOx Emission Factor g/mi	CO Emission Factor g/mi	VOC tons/day	NOX tons/day	CO tons/day
01	Interstate	3,486	0%	0	0.0	0.000	0.000	0.000	0.00	0.00	0.00
02	Principal Arterial	3,486	15%	525	51.5	0.148	0.123	11.421	0.000	0.000	0.007
06	Minor Arterial	3,486	1%	50	51.4	0.148	0.123	11.415	0.000	0.000	0.001
07	Major Collector	3,486	6%	221	49.4	0.150	0.121	11.298	0.000	0.000	0.003
08	Minor Collector	3,486	2%	69	44.3	0.152	0.115	11.000	0.000	0.000	0.001
09	Local	3,486	5%	175	31.5	0.167	0.112	10.419	0.000	0.000	0.002
11	Interstate	3,486	14%	471	58.2	0.144	0.125	11.816	0.000	0.000	0.006
12	Principal Arterial (Expre	3,486	6%	202	52.5	0.147	0.123	11.480	0.000	0.000	0.003
14	Principal Arterial (Stree	3,486	20%	690	42.9	0.154	0.115	10.919	0.000	0.000	0.008
16	Minor Arterial	3,486	10%	333	39.6	0.159	0.114	10.727	0.000	0.000	0.004
17	Collector	3,486	13%	453	40.1	0.159	0.115	10.757	0.000	0.000	0.005
19	Local	3,486	9%	299	19.2	0.200	0.111	10.514	0.000	0.000	0.003
Total			100%	**3,486**					**0.0006**	**0.0005**	**0.0426**

Resolutions

Joel P. Ettinger
Executive Director

PROGRAM, FINANCE AND ADMINISTRATION COMMITTEE (PFAC)

RESOLUTION #330 – ADOPTION OF A TRANSPORTATION CONFORMITY DETERMINATION FOR THE 2011-2015 TRANSPORTATION IMPROVEMENT PROGRAM AND THE 2010-2035 REGIONAL TRANSPORTATION PLAN, AS AMENDED

WHEREAS, the New York Metropolitan Transportation Council (NYMTC) is a regional council of governments which is the metropolitan planning organization for New York City, Long Island and the lower Hudson Valley; and

WHEREAS, NYMTC's planning area is included in whole or in part in several non-attainment areas for various pollutants as determined under the Clean Air Act Amendments of 1990; and

WHEREAS, as required for non-attainment areas by the Clean Air Act Amendments of 1990 and in consultation with relevant local, state, and federal transportation and environmental agencies, NYMTC must complete a regional emissions analysis for mobile sources of various pollutants to determine conformity with the New York State Implementation Plan for Air Quality each time a Transportation Improvement Programs (TIP) or Regional Transportation Plan (Plan) within the non-attainment area is modified or adopted, thus affecting the types of transportation improvement projects specified in the Clean Air Act Amendments of 1990; and

WHEREAS, the NYMTC has developed a 2011-2015 TIP per its operating procedures and in conjunction with the 2011-2014 New York State Transportation Improvement Program (STIP); and

WHEREAS, NYMTC has coordinated the regional emissions analysis for this Transportation Conformity Determination with PDCTC and OCTC as required for both the Poughkeepsie Ozone Non–Attainment Area and the New York-New Jersey-Connecticut Fine Particulate Matter (PM 2.5) Non-Attainment Area; and

WHEREAS, the Poughkeepsie-Dutchess County Transportation Council (PDCTC) and the Orange County Transportation Council (OCTC) have updated their Transportation Improvement Programs; and

WHEREAS, the regional emissions analysis demonstrates that, cumulatively, the transportation improvements identified in the 2011-2015 TIP and the fiscally-constrained element of the 2010-2035 Plan, as amended, meet all applicable mobile source regional emissions budgets for all pollutants in all required analysis years as specified in the New York State Implementation Plan for Air Quality; and

