Moving Dutchess

The 2040 Metropolitan Transportation Plan

for Dutchess County

Appendices




Poughkeepsie-Dutchess County Transportation Council 2012

Appendix A: Definitions

Definitions

AADT (Average Annual Daily Traffic): The average traffic volume on a given facility over a 24-hour period, adjusted for seasonal variation.

Access Management: Road design concepts that organize access to properties while simultaneously preserving the flow of traffic on the surrounding road system and improving safety, capacity, and speed.

ADA (Americans with Disabilities Act): 1990 federal law that governs the provision of services and facilities necessary to accommodate people with disabilities. The law includes specific requirements regarding access to transportation services and facilities.

ACS (American Community Survey): An annual survey of a sub-set of the population by the U.S. Census Bureau. Population, social, housing and economic data is collected. One-, three- and five-year estimates are generated from the data.

ALIS (Accident Location Information System): An electronic database of vehicle crashes created by NYSDOT and the State's Office of Cyber Security & Critical Infrastructure Coordination (CSCIC). The data in ALIS comes from crash reports from police agencies and the State's Department of Motor Vehicles (DMV).

Available Funds: Funds derived from an existing source dedicated to or historically used for transportation purposes. Authorized and/or appropriated funds and the extrapolation of formula and discretionary funds at historic rates of increase are considered available.

Bicycle Lane (Bike Lane): A portion of roadway that has been designated by striping, signing and pavement markings for the preferential or exclusive use of bicyclists (New York State Vehicle and Traffic Law).

Bicycle Path (Bike Path): A path completely separated from vehicular traffic and within an independent right of way or the right of way of another facility. Includes travel-ways separated from vehicles, but shared by both bicycles and pedestrians.

BRT (Bus Rapid Transit): A form of bus transit that typically includes a separated bus lane, fewer stops, signal priority, and off-board payment, resulting in faster travel speeds.

Bulb-out: A bulge in the curb intended to narrow the travel lane and thereby reduce the speed of vehicles. Used at intersections to increase visibility of pedestrians and shorten crossing distance.

CAAA (Clean Air Act Amendments of 1990): Federal law which stresses the relationship between transportation and air quality and the attainment of National Ambient Air Quality Standards.

Capacity: The maximum volume of traffic that a particular

section of roadway or intersection is able to accommodate in a given time period.

Capital Costs: Non-recurring or infrequently recurring costs of long-term assets, such as land, bus/train stations, buildings, and vehicles.

Carpool: An arrangement in which two or more people share the driving, use and/or cost of traveling in privately owned automobiles between fixed points, often on a regular basis.

Committed Funds: Funds dedicated or obligated for transportation purposes.

Conformity (Transportation Conformity): A method to ensure that federal funding is applied to those transportation activities that are consistent with air quality goals. Conformity applies to transportation plans (such as the PDCTC Metropolitan Transportation Plan), Transportation Improvement Programs, and projects funded or approved by the Federal Highway Administration or the Federal Transit Administration in areas that do not meet or previously have not met air quality standards for ozone, carbon monoxide, particulate matter, or nitrogen dioxide. These areas are known as "non-attainment areas" or "maintenance areas," respectively. Transportation projects must demonstrate conformity in order to be funded.

CMP (Congestion Management Process): A formal process required for a TMA to measure and manage the performance of a transportation system. The process must describe methods to collect and analyze transportation network data, with the intent of developing effective strategies to mitigate identified congestion.

CHIPS (Consolidated Local Street and Highway Improvement Program): State funding program that provides counties and municipalities with funds for operating, maintaining, and rehabilitating local highways and bridges. Typically used for projects on non Federal-Aid eligible roadways.

DCDPW (Dutchess County Department of Public Works): Dutchess County department charged with responsibility for County highway, bridge, and building facilities.

Demand-Response Service: Transit service in which passengers request door-to-door or point-to-point service at a specific time; a common example is Dial-A-Ride.
EPA (Environmental Protection Agency): Federal agency responsible for implementing the Clean Air Act, as well as other environmental laws that protect natural resources.

Federal-Aid System: The system of roads eligible for federal highway funding. All roads included in the Federal-Aid system are functionally classified higher than Local or Rural Minor Collector.

FFY: Federal Fiscal Year (Starts October 1; ends September 30).

FHWA (Federal Highway Administration): USDOT agency responsible for approval of transportation projects that affect

the federal-aid highway system. FHWA is a non-voting member of the PDCTC.

FTA (Federal Transit Administration): USDOT agency responsible for approval of mass transit projects that receive federal funding. FTA is a non-voting member of the PDCTC.

Financial Plan: Documentation required in a MTP and TIP to demonstrate the consistency between reasonably available and projected federal, state, local, and private funding and the cost of proposed transportation improvements.

Financial/Fiscal Constraint: The requirement that the MTP, TIP, and STIP include sufficient financial information to demonstrate that projects can be implemented using committed, available, or reasonably available revenue sources, with reasonable assurance that the federally supported transportation system is being adequately operated and maintained. For the TIP and the STIP, financial constraint applies to each program year.

Fixed Route Service: Transit service that runs on regular, scheduled routes, usually with printed/posted bus schedules and designated stops.

Functional Classification: The process by which highways are grouped into classes according to the character of service they are intended to provide. Classes include Interstate, Principal and Minor Arterial, Major and Minor Collector, and Local. Urban and rural highways have slightly different classes.

Highway: A general term denoting a public way for vehicular travel. Includes the entire area within the right-of-way.

HBRR (Highway Bridge Replacement and Rehabilitation): Federal funding program for rehabilitation and replacement of deficient highway bridges.

Highway Trust Fund: Transportation fund administered by FHWA. Most funds for highway improvement are apportioned to states using a formula based on population, area and mileage.

HOV (High Occupancy Vehicle): A vehicle carrying two or more passengers, including carpools, vanpools, and buses.

ITS (Intelligent Transportation Systems): Projects and programs that use communications technology to provide information to travelers about road and transit conditions and help monitor, guide, and control the operation of vehicles. The application of ITS technologies offers improved safety, more efficient use of infrastructure, and enhanced user choices.

Intermodal/Multimodal: A transportation system connecting or including different types of transportation (e.g. bus service connecting to a train station).

LOS (Level of Service): A measure of congestion relating actual or forecasted traffic volume to the capacity of a particular roadway. LOS A indicates free flow traffic; LOS F denotes a very congested roadway in which traffic flow exceeds the capacity of the roadway.

Match: State or local funds required by federal funding programs to complement federal money for a project.

Median: The portion of a divided highway separating one direction of traffic from traffic traveling in the opposite direction.

Metropolitan Planning Area: The region in which an MPO carries out its transportation planning responsibilities. The area is designated by the MPO and the Governor in accordance with federal regulations. The PDCTC's metropolitan planning area includes all of Dutchess County.

MNRR (Metro-North Railroad): An operating affiliate of the Metropolitan Transportation Authority (MTA) that provides rail service to Dutchess County and other areas in the New York metropolitan area. MTA is a voting member of the PDCTC.

MTP (Metropolitan Transportation Plan): An official multimodal transportation plan addressing no less than a 20-year planning horizon. The MTP is developed, adopted, and updated by an MPO through the metropolitan transportation planning process.

Mode: A particular form of travel, for example, walking, or traveling by automobile, bus, or train.

MPO (Metropolitan Planning Organization): Federally-mandated organization for coordinating transportation planning in a Census-designated metropolitan area. All urbanized areas over 50,000 in population are required to have an MPO. The MPO is responsible for developing the Metropolitan Transportation Plan, Transportation Improvement Program, and Unified Planning Work Program.

Multi-Use Path: A facility physically separated from the roadway and intended for shared use by bicyclists, pedestrians, and other non-motorized users.

NAAQS (National Ambient Air Quality Standards): Federal standards that set allowable concentrations and exposure limits for various air pollutants.

NEPA (National Environmental Policy Act of 1969): Federal law that establishes a national policy for the environment, requiring that federal agencies integrate environmental values into their decision making processes by considering the environmental impacts of their proposed actions and reasonable alternatives to those actions.

NHS (National Highway System): A nation-wide system of highways and roads designated by the US Congress to link the states, major urban areas, and other important destinations. Also a federal funding program for projects and programs on designated NHS facilities.

NYSBA (New York State Bridge Authority): An authority created by New York State to maintain and operate bridges across the Hudson River. The NYSBA is a non-voting member of the PDCTC.

OCTC (Orange County Transportation Council): MPO for Orange County.

Nonattainment Area: Geographic area designated by the EPA where NAAQS have been exceeded. The Poughkeepsie Ozone Nonattainment Area includes Dutchess, Putnam and Orange counties.

Non-Exempt: For air quality analysis, a highway or road project that changes capacity by at least one travel lane or a transit project that changes capacity on a fixed route system. A non-exempt determination is made if the project type is not found on the list of exempt projects in Table 2 (Exempt Projects) in 40 CFR Parts 93.126 and 127 and NYCRR Part 240.27.

NHTS (National Household Travel Survey): Periodic survey of travel behavior of a sample of people in the United States.

NYMTC (New York Metropolitan Transportation Council): MPO for the New York metropolitan area that includes New York City, Long Island, and the Hudson Valley counties of Putnam, Rockland, and Westchester.

NYSDEC (New York State Department of Environmental Conservation): The State agency with primary responsibility for developing and amending the New York State Implementation Plan (SIP) for Air Quality.

NYSDOT (New York State Department of Transportation): The State agency with primary responsibility for State transportation facilities and programs. NYSDOT is a voting member and Secretary of the PDCTC.

Park-and-Ride Lot: Parking area where passengers leave their cars for the day and board transit vehicles or join carpools and vanpools.

Planning/Technical Committee: The non-voting body of the Council responsible for identifying specific transportation planning issues for inclusion in the MTP, TIP, and UPWP, and identifying and undertaking special studies as requested by the Council.

PDCTC/Council (Poughkeepsie-Dutchess County Transportation Council): MPO for the Dutchess County portion of the Poughkeepsie-Newburgh Urbanized Area. Established in 1982, the PDCTC is responsible for adopting a Metropolitan Transportation Plan, Transportation Improvement Program, and Unified Planning Work Program.

Regionally Significant Project: A transportation project that is on a facility that serves regional transportation needs, such as access to and from the area outside the region; major activity centers in the region; major planned developments such as new retail malls, sports complexes, or employment centers; or transportation terminals, and would normally be modeled in the metropolitan area's transportation network. This includes all projects on principal arterial highways and all fixed guideway transit facilities that offer a significant alternative to regional highway travel.

Right-Of-Way (ROW): Land corridors needed for the construction of highways, transit, railroads, and other

transportation projects.

Roadway: The portion of the highway, including shoulders, for vehicle use.

SAFETEA-LU (Safe Accountable, Flexible, Efficient Transportation Equity Act- A Legacy for Users): Federal law signed in 2005 that governs how federal transportation funds are spent. With guaranteed funding for highways, highway safety, and public transportation totaling $244.1 billion, SAFETEA represented the largest surface transportation investment in U.S. history. SAFTEA requirements are jointly administered jointly by FHWA and FTA.

SDF (State Dedicated Fund): Funds collected and allocated by New York State to fund highway and transit improvements.

Section 5303 (Metropolitan & Statewide Planning): Federal Transit Act section that funds transit planning and research.

Section 5307: Federal Transit Act section that authorizes grants to urban areas under a legislated formula. The program primarily provides funding to urbanized areas for transit capital assistance. It also provides funding for preventive maintenance costs and some Americans with Disabilities Act (ADA) complementary paratransit service costs.

Section 5309: Federal Transit Act section that authorizes discretionary grants for capital projects. Provides assistance for three main activities: 1) modernization of existing rail systems, 2) new and replacement buses and facilities, and 3) new fixed guideway systems.

Section 5310: Federal Transit Act section that authorizes transportation capital and operating grants for transit service for the elderly and handicapped. The program provides formula funding to states to assist private nonprofit groups with meeting the transportation needs of the elderly and persons with disabilities. Funds are apportioned based on each state's share of population for these population groups. Per SAFETEA, funding can only be awarded if the project stems from a locally developed Coordinated Public Transportation–Human Service Transportation Plan.

Section 5316 (Job Access and Reverse Commute): Federal Transit Act section that provides formula funding to support projects that help transport welfare recipients and eligible low-income persons to and from work. Funds can support both capital and operating costs, though each has different local match requirements.

Section 5317 (New Freedom): Federal Transit Act section that provides funding for new public transportation services beyond those required by the Americans with Disabilities Act of 1990 that assist individuals with disabilities.

SFY: State Fiscal Year (Starts April 1; ends March 31).

SEQRA (State Environmental Quality Review Act): A New York State law that introduces a process to incorporate the consideration of environmental factors into the early planning stages of actions in order to avoid adverse impacts on the

environment.

SIP (State Implementation Plan): A plan mandated by the Clean Air Act that contains procedures to monitor, control, maintain, and enforce compliance with the NAAQS.

STIP (State Transportation Improvement Program): A statewide compilation of MPO and rural area TIPs that is submitted by NYSDOT to FHWA and FTA for approval. The STIP serves as the basis for the obligation of federal transportation funds to the State.

STP (Surface Transportation Program): The major federal funding program for transportation projects and plans.

TDM (Transportation Demand Management): Activities and programs designed to reduce congestion by reducing the number of single occupant vehicles. Examples include programs to promote ridesharing, transit, bicycling, and telecommuting.

TIP (Transportation Improvement Program): A five year program of highway, transit, and other transportation capital projects developed by an MPO. All federally funded projects must appear on an approved TIP to be implemented.

TMA (Transportation Management Area): A USDOT designation for Urbanized Areas with populations of 200,000 or more. The TMA designation carries with it additional responsibilities for an MPO. These include a Congestion Management Process (CMP), a system to disburse Section 5307 funds, and a formal federal certification review every four years. The PDCTC is part of the Mid-Hudson Valley TMA.

UCTC (Ulster County Transportation Council): The MPO for the Kingston metropolitan area, which covers Ulster County.

UPWP (Unified Planning Work Program): A statement of work identifying the planning priorities and activities to be carried out within a metropolitan planning area over a period of no more than two years. The UPWP includes a description of the planning work and resulting products and identifies which organization will perform the work, the time frames for completing the work, the cost of the work, and the sources of funds.

USDOT (United States Department of Transportation): The federal cabinet department that includes the Federal Highway Administration and the Federal Transit Administration.

Urbanized Area: An incorporated place and adjacent densely populated area with a combined minimum population of 50,000, as defined by the U.S. Census Bureau.

VMT (Vehicle Miles Traveled): Measure of vehicle travel. The sum of miles driven by all vehicles in a given area over a specific period of time.

YOE (Year of Expenditure): Dollars that are adjusted for inflation, based on the year they will be used.

Appendix B: Recommended Bridge Maintenance Projects (2012-2040)

Bridge Description (BIN, Road, Feature Carried, Sponsor, Rating)[1]	Type	Area[2]	Location	Time Frame[3]	Est Cost (2011)[4]	Est Cost (YOE)[5]	Fed-Aid Eligible[6]	Project Sponsor	TIP Status[7]	Air Quality Code
1047720 CR 78 Stony Creek County 4.6 FO	Bridge Maintenance	UH	Tivoli Village	Short-Range	$1,287,000	$1,287,000	Yes	DCDPW	Yes	A19
3342820 Hollow Rd Little Wappinger Creek County 4.6 FO	Bridge Maintenance	UT	Clinton	Short-Range	$507,000	$507,000	Yes	DCDPW	Yes	A19
3342950 CR 24 (Ridge Rd) Coopertown Brook County 3.0 SD	Bridge Maintenance	HV	Dover	Short-Range	$1,359,000	$1,359,000	Yes	DCDPW	Yes	A19
3343120 CR 31 Fishkill Creek County 4.8 SD	Bridge Maintenance	LT	East Fishkill	Short-Range	$1,250,000	$1,250,000	Yes	DCDPW	Yes	A19
3343580 CR 72 Swallow Stream County 3.8 SD	Bridge Maintenance	UT	Pleasant Valley	Short-Range	$1,695,000	$1,695,000	Yes	DCDPW	Yes	A19
3343920 CR 21 Fishkill Creek County 4.2 SD	Bridge Maintenance	LT	Union Vale	Short-Range	$1,778,000	$1,778,000	Yes	DCDPW	Yes	A19
3343930 CR 21 Fishkill Creek County 3.9 SD	Bridge Maintenance	LT	Union Vale	Short-Range	$1,427,000	$1,427,000	Yes	DCDPW	Yes	A19
3358440 CR 43 (Degarmo Rd) Wappinger Creek County 4.7 FO	Bridge Maintenance	LT	LaGrange/Poughkeepsie	Short-Range	$1,784,000	$1,784,000	Yes	DCDPW	Yes	A19
3702070 Dover Furnace Rd MNR Rail Line Railroad 4.0 FO	Bridge Maintenance	HV	Dover	Short-Range	$1,913,000	$1,913,000	Yes	DCDPW	Yes	A19
2342910 Nellie Hill Rd Wells Brook Town 4.2 SD	Bridge Maintenance	HV	Dover	Short-Range	$346,000	$346,000	Yes	Dover	Yes	A19
2262880 Bridge St MNR Rail Line Railroad 3.3 SD	Bridge Maintenance	LH	Poughkeepsie Town	Short-Range	$4,246,000	$4,246,000	Yes	MNR	Yes	A19
1027170 NYS Route 55 Fishkill Creek NYSDOT 4.6 FO	Bridge Maintenance	LT	Beekman	Short-Range	$3,296,000	$3,296,000	Yes	NYSDOT	Yes	A19
1032290 NYS Route 82 Sprout Creek NYSDOT 3.8 SD	Bridge Maintenance	LT	East Fishkill/Wappinger	Short-Range	$7,102,000	$7,102,000	Yes	NYSDOT	Yes	A19
2262670 Washington St Fall Kill Creek City 3.7 SD	Bridge Maintenance	LH	Poughkeepsie City	Short-Range	$2,668,000	$2,668,000	Yes	Poughkeepsie City	Yes	A19
2262750 Mansion St Fall Kill Creek City 4.1	Bridge Maintenance	LH	Poughkeepsie City	Short-Range	$2,257,000	$2,257,000	Yes	Poughkeepsie City	Yes	A19
1032390 CR 83 Shekomeko Creek County 4.2 FO	Bridge Maintenance	UT	Pine Plains	Short-Range	$377,000	$424,328	Yes	DCDPW	No	A19
3365140 Cold Spring Rd Wappinger Creek County 3.9	Bridge Maintenance	UT	Stanford	Short-Range	$546,000	$616,602	Yes	DCDPW	No	A19
3368380 Greentree Dr Crum Elbow Creek County 3.4	Bridge Maintenance	UH	Hyde Park	Short-Range	$1,222,000	$1,380,014	Yes	DCDPW	No	A19
3343870 Salt Point Turnpike Willow Brook County 4.6 FO	Bridge Maintenance	UT	Stanford	Short-Range	$416,000	$468,000	Yes	DCDPW	No	A19
3358430 CR 43 (Degarmo Rd) Wappinger Creek County 5.4	Bridge Maintenance	LT	LaGrange/Poughkeepsie	Short-Range	$923,000	$1,040,000	Yes	DCDPW	No	A19
2270430 School Access Rd Crum Elbow Creek Other 3.8 FO	Bridge Maintenance	UH	Hyde Park	Short-Range	$676,000	$760,864	No	Hyde Park School District	No	A19
2262870 Freedom Park Entrance Sprout Creek Town 4.3	Bridge Maintenance	LT	LaGrange	Short-Range	$260,000	$292,640	Yes	LaGrange	No	A19
2223010 Salisbury Turnpike Warner Creek Town 4.1 SD	Bridge Maintenance	UT	Milan	Short-Range	$780,000	$877,890	Yes	Milan	No	A19
2262890 Reed St MNR Rail Line Railroad 4.2	Bridge Maintenance	LH	Poughkeepsie Town	Short-Range	$1,521,000	$1,711,944	Yes	MNR/Poughkeepsie Town	No	A19
5521800 Park Entrance CSX Rail Line State 4.1 SD	Bridge Maintenance	UH	Hyde Park	Short-Range	$936,000	$1,053,504	No	NPS	No	A19
1032300 NYS Route 82 MNR Rail Line NYSDOT 4.3 SD	Bridge Maintenance	LT	East Fishkill	Short-Range	$2,990,000	$3,365,245	Yes	NYSDOT	No	A19
3343530 NYS Route 115 Little Wappinger Creek NYSDOT 4.2 SD	Bridge Maintenance	UT	Pleasant Valley	Short-Range	$676,000	$760,838	Yes	NYSDOT	No	A19
5502439 TSP Wappinger Creek NYSDOT 4.3 SD	Bridge Maintenance	UT	Clinton	Short-Range	$7,696,000	$8,661,848	Yes	NYSDOT	No	A19
1006360 NYS Route 9D I-84 NYSDOT 4.4 SD	Bridge Maintenance	LH	Fishkill	Short-Range	$2,379,000	$3,104,046	Yes	NYSDOT	No	A19
1032330 NYS Route 82 Sprout Creek NYSDOT 4.4	Bridge Maintenance	LT	Union Vale	Short-Range	$429,000	$559,746	Yes	NYSDOT	No	A19
1032481 I-84 MNR Rail Line NYSDOT 4.4 FO	Bridge Maintenance	LH	Fishkill	Short-Range	$3,874,000	$2,527,338	Yes	NYSDOT	No	A19
2268720 Kitchen Rd Swamp River Town 4.0 SD	Bridge Maintenance	LT	Pawling Town	Short-Range	$650,000	$731,575	Yes	Pawling Town	No	A19
2223040 West Main St Pawling Creek Town 4.2 SD	Bridge Maintenance	LT	Pawling Village	Short-Range	$676,000	$760,838	Yes	Pawling Village	No	A19
2343700 Scism Rd White Clay Kill Town 3.5 SD	Bridge Maintenance	UH	Red Hook Town	Short-Range	$754,000	$848,627	Yes	Red Hook Town	No	A19
2343770 Parsonage St Landsman Kill Town 4.1 SD	Bridge Maintenance	UH	Rhinebeck Village	Short-Range	$1,014,000	$1,141,257	Yes	Rhinebeck Village	No	A19
2257190 Mill Ln Hunns Lake Creek Town 3.7 SD	Bridge Maintenance	UT	Stanford	Short-Range	$676,000	$760,838	Yes	Stanford	No	A19
3343900 On-the-Green Rd Sprout Creek Town 3.8	Bridge Maintenance	LT	Union Vale	Short-Range	$728,000	$819,364	Yes	Union Vale	No	A19
3343130 Washington Ave Fishkill Creek County 5.0 FO	Bridge Maintenance	LH	Fishkill	Mid-Range	$1,721,000	$1,721,000	Yes	DCDPW	Yes	A19
3342660 CR 3 Webatuck Creek County 4.7	Bridge Maintenance	HV	Amenia	Mid-Range	$845,000	$1,102,500	Yes	DCDPW	No	A19
3342860 Hollow Rd Wappinger Creek Tributary County 4.2 SD	Bridge Maintenance	UT	Clinton	Mid-Range	$1,040,000	$1,357,000	Yes	DCDPW	No	A19
3343330 CR 51 Roeliff Jansen Kill County 4.1 SD	Bridge Maintenance	UT	Milan	Mid-Range	$1,430,000	$1,866,000	Yes	DCDPW	No	A19
3343340 Fish Woods Rd Kobe Creek County 4.2	Bridge Maintenance	UT	Milan	Mid-Range	$455,000	$594,000	Yes	DCDPW	No	A19
3343370 CR 62 Webatuck Creek County 4.3	Bridge Maintenance	HV	North East	Mid-Range	$390,000	$509,000	Yes	DCDPW	No	A19
3343590 Mill Ln Un-named Creek County 4.3 SD	Bridge Maintenance	UT	Pleasant Valley	Mid-Range	$1,352,000	$1,764,100	Yes	DCDPW	No	A19
3343830 Creamery Rd Wappinger Creek County 4.3 SD	Bridge Maintenance	UT	Stanford	Mid-Range	$1,898,000	$2,476,000	Yes	DCDPW	No	A19
3343860 Grist Mill Rd Wappinger Creek County 4.2	Bridge Maintenance	UT	Stanford	Mid-Range	$949,000	$1,238,000	Yes	DCDPW	No	A19
3343910 Verbank Village Rd Sprout Creek County 4.3 FO	Bridge Maintenance	LT	Union Vale	Mid-Range	$598,000	$780,300	Yes	DCDPW	No	A19
3365130 Schultzville Rd Wappinger Creek Tributary County 3.8	Bridge Maintenance	UT	Clinton	Mid-Range	$624,000	$814,000	Yes	DCDPW	No	A19

