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

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1. INTRODUCTION

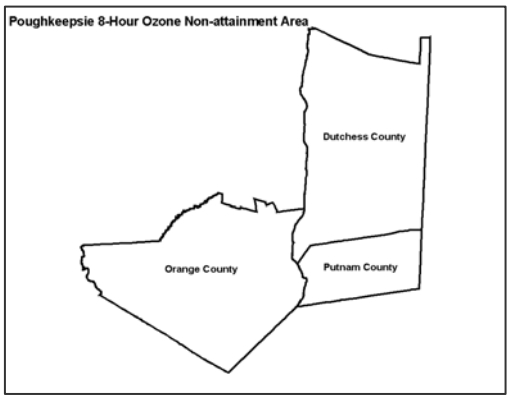
The New York Metropolitan Transportation Council (NYMTC), the Orange County Transportation Council (OCTC) and the Poughkeepsie-Dutchess County Transportation Council (PDCTC), have completed this Draft Air Quality Conformity Determination as the result of amendments to the NYMTC 2010 - 2035 Regional Transportation Plan and the NYMTC 2008-2012 Transportation Improvement Program (TIP). This Draft Conformity Determination covers the Metropolitan Transportation Plans and 2008-2012 TIPs for all three Metropolitan Planning Organizations (MPOs).

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 (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 2005-2008 monitoring data is 0.080 ppm as monitored at the Valley Central Monitor in Orange County. The Mt. Ninham monitor in Putnam County has a 2005-2008 design value of 0.079 ppm. On March 12, 2008, EPA once again strengthened the 8-hour ozone NAAQS to a level of 0.075 ppm. 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.

On December 22, 2006, the U.S. Court of Appeals for the District of Columbia Circuit both upheld and rejected certain aspects of EPA's framework for implementing the State Implementation Plan (SIP) requirements under Clean Air Act (CAA) Title I Part D for 8-hour ozone non-attainment areas. A key result of the court decision involved the continued implementation of emission control strategies in areas that were previously designated non-attainment for the 1-hour ozone standard under CAA Part D Subpart II and are now designated non-attainment for the 8-hour ozone standard under CAA Part D Subpart I.

Generally speaking, SIP requirements under Subpart I are less stringent than those under Subpart II. The "anti-backsliding" provision, CAA Section 172(e), provides that in the event "[EPA] relaxes a [primary National Ambient Air Quality Standard] after November 15, 1990, [EPA] shall...provide for controls applicable to areas designated non-attainment before such relaxation."

In the subject court case, the DC Circuit Court specifically concluded that transportation conformity requirements for areas designated non-attainment for the 1-hour ozone standard under Subpart II constitute "controls" under Section 172(e). The DC Circuit Court decision states that "EPA is required by statute to keep in place measures intended to constrain ozone levels – even ones that apply to outdated standards – in order to prevent backsliding."

Therefore, the transportation conformity requirements that previously applied to 1-hour ozone non-attainment areas may remain "applicable requirements." Therefore, this conformity determination and associated analyses address the transportation conformity requirements that apply to the New York Metropolitan 1-hour severe ozone non-attainment area, the Poughkeepsie 1-hour moderate ozone non-attainment area, and the Poughkeepsie 8-hour moderate ozone non-attainment area.

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 Metropolitan Transportation Plans and Transportation Improvement Programs are expected to be operational.

This statement details the conformity determination process that the NYMTC, OCTC and the PDCTC undertook for their respective Metropolitan Transportation Plans and Transportation Improvement Programs, by addressing each of the regulatory criteria stipulated in the federal transportation conformity regulation, 40 CFR Part 93, as amended January 24, 2008, 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 Metropolitan Transportation Plans 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 The base for population is the Census 2000, Summary File 1. The PDCTC Model uses those 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 from the last 15 years; these forecasts were then adjusted by the Dutchess Country Department of Planning and Development in March 2005, 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 well over six percent reside in group quarters (primarily three colleges and three State correctional facilities).

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.

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 March 2005.

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. The revised housing forecasts were completed in March 2005.

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 March 2005.

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 LOOP bus system, the City of Poughkeepsie bus system, and Metro-North Railroad; and among the three, the Dutchess County 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 2008. These changes include marginal fare increases for Metro-North commuter rail services, coupled with a parking expansion at the Poughkeepsie train station. And according to Census 2000 Journey-to-Work data, mass transit accounts for just over four percent of all commuter trips taken by Dutchess County workers. Given this low rate, the PDCTC does not model transit service.

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 January 17, 2009 Dutchess County implemented a number of service changes to the LOOP bus system. These changes resulted in the discontinuation of nine weekday routes, one Saturday only route, and one seasonal Saturday/Sunday route; in addition, Saturday service was discontinued on three routes and service reduced on two routes. Together, these routes cost over $1-million to operate (33% of Dutchess County funding for LOOP), but only carried approximately 59,000 (8.5%) of all passengers served by the system – a total of almost 700,000 in 2008. Additionally, these routes accounted for 27% of all our revenue hours (fixed route only), since the majority served the County's more dispersed rural areas.

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 the PDCTC 2008-2012 TIPs and Metropolitan Transportation Plans 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 near constant levels of growth over the next twenty-five 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. For example, between 1990 and 2000, the total population for Dutchess County grew by eight percent, whereas the total number of workers working in the county decreased by five percent. This disparity is partly due to the economic downturn of the early-nineties, but is also reflective of the region's growing attraction as a residential hub. Though the MPOs expect this trend to continue, it will likely not occur to the extent experienced so far – especially when looking at future employment. Economic growth seems likely, given the expansion plans of some major employers in the region. It should also be noted that the amount of developable land is slowly evaporating, which will 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.

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 (NY CSCIC). 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. The 2002 base year is also required to be analyzed for areas without emissions budgets to demonstrate that vehicle emissions in future analysis years are less than vehicle emissions for the year 2002. In addition, the transportation conformity regulations state that the full ozone season before a required attainment date (2009 ozone season for July 1, 2010 attainment date) be incorporated into a regional emissions analysis. Previous regional emissions analyses for PONA have included the 2009 analysis year. However, since this conformity determination is anticipated to be approved after the end of the 2009 ozone season, the ICG concurred on April 2, 2009 that 2009 is no longer required to be analyzed.

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 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 **I**n 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 Metropolitan Transportation Plans 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 May 26, 2009. 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 spring 2007 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. NYSDOT developed the vehicle distribution data in 2004 using the most recently available traffic count data.

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 2008-2012 TIPs for the NYMTC, OCTC and PDCTC adhere to the goals and objectives of the Metropolitan Transportation Plans 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*. 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 Metropolitan Transportation Plans 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 8, 2003.

7.1.1. Dutchess County PDCTC staff developed the list of Non-exempt and Regionally Significant projects and forwarded it to NYSDOT-EAB on August 24, 2007 for dissemination to the ICG. On September 13, 2007 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 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 September 12, 2007 for dissemination to the ICG. On September 13, 2007 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 changes to the project list since that time.

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 Fall of 2009. (Table 5).

Table 5. Non-exempt and Regionally Significant Projects

Dutchess County

PIN	Project	Agency
801012	Route 9 – Reconstruction, Route 301 to Interstate 84	NYSDOT
801030	Route 9 – Construction, CR 93 (Myers Corners Rd.) to Mesier Ave.	NYSDOT
806207	I84 @ Route 9D – Reconstruction	NYSDOT
875739	Route 9 Service road: Construction - Hollowbrook Dr. to Imperial Blvd.	DCDPW
881053	Ozone Action Days	NYSDOT
882382	Enhanced Regional Commuter Choice	NYSDOT
882524	Beacon Train Station – Parking improvements	Metro-North
882517	Wassaic Train Station – Parking improvements	Metro-North
8TRD42*	City of Poughkeepsie Transit Center – Academy St. (no federal funds)	C/Poughkeepsie

Orange County

PIN	Project	Agency
814522	Schutt Rd. – Construction, Dunning Rd. to North Galleria Dr.	T/Walkill
848723	Reconstruct I-84 Interchange with Route 208	NYSDOT
848744	Route 208/Route 17K Intersection Improvements	NYSDOT
848746	RT 208 – Construct continuous left turning lane, I-84 to Route 17K	NYSDOT
875916	Park-n-Ride Lot – Mobility, Village of Kiryas Joel	V/Kiryas Joel
881054	Ozone Action Days	NYSDOT
882038	Metropool Ridesharing Program to Van & Carpool Commuters	NYSDOT
882383	Enhanced Commuter Choice	NYSDOT
8ATS06	Advanced Transportation Management Systems (ATMS): Route 17	NYSDOT
8ATS07-09	Advanced Transportation Management Systems (ATMS)	NYSDOT
H0308	I-84 & I-87 Direct Interchange	NYSTA
H1021	Woodbury Toll Barrier High Speed EZ Pass	NYSTA
I0096	Installation of Traffic Monitoring Devices & Dynamic Message Signs	NYSTA
M502-03	MTA-Metro-North Station Parking Improvements	Metro-North
LRP	NYS Thruway (I-87) – Construction of interchange at Route 17A	NYSTA
LRP	Route 17A – Widening, Route 17 to Route 94	NYSDOT
LRP	Route 17(Future I86) - Widening, Exit 131(NYS Thruway) to Exit 120 (NYS Rte 211)	NYSDOT
LRP	Route 17M – Widening, Route 17 (Exit 123) to I-84	NYSDOT
LRP	Route 17M – Widening, Route 17 to Route 208	NYSDOT
LRP	Route 17M – Widening, South St. to CR13 (Kings Highway)	NYSDOT
LRP	Route 9W – Widening, I-84 to Lattintown Rd (Newburgh (T))	NYSDOT
LRP	CR 67 (East Main St.) – Widening, Route 17 to Dunning Rd	OCDPW
LRP	Broadway St. – Widening, West St. to Newburgh Town/City Line	C/Newburgh
LRP	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	METRO-NORTH
M502-03	Parking improvements at locations to be determined	METRO-NORTH

7.2. Other Projects. Completing the air quality analysis on the Metropolitan Transportation Plans 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 Metropolitan Transportation Plans 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 March 9, 2010 and ended on April 7, 2010,
OCTC began on March 8, 2010 and ended on April 6, 2010,
PDCTC began on March 8, 2010 and ended on April 6, 2010.