WHEREAS, this Transportation Conformity Determination has been publicly reviewed for 30 days (June 8, 2011-July 8, 2011) and all comments received have been addressed and are incorporated in this documentation; and

WHEREAS, this documentation and supporting analysis demonstrate NYMTC's compliance with relevant federal planning and transportation conformity requirements

NOW, THEREFORE BE IT RESOLVED, that PFAC determines that the regional emissions analysis for the 2011-2015 TIP and the 2010-2035 Plan, as amended, demonstrates conformity with the mobile source emissions budgets set forth in the New York State Implementation Plan for Air Quality and adopts this Transportation Conformity Determination.

This resolution shall take effect on the twenty eighth day of July, two thousand and eleven.

ADOPTED: July 28, 2011

Motion made by: Ms. Karin Sommer, representing the New York City Transportation Coordinating Committee
Seconded by: Ms. Naomi Klein, representing the Mid-Hudson South Transportation Coordinating Committee

"I certify that the above is a true copy of Resolution #330, Adoption of a Transportation Conformity Determination for the 2011-2015 Transportation Improvement Program and the 2010-2035 Regional Transportation Plan, As Amended, and was adopted unanimously by the Program, Finance and Administration Committee members on the above mentioned date."

Robert Zerrillo, PFAC Chair

Joel P. Ettinger
Executive Director

NEW YORK METROPOLITAN TRANSPORTATION COUNCIL (NYMTC)

RESOLUTION #2011-7 – ADOPT THE 2011-2015 TRANSPORTATION IMPROVEMENT PROGRAM

WHEREAS, the New York Metropolitan Transportation Council (NYMTC) is a regional council of governments designated by the Governor of New York State as the Metropolitan Planning Organization for New York City, Long Island and the Lower Hudson Valley; and

WHEREAS, NYMTC has approved procedures by which the Transportation Improvement Program is cooperatively developed and adopted; and

WHEREAS, NYMTC's draft Transportation Improvement Program for Federal Fiscal Years (FFYs) 2011-2015 has been developed in accordance with its procedures and includes the project listings and supporting documentation recommended by each of NYMTC's three transportation coordinating committees; and

WHEREAS, the draft 2011-2015 Transportation Improvement Program is consistent with the 2010-2035 Regional Transportation Plan, as amended; and

WHEREAS, the draft 2011-2015 Transportation Improvement Program is fiscally-constrained in accordance with federal regulations; and

WHEREAS, the draft 2011-2015 Transportation Improvement Program has been publicly reviewed for 30 days (June 8, 2011-July 8, 2011) and all comments received have been addressed and are incorporated in the documentation, and

WHEREAS, Resolution 327 of NYMTC's Program, Finance and Administration Committee recommended the adoption of the draft 2011-15 Transportation Improvement Program by the Council, and

WHEREAS, NYMTC's Program, Finance and Administration Committee determined transportation conformity of the draft 2011-2015 Transportation Improvement Program and the 2010-2035 Regional Transportation Plan, as amended, in Resolution 330.

NOW, THEREFORE BE IT RESOLVED THAT the Council adopts the draft 2011-2015 Transportation Improvement Program, as revised (changes noted in the associated Change Log), and authorizes the Secretary of the Council to forward the approved program to the New York State Department of Transportation, requesting that it take all necessary action to include the program in the Statewide Transportation Improvement Program and obtain federal approval, and

BE IT FURTHER RESOLVED THAT the Council affirms that project funding programmed in the FFY 2011 element of the 2011-15 Transportation Improvement Program that is not obligated and/or can not be implemented in part or in whole by September 30, 2011 may be included in future FFYs of the 2011-2015 Transportation Improvement Program without further NYMTC action providing that fiscal constraint can be maintained.

This resolution shall take affect on the fourth day of August, two thousand and eleven.