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Bridge Description (BIN, Road, Feature Carried, Sponsor, Rating)[1]	Type	Area[2]	Location	Time Frame[3]	Est Cost (2011)[4]	Est Cost (YOE)[5]	Fed-Aid Eligible[6]	Project Sponsor	TIP Status[7]	Air Quality Code
3342880 Hibernia Rd Wappinger Creek County 4.4	Bridge Maintenance	UT	Clinton	Mid-Range	$858,000	$1,119,000	Yes	DCDPW	No	A19
3342970 Ridge Rd Mill River County 4.4 SD	Bridge Maintenance	HV	Dover	Mid-Range	$1,274,000	$1,662,276	Yes	DCDPW	No	A19
3343500 CR 83A Shekomeko Creek County 4.4 SD	Bridge Maintenance	UT	Pine Plains	Mid-Range	$858,000	$1,119,492	Yes	DCDPW	No	A19
3343510 Willowvale Rd Shekomeko Creek County 4.4 SD	Bridge Maintenance	UT	Pine Plains	Mid-Range	$702,000	$915,948	Yes	DCDPW	No	A19
3343850 CR 19 Wappinger Creek County 4.4 SD	Bridge Maintenance	UT	Stanford	Mid-Range	$1,014,000	$1,323,036	Yes	DCDPW	No	A19
3342670 CR 105 Ten Mile River County 4.9 FO	Bridge Maintenance	HV	Amenia	Mid-Range	$1,625,000	$2,120,250	Yes	DCDPW	No	A19
3342700 CR 9 Fishkill Creek County 5.0	Bridge Maintenance	LT	Beekman	Mid-Range	$455,000	$593,670	Yes	DCDPW	No	A19
3342710 CR 7 Fishkill Creek County 5.0 FO	Bridge Maintenance	LT	Beekman	Mid-Range	$689,000	$898,986	Yes	DCDPW	No	A19
3342840 Clinton Hollow Rd Little Wappinger Creek County 4.9	Bridge Maintenance	UT	Clinton	Mid-Range	$728,000	$949,872	Yes	DCDPW	No	A19
3342900 Mill St Ten Mile River County 4.7	Bridge Maintenance	HV	Dover	Mid-Range	$2,665,000	$3,477,210	Yes	DCDPW	No	A19
3343010 CR 83 Bean River County 4.7	Bridge Maintenance	HV	North East	Mid-Range	$299,000	$390,126	Yes	DCDPW	No	A19
3343030 CR 21 Burton Brook County 5.0	Bridge Maintenance	HV	Dover	Mid-Range	$338,000	$441,012	Yes	DCDPW	No	A19
3343070 CR 6 Swamp River County 4.5 FO	Bridge Maintenance	HV	Dover	Mid-Range	$819,000	$1,068,606	Yes	DCDPW	No	A19
3343110 Philips Rd Fishkill Creek County 4.5 FO	Bridge Maintenance	LT	East Fishkill	Mid-Range	$533,000	$695,442	Yes	DCDPW	No	A19
3343220 Barmore Rd Sprout Creek County 4.9	Bridge Maintenance	LT	LaGrange	Mid-Range	$585,000	$763,290	Yes	DCDPW	No	A19
3343270 CR 21 Jackson Creek County 4.6 SD	Bridge Maintenance	LT	LaGrange	Mid-Range	$520,000	$678,480	Yes	DCDPW	No	A19
3343310 CR 56 Roeliff Jansen Kill County 4.8	Bridge Maintenance	UT	Milan	Mid-Range	$897,000	$1,170,378	Yes	DCDPW	No	A19
3343350 Salisbury Turnpike Little Wappinger Creek County 5.0	Bridge Maintenance	UT	Milan	Mid-Range	$416,000	$542,784	Yes	DCDPW	No	A19
3343400 CR 58 Webatuck Creek County 4.8	Bridge Maintenance	HV	North East	Mid-Range	$403,000	$525,822	Yes	DCDPW	No	A19
3343490 CR 50 Roeliff Jansen Kill County 4.5 SD	Bridge Maintenance	UT	Pine Plains	Mid-Range	$1,014,000	$1,323,036	Yes	DCDPW	No	A19
3343520 Carpenter Hill Rd Shekomeko Creek County 4.9 SD	Bridge Maintenance	UT	Pine Plains	Mid-Range	$442,000	$576,708	Yes	DCDPW	No	A19
3343540 Hibernia Rd Wappinger Creek County 4.8 FO	Bridge Maintenance	UT	Pleasant Valley	Mid-Range	$1,300,000	$1,696,200	Yes	DCDPW	No	A19
3343630 CR 28 Wappinger Creek County 4.8 FO	Bridge Maintenance	LH	Poughkeepsie Town	Mid-Range	$3,757,000	$4,902,018	Yes	DCDPW	No	A19
3343660 Moore Rd Stony Creek County 4.7 FO	Bridge Maintenance	UH	Red Hook Town	Mid-Range	$598,000	$780,252	Yes	DCDPW	No	A19
3343710 CR 103 Saw Kill County 4.8	Bridge Maintenance	UH	Red Hook Town	Mid-Range	$1,209,000	$1,577,466	Yes	DCDPW	No	A19
3343720 Mill Rd Saw Kill County 4.9	Bridge Maintenance	UH	Red Hook Town	Mid-Range	$1,196,000	$1,560,504	Yes	DCDPW	No	A19
3343730 CR 79 Saw Kill County 4.8	Bridge Maintenance	UH	Red Hook Town	Mid-Range	$572,000	$746,328	Yes	DCDPW	No	A19
3343800 CR 85 Landsman Kill County 5.0	Bridge Maintenance	UH	Rhinebeck Town	Mid-Range	$559,000	$729,366	Yes	DCDPW	No	A19
3343820 CR 65 Hunns Lake Creek County 4.6	Bridge Maintenance	UT	Stanford	Mid-Range	$468,000	$610,632	Yes	DCDPW	No	A19
3343840 Depot Ln Wappinger Creek County 5.0	Bridge Maintenance	UT	Stanford	Mid-Range	$624,000	$814,176	Yes	DCDPW	No	A19
3343940 CR 21 Fishkill Creek County 4.8	Bridge Maintenance	LT	Union Vale	Mid-Range	$390,000	$508,860	Yes	DCDPW	No	A19
3344040 Nardone Rd Wappinger Creek County 4.9	Bridge Maintenance	UT	Washington	Mid-Range	$1,534,000	$2,001,516	Yes	DCDPW	No	A19
3344060 Stanford Rd Wappinger Creek County 4.7	Bridge Maintenance	UT	Millbrook Village	Mid-Range	$728,000	$949,872	Yes	DCDPW	No	A19
3344080 Canoe Hill Rd Wappinger Creek County 4.8	Bridge Maintenance	UT	Washington	Mid-Range	$611,000	$797,214	Yes	DCDPW	No	A19
3358420 CR 34 Forge Brook County 5.0	Bridge Maintenance	LH	Fishkill	Mid-Range	$273,000	$356,202	Yes	DCDPW	No	A19
3365150 CR 83A Shekomeko Creek County 4.5 SD	Bridge Maintenance	UT	Pine Plains	Mid-Range	$377,000	$491,898	Yes	DCDPW	No	A19
3342690 Dorn Rd Fishkill Creek County 5.5	Bridge Maintenance	LT	Beekman	Mid-Range	$416,000	$543,000	Yes	DCDPW	No	A19
2342940 Ridge Rd Mill River Town 4.9 FO	Bridge Maintenance	HV	Dover	Mid-Range	$351,000	$457,974	Yes	Dover	No	A19
3343190 Dock St Crum Elbow Creek Town 4.5	Bridge Maintenance	UH	Hyde Park	Mid-Range	$481,000	$627,594	Yes	Hyde Park	No	A19
2343300 Emans Rd Jackson Creek Town 4.5	Bridge Maintenance	LT	LaGrange	Mid-Range	$273,000	$356,202	Yes	LaGrange	No	A19
2223020 Salisbury Turnpike Warner Creek Town 5.0	Bridge Maintenance	UT	Milan	Mid-Range	$364,000	$474,936	Yes	Milan	No	A19
5524010 Denning's Point Rd MNR Rail Line State 4.8 FO	Bridge Maintenance	LH	Beacon	Mid-Range	$2,236,000	$2,917,464	No	NYS	No	A19
1005211 US Route 9 Fishkill Creek NYSDOT 5.0	Bridge Maintenance	LH	Fishkill	Mid-Range	$2,184,000	$2,849,616	Yes	NYSDOT	No	A19
1005212 US Route 9 Fishkill Creek NYSDOT 5.0	Bridge Maintenance	LH	Fishkill	Mid-Range	$2,184,000	$2,849,616	Yes	NYSDOT	No	A19
1005239 NYS Route 113 US Route 9 NYSDOT 4.5 FO	Bridge Maintenance	LH	Poughkeepsie Town	Mid-Range	$2,847,000	$3,714,678	Yes	NYSDOT	No	A19
1005249 US Route 9 Academy St NYSDOT 4.8	Bridge Maintenance	LH	Poughkeepsie City	Mid-Range	$2,210,000	$2,883,540	Yes	NYSDOT	No	A19
1005281 US Route 9 Laurel St NYSDOT 4.8	Bridge Maintenance	LH	Poughkeepsie City	Mid-Range	$1,599,000	$2,086,326	Yes	NYSDOT	No	A19
1005282 US Route 9 Laurel St NYSDOT 4.7	Bridge Maintenance	LH	Poughkeepsie City	Mid-Range	$1,573,000	$2,052,402	Yes	NYSDOT	No	A19

Appendix B: Recommended Bridge Maintenance Projects (2012-2040)

Bridge Description (BIN, Road, Feature Carried, Sponsor, Rating)[1]	Type	Area[2]	Location	Time Frame[3]	Est Cost (2011)[4]	Est Cost (YOE)[5]	Fed-Aid Eligible[6]	Project Sponsor	TIP Status[7]	Air Quality Code
1005290 NYS Route 44 US Route 9 NYSDOT 4.5 FO	Bridge Maintenance	LH	Poughkeepsie City	Mid-Range	$676,000	$882,024	Yes	NYSDOT	No	A19
1005319 US Route 9 Railroad Plaza NYSDOT 4.7	Bridge Maintenance	LH	Poughkeepsie City	Mid-Range	$5,863,000	$7,649,862	Yes	NYSDOT	No	A19
1005370 US Route 9 Saw Kill NYSDOT 4.5	Bridge Maintenance	UH	Red Hook Town	Mid-Range	$650,000	$848,100	Yes	NYSDOT	No	A19
1005380 US Route 9 White Clay Kill NYSDOT 4.6	Bridge Maintenance	UH	Red Hook Town	Mid-Range	$429,000	$559,746	Yes	NYSDOT	No	A19
1006380 NYS Route 9D Wappinger Creek NYSDOT 4.9	Bridge Maintenance	LH	Wappingers Falls	Mid-Range	$1,560,000	$2,035,440	Yes	NYSDOT	No	A19
1006390 NYS Route 9G CSX Rail Line NYSDOT 5.0 FO	Bridge Maintenance	LH	Poughkeepsie Town	Mid-Range	$481,000	$627,594	Yes	NYSDOT	No	A19
1006420 NYS Route 9G Crum Elbow Creek NYSDOT 4.6	Bridge Maintenance	UT	Clinton/Hyde Park	Mid-Range	$494,000	$644,556	Yes	NYSDOT	No	A19
1016710 NYS Route 55 NYS Route 22 NYSDOT 4.9 FO	Bridge Maintenance	LT	Pawling Town	Mid-Range	$2,600,000	$3,392,400	Yes	NYSDOT	No	A19
1016730 NYS Route 22 MNR Rail Line NYSDOT 4.6 FO	Bridge Maintenance	HV	Dover	Mid-Range	$2,691,000	$3,511,134	Yes	NYSDOT	No	A19
1016750 NYS Route 22 Wassaic Creek NYSDOT 4.8 FO	Bridge Maintenance	HV	Amenia	Mid-Range	$2,249,000	$2,934,426	Yes	NYSDOT	No	A19
1025560 NYS Route 44 Bowers Creek NYSDOT 4.6	Bridge Maintenance	UT	Pleasant Valley	Mid-Range	$351,000	$457,974	Yes	NYSDOT	No	A19
1025579 TSP US Route 44 NYSDOT 5.0 FO	Bridge Maintenance	UT	Pleasant Valley	Mid-Range	$806,000	$1,051,644	Yes	NYSDOT	No	A19
1025610 NYS Route 44 Wassaic Creek NYSDOT 4.9 FO	Bridge Maintenance	HV	Amenia	Mid-Range	$494,000	$644,556	Yes	NYSDOT	No	A19
1026821 I-84 CR 36 NYSDOT 4.8 FO	Bridge Maintenance	LH	Fishkill	Mid-Range	$1,729,000	$2,255,946	Yes	NYSDOT	No	A19
1026822 I-84 CR 36 NYSDOT 5.1 FO	Bridge Maintenance	LH	Fishkill	Mid-Range	$1,729,000	$2,255,946	Yes	NYSDOT	No	A19
1026831 I-84 NYS Route 52 NYSDOT 4.9 FO	Bridge Maintenance	LH	Fishkill	Mid-Range	$2,522,000	$3,290,628	Yes	NYSDOT	No	A19
1026832 I-84 NYS Route 52 NYSDOT 5.0 FO	Bridge Maintenance	LH	Fishkill	Mid-Range	$2,522,000	$3,290,628	Yes	NYSDOT	No	A19
1026850 NYS Route 52 Wiccopee Creek NYSDOT 4.9 FO	Bridge Maintenance	LT	East Fishkill	Mid-Range	$559,000	$729,366	Yes	NYSDOT	No	A19
1026860 NYS Route 52 Gayhead Pond Inlet NYSDOT 4.7 FO	Bridge Maintenance	LT	East Fishkill	Mid-Range	$429,000	$559,746	Yes	NYSDOT	No	A19
1026879 TSP NYS Route 52 NYSDOT 5.0 FO	Bridge Maintenance	LT	East Fishkill	Mid-Range	$624,000	$814,176	Yes	NYSDOT	No	A19
1027210 NYS Route 55 Deuel Hollow Brook NYSDOT 4.6 FO	Bridge Maintenance	HV	Dover	Mid-Range	$338,000	$441,012	Yes	NYSDOT	No	A19
1032319 TSP NYS Route 82 NYSDOT 5.1	Bridge Maintenance	LT	East Fishkill	Mid-Range	$494,000	$644,556	Yes	NYSDOT	No	A19
1032320 NYS Route 82 Jackson Creek NYSDOT 4.7 FO	Bridge Maintenance	LT	LaGrange	Mid-Range	$351,000	$457,974	Yes	NYSDOT	No	A19
1032482 I-84 MNR Rail Line NYSDOT 4.7 FO	Bridge Maintenance	LH	Fishkill	Mid-Range	$1,937,000	$2,527,338	Yes	NYSDOT	No	A19
1032491 I-84 Fishkill Creek NYSDOT 5.0	Bridge Maintenance	LH	Fishkill	Mid-Range	$2,990,000	$3,901,260	Yes	NYSDOT	No	A19
1032492 I-84 Fishkill Creek NYSDOT 4.8	Bridge Maintenance	LH	Fishkill	Mid-Range	$2,990,000	$3,901,260	Yes	NYSDOT	No	A19
1032550 Lime Kiln Rd I-84 NYSDOT 5.4 FO	Bridge Maintenance	LT	East Fishkill	Mid-Range	$3,471,000	$4,528,854	Yes	NYSDOT	No	A19
1032560 Shenandoah Rd I-84 NYSDOT 5.0 FO	Bridge Maintenance	LT	East Fishkill	Mid-Range	$3,666,000	$4,783,284	Yes	NYSDOT	No	A19
1040020 NYS Route 199 Saw Kill NYSDOT 4.9	Bridge Maintenance	UH	Red Hook Town	Mid-Range	$585,000	$763,290	Yes	NYSDOT	No	A19
1040030 NYS Route 199 Lakes Kill NYSDOT 5.2 FO	Bridge Maintenance	UH	Red Hook Town	Mid-Range	$325,000	$424,050	Yes	NYSDOT	No	A19
1040040 NYS Route 199 Saw Kill NYSDOT 4.4 FO	Bridge Maintenance	UT	Pine Plains/Red Hook	Mid-Range	$338,000	$441,012	Yes	NYSDOT	No	A19
1040069 TSP NYS Route 199 NYSDOT 4.5 FO	Bridge Maintenance	UT	Milan	Mid-Range	$767,000	$1,000,758	Yes	NYSDOT	No	A19
1041330 NYS Route 216 Frog Hollow Brook NYSDOT 4.6 FO	Bridge Maintenance	LT	Beekman	Mid-Range	$377,000	$491,898	Yes	NYSDOT	No	A19
1041350 NYS Route 292 MNR Rail Line NYSDOT 4.9	Bridge Maintenance	LT	Pawling Town	Mid-Range	$1,222,000	$1,594,428	Yes	NYSDOT	No	A19
1045570 NYS Route 308 Rhinebeck Kill NYSDOT 5.0 FO	Bridge Maintenance	UH	Rhinebeck Town	Mid-Range	$533,000	$695,442	Yes	NYSDOT	No	A19
1045580 NYS Route 308 Landsman Kill NYSDOT 4.8	Bridge Maintenance	UH	Rhinebeck Town	Mid-Range	$325,000	$424,050	Yes	NYSDOT	No	A19
1046970 NYS Route 376 Gayhead Pond NYSDOT 4.8 FO	Bridge Maintenance	LT	East Fishkill	Mid-Range	$338,000	$441,012	Yes	NYSDOT	No	A19
1046980 NYS Route 376 Fishkill Creek NYSDOT 4.8 FO	Bridge Maintenance	LT	East Fishkill	Mid-Range	$1,456,000	$1,899,744	Yes	NYSDOT	No	A19
1052351 I-84 Hosner Mountain Rd NYSDOT 5.0	Bridge Maintenance	LT	East Fishkill	Mid-Range	$1,612,000	$2,103,288	Yes	NYSDOT	No	A19
1069469 NYS Route 44 Fall Kill Creek NYSDOT 5.0	Bridge Maintenance	LH	Poughkeepsie City	Mid-Range	$338,000	$441,012	Yes	NYSDOT	No	A19
5502399 TSP Sprout Creek NYSDOT 5.4 FO	Bridge Maintenance	LT	LaGrange	Mid-Range	$637,000	$831,138	Yes	NYSDOT	No	A19
5502440 NYS Route 115 TSP NYSDOT 5.0 FO	Bridge Maintenance	UT	Clinton	Mid-Range	$949,000	$1,238,226	Yes	NYSDOT	No	A19
2343470 Charles Coleman Blvd Swamp River Village 4.7 FO	Bridge Maintenance	LT	Pawling Village	Mid-Range	$338,000	$441,012	Yes	Pawling Village	No	A19
2262550 Main St MNR Rail Line City 4.5 FO	Bridge Maintenance	LH	Poughkeepsie City	Mid-Range	$1,079,000	$1,407,846	Yes	Poughkeepsie City	No	A19
2262650 Davis St Fall Kill Creek City 4.7 FO	Bridge Maintenance	LH	Poughkeepsie City	Mid-Range	$468,000	$610,632	Yes	Poughkeepsie City	No	A19
2262690 High St Fall Kill Creek City 4.7 SD	Bridge Maintenance	LH	Poughkeepsie City	Mid-Range	$390,000	$508,860	Yes	Poughkeepsie City	No	A19
2262790 North Bridge St Fall Kill Creek City 4.9	Bridge Maintenance	LH	Poughkeepsie City	Mid-Range	$5,694,000	$7,429,356	Yes	Poughkeepsie City	No	A19
2262850 Saw Kill Rd Saw Kill Town 4.8 SD	Bridge Maintenance	UH	Red Hook Town	Mid-Range	$416,000	$542,784	Yes	Red Hook Town	No	A19

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Bridge Description (BIN, Road, Feature Carried, Sponsor, Rating)[1]	Type	Area[2]	Location	Time Frame[3]	Est Cost (2011)[4]	Est Cost (YOE)[5]	Fed-Aid Eligible[6]	Project Sponsor	TIP Status[7]	Air Quality Code
2262820 White School House Rd Landsman Kill Town 4.5	Bridge Maintenance	UH	Rhinebeck Town	Mid-Range	$312,000	$407,088	Yes	Rhinebeck Town	No	A19
3343150 North Cross Rd Crum Elbow Creek County 4.1 SD	Bridge Maintenance	UH	Hyde Park	Long-Range	$1,274,000	$2,590,000	Yes	DCDPW	Yes	A19
2262810 Nelson Hill Rd Wassaic Creek Town 5.3 SD	Bridge Maintenance	HV	Amenia	Long-Range	$611,000	$797,214	Yes	Amenia	No	A19
2262530 Beekman St MNR Rail Line City 6.0	Bridge Maintenance	LH	Beacon	Long-Range	$3,679,000	$7,478,558	Yes	Beacon	No	A19
2262610 Churchill St Fishkill Creek City 7.0 FO	Bridge Maintenance	LH	Beacon	Long-Range	$1,417,000	$2,880,434	Yes	Beacon	No	A19
2262620 East Main St Fishkill Creek City 7.0 FO	Bridge Maintenance	LH	Beacon	Long-Range	$793,000	$1,611,986	Yes	Beacon	No	A19
1006340 NYS Route 9D Fishkill Creek City 5.1 FO	Bridge Maintenance	LH	Beacon	Long-Range	$1,729,000	$2,255,946	Yes	Beacon	No	A19
2262600 South Ave Fishkill Creek City Not Rated	Bridge Maintenance	LH	Beacon	Long-Range	$1,430,000	$1,865,820	Yes	Beacon	No	A19
2262630 Bridge St Fishkill Creek City Not Rated	Bridge Maintenance	LH	Beacon	Long-Range	$1,365,000	$1,781,010	Yes	Beacon	No	A19
2343140 Mills Cross Rd Crum Elbow Creek Town 5.9	Bridge Maintenance	UT	Clinton/Hyde Park	Long-Range	$390,000	$792,780	Yes	Clinton/Hyde Park	No	A19
7713200 CSX Rail Line Fairview Ave Railroad Not Rated	Bridge Maintenance	LH	Poughkeepsie City	Long-Range	$728,000	$1,479,856	No	CSX	No	A19
7713220 Conrail Rail Line CR 38 Railroad Not Rated	Bridge Maintenance	LH	Poughkeepsie Town	Long-Range	$416,000	$845,632	No	CSX	No	A19
3369490 Rail Line Sprout Creek County 3.2	Bridge Maintenance	LT	East Fishkill/Wappinger	Long-Range	$4,030,000	$8,192,000	Yes	DCDPW	No	A19
3342920 Lime Kiln Rd Ten Mile River County 4.4 SD	Bridge Maintenance	HV	Dover	Long-Range	$3,354,000	$6,818,000	Yes	DCDPW	No	A19
3342630 CR 2 Webatuck Creek County 6.0	Bridge Maintenance	HV	Amenia	Long-Range	$897,000	$1,823,394	Yes	DCDPW	No	A19
3342640 CR 2 Mill Brook County 7.0 SD	Bridge Maintenance	HV	Amenia	Long-Range	$364,000	$739,928	Yes	DCDPW	No	A19
3342650 Deep Hollow Rd Wassaic Creek County 5.5 FO	Bridge Maintenance	HV	Amenia	Long-Range	$793,000	$1,611,986	Yes	DCDPW	No	A19
3342680 CR 81 Wassaic Creek County 6.5	Bridge Maintenance	HV	Amenia	Long-Range	$1,040,000	$2,114,080	Yes	DCDPW	No	A19
3342740 CR 32 Whaley Lake Stream County 6.8	Bridge Maintenance	LT	Beekman	Long-Range	$468,000	$951,336	Yes	DCDPW	No	A19
3342750 CR 8 Fishkill Creek County 6.4	Bridge Maintenance	LT	Beekman	Long-Range	$1,131,000	$2,299,062	Yes	DCDPW	No	A19
3342760 CR 15 Little Wappinger Creek County 6.2	Bridge Maintenance	UT	Clinton	Long-Range	$481,000	$977,762	Yes	DCDPW	No	A19
3342780 CR 18 Little Wappinger Creek County 6.8	Bridge Maintenance	UT	Clinton	Long-Range	$728,000	$1,479,856	Yes	DCDPW	No	A19
3342790 Maple Ln Locust Creek County 5.5 FO	Bridge Maintenance	UT	Clinton	Long-Range	$377,000	$766,354	Yes	DCDPW	No	A19
3342850 Salt Point Turnpike Wappinger Creek Tributary County 6.6	Bridge Maintenance	UT	Clinton	Long-Range	$754,000	$1,532,708	Yes	DCDPW	No	A19
3342870 CR 13 Wappinger Creek County 5.6	Bridge Maintenance	UT	Clinton	Long-Range	$780,000	$1,585,560	Yes	DCDPW	No	A19
3342890 CR 19 Trickle Creek County 5.5	Bridge Maintenance	UT	Clinton	Long-Range	$325,000	$660,650	Yes	DCDPW	No	A19
3342930 Swamp River Rd Mill River County 5.5	Bridge Maintenance	HV	Dover	Long-Range	$689,000	$1,400,578	Yes	DCDPW	No	A19
3342960 Reagans Mill Rd Ten Mile River County 6.2 FO	Bridge Maintenance	HV	Dover	Long-Range	$1,443,000	$2,933,286	Yes	DCDPW	No	A19
3342980 Dogtail Corners Rd Ten Mile River County 7.0	Bridge Maintenance	HV	Dover	Long-Range	$1,404,000	$2,854,008	Yes	DCDPW	No	A19
3343000 Dover Furnace Rd Swamp River County 6.5	Bridge Maintenance	HV	Dover	Long-Range	$676,000	$1,374,152	Yes	DCDPW	No	A19
3343040 CR 21 Swamp River County 6.2	Bridge Maintenance	HV	Dover	Long-Range	$806,000	$1,638,412	Yes	DCDPW	No	A19
3343080 Beekman Rd Sylvan Lake Outlet County 5.7	Bridge Maintenance	LT	East Fishkill	Long-Range	$533,000	$1,083,466	Yes	DCDPW	No	A19
3343090 Carpenter Rd Fishkill Creek County 6.6	Bridge Maintenance	LT	East Fishkill	Long-Range	$1,105,000	$2,246,210	Yes	DCDPW	No	A19
3343160 South Cross Rd Crum Elbow Creek County 5.9	Bridge Maintenance	UH	Hyde Park	Long-Range	$702,000	$1,427,004	Yes	DCDPW	No	A19
3343170 Crum Elbow Rd Fall Kill County 7.0	Bridge Maintenance	UH	Hyde Park	Long-Range	$286,000	$581,372	Yes	DCDPW	No	A19
3343180 East Dorsey Rd Fall Kill County 5.6	Bridge Maintenance	UH	Hyde Park	Long-Range	$598,000	$1,215,596	Yes	DCDPW	No	A19
3343230 Velie Rd Sprout Creek County 6.9	Bridge Maintenance	LT	LaGrange	Long-Range	$715,000	$1,453,430	Yes	DCDPW	No	A19
3343250 Todd Hill Rd Sprout Creek County 5.5	Bridge Maintenance	LT	LaGrange	Long-Range	$767,000	$1,559,134	Yes	DCDPW	No	A19
3343320 CR 51 Roeliff Jansen Kill Tributary County 6.9	Bridge Maintenance	UT	Milan	Long-Range	$481,000	$977,762	Yes	DCDPW	No	A19
3343410 CR 58 Mountain Creek County 7.0 SD	Bridge Maintenance	HV	North East	Long-Range	$325,000	$660,650	Yes	DCDPW	No	A19
3343420 CR 61 Webatuck Creek County 6.1	Bridge Maintenance	HV	North East	Long-Range	$286,000	$581,372	Yes	DCDPW	No	A19
3343430 Reagan Rd Webatuck Creek County 5.7	Bridge Maintenance	HV	North East	Long-Range	$572,000	$1,162,744	Yes	DCDPW	No	A19
3343440 Indian Lake Rd Webatuck Creek County 6.7	Bridge Maintenance	HV	North East	Long-Range	$676,000	$1,374,152	Yes	DCDPW	No	A19
3343450 Downey Rd Webatuck Creek County 6.8	Bridge Maintenance	HV	North East	Long-Range	$572,000	$1,162,744	Yes	DCDPW	No	A19
3343550 CR 41 Saddle Brook County 6.6	Bridge Maintenance	UT	Pleasant Valley	Long-Range	$559,000	$1,136,318	Yes	DCDPW	No	A19
3343620 CR 49 Wappinger Creek County 6.4	Bridge Maintenance	LT	LaGrange/Poughkeepsie	Long-Range	$1,677,000	$3,408,954	Yes	DCDPW	No	A19
3343650 CR 80 Stony Creek County 6.2	Bridge Maintenance	UH	Red Hook Town	Long-Range	$871,000	$1,770,542	Yes	DCDPW	No	A19
3343670 CR 80 White Clay Kill County 6.6	Bridge Maintenance	UH	Red Hook Town	Long-Range	$442,000	$898,484	Yes	DCDPW	No	A19