NYMTC sought public commentary on the regional emissions analysis and conformity determination for its TIP amendments by notification to all known interested parties and media outlets during the public comment period, posted the draft document on its web site www.nymtc.org, and held two public meetings on March 23, 2010 one of which was webcasted. NYMTC received several comments on the conformity narrative relating NYMTC's modeling processes. None of the comments were specifically related to Putnam County. All of the comments received were addressed by NYMTC and the ICG concurred with NYMTC's response to comments on April 21, 2010. These comments and responses can be found in Appendix 5 of NYMTC's final conformity determination statement dated April

15, 2010. No comments were received by PDCTC or OCTC on this conformity determination.

11. RESULTS OF EMISSIONS ANALYSIS The OCTC and PDCTC estimated the emissions impacts of their TIPs and applicable Metropolitan Transportation Plans 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 in June 11th, 2008. 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 11th, 2008. 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, July & August).

11.3. Putnam County NYMTC began its regional emissions analysis on December 02, 2009. 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 2008-2012 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 the entire former Poughkeepsie one hour ozone non-attainment area boundary and partially covers the former one hour New York Metropolitan Area non-attainment area boundary.

An on road motor vehicle emissions budget was not established in the State Implementation Plan (SIP) for the 1-hour Poughkeepsie non-attainment area. However, the Lower Orange County Metropolitan Area (LOCMA) which consists of the Towns of Blooming Grove, Chester, Highlands, Monroe, Tuxedo, Warwick, and Woodbury in Orange County was part of the former New York Metropolitan Area (NYMA) severe non-attainment area under the one hour ozone standard. Since the NYMA SIP for 1-hour ozone includes a motor vehicle

emission budget for LOCMA portion of the 1-hour NYMA, the emission reduction test prescribed by 40 CFR Part 93.109(e)(iv)(A) and (B) apply to the PONA.

In accordance with 40 CFR Part 93.109(e)(iv), until a new MVEB for the 8-hour PONA is found to be adequate by USEPA, a demonstration that 1) the entire area's VOC and NOx "Action" scenario emissions are less than 2002 baseline emissions, and 2) the area's "Action" scenario emissions are less than the "No-Action" scenario in each future conformity analysis year scenario and 3) the VOC and NOx "action " scenario emissions in LOCMA are less than those allowed in future analysis years for the LOCMA portion of the former NYMA 1-hour severe ozone non-attainment area, is required for the PONA Conformity Determination Statement.

Table 6 shows the regional emissions analyses for entire Poughkeepsie 8-hour ozone non-attainment area (Orange, Putnam, and Dutchess counties). Table 7 shows the results for the "LOCMA budget" emissions test for the Poughkeepsie 8-hour ozone non-attainment area.

In previous transportation conformity determinations for the NYMA, LOCMA emissions were combined into the area-wide regional emissions analysis for the 1-hour severe ozone non-attainment area. Per the previously discussed December 22, 2006 DC Circuit Court decision, a demonstration that on-road emissions in the entire former 1-hour severe ozone non-attainment area are less than the motor vehicle emission budget established for the former 1-hour severe non-attainment area may also be required. Table 8 shows the results for the emission test for the former New York Metro Area severe 1-hour ozone non-attainment area for informational purposes only.

On June 2, 2008, the USEPA posted the proposed Motor Vehicle Emissions Budget for the 8-hour PONA for public review. Upon completion of the 30 day public comment period and resolution of any public comments that are submitted, USEPA will deem the proposed MVEB adequate for use in future PONA transportation conformity determinations. When this process is complete, the various interim emissions reductions tests and tests to demonstrate conformity to the previous 1-hour ozone MVEB's (described above) will no longer be required. The entire PONA will be required to pass a single budget test under the current 8-hour ozone standard. Furthermore, if USEPA issues the MVEB adequacy determination prior to FHWA/FTA approval of this conformity determination, a demonstration that the PONA area passes the new budget test for the 8-hour PONA will be required. To plan for this contingency, Table 9 demonstrates that the three-county 8-hour PONA passes the budget test for the proposed MVEB that is currently undergoing USEPA and public review.

Table 6. Poughkeepsie 8-hour ozone non-attainment area interim emissions reduction tests (Build < No-Build and Build < 2002) (tons/day)

Volatile Organic Compounds (VOC)									
MPO	Base Year 2002	Future Analysis Years							
		2012		2020		2030		2035	
		Build	No-Build	Build	No-Build	Build	No-Build	Build	No-Build
PDCTC (Dutchess County)	7.06	2.66	2.76	1.63	1.70	1.35	1.41	1.49	1.57
OCTC (Orange County)	13.47	5.70	5.83	3.89	4.07	3.40	3.67	3.66	3.95
NYMTC (Putnam County)	6.75	2.83	2.91	2.04	2.12	2.08	2.17	2.25	2.55
TOTALS:	***27.28***	***11.19***	***11.50***	***7.56***	***7.89***	***6.82***	***7.26***	***7.41***	***8.07***
Conclusion		*Pass*		*Pass*		*Pass*		*Pass*	

Oxides of Nitrogen (Nox)									
MPO	Base Year 2002	Future Analysis Years							
		2012		2020		2030		2035	
		Build	No-Build	Build	No-Build	Build	No-Build	Build	No-Build
PDCTC (Dutchess County)	10.57	4.01	4.17	1.73	1.85	1.18	1.21	1.20	1.25
OCTC (Orange County)	23.99	10.24	10.38	4.92	5.08	3.13	3.25	3.06	3.15
NYMTC (Putnam County)	13.94	6.66	6.87	3.32	3.40	1.99	2.06	1.84	2.10
TOTALS:	***48.50***	***20.92***	***21.42***	***9.98***	***10.33***	***6.30***	***6.52***	***6.10***	***6.50***
Conclusion		*Pass*		*Pass*		*Pass*		*Pass*	

Table 7. Emission Budget Test for LOCMA portion of Poughkeepsie 8-hour ozone non-attainment area (tons/day)

OCTC (LOCMA)					
Ozone Precursor	2007 Budget	Future Analysis Years			
		2012	2020	2030	2035
		Build	Build	Build	Build
VOC	3.00	1.62	1.11	0.96	1.03
NOx	5.60	3.29	1.55	0.92	0.88
Conclusion		*Pass*	*Pass*	*Pass*	*Pass*

Table 8. Emission Budget Test for the former NYMA severe 1-hour ozone non-attainment area (tons/day)

OCTC (LOCMA) + NYMTC (9 Counties)					
Ozone Precursor	2007 Budget	Future Analysis Years			
		2012	2020	2030	2035
		Build	Build	Build	Build
VOC	179.30	88.44	54.45	50.71	51.92
NOx	233.40	112.52	52.82	36.30	33.03
Conclusion		*Pass*	*Pass*	*Pass*	*Pass*

Table 9. Proposed Emission Budget Test for PONA 8-hour ozone non-attainment area (tons/day)

PONA					
Ozone Precursor	2009 Budget	Future Analysis Years			
		2012	2020	2030	2035
		Build	Build	Build	Build
VOC	17.63	11.19	7.56	6.82	7.41
NOx	29.77	20.92	9.98	6.30	6.10
Conclusion		*Pass*	*Pass*	*Pass*	*Pass*

An examination of Table 6, which summarize the emission test results for the entire Poughkeepsie moderate 8-hour Ozone Non-attainment Area, provide a comparison of total Base Year 2002 emissions with “Action” and “No-Action” scenario totals. The tables show that “Action” 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 Base Year 2002 and “No Action” scenario levels in all future conformity analysis years. An examination of Table 7, which summarizes the budget test for the LOCMA portion of the Poughkeepsie moderate 8-hour ozone non-attainment area, shows how all of the action scenarios are less than the LOCMA portion of the budget for the New York Metro Area. An examination of Table 8, which summarizes the budget test for the entire former NYMA severe 1-hour ozone non-attainment area, shows how all of the action scenarios are less than the NYMA 1-hour budget. An examination of Table 9, which summarizes the budget test for the new 8-hour PONA MVEB, shows that all the action scenarios are less that the PONA 8-hour budget currently under review by the public and USEPA. Therefore, we have determined that all of the TIPs and Metropolitan Transportation Plans in the Poughkeepsie Ozone Non-attainment Area meet the applicable emissions reduction tests and budget tests and conform to the both the 1-hour ozone standard and the 8-hour ozone standard.

The satisfactory regional emissions analysis results for the build less than base year 2002, the build less than no-build emissions reduction test, and budget tests presented below quantitatively demonstrate that implementation of the NYMTC, OCTC, and PDCTC 2008-2012 TIPs and Metropolitan Transportation Plans 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 Metropolitan Transportation Plans has been demonstrated for the New York Metro Severe 1-hour Ozone Non-attainment Area, Poughkeepsie Moderate 1-hour Ozone Non-attainment Area and the Poughkeepsie Moderate 8-hour Ozone Non-attainment Area. The quantitative analysis of forecasted regional emissions demonstrates that the 2008-2012 TIP and Metropolitan Transportation Plan for each MPO will result in net emission reductions in all actions years, as compared to the 2002 base year and in the build versus non-build scenarios. In addition, future year emissions in the action years will remain below the budgeted emissions level prescribed by the SIP. Given that there are no Transportation Control Measures applicable, this satisfies the conformity review requirement. The NYMTC, OCTC, and PDCTC therefore determine that the 2008-2012 TIPs and Metropolitan Transportation Plans 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 rule.