ADOPTED: August 4, 2011

Motion made by: William M. Wheeler, representing the Metropolitan Transportation Authority
Seconded by: Linda Bailey, representing the New York City Department of Transportation

"I certify that the above is a true copy of Resolution # 2011-7, to Adopt the 2011-2015 Transportation Improvement Program, and was adopted unanimously by the New York Metropolitan Transportation Council members on the above mentioned date."

Robert Zerrillo, Council Secretary

Resolution 2011-2

ADOPT A NEW TRANSPORTATION CONFORMITY DETERMINATION TO FULFILL THE REQUIREMENTS OF THE CLEAN AIR ACT FOR FINE PARTICULATE MATTER (PM2.5) AND OZONE

WHEREAS, the Orange County Transportation Council (OCTC) has been designated by the Governor of the State of New York as the Metropolitan Planning Organization (MPO) responsible, together with the State, for the comprehensive, continuing, and cooperative transportation planning process for Orange County; and

WHEREAS, OCTC is required to submit a Transportation/Air Quality Conformity Determination to the US Federal Highway Administration (FHWA) and to the US Environmental Protection Agency (EPA) in accordance with the final conformity rule promulgated by EPA (40 CFR 51 and 93) when another MPO in the same non-attainment area makes significant revisions to transportation projects in its Transportation Improvement Program (TIP) and/or Long-Range Transportation Plan (LRTP), and

WHEREAS, there are no significant changes to transportation projects that might impact air quality in the OCTC TIP or LRTP, and

WHEREAS, Title 42 USC, Section 7506 (3) (A) states that conformity of transportation plans and programs will be demonstrated if:

1. the plans and programs are consistent with recent estimates of mobile source emissions,

2. the plans and programs provide for the expeditious implementation of certain transportation control measures,

3. the plans and programs contribute to annual emissions reductions consistent with the Clean Air Act of 1990, as amended, and

WHEREAS, Orange County has been designated by the EPA to be a part of the NY-NJ-CT PM2.5 Non-Attainment Area with New York City, Long Island, Westchester and Rockland Counties and part of the Poughkeepsie Ozone Nonattainment Area (PONA) with Dutchess and Putnam Counties, and

WHEREAS, changes to transportation projects in the NYMTC TIP necessitate the need to reevaluate transportation/air quality conformity for the NY portion of the NY-NJ-CT PM2.5 Non-Attainment Area and PONA, and

WHEREAS, OCTC has coordinated transportation/air quality conformity and the regional emissions analyses with both NYMTC and the Poughkeepsie-Dutchess County Transportation Council (PDCTC), and

WHEREAS, OCTC, NYMTC and PDCTC have assessed the impact of all non-exempt transportation projects in their TIPs and LRTPs, and

WHEREAS, the results of the regional emissions analyses in the PM2.5 and ozone conformity determinations demonstrate compliance with the emissions budgets for PM2.5 and ozone and overall transportation conformity regulations, and

WHEREAS, OCTC opened a 30-day public comment period on June 13, 2011 by posting both draft PM2.5 and ozone conformity determinations for public review on the OCTC website, and

WHEREAS, OCTC held a public meeting concerning the OCTC Conformity Determinations and OCTC TIP amendments on June 21, 2011, and

WHEREAS, no public comments were received by OCTC at the public meeting and during the public comment period ending on July 13, 2011, and

WHEREAS, it is the opinion of the Orange County Transportation Council that the transportation projects in the OCTC FFY 2011-2015 TIP and Long Range Transportation Plan continue to conform with the requirements of Title 42 USC, Section 7506 (3) (A) as interpreted by EPA (40 CFR 51 and 93) and that the transportation projects in the Plan and TIP will not cause new air quality violations, worsen existing conditions, or delay timely attainment of National Ambient Air Quality Standards,

NOW, THEREFORE, BE IT RESOLVED that based on the analyses performed by the Orange County Transportation Council, New York Metropolitan Transportation Council and Poughkeepsie-Dutchess County Transportation Council, we find that the transportation projects in the OCTC FFY 2011-2015 TIP and OCTC Long Range Transportation Plan conform to transportation/air quality requirements of the U.S. Environmental Protection Agency (40 CFR 51 and 93), related U.S. Department of Transportation guidelines (23 CFR 450) and with Title 42 USC, Section 7506 (3) (A).