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Bridge Description (BIN, Road, Feature Carried, Sponsor, Rating)[1]	Type	Area[2]	Location	Time Frame[3]	Est Cost (2011)[4]	Est Cost (YOE)[5]	Fed-Aid Eligible[6]	Project Sponsor	TIP Status[7]	Air Quality Code
3343680 Kidd Ln Stony Creek County 6.7	Bridge Maintenance	UH	Red Hook Town	Long-Range	$598,000	$1,215,596	Yes	DCDPW	No	A19
3343740 Echo Valley Rd Saw Kill County 5.5 FO	Bridge Maintenance	UH	Red Hook Town	Long-Range	$416,000	$845,632	Yes	DCDPW	No	A19
3343760 Miller Rd Landsman Kill County 5.8 FO	Bridge Maintenance	UH	Rhinebeck Town	Long-Range	$715,000	$1,453,430	Yes	DCDPW	No	A19
3343790 CR 85 Fallsburg Creek County 5.7	Bridge Maintenance	UH	Rhinebeck Town	Long-Range	$481,000	$977,762	Yes	DCDPW	No	A19
3343890 Jameson Hill Rd Wappinger Creek County 7.0	Bridge Maintenance	UT	Stanford	Long-Range	$858,000	$1,744,116	Yes	DCDPW	No	A19
3343970 Robinson Ln Sprout Creek County 5.8	Bridge Maintenance	LT	East Fishkill/Wappinger	Long-Range	$858,000	$1,744,116	Yes	DCDPW	No	A19
3343980 CR 91 Hunter Creek County 6.3	Bridge Maintenance	LH	Wappinger/Wappingers Falls	Long-Range	$442,000	$898,484	Yes	DCDPW	No	A19
3344000 Montfort Rd Sprout Creek County 6.5 FO	Bridge Maintenance	LT	East Fishkill/Wappinger	Long-Range	$819,000	$1,664,838	Yes	DCDPW	No	A19
3344020 CR 28 Millwood Creek County 6.6	Bridge Maintenance	LH	Wappinger	Long-Range	$286,000	$581,372	Yes	DCDPW	No	A19
3344100 Tyrell Rd South Brook County 5.5	Bridge Maintenance	UT	Washington	Long-Range	$403,000	$819,206	Yes	DCDPW	No	A19
3368230 CR 110 Green's Pond Outlet County 5.0	Bridge Maintenance	LH	Poughkeepsie Town	Long-Range	$533,000	$1,083,466	Yes	DCDPW	No	A19
3369010 CR 33 Jackson Creek County 5.6	Bridge Maintenance	LT	LaGrange	Long-Range	$507,000	$1,030,614	Yes	DCDPW	No	A19
3370160 Somerset Rd Shenandoah Creek County 7.0	Bridge Maintenance	LT	East Fishkill	Long-Range	$507,000	$1,030,614	Yes	DCDPW	No	A19
3370340 East Noxon Rd Jackson Creek County 5.8	Bridge Maintenance	LT	LaGrange	Long-Range	$338,000	$687,076	Yes	DCDPW	No	A19
7713210 Abandoned Rail Line NYS Route 115 County Not Rated	Bridge Maintenance	LH	Poughkeepsie Town	Long-Range	$0	$0	No	DCDPW	No	A19
3343200 Gidley Rd Sprout Creek County 5.1 FO	Bridge Maintenance	LT	LaGrange	Long-Range	$533,000	$1,083,466	Yes	DCDPW	No	A19
3343210 Skidmore Rd Sprout Creek County 5.1	Bridge Maintenance	LT	LaGrange	Long-Range	$689,000	$1,400,578	Yes	DCDPW	No	A19
3343390 CR 59 Bean River Tributary County 5.1	Bridge Maintenance	HV	North East	Long-Range	$351,000	$713,500	Yes	DCDPW	No	A19
3343560 Hurley Rd Wappinger Creek County 5.1 FO	Bridge Maintenance	UT	Pleasant Valley	Long-Range	$1,118,000	$2,272,636	Yes	DCDPW	No	A19
3343780 Mill Rd Landsman Kill County 5.1	Bridge Maintenance	UH	Rhinebeck Town	Long-Range	$637,000	$1,294,874	Yes	DCDPW	No	A19
3343880 Salt Point Turnpike Wappinger Creek County 5.1 FO	Bridge Maintenance	UT	Stanford	Long-Range	$1,040,000	$2,114,080	Yes	DCDPW	No	A19
3343960 CR 110 Wappinger Creek County 5.1 FO	Bridge Maintenance	LH	Poughkeepsie Town	Long-Range	$1,391,000	$2,827,582	Yes	DCDPW	No	A19
3344030 CR 86 Deer Hill Creek County 5.2	Bridge Maintenance	HV/UT	Amenia/Washington	Long-Range	$442,000	$898,484	Yes	DCDPW	No	A19
1050370 East Market St Crum Elbow Creek County 5.2	Bridge Maintenance	UH	Hyde Park	Long-Range	$741,000	$1,506,282	Yes	DCDPW	No	A19
3342800 Fiddlers Bridge Rd Little Wappinger Creek County 5.3	Bridge Maintenance	UT	Clinton	Long-Range	$650,000	$1,321,300	Yes	DCDPW	No	A19
3343260 CR 21 Sprout Creek County 5.2 FO	Bridge Maintenance	LT	LaGrange	Long-Range	$923,000	$1,876,246	Yes	DCDPW	No	A19
3343810 Homan Rd Cold Spring Creek County 5.2	Bridge Maintenance	UT	Stanford	Long-Range	$494,000	$1,004,188	Yes	DCDPW	No	A19
3344090 Fowler Rd Wappinger Creek County 5.2	Bridge Maintenance	UT	Washington	Long-Range	$780,000	$1,585,560	Yes	DCDPW	No	A19
1091580 CR 83 Wassaic Creek County 5.3	Bridge Maintenance	HV	Amenia	Long-Range	$286,000	$581,372	Yes	DCDPW	No	A19
2702020 Creek Rd Recreation Trail County 5.3 FO	Bridge Maintenance	LH	Poughkeepsie Town	Long-Range	$689,000	$898,986	Yes	DCDPW	No	A19
3342720 CR 7 Whaley Lake Stream County 5.3 FO	Bridge Maintenance	LT	Beekman	Long-Range	$715,000	$932,910	Yes	DCDPW	No	A19
3342730 CR 7 Whaley Lake Stream County 5.4	Bridge Maintenance	LT	Beekman	Long-Range	$520,000	$1,057,053	Yes	DCDPW	No	A19
3342770 CR 19 Little Wappinger Creek County 5.4	Bridge Maintenance	UT	Clinton	Long-Range	$468,000	$951,348	Yes	DCDPW	No	A19
3343240 Stringham Rd Sprout Creek County 5.3	Bridge Maintenance	LT	LaGrange	Long-Range	$741,000	$1,506,300	Yes	DCDPW	No	A19
3343280 CR 21 Jackson Creek County 5.4 N	Bridge Maintenance	LT	LaGrange	Long-Range	$403,000	$819,216	Yes	DCDPW	No	A19
3343990 Brown Rd Sprout Creek County 5.3	Bridge Maintenance	LT	East Fishkill/Wappinger	Long-Range	$780,000	$1,585,579	Yes	DCDPW	No	A19
3344010 CR 28 Sprout Creek County 5.3 FO	Bridge Maintenance	LT	East Fishkill/Wappinger	Long-Range	$1,144,000	$2,325,488	Yes	DCDPW	No	A19
1050380 CR 41 Crum Elbow Creek County 6.0	Bridge Maintenance	UH	Hyde Park	Long-Range	$533,000	$1,083,466	Yes	DCDPW	No	A19
2342990 Dugan Hill Rd Swamp River Town Not Rated	Bridge Maintenance	HV	Dover	Long-Range	$377,000	$766,354	Yes	Dover	No	A19
2262780 Carol Dr Fishkill Creek Town 5.5	Bridge Maintenance	LT	East Fishkill	Long-Range	$858,000	$1,744,116	Yes	East Fishkill	No	A19
2268710 Warren Farm Rd Wiccopee Creek Town 6.4 FO	Bridge Maintenance	LT	East Fishkill	Long-Range	$377,000	$766,354	Yes	East Fishkill	No	A19
2262770 Broadway Sprout Creek Town 5.3	Bridge Maintenance	LT	East Fishkill/Fishkill	Long-Range	$1,040,000	$2,114,106	Yes	East Fishkill/Fishkill	No	A19
2270450 Pink Lane Little Wappinger Creek Town 7.0	Bridge Maintenance	UT	Milan	Long-Range	$312,000	$634,224	Yes	Milan	No	A19
2343380 Mill Rd Webatuck Creek Village 5.2	Bridge Maintenance	UT	Millerton Village	Long-Range	$377,000	$766,354	Yes	Millerton Village	No	A19
2262540 Laurel St MNR Rail Line Railroad 6.3 FO	Bridge Maintenance	LH	Poughkeepsie City	Long-Range	$0	$0	Yes	MNR	No	A19
2262560 Hoffman St MNR Rail Line Railroad 7.0 SD	Bridge Maintenance	LH	Poughkeepsie City	Long-Range	$1,300,000	$2,642,600	Yes	MNR	No	A19
3702060 Carpenter Rd MNR Rail Line Railroad 6.4 FO	Bridge Maintenance	LT	East Fishkill	Long-Range	$0	$0	Yes	MNR	No	A19
7713180 MNR Rail Line Pine St Railroad Not Rated	Bridge Maintenance	LH	Poughkeepsie City	Long-Range	$689,000	$1,400,578	Yes	MNR	No	A19

Appendix B: Recommended Bridge Maintenance Projects (2012-2040)

Bridge Description (BIN, Road, Feature Carried, Sponsor, Rating)[1]	Type	Area[2]	Location	Time Frame[3]	Est Cost (2011)[4]	Est Cost (YOE)[5]	Fed-Aid Eligible[6]	Project Sponsor	TIP Status[7]	Air Quality Code
1006350 NYS Route 9D MNR Rail Line Railroad 6.5 FO	Bridge Maintenance	LH	Beacon	Long-Range	$0	$0	Yes	MNR	No	A19
5521790 NPS Service Rd CSX Rail Line Private Not Rated	Bridge Maintenance	UH	Hyde Park	Long-Range	$1,768,000	$3,593,936	No	NPS	No	A19
5521820 NPS Route 401 Fall Kill NPS Not Rated	Bridge Maintenance	UH	Hyde Park	Long-Range	$520,000	$1,057,040	No	NPS	No	A19
5521830 NPS Route 10 Crum Elbow Creek NPS Not Rated	Bridge Maintenance	UH	Hyde Park	Long-Range	$1,066,000	$2,166,932	No	NPS	No	A19
5521840 Coach House Dr Crum Elbow Creek NPS Not Rated	Bridge Maintenance	UH	Hyde Park	Long-Range	$1,144,000	$2,325,488	No	NPS	No	A19
5524670 Appalachain Trail Fishkill Creek Tributary NPS Not Rated	Bridge Maintenance	LT	East Fishkill	Long-Range	$403,000	$819,206	No	NPS	No	A19
5521770 Park Entrance CSX Rail Line NPS Not Rated	Bridge Maintenance	UH	Hyde Park	Long-Range	$936,000	$1,221,264	No	NPS	No	A19
3368980 Rail Line Webatuck Creek State Not Rated	Bridge Maintenance	HV	North East	Long-Range	$468,000	$951,336	No	NYS	No	A19
3368990 Rail Line Webatuck Creek State Not Rated	Bridge Maintenance	UT	Millerton Village	Long-Range	$494,000	$1,004,188	No	NYS	No	A19
3369000 Rail Line Webatuck Creek State Not Rated	Bridge Maintenance	UT	Millerton Village	Long-Range	$351,000	$713,502	No	NYS	No	A19
5521780 Norrie State Park Entrance CSX Rail Line State 5.6	Bridge Maintenance	UH	Hyde Park	Long-Range	$2,158,000	$4,386,716	No	NYS	No	A19
7713120 Rail Line Mill Rd State Not Rated	Bridge Maintenance	HV	North East	Long-Range	$494,000	$1,004,188	No	NYS	No	A19
7713130 Rail Line Downey Rd State Not Rated	Bridge Maintenance	HV	North East	Long-Range	$351,000	$713,502	No	NYS	No	A19
1052352 I-84 Hosner Mountain Rd NYSDOT 5.9	Bridge Maintenance	LT	East Fishkill	Long-Range	$1,807,000	$3,673,214	Yes	NYSDOT	No	A19
1052370 Stormville Moutain Rd I-84 NYSDOT 5.5 FO	Bridge Maintenance	LT	East Fishkill	Long-Range	$3,588,000	$7,293,576	Yes	NYSDOT	No	A19
1052390 Holmes St I-84 NYSDOT 5.6 FO	Bridge Maintenance	LT	East Fishkill	Long-Range	$3,913,000	$7,954,226	Yes	NYSDOT	No	A19
1069470 NYS Route 44 Fall Kill NYSDOT 6.1	Bridge Maintenance	LH	Poughkeepsie City	Long-Range	$1,001,000	$2,034,802	Yes	NYSDOT	No	A19
1070120 983W 983W82011001 US Route 44 NYSDOT 5.8	Bridge Maintenance	LH	Poughkeepsie Town	Long-Range	$3,081,000	$6,262,962	Yes	NYSDOT	No	A19
1072740 Bulls Head Rd TSP NYSDOT 5.6	Bridge Maintenance	UT	Stanford	Long-Range	$2,093,000	$4,254,586	Yes	NYSDOT	No	A19
1078460 Hosner Mountain Rd TSP NYSDOT 6.8	Bridge Maintenance	LT	East Fishkill	Long-Range	$1,027,000	$2,087,654	Yes	NYSDOT	No	A19
1078470 Hosner Mountain Rd TSP NYSDOT 6.8	Bridge Maintenance	LT	East Fishkill	Long-Range	$1,027,000	$2,087,654	Yes	NYSDOT	No	A19
1091350 I-84 Stern Stream NYSDOT 5.5 FO	Bridge Maintenance	LT	East Fishkill	Long-Range	$351,000	$713,502	Yes	NYSDOT	No	A19
2264540 Abandoned Church St Rail Line Railroad Not Rated	Bridge Maintenance	LH	Poughkeepsie City	Long-Range	$1,118,000	$2,272,636	No	NYSDOT	No	A19
3343600 NYS Route 115 Fall Kill Creek NYSDOT 5.5 FO	Bridge Maintenance	LH	Poughkeepsie City/Town	Long-Range	$429,000	$872,058	Yes	NYSDOT	No	A19
3344070 NYS Route 44A Wappinger Creek NYSDOT 6.2	Bridge Maintenance	UT	Washington	Long-Range	$1,586,000	$3,223,972	Yes	NYSDOT	No	A19
3367440 CR 9 TSP NYSDOT 5.7 FO	Bridge Maintenance	LT	East Fishkill	Long-Range	$2,639,000	$5,364,478	Yes	NYSDOT	No	A19
5027149 TSP NYS Route 55 NYSDOT 5.6 FO	Bridge Maintenance	LT	LaGrange	Long-Range	$676,000	$1,374,152	Yes	NYSDOT	No	A19
5502349 TSP MNR Rail Line NYSDOT 5.7 FO	Bridge Maintenance	LT	East Fishkill	Long-Range	$949,000	$1,929,098	Yes	NYSDOT	No	A19
5523530 CR 9 (Beekman Rd)/TSP Sylvan Lake Outle NYSDOT 6.4	Bridge Maintenance	LT	East Fishkill	Long-Range	$325,000	$660,650	Yes	NYSDOT	No	A19
5524650 TSP Miller Hill Rd NYSDOT 6.0	Bridge Maintenance	LT	East Fishkill	Long-Range	$806,000	$1,638,412	Yes	NYSDOT	No	A19
1005220 US Route 9 Wappinger Lake NYSDOT 5.1	Bridge Maintenance	LH	Poughkeepsie Town	Long-Range	$2,769,000	$5,628,738	Yes	NYSDOT	No	A19
1005301 US Route 9 Main St NYSDOT 5.1	Bridge Maintenance	LH	Poughkeepsie City	Long-Range	$1,963,000	$3,990,326	Yes	NYSDOT	No	A19
1005302 US Route 9 Main St NYSDOT 5.1	Bridge Maintenance	LH	Poughkeepsie City	Long-Range	$1,937,000	$3,937,474	Yes	NYSDOT	No	A19
1016770 NYS Route 44 Coleman Creek NYSDOT 5.1	Bridge Maintenance	HV	North East	Long-Range	$377,000	$766,354	Yes	NYSDOT	No	A19
1027160 NYS Route 55 Jackson Creek NYSDOT 5.1 FO	Bridge Maintenance	LT	Union Vale	Long-Range	$299,000	$607,798	Yes	NYSDOT	No	A19
1032510 Cary Rd I-84 NYSDOT 5.1 FO	Bridge Maintenance	LH	Fishkill	Long-Range	$3,770,000	$7,663,540	Yes	NYSDOT	No	A19
1040050 NYS Route 199 Warner Creek NYSDOT 5.1	Bridge Maintenance	UT	Milan	Long-Range	$338,000	$687,076	Yes	NYSDOT	No	A19
1070110 NYS Route 55 US Route 44 NYSDOT 5.1	Bridge Maintenance	LH	Poughkeepsie Town	Long-Range	$3,497,000	$7,108,594	Yes	NYSDOT	No	A19
1070139 NYS Route 44 Rail Line NYSDOT 5.1	Bridge Maintenance	LH	Poughkeepsie Town	Long-Range	$1,807,000	$3,673,214	Yes	NYSDOT	No	A19
3344050 NYS Route 44A Wappinger Creek NYSDOT 5.1	Bridge Maintenance	UT	Millbrook Village	Long-Range	$975,000	$1,981,950	Yes	NYSDOT	No	A19
5502379 TSP CR 21 NYSDOT 5.3 FO	Bridge Maintenance	LT	LaGrange	Long-Range	$559,000	$1,136,318	Yes	NYSDOT	No	A19
5502389 TSP Jackson Creek NYSDOT 5.1 FO	Bridge Maintenance	LT	LaGrange	Long-Range	$468,000	$951,336	Yes	NYSDOT	No	A19
1005259 US Route 9 Fox St NYSDOT 5.4	Bridge Maintenance	LH	Poughkeepsie City	Long-Range	$2,002,000	$4,069,604	Yes	NYSDOT	No	A19
1005260 Columbia St US Route 9 NYSDOT 5.4 FO	Bridge Maintenance	LH	Poughkeepsie City	Long-Range	$1,261,000	$2,563,322	Yes	NYSDOT	No	A19
1025580 NYS Route 44 South Brook NYSDOT 5.2	Bridge Maintenance	UT	Washington	Long-Range	$351,000	$713,502	Yes	NYSDOT	No	A19
1052361 I-84 NYS Route 52 NYSDOT 5.2 FO	Bridge Maintenance	LT	East Fishkill	Long-Range	$4,173,000	$8,482,746	Yes	NYSDOT	No	A19
1052362 I-84 NYS Route 52 NYSDOT 5.4 FO	Bridge Maintenance	LT	East Fishkill	Long-Range	$3,900,000	$7,927,800	Yes	NYSDOT	No	A19
5502359 TSP Fishkill Creek NYSDOT 5.2 FO	Bridge Maintenance	LT	East Fishkill	Long-Range	$897,000	$1,823,394	Yes	NYSDOT	No	A19

Appendix B: Recommended Bridge Maintenance Projects (2012-2040)

Bridge Description (BIN, Road, Feature Carried, Sponsor, Rating)[1]	Type	Area[2]	Location	Time Frame[3]	Est Cost (2011)[4]	Est Cost (YOE)[5]	Fed-Aid Eligible[6]	Project Sponsor	TIP Status[7]	Air Quality Code
5502479 TSP Roeliff Jansen Kill NYSDOT 5.2	Bridge Maintenance	UT	Milan	Long-Range	$3,263,000	$6,632,926	Yes	NYSDOT	No	A19
1005340 Hoffman St US Route 9 NYSDOT 5.3	Bridge Maintenance	LH	Poughkeepsie City	Long-Range	$1,131,000	$1,475,694	Yes	NYSDOT	No	A19
1016720 NYS Route 22 Swamp River NYSDOT 5.3 FO	Bridge Maintenance	HV	Dover	Long-Range	$975,000	$1,272,150	Yes	NYSDOT	No	A19
1016760 NYS Route 22 Amenia Stream NYSDOT 5.4 FO	Bridge Maintenance	HV	Amenia	Long-Range	$351,000	$713,502	Yes	NYSDOT	No	A19
1025590 NYS Route 44 Ham Creek NYSDOT 5.4	Bridge Maintenance	UT	Washington	Long-Range	$351,000	$713,502	Yes	NYSDOT	No	A19
1026819 I-84 First Farm Rd NYSDOT 5.4 FO	Bridge Maintenance	LH	Fishkill	Long-Range	$338,000	$687,076	Yes	NYSDOT	No	A19
1027150 NYS Route 55 Sprout Creek NYSDOT 5.4 FO	Bridge Maintenance	LT	LaGrange	Long-Range	$689,000	$898,986	Yes	NYSDOT	No	A19
1032530 Fishkilll Hook Rd I-84 NYSDOT 5.3 FO	Bridge Maintenance	LT	East Fishkill	Long-Range	$4,108,000	$8,350,616	Yes	NYSDOT	No	A19
1032541 I-84 Wiccopee Creek NYSDOT 5.3	Bridge Maintenance	LT	East Fishkill	Long-Range	$442,000	$898,484	Yes	NYSDOT	No	A19
1032542 I-84 Wiccopee Creek NYSDOT 5.4	Bridge Maintenance	LT	East Fishkill	Long-Range	$442,000	$898,484	Yes	NYSDOT	No	A19
1032571 I-84 TSP NYSDOT 5.4 SD	Bridge Maintenance	LT	East Fishkill	Long-Range	$4,511,000	$9,169,822	Yes	NYSDOT	No	A19
1041340 NYS Route 292 Whaley Lake Stream NYSDOT 5.3	Bridge Maintenance	LT	Pawling Town	Long-Range	$286,000	$373,164	Yes	NYSDOT	No	A19
1072730 NYS Route 376 Big Black Stream NYSDOT 5.3	Bridge Maintenance	LH	Wappinger	Long-Range	$286,000	$373,164	Yes	NYSDOT	No	A19
2267840 Creek Rd Webatuck Creek State 5.3 FO	Bridge Maintenance	HV	Amenia	Long-Range	$871,000	$1,136,454	Yes	NYSDOT	No	A19
5502410 TSP James Baird Park Rd NYSDOT 5.4 FO	Bridge Maintenance	LT	LaGrange	Long-Range	$494,000	$644,556	Yes	NYSDOT	No	A19
5502459 TSP CR 12 NYSDOT 5.3 FO	Bridge Maintenance	UT	Clinton	Long-Range	$572,000	$746,328	Yes	NYSDOT	No	A19
1005201 I-84 US Route 9 NYSDOT 5.8 FO	Bridge Maintenance	LH	Fishkill	Long-Range	$2,093,000	$4,254,586	Yes	NYSDOT	No	A19
1005202 I-84 US Route 9 NYSDOT 5.6 FO	Bridge Maintenance	LH	Fishkill	Long-Range	$2,093,000	$4,254,586	Yes	NYSDOT	No	A19
1005279 US Route 9 Pine St NYSDOT 5.6 FO	Bridge Maintenance	LH	Poughkeepsie City	Long-Range	$754,000	$1,532,708	Yes	NYSDOT	No	A19
1005329 US Route 9 Fall Kill Creek NYSDOT 5.7	Bridge Maintenance	LH	Poughkeepsie City	Long-Range	$1,248,000	$2,536,896	Yes	NYSDOT	No	A19
1005350 US Route 9 CSX Rail Line NYSDOT 5.8 FO	Bridge Maintenance	LH	Poughkeepsie Town	Long-Range	$1,040,000	$2,114,080	Yes	NYSDOT	No	A19
1005360 US Route 9 Crum Elbow Creek NYSDOT 5.8	Bridge Maintenance	UH	Hyde Park	Long-Range	$1,430,000	$2,906,860	Yes	NYSDOT	No	A19
1006370 NYS Route 9D Hunter Creek NYSDOT 6.0	Bridge Maintenance	LH	Wappinger	Long-Range	$559,000	$1,136,318	Yes	NYSDOT	No	A19
1006410 NYS Route 9G CSX Rail Line Railroad 6.2 FO	Bridge Maintenance	LH	Poughkeepsie City	Long-Range	$1,209,000	$2,457,618	Yes	NYSDOT	No	A19
1006430 NYS Route 9G NYS Route 308 NYSDOT 5.8	Bridge Maintenance	UH	Rhinebeck Town	Long-Range	$754,000	$1,532,708	Yes	NYSDOT	No	A19
1006440 NYS Route 9G Saw Kill NYSDOT 6.2	Bridge Maintenance	UH	Red Hook Town	Long-Range	$1,209,000	$2,457,618	Yes	NYSDOT	No	A19
1006450 NYS Route 9G Stony Creek NYSDOT 6.2	Bridge Maintenance	UH	Red Hook Town	Long-Range	$754,000	$1,532,708	Yes	NYSDOT	No	A19
1016690 NYS Route 22 Brady Brook NYSDOT 6.6	Bridge Maintenance	LT	Pawling Town	Long-Range	$520,000	$1,057,040	Yes	NYSDOT	No	A19
1016740 NYS Route 22 Clear Creek NYSDOT 6.3 FO	Bridge Maintenance	HV	Amenia	Long-Range	$338,000	$687,076	Yes	NYSDOT	No	A19
1025550 NYS Route 44 Wappinger Creek NYSDOT 6.2	Bridge Maintenance	UT	Pleasant Valley	Long-Range	$2,080,000	$4,228,160	Yes	NYSDOT	No	A19
1026840 NYS Route 52 Fishkill Creek NYSDOT 5.9	Bridge Maintenance	LH	Fishkill	Long-Range	$2,392,000	$4,862,384	Yes	NYSDOT	No	A19
1027139 NYS Route 55 Wappinger Creek NYSDOT 6.2	Bridge Maintenance	LT	LaGrange/Poughkeepsie	Long-Range	$1,339,000	$2,721,878	Yes	NYSDOT	No	A19
1027180 NYS Route 55 Whaley Lake Stream NYSDOT 6.0	Bridge Maintenance	LT	Beekman	Long-Range	$455,000	$924,910	Yes	NYSDOT	No	A19
1027190 NYS Route 55 Whaley Lake Stream NYSDOT 5.5	Bridge Maintenance	LT	Beekman	Long-Range	$312,000	$634,224	Yes	NYSDOT	No	A19
1027200 NYS Route 55 MNR Rail Line NYSDOT 6.9	Bridge Maintenance	LT	Pawling Town	Long-Range	$1,235,000	$2,510,470	Yes	NYSDOT	No	A19
1032350 NYS Route 82 Hunns Lake Creek NYSDOT 5.7	Bridge Maintenance	UT	Stanford	Long-Range	$442,000	$898,484	Yes	NYSDOT	No	A19
1032360 NYS Route 82 Wappinger Creek NYSDOT 6.8	Bridge Maintenance	UT	Pleasant Valley	Long-Range	$1,261,000	$2,563,322	Yes	NYSDOT	No	A19
1032370 NYS Route 199 Shekomeko Creek NYSDOT 5.6	Bridge Maintenance	UT	Pine Plains	Long-Range	$871,000	$1,770,542	Yes	NYSDOT	No	A19
1032501 I-84 Clove Creek NYSDOT 5.9	Bridge Maintenance	LH	Fishkill	Long-Range	$728,000	$1,479,856	Yes	NYSDOT	No	A19
1032502 I-84 Clove Creek NYSDOT 6.0	Bridge Maintenance	LH	Fishkill	Long-Range	$728,000	$1,479,856	Yes	NYSDOT	No	A19
1032572 I-84 TSP NYSDOT 5.6 FO	Bridge Maintenance	LT	East Fishkill	Long-Range	$4,654,000	$9,460,508	Yes	NYSDOT	No	A19
1046190 NYS Route 343 Webatuck Creek NYSDOT 6.2	Bridge Maintenance	HV	Amenia	Long-Range	$520,000	$1,057,040	Yes	NYSDOT	No	A19
1046990 NYS Route 376 Whortle Kill Creek NYSDOT 7.0	Bridge Maintenance	LT	East Fishkill	Long-Range	$338,000	$687,076	Yes	NYSDOT	No	A19
1047000 NYS Route 376 Sprout Creek NYSDOT 5.6 FO	Bridge Maintenance	LT	East Fishkill/Wappinger	Long-Range	$1,170,000	$2,378,340	Yes	NYSDOT	No	A19
1047010 NYS Route 376 Wappinger Creek NYSDOT 6.0	Bridge Maintenance	LT	LaGrange/Poughkeepsie	Long-Range	$1,313,000	$2,669,026	Yes	NYSDOT	No	A19
2269680 Pedestrian Bridge NYS Route 22 Other 6.9	Bridge Maintenance	LT	Pawling Village	Long-Range	$845,000	$1,717,690	No	Pawling School District	No	A19
2343460 River Rd Swamp River Town 6.0	Bridge Maintenance	LT	Pawling Town	Long-Range	$351,000	$713,502	Yes	Pawling Town	No	A19
2343480 Ravine Rd Brady Brook Town 6.2	Bridge Maintenance	LT	Pawling Town	Long-Range	$403,000	$819,206	Yes	Pawling Town	No	A19

