



Joel P. Ettinger
Executive Director

**NEW YORK STATE DEPARTMENT OF TRANSPORTATION (on behalf of the)
NEW YORK METROPOLITAN TRANSPORTATION COUNCIL**

REQUEST FOR PROPOSALS

**NEW YORK BEST PRACTICE MODEL 2012 BASE
YEAR UPDATE**

Contract No.C000791

December 5, 2013

To All Concerned:

Enclosed is a copy of the Non-Engineering Request for Proposals (RFP) referenced above. All information necessary for the submission of your proposal is contained in the Best Value solicitation.

Any questions regarding this project or proposal shall be submitted in writing, directed to Ismet Apdiroglu, of the New York Metropolitan Transportation Council (NYMTC) via: ismet.apdiroglu@dot.ny.gov, and to Al Hasenkopf of NYSDOT Contract Management via: alfred.hasenkopf@dot.ny.gov

Please note the following **dates and deadlines**:

- **January 21, 2014**: Deadline for the submission of proposals on 2:00 PM (Eastern Time)
- **December 20, 2013**: Deadline for questions about the RFP is 4:00 PM (Eastern Time)
- **December 13, 2013**: Pre-proposal conference at 10:30 AM

In addition to responding to questions (which are encouraged) to assist firms in preparing proposals in response to this solicitation, a **pre-proposal conference** will be held on **December 13, 2013** in NYMTC's Office at 199 Water Street, 22nd Floor at 10:30 AM (see page 48 for details). A general review of the solicitation will occur, and specific questions regarding the solicitation may be asked and answered.

If you are interested in developing a proposal in response to this solicitation, please complete the attached RFP Response Form.

A “Checklist for Proposal Submission” is included to ensure complete and responsive proposals are submitted to NYMTC/NYS DOT. ***It also contains instructions for complying with the Procurement Lobbying Law (PLL) so that your proposal may be considered for contract award. NOTE: Failure to submit the required PLL forms with your proposal will result in elimination from consideration for contract award.***

The New York Metropolitan Transportation Council estimates that work for the successful consultant will commence on July 1, 2014 and continue for a period up to 36 months depending on performance.

The New York State Department of Transportation (NYSDOT) encourages the participation of certified Disadvantaged Business Enterprises (DBEs) in its solicitations. Please see the New York State **Unified Certification Program (NYSUCP) DBE Directory** for certified Disadvantaged Business Enterprises via: <http://biznet.nysucp.net/>. **For this solicitation, the NYSDOT has set a DBE Participation Goal of 18%. Only certified DBE prime consultants and certified subconsultants listed in the NYSUCP DBE Directory are eligible for credit in this procurement.** Please see the RFP for more information

IRAN DIVESTMENT ACT: As a result of the Iran Divestment Act of 2012 (Act), Chapter 1 of the 2012 Laws of New York, a new provision has been added to the State Finance Law (SFL), § 165-a, effective April 12, 2012. Under the Act, the Commissioner of the Office of General Services (OGS) will be developing a list (prohibited entities list) of “persons” who are engaged in “investment activities in Iran” (both are defined terms in the law). Pursuant to SFL § 165-a(3)(b), the initial list is expected to be issued no later than 120 days after the Act’s effective date, at which time it will be posted on the OGS website.

By submitting a bid in response to this solicitation or by assuming the responsibility of a Contract awarded hereunder, Bidder/Contractor (or any assignee) certifies that once the prohibited entities list is posted on the OGS website, it will not utilize on such Contract any subcontractor that is identified on the prohibited entities list.

Additionally, Bidder/Contractor is advised that once the list is posted on the OGS website, any Contractor seeking to renew or extend a Contract or assume the responsibility of a Contract awarded in response to the solicitation, must certify at the time the Contract is renewed, extended or assigned that it is not included on the prohibited entities list.

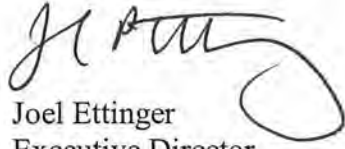
During the term of the Contract, should NYSDOT receive information that a person is in violation of the above-referenced certification, NYSDOT will offer the person an opportunity to respond. If the person fails to demonstrate that it has ceased its engagement in the investment which is in violation of the Act within 90 days after the determination of such violation, then NYSDOT shall take such action as may be appropriate including, but not limited to, imposing sanctions, seeking compliance, recovering damages, or declaring the Contractor in default.

NYSDOT reserves the right to reject any bid or request for assignment for an entity that appears on the prohibited entities list prior to the award of a contract, and to pursue a responsibility review with respect to any entity that is awarded a contract and appears on the prohibited entities

list after contract award.

We look forward to the receipt of your proposal.

Sincerely,

A handwritten signature in black ink, appearing to read 'J. Ettinger', with a large, stylized flourish at the end.

Joel Ettinger
Executive Director,
NYMTC

Enclosures

RFP RESPONSE FORM

RFP RESPONSE FORM: NEW YORK BEST PRACTICE MODEL 2012 BASE YEAR UPDATE, Contract # C000791

Please review this RFP. Please complete the following information and mail, e-mail or fax to the NYSDOT address shown below, by the earliest practical date. This RFP Response form must be submitted along with the two required Procurement Lobbying Law forms (see **Attachment 2**) before questions or other communications with the Department regarding this solicitation can be initiated.

_____ WE **DO** INTEND TO SUBMIT A PROPOSAL

_____ WE **DO NOT** INTEND TO SUBMIT A PROPOSAL FOR THE FOLLOWING REASONS:

Name and Address of Organization (Include Zip Code):

Signature: _____ Date: _____

Type or Print Name and Title: _____

Telephone: _____ Fax: _____

E-Mail Address: _____

RFP Title: **NEW YORK BEST PRACTICE MODEL 2012 BASE YEAR UPDATE**

Please send to the following two parties (scanned email preferred):

E-Mail: ismet.apdiroglu@dot.ny.gov

Copy: alfred.hasenkopf@dot.ny.gov

Regular Mail: NYMTC,
199 Water Street, 22nd Fl
New York, NY 10038

NYSDOT Contract Mgt Bureau
50 Wolf Road, 6th Floor
Albany, NY 12232

ATTN: Ismet Apdiroglu, C000791

ATTN: Al Hasenkopf, C000791

Telephone No: (212) 383-2414

Fax: 518-457-2875

Fax: (212) 383-7244

INFORMATION FOR SELECTED CONSULTANT

NEW YORK BEST PRACTICE MODEL 2012 BASE YEAR UPDATE Contract #C000791

Vendor Responsibility

_____ The selected firm shall be required to provide vendor responsibility information through the Office of the State Comptroller website via <http://www.osc.state.ny.us/vendrep/index.htm> before negotiation of a contract. Interested parties are encouraged to become familiar with the state's vendor responsibility requirements before being notified of selection for contract award. If you are a successful offeror, NYSDOT will not be able to begin negotiations with your firm if this questionnaire is not completed and electronically submitted as required.

Procurement Lobbying Law (*)

_____ Visit NYSDOT Web site (see below) to read NYSDOT Policy Summation Compliance Procurement Lobbying Law. ***Complete and file the two required forms (Offerer's Affirmation of Understanding of and Agreement pursuant to State Finance Law §139-j (3) and §139-j (6) (b) and Offerer Disclosure of Prior Non-Responsibility Determinations) included in Attachment 3 as instructed when submitting a proposal. This is mandatory in order to be considered for contract award. Note: Failure to submit the completed PLL forms with your proposal will result in elimination from consideration for contract award.***

The two forms are available from Attachment 3:

Instructions: https://www.dot.ny.gov/main/business-center/consultants/consultants-repository/pll_gandp_v1.pdf

Contractor Tax Certification

_____ All vendors selected for contracts must complete and submit two NYS Tax Department forms: Form ST-220-TD (Contractor Certification) and Form ST-220-CA (Contractor Certification to Covered Agency). These forms are available via:

http://www.tax.ny.gov/pdf/current_forms/st/st220ca_fill_in.pdf (Form ST-220-CA)

http://www.tax.ny.gov/pdf/current_forms/st/st220td_fill_in.pdf (Form ST-220-TD)

Insurance Requirements of this Project

_____ Please carefully read the terms and conditions of the draft Contract appended as Attachment 1 of this RFP. Your attention is drawn to the insurance requirements for this Project that are contained in Article 11 of the draft Contract. These insurances are **mandatory for the firm(s) selected** as a result of this solicitation **and will not be waived**.

Consultant Employment Disclosure Requirements of this Project

_____ Go to OSC's Web site (<http://www.osc.state.ny.us/agencies/gbull/g-226.htm> or <http://www.osc.state.ny.us/procurement/consultantdisclosure.doc>) to become familiar with Consultant Employment Disclosure requirements, which went into effect June 19, 2006. The Consultant selected for this solicitation shall be required to complete 'State Consultant Services – Contractor's Planned Employment' (**Form A, Attachment 4**) and submit when the contract is

signed. For each contract year thereafter, the Consultant shall complete the “State Consultant Services Contractor’s Annual Employment Report” (**Form B, Attachment 4**) and submit copies to the Office of the State Comptroller, the Department of Civil Service, and the Department of Transportation on or before May 15th of each year the contract is in effect.

Consultant Responsibility When Proposing to Use a Former NYSDOT Employee

_____ It is the Consultant’s responsibility to ensure they propose staff that are eligible to work on the subject Project. Under the attached procedures, before the consultant proposes a former NYSDOT employee, the individual must obtain an opinion from the New York Commission on Public Integrity that approves their participation in the subject Project. For an outline of the procedure that applies to this situation, see **Attachment 5**.

Registration with NYSDOT

_____ Should this solicitation lead to a designation; it is the Consultant’s responsibility to electronically register their firm, including all subconsultants, using the Consultant Selection System web application (CSSWeb). Non-Architectural/Engineering consultant firms are required to create and register an account to: 1) Create and assign Consultant Identification Numbers (CINs) for each office registered by the firm; and 2) Provide general firm information including, but not limited to, legal firm name, Federal Identification Number (FEIN), ownership type, D/W/MBE status, firm principals and office(s) address information. All consultant firms participating in a potential agreement (negotiations) must be registered electronically with NYSDOT prior to that agreement being forwarded to the Office of the State Comptroller for approval. Registered firms are responsible for verifying and updating their registration information for the duration of the agreement. Section VI of this RFP provides more information.

Registration with Statewide Financial System (SFS)

_____ **Should this solicitation lead to a designation, the Prime consultants will be required to electronically register with the Statewide Financial System (SFS) - if not already registered.** NYSDOT will initiate the registration process in the SFS application and then contact the Prime consultant to provide them with further direction for completion of the registration process. The result of this process is an established SFS vendor number assigned to the Prime consultant. If a firm has already registered in SFS in connection with another procurement effort, it will likely not need to re-register for this opportunity. However, a SFS vendor number is firm name specific. Since many firms have different variations of their business identities, firms will be required to register in the name of the business entity that NYSDOT is doing business with.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION (on behalf of the)
NEW YORK METROPOLITAN TRANSPORTATION COUNCIL

REQUEST FOR PROPOSALS

**NEW YORK BEST PRACTICE MODEL
CONTRACT No.: C000791**



Request for Proposals Release Date: December 5, 2013
Proposal Due Date: January 21, 2014

Proposal Delivery Location:

**New York Metropolitan Transportation Council
199 Water Street, 22nd Floor
New York, NY 10038-3534
Attention: Mr. Ismet Apdiroglu, C000791
ismet.apdiroglu@dot.ny.gov**

**Reference copies to: New York State Department of Transportation
Contract Management Bureau, 6th Floor
50 Wolf Road
Albany, NY 12232
Attn: Mr. Al Hasenkopf, C000791
alfred.hasenkopf@dot.ny.gov**

REQUEST FOR PROPOSALS
NEW YORK STATE DEPARTMENT OF TRANSPORTATION (on behalf of the)
NEW YORK METROPOLITAN TRANSPORTATION COUNCIL
NEW YORK BEST PRACTICE MODEL
Contract C000791

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NEW YORK METROPOLITAN TRANSPORTATION COUNCIL
NEW YORK BEST PRACTICE MODEL 2012 BASE UPDATE
Contract C000791

I. INTRODUCTION

A. Purpose

The New York Metropolitan Transportation Council, via its host, the New York State Department of Transportation, is releasing this Non A/E Request for Proposals to seek professional consultant, modeling and technical services for the development of the next generation of its Activity-based travel demand model, New York Best Practice Model (NYBPM) from a responsive and responsible consultant. The resulting model should be as capable or better at performing all tasks currently performed by the NYBPM including highway alternatives analysis, transit FTA-compliant alternatives analysis, air quality conformity demonstrations, long range planning, and member agencies transportation studies. It should also improve NYMTC's ability to perform innovative analysis such as planning and implementation of road pricing studies, analysis of transportation related climate change impacts, analysis of non-motorized transportation, analysis of transportation responses to energy market changes, etc.

This solicitation will include a pre-proposal conference to be held on December 13, 2013, at 10:30 AM, at NYMTC's office at 199 Water Street, 22nd Floor, New York, NY, 10038. In addition, qualified, responsible proposers will be asked to provide a technical presentation of, or written clarifications, to their proposal at a date and time announced by NYMTC to clarify issues or to provide additional insights into their proposal.

The selected Consultant may be asked to provide a Best and Final Offer.

B. Background

What is NYMTC?

The New York Metropolitan Transportation Council (NYMTC) is an association of governments, transportation providers and environmental agencies that is the metropolitan planning organization for New York City, Long Island and the lower Hudson Valley.

NYMTC's Transportation Modeling Background

In the initial phase of the NYMTC Transportation Models and Data Initiative (TMDI) – from 1994 through 1997, the focus was on model needs and requirements and assessment of data needed to support the development of the new models.

Phase I:

As part of this process, it was decided by NYMTC and its member agencies that a preliminary model system that could be implemented in the very short-term was needed. As a result, the Interim Analysis Method (IAM) was first developed, and was used for two rounds of Air Quality SIP/TIP Conformity Analysis. The IAM modeling system was developed over a two year period in the first phase of the NYMTC Transportation Models and Data Initiative (TMDI).

IAM was a relatively primitive planning tool. It met the needs at the time, and integrated the highway databases and analysis tools developed by NYMTC for the downstate New York region with the transit forecasting procedures developed by MTA in its Long Range Forecasting (LRF) project. Additionally, transportation networks and forecasts from northern New Jersey and Connecticut were incorporated to provide for the full representation of travel in the 28 county, three-state metropolitan regions.

In a parallel effort to Phase I, a detailed modeling requirements and data assessment effort was undertaken to establish the needs and specific modeling approach for the best practice models to be developed in the second phase of the project.

Phase II:

As the second and final phase of the NYMTC Transportation Models and Data Initiative (TMDI) project, the New York Best Practice Model (NYBPM) was developed and first previewed in front of a national audience on January 2001 during the TRB Conferences in Washington, and soon was in wide implementation throughout the region on various projects in different sizes including:

- Air Quality Conformity Analysis
- Southern Brooklyn Transportation Investment Study
- The Gowanus Expressway and Kosciuszko Bridge Study
- Tappan Zee Bridge and the I-287 Corridor Study
- Bruckner Sheridan Expressway Study
- Bronx Arterial Needs Study
- Goethals Bridge Modernization DEIS

The New York Best Practice Model is an activity-based model which attempts to predict the detailed travel patterns of a diverse population using numerous travel modes. It does this by introducing some innovative approaches to the traditional travel demand models including the concept of journey or tour as the unit of travel, and a micro-simulation approach which is used to simulate the travel pattern of each person in the region and among all other modes of travel, non-motorized modes are also included.

Due to lack of sufficient funding, the Regional Travel Household Interview Survey, which was conducted in 1997 and 1998, did not include the survey of establishments as travel generator or attraction points, so the tourist trips were ignored in the survey. NYMTC is in the process of undertaking a Regional Establishment Survey via recently approved consultant contract #C000781.

The NYBPM covers 28 counties and is divided into 3,586 transportation analysis zones. The model analyzes travel patterns by four different time period, eight trip purposes on six highway and four transit modes. The highways of the region are represented in Geographical Information System (GIS) with more than 53,000 segments. All the available transit modes of the New York metropolitan region ranging from commuter rail to ferries are also coded in GIS.

NYBPM Base Updates, Re-Calibrations and Validations

The development of the regional NYBPM and the data required for its development largely occurred in the mid and late 90's. Data and networks were developed to generally represent a 1996 base year conditions, six years after the most recent decennial Census in 1990. At the time of completion and implementation in 2002, the model's data was already 10 years old so an update was needed using the new socio-economic data based on 2000 census.

Also adjustments were needed to reflect the impact of September 11th disaster on employment and labor force data. Since the NYBPM was first developed and released in early 2002, NYMTC has updated its model every three to five years to better reflect the regional transportation system and have more accurate travel demand forecasts of future years. The first update was done in 2004-2005 and updated the NYBPM base year from 1996 to 2002. The second update was done in 2008-2009 when the base year was changed from 2002 to 2005.

NYBPM 2002 Base Update, Re-Calibration and Validation

The first update was completed in 2004-2005 and included the following items:

- Updates of the data bases that support the NYBPM, from the original Base Year 1996/97 to a Base Year 2002 set, including updated base and future year Socioeconomic/Demographic (SED) data, 2000 Census data, as well as highway and transit counts.
- Revision and updates to both the NYBPM highway and transit networks, including corrections and updates to incorporate improvements and changes implemented in the regional transportation system since the original base year.
- Modification of several NYBPM application procedures, including a major improvement in the External Auto travel model, the inclusion of Bus vehicle pre-loads in the highway assignment process, revisions to the multi-class assignment method, and the elimination of the Adaptive highway assignment methods as previously implemented for forecasting with the NYBPM for air quality analysis.
- Re-Calibration of the NYBPM to a Base Year 2002 based on the revised set of input data and new calibration target data using the improved application procedures implemented in this update of the model.
- Improvements to the post-processing procedures used with the NYBPM for air quality analysis, adapted to Mobile 6, and implemented within the new PPSuite platform.
- Development of additional analysis procedures needed to adequately assess the emissions impacts of certain TIP and Long Range Plan actions that are more adequately estimated by off-model analysis, than by direct coding within the NYBPM.

NYBPM 2005 Base Year Update, Re-Calibration and Validation

The current NYBPM which is representing the 2005 transportation system and data has been used for conformity analysis and several regional projects since its update was completed and released in July 2009. The NYBPM 2005 Base Year update included the following elements of update.

- Updates of the data bases that support the NYBPM, from the Base Year 2002 to a new Base Year 2005 set, including updated Socioeconomic/Demographic (SED) data, 2000 Census data, as well as highway and transit counts.
- Revision and updates to both the NYBPM highway and transit networks, including corrections and updates that incorporate improvements and changes implemented in the

regional transportation system since the 2002 base year. It also includes updating the highway and transit costs to 2005 dollars.

- Modification of several NYBPM application procedures, including a major improvement in the External Auto travel model, correcting the taxi generation, updates to bus vehicle pre-loads correspondence file, accounting for one-way tolls on tour level choices by using blended skims in Mode, Destination and Stop Choice (MDSC), revisions to Pre-Assignment Processing (PAP) and multi-class assignment.
- Re-Calibration of the NYBPM to a Base Year 2005 based on the revised set of input data and new calibration targets. (see Attachment #9)

NYBPM 2010 Base Update

Currently, NYMTC is in process of updating the NYBPM Base Year to 2010. As part of this update, the following tasks, updates and improvements are anticipated to be completed by end of 2013. All these updates will be based on the latest NYBPM-2G version with new TransCAD 6.0.