CERTIFICATE: The undersigned duly qualified Secretary of the Orange County Transportation Council certifies that the foregoing is a true and correct copy of a resolution adopted by the voting members on July 19, 2011.

Date: Aug. 4, 2011

By: _____
Bill Gorton, Secretary
Orange County Transportation Council

Adoption of the Summer 2011 Air Quality Conformity Determination Statement for the Poughkeepsie Ozone Non-attainment Area

WHEREAS, the Poughkeepsie-Dutchess County Transportation Council has been designated by the Governor of the State of New York as the Metropolitan Planning Organization responsible, together with the State, for the comprehensive, continuing, and cooperative transportation planning process for the Poughkeepsie Metropolitan Area; and,

WHEREAS, the federal surface transportation programs that are the responsibility of the Poughkeepsie-Dutchess County Transportation Council are authorized by the Safe, Accountable, Flexible, Efficient Transportation Equity Act (SAFETEA) (Pub. L. 109-59, August 10, 2005) through September 30, 2011; and,

WHEREAS, the Federal Highway Administration and Federal Transit Administration issued a Final Rule (Federal Register Vol. 72, No. 30) on February 14, 2007 that implemented the provisions of 23 U.S.C. 134 and 135, and 49 U.S.C. 5303 and 5304 pursuant to SAFETEA; and,

WHEREAS, 23 CFR Parts 450 (Planning Assistance and Standards) and 500 (Management and Monitoring Systems), and 49 CFR Part 613 (Metropolitan and Statewide Planning) set forth the national policy on the metropolitan transportation planning process, including the development of a Metropolitan Transportation Plan (MTP) and Transportation Improvement Program (TIP) that comply with the transportation conformity rule set forth in 40 CFR Part 93 (Determining Conformity of Federal Actions to State or Federal Implementation Plans); and,

WHEREAS, the Poughkeepsie-Dutchess County Transportation Council adopted its most recent air quality conformity determination statement for the MTP (*New Connections*) and 2011-2015 TIP on August 20, 2010; and,

WHEREAS, the Poughkeepsie-Dutchess County Transportation Council shares responsibility for the Poughkeepsie (Mid-Hudson) Ozone Non-attainment Area with the New York Metropolitan Transportation Council and Orange County Transportation Council; and,

WHEREAS, the New York Metropolitan Transportation Council has proposed a major amendment to the 2011-2015 TIP, which requires a new air quality conformity determination statement for the Poughkeepsie (Mid-Hudson) Ozone Non-attainment Area; and,

WHEREAS, a new air quality conformity determination statement, which includes the combined emissions results for the New York Metropolitan Transportation Council, Orange County Transportation Council, and Poughkeepsie-Dutchess County Transportation Council's MTPs and 2011-2015 TIPs was subsequently completed on June 8, 2011; and,

WHEREAS, the air quality conformity determination statement demonstrates that the MTP (*New Connections*) and the 2011-2015 TIP still comply with federal and state air quality standards; and,

WHEREAS, the Poughkeepsie-Dutchess County Transportation Council held a 30-day public comment period for the air quality conformity determination statement, ending on July 8, 2011; now therefore be it

RESOLVED, that the Poughkeepsie-Dutchess County Transportation Council adopts the air quality conformity determination statement for the Poughkeepsie Ozone Non-attainment Area.

CERTIFICATE, the undersigned, duly qualified and acting Secretary of the Poughkeepsie-Dutchess County Transportation Council, certifies that the foregoing is a true and correct copy of a resolution adopted by a vote on July 13, 2011.

7/13/11
Date

By _____
William J. Gorton, P.E., Acting Secretary
Poughkeepsie-Dutchess County
Transportation Council