Appendix B: Recommended Bridge Maintenance Projects (2012-2040)

Bridge Description (BIN, Road, Feature Carried, Sponsor, Rating)[1]	Type	Area[2]	Location	Time Frame[3]	Est Cost (2011)[4]	Est Cost (YOE)[5]	Fed-Aid Eligible[6]	Project Sponsor	TIP Status[7]	Air Quality Code
2262640 North Water St Fall Kill Creek City 5.5 FO	Bridge Maintenance	LH	Poughkeepsie City	Long-Range	$741,000	$1,506,282	Yes	Poughkeepsie City	No	A19
2262700 Mansion St Fall Kill Creek City 6.7	Bridge Maintenance	LH	Poughkeepsie City	Long-Range	$377,000	$766,354	Yes	Poughkeepsie City	No	A19
2262800 Balding Pedestrian Walk Fall Kill Creek City Not Rated	Bridge Maintenance	LH	Poughkeepsie City	Long-Range	$338,000	$687,076	Yes	Poughkeepsie City	No	A19
2262580 Clinton St CSX Rail Line Railroad 5.1 FO	Bridge Maintenance	LH	Poughkeepsie City	Long-Range	$377,000	$491,898	Yes	Poughkeepsie City	No	A19
2262660 Mill St Fall Kill Creek City 5.1	Bridge Maintenance	LH	Poughkeepsie City	Long-Range	$494,000	$1,004,200	Yes	Poughkeepsie City	No	A19
2262680 Garden St Fall Kill Creek City 5.1	Bridge Maintenance	LH	Poughkeepsie City	Long-Range	$416,000	$845,642	Yes	Poughkeepsie City	No	A19
2262720 North Hamilton St Fall Kill Creek City 5.1 FO	Bridge Maintenance	LH	Poughkeepsie City	Long-Range	$585,000	$1,189,185	Yes	Poughkeepsie City	No	A19
2262730 North Cherry St Fall Kill Creek City 5.1 FO	Bridge Maintenance	LH	Poughkeepsie City	Long-Range	$468,000	$951,348	Yes	Poughkeepsie City	No	A19
2262740 White St Fall Kill Creek City 5.1 FO	Bridge Maintenance	LH	Poughkeepsie City	Long-Range	$520,000	$1,057,053	Yes	Poughkeepsie City	No	A19
2702050 Dock Rd CSX Rail Line Railroad 5.1 FO	Bridge Maintenance	UH	Red Hook Town	Long-Range	$442,000	$898,495	Yes	Poughkeepsie City	No	A19
2262710 Catherine St Fall Kill Creek City 5.3 FO	Bridge Maintenance	LH	Poughkeepsie City	Long-Range	$442,000	$898,495	Yes	Poughkeepsie City	No	A19
2262860 Aspinwall Rd Saw Kill Town 6.1	Bridge Maintenance	UH	Red Hook Town	Long-Range	$377,000	$766,354	Yes	Red Hook Town	No	A19
2262570 Hutton St CSX Rail Line Town 6.1	Bridge Maintenance	UH	Rhinebeck Town	Long-Range	$1,300,000	$2,600,000	Yes	Rhinebeck Town	No	A19
2269510 Pedestrian Bridge CSX Rail Line Town Not Rated	Bridge Maintenance	UH	Rhinebeck Town	Long-Range	$1,781,000	$3,620,362	No	Rhinebeck Town	No	A19
2343750 Miller Rd Landsman Kill Town 6.0 FO	Bridge Maintenance	UH	Rhinebeck Town	Long-Range	$1,378,000	$2,801,156	Yes	Rhinebeck Town	No	A19
2262830 Layton Rd Hunns Lake Creek Town 6.0	Bridge Maintenance	UT	Stanford	Long-Range	$260,000	$528,520	Yes	Stanford	No	A19
2268730 Wisseman Rd Jackson Creek Town 5.0	Bridge Maintenance	LT	Union Vale	Long-Range	$377,000	$766,400	Yes	Union Vale	No	A19
2269500 McKinley St Wappinger Creek Village 5.8	Bridge Maintenance	LH	Wappingers Falls	Long-Range	$1,391,000	$2,827,582	Yes	Wappingers Falls	No	A19
3343100 Stormville Rd Fishkill Creek County 4.4 SD	Bridge Maintenance	LT	East Fishkill	Close Bridge	$0	$0	Yes	DCDPW	No	A19
				Total Federal-aid Eligible	**$384,544,000**	**$607,308,958**				

Notes:

[1]FO=Functionally Obsolete; SD=Structurally Deficient. Recommendations and timeframes are subject to change based on future conditions. Bridge ratings do not reflect damage from Tropical Storm Irene (August 28-29, 2011).

[2]LH: Lower Hudson; UH: Upper Hudson; LT: Lower Taconic; UT: Upper Taconic; HV: Harlem Valley.

[3]Short-Range: 2012-2015; Mid-Range: 2016-2025; Long-Range: 2026-2040.

[4]Total estimated cost in 2011 dollars.

[5]Total estimated cost in Year of Expenditure dollars: 2015 (Short-), 2020 (Mid-), or 2035 (Long-Range).

[6]Federal-aid eligibility refers to eligibility of project to receive federal funding.

[7]TIP status refers to whether the project is programmed on the current 2011-2015 TIP.

Appendix C

NYSDOT ADA Inventory

The Americans with Disabilities Act of 1990 (ADA) requires state and local governments to make their programs and services accessible to persons with disabilities. This includes removing any physical barriers from public facilities, including sidewalks. Section 28 CFR 35.150 requires public entities with 50 or more employees to identify barriers that may limit accessibility for persons with disabilities, and to develop a transition plan describing how the identified barriers will be addressed.

In August 2010, NYSDOT completed an ADA compliance inventory of sidewalks, crosswalks, and curb ramps on State roadways. A draft ADA plan was released in December 2010. The plan identifies intersections and sidewalk segments on State roads that are not yet fully ADA accessible.

In Dutchess County, NYSDOT identified a total of 78 locations that are not ADA accessible, including 39 intersections and 39 sidewalk segments. These are listed in the attached table. According to NYSDOT's Draft Plan, 90 percent of the 43 miles of NYSDOT sidewalks in the County comply with ADA.

The next phase of NYSDOT's Plan will include a prioritized list of improvements. NYSDOT expects to fully comply with ADA by March 2019.

More information is available on NYSDOT's website at: https://www.nysdot.gov/programs/adamanagement/ada-transition-plan.

New York State Department of Transportation Sidewalks and Intersections
Not Yet Modified or Improved to Fully Achieve ADA Accessibility, as of August 2010
The Regional Director of NYSDOT Region 8 is ensuring that necessary modifications and improvements will all be completed not later than March 2019

Region 8, Dutchess County, sorted by Route, traveling from West to East or South to North

Route	Route Name	Locality	Type	From or At	To	From Mile	To Mile
US9	US Highway 9	Wappinger Town	Intersection	@ Scenic Dr		57.95	57.95
US9	South Rd	Poughkeepsie Town	Intersection	@ Connecting Road		62.57	62.57
US9	North Rd	Poughkeepsie Town	Sidewalk	Connecting Road & Driveway	Driveway	67.05	67.27
US9	Mill St	Rhinebeck Village	Sidewalk	Mill Rd & Mill St	Asher Rd	81.07	81.16
US9	Mill St	Rhinebeck Village	Intersection	@ Asher Rd		81.16	81.16
US9	Mill St	Rhinebeck Village	Sidewalk	Asher Rd	Rockefeller Ln	81.16	81.26
US9	Mill St	Rhinebeck Village	Intersection	@ South St		81.42	81.42
NY9D	Wolcott Ave	Beacon City	Intersection	@ Beekman St		15.85	15.85
NY9D	W Main St	Wappingers Falls Village	Sidewalk	Givans Ave	Church St	23.96	24.11
NY9D	W Main St	Wappingers Falls Village	Intersection	@ Clinton St		24.36	24.36
US44	Church St	Poughkeepsie City	Intersection	@ Ramp		30.31	30.31
US44	Church St	Poughkeepsie City	Intersection	@ Church St		30.34	30.34
US44	Church St	Poughkeepsie City	Sidewalk	Jefferson St	Columbus Dr	30.47	30.62
US44	Church St	Poughkeepsie City	Intersection	@ May St		31.46	31.46
US44	Church St	Poughkeepsie City	Intersection	@ Church St		31.50	31.50
US44	Baker St	Poughkeepsie City	Intersection	@ Quaker Ln		31.57	31.57
US44	Baker St	Poughkeepsie City	Intersection	@ Manitou Ave		31.66	31.66
US44	Baker St	Poughkeepsie City	Intersection	@ Fountain Pl		31.74	31.74
US44	Baker St	Poughkeepsie City	Intersection	@ Worrall Ave		31.86	31.86
US44	Baker St	Poughkeepsie City	Sidewalk	Worrall Ave	S Grand Ave	31.86	32.01
US44	Haight Ave	Poughkeepsie Town	Sidewalk	S Grand Ave	Driveway	32.01	32.13
US44	Haight Ave	Poughkeepsie Town	Intersection	@ Fowler Ave		32.40	32.40
US44	Haight Ave	Poughkeepsie Town	Sidewalk	Fowler Ave	Fairmont Ave	32.40	32.52

New York State Department of Transportation Sidewalks and Intersections
Not Yet Modified or Improved to Fully Achieve ADA Accessibility, as of August 2010

The Regional Director of NYSDOT Region 8 is ensuring that necessary modifications and improvements will all be completed not later than March 2019

Region 8, Dutchess County, sorted by Route, traveling from West to East or South to North

Route	Route Name	Locality	Type	From or At	To	From Mile	To Mile
US44	Haight Ave	Poughkeepsie City	Intersection	@ Fairmont Ave		32.52	32.52
US44	Haight Ave	Poughkeepsie Town	Intersection	@ Fairmont Ave		32.52	32.52
US44	Dutchess Tpke	Poughkeepsie Town	Sidewalk	Main St	Dutchess Tpke	32.75	32.90
US44	Dutchess Tpke	Poughkeepsie Town	Sidewalk	Dutchess Tpke	Burnett Blvd	32.90	32.97
US44	Dutchess Tpke	Poughkeepsie Town	Sidewalk	Burnett Blvd	Mountain View Rd	32.97	33.11
US44	Dutchess Tpke	Poughkeepsie Town	Intersection	@ Mountain View Rd		33.11	33.11
US44	Dutchess Tpke	Poughkeepsie Town	Intersection	@ Parking Lot		33.16	33.16
US44	Dutchess Tpke	Poughkeepsie Town	Sidewalk	Parking Lot	Catskill Ave & Peckham Rd	33.16	33.19
US44	Dutchess Tpke	Poughkeepsie Town	Intersection	@ Catskill Ave & Peckham Rd		33.19	33.19
US44	Dutchess Tpke	Poughkeepsie Town	Sidewalk	Catskill Ave & Peckham Rd	Longview Rd	33.19	33.25
US44	Dutchess Tpke	Poughkeepsie Town	Intersection	@ Longview Rd		33.25	33.25
US44	Dutchess Tpke	Poughkeepsie Town	Sidewalk	Longview Rd	Durocher Ter	33.25	33.34
US44	Main St	Pleasant Valley Town	Sidewalk	Niagara Rd	Niagara Rd	37.33	37.66
US44	Main St	Pleasant Valley Town	Sidewalk	Church St	Unnamed Street	37.75	37.79
US44	Main St	Pleasant Valley Town	Intersection	@ Quaker Hill Rd		38.01	38.01
US44	Main St	Pleasant Valley Town	Intersection	@ Traver Rd		38.06	38.31
US44	Main St	Pleasant Valley Town	Intersection	@ Traver Rd		38.31	38.31
US44	Main St	Pleasant Valley Town	Sidewalk	Traver Rd	Unnamed Street	38.31	38.45
US44	Franklin Ave	Millbrook Village	Sidewalk	Carroll Dr	E Farm Dr	45.47	45.87
US44	Franklin Ave	Millbrook Village	Sidewalk	E Farm Dr	Harts Village Rd	45.87	46.00
US44	Main St	Millerton Village	Intersection	@ John St		65.20	65.20
US44	Main St	Millerton Village	Sidewalk	Dutchess Ave	Park Ave	65.21	65.31
US44	Main St	Millerton Village	Intersection	@ Central Ave		65.36	65.36
US44	Main St	Millerton Village	Sidewalk	Central Ave	N Maple Ave & S Maple Ave	65.36	65.42

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Region 8, Dutchess County, sorted by Route, traveling from West to East or South to North

Route	Route Name	Locality	Type	From or At	To	From Mile	To Mile
US44	Main St	Millerton Village	Intersection	@ N Maple Ave & S Maple Ave		65.42	65.42
NY52	Main St	Fishkill Village	Sidewalk	Ramp	Old Main St	87.10	87.15
NY52	Hopewell Ave	Fishkill Village	Sidewalk	Old Main St	Rapalje Rd	87.15	87.24
NY52	Hopewell Ave	Fishkill Village	Sidewalk	Rapalje Rd	Clark Dr	87.24	87.31
NY55	W Haight Ave	Poughkeepsie Town	Sidewalk	Haight Ave	Ramp	90.55	90.76
NY82	S Main St	Pine Plains Town	Sidewalk	Myrtle Ave	Smith St	38.58	38.67
NY82	S Main St	Pine Plains Town	Intersection	@ Church St		38.93	38.93
NY113	Spackenkill Rd	Poughkeepsie Town	Sidewalk	Ramp	Connecting Road	0.22	0.30
NY113	Spackenkill Rd	Poughkeepsie Town	Intersection	@ Connecting Road		0.22	0.30
NY113	Spackenkill Rd	Poughkeepsie Town	Sidewalk	Connecting Road	Spackenkill Rd	0.30	0.39
NY113	Spackenkill Rd	Poughkeepsie Town	Intersection	@ Spackenkill Rd		0.30	0.39
NY199	W Market St	Red Hook Village	Intersection	@ Benner Rd		7.55	7.55
NY199	W Market St	Red Hook Village	Sidewalk	Benner Rd	Ludlow Ave	7.55	7.63
NY199	W Market St	Red Hook Village	Sidewalk	Ludlow Ave	Phillips St & Unnamed Street	7.63	7.75
NY199	Church St	Pine Plains Town	Sidewalk	Pioneer Dr	N Main St	22.34	22.49
NY199	Church St	Pine Plains Town	Intersection	@ N Main St		22.49	22.49
NY308	E Market St	Rhinebeck Village	Sidewalk	Monsignor John T Joy Plz & Mulberry St	N Parsonage St	0.27	0.36
NY308	E Market St	Rhinebeck Village	Intersection	@ N Parsonage St		0.36	0.36
NY308	E Market St	Rhinebeck Village	Sidewalk	N Parsonage St	Beech St	0.36	0.47
NY308	E Market St	Rhinebeck Village	Sidewalk	Beech St	South St	0.47	0.60
NY343	Route 343	Amenia Town	Intersection	@ Mechanic St		15.14	15.14
NY376	Route 376	East Fishkill Town	Intersection	@ Ramp		2.10	2.10
NY376	Route 376	East Fishkill Town	Sidewalk	Route 82	Orchard Pl	2.23	2.29

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Region 8, Dutchess County, sorted by Route, traveling from West to East or South to North

Route	Route Name	Locality	Type	From or At	To	From Mile	To Mile
NY376	Raymond Ave	Poughkeepsie Town	Intersection	@ Unnamed Street		12.89	12.89
NY376	Raymond Ave	Poughkeepsie Town	Intersection	@ Collegeview Ave & Fulton Ave		13.39	13.39
NY376	Raymond Ave	Poughkeepsie Town	Sidewalk	Collegeview Ave & Fulton Ave	LaGrange Ave	13.39	13.47
NY376	Raymond Ave	Poughkeepsie Town	Sidewalk	Davis Ave	Haight Ave	13.52	13.59
NY376	Raymond Ave	Poughkeepsie Town	Sidewalk	Haight Ave	Main St	13.59	13.69
NY376	Raymond Ave	Poughkeepsie Town	Intersection	@ Main St		13.69	13.69
NY376	Raymond Ave	Poughkeepsie Town	Intersection	@ Van Wagner Rd		13.82	13.82
982M	W Market St	Rhinebeck Village	Sidewalk	Wall St	Oak St	2.01	2.19

Appendix D

Public Outreach Summary

The Council relied on stakeholder workshops and surveys to gather input on the transportation needs and priorities identified in *Moving Dutchess*. The Council also held a 30 day public comment period for the final draft of the Plan.

Stakeholder Workshops

The Council held a series of stakeholder workshops in support of *Moving Dutchess*. The workshops were held in six locations throughout the county and focused on identifying and prioritizing transportation needs in the five planning areas defined in the plan.

While open to the public, the workshops were targeted for town, planning, and zoning board members, highway superintendents, and conservation council members. Invitation letters were sent to chief elected officials and board secretaries, with the suggestion that each board send one or two representatives.

The workshops were held on the following dates and locations (all were from 6:00-8:00 pm):

1. June 15th - Fishkill Town Hall (Lower Hudson 1)
2. June 21st - Beekman Town Hall (Lower Taconic)
3. June 23rd - Stanford Town Hall (Upper Taconic)
4. June 28th - Poughkeepsie City Hall (Lower Hudson 2)
5. July 18th - Hyde Park Town Hall (Upper Hudson)
6. July 20th - Amenia Town Hall (Harlem Valley)

Each workshop included a short presentation about the Council and its responsibilities, followed by a review of information gathered for the plan. The workshops used the following format:

1. Introduction to the Council and Metropolitan Planning Organization (MPO) process
2. Council history, organization, planning requirements
3. Metropolitan Transportation Plan (Existing Conditions)
   a. Background, organization, and purpose
   b. Demographic overview (countywide)
   c. Transportation system and natural resource overview (countywide)
   d. Area plan overview
      - Demographics
      - Land use (centers, destinations, and major projects)
      - Transportation system (road and bridge conditions; transit service; sidewalks/trails)
      - Comprehensive plan findings
4. Transportation needs
   a. Review needs identified by staff
   b. Request concurrence on needs and identify new needs
   c. Prioritize needs (short- mid-, and long-range priorities)
   d. Discuss strategic disinvestment (what can we live without?)

Large poster maps were made available, showing the planning area, road and bridge conditions, and crash data. Posters were also provided listing the transportation needs for the area that staff identified from previous Council studies, local comprehensive plans, and system data. Attendees edited and added to these lists and then prioritized the needs. The edited and prioritized lists of needs from each workshop are attached.

Upper Hudson Workshop held on July 18, 2011.

Survey

Staff developed a survey to gather feedback on transportation issues, patterns, and priorities. The survey was primarily conducted online, using SurveyMonkey. A shorter paper version was also distributed, and pdfs created for posting on the PDCTC website. The paper and pdf versions were translated into Chinese and Spanish. Distribution included the following methods:

1. Council website (link to online version and pdfs in English, Spanish, and Chinese)
2. Technical Committee meeting announcements
3. Council public information email list
4. Dutchess County Planning Federation email list
5. Dutchess County Mayors and Supervisors email list
6. Dutchess County employees' Tie-Line newsletter article
7. Dutchess Housing Consortium email list
8. Local libraries (email and some paper copies)
9. LOOP buses (paper copies)

The survey was conducted from mid-July through early September, with completed paper surveys entered into SurveyMonkey for analysis. A total of 408 surveys were completed. The survey form and charts of the survey responses are attached.

Findings from the survey included the following:

Making Dutchess County a great place to live- 95 percent of respondents said that protecting air and water quality was either very important or somewhat important; preserving natural areas, improving public transportation, reducing energy use, and reducing traffic congestion were rated very or somewhat important by 87 to 88 percent of respondents.

Driving- Over 40 percent of respondents stated that the condition of roads in their community was excellent or good, while 40 percent said it was fair. Over 50 percent stated that bridges in their community were in excellent or good condition, while 30 percent said they were fair. Over 40

percent said traffic flow was excellent or good, while 34 percent said it was fair and 21 percent said it was not good or poor. About 60 percent rated their feeling of safety while driving as excellent or good; 30 percent as fair, and 11 percent as not good or poor.

Walking- Almost 50 percent of respondents said that the amount of sidewalks, shoulders, and crosswalks in their community was not good or poor; another 30 percent said it was fair. Forty percent said the condition of those facilities was not good or poor. However, 36 percent said the availability of paths and trails was excellent or good. Close to 40 percent rated their feeling of safety while walking as not good or poor. Over half of respondents said they sometimes walk for transportation, while almost 40 percent said they never do. About 9 percent said they often walk for transportation. The most common reasons for not walking more were distance (67%) and inadequate sidewalks or shoulders (58%).

Bicycling- Almost 60 percent of respondents said that the amount of bicycle lanes and shoulders in their community was not good or poor. Close to 50 percent said the condition of those facilities was not good or poor. While close to 40 percent said the availability of bicycle paths and trails was not good or poor, over 20 percent said it was excellent or good. However, 45 percent rated their feeling of safety while bicycling as not good or poor. Almost 70 percent of respondents said they never bicycle for transportation, while 28 percent said they sometimes do and 4 percent said they often do. The most common reasons for not bicycling more were inadequate shoulders, bike lanes or paths (55%), and too much traffic (39%).

Bus Transit- Most respondents stated that they did not know about bus transit conditions in their community. However, of those that rated bus transit, most said they condition of buses was excellent or good, but rated the frequency and schedule, availability of information, and availability of bus stops and shelters as not good or poor. However, most rated their feeling of safety on buses as excellent or good. Over 80 percent of respondents said they never take the bus, while 17 percent said they sometimes do and 3 percent said they often do. The most common reasons for not using the bus more were that it doesn't go where they need to go (42%), bus service is not available (32%), and they don't know the route or schedule (30%).

Other Transit- Most respondents rated Metro-North highly, saying the condition of trains, frequency and schedule of service, availability of information, reliability of service, and feeling of safety was excellent or good. However, over 30 percent said availability of parking was poor, and other 30 percent said it was fair. Most respondents selected "don't know" with regard to the availability of ferry service.
Over 75 percent of respondents said they sometimes take the train, while 18 percent said they never do and 6 percent said they often do. The most common reasons for not using the train more were that the cost is too high (33%) and it doesn't go where they need to go (32%).

Transportation Overall- Over 40 percent of respondents selected "excellent" or "good" in terms of how well the transportation system overall meets their needs; 38 percent selected "fair." Over half of respondents rated the ease of getting where they have to go as excellent or good, while 32 percent rated it as fair.

Travel Patterns- Over 20 percent of respondents said that at least one driving-age (16 or older) member of their household depends on transit or rides from others, either because they don't have a car or don't drive. Over 50 percent of respondents' households use two vehicles on a daily basis; about 30 percent use one vehicle, and 12 percent use three vehicles. About five percent use zero vehicles and four percent use four or more.

Of those that commute to work, one-third commutes 5 miles or fewer. Over 75 percent commute 20 miles or fewer.

When asked about their travel over the past week, the most common trip purpose was socializing or recreation, followed closely by shopping. When comparing trips by travel mode, most reported trips were drive-alone or with children. Carpool was second, followed by walking, then bus, then bicycling. The most common driving trips were driving alone or with children to shop, followed by driving to an appointment and driving to social events or recreation. The most common carpool trips were to social events or recreation, followed by shopping. The most common walking and bicycling trips were for socializing or recreation, and the most common bus trips were for work or school.

In terms of out-of-county travel, of the choices given, respondents were most likely to go to Ulster County at least once in the previous month, and least likely to go to Putnam County.

Problems- When asked about current and emerging problems, a majority of respondents said that the lack of safe and accessible sidewalks, and availability of transportation for elderly and disabled persons were current problems. These were followed by the lack of safe bicycle facilities, congestion on roadways, and the lack of bus service. In terms of emerging problems, the most commonly cited were road conditions and air quality. The most common issues deemed to be 'not a problem' were commercial truck traffic, air quality, and bridge conditions.

Reducing Congestion- To reduce congestion, most respondents suggested improving public transportation (37%), followed by creating communities where people don't have to drive as much (34%).