- Data Update & Development including updated SED, 2010 Census data as well as highway and transit counts. Also development of an automated process to convert the SED forecasts at TAZ level into needed inputs for the NYBPM is part of this task.
- Highway and Transit Network Conflation, Updates, Integration and Refinements including the update of highway and transit costs to 2010 dollars.
- Improved NYBPM Procedures and Development including restructure/modification of following procedures:
 - Trip table by purpose in addition to the results by mode
 - Ability to run MDSC by individual purpose or combinations of purposes
 - Ability to calibrate the model at a finer level
 - Development of scenario/file management system for transit coding
- Update truck and commercial vehicle model
- Calibration, Validation

Other Improvements and Related Tools

- *Development of NYBPM 2G or New Graphical User Interface (GUI).*
A significantly enhanced Graphical User Interface to facilitate scenario management, data management and visualization of results is being developed. The model runs automatically produce informative reports and map graphics using Crystal Reports. Also both the running time and the memory required to execute the model has been reduced. By providing distributed processing the users can use multiple networked computers for simultaneous computations. This distributed processing can be done for all of the steps in a travel demand model. Also, a web application of the model is developed which provides access to model-based data to the public through an interactive dynamic web server.
- *Implementation of FTA New Starts Analysis Capabilities with the NYBPM*
FTA has requirements for a travel demand model that is used to estimate User Benefit (UB) of transit projects. These requirements are based on the general methodology of UB as the difference between total composite utilities calculated before and after the project introduction. The FTA approach and developed SUMMIT software have been primarily

designed for 4-step models that are characterized by an easy disintegration of the trip-distribution and mode-choice stages as well as aggregate zone-to-zone structure of the model output. The new generation of activity-based tour-based micro-simulation models of which the NYBPM is representative, have required a reconsideration of the UB calculations in view of the more complicated structure where trip distribution and mode choice stages are closely intertwined, as well as because of the fully-disaggregate (individual record) structure of the output. The MDSC model code was revised to add this capability to NYBPM.

- *Implementation of Feedback and Convergence Criteria for NYBPM*

The standard highway assignment procedure is revised to assign all four time periods to a convergence level of 0.001 and 100 maximum iterations, whichever is reached earlier.

An approach was developed to perform multiple global iteration of the NYBPM with feedback to produce model outcomes / forecasts that approach the desired properties of general user equilibrium resulting in more stable and reliable network simulation results. A standard protocol has been developed using 4 global iterations with feedback. The first three iterations are run with Method of Successive Averaging (MSA) of both link flows and trip tables in order to get an averaged converged trip table which is used as the starting trip table to create pre-skims. Then, the pre-skims are used to recreate transit skims and run core NYBPM models for a final global iteration. The averaging is not preserved for the last iteration in order to have a full consistency between the micro-simulation (HAJ and MDSC) model results, and trip tables/assignment results.

- *A number of corrections and updates were made to the Base Highway Network as part of the NYBPM 2002 Base Year Update and NYBPM 2005 Base Year Update.*

A major component of the NYBPM 2005 Update was the coding of corrections and updates for the NYMTC Base Highway Network, from which a new Base Year 2005 network was built using the standard NYBPM project coding and updating procedures. The corrections and updates incorporated general updates from planning studies that used the NYBPM, Transportation Improvement Program (TIP) projects completed before or by year 2005, and corrective actions and modifications including updates and reasonableness checks for link attributes.

- *Toll and transit cost update*

As in prior versions of the NYBPM, tolls are implemented as link attributes, coded in the highway networks database. Auto tolls are represent average daily costs per vehicle. Average daily truck (6 or more tires) tolls are coded in a separate field in the highway network. Estimated truck tolls were updated to reflect real truck tolls in 2005, weight-averaged by both the volume and tolls applied in each truck toll class (typically number of axles).

For the 2005 Update, the auto tolls on Port Authority and MTA facilities were calculated based on weighted Cash (30%) and EZPass (70%) tolls, where a general average percentage EZPass (70%) users on bridges/tunnels was obtained from the recent MTA

2006 Origin-Destination surveys. For PA bridges and tunnels, tolls were further averaged (1/3rd for peak and 2/3rd for off-peak) across time-of-day to compute an average toll. Average truck tolls were computed by consultant based on truck size distribution (number of axles) on different facilities. This changed required implementing a procedure within the NYBPM MDSC model to “re-index” (e.g. by CPI) the estimated value of time related coefficients on cost components in the choice model utility expressions.

Transit fares have been updated to represent Year 2005 fare policies, with average fare values represented in 2005 dollars. Like tolls and other costs update for the 2005 NYBPM, these fares are transformed within the processing of the NYBPM so that they are modeled consistently with the original mode choice model parameters estimated with 1996 dollars.

- *Improvements to the External Model*

An external model was developed in 2001 to account for Internal-External, External-Internal and External-External trips. As part of the 2002 update, a count-based synthesized matrix solution for the Base Year was developed, and forecasted with simple Iterative Proportional Fitting (IPF) procedures. As part of the NYBPM 2005 update, this "patch" was replaced with an external model that is similar to the original formulation, with appropriate corrections and re-calibration, as well as with a linkage for the regional SED forecasts.

Furthermore, the new version of the external model distinguishes vehicle occupancy for external trips. The four trip purposes (HBW, HBO, NHB and through trips) are distributed among 3 vehicle classes (SOV, HOV2, HOV3+) based on pre-fixed distributions for vehicle occupancy by purpose. It was assumed that external trips have the same occupancy distribution as internal trips (for HBW, HBO and NHB). Through trips are assumed to have the same occupancy distribution as HBO trips.

- *Optimization of key model components, and take advantage of parallel computing capabilities in multi-core computers. Reducing the run time from 173 hours to 12 hours.* As part of the NYBPM 2G (GUI project), the transit component has been revised and optimized, especially the transit skimming and assignment procedures, to convert external programs into native TransCAD programs and also to take advantage of the capabilities and features in the latest TransCAD version, which largely improved user-friendliness and reduced model run time.

(see Attachment #10 by reference) the complete report *Transportation Models and Data Initiative Final Report* on NYBPM can be found on the NYMTC website via: http://www.nymtc.org/project/BPM/model/bpm_finalrpt.pdf ; if you have difficulty, an electronic copy of the report is available upon request; call Ali Mohseni at (212)383-7215 or e-mail to: Ali.Mohseni@dot.ny.gov

C. Contract C000791 Term/Level of Effort

Contract Term

The base term of Contract #C000791 will be for up to 36 months, commencing from the contract start date, with two one-year optional term extensions (depending upon need, availability of funding and performance). It is anticipated that this will be a lump sum milestone-type contract. The term may have longer extensions, depending upon the success of fully implementing the project.

Level of Effort

For planning purposes, it is anticipated this contract may require up to the equivalent of ten to fourteen (10-14) fully loaded staff years of effort to complete.

II. PROJECT OBJECTIVES AND CONTRACT OBJECTIVES

A. Project Objectives

NYMTC's overall goal for model improvement is to continuously maintain and apply a model that is representative of the state of the practice in travel demand forecasting and provides the MPO, its policy board, and local jurisdictions the support that is needed for informed decision making in a complex region.

The scope of the contract will be in accordance with the requirements specified in this RFP and the resulting C000791's agreed-upon work. This contract is to develop and update New York Best Practice Model (NYBPM 2012 Base Update) for the NYMTC region, including estimation, calibration, validation and users acceptance testing with follow-up technical support and training.

The goal of this project is to develop the next generation of the NYBPM for NYMTC region. The NYBPM 2012 Base Year Update should aim to meet the travel demand forecasting and modeling needs in the region or sub-region (counties, cities, sub regions, and corridors). An important function of the NYBPM 2012 Base Year Update is to become generally available to NYMTC members and all interested parties. Rights to intellectual property developed under this Agreement shall be allocated and owned in accordance with the provisions of Article 10 '*Intellectual Property Developed under This Agreement*' in the draft contract (Attachment 3). NYSDOT will retain intellectual property rights for all software developed under this contract to the extent permitted by Federal and State law. NYSDOT holds these rights on behalf of NYMTC, and allows NYMTC to openly share the NYBPM 2012 Base Update modeling procedures and software within a limited geographical area. Potential applications of NYBPM 2012 Base Year Update will be in regional, sub-regional, and corridor scales. The model is intended to support the following federally mandated transportation planning duties:

- State Implementation Plans
- Air Quality Conformity Analysis
- Transportation Improvement Programs
- Regional Transportation Plan Updates

- Major Investment Studies and Corridor studies

The updated NYBPM Model should bring a greater degree of coordination, comparability and quality to transportation and demographic data in the region and facilitate inter-regional and inter-area studies. The Model should also address the special needs for specific studies such as: environmental impacts, assessment of policy instruments like tolling policies, managed lanes, capacity expansions, and identification of barriers to inter-modality, etc.

The NYBPM 2012 Base Year Update shall use the state of the art in the practice of travel demand forecasting and modeling methodologies and incorporate the most recently available data and analytical resources. It shall be an activity/tour-based modal, capable of working for the purpose of policy and planning development evaluations.

Based on past experience, evaluations conducted by University Transportation Research Center (UTRC) and other independent experts, NYMTC and its member agencies developed the following list of desired improvements:

- Improvements in highway network details necessary to support greater integration with meso- and/or microscopic traffic modeling applications.
- Development of Time of Day Choice Model
- Development of Visitors Model component
- Improvement of destination choice model
- Reconsidering mode choice sets
- Improved model calibration and validation

Because this work effort includes the re-estimation of the fundamental equations that drive the model, a high degree of importance will be given to model validation and testing. At the conclusion of this project, NYMTC expects to have an advanced Activity Based model which is fully vetted and capable for use as a forecasting and planning tool without further testing. This desire has implications for both model vetting and software development. Extensive testing and validation checks should be performed for vetting. Two back-casting exercises should be conducted, one for a transit project and one for a highway project, where the effects of a recently implemented transportation project will be tested. Sensitivity testing will also be done, including checks of the effect of transit fare, highway tolls, and other changes. Two future year scenarios will also be conducted and the results compared against the most up to date version of NYBPM. Significant differences will be investigated and changes will be made in the model if required. All of these model testing exercises will be performed above and beyond what normally occurs in the base year update process.

B. Minimum RFP Responsiveness Requirements

Any Firm that does not provide **all** of the following **by the RFP deadline** will be determined to be non-responsive and will be removed from further consideration (prior to the technical evaluation of proposals):

1. Complete Part I of the Proposal – Separately bound, with tab dividers. A complete Technical and Management submission, including all required RFP-specified attachments.
2. Complete Part II of the Proposal – Separately bound, with tab dividers. Part II is a complete Cost and Contract submission, including all required RFP-specified attachments.
3. For the purposes of evaluation, each Part I and Part II proposal must be separately submitted. Each Part of the proposal must be complete in itself in order that the evaluation of both parts can be accomplished independently and concurrently, and the Technical and Management submittal can be evaluated strictly on the basis of its merits. Cost information is **not** to be included in the Part I submittal. Technical information is **not** to be included in the Part II submittal.
4. Propose at least 18 percent participation by proposed, certified DBE subconsultants else the prime consultant shall provide an acceptable evidence of a good faith effort by completing **Attachment 8** DBE Subconsultant Participation Solicitation Log and submitting a letter of explanation.
5. **Proposals are required to use 11 point font or larger**, except where necessitated for readability of tables or special graphics. Twelve fonts are preferred. **Proposals which are substantively in smaller fonts will be rejected.**

C. Disadvantaged Business Enterprise Participation

While not indicative of a proposer's individual merit (technical excellence, proposer's ability, experience, etc.), NYSDOT encourages the participation of certified Disadvantaged Business Enterprises (DBE) in its solicitations. The level of DBE participation will be relevant to the process of selecting proposals that will best achieve the overall goals of the Department. Please visit the New York State **Unified Certification Program (NYSUCP) DBE Directory** for certified Disadvantaged Business Enterprises via: <http://biznet.nysucp.net/>

The New York State Department of Transportation has established a **DBE subconsultant participation contract goal of 18 percent** for this solicitation. While this is subconsulting goal, participation of prime consultants is allowed. The goal relates to the total project cost/total contract budget (wherein direct non-salary expenses attributable to certified DBE participation count). Meaningful participation by a prime consultant or subconsultant **who is certified** as a NYSUCP DBE would be counted toward the DBE participation goal. **DBE services can either be for delegated tasks or for part of the services provided by the prime consultant.** Meaningful participation requires a prime and/or subconsultant **who is certified (at the time of proposal submission)** as a DBE in order to count toward the contract goal. Participation by D/M/WBE prime consultants is encouraged but will not count towards meeting the contract 18% DBE goal. Meaningful participation is defined as providing commercially useful functions or services. These services should:

1. Result in a product or service distinguishable from the Prime Consultant's product or service.
2. Be for scope of service elements which can be and are completely performed, supervised and managed by the DBE consultant, and/or

3. Perform significant tasks which can be considered commercially marketable.

Follow the proposal formatting instructions located in RFP Section IV and in **Attachments 7 and 8**, as applicable. Firms are advised to refer to RFP Section V (Pre-Screening) for the procedure NYSDOT/NYMTC will follow in evaluating a firm's proposed DBE participation. Questions regarding DBE participation are encouraged.

NYSDOT has posted its final draft DBE Program Plan to its website (2010; subject to change). The draft plan provides background information regarding how the Department conducts its Federally-required DBE program, covering such subjects as contract-level goals, good faith efforts by consultants, DBE certifications, etc:

https://www.nysdot.gov/main/business-center/consultants/consultants-repository/2010_dbe_draft_plan.pdf

III. PROJECT SCHEDULE AND SCOPE OF SERVICES

A. Consultant Selection Schedule

RFP Release	December 5, 2013
Receipt of proposals.....	January 21, 2013
Consultant interviews	Estimated early March
Consultant selected & notifications.....	1 month later
Refine/ negotiate scope of work for contract	in 3-4 weeks
Contract executed and start work	2 months after initial signature

B. Task Schedule

Task 1: Coordination, Administrative Structure and Meetings.....	Estimated by 07/01/14
Task 2: Identification of Recommended Model Improvement	07/15/14
Task 2.1: Required Model Components.....	07/20/14
Task 2.2: Desired Model Components.....	07/20/14
Task 3: Project Management and Work Plan.....	08/15/14
Task 4: Identification of Data Needs and Available Data Resources.....	09/01/14
Task 5: SED Zonal Level (Base Year and Future Years).....	03/01/14
Task 6: Update Screenline Traffic Counts.....	09/01/14
Task 6.1: Compile Available Traffic Volume Sources.....	12/01/14
Task 6.2: Review Available Traffic Volume Sources.....	12/01/14
Task 6.3: Reconcile the 2010 and 2012 Screenline Databases.....	01/01/15
Task 6.4: Update NYBPM Screenline Database.....	01/15/15
Task 7: Update Vehicle Class Counts.....	12/01/14
Task 7.1: Compile Available Vehicle Class Traffic Volume Sources.....	12/01/14
Task 7.2: Review Available Vehicle Classification Count Sources.....	12/01/14
Task 7.3: Update NYBPM Vehicle Classification Database.....	01/15/15
Task 8: Update Transit Counts.....	12/01/14
Task 9: Base Year Highway Corrections and Improvements.....	01/01/15
Task 10: Highway Network Update.....	02/01/15
Task 11: Update NYBPM Costs Inputs, including Tolls, to 2012.....	03/30/15
Task 12: Transit Network Update: Rail Service Updated to Current.....	04/30/16
Task 13: Bus Network and Service Update to Current.....	04/30/16
Task 14: Update Transit fares to 2012.....	03/30/15
Task 15: Restructure/Modify Specified NYBPM Procedures.....	07/30/15
Task 16: Model Refinements: Update Truck and Other Small Commercial Vehicle Model	10/30/15
Task 17: Model Re-Estimation.....	01/30/16
Task 18: Model Calibration.....	03/30/16
Task 19: Model Delivery, Acceptance Testing and Reasonableness Checking....	05/30/16
Task 20: General Report – Base Year 2012.....	07/30/16
Task 21: User Documentation, Training, and Support.....	08/30/16

C. SCOPE OF SERVICES

The required scope of services is described in twenty one (21) tasks. The Consultant may offer an alternative task organization. The Consultant's proposal must include a task schedule with deadlines for each deliverable (see recommended schedule above). In submitting cost proposals, budgets should be detailed for each specific task (all-inclusive milestone payment schedule).

Task 1: Coordination, Administrative Structure and Meetings

Purpose

Ongoing coordination and communications between the Consultant and NYMTC project manager shall be required to ensure the timely and effective development of the NYBPM 2012 Update.

Within this task, NYMTC and the Consultant will jointly develop the administrative structure for this project consisting of two committees: the Technical Advisory Committee (TAC) and the Model Development Steering Committee (MDSC).

Technical Advisory Committee (TAC): The Consultant shall arrange for payment of expenses incurred by TAC members to attend progress meetings and review project documents. The composition of the TAC is estimated to be five (5) national modeling experts, including three (2) from government and two (3) from the private sector. The TAC is envisioned to provide an independent, objective assessment of complete, definitive and fully vetted methods and procedures for conducting the model update. TAC members will participate in critical decisions regarding the model design, model structure and data requirements. TAC members will participate by providing written comments and by attending project team meetings with the NYMTC and the CONSULTANT staff. For budgeting purposes a total of 18 TAC meetings shall be conducted (6 in person meetings and 12 conference call meetings). In addition to presentation materials and agendas, the consultant shall prepare briefing packets for the TAC members to be reviewed prior to the meetings. These briefing packets will include the project scope, summary of previous discussions, conclusions, and new and unresolved technical issues. A meeting will be held near the end of each task with NYMTC staff and the SC to address findings and preliminary recommendations and to receive concurrence on project direction. The Consultant shall coordinate these meetings in advance with NYMTC staff and develop agendas, presentation materials, and background material as needed. The Consultant shall submit the minutes of the TAC meetings within one week after the meeting was held.

Steering Committee (SC): The Consultant shall hold meetings near the end of each task with NYMTC staff, and the SC, to address findings and preliminary recommendations and to receive concurrence on project direction. The Consultant shall deliver these presentations in coordination with NYMTC. The Consultant shall coordinate these meetings in advance with NYMTC staff, and develop necessary agendas, presentation materials, and background material. These meetings shall be conducted by the consultant in-person and presented by the senior experts from the consultant team approved by NYMTC in advance of the meeting.

Regular progress meetings shall be conducted monthly or biweekly as needed. We expect to have up to sixty five (65) meetings over the thirty six (36) month duration of the BPM 2012

Update project.

Deliverables

1. Draft and Final Agenda and Notes or Minutes for each meeting, including a limited number of meetings, to review progress and make agreed upon adjustments as necessary
2. Monthly Progress Reports
3. Meeting Presentation Materials
4. Project Website

Task 2: Identification of Recommended Model Improvements

The new generation of NYBPM should update all available transportation system elements within the 28-county model study area: streets and highways, transit routes and stops, park & ride facilities, off-street parking facilities, and major trip generations/attractions.

The existing NYBPM already incorporates customized sub-models such as: household synthesizer, auto-ownership, journey-frequency, mode destination and stop choice. However, the Consultant may propose appropriate new modules or revisions to these existing sub-models in order to advance the model's capabilities.