12. EVIDENCE OF MPO RESOLUTIONS The NYMTC, OCTC, and PDCTC Executive Committees approved this Air Quality Conformity Determination Statement on April 15, 2010, May 12, 2010, and May 4, 2010, respectively. Copies of the resolutions have been forwarded to the NYSDOT-ESB for ICG and USDOT concurrence and are included in appendix 6 of the NYMTC document.

Table 10. Specific MPO conformity actions to be included for finalization of this conformity analysis

MPO Product	MPO Approval Date	FHWA/FTA Approval Date
NYMTC 2035 RTP	September 17, 2009	October 1, 2009
NYMTC 2035 RTP and 2008-2012 TIP Amendments	April 15, 2010	TBD
OCTC MTP	November 27, 2007	December 19, 2007
OCTC MTP and 2008-2012 TIP Addendum for NYMTC Amendments	May 12, 2010	TBD
PDCTC MTP	November 29, 2007	December 19, 2007
PDCTC MTP and 2008-2012 TIP Addendum for NYMTC Amendments	May 4, 2010	TBD

Conformity Determination Statement:
The results of the regional emissions analysis demonstrate that the Metropolitan Transportation Plans and 2008-2012 Transportation Improvement Programs of the New York Metropolitan Transportation Council, the Orange County Transportation Council, and the Poughkeepsie-Dutchess County 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

NYMTC Best Practice Model
2002Base Year Mileage by Functional Classification
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
2002 Base Year Mileage by Functional Classification

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
01 Interstate	(Rural)	160
02 Principal Arterial	(Rural)	16
06 Minor Arterial	(Rural)	135
07 Major Collector	(Rural)	149
08 Minor Collector	(Rural)	172
09 Local	(Rural)	353
Total		**1,603**

PDCTC Travel Demand Model
2002 Base Year Mileage by Functional Classification

Functional Class		Area	Centerline Miles	Lane Miles
01	Interstate	Rural	0	0
02	Principal Arterial	Rural	139	289
06	Minor Arterial	Rural	27	54
07	Major Collector	Rural	84	168
08	Minor Collector	Rural	107	215
09	Local	Rural	223	430
11	Interstate	Urban	38	79
12	Principal Arterial (Expressway)	Urban	28	56
14	Principal Arterial (Street)	Urban	85	219
16	Minor Arterial	Urban	68	141
17	Collector	Urban	160	323
19	Local	Urban	324	646
TOTAL			**1,285**	**2,621**

Appendix B

NYMTC Best Practice Model - Link Capacities

Hourly Capacity per 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

		Area					
Functional Class		**1 Rural**	**2 Commercial**	**3 Village**	**4 Suburban**	**5 City of Poughkeepsie**	**6 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

2012D Summer Emissions Report

COUNTY	FACILITY	DAILY VMT	VHT	SPEED	VOC	NOx
		Vehicle miles traveled	Vehicle hours traveled	Miles per hour	Tons per day	Tons per day
Putnam	1) Freeways	2,512,162	44,228	56.8	1.07	4.37
	2) Arterials	1,680,342	79,637	21.1	0.85	1.30
	3) Locals	1,997,177	53,400	37.4	0.92	0.99
	County Total	**6,189,681**	**177,266**	**34.9**	**2.83**	**6.66**

2020D Summer Emissions Report

COUNTY	FACILITY	DAILY VMT	VHT	SPEED	VOC	NOx
		Vehicle miles traveled	Vehicle hours traveled	Miles per hour	Tons per day	Tons per day
Putnam	1) Freeways	2,962,451	53,863	55.0	0.79	2.12
	2) Arterials	1,899,882	94,521	20.1	0.61	0.67
	3) Locals	2,324,548	62,826	37.0	0.65	0.53
	County Total	**7,186,881**	**211,210**	**34.0**	**2.04**	**3.32**

2030D Summer Emissions Report

COUNTY	FACILITY	DAILY VMT	VHT	SPEED	VOC	NOx
		Vehicle miles traveled	Vehicle hours traveled	Miles per hour	Tons per day	Tons per day
Putnam	1) Freeways	3,419,363	68,115	50.2	0.72	0.97
	2) Arterials	2,431,247	139,727	17.4	0.69	0.54
	3) Locals	2,920,426	83,920	34.8	0.68	0.49
	County Total	**8,771,036**	**291,762**	**30.1**	**2.08**	**1.99**

2035D Summer Emissions Report

COUNTY	FACILITY	DAILY VMT	VHT	SPEED	VOC	NOx
		Vehicle miles traveled	Vehicle hours traveled	Miles per hour	Tons per day	Tons per day
Putnam	1) Freeways	3,562,294	72,404	49.2	0.74	0.82
	2) Arterials	2,654,228	167,989	15.8	0.78	0.53
	3) Locals	3,159,076	93,741	33.7	0.73	0.49
	County Total	**9,375,598**	**334,135**	**28.1**	**2.25**	**1.84**

2012N Summer Emissions Report

COUNTY	FACILITY	DAILY VMT	VHT	SPEED	VOC	NOx
		Vehicle miles traveled	Vehicle hours traveled	Miles per hour	Tons per day	Tons per day
Putnam	1) Freeways	2,594,471	45,758	56.7	1.10	4.52
	2) Arterials	1,724,329	81,722	21.1	0.87	1.33
	3) Locals	2,057,650	55,165	37.3	0.94	1.02
	County Total	**6,376,450**	**182,644**	**34.9**	**2.91**	**6.87**

2020N Summer Emissions Report

COUNTY	FACILITY	DAILY VMT	VHT	SPEED	VOC	NOx
		Vehicle miles traveled	Vehicle hours traveled	Miles per hour	Tons per day	Tons per day
Putnam	1) Freeways	3,028,458	56,291	53.8	0.81	2.16
	2) Arterials	1,995,509	102,334	19.5	0.65	0.71
	3) Locals	2,381,507	64,891	36.7	0.67	0.54
	County Total	**7,405,474**	**223,516**	**33.1**	**2.12**	**3.40**

2030N Summer Emissions Report

COUNTY	FACILITY	DAILY VMT	VHT	SPEED	VOC	NOx
		Vehicle miles traveled	Vehicle hours traveled	Miles per hour	Tons per day	Tons per day
Putnam	1) Freeways	3,511,291	73,458	47.8	0.74	1.00
	2) Arterials	2,529,735	153,317	16.5	0.73	0.56
	3) Locals	2,998,086	87,408	34.3	0.70	0.50
	County Total	**9,039,112**	**314,183**	**28.8**	**2.17**	**2.06**

2035N Summer Emissions Report

COUNTY	FACILITY	DAILY VMT	VHT	SPEED	VOC	NOx
		Vehicle miles traveled	Vehicle hours traveled	Miles per hour	Tons per day	Tons per day
Putnam	1) Freeways	3,773,125	84,599	44.6	0.82	0.91
	2) Arterials	2,919,640	207,067	14.1	0.91	0.62
	3) Locals	3,483,296	107,509	32.4	0.82	0.56
	County Total	**10,176,061**	**399,175**	**25.5**	**2.55**	**2.10**

OCTC Emission Tables

OCTC Analysis Summary: Year 2012 Build Scenario, August 10, 2009

Assignment Postprocessor Run	**LOCMA 2007 Budget Model 2012 Build**			
	DVMT	4,077,000	3,928,257	
Emission rates from sheet	**VOC**	2,721,554	1,468,086	grams
Disaggregated link results into sheet	**Nox**	5,080,235	2,981,650	grams
VISUM network and assignment in file				
	VOC	3.0	1.62	tons
	Nox	5.6	3.29	tons

VMT NYSDOT_Class

OZON_A	1	2	6	7	8	9	11	12	14	16	17	19	Total Daily by Area
LOCMA	756,442	198,985	269,561	54,876	69,258	41,966	333,777	633,210	58,229	711,486	586,126	214,341	3,928,257
UOC	501,908	57,585	357,520	677,571	340,136	253,241	2,200,504	600,882	676,910	2,152,753	1,559,391	614,212	9,992,613
	1,258,350	256,570	627,081	732,447	409,395	295,206	2,534,282	1,234,092	735,139	2,864,239	2,145,517	828,553	13,920,870

VHT_op NYSDOT_Class

OZON_A	1	2	6	7	8	9	11	12	14	16	17	19	Total Daily by Area
LOCMA	12,258	5,208	6,467	1,667	1,560	1,286	5,382	10,717	1,476	16,842	14,353	6,929	84,146
UOC	8,693	1,082	7,232	14,285	6,975	7,636	37,492	10,156	16,363	52,014	39,365	19,285	220,579
	20,951	6,289	13,698	15,953	8,536	8,923	42,873	20,873	17,840	68,857	53,718	26,214	304,724

VOC NYSDOT_Class

OZON_A	1	2	6	7	8	9	11	12	14	16	17	19	Total Daily by Area
LOCMA	287,833	76,701	102,341	22,078	25,236	16,640	120,199	228,186	21,919	264,193	217,456	85,304	1,468,086
UOC	191,299	20,769	130,374	244,907	122,718	100,141	793,346	216,606	253,715	805,768	584,805	242,082	3,706,529
	479,132	97,469	232,715	266,985	147,955	116,781	913,545	444,792	275,634	1,069,961	802,261	327,386	5,174,616

NOx NYSDOT_Class

OZON_A	1	2	6	7	8	9	11	12	14	16	17	19	Total Daily by Area
LOCMA	1,034,616	118,236	149,161	27,665	33,474	19,740	296,916	546,492	30,678	360,791	267,533	96,348	2,981,650
UOC	640,444	32,382	197,751	329,181	167,190	118,331	1,872,756	520,075	341,303	1,094,754	721,077	274,160	6,309,404
	1,675,060	150,619	346,912	356,847	200,663	138,070	2,169,672	1,066,567	371,981	1,455,545	988,610	370,508	9,291,054