Agree/Disagree Questions- 64 percent of respondents strongly agreed or agreed with "I would use buses more often if the service had convenient stops and schedules," and 54 percent strongly agreed or agreed with "To save money, I would consider carpooling, taking the bus, walking, or bicycling." However, 55 percent strongly agreed or agreed with "I would continue to drive even if other types of travel were made more convenient." Over half of respondents disagreed or strongly disagreed with "Commercial truck traffic negatively

affects my quality of life" and "I experience delays daily in my travels."

Land Use- The vast majority of respondents (84%) said that development should mostly be located within cities, town centers and villages. Almost 86 percent said that housing and buildings should be closely spaced with connecting sidewalks, rather than spread out, even if it means having smaller homes and yards and less space for parking. Over 80 percent said that infrastructure and services should be expanded primarily in and around existing town and village centers.

Top Priorities- Maintaining major roads or streets and improving public transportation were the top priorities, followed by improving transportation for seniors and disabled persons, improving sidewalks, and improving major roads.

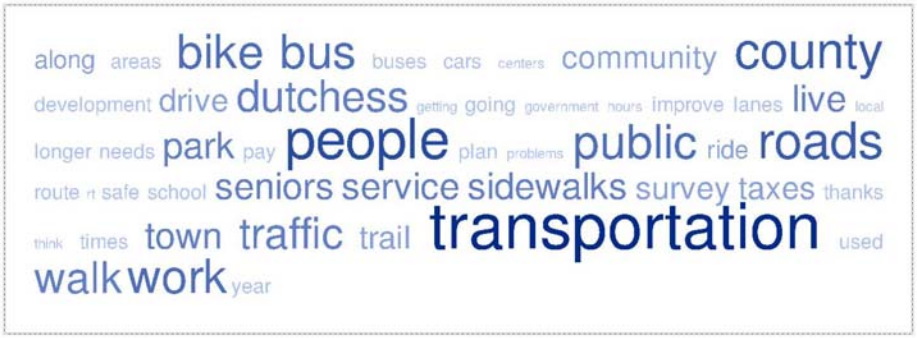
Services to Support with Taxes- Respondents were most willing to support shuttle service for seniors and disabled persons, and walking and bicycling improvements. Improving bus service also had substantial support.

Revenue Sources- Most respondents oppose increases in taxes and other revenue sources. However, if additional revenue were necessary, the option with the highest percent of strong support was an increase in the gas tax. Combining items that respondents 'strongly support' and 'somewhat support,' the most supported option was an increase in existing tolls (42% support), followed by an increase in vehicle registration fees (34% support). A sales tax increase, a user tax based on miles driven, and adding tolls to highways all had 31 to 32 percent support. The most opposed option was a property tax increase (88% oppose) followed by an increase in the gas tax (75% oppose).

Demographics- There was at least one respondent from all 30 municipalities. The largest number of respondents was from the Town of Poughkeepsie, followed by the City of Poughkeepsie, Towns of Hyde Park and LaGrange. Respondents ranged in age from under 24 to over 85. Almost 32 percent of respondents were aged 55 to 64, and 73 percent were between ages 45 and 74. Slightly more females (54%) took the survey than males (46%). Over 90 percent of survey respondents selected White as their race, though some respondents selected Black, Asian, American Indian/Alaska Native, and Other. Almost 30 percent of respondents reported an annual household income of over $100,000; another 20 percent reported from $75,000-$100,000 and almost 20 percent reported $25,000-$50,000 and $50,000-$75,000 each.

Comments- About 30 percent of respondents added comments at the end of the survey. The most common topics included transit issues and needs; gratitude for the survey; tax and funding concerns; bicycling safety and facility needs; land use and development patterns; seniors' transportation needs, and sidewalks and walkability.

Figure D-1. Word Cloud of Public Comments from Survey



30-Day Public Comment Period

The Council also conducted a 30-day public comment period from October 11 to November 8, 2011, which provided the public an opportunity to provide comments on the final draft Plan. This included two public meetings held on October 26th at the Council's office and Poughkeepsie Town Hall.

MTP ID#	Project Description	Project Type	Area[1]	Location
UF-1	Construct a new entrance road connecting Route 22 to the Metro-North Dover Plains train station	Highway-Capacity	HV	Dover
UF-2	Construct a northern bypass road around Hopewell Junction, connecting Route 82 to Route 376	Highway-Capacity	LT	East Fishkill
UF-3	Construct a service road behind commercial plazas on the south side of Route 82 in Hopewell Junction	Highway-Capacity	LT	East Fishkill
UF-4	Construct a service road parallel to Route 9 in the Hyde Park Town center	Highway-Capacity	UH	Hyde Park
UF-5	Construct a new service road parallel to Route 55 in Freedom Plains	Highway-Capacity	LT	LaGrange
UF-6	Evaluate congestion and potential capacity improvements on Aikendale Rd and Coulter Ave/Pine St in Pawling	Highway-Capacity	LT	Pawling Town
UF-7	Widen Route 22 from two lanes to four from Pawling south to I-684	Highway-Capacity	LT	Pawling Town
UF-8	Continue to evaluate a potential Maggiacomo Lane connection to South Ave via a bridge over Wappinger Creek	Highway-Capacity	UT	Pleasant Valley
UF-9	Construct a rear lot access road connecting Quaker Hill Rd and North Ave and connecting to parking lots	Highway-Capacity	UT	Pleasant Valley
UF-10	Create a secondary street system east of Route 9 including a north-south street to connect CR 104 (New Hackensack Rd) to CR 93 (Myers Corners Rd)	Highway-Capacity	LH	Wappinger
UF-11	Realign the Route 44 and Route 343 intersection in Amenia	Highway-Operations	HV	Amenia
UF-12	Beekman Town Center implementation (Phase I): add traffic calming measures and sidewalks on Route 55	Highway-Operations	LT	Beekman
UF-13	Beekman Town Center implementation (Phase II): add a roundabout at the Route 55/CR 9 (Beekman Rd) intersection	Highway-Operations	LT	Beekman
UF-14	Beekman Town Center implementation (Phase III): construct access roads from adjacent residential/commercial areas onto Route 55	Highway-Operations	LT	Beekman
UF-15	Add turn lanes on Gardner Hollow Rd at the Route 55 intersection	Highway-Operations	LT	Beekman
UF-16	Extend Jameson Hill Rd west to intersect with Salt Point Turnpike and dead-end Clinton Corners Rd north of Jameson Hill Rd to eliminate through traffic	Highway-Operations	UT	Clinton
UF-17	Narrow CR 14 (Hollow Rd) at its intersection with Route 115 (Salt Point Turnpike)	Highway-Operations	UT	Clinton
UF-18	Redesign and narrow the intersection of Fiddlers Bridge Rd and CR 14 (Hollow Rd) to a "T" configuration	Highway-Operations	UT	Clinton
UF-19	Redesign Route 376 in Hopewell Junction as a boulevard, potentially adding roundabouts at the Trinka Ln and Route 82 intersections	Highway-Operations	LT	East Fishkill
UF-20	Install deceleration and acceleration lanes from Carpenter Rd onto the Taconic State Parkway	Highway-Operations	LT	East Fishkill
UF-21	Realign CR 53 (South Rd) between Route 199 and Route 82	Highway-Operations	UT	Milan
UF-22	Place a 3-way stop at the intersection of Route 44 and Franklin Ave	Highway-Operations	UT	Millbrook
UF-23	Evaluate the need for a yield or stop sign at the intersection of North Ave and Franklin Ave	Highway-Operations	UT	Millbrook
UF-24	Evaluate the feasibility of making Front St one-way and adding a connector street from Merritt Ave to a new intersection with North Ave	Highway-Operations	UT	Millbrook
UF-25	Add on-street parking, center medians to channelize left-turn movements, crosswalks, and curb extensions at hamlet intersections	Highway-Operations	UT	Pleasant Valley
UF-26	Establish a direct connection between the Mid-Hudson Plaza and the former Hudson River Psychiatric Center	Highway-Operations	LH	Poughkeepsie Town
UF-27	Redesign access to the Mid-Hudson Plaza from Fulton St to prohibit eastbound left-turns from entering the plaza until a main access can be constructed further east	Highway-Operations	LH	Poughkeepsie Town
UF-28	Construct a roundabout at the CR 93 (Myers Corners Rd) and CR 94 (All Angels Hill Rd) intersection	Highway-Operations	LH	Wappinger
UF-29	Extend the Harlem Valley Rail Trail to the Town park in Wassaic hamlet	Pedestrian/Bicycle	HV	Amenia
UF-30	Determine the feasibility of using the rail easement along Fishkill Creek for a bicycle and pedestrian path, connecting to the Greenway Trail	Pedestrian/Bicycle	LH	Beacon
UF-31	Add a sidewalk or trail connection from the Dutchess Rail Trail to Red Wing Town Park	Pedestrian/Bicycle	LT	East Fishkill
UF-32	Improve pedestrian access to and add crosswalks near Van Wyck Junior High School on Route 376	Pedestrian/Bicycle	LT	East Fishkill
UF-33	Complete the Greenway Rail Trail from Hopewell Junction through Beekman and Pawling to Putnam County	Pedestrian/Bicycle	LT	East Fishkill
UF-34	Improve bicycle access to and provide additional parking for the Dutchess Rail Trail in Fishkill Plains	Pedestrian/Bicycle	LT	East Fishkill
UF-35	Add parking lots for the Greenway Rail Trail at Route 292, Depot Hill Rd, and Stormville Rd	Pedestrian/Bicycle	LT	East Fishkill
UF-36	Add striped bike lanes on CR 41 (Crum Elbow Rd), Quaker Ln, Creek Rd, CR 14 (Hollow Rd), and CR 40A (St. Andrews Rd)	Pedestrian/Bicycle	UH	Hyde Park
UF-37	Install a pedestrian bridge across East Market St to improve the trail connection between Pinewoods Park and Hacket Hill Park	Pedestrian/Bicycle	UH	Hyde Park
UF-38	Repair pedestrian bridges along Hudson River Greenway Trail routes at Crum Elbow Point, Dominican Camp, and Staatsburgh	Pedestrian/Bicycle	UH	Hyde Park
UF-39	Establish a multi-use trail from the Roeliff-Jansen Kill through the Lafayette Multiple Use Areas and connecting to Lafayetteville, Wilcox Park and Stissing Mountain recreation areas and other trails	Pedestrian/Bicycle	UT	Milan
UF-40	Install new sidewalk and curbing on Washington Ave, Merritt Ave, and Church St, especially by the firehouse	Pedestrian/Bicycle	UT	Millbrook
UF-41	Develop bicycle paths, particularly between the Bennett complex and the Village of Millbrook	Pedestrian/Bicycle	UT	Millbrook
UF-42	Provide bicycle lanes on Route 9 (a designated State Bicycle Route)	Pedestrian/Bicycle	UH, LH	Multiple
UF-43	Widen shoulders on Route 22 where possible to promote bicycling	Pedestrian/Bicycle	HV	Multiple
UF-44	Complete the Hudson River Greenway Trail	Pedestrian/Bicycle	UH, LH	Multiple
UF-45	Add a pedestrian/bicycle connection from Route 22 at Quaker Hill Rd to the Pawling train station via Main St	Pedestrian/Bicycle	LT	Pawling Village
UF-46	Install a sidewalk on Lakeside Dr, connecting the Pawling Village Center with Town parks and ballfields	Pedestrian/Bicycle	LT	Pawling Village
UF-47	Provide a sidewalk or path on CR 71 (West Rd) and continue to evaluate/pursue a reduced speed limit	Pedestrian/Bicycle	UT	Pleasant Valley
UF-48	Investigate a future Wappinger Creek walkway connection between Pleasant Valley Town parks	Pedestrian/Bicycle	UT	Pleasant Valley
UF-49	Construct a multi-use trail on the CSX West Branch	Pedestrian/Bicycle	LH	Poughkeepsie Town
UF-50	Construct a sidewalk and/or separated path on the west side of Route 9 from the Marist north gate to Quiet Cove Park	Pedestrian/Bicycle	LH	Poughkeepsie Town
UF-51	Provide shoulders for bicyclists and pedestrians on both sides of CR 79 (Linden Ave) from the Red Hook Recreation Park Pool to Linden Acres	Pedestrian/Bicycle	UH	Red Hook Town
UF-52	Create a new rail trail on the former Hucklebush Rail Line	Pedestrian/Bicycle	UH	Rhinebeck Town
UF-53	Add dedicated bicycle lanes on Route 9G and Route 9 between Rhinebeck and Poughkeepsie	Pedestrian/Bicycle	UH, LH	Rhinebeck/Hyde

MTP ID#	Project Description	Project Type	Area[1]	Location
UF-54	Provide wider shoulders for bicyclists on River Rd from Rhinecliff to Tivoli	Pedestrian/Bicycle	UH	Rhinebeck/Tivoli
UF-55	Develop bike paths to link the Village of Tivoli with Bard College	Pedestrian/Bicycle	UH	Tivoli Village
UF-56	Develop a walking and biking trail along Woods Rd to the Clermont State Historic Site	Pedestrian/Bicycle	UH	Tivoli Village
UF-57	Construct a sidewalk on one side of CR 93 (Myers Corners Rd/Middlebush Rd) from Route 9D to Route 376	Pedestrian/Bicycle	LH	Wappinger
UF-58	Continue development of the Wappinger Greenway Trail, including a pedestrian walkway along the west side of Route 9 crossing Wappinger Lake	Pedestrian/Bicycle	LH	Wappingers Falls
UF-59	Promote and assist local pedestrian, trail, and bikeway plans	Planning Study	ALL	ALL
UF-60	Evaluate shoulder width and pavement condition on State and County roads, especially in hamlets and villages	Planning Study	ALL	ALL
UF-61	Conduct a parking study in the Village of Millbrook	Planning Study	UT	Millbrook
UF-62	Reassess and revise local highway specifications to be consistent with rural road standards	Planning Study	UT	Pine Plains
UF-63	Evaluate and implement traffic calming techniques as needed on Route 199 in the Pine Plains hamlet	Planning Study	UT	Pine Plains
UF-64	Create a parking plan for the Pine Plains hamlet	Planning Study	UT	Pine Plains
UF-65	Conduct a pedestrian/bicycle infrastructure study for the Stanford Town Center and Stanfordville and Bangall hamlets	Planning Study	UT	Stanford
UF-66	Evaluate the feasibility of adding bicycle paths or lanes on Old Hopewell Rd, Route 376, and portions of New Hackensack and Widmer Rd near Route 9, and construct where feasible	Planning Study	LT	Wappinger
UF-67	Establish road capacity limits relative to width, surface, grade, alignment and bridge limits in the Town of Washington	Planning Study	UT	Washington
UF-68	Conduct speed studies and pursue lower speed limits on State and County roads in hamlets	Safety	ALL	ALL
UF-69	Improve safety at the Route 52 and Route 82 interchanges on the Taconic State Parkway in East Fishkill	Safety	LT	East Fishkill
UF-70	Realign Route 376 in Hopewell Junction to eliminate the 90-degree curves at Railroad Ave and near Oak St	Safety	LT	East Fishkill
UF-71	Conduct a speed study on Route 199 between Battenfeld Rd and Rock City Rd	Safety	UT	Milan
UF-72	Lengthen acceleration lanes, improve sight distance, and provide warning signs at the Route 22/Route 55 interchange	Safety	LT	Pawling Town
UF-73	Conduct speed studies on Route 82, CR 65, and Attlebury Hill Rd and implement speed limit reductions and/or traffic calming as needed	Safety	UT	Stanford
UF-74	Evaluate Park-and-Ride lots at CR 27 (Lime Kiln Road) near I-84, Taconic State Parkway and Route 52, and Taconic State Parkway and Todd Hill Rd and expand as needed	TDM	LT	East Fishkill/LaGrange
UF-75	Evaluate a potential Park-and-Ride lot in Hyde Park, possibly at the Roosevelt Theater or drive-in site, with a RailLink shuttle to the Poughkeepsie train station at peak hours	TDM	UH	Hyde Park
UF-76	Expand LOOP's Flex Service in rural areas	Transit	UT	ALL
UF-77	Evaluate potential locations for bus pull-offs	Transit	ALL	ALL
UF-78	Create a new fixed bus route to serve the Route 199 corridor between Tivoli-Red Hook and Millerton-North East	Transit	UH/UT/HV	Multiple
UF-79	Consider re-establishing permanent ferry service between Rhinecliff and the City of Kingston	Transit	UH	Rhinebeck Town

Notes:

[1] LH: Lower Hudson; UH: Upper Hudson; LT: Lower Taconic; UT: Upper Taconic; HV: Harlem Valley.

[2] Federal-aid eligibility refers to the eligibility of a project to receive federal funding.

Appendix F: Air Quality Codes

Highway and transit projects of the types listed below are exempt from the requirement to determine air quality conformity. Such projects may proceed toward implementation even in the absence of a conforming MTP and TIP. However, a project of a type listed below is not exempt if the MPO, in consultation with the Interagency Consultation Group (ICG), concurs that it has regionally significant emissions impacts. The following coded list of exempt projects is derived from "Table 2 - Exempt Projects" in 40 CFR Part 93.126 and 6 NYCRR Part 240.27 *(Revised per July 1, 2004 Federal Register)*.

A. Safety

A1. Railroad/highway crossing.
A2. Hazard elimination program.
A3. Safer non-Federal-aid system roads.
A4. Shoulder improvements.
A5. Increasing sight distance.
A6. Safety improvement program.
A7. Traffic control devices and operating assistance other than signalization projects (including ITS maintenance and ITS operations for incident management/safety warnings).
A8. Railroad/highway crossing warning devices.
A9. Guiderails, median barriers, and crash cushions.
A10. Pavement resurfacing and/or rehabilitation.
A11. Pavement marking demonstration.
A12. Emergency relief (23 U.S.C. 125).
A13. Fencing.
A14. Skid treatments.
A15. Safety roadside rest areas.
A16. Adding medians.
A17. Truck climbing lanes outside the urbanized area.
A18. Lighting improvements.
A19. Widening narrow pavements or reconstructing bridges (no additional travel lanes).
A20. Emergency truck pullovers.

B. Mass Transit

B1. Operating assistance to transit agencies (or entities that provide transit service).
B2. Purchase of support vehicles.
B3. Rehabilitation of transit vehicles.
B4. Purchase of office, shop, and operating equipment for existing facilities.
B5. Purchase of operating equipment for vehicles (i.e. radios, fareboxes, lifts, etc.).
B6. Construction or renovation of power, signal, and communications systems (including new systems to inform passengers of transit line schedule and status).
B7. Construction of small passenger shelters and information kiosks.
B8. Reconstruction or renovation of transit buildings and structures (i.e. rail or bus buildings, storage and maintenance facilities, stations, terminals, and ancillary structures).

B9. Rehabilitation or reconstruction of track structures, track, and track bed in existing rights-of-way.
B10. Purchase of new buses and rail cars to replace existing vehicles or for minor expansions (< 10%) of the fleet. (NOTE: ICG recommends case-by-case consultation for all expansions).
B11. Construction of new bus or rail storage/maintenance facilities categorically excluded in 23 CFR 771.

C. Air Quality and Other

C1. Continuation of ride-sharing and van-pooling promotion activities at current levels.
C2. Bicycle and pedestrian facilities.
C3. Planning and technical studies that do not proceed to construction.
C4. Grants for training and research programs.
C5. Planning activities conducted pursuant to titles 23 and 49 U.S.C.
C6. Federal-aid systems revisions.
C7. Engineering to assess social, economic, and environmental effects of the proposed action or alternatives to that action.
C8. Noise attenuation.
C9. Emergency or advance land acquisitions (23 CFR 710.503).
C10. Acquisition of scenic easements.
C11. Plantings, landscaping, etc.
C12. Sign removal.
C13. Directional and informational signs (including ITS maintenance and ITS operations projects).
C14. Transportation enhancement activities (except *rehabilitation and operation* of historic transportation buildings, structures, or facilities).
C15. Repair of damage caused by natural disasters, civil unrest, or terrorist acts,
except projects involving substantial functional, location, or capacity changes.

Projects Exempt from Regional Emissions Analysis

40 CFR Part 93.127 includes "Table 3 - Projects Exempt from Regional Emissions Analysis," which is also presented in 6 NYCRR Part 240.28. Such projects are exempt from regional emissions analysis requirements, but require consideration of the local effects with respect to CO or PM-10 concentrations to determine if a hot-spot analysis is required prior to making a project-level conformity determination. These projects may then proceed to the project development process, even in the absence of a conforming plan and TIP.

D. "Hot-Spot" Project-Level Conformity Analysis

D1. Intersection channelization projects.
D2. Intersection signalization projects at individual intersections.
D3. Interchange reconfiguration projects.
D4. Changes in vertical and horizontal alignment.
D5. Truck size and weight inspection stations.
D6. Bus terminals and transfer points.

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

Fall 2011

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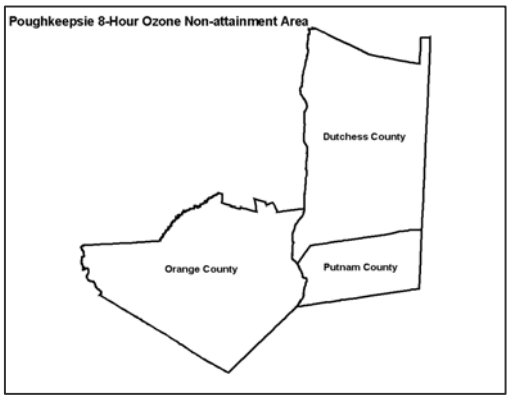
Table of Contents

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 in conjunction with the completion of new long range Metropolitan Transportation Plans by the OCTC for Orange County and the PDCTC for Dutchess County. This Draft Conformity Determination also covers the NYMTC, OCTC, and PDCTC 2011-2015 Transportation Improvement Programs (TIPs) and the current NYMTC Metropolitan Transportation Plan.

2. **OVERVIEW**

2.1. Background. In recognition of the close relationship between air quality and transportation, Federal legislation – the Clean Air Act Amendments of 1990 (CAAA) and the Safe, Accountable, Flexible, Efficient Transportation Equity Act (SAFETEA) – require that transportation activities conform to State air quality implementation plans before receiving federal transportation funding. Specifically, the CAAA establishes air quality standards through the designation of National Ambient Air Quality Standards (NAAQS). These standards set limits on the levels of air pollution (e.g. ozone, Particulate Matter, Carbon Monoxide, and Nitrogen Dioxide) that can exist in a region. In regions where these standards are not met (i.e. in non-attainment), it must be demonstrated that all future transportation plans and projects do not produce new air quality violations, worsen existing conditions, or delay timely attainment of the NAAQS. The CAAA further requires that a conformity determination must be less than four years old in non-attainment areas. If a conformity determination does expire, the region goes into a conformity lapse and restrictions are placed on the use of federal transportation funds; exceptions to this rule include funding for safety, mass transit, and air quality improvement projects that are exempt. The lapse would occur one year after the previous determination expires.

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



2.2. Attainment/Non-Attainment History and Status. In 1991 Dutchess County, Putnam County, and Upper Orange County were classified as a Moderate Non-attainment Area

under the 1-hour ozone standard, while in attainment for all other Clean Air Act criteria pollutants. The Lower Orange County Metropolitan Area (LOCMA), consisting of the Towns of Blooming Grove, Chester, Highlands, Monroe, Tuxedo, Warwick, and Woodbury were classified as a Severe Ozone Non-attainment Area, falling within the New York Metropolitan Ozone Non-attainment Area.

On July 16, 1997, the U.S. Environmental Protection Agency (USEPA) concluded that the 1-hour standard did not adequately protect the public from the adverse health effects of ground level ozone. In establishing a new "concentration based" 8-hour standard, the USEPA set the standard at 0.08 parts per million (ppm). Specifically, the design value for 8-hour ozone is the 3-year average of the annual 4th-highest daily maximum 8-hour ozone concentrations. An area attains the standard when the 3-year average of the annual 4th-highest daily maximum 8-hour concentrations is less than or equal to 0.08 ppm.

Effective June 15, 2004, the USEPA designated Dutchess, Orange, and Putnam County to be a Non-attainment Area under the 8-hour ozone standard. Based on 2001-2003 data, the 8-hour ozone design value for the Poughkeepsie Ozone Non-attainment Area was 0.094 ppm, and Dutchess, Orange and Putnam County were classified as a Moderate Ozone Non-attainment Area under the 8-hour ozone standard. The current ozone design value for the area based on 2008-2010 monitoring data is 0.076 ppm as monitored at both the Mt. Ninham monitor in Putnam County and Millbrook monitor in Dutchess County. The Valley Central Monitor in Orange County has a 2008-2010 design value of 0.073 ppm. On March 12, 2008, EPA once again strengthened the 8-hour ozone NAAQS to a level of 0.075 ppm. It is likely that the Poughkeepsie, NY area will be classified non-attainment under the new standard. However, USEPA has not made final area designations for the new ozone standard and the conformity requirements for the new standard do not yet apply.

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

This statement details the conformity determination process that the NYMTC, OCTC and the PDCTC undertook for their respective MTPs and TIPs, by addressing each of the regulatory criteria stipulated in the federal transportation conformity regulation, 40 CFR Part 93, as amended April 23, 2010, which forms the basis of this determination

statement. The State requirements under 6 NYCRR Part 240, especially 240.6 consultation process have been met as well.

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

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

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

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

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

Most demographic data are based on Census Block, Block Group, Tract, or Minor Civil Division (MCD) geographies, 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 that represent a land use pattern with significant or unique travel characteristics. More information on the TAZs can be found in section 5.3.

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

Dutchess	2010	2014	2020	2030	2035	2040	% Annual Growth	% Total Growth
Population	297,488	303,790	313,344	329,267	337,228	345,190	0.5%	16%
Employment	110,531	112,300	114,995	119,641	122,033	124,474	0.4%	13%
Housing Units	118,638	121,108	124,892	131,460	134,744	138,344	0.6%	17%
Households	107,965	110,303	113,877	120,064	123,157	126,157	0.6%	17%
Vehicles	192,605	195,958	200,987	209,369	213,559	217,749	0.4%	13%

Orange	2010	2014	2020	2030	2035	2040	% Annual Growth	% Total Growth
Population[1]	372,813	390,300	408,606	449,126	470,192	492,247	1.1%	32%
Employment[2]	139,728	146,166	154,212	170,305	178,351	186,379	1.1%	33%
Housing Units	137,025	144,565	152,600	167,860	175,490	183,120	1.1%	34%
Households	125,925	133,000	140,000	154,000	161,000	168,000	1.1%	33%

Putnam	2010	2014	2020	2030	2035	2040	% Annual Growth	% Total Growth
Population	102,838	104,971	110,571	120,699	125,019	130,394	0.8%	27%
Employment	40,668	42,644	45,270	48,758	50,293	51,926	0.8%	28%
Households	36,011	37,256	39,919	43,530	44,798	46,543	0.9%	29%

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

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

4.1.1. Population

4.1.1.1. Dutchess County. Source: Census 2010, Summary File 1. The PDCTC Model uses 2010 Census data as the benchmark for future population estimates. The Model uses data on Average Household Size or Persons per Household (PPH) for each TAZ, which are used to generate Trip Productions in TransCAD. Population forecasts were obtained by conducting a 50-year County-wide build-out analysis: where the number of possible new housing units was identified for every parcel in the County (this analysis covered over 7,200 individual parcels). The 50-year build-out analysis used data on local zoning and subdivision bulk regulations (for all 30 municipalities) to determine the number of housing units each parcel could legally support. This gross build-out was then constrained based on environmental features such as floodplains, watersheds, steep slopes, protected lands, and agricultural lands that would limit the number of housing units on each parcel. This analysis produced a net total of potential housing units by parcel, which was adjusted by the presence of any existing housing units, to produce a net total of potential units. The parcel data was applied to the TAZ

geographies and used to produce the total number of housing units by TAZ, adjusted for the 2040 planning horizon (prorated for 30 years). The number of future households (occupied housing units) was calculated by applying occupancy rates to the number of housing units in each TAZ. The occupancy rates were based on average vacancy rates from the 1980-2010 Census by municipality. Future population was determined by multiplying the number of occupied housing units (i.e. households) by the average number of persons per household. This total was added to 2010 Census population data for each TAZ.