Required Model Components

- Maintain an open infrastructure for potential improvements through a modular structure with the ability to turn on/off and add components, and to address the NYMTC region's special modeling needs
- Update all available transportation system elements within the 28-county model study area, including streets and highways, transit routes and stops, park & ride facilities, off-street parking facilities, and major trip generations/attractions

Desired Model Components

- Incorporate new approaches to transportation networks (highway, transit, non-motorized) to support more robust and efficient mode choice and multimodal network assignments, e.g.:
 - Integrate road and transit networks on the same base map and link them, so that interactions between autos and transit can be more easily captured;
 - Provide a region-wide non-motorized network;
- Incorporate advanced programming techniques to utilize computer processing power as well as new logics in order to expedite the modeling process and improve operational efficiencies and reduce run times; Create an additional level of Micro Analysis Zones (MAZ) to the standard Traffic Analysis Zones (TAZs), to allow for trips to be broken down more readily to activity locations;
- Implement "planning-level" Dynamic Traffic Assignment (DTA) procedures with a 1-hour resolution, and/or improved capabilities to use NYBPM to support external meso- and microscopic traffic simulation models;
- Improve the Population Synthesis model to include household and person control as well as flexible geography;
- Improve the Long-Term Choice Model to include occupation, usual place of employment/or school location, transit pass and E-ZPass ownership, driver's license, auto

ownership and free parking eligibility for people whose usual place of employment is in the Central Business District (CBD);

- Incorporate an advanced Daily Activity Pattern (DAP) model to provide better intra-household interactions travel decisions, as well as trip substitution options such as telecommuting and on-line shopping;
- Incorporate a Vehicle Choice model;
- Incorporate new components into the mode choice process such as accessibility, reliability, flexibility, desirability, occupancy, and surrounding environment along with density;
- Develop a realistic destination choice model by time-of-day pattern by:
 - Including findings from NYMTC's Establishment Survey
 - Enriching the set of explanatory variables describing activity locations
 - Improving multi-modal accessibility measures, specifically accounting for non-linear time, cost, and distance effects
 - Improving the model design through enhanced calibration and validation techniques;
- Increase the model's temporal resolution from four time periods to 30-minute intervals for tour scheduling, and incorporate a dynamic time-of-day activity scheduling and departure time choice model;
- Improve pricing elements to include various pricing schemes, and taking into account variables such as growth, inflation, gas price, toll scenarios, dynamic priced lanes, and congestion pricing;
- Revise the available transit modal choice sets, including placing more emphasis on characteristics that affect demand and less on specific mode types:
 - Consider need for kiss-and-ride modeled explicitly and distinguished from park-and-ride,
 - Make changes in choice structure for transit sub-modes based on service attributes and markets served,
 - Utilize capacity constraints in transit path-finding and mode choice,
 - Better represent taxi in terms of level-of-service variables (at least in Manhattan where taxi is an important mode);
- Improve the model's procedures for forecasting commercial vehicle activity, e.g. explicit incorporation of freight and logistic activity into the model or adoption of NJTPA's new freight forecasting methodology;
- Incorporate improved off-street parking capacity and price variables especially in Manhattan and other regional centers where parking is scarce;
- Create a non-resident/visitor sub model; and
- Develop procedures for integrating output from a separate airport ground access model, including creation of a special class for air passengers, and integration of airport mode choice model results into NYBPM's highway and transit assignment procedures.
- Be open to new, advanced modeling methodology, e.g. new trip generation, trip distribution and traffic assignment methods. Improved agent mode-choice, route-choice, and activity components are expected and should be implanted without too much difficulty.
- Be open to more computationally efficient program/software. The NYBPM 2012 Base should have a good software interface for possible future improvements;

- Be open to newly available data sources. New survey data, new socioeconomic statistics and new information on land/industry development should be easily included in the NYBPM 2012 Base using updating programs;
- Protocols shall be proposed for maintenance and updates. The software interface, protocols for updates and maintenance procedures should be standardized before or in the process of the model development.

Sub-Regional Modeling

The Consultant shall specify modeling procedures to support sub-regional, area-level, and corridor studies for transportation planning. Requirements for software modules that are programmed to implement the special procedures shall be specified.

Approach and Methodology

The Consultant shall review the following reports, which can be found on the NYMTC website via: <http://www.nymtc.org> (electronic copies of the reports are available upon request):

- NYBPM 2.0 Strategic Planning Session, January 2012
- Travel Demand Model Peer Review, Summary Report, April 2011
- NYMTC BPM Peer Exchange, December 2010
- Final Report of NYBPM Evaluation by UTRC

The Consultant shall also evaluate various proposed improvements to NYBPM and alternative modeling methodologies to identify the possibilities of future customization, improvements and modifications needed to meet NYMTC requirements. The Consultant shall review all available documentation, and collect feedback from travel forecasting model developers, practitioners and other stakeholders to identify the most suitable NYBPM structure for NYMTC region.

A Technical Advisory Committee composed of nationally recognized experts will monitor the review process. The Consultant shall work closely with the TAC and Model Development Steering Committee through NYMTC staff.

Deliverables

The result of this task shall be reported in a Technical Memorandum (TM), which will include a summary of all reviewed modeling practices and a table that categorizes each alternatives, its purpose, its difficulty and flexibility, area of strengths and weaknesses, cost, and time. It should also include the Consultant's assessment on the best alternative to be used for the NYMTC region along with evaluation criteria and weighting factors, which is developed in cooperation with the TAC and Model Development Steering Committee. The Consultant should include a draft model structure along with its components and functionalities. The draft model should be flexible and modular allowing inclusion or exclusion of sub-model without affecting the model operation.

Findings of this task and decision on the model structure and components would create ground consensus for establishing the proper work plan and model development work sequence.

Task 3: Project Management and Work Plan

Purpose

The selected consultant should provide a work plan based on the approved model structure in Task 2 along with a project management approach to follow.

Deliverables

Project management approach and work plan should be presented in a Technical memorandum (TM) which would be a road map for completion of the contract. This document should include:

1. A summary of the final work scope for the NYBPM 2012 Update, as agreed by the Consultant, NYMTC Project Manager, and the Model Development Steering Committee, following submission of the Task 2 deliverable.
2. A technical approach describing in detail the agreed enhancements and updates to the model, and the steps needed to complete these tasks;
3. An inventory of data, documents, or other information required to support this work plan;
4. Planned changes to the spatial and temporal resolution of the model
5. Planned changes to the multimodal transportation network's structure and required attributes
6. Planned changes to the models and sub-models
7. Calibration and validation procedures and criteria
8. Training provisions
9. Support and maintenance provisions

Task 4: Identification of Data Needs and Available Data Resources

Purpose

Data resources required for NYBPM 2012 Base shall be investigated by the Consultant, by considering the needs for each module of NYBPM. Summary of data needs for each module is needed, which includes a comprehensive inventory of existing Household Travel Survey, Origin/Destination Survey and databases and all other data needed for development of the NYBPM 2012 Base. The discrepancies should be recognized and followed by suggestions for a more completed data set.

Approach and Methodology

Development of quality region-wide travel demand model procedures requires significant data inputs. Therefore, one of the first steps is for the Consultant to identify the available data sources in the tri-state area and the U.S., summarize the data attributes, and evaluate the availability, usefulness and quality of the data. Potential data sources to be used in the NYBPM 2012 Base Update project include:

- Regional Household Travel Survey (RHTS).
- Regional Establishment Survey (RES).
- Origin-Destination Surveys.
- Traffic counts.
- Travel Time Survey.
- River Crossing Origin Destination Survey.

Detailed needs for each type of data sources should be identified. The data sources will include NYMTC region-specific data as well as other key sources identified elsewhere in the United States.

Data sources will be identified based on discussions with the NYMTC Project Manager and other identified stakeholders, as well as the Consultant's experience. Relevant documents and databases shall be gathered and reviewed for completeness. From this preliminary effort, the data shall be evaluated and used to document the existing areas of data coverage.

Work Steps

- Develop a list of data needs for modeling effort, including discussions about the associated reliability, trade-offs and costs.
- Meet with NYMTC Project Manager to discuss the resources necessary to collect the data elements.
- Identify existing reports, databases, and data that describe traffic flows and travel forecasting.
- Collect, review and summarize available data.
- Evaluate the completeness and usefulness of the available data.

Deliverables

A Technical Memorandum, discussing the identification of data needs and assumptions to be used during the model development, estimation, calibration and validation; summarizing available data; and recommending further data needs to completely develop, estimate, calibrate and validate the regional model.

Data Development / Updates

Task 5: SED Zonal level (Base Year and Future Years)

Purpose

The purpose of this task is to incorporate 2012 zone level Socio-Economic/Demographic (SED) data estimates for use in the base year updating of the NYBPM, as well as a new series of SED input data for NYBPM use through the year 2050. These data series are being developed for NYMTC under a separate project.

The Consultant shall update the automated process in the NYBPM 2010 Base to convert these new SED forecasts at TAZ level into needed inputs for the NYBPM. The programs were developed by a previous consultant and will be provided as needed.

Method

The TAZ-level data developed by NYMTC or its consultant shall be subjected to logic and validity checks for use with the NYBPM. The basic set of SED related input files needed as inputs to the NYBPM shall be prepared: first for the base year, to support the model updates, improvements, and validation work in other sub-tasks; and subsequently for the forecast years, to support forecasting with the updated/ validated NYBPM by NYMTC for future year model runs. Since the forecasting years for conformity scenario runs are subject to change, the consultant will develop an interpolation procedure for intermediate years.

Deliverables

1. All TAZ-level SED data NYBPM input files needed for Base Year 2012 model testing and calibration/ validation.
2. All TAZ-level SED data NYBPM input files needed for future years from 2015 to 2050 with five-year intervals or as required by NYMTC project manager.
3. A Technical Memorandum documenting work and products developed in this sub-task.
4. Macros, programs and procedures conversion and interpolation.

Task 6: Update Screenline Traffic Counts

Purpose

The purpose of this task is to update the NYBPM screenline database, using information from currently available secondary sources (especially data reflecting 2012 patterns), for regional analysis and air quality conformity. The transit passenger ridership counts data, along with the highway traffic volume data, play an important role in assisting and guiding the calibration and validation of the NYBPM model. The highway and transit counts, taken together at the regional cordon lines and screenlines, are essential in assessing the accuracy of the total person destination choice model of the NYBPM. These counts, when were segregated by travel mode and summarized at the regional cordon and screenlines, are critical in evaluating the validity of the person-trip mode shares in the mode choice model of the NYBPM.

Method

The NYBPM screenlines were prioritized using levels 1, 2 and 3, in terms of their significance in regional analysis. Priority 1 screenlines have the highest significance (e.g. screenlines capturing county to county travel), while Priority 3 screenlines (e.g. within county screenlines reflecting local travel patterns) have the lowest significance, in terms of regional analysis. This priority scheme allowed for building the NYBPM screenline database incrementally and for prioritizing new data collection efforts. In order to complete this task the following activities shall be undertaken:

1. Compile available traffic volume sources
2. Review available traffic volume sources
3. Reconcile the 2012 BPM highway network with the 2012 screenline database to account for new highway links that cross the various screenlines.
4. Update the NYBPM screenline database
5. Update screenline traffic volume data from NJTPA/NJDOT and Connecticut.

6.1 – Compile Available Traffic Volume Sources

The Consultant shall compile available traffic volume databases and documents from the various regional and sub-regional agencies, including NYSDOT's HPMS traffic volume/ class database, NYCDOT, NJTPA/NJDOT traffic volume, class data and intersection counts, county volume databases/reports, tolling authorities in New York and New Jersey, and regional corridor or other transportation study reports. While the focus of the effort shall be 2012 data, data sources from previous years shall also be compiled. The outcome of this effort is anticipated to be a database of potential sources, which could be incorporated into the NYBPM screenline database updating process. In addition, the Consultant shall attend two (2) meetings with NYMTC staff to discuss potential availability of sources and their applicability to the updating screenline efforts.

6.2 – Review Available Traffic Volume Sources

The traffic volume database and document compiled in subtask 6.1 shall be reviewed, and the applicability of incorporating a particular record into the updating process shall be examined. Due to the variety of data formats, each traffic volume database or document may require a different process to extract the pertinent information. It may also be necessary to customize programs to facilitate the conversion of text files to database formats. The outcome of this effort shall be a database of traffic counts to be incorporated into the NYBPM screenline database. See Attachment 11 for a copy of NYBPM screenline database format.

6.3 – Reconcile the 2010 and 2012 Screenline Databases

The Consultant shall reconcile the 2012 NYBPM highway network with the 2012 screenline database to account for new highway links that cross the various screenlines. These new links reflect updates made to the NYBPM network, as part of the 2012 NYBPM validation task, and have not accounted for previously. These links shall be added to the screenline database and available traffic counts shall be incorporated. In the event counts are available for other years, factors shall be developed to project the available counts to 2012. The locality of screenline links shall also be reviewed to identify mismatched or duplicated highway-to-screenline-link equivalency as a result of the highway network updating procedure.

In addition, the Consultant shall review the link speed ID to assess compatibility with the NYMTC speed database developed for the BPM. The highway network fields “SPD_ID_SW” and “SPD_ID_NE” shall also be reviewed. These fields are used to attach the travel time/speed database developed for NYMTC in 2011 for selected roadway segments. The proper linkage of the surveyed speed database to the highway network is an integral element to the calibration process of the Post Processor Software (PPS) speed/cap table and coefficients, since it is anticipated that selected corridor observed speeds will be used as one of the criteria for the PPS speed validation. The speed database shall be updated where data are available.

The outcome of this effort shall be threefold; a) a complete set of NYBPM screenline database, with observed and estimated traffic volume updated to year 2012, b) an up-to-date highway-to-screenline-link equivalency and c) an updated 2012 NYBPM highway network with speed IDs. The Consultant shall participate in two (2) in-person meeting and advise NYMTC in terms the appropriateness of including various new highway links, traffic data for the new links speed ID/network linkages.

6.4 – Update NYBPM Screenline Database

The selected traffic counts identified in Subtask 6.2 shall be incorporated in the NYBPM screenline database by the Consultant. In addition, for locations that have an actual count in the current NYBPM screenline database, but did not get updated with data from 6.2, growth factors shall be developed to project the available counts to 2012. The growth factors shall be developed upon discussion with and approval by NYMTC staff. This preliminary database shall be the basis for estimating traffic volume data for a specific link, if not available. A three (3) level process shall be used based on available traffic volumes for similar PLT links at the screenline level, the county level, and the region level. The process is hierarchical, meaning that estimates are based at the finer level (i.e., the screenline level) if available, before proceeding to the other two levels. Traffic volumes for these locations may be estimated by using the **Traffic Volume Estimation Program (TRAVEP)**, developed for the 1996/1997 BPM screenline database update and

subsequently used for the 2002, 2005 and 2010 update or the consultant will offer a different approach if accepted by NYMTC. The outcome of this effort shall be a complete NYBPM screenline database, with observed and estimated traffic volume updated to year 2012. The Consultant is responsible for any necessary troubleshooting of the TRAVEP. The Consultant shall attend one (1) meeting with NYMTC staff to discuss the final screenline database

Deliverables

1. A database comprised with potential traffic volume sources
2. A database of traffic counts to be incorporated into the NYBPM screenline database
3. An updated speed database
4. A complete NYBPM screenline database, with observed and estimated traffic volume updated to year 2012
5. A Technical Memorandum documenting work and products developed in this sub-task.
6. Macros, programs and procedures developed for this task

Task 7: Update Vehicle Class Counts

Purpose

The purpose of this task is to update the vehicle classification counts database, using information from currently available secondary vehicle classification sources (especially data reflecting 2012 patterns), for regional analysis and air quality conformity.

Method

The effort and methodology for this task is an extension of the methodology identified in task 2. In order to complete this task the following activities shall be undertaken:

1. Compile available vehicle classification count sources
2. Review available vehicle classification count sources
3. Reconcile the 2012 NYBPM highway network with the vehicle classification count database to account for new highway links with class counts.
4. Update the NYBPM vehicle classification count database

7.1 – Compile Available Vehicle Class Traffic Volume Sources

The Consultant shall identify and compile available vehicle classification count data and documents from the various regional and sub-regional agencies, including tolling authorities in New York and New Jersey. This effort is anticipated to be concurrent with Subtask 6.2. While the focus of the effort shall be 2012 data, data sources from previous years shall also be compiled. The outcome of this effort is anticipated to be a database comprised of potential sources, which could be incorporated into the NYBPM vehicle classification count database updating process.

The Consultant shall attend one (1) meeting with NYMTC staff to discuss potential availability of sources and their applicability to the updating of the vehicle classification count efforts.

7.2 – Review Available vehicle classification count Sources

Each vehicle classification count database and document compiled in subtask 7.1 shall be reviewed, and the applicability of incorporating a particular record into the updating process shall be examined. Due to the variety of data formats, each vehicle classification count database

or document may require a different process to extract the pertinent information. It may also be necessary to customize programs to facilitate the conversion of text files to database formats. The outcome of this effort shall be a database of vehicle classification traffic counts.

It is anticipated that the Consultant participate in a maximum of two (2) meetings with NYMTC staff, where databases shall be examined and record validity procedures shall be discussed.

7.3 – Update NYBPM Vehicle Classification Count Database

Each vehicle class traffic count identified in Subtask 7.2 shall be incorporated in the NYBPM vehicle classification count database. Furthermore, for locations that have an actual count in the current NYBPM vehicle classification count database, but did not get updated with data from Subtask 7.2, growth factors shall be developed to project the available counts to 2012. In addition, for locations that total traffic counts are available, but not vehicle classification counts, procedures shall be developed for estimating commercial vehicle volumes, if possible. The outcome of this effort shall be a complete vehicle classification count database, with observed and estimated traffic volume updated to year 2012. The Consultant shall attend one (1) meeting with NYMTC staff to discuss the final vehicle classification count database.

Deliverables

1. A database comprised of potential vehicle classification data sources
2. A complete vehicle classification count database
3. A Technical Memorandum documenting work and products developed in this sub-task, describing the methodology for updating the vehicle classification count database
4. Macros, programs and procedures developed for this task

Task 8: Update Transit Counts

Purpose:

The purpose of this task is to develop a comprehensive set of regional transit counts to allow the NYBPM calibration and validation to extend beyond the NYMTC ten counties.

Method:

The Consultant shall evaluate the available 2012 (or closest available) count data by time of day for the major transit operators in the New York Metropolitan area. The Consultant shall also contact suburban regional bus carriers to determine if boarding by routes is available. It is expected that the count data shall be generated from a variety of data sources including:

- On-Board Surveys and survey-derived trip tables (MTA, NJ Transit, and Port Authority)
- Ticket Sales data (commuter rail road)
- Platform counts
- Fare Card entry and exit data (MTA-NYC Transit and PATH)
- NYMTC Hub Bound Data (Manhattan CBD entries)
- Fare box data (buses)

Therefore, the available transit count data from various sources (on-board surveys, ticket sales data, NYMTC Hub bound data, platform counts, etc) should be assembled, evaluated and organized; and a particular focus should be placed on the accuracy of those transit counts that would serve as Manhattan CBD cordon lines, Hudson River Crossing screenlines, East river

Crossing screenlines, and selected county-to-county screenlines to assist the NYBPM.

Once the available data is identified, the Consultant shall assemble the available count data into a single Microsoft Excel spreadsheet or Access. The counts envisioned include:

- Station level boarding and alighting counts (fixed guide way services)
- Volumes on board at maximum load
- Total Bus Boarding by Route

To the extent that trip tables are used, the Consultant shall assemble the trip tables into a uniform format that can be used for model calibration purposes.

Deliverables

1. A Microsoft Excel spreadsheet or Access file containing the comprehensive set of transit system counts available in the region.
2. A comprehensive transit trip table database, as appropriate
3. Macros, programs and procedures developed for this task
4. A Technical Memorandum documenting work and products developed in this sub-task.

Highway Network Updates and Refinements

Task 9: Base Year Highway Corrections and Improvements

Purpose

The consultant shall make adjustments to the entire network including portions of the states of NJ and CT as a continuation of NYBPM 2010 Base Update. As part of the 2012 base year network the selected consultant shall make additional refinements to already conflated NYBPM 2010 Base networks and make further enhancement of link attributions and intersections. Also enhancement of the Physical Link Type (PLT) capacity and free flow process is required.

Using the standard NYBPM highway network coding procedures the consultant will incorporate the set of all TIP projects which are completed in 2012 and prior years. The Consultant shall ensure the quality and continuity of the network, and verify whether data for the networks and for the zones are consistent with each other.