Ave. Spe NYSDOT_Class

OZON_A	1	2	6	7	8	9	11	12	14	16	17	19	Total Ave. Speed
LOCMA	62	38	42	33	44	33	62	59	39	42	41	31	47
UOC	58	53	49	47	49	33	59	59	41	41	40	32	45
	60	41	46	46	48	33	59	59	41	42	40	32	46

LOCMA=Lower Orange County Metropolitan Area **VMT** = Vehicle Miles Traveled **VOC**=Volatile Organic Compounds
UOC=Upper Orange County **VHT**=Vehicle Hours Traveled **Nox**=Nitrogen Oxides

OCTC Analysis Summary: Year 2012 No-Build Scenario, August 10, 2009

Assignment Postprocessor Run

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

VMT NYSDOT_Class

OZON_A	1	2	6	7	8	9	11	12	14	16	17	19	Total Daily by Area
LOCMA	835,204	202,133	254,427	49,134	56,185	40,507	321,514	662,060	58,577	718,166	639,062	225,746	4,062,716
UOC	509,412	59,204	369,139	694,639	351,507	261,658	2,129,218	571,729	689,986	2,207,569	1,632,615	626,920	10,103,595
	1,344,616	261,337	623,566	743,773	407,692	302,166	2,450,731	1,233,789	748,563	2,925,735	2,271,676	852,667	14,166,311

VHT_op NYSDOT_Class

OZON_A	1	2	6	7	8	9	11	12	14	16	17	19	Total Daily by Area
LOCMA	13,696	5,224	5,812	1,001	1,227	1,235	5,197	11,870	1,457	17,441	16,528	7,253	87,942
UOC	8,818	1,112	7,471	14,653	7,213	7,886	36,179	9,801	19,149	54,471	41,934	19,819	228,506
	22,513	6,336	13,283	15,654	8,441	9,122	41,376	21,671	20,607	71,912	58,462	27,072	316,448

VOC NYSDOT_Class

OZON_A	1	2	6	7	8	9	11	12	14	16	17	19	Total Daily by Area
LOCMA	318,197	77,630	95,089	17,677	20,357	16,041	115,832	240,712	22,000	268,485	240,745	89,626	1,522,390
UOC	194,150	21,353	134,616	251,091	126,829	103,448	767,509	206,436	266,650	830,599	615,779	247,634	3,766,092
	512,347	98,983	229,705	268,768	147,185	119,489	883,341	447,147	288,650	1,099,083	856,523	337,260	5,288,482

NOx NYSDOT_Class

OZON_A	1	2	6	7	8	9	11	12	14	16	17	19	Total Daily by Area
LOCMA	1,131,649	119,512	140,660	24,552	27,038	19,058	286,047	548,275	30,945	365,764	293,968	101,302	3,088,770
UOC	650,430	33,293	204,150	337,408	172,756	122,247	1,814,869	485,923	347,064	1,122,156	755,603	280,346	6,326,246
	1,782,079	152,805	344,810	361,961	199,794	141,305	2,100,916	1,034,198	378,009	1,487,920	1,049,571	381,648	9,415,017

Ave. Spe NYSDOT_Class

OZON_A	1	2	6	7	8	9	11	12	14	16	17	19	Total Ave. Speed
LOCMA	61	39	44	49	46	33	62	56	40	41	39	31	46
UOC	58	53	49	47	49	33	59	58	36	41	39	32	44
	60	41	47	48	48	33	59	57	36	41	39	31	45

LOCMA=Lower Orange County Metropolitan Area **VMT** = Vehicle Miles Traveled **VOC**=Volatile Organic Compounds
UOC=Upper Orange County **VHT**=Vehicle Hours Traveled **Nox**=Nitrogen Oxides

OCTC Analysis Summary: Year 2020 Build Scenario, August 10, 2009

Assignment Postprocessor Run	**LOCMA 2007 Budget Model 2020 Build**			
	DVMT	4,077,000	4,386,920	
Emission rates from sheet	**VOC**	2,721,554	1,007,407	grams
Disaggregated link results into sheet	**Nox**	5,080,235	1,405,851	grams
VISUM network and assignment in file				
	VOC	3.0	1.11	tons
	Nox	5.6	1.55	tons

VMT NYSDOT_Class

OZON_A	1	2	6	7	8	9	11	12	14	16	17	19	Total Daily by Area
LOCMA	837,349	223,567	321,520	63,642	85,799	48,742	370,050	704,543	61,497	789,201	647,585	233,422	4,386,920
UOC	587,335	68,462	428,800	792,896	421,123	264,696	2,443,037	639,343	767,356	2,379,829	1,774,295	662,764	11,229,935
	1,424,684	292,029	750,320	856,538	506,923	313,438	2,813,087	1,343,886	828,853	3,169,030	2,421,880	896,186	15,616,855

VHT_op NYSDOT_Class

OZON_A	1	2	6	7	8	9	11	12	14	16	17	19	Total Daily by Area
LOCMA	14,098	5,815	8,719	2,246	2,018	1,499	6,033	11,995	1,537	19,021	16,356	7,584	96,920
UOC	10,395	1,287	8,731	16,889	8,632	7,949	41,967	10,837	19,470	59,580	45,433	20,908	252,078
	24,493	7,102	17,451	19,134	10,650	9,448	47,999	22,832	21,007	78,601	61,789	28,492	348,998

VOC NYSDOT_Class

OZON_A	1	2	6	7	8	9	11	12	14	16	17	19	Total Daily by Area
LOCMA	201,801	52,103	77,821	15,615	18,932	11,739	81,411	155,121	13,821	175,628	146,417	56,997	1,007,407
UOC	141,268	14,757	93,938	171,552	90,308	63,386	537,695	140,688	172,636	536,447	402,740	160,089	2,525,504
	343,069	66,860	171,758	187,166	109,240	75,126	619,106	295,809	186,457	712,075	549,157	217,086	3,532,910

NOx NYSDOT_Class

OZON_A	1	2	6	7	8	9	11	12	14	16	17	19	Total Daily by Area
LOCMA	462,706	57,458	78,979	14,288	18,420	10,265	137,690	254,964	14,251	177,085	132,863	46,882	1,405,851
UOC	305,980	17,018	103,901	171,107	92,464	55,341	875,140	233,547	170,487	534,611	367,773	132,045	3,059,415
	768,686	74,476	182,880	185,395	110,884	65,606	1,012,831	488,511	184,738	711,696	500,636	178,927	4,465,266

Ave. Spe NYSDOT_Class

OZON_A	1	2	6	7	8	9	11	12	14	16	17	19	Total Ave. Speed
LOCMA	59	38	37	28	43	33	61	59	40	41	40	31	45
UOC	56	53	49	47	49	33	58	59	39	40	39	32	45
	58	41	43	45	48	33	59	59	39	40	39	31	45

LOCMA=Lower Orange County Metropolitan Area **VMT** = Vehicle Miles Traveled **VOC**=Volatile Organic Compounds
UOC=Upper Orange County **VHT**=Vehicle Hours Traveled **Nox**=Nitrogen Oxides

OCTC Analysis Summary: Year 2020 No-Build Scenario, August 10, 2009

Assignment Postprocessor Run

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

VMT NYSDOT_Class

OZON_A	1	2	6	7	8	9	11	12	14	16	17	19	Total Daily by Area
LOCMA	949,002	231,456	315,387	58,079	77,023	47,406	366,412	736,842	64,012	804,338	714,792	246,319	4,611,068
UOC	617,730	70,339	444,838	817,918	435,129	274,092	2,461,028	621,934	779,961	2,443,000	1,865,886	681,687	11,513,543
	1,566,731	301,795	760,225	875,998	512,152	321,498	2,827,440	1,358,776	843,974	3,247,338	2,580,678	928,006	16,124,611

VHT_op NYSDOT_Class

OZON_A	1	2	6	7	8	9	11	12	14	16	17	19	Total Daily by Area
LOCMA	16,792	6,092	8,503	1,195	1,781	1,455	6,059	13,682	1,622	20,133	20,330	7,975	105,619
UOC	10,962	1,323	9,075	17,440	8,926	8,226	42,215	10,767	29,690	62,919	49,357	21,693	272,593
	27,754	7,415	17,578	18,635	10,708	9,680	48,274	24,449	31,312	83,052	69,687	29,668	378,212

VOC NYSDOT_Class

OZON_A	1	2	6	7	8	9	11	12	14	16	17	19	Total Daily by Area
LOCMA	231,339	53,987	76,026	12,539	16,958	11,412	80,933	164,173	14,408	181,100	166,516	60,007	1,069,398
UOC	148,595	15,166	97,488	176,988	93,322	65,611	541,639	137,111	199,282	554,223	428,275	165,248	2,622,948
	379,934	69,152	173,514	189,526	110,280	77,023	622,572	301,284	213,690	735,323	594,791	225,255	3,692,345

NOx NYSDOT_Class

OZON_A	1	2	6	7	8	9	11	12	14	16	17	19	Total Daily by Area
LOCMA	508,775	59,202	77,688	12,826	16,460	9,987	136,823	257,991	14,855	181,471	148,280	49,411	1,473,767
UOC	320,266	17,480	107,712	176,506	95,526	57,296	881,570	223,126	180,047	548,779	387,158	136,099	3,131,564
	829,042	76,682	185,400	189,332	111,985	67,283	1,018,392	481,117	194,901	730,251	535,438	185,509	4,605,331

Ave. Spe NYSDOT_Class

OZON_A	1	2	6	7	8	9	11	12	14	16	17	19	Total Ave. Speed
LOCMA	57	38	37	49	43	33	60	54	39	40	35	31	44
UOC	56	53	49	47	49	33	58	58	26	39	38	31	42
	56	41	43	47	48	33	59	56	27	39	37	31	43