The population estimate shows that the County's population could grow by 16 percent over the next 30 years: an annual growth rate of 0.5 percent. This is lower than previous forecasts, which relied on data from the 2000 Census.

4.1.1.2. Orange County. Source: Census 2010, Summary File 1. Population and housing information from the 2010 Census together with building permit data and population growth trends over the past 20 years where 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. Source: Bureau of Labor Statistics. 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 using employment data from the Bureau of Labor Statistics to establish baseline employment for 2010, which was then forecasted to 2040 based on a previous review by the Dutchess County Department of Planning and Development. The Department analyzed the employment data for each TAZ, ensuring the data accurately reflected expected land use conditions. The employment forecast shows that employment will grow at a slightly slower rate than the population, increasing by 13 percent overall and 0.4 percent annually.

4.1.2.2. Orange County. Source: NYS Department of Labor. Employment information indicating the type, location and employment levels of all businesses in OC was updated from the NYS Department of Labor. This information was separated into six categories (retail, mall, non-retail, office, school and institutional) and aggregated by type and location to determine peak hour trips for each TAZ in the OCTC Travel Demand Model. Employment projections were based upon expected employment from approved development projects since the year 2009, as well as average growth rates in commerce throughout OC. The basic underlying premise is that future employment levels will be directly related to the influx of new people and increased demand for products and services created by the future growth in population.

4.1.2.3. Putnam County. Source: 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 2040 Extrapolated Forecasts adopted by NYMTC's Program Finance and Administration Committee (September 2010) were used in the NYMTC Best Practice Model.

4.1.3. Housing Units

4.1.3.1. Dutchess County. The PDCTC Model uses 2010 Census data as the benchmark for future housing unit estimates. Housing unit forecasts were obtained by conducting a 50-year County-wide build-out analysis: where the number of possible new housing units was identified for every parcel in the County. The build-out analysis used data on local zoning and subdivision bulk regulations (for all 30 municipalities) to determine the number of housing units each parcel could legally support. This gross build-out was then constrained based on environmental features such as floodplains, watersheds, steep slopes, protected lands, and agricultural lands that would limit the number of housing units on each parcel. This analysis produced a net total of potential housing units by parcel, which was adjusted by the presence of any existing housing units, to produce a net total of new units. The parcel data was applied to the TAZ geographies to produce the total number of housing units by TAZ for 2040. Housing units are expected to grow 17 percent overall and 0.6 percent annually.

4.1.3.2. Orange County. Source: NYS Office for Real Property Services (RPS). Land use information for each parcel in OC was obtained for the year 2010 and

aggregated by type and location to determine peak hour trips generated for both single-family and multifamily housing in each TAZ of the OC Travel Demand Model. Future single-family and multifamily housing units were projected based upon: proposed residential projects yet to be constructed in each TAZ, average growth rates in housing by municipality and the availability of sewer and water facilities.

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 2010, Summary File 1. The PDCTC Model uses 2010 Census data as the benchmark for future population estimates. The Model uses data on Average Household Size or Persons per Household (PPH) for each TAZ, which are used to generate Trip Productions in TransCAD. Population forecasts were obtained by conducting a 50-year County-wide build-out analysis: where the number of possible new housing units was identified for every parcel in the County. The build-out analysis used data on local zoning and subdivision bulk regulations (for all 30 municipalities) to determine the number of housing units each parcel could legally support. This gross build-out was then constrained based on environmental features such as floodplains, watersheds, steep slopes, protected lands, and agricultural lands that would limit the number of housing units on each parcel. This analysis produced a net total of potential housing units by parcel, which was adjusted by the presence of any existing housing units, to produce a net total of units. The parcel data was applied to the TAZ geographies to produce the total number of housing units by TAZ for 2040. The number of future households (occupied housing units) was calculated by applying occupancy rates to the number of housing units in each TAZ. The occupancy rates were based on average vacancy rates from the 1980-2010 Census by municipality. Households are expected to grow 17 percent overall and 0.6 percent annually.

4.1.4.2. Orange County. Source: Census 2010, Summary File 3. Household information from the 2010 Census was used as a means of checking and verifying the housing data and occupancy information 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 2005-2009 American Community Survey (ACS) 5 year Estimates. The forecast of the number of vehicles available for each TAZ represents another important component of the Travel Demand Model. The PDCTC calculated the number of vehicles by applying the average number of vehicles per household by municipality, based on the 5-year ACS estimates, to the number of households in each TAZ.

4.1.5.2. Orange County. Source: Census 2005-2009 American Community Survey (ACS) 5 year Estimates. Information from the 2000 Census indicating the average number of vehicles available per housing unit was used to further refine the number of trips generated in each TAZ. This was done for TAZs primarily in urban areas, where high numbers of housing units exist without a corresponding high number of vehicular trips generated, because people there tend to rely more on mass transit for travel than in other areas of Orange County.

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

4.2. Transit Operating Policies

4.2.1.1. Dutchess County. Three mass transit providers serve Dutchess County: the Dutchess County Mass Transit (LOOP) bus system, the City of Poughkeepsie bus system, and Metro-North Railroad and among the three, the Dutchess County Mass Transit (LOOP) and Metro-North Railroad have not made substantial changes in their operating policies, fares, service levels, and ridership since the previous conformity determination statement completed in Summer 2011. According to the 2005-2009 ACS 5-year Estimate for Dutchess County, mass transit accounts for 4-5 percent of all commuter trips taken by Dutchess County workers; this is unchanged from 2000. Given this low rate transit service is not modeled given the low rate of utilization in the County

4.2.1.2. Orange County. Coach USA, MTA-Metro North Railroad, the Newburgh-Beacon Bus Company, Middletown Transit, the Monroe Bus Company, and Kiryas Joel Transit provide the majority of mass transit services in

Orange County, along with nine local dial-a-bus operators. According to Census 2000 Journey-to-Work information, only 4.7% of work related travel had a mass transit component, with a majority of this travel involving vehicular trips to park-and-rides throughout Orange County. Although park-and-rides are included as traffic generators in the OCTC Travel Demand Model, transit service is not modeled given the low rate of utilization in the county.

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

4.2.2. Transit Service Levels

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

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

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

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

4.3. Key Assumptions

4.3.1. Demographics. All three models assume that Dutchess, Orange, and Putnam counties will experience some level of growth over the next 24-years. However, the rate of population and employment growth is slower than assumed in previous forecasts. This is due in part to new data from the 2010 Census, which showed a slow down in population growth from 2000, and BLS employment data, which showed employment unchanged between 2000-2010. In Dutchess County, employment in 2010 was actually lower than 2000; this is reflective of recent development patterns in the three counties and the continued impacts of the 2008-2010 economic recession. It should be noted that the amount of developable land is slowly evaporating, which will also impact the rate of population growth.

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

4.3.3. Planning Assumptions "Lock-in" Date. The Clean Air Act requires that transportation investments be based on the most recent information that is available in order to protect public health over the long-term. Therefore, conformity determinations must be based upon the most recent planning assumptions in force at the time the conformity analysis begins. The NYMTC began the regional emissions analysis for its amended TIP and MTP on May 16, 2011, the OCTC began the regional emissions analysis for its proposed MTP on August 24, 2011, and the PDCTC began the regional emissions analysis for its proposed MTP on September 12, 2011.

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 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 ICG concurred that this change in methodology is a more accurate means to estimate VMT.

5.1.3. Putnam County. To determine the impact of future transportation projects, NYMTC uses the third generation of travel demand models which are commonly referred to as activity based models. This model, known as the New York Best Practice Model (NYBPM), attempts to predict and simulate detailed travel patterns for every individual residing inside the study area over a 24-hour period. The model uses journeys (travel between two primary locations including stops) as a unit of travel rather than just home-to-work trips. The model also looks at the daily activity agenda of each household member and intra-household interactions between them, and other constraints that affect the choice of travel

with respect to time and space. The model requires replicating the existing and proposed transportation networks through spatially accurate digital mapping - GIS (Geographic Information Systems). The model uses the digitizes networks and demographic data, along with journey generation, destination and mode choice, time of day travel, and trip assignment data to simulate travel patterns. For more information on the NYBPM please visit: http://www.nymtc.org/project/BPM/model/bpm_finalrpt.pdf.

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

5.2.1. Dutchess County. The highway network in the PDCTC Travel Demand Model includes all roadways that have a functional classification of Collector or above. Local roads that act as essential connectors have been included where appropriate; especially in places such as the City of Poughkeepsie, where local roads carry a significant amount of traffic. The 2002 base street network is based upon the NYS Data Product GIS Street Centerline files from New York Cyber Security and Critical Infrastructure Coordination (NYCSCIC). PDCTC staff also used aerial imagery from 2009 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 2014, 2020, 2030, 2035 and 2040, 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 (2014), consecutive analysis years be no more than ten years apart (2020, 2030, and 2035), and that the horizon year (2040) of each MPO's Metropolitan Transportation Plan (MTP) be analyzed. Effective August 17, 2010, the EPA found the motor vehicle emissions estimates for volatile organic compounds (VOC) and nitrogen oxides (NO_X) in the submitted state implementation plan for the Poughkeepsie, NY 8-hour ozone nonattainment area to be adequate for transportation conformity purposes. As a result of this adequacy finding, OCTC, PDCTC, and NYMTC (Putnam County only) must compare emissions in the future conformity analysis years to the emission level of VOC and NOX in the submitted 2009 8-hour ozone "budgets" for VOC and NO_X.

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

5.5.1. Dutchess County. The PDCTC uses traditional trip production and attraction rates as explained in sections 5.6.1 and 5.7.1.

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

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

5.6. Trip Production

5.6.1. Dutchess County. Trip Production rates for the PDCTC were obtained from the New York Metropolitan Transportation Council *1997/1998 Regional Travel - Household Interview Survey (RT-HIS).* Those rates were compared with those from the *2009 National Household Travel Survey* and found to still be consistent with regional travel patterns. PDCTC is cooperating with NYMTC to supplement their upcoming Household Travel Survey with additional surveys in Dutchess County to update our trip production rates; the survey will be completed in 2012. The Model uses the Cross-classification method, where the population is separated into demographically homogenous groups, to determine the number of person trips produced. Average trip production rates per household are then estimated for each classification, which creates forecasted trip productions (Table 2).

Table 2 Dutchess County Trip Production Rates

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

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

Table 3. Orange County Trip Production Rates

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

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

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

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

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

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

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

5.7. Trip Attraction

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

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

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

5.8. External Trips The Models use external loading links to account for traffic that enters from an area outside of each county. These links represent the first link of an existing road where the external traffic can enter into the area. External trips include those that start in the model area but leave it (Internal-External trips), start outside the model but end in it (External-Internal trips), or pass through on their way between two external points (External-External trips).

5.9. Trip Distribution. Trip distribution is the process where trip origins are apportioned throughout the study area, based on the number of trip destinations in each TAZ and the distance/travel time impedance involved. In the gravity model, the assumption is that people tend to interact more when the travel time between them is less – the shorter the travel time, then the higher the frequency of interactions.

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

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

5.9.3. Putnam County. In NYBPM, the Mode, Destination and Stop Choice (MDSC) model replaces the traditional trip distribution and mode choice model. The two steps are combined together as most choices regarding destination and mode are co-dependent. The travel purposes forecasted are work (low, medium, high income), school, university, maintenance, discretionary, and at work journeys.

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

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

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

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

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

e. Stop-Location Choice Model. The stop-location choice model predicts a location zone for each modeled stop based on the density of potential

attractions along the journey route from origin to destination and the deviation (relative additional impedance) from the base journey route that is associated with visiting the stop zone.

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

5.10. Calibration

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

5.10.2. Orange County. The travel parameters of OC Model were adjusted to reflect traffic counts and travel characteristics of drivers in OC for the 2002 base year. Traffic volumes assigned by the OC Model were compared to actual traffic counts through regression analysis. The differences between traffic counts and traffic volumes were used as the basis to modify trip generation rates, trip length exponents and, in some instances, land use quantities where errors were evident. One or two variables were modified followed by a model run to determine the effect of such modifications. This was repeated, iteratively, until volumes assigned by the model meet acceptable error deviation levels as defined in National Cooperative Highway Research Report 255, Highway Traffic Data for Urbanized Area Project Planning and Design.

5.10.3. Putnam County. Based on the revised full set of input data and new calibration target data developed as part of the BPM 2005 Update, and using the improved application procedures implemented in this update, the BPM was re-calibrated, with a marked improvement in the model's demonstrated ability to replicate observed highway and transit travel in the region's 28 county model area, and to provide reliable future year forecasts.

5.11. Seasonal Adjustment. Seasonal adjustment of daily vehicle miles traveled from

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

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

Table 4 Seasonal Adjustment Factors

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

Source: NYSDEC – SIP

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

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

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

5.12. MOBILE6.2. The USEPA developed the MOBILE emissions model, with the latest revision occurring on January 27, 2002 through the official release of MOBILE6.2; this version has been required of all states (except California) since January 27, 2004. The

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

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

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

5.12.1.2. Vehicle Registration Distribution. Year 2010 registration data were used to model the 2014 year. Year 2010 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 - 2040	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 - 2040	Summer/Winter	Ethanol	10%	1.00

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

5.13.1.11. MOBILE Input Vehicle Types. Calculated in step 3, five vehicle type classes are expanded to 16 classes using the 16-Vehicle Composite which is based on 2002 Vehicle Mix file. In the MOBILE module of the PPSuite,

these 16 classes (after the appropriate number of express and local buses are added to represent the HDBT class), are further expanded to 28 classes by using the Diesel Fractions provided by NYSDOT.

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

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

6. **CONSISTENCY WITH METROPOLITAN TRANSPORTATION PLANS.** The projects proposed in the Draft MTPs for the OCTC and PDCTC are consistent with the goals and objectives of their current MTPs and the federal metropolitan transportation planning process in general. Furthermore, the 2011-2015 TIPs for NYMTC, OCTC, and PDCTC adhere to the goals and objectives of the current MTPs for the New York City metropolitan area *2010-2035 Regional Transportation Plan*, Orange County OCTC Long Range Transportation Plan (2007-2035), and Dutchess County *New Connections* respectively. The proposed MTP projects follow through with the three main areas of each current and draft 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.

Table 5. Non-exempt and Regionally Significant Projects

Dutchess County

PIN	Project	Agency
801064*	Route 9/44/55 - Reconstruction	NYSDOT
806207*	I84 @ Route 9D - Reconstruction	NYSDOT
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

Orange County

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

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

**Regionnally Signifigant*

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

7.1.1. Dutchess County PDCTC staff developed the list of Non-exempt and Regionally Significant projects and forwarded it to NYSDOT-EAB on August 17, 2011 for dissemination to the ICG. On September 22, 2011 the PDCTC received concurrence from the ICG on the list of Non-exempt and Regionally Significant projects to be included in the Regional Emissions Analysis (Table 5). There have been no significant changes to the project list since that time.

7.1.2. Orange County OCTC staff developed the list of Non-exempt and Regionally Significant projects and forwarded it to NYSDOT-EAB in August 2011 for

dissemination to the ICG. On September 22, 2011 the OCTC received concurrence from the ICG on the list of Non-exempt and Regionally Significant projects to be included in the Regional Emissions Analysis (Table 3). There have been no significant changes to the project list since that time.

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

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

7.2.1. Dutchess County. Future projects with insufficient data to model include those still in the early development stages, such as the Route 9-Route 44/55 interchange.

7.2.2. Orange County. No such projects in Orange County.

7.2.3. Putnam County. No such projects in Putnam County.

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

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

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

- NYMTC: began on October 11, 2011 and ended on November 9, 2011
- OCTC: began on November 4, 2011 and ended on December 5, 2011

- PDCTC: began on October 11, 2011 and ended on November 9, 2011

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

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

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

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

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

Emissions tests for the Poughkeepsie 8-hour ozone non-attainment area. The boundary of the Poughkeepsie moderate eight hour ozone non-attainment area encompasses all of

Dutchess, Orange, and Putnam Counties. Effective August 17, 2010, the EPA found the motor vehicle emissions estimates for volatile organic compounds (VOC) and nitrogen oxides (NO_X) in the submitted State Implementation Plan for the Poughkeepsie, NY 8-hour ozone nonattainment area to be adequate for transportation conformity purposes. As a result of this adequacy finding, OCTC, PDCTC, and NYMTC (Putnam County only) must compare emissions in the future conformity analysis years to the emission level of VOC and NOX in the submitted 2009 8-hour ozone "budgets" for VOC and NO_X.

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

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

Volatile Organic Compounds (VOC)

MPO	Future Analysis Years									
	2014		2020		2030		2035		2040	
	Build	No-Build	Build	No-Build	Build	No-Build	Build	No-Build	Build	No-Build
PDCTC (Dutchess County)	1.94	1.96	1.60	1.62	1.31	1.32	1.44	1.46	1.44	1.46
OCTC (Orange County)	5.14	5.31	3.91	4.06	3.37	3.49	3.72	3.86	4.13	4.17
NYMTC (Putnam County)	3.01	3.09	2.34	2.41	2.16	2.25	2.27	2.34	2.41	2.49
TOTALS	**10.09**	**10.36**	**7.85**	**8.09**	**6.84**	**7.06**	**7.43**	**7.66**	**7.98**	**8.12**
Budget Test Result	*Pass*		*Pass*		*Pass*		*Pass*		*Pass*	

Oxides of Nitrogen (Nox)

MPO	Future Analysis Years									
	2014		2020		2030		2035		2040	
	Build	No-Build	Build	No-Build	Build	No-Build	Build	No-Build	Build	No-Build
PDCTC (Dutchess County)	2.74	2.75	1.77	1.78	1.12	1.13	1.16	1.17	1.15	1.16
OCTC (Orange County)	8.37	8.64	4.99	5.18	3.06	3.16	3.01	3.10	3.29	3.31
NYMTC (Putnam County)	5.11	5.24	2.90	2.99	1.74	1.79	1.64	1.69	1.75	1.80
TOTALS	**16.22**	**16.63**	**9.66**	**9.95**	**5.92**	**6.08**	**5.81**	**5.96**	**6.19**	**6.27**
Budget Test Result	*Pass*		*Pass*		*Pass*		*Pass*		*Pass*	

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

PONA						
Ozone Precursor	Year 2009 Emissions Budget	Future Analysis Years				
		2014	2020	2030	2035	2040
		Build	Build	Build	Build	Build
VOC	17.63	10.09	7.85	6.84	7.43	7.98
NOx	29.77	16.22	9.66	5.92	5.81	6.19
Budget Test Result		*Pass*	*Pass*	*Pass*	*Pass*	*Pass*

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

Conclusions In conclusion, conformity of the current NYMTC, OCTC, and PDCTC TIPs and MTPs has been demonstrated for the Poughkeepsie Moderate 8-hour Ozone Non-attainment Area. The quantitative analysis of forecasted regional emissions demonstrates that the 2011-2015 TIP and Metropolitan Transportation Plan for each MPO will result in net emission reductions in all actions years, and that future year emissions in the action years will remain below the budgeted emissions level prescribed by the SIP. Given that there are no applicable Transportation Control Measures, this satisfies the conformity review requirement. The NYMTC, OCTC, and PDCTC therefore determine that the 2011-2015 TIPs and MTPs are in conformance with the existing State Implementation Plan for air quality (SIP), and meet the requirements of the Clean Air Act Amendments of 1990 and the EPA's Transportation conformity rules.

12. EVIDENCE OF MPO RESOLUTIONS The NYMTC, OCTC, and PDCTC Executive Committees approved this Air Quality Conformity Determination Statement in fall 2011. Copies of the resolutions are included at the end of Appendix D.

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

MPO Product	MPO Approval Date	FHWA/FTA Approval Date
NYMTC MTP	September 17, 2009	October 1, 2009
NYMTC MTP conformity update	November 17, 2011	December 19, 2011*
NYMTC 2011-2015 TIP	August 4, 2011	December 19, 2011*
OCTC MTP	December 8, 2011	December 19, 2011*
OCTC 2011-2015 TIP, as amended	December 8, 2011	December 19, 2011*
PDCTC MTP	November 18, 2011	December 19, 2011*
PDCTC 2011-2015, as amended	November 18, 2011	December 19, 2011*

* Expected approval date.

Conformity Determination Statement:

The results of the regional emissions analysis demonstrate that the MTPs and 2011-2015 TIPs of the New York Metropolitan Transportation Council, 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

2005 Base Year Mileage by Functional Classification

NYMTC Best Practice Model (Putnam County)

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

OCTC Travel Demand Model (Orange County)

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

PDCTC Travel Demand Model (Dutchess County)

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

Appendix B

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

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

OCTC Travel Demand Model - Link Capacities

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

PDCTC Travel Demand Model-Link Capacities

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

Appendix C

NYMTC Emission Tables

Putnam County Summer Emission Report for the Build Scenario (F)

2002 Summer Emissions Report

FACILITY	DAILY VMT	VHT	SPEED	VOC	NOx
1) Freeways	2,165,108	37,082	58.4	2.39	8.49
2) Arterials	1,462,573	61,700	23.7	2.04	2.86
3) Locals	1,777,160	46,853	37.9	2.33	2.59
Total	**5,404,841**	**145,635**	**37.1**	**6.75**	**13.94**

2012 Summer Emissions Report

FACILITY	DAILY VMT	VHT	SPEED	VOC	NOx
1) Freeways	1,796,944	28,033	64.1	0.76	3.33
2) Arterials	2,371,822	206,245	11.5	1.48	1.94
3) Locals	2,586,122	71,837	36.0	1.18	1.13
Total	**6,754,888**	**306,116**	**34.9**	**3.42**	**6.40**

2014 Summer Emissions Report

FACILITY	DAILY VMT	VHT	SPEED	VOC	NOx
1) Freeways	1,841,095	28,767	64.0	0.69	2.66
2) Arterials	2,391,394	207,947	11.5	1.29	1.54
3) Locals	2,620,629	73,202	35.8	1.04	0.91
Total	**6,853,118**	**309,916**	**34.9**	**3.01**	**5.11**

2020 Summer Emissions Report

FACILITY	DAILY VMT	VHT	SPEED	VOC	NOx
1) Freeways	1,991,448	31,312	63.6	0.53	1.49
2) Arterials	2,500,297	238,124	10.5	1.02	0.85
3) Locals	2,864,514	81,610	35.1	0.79	0.56
Total	**7,356,259**	**351,046**	**34.0**	**2.34**	**2.90**

2030 Summer Emissions Report

FACILITY	DAILY VMT	VHT	SPEED	VOC	NOx
1) Freeways	2,256,022	35,981	62.7	0.47	0.70
2) Arterials	2,771,674	282,824	9.8	0.98	0.58
3) Locals	3,161,509	93,813	33.7	0.72	0.47
Total	**8,189,205**	**412,618**	**30.1**	**2.16**	**1.74**

2035 Summer Emissions Report

FACILITY	DAILY VMT	VHT	SPEED	VOC	NOx
1) Freeways	2,385,542	38,230	62.4	0.49	0.61
2) Arterials	2,886,146	307,037	9.4	1.04	0.56
3) Locals	3,284,664	98,343	33.4	0.75	0.47
Total	**8,556,352**	**443,610**	**28.1**	**2.27**	**1.64**

2040 Summer Emissions Report

FACILITY	DAILY VMT	VHT	SPEED	VOC	NOx
1) Freeways	2,516,106	40,714	61.8	0.51	0.66
2) Arterials	3,021,442	328,418	9.2	1.11	0.60
3) Locals	3,430,496	104,588	32.8	0.79	0.49
Total	**8,968,044**	**473,720**	**28.1**	**2.41**	**1.75**

Putnam County Summer Emission Report for the No-Build Scenario (NB)

2012 Summer Emissions Report

FACILITY	DAILY VMT	VHT	SPEED	VOC	NOx
1) Freeways	1,846,392	28,760	64.2	0.78	3.43
2) Arterials	2,422,851	210,683	11.5	1.53	1.99
3) Locals	2,658,690	74,058	35.9	1.21	1.16
Total	**6,927,933**	**313,501**	**34.9**	**3.52**	**6.58**

2014 Summer Emissions Report

FACILITY	DAILY VMT	VHT	SPEED	VOC	NOx
1) Freeways	1,883,993	29,437	64.0	0.70	2.72
2) Arterials	2,465,921	214,428	11.5	1.33	1.59
3) Locals	2,692,724	75,006	35.9	1.06	0.93
Total	**7,042,638**	**318,872**	**34.9**	**3.09**	**5.24**

2020 Summer Emissions Report

FACILITY	DAILY VMT	VHT	SPEED	VOC	NOx
1) Freeways	2,026,425	31,912	63.5	0.54	1.49
2) Arterials	2,631,888	248,291	10.6	1.08	0.93
3) Locals	2,866,616	81,207	35.3	0.80	0.56
Total	**7,524,929**	**361,411**	**33.1**	**2.41**	**2.99**

2030 Summer Emissions Report

FACILITY	DAILY VMT	VHT	SPEED	VOC	NOx
1) Freeways	2,297,753	36,588	62.8	0.48	0.71
2) Arterials	2,902,571	299,234	9.7	1.05	0.62
3) Locals	3,173,224	92,245	34.4	0.72	0.47
Total	**8,373,548**	**428,067**	**28.8**	**2.25**	**1.79**

2035 Summer Emissions Report

FACILITY	DAILY VMT	VHT	SPEED	VOC	NOx
1) Freeways	2,435,464	39,093	62.3	0.50	0.62
2) Arterials	3,024,856	321,793	9.4	1.10	0.60
3) Locals	3,313,779	97,752	33.9	0.75	0.47
Total	**8,774,099**	**458,637**	**25.5**	**2.34**	**1.69**