The Consultant shall improve the accuracy of the 2012 base year highway network through incorporating various updates and specific network information regarding appropriate corrections to the highway network, obtained by NYMTC from recent NYSDOT and other corridor planning studies making use of the NYBPM for modeling purposes. Highway network checking shall be conducted; for example, in major corridors and approaches to crossings, for coding problems, disconnections, missing links and lanes, etc., that create unrealistic traffic flow.

Method

The Consultant shall thoroughly examine TIPs from NJ and CT MPOs, and identify significant network changes since 2010 that should be included in the New Jersey and Connecticut portions of the network. Using the standard NYBPM highway network coding and update/ building procedures, the set of possible corrections or improvements from these projects obtained by NYMTC shall be reviewed by the Consultant and determined to be either appropriate or not for

use in modification of the 2012 base year highway network.

Deliverables

1. A Technical Memorandum documenting work and products developed in this sub-task and the process of NYBPM network improvements, including a list identifying the specific changes that were made.
2. A revised version of the NYBPM Base Year 2012 highway network reflecting appropriate corrections from regional planning studies.
3. Macros, programs and procedures developed for this task

Task 10: Highway Network Update: Truck Routes - 28 County Regional Network

Purpose

The purpose of this task is twofold: a) to review the corridors currently identified in the NYBPM highway network as truck routes and b) to update the NYBPM highway network with additional corridors, if necessary, based on up to date information.

Method

In order to better estimate a commercial vehicle trip table and travel times and volumes on the NYBPM network, an effort was previously undertaken to identify truck routes in NYBPM's twenty-eight (28) county core region. At that time, consultant staff compiled information from NYCDOT as well as the other county planning agencies and incorporated it, to the extent possible, in the NYBPM highway network. In order to complete this task the following activities shall be undertaken:

- Compile/ review available truck route designation information
- Review the regional freight network identified in the Port Authority/NJDOT/NYS DOT Regional Goods Movement Plan
- Update the NYBPM highway network

The Consultant shall review information pertinent to truck and commercial route designations from NYCDOT and the BPM highway network shall be modified/ updated against current commercial vehicle route designations.

Deliverables

1. A modified/ updated NYBPM commercial route highway network.
2. A Technical Memorandum documenting work and products developed in this sub-task.

Task 11: Update NYBPM Costs Inputs, including Tolls, to 2012

Purpose

The purpose of this task is to develop a mechanism for updating the travel-cost-related variables of NYBPM (applied in the mode choice and highway assignment procedures) that were based on the model estimation with the Household Survey and corresponding network data (travel times and cost) for the year 1996. These updates shall serve as the basis for adjustment of these input parameters to better replicate the observed travel patterns in the year 2012 and substantiate a general method for routinely updating toll values and other cost components, like parking cost

and transit fares, as part of the short-term BPM improvement. In order to ensure compatibility of the updated cost variables with the model coefficients, a scaling procedure is proposed.

Methods

In the current version of NYBPM there are three following types of input variables related to travel cost:

- Road tolls that are manually specified for each link in the highway network and used in the highway assignment procedures and mode choice model as part of the utility function for the highway modes (SOV, HOV, and taxi),
- Average parking cost that is calculated for each traffic analysis zone as a function of density (zonal population and employment) and location (by county); the combined population-employment density and location are used to calculate a zonal free parking percentage; the employment density is used to calculate commercial daily parking cost; then average parking cost is calculated as a weighted average that is used in the mode choice model as part of the utility function for the highway modes (SOV, HOV, and taxi),
- Transit cost that are skimmed for each transit mode (walk to commuter rail, drive to commuter rail, walk to other transit, and drive to other transit) and for each pair of origin and destination zones as part of the transit skimming procedure; they are used in the mode choice model as part of the utility function for transit modes.

All three cost-related variables also affect destination choice through the impact of the mode-choice log-sum variables included into the destination utility function. All cost-related variables were originally calculated and coded (and the corresponding procedures were developed) based on the real 1996 dollar values and updated in 2005 and 2010 base updates. The same 1996 values were used in the process of model estimation and calibration including mode choice, destination choice, and highway assignment procedures. Thus, the related cost coefficients in the mode choice model as well as toll equivalents applied in the highway assignment correspond to the 1996 values of the cost variables.

Update of the NYBPM to the new base year 2012 as well as the model application for future years requires update of the cost variables. Update of the input cost variables in turn requires recalibration of the cost coefficients in the mode choice model and highway assignment procedures. To implement these related modifications the following procedures shall be developed by the Consultant:

- Update / modification of input values of the cost variables; this in turn can be subdivided into three types of procedures:
 - Direct manual update (regional-wide or local) of the cost variables for the base year (2012) or any future year based on some predetermined scenario, policy formulation, or sensitivity test:
 - Direct manual update of toll values in the corresponding highway network link field,
 - Direct manual update of transit fare input values in the transit skimming procedures files,
 - Direct manual update of parking cost in the zonal LU file,

- Revision of the programmatic procedures and underlying statistical models that calculate cost variables based on the external input:
 - Revision and update of the average zonal parking cost model including:
 - Free parking model based on a combined population-employment density and location (county),
 - Commercial parking cost model based on the employment density,
 - Revision and update of the transit cost skimming procedures and input parameters
- Programmatic regional-wide modification of the cost variables for the base year (2012), or any future year based on general monetary cost scaling strategy (inflation rate)
- Scaling of the mode choice model coefficients and highway assignment parameters for the base year (2012) or any future year based on the average nominal-income growth factor.

The rationale behind the proposed procedures can be formulated as the following set of principles:

- All cost-related variables (tolls, parking cost, and transit fares) should be specified and coded for each year (base or future) in nominal monetary units; this is especially convenient for the base year and/or policy/sensitivity tests since all variables directly relate to the observed/proposed values; this may be less convenient for future (especially long-term) scenarios and for this reason an alternative scaling strategy shall be considered below.
- The model structure itself and all non-cost coefficients and parameters (for example, various perceived time components) are assumed fixed across years (base and future). This assumption is based on the observed relative invariance (and transferability) of the time perceptions for the same socio-economic groups of travelers for the same purpose in stable developed metropolitan areas like the NY region. Transferability of travel behavior in time and space is an interesting and important topic in itself that is needed to be explored in the proposal.
- Percentile definition of household income groups (15% - low income, 70% - medium income, and 15% - high income) needs to be redefined and require re-estimation of the core mode choice model. The global effect of real income growth is proposed to be captured by scaling the cost coefficients by average nominal region-wide income growth. This strategy suits the specification of cost variables in nominal monetary units. In particular, when considering long-term scenarios where inflation rate is roughly equal to the nominal income growth (i.e. no real income growth is expected), two scaling procedures will cancel each other (and essentially, no scaling is necessary). However, if expected nominal income growth is higher than the inflation rate (i.e. a certain real income growth is expected) the relative Value Of Time (VOT) after scaling will be higher and a certain shift toward more expensive but faster modes (for example, toll roads) is reasonably expected, all other things being equal.
- The model user shall be provided with several procedures that correspond to different planning issues and project contexts:

- Routine programmatic scaling of the cost-related variables and coefficients for the base year (if it is moving) and future years for all baseline scenarios;
- Programmatic update of the cost-related variables like transit fare and parking cost as the result of system-wide policies (like changing base subway fare from \$1.50 to \$2.00 in 2004, and to \$2.25 in 2008), introduction of new transit services with a specific fare (like air train to JFK in 2005), or significant changing of the density and parking capacity / conditions;
- Direct manual update of the cost-related variables for specific projects and policy studies (for example, area pricing in some specific areas or HOT lanes with reduced, tolls for HOV vehicles).

Exhibit: Update of the Cost Variables in the NYBPM model

Model component	Type of procedure	Planning/Policy/Project context	Deliverable
Road toll values on highway network links	Region-wide scaling	Account for general monetary inflation for future years	Scaling subroutine in GISDK
	Direct manual update	Area/road pricing projects and specific policies; HOT lanes	Update and mapping subroutine in GISDK
Vehicle Operating Costs	Direct manual update	Account for general monetary inflation for future years and changes in specific components (e.g. fuel)	Revised GISDK assignment / skimming
Transit and Taxi fare skims	Region-wide scaling	Account for general monetary inflation for future years	Scaling subroutine in GISDK
	Programmatic update based on the network changes and assumed fare strategies	Significant changes in the future transit networks	Revised skimming subroutine in GISDK
	Direct manual update	New transit projects and specific policies	Update and mapping subroutine in GISDK
Zonal parking cost	Region-wide scaling	Account for general monetary inflation for future years	Scaling subroutine in the MDC model
	Programmatic update based on the land-use changes and parking policies	Area-wide land-use changes and parking policies, regulations, and facility development	Revised parking cost sub-model in the MDC model
	Direct manual update	Local land-use changes; Local parking policies, regulations, and facility developments	Guidance for updating the zonal land-use file
Mode choice coefficients for cost variables	Region-wide scaling	Account for income growth for future years	Adjustment to the MDC control input
Mode choice constants	Adjustment/Calibration	Base year re-calibration due to change in cost variables (if needed)	Revised set of mode choice constants

The proposed approach for update of the cost-related variables and corresponding deliverables can be summarized in the following way as shown in the **Exhibit** above.

Deliverables

A Technical Memorandum documenting the results of the work done in this task, including the results of the tests performed, and a set of programmatic procedures / subroutines:

- 1) Methods to update tolls, vehicle operating costs, parking costs, transit and taxi fares to current (or Base Year 2012) values in the highway network as well as to scale these values to ensure compatibility with the model coefficients,
- 2) Specification of general methods and procedures for routine updating of these cost variables for each target year with the corresponding scaling of the model coefficients,
- 3) Specification of methods and development of programmatic procedures for modification of these cost variables for specific projects, policy studies, and sensitivity tests, and
- 4) Provision of a summary table of all effective costs included in the base year and default scenarios in the model.

Transit Network Updates and Refinements

Task 12: Transit Network Update: Rail Service Updated to Current

Purpose

The purpose of this task is to update the rail service component of transit network in the region to existing Year 2012 conditions.

Method

The Consultant shall verify if all rail service projects previously coded in the Year 2012 network were completed as scheduled. This information will be used to update the transit network to existing Year 2012 conditions. Rail service changes in year 2012 and prior years shall also be updated in the network.

Deliverables

1. Updated Year 2012 transit network (rail service component).
2. Macros, programs and procedures developed for this task
3. A Technical Memorandum documenting work and products developed in this sub-task.

Task 13: Bus Network and Service Updated to Current

Purpose

The purpose of this task is to update the bus service component of transit network in the region to existing Year 2012 conditions.

Method

The Consultant shall verify if all bus projects previously coded in the Year 2012 network were completed as scheduled. This information will be used to update the transit network to existing Year 2012 conditions. New bus lines or service changes in year 2012 and prior years shall also be updated in the transit network.

Deliverables

1. Updated Year 2012 transit network (bus service component).
2. Macros, programs and procedures developed for this task

3. A Technical Memorandum documenting work and products developed in this sub-task.

Task 14: Update Transit Fares to 2012

Purpose

The purpose of this task is to develop a mechanism to update transit fares in the NYBPM. The existing NYBPM transit fares are coded in Year 2010 dollars, corresponding to the former base year of the NYMTC NYBPM (and model estimation). For forecast year fares, the identical fares are applied – meaning that the existing process assumes fares rise with inflation.

Since 2010, the MTA and other regional transit agencies have passed along additional fare increases to their users, which may have exceed the rate of inflation. As such, the fare process shall be refined to ensure that the 2012 fare policy is properly represented in the NYBPM, with consistency with 2012 dollars in the estimated mode choice model parameters.

Method

The consultant shall work with the project team to develop an approach to represent the Year 2012 fare policy. Key considerations for this approach shall be:

- Mode choice structure
- Future Transit Fare Policy (if fares shall grow faster than inflation)
- Must be end user friendly

The consultant shall work with NYMTC to revise the NYBPM mode choice procedures and the use of transit fare data. After doing so, the consultant shall prepare a brief memorandum for NYMTC staff to review, which shall propose an approach for incorporating updated fares. Once NYMTC signs off on the approach, the Consultant shall implement it into the NYBPM transit coding procedures.

Deliverables

1. Technical Memorandum proposing an approach and transit fare values for coding Year 2012 transit fares, as implemented in *Task 11*
2. The mechanical processes (GISDK and FORTRAN) which shall incorporate the updated fare data into the NYBPM
3. Macros, programs and procedures developed for this task

Model Enhancements and Validation

The Model Enhancements and improvements will be conducted in three parallel tracks.

1. Development of travel modeling methods and updating the model to incorporate the most advanced and best methods developed in recent years in the travel demand modeling industry.
2. Reflect the general progress and advancements in software and hardware applications in travel demand modeling.
3. Implementation of new Survey and data collection, including new Regional Household Travel Survey (RHTS), Regional Establishment Survey (RES) and other surveys in development and update of NYBPM 2012.

Task 15: Restructure/Modify Specified NYBPM ProceduresPurpose

A number of enhancements in various procedures that are part of the NYBPM have been identified as both desirable and practical improvements to be implemented as part of the NYBPM Update 2012. These include new features that can add additional policy sensitivities and/or improve the ability of the model to replicated base year conditions as part of the re-calibration. In Task 2, the Consultant evaluated these potential enhancements. In Task 3, the Consultant and NYMTC staff settled on an agreed package of improvements of NYBPM procedures. Under Task 15, the Consultant will now implement these modifications, to the extent that changes are not already covered in other tasks in this overall scope.

Method

The Consultant shall formulate and implement an approach to incrementally introduce each of the specified improvements into the NYBPM. Revisions to GISDK scripts or other procedural code shall be made and tested for each and collectively.

Deliverables

1. Revised set of NYBPM procedures, scripts and program code, tested and ready to support the NYBPM Base Year 2012 calibration
2. A Technical Memorandum documenting work and products developed in this sub-task.
3. Updates of NYBPM User Documentation for affected procedures

Task 16: Model Refinements: Update Truck and Other Small Commercial Vehicle ModelPurpose

The work performed under this task shall enhance the procedures previously developed for estimating a base year commercial vehicle and truck trip model. The enhancements shall be focused in the supportive data sets, including recent Origin/Destination data. The Consultant shall compile/review and update the Origin/Destination dataset that are required by the estimation program, and develop estimation of the commercial and truck trip tables.

Method

The Consultant shall compile/review recently available truck and commercial vehicle Origin-Destination data including, but not limited to, the 2009 Port Authority Truck Origin & Destination Survey, the 2011/2012 MTA Bridge & Tunnels Origin/Destination survey, the CATS II Origin-Destination survey, and Transearch data. The information provided in the various datasets shall be extracted and incorporated in a format suitable for the estimation software. The available information may need to be aggregated, disaggregated or factored before it could be used for the estimation process. As such, the Consultant shall: a) develop zone correspondence files that identify the relationship between the O/D survey geocoded layer, the estimation program for zone system and the NYBPM network zone system; and b) provide final volumes for the selected O/D pairs. The outcome of this effort shall be an OD flows file as required by the Truck Flow Estimation Model (TFEM).

The TFEM previously used to estimate the 2005 truck and commercial vehicle trip tables, shall be utilized, using the currently available tables as Seed. The output of the model shall be validated against the NYBPM vehicle classification database developed under task 3. The

validation process shall focus on screenline volumes and river crossings, rather than individual link volumes due to the differences in assignment algorithms used by TFEM and the NYBPM assignment procedures.

Deliverables

1. An OD flow file as required by the Truck Flow Estimation Model (TFEM)
2. Updated 2012 O/D commercial and truck trip tables.
3. Macros, programs and procedures developed for this task
4. A Technical Memorandum documenting work and products developed in this sub-task.

Task 17: BPM Re-Estimation

Purpose

The NYBPM 2012 Base Year will be based on the statistical analysis of data specifically collected for the 28 county New York metropolitan region. The consultant will use the Regional Household Travel Survey (RHTS) and Regional Establishment Survey (RES) and other available surveys in the region to conduct the statistical testing and evaluation of the proposed explanatory models, in which the best estimates of the parameters are calculated, evaluated and selected. Many of the components of the NYBPM are choice models of a logit structure. In this case, the parameters are typically estimated value of the coefficient for each explanatory variable to be included in the utility expressions, as well as the alternative specific constant for each choice (also referred to as the error term). The product of the model estimation process will be a set of data rules and equations that define the mathematics of the explanatory models for travel behavior.

The estimation data sets will be constructed from various data sources in a format specific to each model component, and to the requirements of the ALOGIT software (or Biogeme or other comparable package). The Regional Household Travel Survey (RHTS) conducted in 2010 and 2011 and Regional Establishment Survey (RES) will constitute the primary data source for the estimation and calibration of the NYBPM. The consultant will use other Survey data collected either by NYMTC consultants or other agencies in the region for the statistical analysis and estimation of coefficients for each variable in the utility function or as needed for calibration and validation of the model.

Deliverables

1. Revised set of NYBPM core model estimation constants and assignment parameters reflecting the 2010-2011 RHTS.
2. Technical Memorandum describing the re-estimation methods and results
3. Updates of NYBPM User Documentation for affected procedures and model settings

Task 18: Model Calibration

Purpose

Since the core models of the NYBPM are to be re-estimated, it is anticipated that a robust calibration effort will be required. The 2012 calibration effort shall incorporate revised Socioeconomic / Demographic zonal data, highway and transit networks, and updated calibration target data, including an updated road count screenline database, Hub-bound volumes by mode and time of day, Trans-Hudson calibration data, and transit counts and trip tables beyond those

used in the prior update.

It is a specific objective of this sub-task to extend the level of calibration to transit volumes as part of the 2012 update, beyond the CBD sector level calibration (Hub-Bound), to better support Conformity Analysis.

The RHTS 2010-2011, Census 2010, ACS data, and PUMS 5% data are also available to support the 2012 re-calibration.

Method:

This task consists of the following sub-tasks. These subtasks are provided for budgeting purposes only, and as an initial outline for what the Calibration task should be composed of. The Consultant may recommend alternative tests or procedures.

1. Conduct Base Year 2012 Calibration Tests: A series of model calibration tests shall be performed, evaluated, and documented. The work in this task shall be conducted with the framework of possible steps as shown below. NYMTC is open to a different model structure, if a better framework is identified and approved by the Technical Advisory Committee and Steering Committee.

Trip Table Evaluation

- Compare AM trips (or work-tours) with ACS home-to-work flows – County to county level – especially for Manhattan, Queens, Brooklyn, Bronx, Richmond and Essex, Hudson, Bergen, and Union counties.
- Compare 1996, 2002, 2005, 2010 and 2012 NYBPM highway and transit trip tables – one basis for assessing mode choice validation.

Initial Core Model Adjustments Review / Revision

Evaluate and adjust the 2010 set of parameters adjustments for the following:

- Household Auto ownership and Journey Frequency (HAJ) – production.
- Destination Choice (DC) – attractions.
- Time Of Day (TOD) – period balancing – major crossings.
- Mode Destination and Stop Choice (MDSC) - Mode Choice - review and geographically segmented Alternative Specific Constant (ASC).

Re-Set Calibration Targets – 2012

- With RHTS – Re-weighted to 2012 Households.
- With ACS adjustments for work journey.
- With count data – highway and transit.

Assignment Tests

- Systematic / Region-Wide: aimed at shifting volumes from lower to higher facility types.
 - Test different VDF/BPR parameters.
 - Consider adjustment to distance cost in assignment path-building.
- Tolled Facilities
 - Verify or modify VOTs in assignment path-building.

- Corridor / Crossings – balancing volumes across routes.
 - Apply link-specific penalties with CAPMOD and SPDMOD only as required.
2. Model results for Base Year 2012 shall be evaluated and compared to the updated Base Year 2012 Screenline highway count data base and transit counts, as well as to the RHTS, ACS and PUMS data from the 2010 Census. A series of basic adjustments shall be tested and applied in each of the following model components:
- Travel production levels – journey frequency (in HAJ)
 - Destination choice - attractions and origin-destination distribution patterns
 - Mode Choice – highway and transit (by transit sub-mode) shares, by geographic market segments
 - Time of Day shares – Period trip tables, highway and transit by trip purpose
 - Highway and Transit assignment parameters – capacity, speeds, and VDF parameters

The consultant shall provide support for the updated, expanded transit calibration by assisting with the NYBPM transit path-building and assignment procedures. The consultant shall also provide technical support on the mode choice model to determine if any additional refinements there could be made to improve the model calibration.