LOCMA=Lower Orange County Metropolitan Area **VMT** = Vehicle Miles Traveled **VOC**=Volatile Organic Compounds
UOC=Upper Orange County **VHT**=Vehicle Hours Traveled **Nox**=Nitrogen Oxides

OCTC Analysis Summary: Year 2030 Build Scenario, August 10, 2009

Assignment Postprocessor Run	**LOCMA 2007 Budget Model 2030 Build**			
	DVMT	4,077,000	4,979,039	
Emission rates from sheet	**VOC**	2,721,554	871,798	grams
Disaggregated link results into sheet	**Nox**	5,080,235	833,529	grams
VISUM network and assignment in file				
	VOC	3.0	0.96	tons
	Nox	5.6	0.92	tons

VMT NYSDOT_Class

OZON_A	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
LOCMA	934,314	255,644	362,108	73,898	108,754	56,355	428,149	787,297	74,871	893,383	743,085	261,180	4,979,039
UOC	717,138	81,208	506,805	935,831	502,334	288,092	2,838,218	700,073	872,588	2,636,051	2,048,088	751,662	12,878,089
	1,651,452	336,852	868,913	1,009,729	611,088	344,448	3,266,367	1,487,371	947,459	3,529,434	2,791,173	1,012,843	17,857,128

VHT_op NYSDOT_Class

OZON_A	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
LOCMA	17,123	7,172	13,716	2,882	2,873	1,746	7,181	13,470	2,105	22,311	19,734	8,551	118,864
UOC	13,324	1,556	10,445	20,372	10,321	8,651	49,704	11,922	24,101	71,365	55,517	23,856	301,135
	30,448	8,728	24,162	23,254	13,194	10,398	56,885	25,392	26,206	93,676	75,251	32,407	419,999

VOC NYSDOT_Class

OZON_A	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
LOCMA	162,284	47,084	72,843	14,684	19,099	10,562	68,787	125,926	13,674	155,104	131,889	49,863	871,798
UOC	122,993	13,047	83,172	155,697	82,189	53,467	456,429	111,933	152,910	470,893	367,784	141,643	2,212,158
	285,277	60,131	156,016	170,382	101,288	64,029	525,216	237,859	166,583	625,997	499,673	191,506	3,083,956

NOx NYSDOT_Class

OZON_A	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
LOCMA	206,897	39,740	54,706	10,920	15,415	7,848	78,415	141,432	11,241	128,814	102,821	35,281	833,529
UOC	149,996	12,077	74,263	131,553	71,348	39,853	501,824	126,809	125,138	383,397	286,538	100,602	2,003,398
	356,893	51,817	128,969	142,473	86,764	47,701	580,238	268,241	136,379	512,211	389,359	135,883	2,836,927

Ave. Spe NYSDOT_Class

OZON_A	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Ave. Speed**
LOCMA	55	36	26	26	38	32	60	58	36	40	38	31	42
UOC	54	52	49	46	49	33	57	59	36	37	37	32	43
	54	39	36	43	46	33	57	59	36	38	37	31	43

LOCMA=Lower Orange County Metropolitan Area **VMT** = Vehicle Miles Traveled **VOC**=Volatile Organic Compounds
UOC=Upper Orange County **VHT**=Vehicle Hours Traveled **Nox**=Nitrogen Oxides

OCTC Analysis Summary: Year 2030 No-Build Scenario, August 10, 2009

Assignment Postprocessor Run

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

VMT NYSDOT_Class

OZON_A	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
LOCMA	1,039,263	261,246	364,413	68,724	104,863	55,722	392,977	840,189	76,958	922,360	828,721	277,668	5,233,104
UOC	748,174	83,237	525,037	964,402	519,452	299,741	2,818,198	681,629	887,587	2,727,585	2,143,805	772,510	13,171,357
	1,787,437	344,482	889,449	1,033,126	624,315	355,463	3,211,175	1,521,819	964,545	3,649,945	2,972,526	1,050,178	18,404,461

VHT_op NYSDOT_Class

OZON_A	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
LOCMA	20,710	7,053	13,944	1,431	2,842	1,722	6,727	16,730	2,278	23,792	28,817	9,110	135,157
UOC	13,966	1,607	10,848	21,145	10,688	8,997	49,125	12,066	54,824	75,879	62,962	24,825	346,933
	34,676	8,661	24,792	22,576	13,530	10,719	55,852	28,795	57,103	99,670	91,779	33,935	482,090

VOC NYSDOT_Class

OZON_A	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
LOCMA	185,501	47,308	73,156	11,402	18,731	10,475	63,727	139,773	14,151	162,921	165,863	53,141	946,150
UOC	128,791	13,456	86,595	161,449	85,355	55,833	454,434	110,436	252,434	496,853	389,609	146,976	2,382,220
	314,293	60,764	159,751	172,851	104,086	66,307	518,161	250,209	266,584	659,774	555,472	200,117	3,328,370

NOx NYSDOT_Class

OZON_A	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
LOCMA	228,630	40,498	55,225	9,943	14,954	7,791	73,177	144,830	11,553	134,255	117,283	37,616	875,754
UOC	156,947	12,436	77,203	136,175	74,067	41,615	501,363	121,633	142,964	400,086	301,676	104,164	2,070,330
	385,577	52,934	132,428	146,118	89,021	49,406	574,540	266,463	154,517	534,341	418,960	141,780	2,946,084

Ave. Spe NYSDOT_Class

OZON_A	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Ave. Speed**
LOCMA	50	37	26	48	37	32	58	50	34	39	29	30	39
UOC	54	52	48	46	49	33	57	56	16	36	34	31	38
	52	40	36	46	46	33	57	53	17	37	32	31	38

LOCMA=Lower Orange County Metropolitan Area **VMT** = Vehicle Miles Traveled **VOC**=Volatile Organic Compounds
UOC=Upper Orange County **VHT**=Vehicle Hours Traveled **Nox**=Nitrogen Oxides

OCTC Analysis Summary: Year 2035 Build Scenario, August 10, 2009

Assignment Postprocessor Run

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

1 short ton= 907184.7 grams

		LOCMA 2007 Budget Model	2035 Build	
	DVMT	4,077,000	5,291,371	
	VOC	2,721,554	934,096	grams
	Nox	5,080,235	802,256	grams
	VOC	3.0	1.03	tons
	Nox	5.6	0.88	tons

VMT

OZON_A	NYSDOT_Class 1	2	6	7	8	9	11	12	14	16	17	19	Total Daily by Area
LOCMA	972,746	274,916	383,613	79,602	120,097	62,977	461,643	840,782	83,042	949,496	789,469	272,987	5,291,371
UOC	775,604	87,602	551,431	1,012,974	550,431	298,632	3,036,691	732,944	926,712	2,788,510	2,195,596	799,728	13,756,854
	1,748,350	362,518	935,044	1,092,576	670,527	361,609	3,498,334	1,573,726	1,009,754	3,738,006	2,985,064	1,072,716	19,048,225

VHT_op

OZON_A	NYSDOT_Class 1	2	6	7	8	9	11	12	14	16	17	19	Total Daily by Area
LOCMA	18,565	7,655	19,334	3,081	3,277	1,982	7,986	14,433	2,526	24,313	21,232	8,981	133,365
UOC	14,812	1,763	11,460	22,765	11,336	8,959	54,043	12,510	25,685	80,056	62,573	25,661	331,622
	33,377	9,418	30,793	25,846	14,613	10,941	62,029	26,943	28,211	104,368	83,805	34,642	464,987

VOC

OZON_A	NYSDOT_Class 1	2	6	7	8	9	11	12	14	16	17	19	Total Daily by Area
LOCMA	170,483	49,992	79,138	15,692	21,542	11,923	74,882	135,044	15,359	167,058	140,716	52,267	934,096
UOC	134,523	14,299	90,748	170,852	90,382	55,572	491,871	117,711	164,710	509,603	397,925	151,700	2,389,896
	305,005	64,291	169,887	186,545	111,924	67,494	566,754	252,755	180,069	676,661	538,642	203,966	3,323,992

NOx

OZON_A	NYSDOT_Class 1	2	6	7	8	9	11	12	14	16	17	19	Total Daily by Area
LOCMA	183,456	39,757	54,931	11,192	16,331	8,485	73,440	133,378	11,690	129,758	104,222	35,615	802,256
UOC	139,068	12,271	75,536	136,746	75,551	39,802	474,313	117,067	124,780	385,468	292,173	103,517	1,976,294
	322,525	52,029	130,467	147,938	91,881	48,287	547,753	250,445	136,470	515,227	396,395	139,132	2,778,549

Ave. Spe

OZON_A	NYSDOT_Class 1	2	6	7	8	9	11	12	14	16	17	19	Total Ave. Speed
LOCMA	52	36	20	26	37	32	58	58	33	39	37	30	40
UOC	52	50	48	44	49	33	56	59	36	35	35	31	41
	52	38	30	42	46	33	56	58	36	36	36	31	41

LOCMA=Lower Orange County Metropolitan Area
UOC=Upper Orange County
VMT = Vehicle Miles Traveled
VHT=Vehicle Hours Traveled
VOC=Volatile Organic Compounds
Nox=Nitrogen Oxides

OCTC Analysis Summary: Year 2035 No-Build Scenario, August 10, 2009

Assignment Postprocessor Run

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

VMT

OZON_A	NYSDOT_Class 1	2	6	7	8	9	11	12	14	16	17	19	Total Daily by Area
LOCMA	1,058,059	283,774	399,696	74,730	120,649	62,889	395,579	874,305	86,436	953,514	847,754	284,392	5,441,776
UOC	806,533	89,702	570,970	1,046,597	569,095	310,107	3,020,340	705,560	938,244	2,814,460	2,290,273	815,079	13,976,959
	1,864,591	373,476	970,666	1,121,326	689,744	372,996	3,415,919	1,579,865	1,024,680	3,767,974	3,138,027	1,099,471	19,418,735