2040 Summer Emissions Report

FACILITY	DAILY VMT	VHT	SPEED	VOC	NOx
1) Freeways	2,581,709	41,979	61.5	0.53	0.67
2) Arterials	3,166,260	351,807	9.0	1.18	0.64
3) Locals	3,462,681	103,984	33.3	0.78	0.49
Total	**9,210,650**	**497,770**	**25.5**	**2.49**	**1.80**

OCTC Emission Tables

ORANGE COUNTY COMMUTER MODEL RESULTS

SCENARIO INFORMATION

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

PROGRAMS EVALUATED

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

MODE SHARE IMPACTS

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

Shifted from Peak to Off-Peak	0.0%

TRAVEL IMPACTS (relative to affected employment)

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

Orange Scenario Inputs:

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

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

100% participation = 1,558 employee participants, based on OCTC population-based corrected MHSTCC SOV diversion rate in Commuter Choice Business Plan

19 mile SOV and Vanpool trip length

All other inputs were default

This is the 2007 diversion rate, due to limits in analysis years in COMMUTER model

Local emission factors will be applied to the trip reduction calculated by the COMMUTER Model

OCTC Enhanced Commuter Choice Emission Credits by Functional Classification & Area Type, October, 2011

Functional Classification	1	2	6	7	8	9	11	12	14	16	17	19	Total	OC Total
nalysis Year 2014														
DVMT	557	95	226	210	159	84	907	534	270	1106	915	377	5,440	
Speed	59.2	49.2	47.1	49.3	48.1	33.7	60.5	56.3	35.4	42.1	39.3	31.1		
VOC tons/day	0.00017918	3.0768E-05	7.4546E-05	6.8427E-05	5.2007E-05	2.9778E-05	0.00029188	0.00017201	9.4886E-05	0.00037445	0.00031465	0.00013586	0.00181844	
NOX tons/day	0.00016691	2.7326E-05	6.4075E-05	6.0772E-05	4.5353E-05	2.2657E-05	0.00027289	0.00015669	7.2577E-05	0.00030736	0.00025112	0.00010346	0.00155118	
nalysis Year 2020														
DVMT	556	94	233	214	165	86	895	544	270	1,092	917	374	5,440	
Speed	57.4	46	44.7	49	47.8	33.7	60.2	57.5	30.6	41.4	38.5	31.1		
VOC tons/day	0.00011898	2.1262E-05	5.3141E-05	4.7327E-05	3.6848E-05	2.0659E-05	0.00018649	0.00011634	6.6949E-05	0.00024918	0.00021233	9.2236E-05	0.00122175	
NOX tons/day	9.6904E-05	1.5765E-05	3.8764E-05	3.6025E-05	2.7727E-05	1.3679E-05	0.00016083	9.4755E-05	4.4335E-05	0.00017575	0.00014459	6.0942E-05	0.00091007	
nalysis Year 2030														
DVMT	559	95	247	222	182	91	963	514	258	1,033	917	359	5,440	
Speed	54	43.6	38.4	48.1	47.2	32.9	59.2	54.7	21	39.5	36.2	27.8		
VOC tons/day	9.0635E-05	1.6419E-05	4.4387E-05	3.8003E-05	3.1032E-05	1.686E-05	0.00015386	8.2114E-05	5.6296E-05	0.00018447	0.00016575	6.4977E-05	0.00094481	
NOX tons/day	7.7071E-05	1.2549E-05	3.1043E-05	3.0157E-05	2.4625E-05	1.134E-05	0.00013264	7.0788E-05	3.2129E-05	0.00012982	0.00011421	4.4771E-05	0.00071114	
nalysis Year 2035														
DVMT	533	94	253	226	191	96	965	510	260	1,002	940	370	5,440	
Speed	49.7	38.8	32.3	46.9	46	32.2	58.4	53	14	35.2	27.8	22.3		
VOC tons/day	0.0000899	0.0000169	0.0000471	0.0000384	0.0000325	0.0000179	0.000154	0.0000832	0.0000703	0.000181	0.000183	0.0000786	0.0009928	
NOX tons/day	0.0000717	0.0000117	0.0000315	0.0000292	0.0000245	0.000012	0.000132	0.0000692	0.0000347	0.000125	0.000117	0.000046	0.0007045	
nalysis Year 2040														
DVMT	558	97	258	231	199	97	984	489	260	995	919	353	5,440	
Speed	46.2	35.9	25.1	45.3	44.6	31.4	56.8	52.4	9.4	34.3	23.1	28.9		
VOC tons/day	0.0000947	0.0000176	0.0000518	0.0000392	0.000034	0.0000181	0.000157	0.0000803	0.0000924	0.000182	0.000192	0.0000678	0.0010269	
NOX tons/day	0.0000713	0.0000121	0.0000322	0.0000293	0.000025	0.000012	0.000133	0.0000663	0.0000474	0.000124	0.000114	0.000044	0.0007106	

OCTC LRTP Update, 2011 Analysis Summary: Analysis Year 2014 Build Scenario, October 3, 2011

Assignment Postprocessor Run	**8-Hour Budget, 2009**	**Model 2014 Build**		
	DVMT	14,927,090	14,317,658	
Emission rates from sheet	**VOC**	8,879,620	4,660,124	grams
Disaggregated link results into sheet	**Nox**	14,569,770	7,595,529	grams
VISUM network and assignment in file				
	VOC	9.8	5.14	tons
1 short ton= 907184.74 grams	**Nox**	16.1	8.37	tons

VMT	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	1,465,109	249,027	595,284	553,824	418,092	220,806	2,386,679	1,406,485	710,200	2,912,197	2,407,929	992,025	14,317,658

VHT_op	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	24,730	5,063	12,629	11,236	8,697	6,548	39,466	24,985	20,083	69,188	61,212	31,895	315,733

VOC	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	499,946	78,700	190,049	171,420	130,127	74,523	763,737	451,704	238,272	940,825	779,845	340,978	4,660,124

NOx	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	1,520,627	113,431	264,414	214,157	161,364	81,285	1,638,936	922,404	283,741	1,164,203	878,629	352,340	7,595,529

Ave. Speed	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Ave. Speed**
	59.24	49.19	47.14	49.29	48.07	33.72	60.47	56.29	35.36	42.09	39.34	31.10	45.35

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

OCTC LRTP Update, 2011 Analysis Summary: Analysis Year 2014 No-Build Scenario, October 3, 2011

Assignment Postprocessor Run	**8-Hour Budget, 2009**	**Model 2014 No-Build**		
	DVMT	14,927,090	14,785,536	
Emission rates from sheet	**VOC**	8,879,620	4,818,220	grams
Disaggregated link results into sheet	**Nox**	14,569,770	7,838,771	grams
VISUM network and assignment in file				
	VOC	9.8	5.31	tons
1 short ton= 907184.74 grams	**Nox**	16.1	8.64	tons

VMT	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	1,511,363	258,399	613,366	571,570	431,044	228,420	2,471,486	1,452,715	731,325	3,009,486	2,495,546	1,010,815	14,785,536

VHT_op	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	25,630	5,479	13,080	11,605	8,967	6,773	40,910	25,881	21,062	71,902	63,789	32,560	327,638

VOC	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	516,490	82,656	195,805	176,929	134,230	77,084	790,876	466,657	246,748	973,222	810,069	347,455	4,818,220

NOx	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	1,563,864	118,172	272,402	220,968	166,330	84,083	1,695,383	951,993	292,711	1,202,879	910,995	358,991	7,838,771

Ave. Speed	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Ave. Speed**
	58.97	47.16	46.89	49.25	48.07	33.73	60.41	56.13	34.72	41.86	39.12	31.04	45.13

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 LRTP Update, 2011 Analysis Summary: Analysis Year 2020 Build Scenario, October 3, 2011

Assignment Postprocessor Run	**8-Hour Budget, 2018**	**Model 2020 Build**		
	DVMT	17,196,730	15,581,980	
Emission rates from sheet	**VOC**	5,327,680	3,543,536	grams
Disaggregated link results into sheet	**Nox**	6,476,960	4,525,908	grams
VISUM network and assignment in file				
	VOC	5.9	3.91	tons
1 short ton= 907184.74 grams	**Nox**	7.1	4.99	tons

VMT	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	1,593,687	269,507	667,077	611,828	474,003	245,127	2,563,951	1,558,351	773,176	3,127,952	2,627,348	1,069,974	15,581,980

VHT_op	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	27,780	5,860	14,924	12,489	9,920	7,282	42,604	27,092	25,235	75,584	68,322	34,404	351,496

VOC	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	385,904	59,847	151,463	131,283	102,174	58,474	564,069	343,663	190,958	696,071	599,360	260,269	3,543,536

NOx	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	861,793	67,979	164,916	133,550	103,402	51,328	950,160	558,391	177,641	700,175	542,125	214,446	4,525,908

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

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

OCTC LRTP Update, 2011 Analysis Summary: Analysis Year 2020 No-Build Scenario, October 3, 2011

		8-Hour Budget, 2018	Model 2020 No-Build	
Assignment Postprocessor Run	**DVMT**	17,196,730	16,131,904	
	VOC	5,327,680	3,684,883	grams
Emission rates from sheet	**Nox**	6,476,960	4,698,715	grams
Disaggregated link results into sheet				
VISUM network and assignment in file				
	VOC	5.9	4.06	tons
1 short ton= 907184.74 grams	**Nox**	7.1	5.18	tons

VMT	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	1,646,403	288,532	700,935	636,937	484,958	261,128	2,856,592	1,566,833	798,241	3,161,485	2,703,019	1,026,842	16,131,904

VHT_op	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	28,363	6,506	15,782	13,109	10,146	7,829	47,930	28,247	26,879	78,159	72,992	33,622	369,562

VOC	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	396,860	64,999	159,294	136,897	104,542	62,496	628,676	347,189	197,492	708,420	626,606	251,413	3,684,883

NOx	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	899,667	72,887	172,511	139,001	105,843	54,689	1,047,112	549,069	183,596	708,932	558,815	206,593	4,698,715

Ave. Speed	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Ave. Speed**
	58.05	44.35	44.41	48.59	47.80	33.35	59.60	55.47	29.70	40.45	37.03	30.54	43.65

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 LRTP Update, 2011 Analysis Summary: Analysis Year 2030 Build Scenario, October 3, 2011

		8-Hour Budget, 2018	Model 2030 Build	
Assignment Postprocessor Run	**DVMT**	17,196,730	17,201,155	
Emission rates from sheet	**VOC**	5,327,680	3,061,204	grams
Disaggregated link results into sheet	**Nox**	6,476,960	2,778,987	grams
VISUM network and assignment in file				
	VOC	5.9	3.37	tons
1 short ton= 907184.74 grams	**Nox**	7.1	3.06	tons

VMT	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	1,768,624	299,978	781,123	703,306	574,289	287,876	3,043,831	1,624,443	815,586	3,266,440	2,899,163	1,136,497	17,201,155

VHT_op	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	32,759	6,880	20,338	14,634	12,155	8,748	51,403	29,675	38,850	82,644	80,018	40,859	418,963

VOC	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	308,973	51,495	139,404	116,160	95,204	53,727	489,051	265,205	217,252	572,839	526,651	225,242	3,061,204

NOx	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	393,221	46,108	116,777	99,838	81,554	40,091	552,651	284,463	128,659	474,449	406,163	155,014	2,778,987

Ave. Speed	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Ave. Speed**
	53.99	43.60	38.41	48.06	47.25	32.91	59.22	54.74	20.99	39.52	36.23	27.82	41.06

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

OCTC LRTP Update, 2011 Analysis Summary: Analysis Year 2030 No-Build Scenario, October 3, 2011

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

1 short ton= 907184.74 grams

	8-Hour Budget, 2018	Model 2030 No-Build	
DVMT	17,196,730	17,729,132	
VOC	5,327,680	3,164,167	grams
Nox	6,476,960	2,868,962	grams
VOC	5.9	3.49	tons
Nox	7.1	3.16	tons

VMT	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	1,826,475	310,336	803,661	717,999	591,974	297,991	3,159,816	1,681,142	845,527	3,387,016	2,993,235	1,113,962	17,729,132

VHT_op	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	34,390	7,128	22,332	14,930	12,537	9,003	53,729	30,749	48,013	92,057	83,394	36,436	444,698

VOC	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	319,020	53,241	144,086	118,529	98,145	55,488	508,386	275,050	232,005	601,196	545,160	213,861	3,164,167

NOx	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	406,463	47,684	120,415	101,917	84,142	41,463	573,398	294,058	135,107	493,811	419,425	151,081	2,868,962

Ave. Speed	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Ave. Speed**
	53.11	43.54	35.99	48.09	47.22	33.10	58.81	54.67	17.61	36.79	35.89	30.57	39.87

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 LRTP Update, 2011 Analysis Summary: Analysis Year 2035 Build Scenario, October 3, 2011

Assignment Postprocessor Run	**8-Hour Budget, 2018**	**Model 2035 Build**		
	DVMT	17,196,730	18,446,059	
Emission rates from sheet	**VOC**	5,327,680	3,376,606	grams
Disaggregated link results into sheet	**Nox**	6,476,960	2,726,679	grams
VISUM network and assignment in file				
	VOC	5.9	3.72	tons
1 short ton= 907184.74 grams	**Nox**	7.1	3.01	tons

VMT	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	1,807,772	319,643	856,504	767,980	649,217	325,908	3,272,651	1,729,729	883,143	3,398,637	3,182,622	1,252,253	18,446,059

VHT_op	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	36,390	8,245	26,529	16,375	14,126	10,133	56,029	32,656	63,156	96,510	114,608	56,257	531,015

VOC	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	319,253	56,674	154,275	127,771	108,287	61,396	527,453	284,840	281,108	610,663	593,557	251,330	3,376,606

NOx	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	342,341	46,697	120,036	104,823	88,556	43,816	520,782	267,734	134,890	466,891	424,909	165,202	2,726,679

Ave. Speed	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Ave. Speed**
	49.68	38.77	32.29	46.90	45.96	32.16	58.41	52.97	13.98	35.22	27.77	22.26	34.74

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

OCTC LRTP Update, 2011 Analysis Summary: Analysis Year 2035 No-Build Scenario, October 3, 2011

		8-Hour Budget, 2018	Model 2035 No-Build	
Assignment Postprocessor Run	**DVMT**	17,196,730	18,961,165	
	VOC	5,327,680	3,501,745	grams
Emission rates from sheet	**Nox**	6,476,960	2,809,677	grams
Disaggregated link results into sheet				
VISUM network and assignment in file				
	VOC	5.9	3.86	tons
1 short ton= 907184.74 grams	**Nox**	7.1	3.10	tons

VMT	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	1,873,843	327,211	880,270	779,462	665,095	330,423	3,356,408	1,773,023	908,464	3,583,879	3,262,816	1,220,269	18,961,165

VHT_op	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	38,221	8,185	29,724	16,518	14,456	9,999	57,267	33,122	77,106	113,163	103,505	42,476	543,743

VOC	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	337,547	57,122	159,686	129,291	110,908	61,705	540,024	291,044	296,883	666,480	612,423	238,631	3,501,745

NOx	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	355,263	47,239	123,640	106,277	90,801	44,203	534,769	274,734	140,858	495,598	435,997	160,299	2,809,677

Ave. Speed	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Ave. Speed**
	49.03	39.98	29.61	47.19	46.01	33.05	58.61	53.53	11.78	31.67	31.52	28.73	34.87

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

OCTC LRTP Update, 2011 Analysis Summary: Analysis Year 2040 Build Scenario, October 3, 2011

Assignment Postprocessor Run	**8-Hour Budget, 2018**	**Model 2040 Build**		
	DVMT	17,196,730	20,128,504	
Emission rates from sheet	**VOC**	5,327,680	3,745,942	grams
Disaggregated link results into sheet	**Nox**	6,476,960	2,986,597	grams
VISUM network and assignment in file				
	VOC	5.9	4.13	tons
1 short ton= 907184.74 grams	**Nox**	7.1	3.29	tons

VMT	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	2,063,080	359,333	956,046	855,068	737,261	357,474	3,641,708	1,809,220	963,498	3,680,877	3,397,017	1,307,920	20,128,504

VHT_op	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	44,666	10,000	38,161	18,864	16,528	11,378	64,099	34,498	102,975	107,287	147,166	45,269	640,890

VOC	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	370,925	65,675	178,220	143,439	123,945	67,884	590,014	298,459	325,375	680,116	646,286	255,603	3,745,942

NOx	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	386,469	52,535	134,243	116,736	100,816	48,251	576,609	280,466	151,647	511,570	455,684	171,572	2,986,597

Ave. Speed	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Ave. Speed**
	46.19	35.93	25.05	45.33	44.61	31.42	56.81	52.44	9.36	34.31	23.08	28.89	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 LRTP Update, 2011 Analysis Summary: Analysis Year 2040 No-Build Scenario, October 3, 2011

Assignment Postprocessor Run		**8-Hour Budget, 2018**	**Model 2040 No-Build**	
	DVMT	17,196,730	20,199,130	
Emission rates from sheet	**VOC**	5,327,680	3,783,944	grams
Disaggregated link results into sheet	**Nox**	6,476,960	3,002,650	grams
VISUM network and assignment in file				
	VOC	5.9	4.17	tons
1 short ton= 907184.74 grams	**Nox**	7.1	3.31	tons

VMT	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	2,100,700	355,149	966,991	842,538	735,299	361,802	3,688,878	1,815,528	969,687	3,740,958	3,363,483	1,258,118	20,199,130

VHT_op	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	48,707	9,258	44,513	18,419	16,581	10,928	65,052	34,709	128,417	116,505	113,032	44,431	650,552

VOC	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	393,680	63,254	182,929	141,111	124,218	67,370	598,104	299,961	332,548	699,829	635,965	244,976	3,783,944

NOx	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Daily by Area**
	394,720	51,629	136,625	114,979	100,824	48,298	583,623	281,241	153,437	521,946	450,158	165,172	3,002,650

Ave. Speed	**NYSDOT_Class**												
OZON_ATT	**1**	**2**	**6**	**7**	**8**	**9**	**11**	**12**	**14**	**16**	**17**	**19**	**Total Ave. Speed**
	43.13	38.36	21.72	45.74	44.35	33.11	56.71	52.31	7.55	32.11	29.76	28.32	31.05

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

2014 PDCTC Scenarios

2014 No-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	648,925	752,753	13.8%	40.9	235,999	337,838	9,194,645
06	Minor Arterial	23	46	72,616	84,234	1.5%	51.5	26,370	38,012	1,031,897
07	Major Collector	86	172	323,982	375,819	6.9%	49.4	113,922	150,581	4,636,163
08	Minor Collector	106	212	92,577	107,389	2.0%	44.3	33,387	39,906	1,273,038
09	Local	211	420	199,613	231,256	4.2%	31.3	80,197	84,654	2,616,338
11	Interstate	38	79	896,195	1,003,739	18.4%	29.1	322,024	679,512	12,442,549
12	Principal Arterial (Expressway)	28	56	232,442	260,336	4.8%	26.5	83,844	158,734	3,102,688
14	Principal Arterial (Street)	89	228	915,599	1,025,971	18.8%	37.8	328,764	404,371	12,143,135
16	Minor Arterial	70	144	432,613	484,901	8.9%	39.3	156,970	187,212	5,648,242
17	Collector	169	344	639,602	716,773	13.2%	40.1	226,930	254,800	8,451,602
19	Local	328	638	358,137	402,392	7.4%	18.2	171,190	163,161	4,879,006
TOTAL		**1,283**	**2,619**	**4,812,301**	**5,445,563**	**100%**		**1,779,597**	**2,498,781**	**65,419,303**
								1.962	**2.754**	**72.111 tons/day**

Scenario 1: 2014 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	648,925	752,753	13.8%	40.9	235,999	337,838	9,194,645
06	Minor Arterial	23	46	72,616	84,234	1.5%	51.5	26,370	38,012	1,031,897
07	Major Collector	86	172	323,982	375,819	6.9%	49.4	113,922	150,581	4,636,163
08	Minor Collector	106	212	92,577	107,389	2.0%	44.3	33,387	39,906	1,273,038
09	Local	211	420	199,613	231,256	4.2%	31.3	80,197	84,654	2,616,338
11	Interstate	38	79	896,195	1,003,739	18.4%	29.1	322,024	679,512	12,442,549
12	Principal Arterial (Expressway)	28	56	232,442	260,336	4.8%	26.5	83,844	158,734	3,102,688
14	Principal Arterial (Street)	89	228	915,599	1,025,971	18.8%	37.8	328,764	404,371	12,143,135
16	Minor Arterial	70	144	432,613	484,901	8.9%	39.3	156,970	187,212	5,648,242
17	Collector	169	344	639,602	716,773	13.2%	40.1	226,930	254,800	8,451,602
19	Local	328	638	358,137	402,392	7.4%	18.2	171,190	163,161	4,879,006
TOTAL		**1,283**	**2,619**	**4,812,301**	**5,445,563**	**100%**		**1,779,597**	**2,498,781**	**65,419,303**
								1.962	**2.754**	**72.111 tons/day**

Scenario 2 - Seasonally Adjusted Model Outupt & Enhanced Commuter Choice	**Total Emissions Benefits (tons/day)**	**0.0012**	**0.0010**	**0.0462**
	Revised Total Emissions (tons/day)	**1.960**	**2.753**	**72.065**

Scenario 3 - Seasonally Adjusted Model Outupt & Enhanced Commuter Choice & Wassaic Station Parking Expansion

Assumptions: *ESB analysis June 2008.*

Change in VOC *-0.009 tons/day*

Change in NOx *-0.005 tons/day*

Change in CO *-0.404 tons/day*

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

Scenario 2 Total VOC 1.960 tons/day
Change in VOC -0.009 tons/day
New Total VOC **1.951 tons/day**

Scenario 2 Total NOx 2.753 tons/day
Change in NOx -0.005 tons/day
New Total NOx **2.748 tons/day**

Scenario 2 Total CO 72.065 tons/day
Change in CO -0.404 tons/day
New Total CO **71.661 tons/day**

Scenario 4 - Seasonally Adjusted Model Outupt & Enhanced Commuter Choice & Wassaic Station Parking Expansion & Beacon Station Parking Expansion

Assumptions: *ESB analysis June 2008.*

Change in VOC *-0.010 tons/day*

Change in NOx *-0.006 tons/day*

Change in CO *-0.481 tons/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 1.951 tons/day
Change in VOC -0.010 tons/day
New Total VOC **1.941 tons/day**

Scenario 3 Total NOx 2.748 tons/day
Change in NOx -0.006 tons/day
New Total NOx **2.742 tons/day**

Scenario 3 Total CO 71.661 tons/day
Change in CO -0.481 tons/day
New Total CO **71.180 tons/day**

2020 PDCTC Scenarios

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	548,733	636,531	9.9%	40.9	136,639	159,349	7,039,856
06	Minor Arterial	23	46	70,669	81,976	1.3%	51.5	17,416	20,823	913,282
07	Major Collector	86	172	388,555	450,724	7.0%	49.3	95,693	101,338	5,054,159
08	Minor Collector	106	212	110,860	128,597	2.0%	44.3	28,305	27,106	1,387,575
09	Local	211	420	273,425	316,781	4.9%	31.3	77,748	64,525	3,259,533
11	Interstate	38	79	1,044,519	1,169,861	18.2%	28.7	258,310	428,940	13,223,371
12	Principal Arterial (Expressway)	28	56	186,474	208,850	3.2%	26.6	46,648	69,054	2,255,589
14	Principal Arterial (Street)	89	228	1,110,498	1,244,235	19.3%	37.6	273,558	273,161	13,384,821
16	Minor Arterial	70	144	584,753	655,365	10.2%	39.0	145,963	140,680	6,945,055
17	Collector	169	344	856,569	959,747	14.9%	40.0	213,535	191,861	10,285,825
19	Local	328	638	518,805	582,600	9.1%	18.2	177,817	135,688	6,431,017
TOTAL		**1,283**	**2,619**	**5,693,860**	**6,435,267**	**100%**		**1,471,632**	**1,612,525**	**70,180,083**
								1.622	**1.777**	**77.359 tons/day**

Scenario 2 - Seasonally Adjusted Model Outupt & Enhanced Commuter Choice

Total Emissions Benefits (tons/day)	**0.0008**	**0.0006**	**0.0424**
Revised Total Emissions (tons/day)	**1.621**	**1.777**	**77.317**

Scenario 3 - Seasonally Adjusted Model Outupt & Enhanced Commuter Choice & Wassaic Station Parking Expansion

Assumptions: *ESB analysis June 2008.*

Change in VOC *-0.009 tons/day*

Change in NOx *-0.005 tons/day*

Change in CO *-0.404 tons/day*

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

Scenario 2 Total VOC 1.621 tons/day
Change in VOC -0.009 tons/day
New Total VOC **1.612 tons/day** 0.001

Scenario 2 Total NOx 1.777 tons/day
Change in NOx -0.005 tons/day
New Total NOx **1.772 tons/day**

Scenario 2 Total CO 77.317 tons/day
Change in CO -0.404 tons/day
New Total CO **76.913 tons/day**

Scenario 4 - Seasonally Adjusted Model Outupt & Enhanced Commuter Choice & Wassaic Station Parking Expansion & Beacon Station Parking Expansion

Assumptions: *ESB analysis June 2008.*

Change in VOC *-0.010 tons/day*

Change in NOx *-0.006 tons/day*

Change in CO *-0.481 tons/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 1.612 tons/day
Change in VOC -0.010 tons/day
New Total VOC **1.602 tons/day**

Scenario 3 Total NOx 1.772 tons/day
Change in NOx -0.006 tons/day
New Total NOx **1.766 tons/day**

Scenario 3 Total CO 76.913 tons/day
Change in CO -0.481 tons/day
New Total CO **76.432 tons/day**

2030 PDCTC Scenarios

Scenario 1: 2030 Build Model (TransCAD results)

Functional Class		Centerline Mileage	Lane Miles	TOTAL DVMT	TOTAL ADJ DVMT*	% of Total VMT	Avg. Speed mi/hr	VOC g/day	NOx g/day	CO g/day
01	Interstate	0	0	0	0	0.0%	0.0	0	0	0
02	Principal Arterial	135	280	571,970	663,485	9.8%	40.9	108,824	97,672	7,178,515
06	Minor Arterial	23	46	74,776	86,740	1.3%	51.5	14,094	12,855	944,756
07	Major Collector	86	172	396,293	459,700	6.8%	49.3	74,609	67,556	5,032,995
08	Minor Collector	106	212	113,807	132,016	1.9%	44.3	22,455	18,542	1,391,557
09	Local	211	420	278,877	323,094	4.8%	31.3	62,933	45,854	3,249,777
11	Interstate	38	79	1,142,356	1,279,438	18.8%	28.2	205,744	227,641	14,052,532
12	Principal Arterial (Expressway)	28	56	201,098	225,230	3.3%	26.5	36,797	37,529	2,379,205
14	Principal Arterial (Street)	89	228	1,162,075	1,302,023	19.1%	37.6	221,138	184,513	13,698,059
16	Minor Arterial	70	144	620,723	695,685	10.2%	39.0	120,156	97,634	7,206,931
17	Collector	169	344	904,170	1,013,089	14.9%	40.0	174,826	137,103	10,617,050
19	Local	328	638	551,300	619,080	9.1%	18.2	157,263	100,533	6,684,466
TOTAL		**1,283**	**2,619**	**6,017,445**	**6,799,580**	**100%**		**1,198,839**	**1,027,432**	**72,435,843**
								1.321	**1.133**	**79.846 tons/day**