Document and Archive NYBPM 2012 Base Updates: Any changes to the NYBPM, including parameter, control and other files that are revised or developed as part of the NYBPM model tests in this task, shall be documented, archived and packaged in a standard NYBPM version release. The new Base Year results, based on runs with the re-calibrated NYBPM, shall be archived, summarized, and compared to the prior NYBPM 2010 Update results. A Technical Memorandum shall be prepared that describes the methods used to test and complete the re-calibration of the Base Year 2012 NYBPM Update.

Deliverables

1. Revised set of NYBPM core model calibration constants and assignment parameters reflecting a 2012 calibration
2. Technical Memorandum describing the re-calibration methods and results
3. Updates of NYBPM User Documentation for affected procedures and model settings
4. Macros, programs and procedures developed for this task

Task 19: Model Delivery, Acceptance Testing and Reasonableness Checking

Purpose

After the modifications and improvements to the NYBPM are completed, the Consultant shall test a future year before delivery of the model for testing at NYMTC. The Consultant shall code future year networks as needed based on TIP projects provided by NYMTC and conduct a full run including model results analysis for testing purposes. NYMTC will specify the future year to be tested.

The purpose of this task is to develop a testing plan for NYMTC staff to conduct in-house testing and reasonableness check of the delivered NYBPM 2012 update package. The Consultant shall facilitate NYMTC staff in testing the revised set of NYBPM program.

Method

The Consultant shall develop a testing plan indicating steps and procedures that NYMTC staff will take as part of the acceptance test. The testing plan shall include major items to be tested and the criteria for each item to pass the acceptance test. The testing plan shall also include reasonableness check of major outputs of NYBPM, which may include data processing/extraction programs if necessary. The test shall be conducted for base year 2012 as well as a future year specified by NYMTC staff. A comparison on key data elements between year 2012 and the future year shall also be included as part of the acceptance test to ensure reasonableness and consistency. The testing plan should be provided to NYMTC in the proposal prepared by the Consultant.

The Consultant shall provide technical support to facilitate the testing, as well as to trouble-shoot any errors occurred during the testing. The NYBPM program shall be revised accordingly if necessary.

Deliverables

1. A complete package of updated NYBPM program including revised scripts and all associated datasets.
2. Technical Memorandum indicating the testing plan for NYMTC to carry out.

Task 20: General Report - Base Year 2012

Purpose

In order to facilitate and support the review of the updates, new components, structure and functions of NYBPM for the users, a Final Report describing the methods, data and results of the NYBPM 2012 should be provided. The document should provide both easily accessible technical summary, as well as a general document to support the review of the model updates related to the Conformity Analysis process.

Method

The Consultant shall consolidate the documentation developed as draft technical memoranda in each of the tasks, supplement the material as needed, and summarize the methods, data and results of the NYBPM 2012 update. A draft document shall be developed for review by NYMTC and others as determined by NYMTC. Based on comments received, revisions shall be incorporated in a final report document.

In addition, the Consultant shall develop a PowerPoint presentation outlining and summarizing the NYBPM 2012 Update.

Deliverables

1. Draft and Final NYBPM 2012 Report and associated supporting datasets and tables
2. PowerPoint presentation

Task 21: User Documentation, Training, and Support

Purpose

A Final and comprehensive step by step user documentation with screen shots will be produced

by consultant. Also the consultant will prepare training sessions for both NYMTC staff and its member agencies to explain the final version of the NYBPM 2012 Base

Method

The Consultant shall consolidate the documentation developed as draft procedures in each of the tasks, supplement the material as needed, and provide a comprehensive, step by step procedure for the users of NYBPM 2012 Base Update. A draft document shall be developed for review by NYMTC and others as determined by NYMTC. Based on comments received, revisions shall be incorporated in a final report document.

In addition, the Consultant shall conduct and develop a PowerPoint presentation outlining and summarizing the NYBPM 2012 Update and conduct three presentations for PFAC staff meeting, PFAC public meeting and Inter agency Consultation Group (ICG).

In addition, as part of this task, the consultant shall provide two training sessions for NYMTC staff and its members to learn and become familiar with the NYBPM 2012 Base, its updates, changes and new components as follow:

- A half- a-day training session for non-technical staff and managers to explain the changes and functions of NYBPM 2012 Base Update.
- A three-day technical in-depth training session for NYMTC staff and NYMTC member agencies.

The consultant will also provide support on an on-call basis for a 18 month period after the final delivery of the model up to a limit of 180 professional hours.

Deliverables

1. Draft and Final copy of a comprehensive step by step User's Manual
2. Provide Power point presentation and all supporting materials for presentations for PFAC public meeting
3. Power Point presentation and other supporting materials for the PFAC and ICG meetings
4. Training plan, materials and agenda for all training sessions

IV. PROPOSAL FORMAT AND CONTENTS

For the purpose of evaluation, each proposal must be submitted in two (2) parts. Part I shall consist of the Technical and Management submittal. Part II is the Cost and Contract submittal. Offerors must submit Part I and Part II in separate, sealed packages. Each part of the proposal must be complete in itself in order that the evaluation of both parts can be accomplished separately, independently and concurrently, and the Technical and Management submittal can be evaluated strictly on the basis of its merits. Cost information is **not** to be included in the Part I Technical & Management submittal, and Technical and Management information is **not** to be included in Part II Cost Proposal submittal, or your proposal may be deemed unresponsive. Offerors must submit Volume I and Volume II in separate sealed packages. Proposals may be submitted in three ring binders, stapled spiral, or cloth-bound. Clearly identify any attachment with the offeror's name on a cover sheet that is firmly attached to the document. Clearly identify any unattached documents with the offeror's name on each page of the document. Identify the solicitation name and contract number on every document. Each response section shall be separated by a labeled tab page.

NOTE: NYSDOT will protect confidential and proprietary information from disclosure to the extent permitted by the Freedom of Information Law ("FOIL"), Article 6 of the Public Officers Law. If an Offeror believes information included in their proposal is confidential and proprietary, they should identify those page(s) of their proposal which contain such information as "confidential and proprietary". Additionally, offerors need to explain the reason(s) why this information should be considered exempt from public disclosure under FOIL. The identification of pages and the reasons for exemption should be included in the Executive Summary of your proposal (see A.4. below).

Your proposal should follow the format listed below:

A. Part I: Technical and Management Submittal

Please be as concise as possible. A complete and responsive Part I submittal shall contain the following items:

Part I - Technical and Management Submittal Checklist	
<input type="checkbox"/>	Ten (10) Printed and Bound Copies of Part I (Send 7 copies to NYMTC; send 3 reference copies to NYSDOT Contract Mgt) plus a ‘soft’ copy of Part I on CD/DVD in MS Word compatible format to both NYMTC and NYSDOT.
<input type="checkbox"/>	Securely sealed and clearly labeled with the consultant’s name, address, and telephone number and the word “C000791”
<input type="checkbox"/>	Name of person(s) who prepared proposal
<input type="checkbox"/>	Contact person(s), email addresses and telephone numbers
<input type="checkbox"/>	Signed Cover Letter on official business letterhead
<input type="checkbox"/>	Table of Contents identifying each major section and initial-page numbers
<input type="checkbox"/>	Executive Summary of proposed approach, focusing on delivery of services while under contract
<input type="checkbox"/>	Narrative Discussion
<input type="checkbox"/>	Detailed Approach, Scope of Services and Schedule
<input type="checkbox"/>	The offeror’s proposal shall include experience profiles/ resumes for all proposed key personnel (including any sub-consultants).
<input type="checkbox"/>	Provide Management Staffing Plan, Resumes, Project Experience and References
<input type="checkbox"/>	Submit a DBE Management Plan

Note: Cost information is **not** to be included in the Part I submittal, and Technical and Management information is **not** to be included in Part II submittal.

A complete Part I Technical and Management proposal shall contain the following:

1. A Cover Letter featuring:
 - a. The signature of an official authorized to bind the offeror to all of its provisions.
 - b. A statement that the offered named key personnel will be provided once NYMTC/NYSDOT issues a notice to proceed. NYMTC and NYSDOT do not allow unapproved substitutes.

Note: NYSDOT no longer allows exceptions to the RFP’s draft contract’s Terms and Conditions – firms are encouraged to ask questions prior to proposal submission.

2. A Title Page indicating the name, address and phone number of the proposer, including a contact person, and name of the person(s) who prepared the proposal.

OFFICIAL TITLE: **NEW YORK BEST PRACTICE MODEL 2012 BASE UPDATE (Contract C000791)**

3. A Table of Contents. Use labeled tabs to separate each section of your Part I and Part II proposals
4. An Executive Summary

Provide a brief description of the proposed approach and work effort. Confidential and proprietary information should also be identified and addressed in this section.

5. A Narrative Description

Provide a detailed discussion on the important issues involved in the implementation of this effort. Include enough substantive discussion to demonstrate an understanding of NYMTC's/NYS DOT's project and contract objectives and familiarity with applicable laws, rules, procedures, processes, etc. Discuss all assumptions made during the preparation of Part I and Part II submissions. Demonstrate a sound management plan to ensure all subconsultant's compliance with all project requirements and contract provisions, including a DBE management plan to ensure the contract's DBE goal is met over the life of the contract.

6. Approach, Scope of Services and Schedule

Describe the detailed approach for performing the work and accomplishing project objectives. Provide a detailed scope of services which describes by task what will be done. Provide additional supporting documentation supporting how each of the RFP's specifications and requirements are addressed (provide previous examples, etc.). A general scope of services is outlined under RFP Section III. You may base your proposed scope of services on these tasks, or suggest alternative tasks which could improve the ability of the project to meet its objectives. NYMTC/NYS DOT wants to allow maximum flexibility for the ideas, initiative and creativity of the proposer. Alternative tasks and suggestions are encouraged and will be reviewed with interest within the framework of the stated objectives and scope of the project, using the proposal evaluation criteria in RFP Section V. Fully explain and justify your approach, especially if significant departures from the general scope are recommended. Include a schedule for completion of the project showing the duration of each task and all major milestones, and include a list of technical assumptions. Provide a DBE participation plan, to ensure the DBE goal is managed and delivered over the life of the contract.

7. Organization and Staffing

Provide an organizational chart for the project showing the names of the project manager and all proposed key personnel. Depict all subconsultants and external role players and stakeholders. Include resumes for all proposed key personnel (including any subconsultants). Include an estimate of total effort hours contributed by each of the key personnel to each task and an estimate of total effort hours for each task. If subconsultants are to be used, explain the specific need for the expertise and describe the arrangements.

8. Experience

NYMTC and NYSDOT requires substantial experience and expertise, and offerors must demonstrate that experience through past and present project attestations and successfully reachable, verifiable references. The qualifications and current/prior experience of the proposer are of great importance to NYMTC and NYSDOT. Direct, relevant, prior experience in project management, software and model

development, data base management, and GIS are highly desirable; present such experience with projects of similar scale and scope as the one proposed in this RFP. Provide a list of projects currently in progress and those completed within the last seven years which are relevant to this effort. Indicate proposed key personnel who are, or have worked, on such projects. Include names, addresses and phone numbers of contact points with the listed clients.

The offeror’s proposed project team shall include key personnel with a minimum of 3 years experience with project management and model development.

Provide three, reachable references for each proposed key personnel. Provide two, reachable references for each firm. NYMTC/NYS DOT reserve the right to request information from any source so named to verify all offered experience and work history, as well as request additional references. NYMTC/NYS DOT also reserves the right to request additional references and/or contact relevant references not named in a consultant’s proposal.

Proposers are requested to provide a completed Offeror’s Proposal Traceability to Requirements chart or matrix, cross-referencing the requirement in the RFP and their proposal to help evaluate the above requirements.

A sample, uncompleted matrix format is provided but proposers may prepare their own version, provided it cross-references all key parts of their proposal and the RFP.

SAMPLE Proposal Traceability to Requirements chart				
Evaluation	Requirement	Offeror's Proposal		
Criteria #		Section/	Page #	Paragraph #
		Appendix #		
<i>Staffing:</i>				
1. a.	Key personnel experience and qualifications. Key personnel include:			
	Project Manager			
	Technical Specialists			
	Model Developers			
	Transportation Planners			
1. b.	Firm Experience			
	Subconsultants Experience			
2. a.	Approach and Scope of services			
	Task 1			
	Task 2			

B. Part II: Cost and Contract Submittal

The Part II cost proposal response requirements are listed below. Please be sure that these instructions are followed to ensure that your proposal is considered responsive to be eligible for contract award:

Part II - Cost and Contract Submittal Checklist	
<input type="checkbox"/>	Three (3) Printed and bound hard copies of Part II (send 1 copy to NYMTC; 2 copies to NYSDOT Contract Mgt) plus Part II on CD/DVD, in MS Excel compatible format, one for NYMTC and one for NYSDOT
<input type="checkbox"/>	Securely sealed and clearly labeled with “C000791”
<input type="checkbox"/>	Required Cost information (complete and submit Attachment 5 , Cost Proposal)
<input type="checkbox"/>	Name, title, address, email, and telephone number of person(s) with authority to negotiate, and who may be contacted during proposal evaluation
<input type="checkbox"/>	Complete and submit Attachment 1, (sign both Sections II and III)
<input type="checkbox"/>	<p>Complete and submit the Attachment 2 Procurement Lobbying Law Compliance Forms (Offerer’s Affirmation of Understanding of and Agreement pursuant to State Finance Law §139-j (3) and §139-j (6) (b) <u>and</u> Offeror Disclosure of Prior Non-Responsibility Determinations).</p> <ul style="list-style-type: none"> • These two forms are required with a firm’s RFP Response. • These forms are also available at: https://www.dot.ny.gov/main/business-center/consultants/forms-publications-and-instructions • <i>Note: Failure to submit the completed PLL forms with your proposal will result in elimination from consideration for contract award</i>
<input type="checkbox"/>	Complete Attachment 12 Non-Collusion Bidding Certification
<input type="checkbox"/>	Complete and submit Attachment 7 , DBE Participation Information

<input type="checkbox"/>	Complete and submit (if applicable) Attachment 8 , DBE Subconsultant Participation Solicitation Log AND Letter of Explanation of Non or Partial DBE Goal Attainment
<input type="checkbox"/>	Complete and submit all future RFP Modification Acknowledgement Forms as instructed

Part II of the proposal consists of two sections, (1) a Cost Proposal, which sets forth the total proposed lump sum cost (with rates and hours by task) for performing the work in the scope of services and (2) the Contract Section, which specifies the proposer’s acceptance of the Terms and Conditions contained in the draft Contract enclosed as **Attachment 3**, as well as house other administrative paperwork. Separate each Part II section with labeled tab pages. No Part I information shall be included in your Part II submission.

Each Cost and Contract Proposal should contain the following elements:

Contract Cost Section:

1. Salaries Section

A salary schedule will list descriptive job titles for all proposed key Consultant personnel and staff to be assigned to this project, the proposed hours and dollars by task, and each consultant’s personnel’s fully-loaded hourly rate (see **Attachment 5**) for each year of the contract’s base term. If additional titles are used but are not assigned, they should be listed and rates proposed. The schedule should be prepared to distinguish anticipated assignment by project section/task. Present all subconsultants information on separate salary schedules.

2. Direct Non-Salary Costs

Estimates of all direct non-salary costs are required. Present a schedule of all direct non-salary (out-of-pocket) expenses by task number expected to be incurred in the performance of the project. To the degree possible, reference expenses by task. Travel, meals and lodging reimbursements shall be limited to the prevailing maximum rates established by the State Comptroller. No Consultant commuting costs shall be reimbursed via expensed work (assumed to be part of a firm’s overhead). Only directed travel is eligible for reasonable reimbursement. Subconsultant costs (if any) should be separately shown in the schedule. On separate sheets, explain each item with all factors leading to the derivations of the cost. The latest state and nationwide reimbursement rates are available at the following Web site: <http://www.gsa.gov/>

3. Budget Summary

Present a final schedule which summarizes all proposed direct labor and direct non-salary costs by task and by Project for the entire base term of the contract. Payments

are expected to be by milestone schedule.

4. Method of Payment (Milestone Payment Schedule)

Based on the total proposed lump sum cost, provide a milestone payment schedule which sets forth a proposed percentage/dollar amounts of the lump sum for each key deliverable for which payment would be requested. Partial deliverables, where appropriate, are allowed.

The last and final payment will become due and payable within thirty (30) days after delivery of the final deliverable(s) and a NYS FIN 421 payment request forms. Requests for milestone and final payments shall be made by the designated consultant on the basis of NYS FIN 421 payment request forms prepared and submitted by the consultant contractor together with the deliverable item for which the payment request is being made.

Contract Proposal Section

5. Acceptance of RFP Draft Contract's Terms and Conditions

The Consultant shall specifically state its acceptance of all Terms and Conditions of the draft Agreement contained in **Attachment 3** of this Request for Proposals. Offerors should complete and submit the "Consultant Information and Certifications Form," included as **Attachment 1** to this RFP, to indicate their **acceptance of all** of the terms and conditions contained in the draft Agreement. Altering this form without the prior expressed written approval of the New York State Department of Transportation is prohibited and will lead to the proposal being deemed non-responsive and subsequently dismissed.

Interested firms encouraged to ask questions regarding the draft contract's provisions prior to proposal submission.

6. Consultant Information and Certifications

Complete and submit Attachment 1.

7. Non Collusion Bidding Certificate

Complete and submit Attachment 12.

8. DBE Participation

In Part II of your firm's proposal, provide a completed **Attachment 7 DBE Participation Information**. Show the percentage of effort (as measured in total dollars [labor plus DNSC]) offered by the prime consultant and each subconsultant, including DBEs (please mention if any firm is also a certified MBE/WME). Provide the full, legal names of all certified DBE consultants (prime and/or subconsultant). If available, provide a copy of the firm's DBE letter from a NYS UCP certifying partner

with your Part II proposal. To count towards meeting the 18% DBE contract goal, an offered DBE must be currently certified and listed in the NYSUCP DBE Directory (<http://biznet.nysucp.net/>). Proposing DBE certified in another state and not in New York State is not acceptable unless the firm has been certified by a NYS DBE certifying partner.

For firms whose total offered DBE subconsultant participation is less than the established contract goal of 18 percent, the firm must also complete and submit **Attachment 8: DBE Subconsultant Solicitation Log**. **Additionally, if the firm does not meet the specified goal**, the firm must include in its submission a **DBE Goal Attainment Explanation Letter** explaining why the firm was unable to meet the DBE goal (in full or if partially), which serves to substantiate the firm's good faith effort. Submission of **DBE Goal Attainment Explanation Letter** shall be required for proposals with either partial goal attainment or no goal attainment at all. The letter should include sufficient justification as to why the goal was not met or was met partially and should at a minimum address the following factors:

1. The potential firm's method of accomplishing the work
2. The subcontracting opportunities associated with the proposed approach and scope of services
3. The availability of certified firms for the work to be performed by either a prime consultant or via subcontract

Prime consultants certified as a DBE are not relieved from seeking participation of certified Disadvantaged Business Enterprises (DBEs) for subcontractable services in this solicitation. In these situations, it is expected that the prime consultant offer DBE subconsultant services to meet the contract goal and/or provide evidence of a good faith effort by completing **Attachment 8 DBE Subconsultant Participation Solicitation Log**. **Unacceptable good faith efforts may lead to proposal dismissal.** The above forms and letter must be included in Part II: Cost and Contract submission. Firms are advised to refer to Section V.B for the procedure the Department will follow in evaluating a firm's proposed DBE participation.