VHT_op

OZON_A	NYSDOT_Class 1	2	6	7	8	9	11	12	14	16	17	19	Total Daily by Area
LOCMA	21,804	8,443	20,459	1,572	3,435	1,975	6,845	17,662	3,015	25,111	33,098	9,319	152,738
UOC	15,387	1,824	11,906	23,707	11,740	9,315	53,418	12,645	82,637	83,158	72,172	26,743	404,652
	37,190	10,267	32,366	25,278	15,176	11,289	60,263	30,307	85,653	108,269	105,270	36,062	557,391

VOC

OZON_A	NYSDOT_Class 1	2	6	7	8	9	11	12	14	16	17	19	Total Daily by Area
LOCMA	188,189	52,622	81,318	12,424	21,663	11,893	64,429	146,266	16,325	169,742	170,743	54,423	990,037
UOC	139,872	14,790	94,034	176,998	93,505	57,749	488,806	114,493	319,394	522,084	418,848	156,349	2,596,920
	328,061	67,412	175,352	189,423	115,167	69,642	553,235	260,759	335,720	691,826	589,590	210,772	3,586,958

NOx

OZON_A	NYSDOT_Class 1	2	6	7	8	9	11	12	14	16	17	19	Total Daily by Area
LOCMA	198,574	41,583	57,042	10,239	16,375	8,471	64,282	134,074	12,310	130,846	114,309	37,073	825,178
UOC	144,578	12,633	78,222	141,431	78,116	41,330	472,142	111,028	146,762	391,172	305,611	106,024	2,029,048
	343,152	54,216	135,264	151,670	94,490	49,801	536,424	245,102	159,072	522,018	419,920	143,097	2,854,226

Ave. Spe

OZON_A	NYSDOT_Class 1	2	6	7	8	9	11	12	14	16	17	19	Total Ave. Speed
LOCMA	49	34	20	48	35	32	58	50	29	38	26	31	36
UOC	52	49	48	44	48	33	57	56	11	34	32	30	35
	50	36	30	44	45	33	57	52	12	35	30	30	35

LOCMA=Lower Orange County Metropolitan Area
UOC=Upper Orange County
VMT = Vehicle Miles Traveled
VHT=Vehicle Hours Traveled
VOC=Volatile Organic Compounds
Nox=Nitrogen Oxides

PDCTC Emission Tables

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	573,627	665,407	9.9%	51.6	142,769	166,862	7,363,811
06	Minor Arterial	23	46	68,361	79,299	1.2%	51.5	16,855	20,117	882,946
07	Major Collector	86	172	381,996	443,116	6.6%	49.5	94,047	99,698	4,970,786
08	Minor Collector	106	212	114,449	132,760	2.0%	44.3	29,229	27,978	1,432,258
09	Local	211	420	283,012	327,861	4.9%	31.5	80,574	66,839	3,374,892
11	Interstate	38	79	1,084,496	1,214,635	18.1%	56.9	268,179	438,482	13,642,062
12	Principal Arterial (Expressway)	28	56	203,246	227,636	3.4%	53.0	50,893	75,127	2,456,267
14	Principal Arterial (Street)	89	228	1,211,500	1,357,426	20.2%	43.1	298,304	298,001	14,604,026
16	Minor Arterial	70	144	599,151	671,553	10.0%	39.7	149,883	144,234	7,115,744
17	Collector	169	344	887,532	994,469	14.8%	40.1	221,381	198,872	10,649,811
19	Local	328	638	547,134	614,453	9.1%	19.0	187,245	143,014	6,778,511
TOTAL		**1,285**	**2,620**	**5,954,503**	**6,728,615**	**100%**		**1,539,360**	**1,679,225**	**73,271,115**
								1.697	**1.851**	**80.766 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	573,432	665,181	9.9%	51.6	142,722	166,804	7,361,259
06	Minor Arterial	23	46	68,361	79,299	1.2%	51.5	16,855	20,117	882,945
07	Major Collector	86	172	382,044	443,171	6.6%	49.5	94,059	99,710	4,971,395
08	Minor Collector	106	212	114,446	132,757	2.0%	44.3	29,228	27,978	1,432,222
09	Local	211	420	283,014	327,863	4.9%	31.5	80,575	66,839	3,374,910
11	Interstate	38	85	1,074,624	1,203,579	17.9%	57.0	265,747	434,706	13,520,719
12	Principal Arterial (Expressway)	28	56	202,229	226,496	3.4%	53.0	50,642	74,739	2,443,787
14	Principal Arterial (Street)	89	229	1,211,630	1,357,572	20.2%	43.1	298,313	298,028	14,605,802
16	Minor Arterial	70	144	607,225	680,596	10.1%	39.7	151,955	146,132	7,209,581
17	Collector	170	346	889,516	996,691	14.8%	40.0	221,895	199,316	10,673,002
19	Local	330	642	547,067	614,361	9.1%	19.2	187,246	143,009	6,777,944
TOTAL		**1,288**	**2,633**	**5,953,586**	**6,727,565**	**100%**		**1,539,237**	**1,677,378**	**73,253,566**
								1.697	**1.849**	**80.747 tons/day**

Scenario 2 - Seasonally Adjusted Model Outupt & Clean Air NY

Clean Air NY

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

Methods: *Calculated Daily VMT.* ***6,727,565***

Calculated VMT reduction. ***93,513***

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

Functional Class		TransCAD ADJ DVMT	% of Total VMT	Reduction in VMT	New Adjusted VMT	Avg Speed mi/hour	VOC Rate g/mi	VOC Sum g/day	NOx Rate g/mi	NOx Sum g/day	CO Rate 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	665,181	10%	9,246	655,935	51.6	0.22	144,306	0.24	157,424	10.98	7,202,164
06	Minor Arterial	79,299	1%	1,102	78,196	51.5	0.22	17,203	0.24	18,767	10.98	858,596
07	Major Collector	443,171	7%	6,160	437,011	49.5	0.22	96,142	0.22	96,142	11.07	4,837,716
08	Minor Collector	132,757	2%	1,845	130,912	44.3	0.22	28,801	0.21	27,491	10.78	1,411,228
09	Local	327,863	5%	4,557	323,305	31.5	0.24	77,593	0.20	64,661	10.20	3,297,714
11	Interstate	1,203,579	18%	16,730	1,186,849	57.0	0.22	261,107	0.34	403,529	10.95	12,996,002
12	Principal Arterial (Expressway)	226,496	3%	3,148	223,348	53.0	0.22	49,136	0.32	71,471	10.65	2,378,652
14	Principal Arterial (Street)	1,357,572	20%	18,870	1,338,702	43.1	0.22	294,514	0.21	281,127	10.51	14,069,754
16	Minor Arterial	680,596	10%	9,460	671,136	39.7	0.22	147,650	0.21	140,939	10.51	7,053,636
17	Collector	996,691	15%	13,854	982,837	40.0	0.22	216,224	0.20	196,567	10.61	10,427,904
19	Local	614,361	9%	8,540	605,821	19.2	0.28	169,630	0.22	133,281	10.67	6,464,111
Total		**6,727,565**	**100%**	**93,513**	**6,634,052**			**1,502,307**		**1,591,400**		**70,997,475**
								1.656 tons/day		**1.754 tons/day**		**78.260 tons/day**

Scenario 3 - Seasonally Adjusted Model Outupt & Clean Air NY & Enhanced Commuter Choice

Assumptions: *Reduction of 18,975 VMT over entire day.* ***18,975***

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

Functional Class		Scenario 2 DVMT	% of Total VMT	Reduction in VMT	New Adjusted VMT	Avg Speed mi/hour	VOC Rate g/mi	VOC Sum g/day	NOx g/mi	NOx Sum g/day	CO Rate 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	655,935	10%	1,850	654,085	51.6	0.22	143,899	0.24	156,980	10.98	7,181,850
06	Minor Arterial	78,196	1%	221	77,976	51.5	0.22	17,155	0.24	18,714	10.98	856,174
07	Major Collector	437,011	6%	1,233	435,779	49.5	0.22	95,871	0.22	95,871	11.07	4,824,071
08	Minor Collector	130,912	2%	369	130,542	44.3	0.22	28,719	0.21	27,414	10.78	1,407,247
09	Local	323,305	5%	912	322,393	31.5	0.24	77,374	0.20	64,479	10.20	3,288,413
11	Interstate	1,186,849	18%	3,347	1,183,502	57.0	0.22	260,370	0.34	402,391	10.95	12,959,347
12	Principal Arterial (Expressway)	223,348	3%	630	222,718	53.0	0.22	48,998	0.32	71,270	10.65	2,371,943
14	Principal Arterial (Street)	1,338,702	20%	3,776	1,334,926	43.1	0.22	293,684	0.21	280,334	10.51	14,030,070
16	Minor Arterial	671,136	10%	1,893	669,243	39.7	0.22	147,233	0.21	140,541	10.51	7,033,742
17	Collector	982,837	15%	2,772	980,065	40.0	0.22	215,614	0.20	196,013	10.61	10,398,492
19	Local	605,821	9%	1,709	604,112	19.2	0.28	169,151	0.22	132,905	10.67	6,445,879
Total		**6,634,052**	**100%**	**18,711**	**6,615,341**			**1,498,070**		**1,586,912**		**70,797,228**
								1.651 tons/day		**1.749 tons/day**		**78.039 tons/day**

Scenario 4 - Seasonally Adjusted Model Outupt & Clean Air NY & Enhanced Commuter Choice & Wassaic Station Parking Expansion

Assumptions: *ESB analysis June 2008.*

Change in VOC *-11,808.00 g/day*

Change in NOx *-7,380.00 g/day*

Change in CO *-550,056.00 g/day*

Methods: *The emissions reductions are subtracted from the total daily emissions.changes are added to total emissions results for the scenario.*