Scenario 2 - Seasonally Adjusted Model Outupt & Enhanced Commuter Choice	**Total Emissions Benefits (tons/day)**	**0.0007**	**0.0004**	**0.0415**
	Revised Total Emissions (tons/day)	**1.321**	**1.132**	**79.804**

Scenario 3 - Seasonally Adjusted Model Outupt & Enhanced Commuter Choice & Wassaic Station Parking Expansion

Assumptions: *ESB analysis June 2008.*

Change in VOC *-0.007 tons/day*

Change in NOx *-0.004 tons/day*

Change in CO *-0.400 tons/day*

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

Scenario 2 Total VOC 1.321 tons/day
Change in VOC -0.007 tons/day
New Total VOC **1.314 tons/day** 0.001

Scenario 2 Total NOx 1.132 tons/day
Change in NOx -0.004 tons/day
New Total NOx **1.128 tons/day**

Scenario 2 Total CO 79.804 tons/day
Change in CO -0.400 tons/day
New Total CO **79.404 tons/day**

Scenario 4 - Seasonally Adjusted Model Outupt & Enhanced Commuter Choice & Wassaic Station Parking Expansion & Beacon Station Parking Expansion

Assumptions: *ESB analysis June 2008.*

Change in VOC *-0.008 tons/day*

Change in NOx *-0.005 tons/day*

Change in CO *-0.475 tons/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 1.314 tons/day
Change in VOC -0.008 tons/day
New Total VOC **1.306 tons/day**

Scenario 3 Total NOx 1.128 tons/day
Change in NOx -0.005 tons/day
New Total NOx **1.123 tons/day**

Scenario 3 Total CO 79.404 tons/day
Change in CO -0.475 tons/day
New Total CO **78.929 tons/day**

2035 PDCTC Scenarios

Scenario 1: 2035 Build Model (TransCAD results)

Functional Class		Centerline Mileage	Lane Miles	TOTAL DVMT	TOTAL ADJ DVMT*	% of Total VMT	Avg. Speed mi/hr	VOC g/day	NOx g/day	CO g/day
01	Interstate	0	0	0	0	0.0%	0.0	0	0	0
02	Principal Arterial	135	280	965,652	1,120,156	14.8%	40.9	181,516	155,069	12,221,901
06	Minor Arterial	23	46	98,751	114,551	1.5%	51.4	18,588	15,844	1,248,994
07	Major Collector	86	172	424,141	492,003	6.5%	49.2	79,809	67,619	5,389,574
08	Minor Collector	106	212	125,536	145,621	1.9%	44.3	24,763	19,000	1,535,160
09	Local	211	420	282,206	326,948	4.3%	31.3	63,701	43,326	3,291,751
11	Interstate	38	79	919,118	1,029,413	13.6%	29.0	165,424	166,228	11,438,681
12	Principal Arterial (Expressway)	28	56	398,000	445,760	5.9%	26.3	72,101	66,393	4,740,002
14	Principal Arterial (Street)	89	228	1,311,604	1,469,880	19.4%	37.4	249,167	194,174	15,484,556
16	Minor Arterial	70	144	652,955	731,866	9.7%	38.9	126,331	95,640	7,595,002
17	Collector	170	345	927,705	1,039,691	13.7%	40.0	179,376	134,958	10,903,473
19	Local	330	641	575,177	646,121	8.5%	18.2	163,434	99,538	6,970,677
TOTAL		**1,286**	**2,623**	**6,680,845**	**7,562,010**	**100%**		**1,324,210**	**1,057,789**	**80,819,771**
								1.460	**1.166**	**89.087 tons/day**

Scenario 2 - Seasonally Adjusted Model Outupt & Enhanced Commuter Choice

Total Emissions Benefits (tons/day)	**0.0006**	**0.0004**	**0.0416**
Revised Total Emissions (tons/day)	**1.459**	**1.166**	**89.045**

Scenario 3 - Seasonally Adjusted Model Outupt & Enhanced Commuter Choice & Wassaic Station Parking Expansion

Assumptions: *ESB analysis June 2008.*

Change in VOC *-0.007 tons/day*

Change in NOx *-0.004 tons/day*

Change in CO *-0.400 tons/day*

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

Scenario 2 Total VOC	1.459 tons/day	
Change in VOC	-0.007 tons/day	
New Total VOC	**1.452 tons/day**	0.001
Scenario 2 Total NOx	1.166 tons/day	
Change in NOx	-0.004 tons/day	
New Total NOx	**1.162 tons/day**	
Scenario 2 Total CO	89.045 tons/day	
Change in CO	-0.400 tons/day	
New Total CO	**88.645 tons/day**	

Scenario 4 - Seasonally Adjusted Model Outupt & Enhanced Commuter Choice & Wassaic Station Parking Expansion & Beacon Station Parking Expansion

Assumptions: *ESB analysis June 2008.*

Change in VOC *-0.008 tons/day*

Change in NOx *-0.005 tons/day*

Change in CO *-0.475 tons/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	1.452 tons/day
Change in VOC	-0.008 tons/day
New Total VOC	**1.444 tons/day**
Scenario 3 Total NOx	1.162 tons/day
Change in NOx	-0.005 tons/day
New Total NOx	**1.157 tons/day**
Scenario 3 Total CO	88.645 tons/day
Change in CO	-0.475 tons/day
New Total CO	**88.170 tons/day**

2040 PDCTC Scenarios

2040 No-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	818,402	949,346	12.6%	41.0	154,408	130,972	10,324,425
06	Minor Arterial	23	46	99,738	115,697	1.5%	51.0	18,775	16,007	1,261,480
07	Major Collector	86	172	397,325	460,897	6.1%	49.0	74,814	63,279	5,045,058
08	Minor Collector	106	212	119,794	138,961	1.8%	44.0	23,630	18,136	1,465,116
09	Local	211	420	285,313	330,544	4.4%	31.0	64,420	43,812	3,328,249
11	Interstate	38	79	1,175,993	1,317,113	17.5%	28.0	213,845	208,410	14,419,579
12	Principal Arterial (Expressway)	28	56	317,403	355,492	4.7%	26.0	57,672	52,785	3,771,341
14	Principal Arterial (Street)	89	228	1,251,549	1,402,429	18.6%	37.0	238,012	185,139	14,773,461
16	Minor Arterial	70	144	663,112	743,216	9.9%	39.0	128,360	97,112	7,712,102
17	Collector	169	344	951,108	1,065,811	14.1%	40.0	183,906	138,354	11,175,138
19	Local	328	638	585,151	657,204	8.7%	18.0	166,720	101,424	7,093,949
TOTAL		**1,283**	**2,619**	**6,664,888**	**7,536,710**	**100%**		**1,324,562**	**1,055,430**	**80,369,898**
								1.460	**1.163**	**88.591 tons/day**

Scenario 1: 2040 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	818,338	949,272	12.6%	40.9	154,394	130,963	10,323,707
06	Minor Arterial	23	46	99,739	115,697	1.5%	51.4	18,775	16,007	1,261,480
07	Major Collector	86	172	397,274	460,838	6.1%	49.3	74,804	63,270	5,044,391
08	Minor Collector	106	212	119,921	139,108	1.8%	44.3	23,655	18,155	1,466,663
09	Local	211	420	285,311	330,542	4.4%	31.3	64,420	43,811	3,328,232
11	Interstate	38	79	1,182,097	1,323,949	17.6%	27.9	214,968	209,610	14,498,101
12	Principal Arterial (Expressway)	28	56	317,816	355,954	4.7%	26.4	57,746	52,854	3,776,289
14	Principal Arterial (Street)	89	228	1,250,193	1,400,910	18.6%	37.5	237,763	184,941	14,757,593
16	Minor Arterial	70	144	657,611	737,055	9.8%	38.9	127,308	96,311	7,648,799
17	Collector	170	345	948,694	1,063,107	14.1%	40.0	183,432	138,002	11,147,516
19	Local	330	641	588,116	660,524	8.8%	18.2	167,279	101,844	7,128,390
TOTAL		**1,286**	**2,623**	**6,665,110**	**7,536,956**	**100%**		**1,324,544**	**1,055,768**	**80,381,161**
								1.460	**1.164**	**88.604 tons/day**

Scenario 2 - Seasonally Adjusted Model Outupt & Enhanced Commuter Choice	**Total Emissions Benefits (tons/day)**	**0.0007**	**0.0004**	**0.0416**
	Revised Total Emissions (tons/day)	**1.459**	**1.163**	**88.562**

Scenario 3 - Seasonally Adjusted Model Outupt & Enhanced Commuter Choice & Wassaic Station Parking Expansion

Assumptions: *ESB analysis June 2008.*

Change in VOC *-0.007 tons/day*

Change in NOx *-0.004 tons/day*

Change in CO *-0.400 tons/day*

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

Scenario 2 Total VOC 1.459 tons/day
Change in VOC -0.007 tons/day
New Total VOC **1.452 tons/day**

Scenario 2 Total NOx 1.163 tons/day
Change in NOx -0.004 tons/day
New Total NOx **1.159 tons/day**

Scenario 2 Total CO 88.562 tons/day
Change in CO -0.400 tons/day
New Total CO **88.162 tons/day**

Scenario 4 - Seasonally Adjusted Model Outupt & Enhanced Commuter Choice & Wassaic Station Parking Expansion & Beacon Station Parking Expansion

Assumptions: *ESB analysis June 2008.*

Change in VOC *-0.008 tons/day*

Change in NOx *-0.005 tons/day*

Change in CO *-0.475 tons/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 1.452 tons/day
Change in VOC -0.008 tons/day
New Total VOC **1.444 tons/day**

Scenario 3 Total NOx 1.159 tons/day
Change in NOx -0.005 tons/day
New Total NOx **1.154 tons/day**

Scenario 3 Total CO 88.162 tons/day
Change in CO -0.475 tons/day
New Total CO **87.687 tons/day**

Appendix H

PDCTC Energy Analysis for *Moving Dutchess*

The PDCTC used the following steps to complete the energy analysis work for *Moving Dutchess*, the long-range Metropolitan Transportation Plan for the Poughkeepsie-Dutchess County Transportation Council (PDCTC). This analysis builds on the analysis that was completed for *New Connections*, the previous long-range plan.

These steps are based on the guidance below, as provided by the New York State Department of Transportation-Environmental Science Bureau (NYSDOT-ESB). In addition to the documents below, Council staff consulted with the NYSDOT-Environmental Services Bureau (ESB).

1. Development of Revised NYSDOT Energy Analysis Guidelines (Draft), Subtask 12a: Energy Analysis Guidelines for TIPs and Plans (dated November 25, 2003)

2. Development of Revised NYSDOT Energy Analysis Guidelines (Draft), Subtask 12b: Greenhouse Gas (CO2) Emissions Estimate Guidelines for TIPs and Plans (dated November 25, 2003)

3. NYSDOT MOBILE 6.2 Emission Factors for Regional, Mesoscale, and CMAQ Project Emission Calculations, Part A, NYSDOT Environmental Science Bureau (April 2008)

Step #1 – Identify all non-exempt and regionally significant projects

The first step involved the identification of which projects would be analyzed. The Council reviewed projects based on guidance in 6NYCRR Part 240.6(h)(2) for their significance in affecting energy consumption. In general, projects such as safety improvements, resurfacing, bridge repair, and bus replacements, which maintain current levels of service or capacity, are considered **exempt** from the analysis. Similarly, projects that result in operations improvements but do not increase capacity, like an intersection widening, are also excluded from the analysis.

Regionally Significant projects are transportation projects (other than exempt projects) on a facility that serves regional transportation needs and would normally be included in the modeling of a metropolitan area's transportation network. This includes, at a minimum, all principal arterial highways and all fixed guideway transit facilities that offer an alternative to regional highway travel.

Non-exempt projects include highway and road projects that increase capacity by at least one travel lane, and transit projects that change capacity on a fixed route system. The 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.

The project list is the same as that developed for our conformity analysis, which we received concurrence on from the ICG. Figure H-1 identifies the recommendations included in the conformity analysis.

Figure H-1. Non-exempt or Regionally Significant Projects

Short-Range (2012-2015)

Metro-North Parking Improvements

- Beacon Train Station Parking Expansion (MTA/Metro-North Railroad)
- Wassaic Train Station Parking Expansion (MTA/Metro-North Railroad)

Demand Management Projects

- TDM Unit Activities (Enhanced Regional Commuter Choice, Ozone Action Days, and Regional Ridesharing Program)

Mid-Range (2016-2025)

Highway Projects

- Route 9/44/55 Interchange Reconstruction (NYSDOT)*

Demand Management Projects

- TDM Unit Activities (Enhanced Regional Commuter Choice, Ozone Action Days, and Regional Ridesharing Program)

Long-Range (2026-2040)

Highway Projects

- I-84 @ Rt. 9D Interchange Reconstruction (NYSDOT)*

Demand Management Projects

- TDM Unit Activities (Enhanced Regional Commuter Choice, Ozone Action Days, and Regional Ridesharing Program)

* Regionally significant.

Completing the energy analysis for *Moving Dutchess* meant analyzing some projects that are still in the conceptual stage. In accordance with the final transportation conformity rules by the U.S. Environmental Protection Agency (USEPA) and NYSDOT, if adequate information was available to produce reasonable assumptions, forecasts of the project impacts on vehicle miles of travel and average vehicle speeds were produced. In some cases, sufficient data was not available to properly model emissions. In these cases, the projects will be modeled as data becomes available and the results will be included when conformity is determined for updates to *Moving Dutchess* or future Transportation Improvement Programs (TIP). Future projects for which there was not enough data available to model include the Route 9-Route 44/55 interchange and the Taconic State Parkway/Rossway Rd/Tyrrel Rd interchange.

Step #2 - Transportation Modeling

To determine the impact of future projects in Dutchess County, the Council used a three-step gravity model incorporated within the TransCAD travel simulation software. Like most other programs of this type, the model consists of a road network, land use and employment data, trip generation, trip distribution, and trip assignment data. The results generated by the model are then compared to traffic counts to calibrate the model. The Council calibrated the model to 2002 base year traffic conditions and 2010 Census data. Background documentation and technical information on the model is available at the Council's offices.

The analysis covers two scenarios: 1) 2040 No-build, and 2) 2040 Build (the horizon year of this long-range plan). The No-build scenario consists of the 2014 road network with forecasted 2040 land use conditions, while the Build scenario consists of the 2040 road network, augmented by the projects listed in Figure 1 and 2040 land use.

Projects that could not be modeled were analyzed separately and then added to the results from TransCAD to represent a more accurate Build scenario, as described in Step #3.

Step #3 – Off-model Projects

A quantitative analysis was undertaken for those recommendations in *Moving Dutchess* that could not be modeled in TransCAD. This included regionally-significant bicycle and pedestrian projects and transportation demand management (TDM) projects, as listed below. The air quality, energy, CO2 and VMT impacts of these projects were estimated based on the guidance provided by NYSDOT. The estimated impacts were added to the TransCAD model outputs in order to reflect a more accurate "Build" scenario.

Figure H-1. Off-model Projects

- Dutchess Rail Trail Stage 4 (trail and bridge)
- Harlem Valley Rail Trail- Millerton to Columbia County
- Transportation Demand Management (TDM) Programs (Enhanced Regional Commuter Choice, Ozone Action Days, and Regional Ridesharing Program)

Step #4 – Regional Emissions Modeling

To calculate the regional emissions that will result from the transportation system envisioned in *Moving Dutchess*, the model estimates the number of vehicle miles of travel (VMT). The VMT is then analyzed with the latest emissions model.

Emission estimates were determined using the MOBILE6.2 emissions model developed by the USEPA. This process involves using traffic volume and speed data provided by Council staff along with the most recent fleet characteristics and other traffic and meteorological parameters in MOBILE6.2 (established by NYSDOT in cooperation with NYSDEC). The emissions rate results from MOBILE6.2 were used in conjunction with the distribution of traffic by vehicle mix and facility type, and estimates of VMT. The results are shown in Table H-1.

Step #5 – Direct Energy Analysis

Direct energy is the energy consumed by vehicles using a transportation facility. For this analysis, the "facility" is the roadway segments in the Council's model. Direct vehicle energy was calculated using the VMT Fuel Consumption Method as described in Subtask 12a: Energy Analysis Guidelines for TIPs and Plans. The calculations were based on VMT (not seasonally-adjusted) reported by the 2040 No-build and Build models and a calculated vehicle type. Vehicle classification data was based on aggregating data obtained from NYSDOT's Region 8 Vehicle Mix for Energy/GHG Analysis with NYSDOT Draft Guidelines (Based on June 2008 Emission

Factor Tables). Since NYSDOT-Region 8 includes Dutchess County, it was felt that these factors would accurately reflect vehicle distribution for the area. The classification data in the MOBILE 6.2 table is based on 28 EPA vehicle classifications, which are not directly comparable to the three vehicle types used in the direct energy analysis guidance. For this analysis, it was assumed that, taken together, vehicle classes 1-5, 14-15, 24 and 28 are equivalent to "light duty vehicles", classes 6-8 and 16-18 are equivalent to "medium trucks", and classes 9-13, 19-23 and 25-27 are "heavy trucks." Since the table lists percentages of type by functional class, an average of all functional classes was calculated and then summed to represent the percentage by the three vehicle types required for the energy analysis. Each of the three vehicle types have a fuel economy rate per year based on the fuel type used.

The scenario total VMT was multiplied by the percentage of each vehicle type to determine vehicle type VMT. That vehicle type VMT was then divided by the fuel economy rate to calculate the gallons of fuel used. The gallons used were then factored to British Thermal Units (BTUs) by multiplying each gallon by 125,000. Finally, the total direct energy consumption was totaled for all vehicles for each scenario. The results can be found in Table H-2.

Step #6 – Indirect Energy Analysis

Indirect energy is the energy consumed to operate a transportation system, which includes the energy required to construct and maintain a facility. For this analysis, per ESB guidelines, only the energy used in construction activities for Regionally Significant or Non-Exempt projects, including new construction, reconstruction, rehabilitation, and widening, was analyzed.

Indirect energy was calculated for all Regionally Significant and Non-exempt projects for which calculations could be made, including the off-model projects listed in Figure H-1 However, several projects, including the TDM programs, include no real construction and therefore energy could not be calculated for these. The intent of the indirect energy calculations was to measure the indirect energy used in the construction of the projects new to *Moving Dutchess* (i.e., the 2040 Build scenario).

Indirect vehicle energy was calculated using the Lane Mile Approach as described in Subtask 12a: Energy Analysis Guidelines for TIPs and Plans. Table 12 of Subtask 12a includes a table that associates a rate of Construction Energy Consumed per lane mile based on several types of improvements. We identified the type of improvement for each of the Regionally Significant and Non-exempt projects from the 2040 Build scenario. The number of lane miles for each project was multiplied by that rate, and a rate of Construction Energy Consumed in BTU's was calculated. For the off-model rail trail projects, the construction energy rates for new roads and bridges were reduced based on discussion with County Public Works staff.

Two projects, the Wassaic and Beacon Parking Expansions, had to be calculated differently since they are railroad station parking lot expansions. Their energy consumed was calculated

based on the cost of the project, their assumed energy factor, and their calculated Construction Energy Consumed.

The amount of indirect energy used to implement *Moving Dutchess* was calculated to be 248,599,820,039 BTUs. The indirect energy used in the 2040 No-build scenario is zero; therefore it is not possible to compute the percentage difference between the two scenarios.

Step #7 – Estimate CO2 Emissions from Direct Energy Consumption

Carbon Dioxide (CO2) is a product of fossil fuel combustion, as well as other processes. It is considered a greenhouse gas, as it traps heat radiated by the earth into the atmosphere and thereby contributes to global warming. CO2 emissions were calculated as described in Subtask 12b: Greenhouse Gases (CO2) Emissions Estimates Guidelines for TIPs and Plans. The CO2 emissions from Direct Energy Consumption were based on the results calculated in Step 5.

The Direct Energy Consumed by vehicle type was taken from Step 5 above. Subtask 12b, Table 1 lists Carbon Emission coefficients based on vehicle type. The Direct Energy consumed by vehicle type was multiplied by the Carbon Emission Coefficients from Table H-1 and then by a factor representing the amount of carbon that is oxidized. This results in the total tons of carbon emitted, as shown in Table H-3.

Step #8 – Estimate CO2 Emissions from Indirect Energy Consumption

The CO2 emissions from Indirect Energy Consumption were based on the results calculated in Step 6. The Indirect Energy Consumed by vehicle type was taken from Step 6 above. Subtask 12b, Table 1 lists Carbon Emission coefficients based on vehicle type. The Indirect Energy consumed by vehicle type was multiplied by the Carbon Emission Coefficients from Table H-1 and then by a factor representing the amount of carbon that is oxidized. The results were the total tons of carbon emitted. The implementation of *Moving Dutchess* would result in 5,411 tons of carbon emitted, as shown in Table H-4.

Step #9 – Document and present the results of the analyses

A summary of the results of the quantitative analyses is presented in Table H-5. These results demonstrate that the projects new to *Moving Dutchess* will decrease, albeit by small amounts, VMT and the emissions of VOC, NOx, CO, and CO2, and the amount of direct energy used by vehicles in Dutchess County.

Table H-1. Emissions Analysis

Scenario	VMT	VOC* g/day	NOX* g/day	*CO** g/day
2040 No-Build	7,536,710	1,324,562	1,055,430	80,369,898
2040 Build	7,536,956	1,324,544	1,055,768	80,381,161
Off-model ped-bike projects[1]	0	-6,688	-5,245	-273,569
Off-model TDM projects[2]	-3486	-7,257	-4,536	-430,913
Adjusted 2040 Build	7,533,470	1,310,599	1,045,987	79,676,679
Difference (Adjusted 2040 - 2040 No Build	***-3,240***	***-13,963***	***-9,443***	***-693,219***

Notes:

*Adjusted based on seasonality factors (Rural facilities = 1.16, urban facilities 1.12), from NYSDOT Highway Data Services Bureau.

**CO was not adjusted based on guidance from Patrick Lentlie at NYSDOT-ESB.

[1] Includes Dutchess Rail Trail Stage 4 and Harlem Valley Rail Trail (Millerton to Columbia County)

[2] Includes Regional Commuter Choice, Ridesharing programs, Ozone Action Days, and Wassaic & Beacon Train Station Parking Expansions

Table H-2. Direct Vehicle Energy

Scenario	Total VMT	Light Duty Vehicles				
		% of Total[1]	VMT[2]	Fuel Economy[3]	Fuel Used (gallons)[4]	Direct Energy Consumption (btu)[5]
2040 No-build	7,536,710	92.38%	6,962,664	20.79	334,850	41,856,251,862
Adjusted 2040 Build	7,533,470	92.38%	6,959,671	20.79	334,706	41,838,258,035

Scenario	Total VMT	Medium Trucks				
		% of Total[1]	VMT[2]	Fuel Economy[3]	Fuel Used (gallons)[4]	Direct Energy Consumption (btu)[5]
2040 No-build	7,536,710	3.88%	292,173	8.54	34,218	4,277,301,913
Adjusted 2040 Build	7,533,470	3.88%	292,048	8.54	34,204	4,275,463,119

Scenario	Total VMT	Heavy Trucks				
		% of Total[1]	VMT[2]	Fuel Economy[3]	Fuel Used (gallons)[4]	Direct Energy Consumption (btu)[5]
2040 No-build	7,536,710	3.74%	281,873	6.51	43,306	5,413,188,119
Adjusted 2040 Build	7,533,470	3.74%	281,752	6.51	43,287	5,410,861,012

Scenario	Total VMT	All Vehicles				
		% of Total[1]	VMT[2]	Fuel Economy[3]	Fuel Used (gallons)[4]	Direct Energy Consumption (btu)[5]
2040 No-build	7,536,710	100.00%	7,536,710	n/a	412,374	**51,546,741,893**
Adjusted 2040 Build	7,533,470	100.00%	7,533,470	n/a	412,197	**51,524,582,165**

Notes:

[1] Vehicle split was estimated based on aggregating the 28 vehicle types from the Region 8 Vehicle Mix for Energy/GHG Analysis with NYSDOT Draft Guidelines (Based on June 2008 Emission Factor Tables) and then averaging their percentages.

[2] VMT calculated by multiplying the percentage of each type vehicle by the total VMT.

[3] Fuel economy from Table 2 - Fuel Correction Factors; NYSDOT Subtask 12a: Energy Analysis Guidelines for TIPs and Plans. Year 2035 data used, as it is the last year projected.

[4] Fuel Used calculated by dividing Vehicle VMT by the fuel economy.

[5] Direct Energy Consumption calculated by multiplying the rate of 125,000 BTU per gallon by the fuel used.

Table H-3. CO2 Emissions from Direct Energy Consumption

Scenario	Total Tons Carbon Emitted			
	Light Duty Vehicle	Medium Truck	Heavy Truck	All Vehicles
2040 No-build	883	93	118	1,094
Adjusted 2040 Build	883	93	118	1,094

Table H-4. CO2 Emissions from Indirect Energy Consumption

Scenario	Indirect Energy (BTUs)	Carbon Emission Coefficient*	Metric Tons Carbon Emitted	Total Metric Tons Carbon Emitted	Total Tons Carbon Emitted
2040 build	176,776,183,675	19.95	3,527	3,491	**3,848**
Off-Model Projects	71,823,636,364	19.95	1,433	1,419	**1,563**
Adjusted 2040 Build	248,599,820,039	39.90	4,960	4,910	**5,411**

* For this analysis, all construction equipment is assumed to use diesel fuel.

Table H-5. Energy Analysis Summary

		Air Pollution Emissions			Energy	Greenhouse Gas (CO_2) Emissions
Scenario	VMT	VOC g/day	NOx g/day	CO g/day	Direct (BTUs)	Direct (tons)
2040 No-build	7,536,710	1,324,562	1,055,430	80,369,898	51,546,741,893	1,094
Adjusted 2040 Build	7,533,470	1,310,599	1,045,987	79,676,679	51,524,582,165	1,094
Change (Adjusted Build-No build)	***-3,240***	***-13,963***	***-9,443***	***-693,219***	***-22,159,728***	***-0.47***
% Change (Adjusted Build-No build)	-0.04%	-1.05%	-0.89%	-0.86%	-0.04%	-0.04%

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