Offerors are encouraged to ask questions regarding this aspect of the solicitation.

9. RFP Modification Acknowledgement Forms (if any)

Included with any and all future Modifications to this RFP will be Acknowledgement forms. All respondents must have an authorized representative of the firm or organization acknowledge receipt and acceptance of each of the Modifications by including a signed copy of this/these form(s) with the Part II Cost and Contract Submission.

10. Consultant Identification Number & SFS Vendor ID Number

Each consultant must reference its Consultant Identification Number (CIN) in its Part II proposal. If an consultant does not have a CIN and is selected for contract award, it will be required to obtain one through the following NYSDOT web site prior to

negotiation of the contract:

<https://www.dot.ny.gov/portal/page/portal/main/business-center/consultants/forms-publications-and-instructions>

Each consultant must reference its SFS Vendor Identification Number in its Part II proposal. If an consultant does not have an SFS number and is selected for contract award, it will be required to obtain one through NYSDOT sponsorship.

11. Procurement Lobbying Law

All proposers should visit the “Business Center” Web page on NYSDOT’s Web site to read the NYSDOT Policy Summation for the Procurement Lobbying Law of 2005. The web page is located at: <https://www.dot.ny.gov/main/business-center/consultants/forms-publications-and-instructions>

Filing the *two required forms (Offerer’s Affirmation of Understanding of and Agreement pursuant to State Finance Law §139-j (3) and §139-j (6) (b) and Offerer Disclosure of Prior Non-Responsibility Determinations)* is mandatory for all consultants in order to be considered for contract award. Hard copies of the two required forms are included with this RFP (see **Attachment 2**). ***NOTE: Failure to submit the required PLL forms with your proposal will result in elimination from consideration for contract award.***

Use Contract Number C000791 wherever requested in the forms. Please call or e-mail the person identified as the contact in the Administrative Specifications section (VI.G) of this RFP if you have any questions regarding how to complete this required form.

Per the Procurement/Lobbying Law of 2005, any person who wishes to contact NYSDOT regarding this project during the restricted period (i.e. from advertisement through designation), may only contact the person noted in the cover letter to this solicitation.

V. CRITERIA FOR EVALUATION OF PROPOSALS

A. General

Proposals shall be pre-screened to determine if they meet the minimum RFP responsiveness requirements (reference RFP Section II). Proposals which meet all RFP minimum responsiveness requirements shall be considered further; proposals which do not may be deemed non-responsive. Any proposal deemed to be non-responsive shall be removed from further consideration and the submitting firm notified.

Proposals which pass pre-screening shall then be evaluated by NYMTC and NYSDOT using a Best Value Method evaluation process based on the technical and cost criteria described below. Technical considerations are of greater importance than

cost considerations; however, cost is a significant factor in the evaluation of proposals. Technical and cost proposals will be evaluated and point scored based on the information provided by consultants via the instructions under RFP Section IV in accordance with the pre-established criteria listed below.

Technical proposal evaluation will be accomplished by a representative Technical Evaluation Committee comprised, as appropriate, of subject matter experts from technical, program and management backgrounds. Committee members will evaluate each proposal's response to each RFP's specification and requirement individually, documenting their findings and assigning numerical point scores (using a zero-to-ten point scale). The Committee shall then meet as a group to discuss their findings and scores, and make adjustments based on group discussions. Evaluators will be allowed to revise scores on the basis of the committee discussions, with reason(s) for score changes documented. NYSDOT and NYMTC shall then **short list the field** of proposals based on initial best value. Firms which make the shortlist shall become eligible to attend the technical interview.

Technical interviews are required to complete the technical evaluation of proposals. There are up to 60 points available for the initial evaluation of written technical proposals and there are up to 10 points available for the in-person technical interview and presentation. Cost proposal evaluation results (up to 30 points) shall be considered with initial raw technical score results to determine initial offered Best Value, which shall lead to an initial Best Value-determined short-list of firms (determined to be mathematically susceptible for contract award). NYSDOT/NYMTC will short-list the field of proposals, identifying those proposals subject to contract award (any proposal within 10 points of the top initial best value ranked proposal plus any 'cluster' of proposals surrounding the cut-off line). NYSDOT will publish the short list of firms on its website under this solicitation. Technical interviews are required to complete the technical evaluation of proposals and will be held at NYMTC's offices at a date and time to be determined. During technical proposal evaluation, all cost proposals will be evaluated and scored. Shortlisted firms shall be invited to attend technical interviews, demonstrate their proposed solution and respond to further clarification questions.

Proposers responding to this RFP may be requested to clarify issues or to provide additional insights into their proposal through written clarifications and/or technical interviews. If written clarifications are required to complete the initial technical evaluation of proposals, evaluators will be allowed to revise their technical scores based on this additional information. Further, firms susceptible to contract award shall be invited to attend technical interviews, to complete the technical evaluation of proposals.

Up to a total of sixty points are eligible for Technical proposals. Sixty points shall be awarded to the written technical proposal which receives the highest initial raw technical score, after group discussion and possible initial clarifications. For those firms qualifying for Technical Interviews, up to a total of ten additional points are

eligible.

Technical Interviews will be held at NYMTC's offices located in 199 Water Street, 22nd Floor, New York, at a date and time to be determined by NYMTC (all qualifying firms will be notified).

NYMTC/NYS DOT reserves the right to ask clarifying questions regarding each cost proposal (Part II) and DBE participation as well. Furthermore, the Department reserves the right to request best and final offers from firms that are determined to be susceptible for tentative contract award.

A tentative contract award shall be made to the offeror whose proposal receives the highest total final best value score after considering all technical and cost evaluation factors.

Note: In the event two or more proposals are found to be "substantially equivalent", the Department reserves the right to award the contract under the terms of State Finance Law Section 163 (10)(a).

At the conclusion of the evaluation process, an announcement of NYSDOT's designation(s) will be posted on the NYSDOT Web site listed below. All non-designated firms shall be notified in writing regarding the results from the solicitation, and will be offered an opportunity to hold a debriefing. Further, it is expressly understood that this Request for Proposals does not commit NYSDOT to award a contract, pay any costs incurred in the preparation of a proposal to this request, or to procure or contract services or supplies. Further, NYSDOT shall have no obligation or liability whatsoever to the vendor selected as a result of this solicitation unless and until a contract satisfactory to NYSDOT is approved and executed by the vendor and all necessary State officials.

<https://www.dot.ny.gov/portal/page/portal/doing-business/opportunities/consult-opportunities>

B. Pre-Screening of Proposals - Including DBE Participation

NYMTC/NYS DOT will conduct a pre-screening of each proposal received prior to the proposal due date to ensure all contents have been submitted in accordance with the minimum proposal responsiveness requirements as specified in the RFP. It is the sole responsibility of each proposer to assure that its proposal is received on time. Proposals which fail to meet the response deadline will not be opened nor considered further. RFP specifications include that it is NYMTC/NYS DOT's sole discretionary determination as to whether a proposal is complete (reference "Minimum RFP Responsiveness" Section II, Part B). Proposals which do not meet the mandatory specifications in the Minimum RFP Responsiveness section will be deemed non-responsive by NYMTC/NYS DOT and will not be considered further.

As part of the pre-screening process, the proposed DBE participation percentages

offered for NYSUCP certified prime consultants and/or NYSUCP certified subconsultants will be reviewed (**Attachment 7 DBE Participation Information**). To count towards the Department's DBE participation goal, each firm must be currently listed in the NYSUCP Directory. If the proposed DBE participation is less than the established 18 percent goal (or where a prime consultants certified as a DBE proposes to meet the Department's DBE participation goal via their meaningful participation), the firm's evidence of a Good Faith Effort (**Attachment 8 DBE Subconsultant Participation Solicitation Log**) to achieve the goal will be reviewed, along with the firm's letter of explanation (**DBE Goal Attainment Explanation Letter**) as to why it was unable to meet the goal. During the review process, which will include verification of a firm's Good Faith Effort evidence, if it is determined by the Department that the firm did not provide an acceptable Good Faith Effort, then the proposal may be deemed non-responsive. Offerors whose proposals are deemed non-responsive will be notified, in writing, of their elimination. A firm's good faith efforts to secure participation by DBEs may be susceptible to FHWA's 'administrative reconsideration' process.

C. Technical and Management

The Technical and Management proposal will be evaluated and point scored, and will represent 60% of the total available best value score. The major evaluation criteria are listed in descending order of importance. Sub-criteria within major evaluation factors are also in descending order of importance. Please be concise.

1. Experience (up to 25 points)
 - Quality, extent and relevance of experience, education and training of key personnel.
 - Quality, extent and relevance of current and prior experience of the firm.
2. Approach, Scope of Services and Schedule (up to 12 points)
 - Quality and acceptability of approach and scope of services for accomplishing project objectives; initiative and creativity of proposer.
 - Completeness and reasonableness of schedule. The schedule shall be prepared in a font that is reasonably legible. Please avoid print smaller than an 8 point font. You may assume an estimated start date 10 days after contract award.
3. Quality of Proposal (up to 12 points)
 - Degree to which proposal reflects understanding and comprehension of project scope and objectives.
 - Quality of proposer's resources relative to the needs of the project.
4. Organization and Staffing (up to 11 points)
 - Quality of project organization; reasonableness of staff/task allocations for each task and total effort

- Quality of plan for phasing key personnel into project
- Extent and quality of interaction with key participants

D. Cost and Contract (up to 30 points)

The cost portion of the Cost and Contract proposal will be evaluated and point scored and will represent 30% of the total best value score for a proposal. The calculation of a cost score will be determined by comparing the proposed total lump sum cost for each proposer. The proposer with the lowest proposed total lump sum cost will receive a perfected cost score of 30. Higher priced cost proposals will receive proportionally lower cost scores.

E. Technical Interviews (up to 10 points)

The Technical Interview portion (only available for shortlisted firms mathematically subject to contract award) of the Technical and Management proposal will be evaluated and point scored and will account for a separate block of up to 10 points of the total best value score for a proposal. Technical Interviews will be held for firms offering proposals which are deemed to be susceptible to contract award after completion of initial best value considerations (short-listed: those proposals subject to contract award are any proposals within 10 points of the top initial best value ranked proposal plus any 'cluster' of proposal surrounding the 10-point cut-off line). Proposals with scores which make them mathematically subject to contract award will make the short-list. Firms offering proposals which make the shortlist shall be invited to attend Technical Interviews. NYSDOT will officially publish the shortlist of firms mathematically susceptible to contract award on its website.

The Technical Interviews will be evaluated and point scored (on a zero-to-ten scale) to measure the degree to which a consultant's performance addresses the following three technical evaluation factors.

1. Ability of the presenting consultant team to address and answer the Technical Evaluation Committee's clarifying questions. (Up to 4 Points)
2. Additional insights into technical aspects of the firm's proposal. (Up to 4 Points)
3. Consultant's team chemistry, the team's coordination and reporting approach. (Up to 2 Points)

Technical Evaluation Committee members may change their initial written technical proposal scores based on consideration of additional clarifying information provided during the Technical Interview. Should this lead to a new firm becoming eligible for the shortlist, this new firm shall go through the Technical Interview process.

Up to **10 points** of a best value score are available from the Technical Interview; these 10 points will be separately perfected then added to the final written technical proposal score to generate a firm's technical proposal best value score. Upon

conclusion of the consultant's technical presentation, the technical presentation score will be separately perfected, with the highest scoring technical presentation score receiving a perfect 10 points and all others receiving proportionately lower technical presentation scores. Perfected presentation and written proposal scores shall be added together to generate a total Part I technical proposal score. Cost scores shall be added to the total technical proposal score to generate a list of firms in rank best value order, with the highest best value score being eligible for contract award.

F. Best and Final Offer (Optional) and Proposal Withdrawal/Dismissal

NYSDOT reserves the right to request best and final offers from firms that are determined to be susceptible for contract award. Best and final offers may be requested after Technical Interviews have been concluded. Should NYSDOT opt to request best and final offers, it reserves the right to re-score technical and cost proposals while considering any best and final offer information. Further, NYSDOT reserves the right to re-score technical and cost proposals should a firm either withdraw from this solicitation or be deemed non-responsive after initial evaluation and scoring.

G. Consultant Selection Recommendation

Each consultant's final Best Value score will be calculated by adding its total perfected technical proposal score (written and interview) and its perfected cost score. NYSDOT will then rank consultants in descending order of final Best Value score. The results of the proposal evaluation process shall be documented by NYSDOT Contract Management. This report along with a consultant selection recommendation shall be forwarded to NYSDOT Executive Management for approval. The designation will be publically announced on NYSDOT's website.

A tentative contract award shall be made to the consultant whose proposal receives the highest total final Best Value score after considering all technical and cost evaluation factors. Note: In the event two or more proposals are found to be "substantially equivalent", NYSDOT reserves the right to award the contract under the terms of State Finance Law Section 163 (10)(a). Any 'ties' shall be decided by the substantially equivalent rule contained in the approved evaluation process document.

A team of NYSDOT subject matter experts will negotiate the resulting contract with the selected consultant, with NYSDOT Contract Management and Legal facilitation. The final contract is subject to approval by the Attorney General and the Office of the State Comptroller and is not binding until such approval is received.

At the conclusion of the evaluation period, an announcement of NYSDOT's designation(s) will be posted the 'Consulting Services' listing on the NYSDOT's

Web site via: <https://www.dot.ny.gov/business>. All consultants will be notified in writing regarding the results from the solicitation, pending completion of the evaluation process. All non-designated firms will be offered an opportunity to attend a debriefing.

It is expressly understood that this Request for Proposals does not commit NYSDOT to award a contract, pay any costs incurred in the preparation of a proposal to this request, or to procure or contract services or supplies. Further, NYSDOT shall have no obligation or liability whatsoever to the vendor selected as a result of this solicitation unless and until a contract satisfactory to NYSDOT is approved and executed by the vendor and all necessary State officials.

VI. ADMINISTRATIVE SPECIFICATIONS

A. Proposal Submission

1. The proposal shall be signed by an official authorized to bind the offeror.
2. Proposers shall submit Ten (10) Copies of Part I (Send seven (7) copies to NYMTC in sealed packages; send three (3) reference copies to NYSDOT Contract Management in sealed packages) and shall submit Three (3) Copies of Part II (Send one copy to NYMTC in sealed packages; send two reference copies to NYSDOT Contract Management in sealed packages).
3. Your sealed proposal must be received by NYMTC by 2:00 PM on **January 21, 2014**.

The proposal must be addressed to:

**NEW YORK METROPOLITAN TRANSPORTATION COUNCIL (NYMTC)
199 Water Street, 22nd Floor
New York, NY 10038
ATTENTION: MR. ISMET APDIROGLU, C000791**

Reference copies to:

**New York State Department of Transportation
Contract Management Bureau
50 Wolf Road, 6th Floor
Albany, NY 12232
Attn: Mr. Al Hasenkopf, Contract C000791**

B. Pre-Proposal Conference

To assist firms in preparing proposals in response to this solicitation, a pre-proposal conference will be held on **December 13, 2013** in NYMTC's Office at 199 Water Street, 22nd Fl., New York, NY at 10:30 AM. A general review of the solicitation will occur and specific questions regarding the solicitation may be answered. Interested firms are encouraged to attend.

If you plan to attend, please provide the names of attendees to the NYMTC receptionist at (212) 383-7200 or Ismet Apdiroglu, NYMTC, (email preferred: ismet.apdiroglu@dot.ny.gov) (212) 383-2414 by noon on December 11, 2013. Each proposer is requested to send no more than (5) representatives to the conference. An opportunity will be afforded for questions and answers during the conference. However, to assist us in preparing for the meeting, we wish to receive any questions you may have, in writing, by the close of business on December 11, 2013.

C. State's Rights to Proposals

All proposals, upon submission to NYMTC/NYS DOT shall become its property for use as deemed appropriate. By submitting a proposal, the offeror covenants not to make any claim for or have any right to damages because of any misinterpretation or misunderstanding of the specification, or because of any misinformation or lack of information. NYMTC/NYS DOT has the following prerogatives with regard to proposals submitted:

1. to accept or reject any or all proposals;
2. to correct any arithmetic errors in any or all proposals;
3. to change the proposal's due date upon appropriate notification to interested firms;
4. to eliminate any mandatory RFP specification unmet by all offerors in the evaluation of received proposals;
5. to adopt any or all of a successful offeror's proposal;
6. to negotiate modifications to the scope, milestone payment schedule and total cost, and contract terms and conditions with the selected offeror prior to contract award only if it is in the best interest of the state to do so;
7. To disqualify an offeror from receiving the award if such offeror, or anyone in the offeror's employ, has previously failed to perform satisfactorily in connection with public bidding or contracts;
8. To revise/amend any provision of this RFP by written notification to offerors, prior to proposal submission;
9. To eliminate any requirement that is found to be unmet by all offerors;
10. To make inquiries, by means it may choose, into the offeror's background or statements made in the proposal to determine the truth and accuracy of all statements made therein;
11. To select and award the contract to the offeror whose proposal represents the best value to NYSDOT;
12. Should NYSDOT determine that the negotiations with the selected offeror will not result in a contract, to begin contract negotiations with the next-best-value offeror(s) responsive to this RFP — without again requesting proposals;
13. If NYSDOT terminates the contract — without again requesting proposals, to begin contract negotiations with the next-best-value offeror; and
14. Any contract entered into pursuant to an award of this solicitation shall contain a provision which grants the option to extend the terms and conditions of such contract to any other New York state agency. However, any response to this solicitation shall be based solely on the purpose of this solicitation and shall not factor in the possibility that this contract may, in the future, be applicable to other

- state agencies. Please be advised that any award made pursuant to this solicitation shall be based on the specific requirements of this solicitation only.
15. The right to re-score technical and cost proposals should a firm either withdraw from this solicitation or be deemed non-responsive after initial evaluation and scoring.
 16. Any contract entered into pursuant to an award of this solicitation shall contain a provision which grants the option to extend the terms and conditions of such contract to any other State agency in New York. However, any response to this solicitation shall be based solely on the purpose of this solicitation and shall not factor in the possibility that this contract may, in the future, be applicable to other State agencies. Please be advised that any award made pursuant to this solicitation shall be based on the specific requirements of this solicitation only.

D. Vendor Responsibility

In accordance with the NYS Finance Law, NYSDOT will only make contract award to vendors that are determined to be responsive and responsible. All selected offerors of contracts valued at \$100,000 or more will be required to provide vendor responsibility information through the DOT Web site before negotiation of a contract. Offerors must certify the accuracy of the information they provide in the questionnaire. You should make yourself familiar with this form by visiting the following Web site: <https://www.dot.ny.gov/main/business-center/consultants/forms-publications-and-instructions/svrq>

E. Registration with NYSDOT

Consultant firms entering into contracts with the New York State Department of Transportation (NYSDOT) as prime consultants, joint venture partners or subconsultants, are required to electronically register their firm using the Consultant Selection System web application (CSSWeb). All consultant firms entering into Non-Architectural/Non-Engineering agreements are required to create and register an account to: 1) Create and assign Consultant Identification Numbers (CINs) for each office registered by the firm; and 2) Provide general firm information including, but not limited to: legal firm name; Federal Identification Number (FEIN); ownership type; DBE, MBE and/or WBE status; firm principals; and office(s) address information. All consultant firms participating in a potential agreement (negotiations) must be registered electronically with NYSDOT prior to that agreement being forwarded to the Office of the State Comptroller for approval. Registered firms are responsible for verifying and updating their registration information for the duration of the agreement.

Consultant Firm Registration instructions are available at:

https://www.dot.ny.gov/main/business-center/consultants/repository/instructions_cssweb_firm.rtf

or via:

https://www.dot.ny.gov/main/business-center/consultants/consultants-repository/instructions_cssweb_firm.pdf

Consultant Firm Registration begins at: <https://www.dot.ny.gov/main/business-center/consultants/forms-publications-and-instructions>

Questions regarding the CSSWeb application and firm registration should be directed to the CSSWeb Administrator by email at css@dot.ny.gov or by telephone at 518-457-2600.