Scenario 3 Total VOC 1,498,070 g/day
Change in VOC -11,808 g/day
New Total VOC **1,486,262** g/day
1.638 tons/day

Scenario 3 Total NOx 1,586,912 g/day
Change in NOx -7,380 g/day
New Total NOx **1,579,532** g/day
1.741 tons/day

Scenario 3 Total CO 10,427,904 g/day
Change in CO -550,056 g/day
New Total CO **9,877,848** g/day
10.888 tons/day

Scenario 5 - Seasonally Adjusted Model Outupt & Clean Air NY & Enhanced Commuter Choice & Wassaic Station Parking Expansion & Beacon Station Parking Expansion

Assumptions: *ESB analysis June 2008.*

Change in VOC *-9,360.00 g/day*

Change in NOx *-5,850.00 g/day*

Change in CO *-436,020.00 g/day*

Methods: *The emissions reductions are subtracted from the total daily emissions.changes are added to total emissions results for the scenario.*

Scenario 4 Total VOC 1,486,262 g/day
Change in VOC -9,360 g/day
New Total VOC **1,476,902** g/day
1.628 tons/day

Scenario 4 Total NOx 1,579,532 g/day
Change in NOx -5,850 g/day
New Total NOx **1,573,682** g/day
1.735 tons/day

Scenario 4 Total CO 9,877,848 g/day
Change in CO -436,020 g/day
New Total CO **9,441,828** g/day
10.408 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	
1	Interstate	0	0	0	0	0	0	0	0	0	
2	Principal Arterial	135	280	640,445	742,917	0	52	121,850	109,387	8,038,713	
6	Minor Arterial	23	46	73,408	85,153	0	52	13,848	12,608	926,784	
7	Major Collector	86	172	425,898	494,041	0	49	80,115	72,696	5,413,549	
8	Minor Collector	106	212	127,032	147,357	0	44	25,063	20,691	1,553,135	
9	Local	211	420	320,899	371,791	0	31	72,314	52,714	3,738,119	
11	Interstate	38	79	1,192,449	1,335,543	0	56	214,751	235,699	14,600,284	
12	Principal Arterial (Expresswa	28	56	216,567	242,555	0	53	39,769	40,349	2,557,556	
14	Principal Arterial (Street)	89	228	1,298,262	1,454,650	0	43	247,156	206,058	15,296,893	
16	Minor Arterial	70	144	662,898	742,995	0	40	128,672	104,252	7,693,103	
17	Collector	169	344	906,344	1,015,575	0	40	175,318	137,023	10,630,147	
19	Local	328	638	576,646	647,629	0	19	164,830	105,246	6,995,319	
TOTAL		1,285	2,620	6,440,848	7,280,206	1		1,283,687	1,096,724	77,443,603	
								1.415	1.209	85.366	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	
1	Interstate	0	0	0	0	0	0	0	0	0	
2	Principal Arterial	135	280	640,265	742,707	0	52	121,816	109,356	8,036,402	
6	Minor Arterial	23	46	73,408	85,154	0	52	13,848	12,608	926,793	
7	Major Collector	86	172	425,979	494,135	0	49	80,131	72,710	5,414,578	
8	Minor Collector	106	212	126,966	147,281	0	44	25,050	20,680	1,552,325	
9	Local	211	420	320,902	371,794	0	31	72,315	52,715	3,738,151	
11	Interstate	38	85	1,178,614	1,320,047	0	56	212,271	233,061	14,434,199	
12	Principal Arterial (Expresswa	28	56	215,148	240,966	0	53	39,515	40,079	2,540,541	
14	Principal Arterial (Street)	89	229	1,301,171	1,457,908	0	43	247,722	206,477	15,328,061	
16	Minor Arterial	70	144	670,223	751,199	0	40	130,159	105,382	7,776,025	
17	Collector	170	346	910,115	1,019,798	0	40	176,088	137,574	10,673,224	
19	Local	330	642	576,419	647,345	0	19	164,814	105,229	6,993,024	
TOTAL		1,288	2,633	6,439,208	7,278,334	1		1,283,730	1,095,870	77,413,323	
								1.415	1.208	85.332	tons/day

Scenario 2 - Seasonally Adjusted Model Outupt & Clean Air NY

Clean Air NY

Assumptions: 1.39% reduction in total daily VMT.

Methods: Calculated Daily VMT. 7,278,334
Calculated VMT reduction. 101,169
The reduction in VMT is distributed based on the percentage of VMT in each functional class from the model results.

	Functional Class	TransCAD ADJ DVMT	% of Total VMT	Reduction in VMT	New Adjusted VMT	Avg Speed mi/hour	VOC Rate g/mi	VOC Sum g/day	NOx Rate g/mi	NOx Sum g/day	CO Rate g/mi	CO Sum g/day	
1	Interstate	0	0	0	0	0	0	0	0	0	0	0	
2	Principal Arterial	742,707	0	10,324	732,384	52	0	263,658	0.55	402,811	12.8	9,374,513	
6	Minor Arterial	85,154	0	1,184	83,970	52	0	30,229	0.55	46,184	12.8	1,074,817	
7	Major Collector	494,135	0	6,868	487,267	49	0	170,543	0.49	238,761	12.91	6,290,613	
8	Minor Collector	147,281	0	2,047	145,233	44	0	52,284	0.47	68,260	12.57	1,825,585	
9	Local	371,794	0	5,168	366,626	31	0	142,984	0.46	168,648	11.89	4,359,180	
11	Interstate	1,320,047	0	18,349	1,301,698	56	0	468,611	0.85	1,106,444	13.17	17,143,369	
12	Principal Arterial (Expresswa	240,966	0	3,349	237,616	53	0	85,542	0.79	187,717	12.76	3,031,985	
14	Principal Arterial (Street)	1,457,908	0	20,265	1,437,643	43	0	531,928	0.5	718,822	12.57	18,071,173	
16	Minor Arterial	751,199	0	10,442	740,757	40	0	274,080	0.48	355,564	12.24	9,066,871	
17	Collector	1,019,798	0	14,175	1,005,623	40	0	372,081	0.44	442,474	12.35	12,419,445	
19	Local	647,345	0	8,998	638,347	19	0	287,256	0.48	306,406	12.46	7,953,798	
Total		7,278,334	1	101,169	7,177,165			2,679,197		4,042,089		90,611,350	
								2.953	tons/day	4.456	tons/day	99.88	tons/day

Scenario 3 - Seasonally Adjusted Model Outupt & Clean Air NY & Enhanced Commuter Choice

Assumptions: Reduction of 18,975 VMT over entire day. 18,975

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

Functional Class		Scenario 2 DVMT	% of Total VMT	Reduction in VMT	New Adjusted VMT	Avg Speed mi/hour	VOC Rate g/mi	VOC Sum g/day	NOx g/mi	NOx Sum g/day	CO Rate g/mi	CO Sum g/day
1	Interstate	0	0	0	0	0	0	0	0	0	0	0
2	Principal Arterial	732,384	0	1,909	730,474	0	0	116,876	0.19	138,790	10.74	7,845,296
6	Minor Arterial	83,970	0	219	83,751	VOC Rate	0	13,400	0.19	15,913	10.74	899,488
7	Major Collector	487,267	0	1,270	485,996	g/mi	0	77,759	0.14	68,039	10.81	5,253,621
8	Minor Collector	145,233	0	379	144,855	0	0	24,625	0.14	20,280	10.53	1,525,321
9	Local	366,626	0	956	365,670	0	0	69,477	0.14	51,194	9.97	3,645,729
11	Interstate	1,301,698	0	3,394	1,298,305	0	0	207,729	0.17	220,712	10.71	13,904,845
12	Principal Arterial (Expresswa	237,616	0	619	236,997	0	0	40,289	0.16	37,920	10.42	2,469,508
14	Principal Arterial (Street)	1,437,643	0	3,748	1,433,895	0	0	243,762	0.14	200,745	10.28	14,740,441
16	Minor Arterial	740,757	0	1,931	738,826	0	0	125,600	0.14	103,436	10.28	7,595,134
17	Collector	1,005,623	0	2,622	1,003,001	0	0	170,510	0.13	130,390	10.37	10,401,124
19	Local	638,347	0	1,664	636,682	0	0	146,437	0.15	95,502	10.44	6,646,964
Total		7,177,165	1		7,158,454			1,236,466		1,082,921		74,927,471
								1.363 tons/day		1.194 tons/day		82.592 tons/day

Scenario 4 - Seasonally Adjusted Model Outupt & Clean Air NY & Enhanced Commuter Choice & Wassaic Station Parking Expansion

Assumptions: ESB analysis June 2008.

Change in VOC -8,856 g/day

Change in NOx -5,904 g/day

Change in CO -543,660 g/day

Methods: The emissions reductions are subtracted from the total daily emissions.changes are added to total emissions results for the scenario.

Scenario 3 Total VOC 1,236,466 g/day
Change in VOC -8,856 g/day
New Total VOC 1,227,610 g/day
1 tons/day

Scenario 3 Total NOx 1,082,921 g/day
Change in NOx -5,904 g/day
New Total NOx 1,077,017 g/day
1 tons/day

Scenario 3 Total CO 74,927,471 g/day
Change in CO -543,660 g/day
New Total CO 74,383,811 g/day
82 tons/day

Scenario 5 - Seasonally Adjusted Model Outupt & Clean Air NY & Enhanced Commuter Choice & Wassaic Station Parking Expansion & Beacon Station Parking Expansion

Assumptions: ESB analysis June 2008.

Change in VOC -7,020 g/day

Change in NOx -4,680 g/day

Change in CO -430,950 g/day

Methods: The emissions reductions are subtracted from the total daily emissions.changes are added to total emissions results for the scenario.