F. Contractor Tax Certification

Per Section 5-a of the NYS Tax Law, all vendors selected for contracts in excess of \$100,000 for the sale of goods or services must complete and submit Forms ST-220-TD and ST-220-CA (Contractor Certifications) prior to negotiation of a contract with State agencies. You should make yourself familiar with these forms by visiting the following Web sites:

http://www.tax.ny.gov/pdf/current_forms/st/st220ca_fill_in.pdf Form ST-220-CA)

http://www.tax.ny.gov/pdf/current_forms/st/st220td_fill_in.pdf (Form ST-220-TD)

G. Inquiries and Information

All questions concerning this solicitation must be directed *only* to Mr. Ismet Apdiroglu, (212) 383-2414 or by e-mail at ismet.apdiroglu@dot.ny.gov. Copy to alfred.hasenkopf@dot.ny.gov. The last date to submit questions for this solicitation is: December 18, 2013. All inquiries should be addressed to:

NEW YORK METROPOLITAN TRANSPORTATION COUNCIL (NYMTC)
199 Water Street, 22nd Floor
New York, NY 10038
ATTENTION: ISMET APDIROGLU

The fax number is (212) 383-7244.

E-mail: ismet.apdiroglu@dot.ny.gov COPY TO: alfred.hasenkopf@dot.ny.gov

Responses to all questions of a substantive nature, as well as copies of the questions, will be given to all Consultants being solicited.

H. Protest Procedure

The New York State Department of Transportation (NYSDOT) has established a protest procedure to be utilized when an interested party challenges a Non-Engineering consultant designation by NYSDOT. The complete procedure can be accessed via: https://www.dot.ny.gov/main/business-center/consultants/consultants-repository/misrep_protest.pdf. The protest procedure addresses FHWA's DBE Administrative Reconsideration per 49 CFR Part 26.53(d).

I. Tentative Schedule of Key Events

NYMTC/NYSDOT will attempt to adhere to the following schedule with regard to

this solicitation:
 NYMTC/NYS DOT will attempt to adhere to the following schedule with regard to
 this solicitation:

RFP Release Date:	December 5, 2013
Written Questions for Pre-Proposal Conference and names of proposed attendees, due:	December 11, 2013
Pre-Proposal Conference:	December 13, 2013
Question Submittal Deadline:	December 18, 2013
Proposals Due:	January 21, 2014
Technical Interviews – Tentative	Early March 2013
Proposal Evaluation:	Mid - February
Recommendation & Designation:	1 to 2 months
Contract Negotiations:	One Month
Contract Award:	6 to 8 weeks after completion of contract negotiations

VII. ATTACHMENTS

- Attachment 1 Consultant Information And Certifications
- Attachment 2 Procurement Lobbying Law Compliance
- Attachment 3 Draft Contract, including Appendix A
- Attachment 4 Consultant Employment Disclosure Legislation Form
- Attachment 5 Sample Budget Schedule (Cost Submission)
- Attachment 6 Consultant’s Responsibility when Proposing Former NYSDOT Employees
- Attachment 7 DBE Participation Information
- Attachment 8 DBE Subconsultant Participation Solicitation Log (Good Faith Effort Documentation)
- Attachment 9 2005 Update and Re-Calibration of the NYMTC New York Best Practice Model (NYBPM)

Attachment #10 - *Transportation Models and Data Initiative Final Report* on NYBPM
 the complete report can be found on the NYMTC website via:
http://www.nymtc.org/project/BPM/model/bpm_finalrpt.pdf ; an electronic copy of the
 report is available upon request; call Ali Mohseni at (212)383-7215 or e-mail to:
Ali.Mohseni@dot.ny.gov

- Attachment #11 Screenline Count Database
- Attachment #12 Non-Collusion Bidding Certification

Attachment 1
Consultant Information And Certifications
CONSULTANT INFORMATION AND CERTIFICATIONS
(Please submit this with your Part II: Cost Proposal)

CONTRACT NUMBER: C000791
PROJECT TITLE: NEW YORK BEST PRACTICE MODEL 2012 BASE UPDATE RFP

I. CONSULTANT INFORMATION

FIRM NAME: _____

ADDRESS: _____

CITY: _____ STATE: _____

ZIP CODE: _____ - _____

TELEPHONE : (____) ____ - _____ FAX: (____) ____ - _____

E-MAIL ADDRESS: _____

CONTACT PERSON: _____

Consultant's Federal Identification Number (FEIN): _____

Consultant's Consultant Identification Number (CIN): _____

- Please indicate below the name, title, address, and telephone/fax numbers of the person who prepared this proposal, as well as any other individual(s) with authority to negotiate and contractually bind the offeror and also who may be contacted during the period of proposal evaluation:

Preparer's Name/Title: _____

Address: _____

Telephone : (____) ____ - _____ FAX : (____) ____ - _____

Other Authorized Individual(s):

Name/Title: _____

Address: _____

Telephone : (____) ____ - _____ FAX: (____) ____ - _____

II. PROPOSER CERTIFICATIONS

By signing below, I, _____, authorized individual
(Name)

of _____ make the following certifications
(Firm)

regarding the subject proposal:

- 365-Day Offer: This proposal is a firm offer for a 365-day (or more) period from the date of submission.
- The firm has read and will follow the procedure outlined in **Attachment 6** if it proposes the services of a former NYSDOT employee(s).
- Vendor Responsibility: If selected for contract award, the firm will complete and submit the required Vendor Responsibility forms to NYSDOT within 10 days of notification of designation both electronically and in hard copy per the NYSDOT Web site.
(<https://www.dot.ny.gov/main/business-center/consultants/forms-publications-and-instructions>)
- ST-220: If selected for contract award greater than \$100,000, the firm will complete and submit the required Forms ST-220-TD and 220-CA (Contractor Certifications) prior to negotiation with NYSDOT. You should make yourself familiar with these forms by visiting the following Web sites:
http://www.tax.ny.gov/pdf/current_forms/st/st220ca_fill_in.pdf Form ST-220-CA)
http://www.tax.ny.gov/pdf/current_forms/st/st220td_fill_in.pdf (Form ST-220-TD)
- The firm is in compliance with the requirements of the Omnibus Procurement Act as described in the draft Contract attached to this RFP.

Signature: _____

III. ACCEPTANCE OF CONTRACT

By signing below, I, _____, authorized individual
(Name)

of _____ hereby **certify that I have read and accept**
(Firm)

all Terms and Conditions contained in the draft Contract, including Appendix A, which is included as **Attachment 3** correspond accordingly to this Request for Proposals.

Signature: _____
(Name of Acceptor)

Attachment 2

Procurement Lobbying Law Compliance

1. Required Forms: The consultant shall sign and e-mail/fax the following forms. These forms are part of and due with the consultant's proposal.

- a) **“Offerer’s Affirmation of Understanding of and Agreement pursuant to State Finance Law §139-j (3) and §139-j (6) (b)”**
- b) **“Offerer Disclosure of Prior Non-Responsibility Determinations”.**

2. NYSDOT Guidelines and Procedures

Under the requirements of the State Procurement Act all communications regarding advertised projects are to be channeled through the Office of Contract Management (*Designated Contacts). Until a designation is made, communication with any other NYSDOT employee concerning this project that is determined to be an attempt to influence the procurement may result in disqualification.

Refer to “NYSDOT PROCUREMENT LOBBYING LAW GUIDELINES AND PROCEDURES” – see the Consultant’s page at NYSDOT’s “Doing Business With DOT” web site <https://www.dot.ny.gov/main/business-center/consultants/forms-publications-and-instructions>

3. Summary of the policy and prohibitions regarding permissible contacts

a) Contacts prior to designation:

Any communications involving an attempt to influence the procurement are only permitted with the following Designated Contact Persons:

- The Contract Management Designation Contract Analyst
- The Contract Management Designation Analyst Supervisor
- The Contract Management Civil Rights Unit Supervisor
- The Contract Management Assistant Directors
- The Contract Management Director
- The NYMTC Contract Liaison
- The NYMTC Contract Liaison’s Assistant

These are some communications exempted from this restriction:

- Participation in a pre-proposal conference.
- Protests, complaints of improper conduct or misrepresentation

If any other NYSDOT employee is contacted and they believe a reasonable person would infer that the communication was intended to influence the procurement, the contact must be reported by the NYSDOT employee. If the Department determines an impermissible contact was made, that offerer cannot be awarded the contract. A second violation would lead to a four year bar on the award of public contracts to the offerer.

b) Contacts after designation

NYSDOT identifies its primary negotiation contacts. The designated contacts include:

- The Contract Management Designation Contract Analyst
- The Contract Management Designation Analyst Supervisor
- The Contract Management Civil Rights Unit Supervisor
- The Contract Management Assistant Directors
- The Contract Management Director
- The Consultant Management Bureau consultant job manager
- The NYMTC Contract Liaison
- The NYMTC Contract Liaison’s Assistant

The law does not limit who may be contacted during the negotiation process. However, if any NYSDOT employee is contacted and they believe a reasonable person would infer that the communication was intended to influence the procurement, the contact must be reported by the NYSDOT employee.

c) Information Required from Offerers that contact NYSDOT staff, prior to contract approval by the Office of the State Comptroller:

The individuals contacting NYSDOT should refer and shall be prepared to provide the following information, either by e-mail or fax as directed by NYSDOT:

Person's name, firm person works for, address of employer, telephone number, occupation, firm they are representing, and whether owner, employee, retained by or designated by the firm to appear before or contact the NYSDOT.

d) Applicability to an executed contract:

Restrictions similar to those described above apply to approval or denial of an assignment, amendment (other than amendments that are authorized and payable under the terms of the procurement contract as it was finally awarded or approved by the comptroller, as applicable), renewal or extension of a procurement contract, or any other material change in the procurement contract resulting in a financial benefit to the offerer. The staff noted above as well as the project manager and consultant manager are considered designated contact persons. The Department may identify other contact persons for each of these processes.

4. Rules and regulations and more information on this law, please visit:

http://www.ogs.ny.gov/aboutOgs/regulations/SFL_139j-k/permissibleContacts.pdf

http://www.jCOPE.ny.gov/about/laws_regulations.html

<http://www.jCOPE.ny.gov/law/lob/lobbying2.html> (New York State Lobbying Act)

http://www.ogs.ny.gov/aboutOgs/regulations/defaultSFL_139j-k.asp

or contact:

Mr. Al Hasenkopf
NYSDOT Contract Management Bureau
50 Wolf Road, 6th Floor
Albany, New York 12232
E-mail: alfred.hasenkopf@dot.ny.gov

Offerer's Affirmation of Understanding of and Agreement pursuant to State Finance Law §139-j (3) and §139-j (6) (b) **Contract #C000791**

Offerer affirms that it understands and agrees to comply with the procedures of the Government Entity relative to permissible Contacts as required by State Finance Law §139-j (3) and §139-j (6) (b).
Contract #C000791

By: _____ Date: _____

Name: _____

Title: _____

Contractor Name: _____

Contractor Address: _____

Offerer Disclosure of Prior Non-Responsibility Determinations

Name of Individual or Entity Seeking to Enter into the Procurement Contract: _____

Address: _____

Name and Title of Person Submitting this Form: _____

Contract Procurement Number: _____ C000791 _____

Date: _____

1. Has any Governmental Entity made a finding of non-responsibility regarding the individual or entity seeking to enter into the Procurement Contract in the previous four years?

(Please circle): No Yes

If yes, please answer the next three questions:

2. Was the basis for the finding of non-responsibility due to a violation of State Finance Law §139-j (Please circle):
 No Yes

3. Was the basis for the finding of non-responsibility due to the intentional provision of false or incomplete information to a Governmental Entity? (Please circle): No Yes

4. If you answered **yes** to any of the above questions, please provide details regarding the finding of non-responsibility below.

Governmental Entity: _____

Date of Finding of Non-responsibility: _____

Basis of Finding of Non-Responsibility:

(Add additional pages as necessary)

5. Has any Governmental Entity or other governmental agency terminated or withheld a Procurement Contract with the above-named individual or entity due to the intentional provision of false or incomplete information? (Please circle): No Yes

6. If yes, please provide details below.

Governmental Entity: _____

Date of Termination or Withholding of Contract: _____

Basis of Termination or Withholding:

(Add additional pages as necessary)

Offerer certifies that all information provided to the Governmental Entity with respect to State Finance Law §139-k is complete, true and accurate.

By: _____ Date: _____

Signature

Name: _____

Title: _____

Attachment 3

DRAFT CONTRACT

NEW YORK STATE DEPARTMENT OF TRANSPORTATION

F. A. NO.: _____

P.I.N.: PTCS12D13

COMPTROLLER'S CONTRACT NO. C000791

PROJECT: NEW YORK BEST PRACTICE MODEL 2012 BASE UPDATE RFP

This Agreement made this ___ day of _____, 20__ pursuant to Section 14 of the Transportation Law, by and between THE PEOPLE OF THE STATE OF NEW YORK (hereinafter referred to as the "STATE") acting by and through the Department of Transportation (hereinafter referred to as "STATE") whose office is at 50 Wolf Road, in the County of Albany, State of New York 12232 and

(hereinafter referred to as "CONSULTANT")

WITNESSETH:

WHEREAS, the STATE desires the CONSULTANT because of its ability and reputation, to perform the services hereinafter mentioned upon the PROJECT which is fully described in SCHEDULE A and the CONSULTANT agrees to provide these services.

NOW, THEREFORE, the parties hereto, for the consideration hereinafter named, do agree as follows:

ARTICLE 1. PERFORMANCE OF WORK.

The CONSULTANT shall perform all of the work described in SCHEDULE A and cause such work to be performed in an efficient and expeditious manner and in accordance with all of the terms and provisions of this CONTRACT. The CONSULTANT shall perform the work in accordance with professional standards and with the diligence and skill expected of a company with extensive experience in the performance of work of the type described in SCHEDULE A. The CONSULTANT shall furnish such personnel and shall procure such materials, machinery, supplies, tools, equipment and other items as may reasonably be necessary or appropriate to perform the work in accordance with this AGREEMENT. It is understood and agreed that _____ shall serve as the CONSULTANT's Project Manager and as such shall have the responsibility for the overall supervision and conduct of the work on behalf of the CONSULTANT and that the persons described in

SCHEDULE A shall serve in the capacities described therein. Any change of key project personnel by the CONSULTANT shall be subject to the prior written approval of the STATE. The STATE reserves the option to extend the terms and conditions of this CONTRACT to any other state agency in New York subject to the approval of all necessary state officials.

The CONSULTANT will commence work no later than ten (10) days after receiving notice to proceed from the STATE.

ARTICLE 2. DOCUMENTS FORMING THE CONTRACT.

The contract documents shall be deemed to include this AGREEMENT (with Exhibit A); the provisions required by state and federal law to be inserted in the AGREEMENT as set forth in APPENDIX A, APPENDIX A-1, APPENDIX B, APPENDIX B-1, and APPENDIX C; SCHEDULE A (including any EXHIBITS); SCHEDULE B (including any EXHIBITS); the STATE's Request for Proposals (RFP; dated: _____), incorporated herein by reference; and the CONSULTANT's Proposal (dated; _____), incorporated herein by reference.

ARTICLE 3. INSPECTION.

The duly authorized representatives of the STATE, and on Federally aided projects, representatives of the Federal Highway Administration, shall have the right at all times to inspect the work of the CONSULTANT.

ARTICLE 4. TERM OF THE AGREEMENT.

The CONSULTANT agrees to complete all the work of this Agreement as required by this Contract during the **36** month period from _____. Additionally, this AGREEMENT may be extended for up to two one-year period based on need and performance as determined by the STATE and approved by the Office of the State Comptroller.

ARTICLE 5. MAXIMUM AMOUNT PAYABLE.

Item I The STATE shall pay to the CONSULTANT and the CONSULTANT agrees to accept as full compensation for its services under this Agreement, a price of _____ per the milestone payment schedule in SCHEDULE B unless there is a substantial change in the scope, complexity or character of the work to be performed.

Item II The CONSULTANT specifically agrees that the AGREEMENT shall be deemed executory only to the extent of the monies available, and no liability shall be incurred by the STATE beyond the monies available for the purpose. In no event, however, will monies be deleted from this Agreement except pursuant to ARTICLE 15 hereof, entitled Termination.

ARTICLE 6. MILESTONE PAYMENTS.

The CONSULTANT shall be paid in milestone progress payments based on a payment schedule established by the Project Director and the CONSULTANT pursuant to SCHEDULE B.

The STATE will make payments to the CONSULTANT in accordance with Section 179(f) of the State Finance Law. Payments are subject to the approval of the STATE's Project Director, or their successor as identified by the STATE. Payments shall not be withheld unreasonably.

The CONSULTANT shall maintain and update once each month, if changes have taken place or are anticipated, the Project Schedule contained in SCHEDULE A hereto.

The CONSULTANT will not include any provisions in their subcontracts that would

circumvent the intent of 49 CFR 26.29 to require the CONSULTANT to make partial payments to subcontractors and subconsultants within ten (10) days after receipt of payment from the STATE.

Items purchased under this PROJECT shall become the property of the STATE at the completion of the work, or at the option of the STATE, appropriate value shall be established as a credit to the STATE.

ARTICLE 7. CONTRACT PAYMENT.

The CONSULTANT shall provide complete and accurate billing invoices to the STATE in order to receive payment. Billing invoices submitted to the STATE must contain all information and supporting documentation required by the Contract, the STATE and the State Comptroller. Payment for invoices submitted by the CONSULTANT shall only be rendered electronically unless payment by paper check is expressly authorized by the New York State Department of Transportation Commissioner (hereinafter referred to as "COMMISSIONER"), in the COMMISSIONER'S sole discretion, due to extenuating circumstances. Such electronic payment shall be made in accordance with ordinary State procedures and practices. The CONSULTANT shall comply with the State Comptroller's procedures to authorize electronic payments. Authorization forms are available at the State Comptroller's website at www.osc.state.ny.us/epay/index.htm, by email at epunit@osc.state.ny.us, or by telephone at 518-474-4032. CONSULTANT acknowledges that it will not receive payment on any invoices submitted under this contract if it does not comply with the State Comptroller's electronic payment procedures, except where the COMMISSIONER has expressly authorized payment by paper check as set forth above.

ARTICLE 8. FINAL PAYMENT.

a) Section 179 of the State Finance Law requires the STATE to make final payment within thirty (30) calendar days after receipt of an invoice which is properly prepared and submitted. The STATE in accordance with the provisions of the State Finance Law has determined that the STATE will require a 60 calendar day audit period for final payments at which time the 30 calendar day interest-free period will commence. The CONSULTANT is required to make final payment to all Sub Contractors and Sub Consultants within ten (10) calendar days of receipt of final payment from the STATE.

The acceptance by the CONSULTANT of the final payment shall operate as and shall be a release to the STATE from all claims and liability to the CONSULTANT, its representatives and assigns for any and all things done, furnished for or relating to the services rendered by the CONSULTANT under or in connection with this Agreement or for any part thereof except as otherwise provided in ARTICLE 8 (b).

b) The CONSULTANT shall maintain all books, documents, papers, accounting records and other evidence pertaining to cost incurred and make such materials available at its office at all reasonable times during the period of this Agreement and for the period of time specified in Clause No. 10, "Records" of APPENDIX A, for inspection by the STATE, Federal Highway Administration, or any authorized representatives of the Federal Government and copies thereof shall be furnished if requested.