Scenario 4 Total VOC 1,227,610 g/day
Change in VOC -7,020 g/day
New Total VOC 1,220,590 g/day
1 tons/day

Scenario 4 Total NOx 1,077,017 g/day
Change in NOx -4,680 g/day
New Total NOx 1,072,337 g/day
1 tons/day

Scenario 4 Total CO 74,383,811 g/day
Change in CO -430,950 g/day
New Total CO 73,952,861 g/day
82 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
1	Interstate	0	0	0	0	0	0	0	0	0
2	Principal Arterial	135	280	1,059,171	1,228,638	0	52	199,257	169,992	13,396,135
6	Minor Arterial	23	46	99,899	115,883	0	51	18,813	16,020	1,263,017
7	Major Collector	86	172	453,679	526,267	0	49	85,348	72,321	5,765,406
8	Minor Collector	106	212	136,963	158,877	0	44	26,995	20,729	1,675,499
9	Local	211	420	353,710	409,831	0	31	79,515	54,116	4,122,999
11	Interstate	38	79	967,128	1,083,184	0	58	174,059	174,767	12,031,237
12	Principal Arterial (Expresswa	28	56	416,416	466,386	0	52	75,532	69,334	4,953,513
14	Principal Arterial (Street)	89	228	1,445,375	1,619,794	0	43	274,852	213,948	17,055,839
16	Minor Arterial	70	144	685,148	767,974	0	40	133,089	100,501	7,970,276
17	Collector	169	344	943,252	1,057,156	0	40	182,257	137,220	11,077,100
19	Local	328	638	614,146	689,962	0	19	175,432	106,661	7,449,582
TOTAL		1,285	2,620	7,174,888	8,123,954	1		1,425,150	1,135,610	86,760,603
								1.571	1.252	95.636 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
1	Interstate	0	0	0	0	0	0	0	0	0
2	Principal Arterial	135	280	1,061,900	1,231,804	0	52	199,770	170,431	13,430,678
6	Minor Arterial	23	46	100,038	116,044	0	51	18,839	16,043	1,264,793
7	Major Collector	86	172	451,161	523,347	0	49	84,853	71,935	5,734,934
8	Minor Collector	106	212	137,527	159,531	0	44	27,137	20,814	1,681,573
9	Local	211	420	353,109	409,134	0	31	79,450	54,093	4,115,904
11	Interstate	38	85	946,225	1,059,772	0	58	170,314	171,243	11,780,045
12	Principal Arterial (Expresswa	28	56	413,159	462,738	0	52	74,948	68,788	4,914,477
14	Principal Arterial (Street)	89	229	1,438,355	1,611,606	0	43	273,336	212,776	16,966,536
16	Minor Arterial	70	144	693,469	777,287	0	39	134,600	101,545	8,059,079
17	Collector	170	346	947,885	1,062,346	0	40	183,198	137,889	11,129,992
19	Local	330	642	620,422	696,927	0	19	176,814	107,603	7,520,943
TOTAL		1,288	2,633	7,163,250	8,110,534	1		1,423,259	1,133,160	86,598,955
								1.569	1.249	95.457 tons/day

Scenario 2 - Seasonally Adjusted Model Outupt & Clean Air NY

Clean Air NY

Assumptions: 1.39% reduction in total daily VMT.

Methods: Calculated Daily VMT. 8,110,534
Calculated VMT reduction. 112,736
The reduction in VMT is distributed based on the percentage of VMT in each functional class from the model results.

	Functional Class	TransCAD ADJ DVMT	% of Total VMT	Reduction in VMT	New Adjusted VMT	Avg Speed mi/hour	VOC Rate g/mi	VOC Sum g/day	NOx Rate g/mi	NOx Sum g/day	CO Rate g/mi	CO Sum g/day
1	Interstate	0	0	0	0	mi/hr	0	0	0	0	0	0
2	Principal Arterial	1,231,804	0	17,122	1,214,682	0	0	194,349	0.14	170,055	10.74	13,045,684
6	Minor Arterial	116,044	0	1,613	114,431	52	0	18,309	0.14	16,020	10.74	1,228,984
7	Major Collector	523,347	0	7,275	516,072	51	0	82,572	0.13	67,089	10.81	5,578,741
8	Minor Collector	159,531	0	2,217	157,313	49	0	26,743	0.13	20,451	10.53	1,656,511
9	Local	409,134	0	5,687	403,447	44	0	76,655	0.13	52,448	9.98	4,026,400
11	Interstate	1,059,772	0	14,731	1,045,041	31	0	167,207	0.16	167,207	11.06	11,558,152
12	Principal Arterial (Expresswa	462,738	0	6,432	456,306	58	0	77,572	0.15	68,446	10.42	4,754,708
14	Principal Arterial (Street)	1,611,606	0	22,401	1,589,205	52	0	270,165	0.13	206,597	10.29	16,352,917
16	Minor Arterial	777,287	0	10,804	766,482	43	0	130,302	0.13	99,643	10.29	7,887,102
17	Collector	1,062,346	0	14,767	1,047,579	39	0	178,088	0.13	136,185	10.38	10,873,869
19	Local	696,927	0	9,687	687,240	40	0	151,193	0.14	96,214	10.44	7,174,783
Total		8,110,534	1	112,736	7,997,798			1,373,154		1,100,355		84,137,853
								1.514 tons/day		1.213 tons/day		92.745 tons/day

Scenario 3 - Seasonally Adjusted Model Outupt & Clean Air NY & Enhanced Commuter Choice

Assumptions: Reduction of 18,975 VMT over entire day. 18,975

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

	Functional Class	Scenario 2 DVMT	% of Total VMT	Reduction in VMT	New Adjusted VMT	Avg Speed mi/hour	VOC Rate g/mi	VOC Sum g/day	NOx g/mi	NOx Sum g/day	CO Rate g/mi	CO Sum g/day
1	Interstate	0	0	0	0	mi/hr	0	0	0	0	0	0
2	Principal Arterial	1,214,682	0	2,842	1,211,840	0	0	193,894	0.14	169,658	10.74	13,015,163
6	Minor Arterial	114,431	0	268	114,163	52	0	18,266	0.14	15,983	10.74	1,226,109
7	Major Collector	516,072	0	1,207	514,865	51	0	82,378	0.13	66,932	10.81	5,565,690
8	Minor Collector	157,313	0	368	156,945	49	0	26,681	0.13	20,403	10.53	1,652,635
9	Local	403,447	0	944	402,503	44	0	76,476	0.13	52,325	9.98	4,016,980
11	Interstate	1,045,041	0	2,445	1,042,596	31	0	166,815	0.16	166,815	11.06	11,531,111
12	Principal Arterial (Expresswa	456,306	0	1,068	455,238	58	0	77,391	0.15	68,286	10.42	4,743,584
14	Principal Arterial (Street)	1,589,205	0	3,718	1,585,487	52	0	269,533	0.13	206,113	10.29	16,314,659
16	Minor Arterial	766,482	0	1,793	764,689	43	0	129,997	0.13	99,410	10.29	7,868,650
17	Collector	1,047,579	0	2,451	1,045,128	39	0	177,672	0.13	135,867	10.38	10,848,429
19	Local	687,240	0	1,608	685,632	40	0	150,839	0.14	95,988	10.44	7,157,998
Total		7,997,798	1		7,979,086			1,369,942		1,097,780		83,941,008
								1.51 tons/day		1.21 tons/day		92.528 tons/day

Scenario 4 - Seasonally Adjusted Model Outupt & Clean Air NY & Enhanced Commuter Choice & Wassaic Station Parking Expansion

Assumptions:	ESB analysis June 2008.	
Change in VOC	-7,020	g/day
Change in NOx	-4,290	g/day
Change in CO	-543,660	g/day
Methods:	The emissions reductions are subtracted from the total daily emissions.changes are added to total emissions results for the scenario.	
Scenario 3 Total VOC	1,369,942	g/day
Change in VOC	-7,020	g/day
New Total VOC	1,362,922	g/day
	2	tons/day
Scenario 3 Total NOx	1,097,780	g/day
Change in NOx	-4,290	g/day
New Total NOx	1,093,490	g/day
	1	tons/day
Scenario 3 Total CO	83,941,008	g/day
Change in CO	-543,660	g/day
New Total CO	83,397,348	g/day
	92	tons/day

Scenario 5 - Seasonally Adjusted Model Outupt & Clean Air NY & Enhanced Commuter Choice & Wassaic Station Parking Expansion & Beacon Station Parking Expansion

Assumptions:	ESB analysis June 2008.	
Change in VOC	-8,856	g/day
Change in NOx	-5,412	g/day
Change in CO	-430,950	g/day
Methods:	The emissions reductions are subtracted from the total daily emissions.changes are added to total emissions results for the scenario.	
Scenario 4 Total VOC	1,362,922	g/day
Change in VOC	-8,856	g/day
New Total VOC	1,354,066	g/day
	1	tons/day
Scenario 4 Total NOx	1,093,490	g/day
Change in NOx	-5,412	g/day
New Total NOx	1,088,078	g/day
	1	tons/day
Scenario 4 Total CO	83,397,348	g/day
Change in CO	-430,950	g/day
New Total CO	82,966,398	g/day
	91	tons/day

Adoption of the Spring 2010 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 December 31, 2010; 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 Metropolitan Transportation Plan (*New Connections*), 2008-2012 TIP, and associated air quality conformity determination statement on November 29, 2007; 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 2008-2012 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 2008-2012 Transportation Improvement Programs and MTPs, was subsequently completed on March 8, 2010; and,

WHEREAS, the air quality conformity determination statement demonstrates that *New Connections* and the 2008-2012 Transportation Improvement Program still comply with federal and state air quality standards; and,

WHEREAS, the Poughkeepsie-Dutchess County Transportation Council held a thirty-day public comment period for the air quality conformity determination statement, ending on April 9, 2010; 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 mail ballot on April 29, 2010.

5/4/10
Date

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