ARTICLE 9. EXTRA WORK.

a) If the CONSULTANT believes that any work is or may be beyond the scope of the Agreement (extra work), or that additional work is necessary, the CONSULTANT shall notify the

STATE, in writing, of this fact prior to beginning any of the work. The notification shall include all information required by the Department. The STATE shall be the sole judge as to whether or not such work is in fact beyond the scope of this Agreement and constitutes extra work. No extra or additional work shall be started prior to written authorization from the STATE. The STATE shall be under no obligation to reimburse the CONSULTANT for any extra or additional work performed without the prescribed notification and authorization. The STATE will not allow fixed fee for any extra work undertaken without prescribed notification and authorization. In the event that the STATE determines that such work does constitute extra work, the STATE shall provide extra compensation to the CONSULTANT in a fair and equitable manner. If necessary, a Supplemental Agreement providing the compensation and describing the work authorized shall be issued by the STATE to the CONSULTANT for execution after approvals have been obtained from necessary State officials and, if required, from the Federal Highway Administration.

b) In the event of any claims being made or any actions being brought in connection with the PROJECT, the CONSULTANT agrees to render to the STATE all assistance required by the STATE. Work which the CONSULTANT is obligated to perform in accordance with Article 9 hereof shall be performed without cost to the STATE. Compensation for other work performed and costs incurred in connection with this requirement shall be made in a fair and equitable manner. In all cases provided for in this AGREEMENT for the additional services above described, the STATE's directions shall be exercised by the issuance of a separate Agreement, if necessary.

ARTICLE 10. CONSULTANT LIABILITY.

To the fullest extent permitted by law, the CONSULTANT shall indemnify and save harmless the State, any municipality in which the work is being performed, and/or any public benefit corporation, railroad, or public utility whose property or facilities are affected by the work, from suits, claims, actions, damages and costs, of every name and description arising from the work under its contract during its prosecution and until the final acceptance thereof. The CONSULTANT and any assigns, heirs, or successors in interest shall also indemnify and save harmless, to the fullest extent permitted by law, the consultant inspecting engineer or inspector working for the State relative to the project from suits, claims, actions, damages and costs involving personal injury and property damage arising from the CONSULTANT's work under the contract during its prosecution and until the final acceptance thereof. The State may retain such monies from the amount due the CONSULTANT as may be necessary to satisfy any claim for damages recovered against the State, any municipality in which the work is being performed, and/or any public benefit corporation, railroad or public utility whose property or facilities are affected by the work or consultant inspecting engineers or inspectors working for the State relative to the project. The CONSULTANT's obligation under this paragraph shall not be deemed waived by the failure of the State to retain the whole or any part of such monies due the CONSULTANT, nor where such suit, action, damages and/or costs have not been resolved or determined prior to release of any monies to the CONSULTANT under the contract, nor shall such obligation be deemed limited or discharged by the enumeration or procurement of any insurance for liability for damages imposed by law upon the CONSULTANT, Subconsultant or the State, any municipality in which the work is being performed, and/or any public benefit corporation, railroad or public utility whose property or facilities are affected by the work, or any consultants working for the State.

The CONSULTANT has the obligation, at its own expense, for the defense of any action or proceeding which may be brought against the parties specified in this Section. This obligation shall include the cost of attorneys' fees, disbursements, costs and other expenses incurred in

connection with such action or proceeding. Such obligation does not extend to those suits, actions, damages and costs of every name that arise out of the sole negligence of the State, any municipality in which the work is being performed, and/or any public benefit corporation, railroad or public utility whose property or facilities are affected by the contract work, or any consultants working for the State, their agents or employees, relative to the construction, alteration, or repair or maintenance of a building, highway or structure and appurtenances and appliances thereof including moving, demolition and excavating connected therewith.

ARTICLE 11. INSURANCE.

The CONSULTANT shall procure, at its own sole cost and expense, and shall maintain in force at all times during the term of this contract including any extensions or renewals until Contract Final Acceptance, the policies of insurance covering all operations under the contract whether performed by it or its subconsultants as herein below set forth, written by companies authorized by the New York State Insurance Department to issue insurance in the State of New York and that have an A.M. Best Company rating of A minus or better or approved by the Department. The Department may, at its sole discretion, permit the placement of policies with a non-authorized carrier or carriers upon request by the CONSULTANT accompanied by the documentation required by 11 NYCRR §27.0 *et seq.*; provided that nothing herein shall be construed to require the Department to accept insurance placed with a non-authorized carrier under any circumstances. The CONSULTANT shall deliver to the Department evidence of such policies as the Department deems necessary to verify that the required insurance is in effect.

A. Conditions Applicable to Insurance. All policies of insurance required by this agreement must meet the following requirements:

- 1. Coverage Types and Policy Limits.** The types of coverage and policy limits required from the CONSULTANT are specified in subsection “B,” below. Insurance shall apply separately on a per-job or per-project basis.
- 2. Policy Forms.** Except as may be otherwise specifically provided herein or agreed in writing by the Department, policies must be written on an **occurrence** basis. In the event that occurrence-based coverage is not commercially available, claims-made policy forms will be considered provided that, at minimum, it includes provisions that allow for (a) reporting circumstances or incidents that may give rise to future claims and (b) an extended reporting period of not less than three (3) years with respect to events that occurred but were not reported during the term of the policy.
- 3. Certificates of Insurance/Notices.** CONSULTANT shall provide a Certificate or Certificates of Insurance, in a form satisfactory to the Commissioner, before commencing any work under this contract. Certificates or transmittal correspondence shall reference NYSDOT Contract Number C000791. Certificates shall be mailed to the:

**Contract Management Bureau
New York State Department of Transportation
50 Wolf Rd, 6th Floor
Albany, NY 12232**

Unless otherwise agreed, policies shall be written so as to require that the policy will not be (i) canceled, (ii) materially changed or (iii) permitted to expire or lapse for any

reason except upon thirty (30) days' prior written notice to the Department by Certified Mail, return receipt requested at the stated address. In addition, if required by the Department, the CONSULTANT shall deliver to the Department within Forty-Five (45) days of such request a copy of any or all policies of insurance not previously provided, certified by the insurance carrier as true and complete. Certificates of Insurance shall:

- a. Be in the form provided by the Department (C218 or successor) unless the Department specifically approves a different form. The ACORD forms of Certificate of Insurance are not acceptable.
 - b. Be signed by an authorized representative of the insurance carrier or producer and be acknowledged before a notary public.
 - c. Disclose any deductible, self-insured retention, aggregate limit or any exclusion to the policy that materially changes the coverage required by the contract.
 - d. Specify the Additional Insureds and Named Insureds as required herein.
 - e. Refer to this Contract by number on the face of the certificate, and
 - f. Expressly reference the inclusion of all required endorsements.
 - g. If at any time during the term of this contract, it shall come to the attention of the Department that required insurance is not in effect or that adequate proof of insurance has not been provided, the Department may, at its option:
 - (1) Direct the CONSULTANT to suspend work and not re-enter the premises with no additional payment or extension of time due on account thereof, or
 - (2) May withhold further contract payments in accordance with Article 8, or
 - (3) Treat such failure as a breach or default of the contract.
- 4. Additional Insureds.** All insurance policies required, by these specifications except workers' compensation and professional liability shall be endorsed to provide coverage to **"The State of New York/New York State Department of Transportation, any municipality in which the work is being performed, any public benefit corporation, railroad, or public utility whose property or facilities are affected by the work, and their agents or employees"** with respect to any claim arising from the CONSULTANT's Work under this contract or as a result of the CONSULTANT's activities. The endorsement shall be effected by endorsement of the applicable policy using ISO form CG 20 10 11 85, CG 20 37 07 04, CG 20 33 07 98 when used in combination with CG 20 37 07 04, or CG 20 33 10 01 or a form (or forms) that provides equivalent coverage.
- 5. Primary Coverage.** All insurance policies, excepting workers' compensation, shall provide that the required coverage shall be primary as to any other insurance that may be available to the Department for any claim arising from the CONSULTANT's Work under this contract, or as a result of the CONSULTANT's activities.
- 6. Waiver of Subrogation.** As to every type and form of insurance coverage required from the CONSULTANT, there shall be no right of subrogation against **the State of New York/New York State Department of Transportation, its agents or employees.** To the extent that any of CONSULTANT's policies of insurance

prohibit such a waiver of subrogation, CONSULTANT shall secure the necessary permission to make this waiver.

7. **Policy Renewal/Expiration.** At least thirty (30) days prior to the expiration of any policy required by this contract, evidence of renewal or replacement policies of insurance with terms no less favorable to the Department than the expiring policies shall be delivered to the Department in the manner required for service of notice in subdivision (A)(3) above.
8. **Self-Insured Retention/Deductibles.** Consultants utilizing self-insurance programs are required to provide a description of the program for Department approval. Collateralized deductible and self-insured retention programs administered by a third party may be approved. Except as may be specifically provided in the Contract Documents of a particular project, CONSULTANT-administered insurance deductible shall be limited to the amount of the bid deposit or \$100,000, whichever is less. Security is not required if it is otherwise provided to an administrator for an approved risk management program. The Department will not accept a self-insured retention program without security being posted to assure payment of both the self-insured retention limit and the cost of adjusting claims. The CONSULTANT shall be solely responsible for all claim expense and loss payments within any permitted deductible or self-insured retention. If the CONSULTANT's deductible in a self-administered program exceeds the amount of the bid deposit, the CONSULTANT shall furnish an irrevocable Letter of Credit as collateral to guarantee its obligations. Such Letter of Credit or other collateral as may be approved by Department must be issued by a guarantor or surety with an AM Best Company rating of "A minus" or higher. If, at any time during the term of this agreement, the Department, in its sole discretion, determines that the CONSULTANT is not paying its deductible, it may require the CONSULTANT to collateralize all or any part of the deductible or self-insured retention on any or all policies of insurance or, upon failure to promptly do so, the same may be withheld from payments due the CONSULTANT.
9. **Waiver of Indemnities.** The CONSULTANT waives any right of action it and/or its insurance carrier might have against the Department (including its employees, officers, commissioners, or agents) for any loss that is covered by a policy of insurance that is required by this contract. The CONSULTANT waives any right of action it and/or its insurance carrier might have against the Department (including its employees, officers, commissioners, or agents) for any loss, whether or not such loss is insured.

B. Insurance Requirements. The types of insurance and minimum policy limits shall be as follows:

1. **Workers' Compensation and Disability Insurance.** As required by State Finance Law §142, CONSULTANT shall maintain in force workers' compensation insurance upon forms required by or acceptable to the Workers Compensation Board for all of CONSULTANT's employees. CONSULTANT shall also maintain disability insurance as required by the Disability Benefits Law of the State of New York.
2. **Commercial General Liability Insurance.** CONSULTANT shall maintain an occurrence form commercial general liability policy or policies insuring against

liability arising from premises (including loss of use thereof), personal injury or death, advertising injury, liability insured under an insured contract (including the tort liability of another assumed in a business contract) occurring on or in any way related to the premises or occasioned by reason of the operations of CONSULTANT. Such coverage shall be written on an ISO occurrence form (ISO Form CG 00 01 12 07 or a policy form providing equivalent coverage) in an amount of not less than \$1,000,000.00 per occurrence and not less than \$2,000,000.00 aggregate. Unless otherwise provided, the policy or policies of insurance providing the liability coverage shall include:

(1) Coverage for liability contractually assumed by the CONSULTANT.

(2) All insurance policies required by these specifications except workers' compensation and professional liability shall be endorsed to provide coverage to **“the State of New York/New York State Department of Transportation, any municipality in which the work is being performed, any public benefit corporation, railroad, or public utility whose property or facilities are affected by the work,”** using ISO form CG 20 10 11 85, CG 20 37 07 04, CG 20 33 07 98 when used in combination with CG 20 37 07 04, or CG 20 33 10 01 or a policy form or forms providing equivalent coverage.

- 3. Commercial Automobile Insurance including liability and required coverage for New York.** In the event that automobiles are used in connection with CONSULTANT's business or operations with the Department, CONSULTANT shall maintain a commercial or other automobile policy or policies insuring against liability for bodily injury, death, or damage to property and other mandatory coverages, relating to the use, operation, loading or unloading of any of CONSULTANT's automobiles (including owned, hired and non-owned vehicles) on and around the project. This should be ISO form CA 00 01 10 01, CA 00 01 01 87 or a policy form providing equivalent coverage along with mandatory New York endorsements. Coverage shall be in an amount of not less than \$1,000,000.00 each accident.
- 4. Consultant's Risks.** The CONSULTANT shall be responsible for obtaining any insurance it deems necessary to cover its own risks, including without limitation: (a) business interruption, such as gross earnings, extra expense, or similar coverage, (b) personal property, and/or (c) automobile physical damage and/or theft. In no event shall the Department be liable for any damage to, or loss of, personal property, or damage to, or loss of, an automobile that is covered by a policy of insurance that is required by this agreement, even if such loss is caused by the negligence of the Department.
- 5. Professional Liability/ Errors and Omissions.** The CONSULTANT shall maintain at their own expense or shall require to be maintained, such insurance as is customary to compensate Department for any claims or losses that occur because of CONSULTANT's errors, omissions malpractice or breach of professional obligations. Such policy or policies may be written on a claims-made form so long as coverage is maintained to be in effect to cover claims arising from the performance of services under this contract. Said coverage may be subject to a deductible or self-insured retention level of no more than \$250,000 subject to approval by Department,

such approval not to be unreasonably withheld, except that it is also agreed that Department may withhold payment for services rendered under this contract in the event, and to the extent of any deductible in the event that a claim is asserted. Such coverage shall be written on an ISO claims made basis (or a policy form providing equivalent coverage) in an amount of no less than \$5,000,000.00 per claim and not less than \$5,000,000.00 in the aggregate.

ARTICLE 12. INTERCHANGE OF DATA.

All technical data in regard to the PROJECT existing in the office of the STATE or existing in the offices of the CONSULTANT shall be made available to the other party to this Agreement without expense to such other party.

ARTICLE 13. DISPOSITION OF DATA.

At the time of completion of the work, the CONSULTANT shall make available to the STATE all documents and data pertaining to the work or to the PROJECT which materials at all times shall be the property of the STATE. It is agreed that the CONSULTANT may maintain copies of all documents and data. Or in the event that this Agreement is terminated for any reason, then, within ten (10) days after such termination, the CONSULTANT shall make available to the STATE the aforementioned data and material.

ARTICLE 14. DAMAGES AND DELAYS.

The CONSULTANT agrees that no charges or claim for damages shall be made by them for any delays or hindrances from any cause whatsoever during the progress of any portion of the services specified in this AGREEMENT. Such delays or hindrances, if any, shall be compensated for by an extension of time for such reasonable period as the STATE may decide, it being understood however, that the permitting of the CONSULTANT to proceed to complete any services or any part of them after the date of completion or after the date to which the time of completion may have been extended, shall in no way operate as a waiver on the part of the STATE of any of its rights herein. Nothing in this ARTICLE will prevent the CONSULTANT from exercising its rights under ARTICLE 8 of this AGREEMENT.

ARTICLE 15. NOTICE OF BANKRUPTCY, VENUE, AUDITS.

If, prior to final audit, CONSULTANT files for relief pursuant to Title 11 of the United States Code under the Bankruptcy Laws or a successor statute, this AGREEMENT shall be treated as an executory contract under 11 USC S365 of the Bankruptcy Laws or successor statute, and be subject to assumption or rejection by the debtor within the time permitted by law.

The CONSULTANT must immediately send written notice to Contract Management of the New York State Department of Transportation at its main office in Albany and send all relevant pleading of the voluntary or involuntary filing of a Bankruptcy proceeding by the CONSULTANT, its subsidiary, its principals and officers or a related entity whether or not the CONSULTANT believes that any debt is owed to the State by final audit or otherwise.

The determination of any rights under this AGREEMENT shall be adjudicated in a State or Federal Court with jurisdiction over the matter, and venue for the determination of such rights shall be in Albany, New York.

The CONSULTANT agrees that the automatic stay under 11 USC S362 or a successor statute shall be deemed inapplicable or that this agreement shall constitute consent to the lifting of

the stay with respect to the State's performance of or completion of any audit pursuant to the terms of this AGREEMENT.

ARTICLE 16. TERMINATION.

The STATE shall have the absolute right to terminate this Agreement, and such action shall in no event be deemed a breach of contract:

(a) If a termination is brought about for the convenience of the STATE and not as a result of unsatisfactory performance on the part of the CONSULTANT, final payment shall be made based on the percentage of work satisfactorily completed by the CONSULTANT, as determined by the STATE, times the Lump Sum amount.

(b) If the termination is brought about as a result of unsatisfactory performance on the part of the CONSULTANT, the value of the work performed by the CONSULTANT prior to termination shall be established by the STATE.

(c) The STATE reserves the right to terminate this AGREEMENT in the event it is found that the certification filed by the CONSULTANT in accordance with the requirements contained in State Finance Law Section 139-k was intentionally false or intentionally incomplete. Upon such finding, the STATE may exercise its termination right by providing written notification to the CONSULTANT in accordance with the written notification terms of the AGREEMENT.

ARTICLE 17. DEATH OR DISABILITY OF THE CONSULTANT.

In case of the death or disability of one or more but not all the persons herein referred to as CONSULTANT, the rights and duties of the CONSULTANT shall devolve upon the survivors of them, who shall be obligated to perform the services required under this AGREEMENT, and the STATE shall make all payments due to them.

In case of the death or disability of all the persons herein referred to as CONSULTANT, all data and records pertaining to the PROJECT shall be delivered within (60) days to the STATE or its duly authorized representative. In case of the failure of the CONSULTANT'S successors or personal representatives to make such delivery on demand, then in that event the representatives of the CONSULTANT shall be liable to the STATE for any damages it may sustain by reason thereof. Upon the delivery of all such data to the STATE, the STATE will pay to the representatives of the CONSULTANT all amounts due the CONSULTANT, including retained percentages to the date of the death of the last survivor.

ARTICLE 18. CODE OF ETHICS.

The CONSULTANT specifically agrees that this AGREEMENT may be canceled or terminated if any work under this AGREEMENT is in conflict with the provisions of Section 74 of the New York State Public Officer's Law, as amended, establishing a Code of Ethics for State officers and employees.

The CONSULTANT shall not engage, on a full or part-time or other basis any professional or technical personnel who are or have been at any time during the period of this AGREEMENT in the employ of the Federal Highway Administration or the highway organizations of any public employer, except regularly retired employees, without the consent of the public employer of such person.

ARTICLE 19. INDEPENDENT CONTRACTOR.

The CONSULTANT, in accordance with their status as an independent contractor, covenants and agrees that they will conduct themselves consistent with such status, that they will neither hold themselves out as, nor claim to be, an officer or employee of the STATE by reason hereof, and that they will not, by reason hereof, make any claim, demand or application to or for any right or privilege applicable to an officer or employee of the STATE, including but not limited to Worker's Compensation coverage, Unemployment Insurance benefits, Social Security coverage or Retirement membership or credit.

ARTICLE 20. COVENANT AGAINST CONTINGENT FEES.

The CONSULTANT warrants that they have not employed or retained any company or person, other than a bona fide employee working for the CONSULTANT, to solicit or secure this AGREEMENT, and that they have not paid or agreed to pay any company or person, other than a bona fide employee, any fee, commission, percentage, brokerage fee, gift, or any other consideration, contingent upon or resulting from the award or making of this AGREEMENT. For breach or violation of this warranty, the STATE shall have the right to annul this AGREEMENT without liability, or, in its discretion, to deduct from the AGREEMENT price or consideration, or otherwise recover, the full amount of such fee, commission, percentage, brokerage fee, gift, or contingent fee.

ARTICLE 21. TRANSFER OF AGREEMENT.

The CONSULTANT specifically agrees, as required by the State Finance Law, Section 138, that they are prohibited by law from assigning, transferring, conveying, subletting or otherwise disposing of the AGREEMENT or of their right, title or interest therein, or their power to execute such AGREEMENT, to any other person, company or corporation, without the previous consent in writing of the STATE.

If this provision of the law be violated, the STATE shall revoke and annul the Agreement and the STATE shall be relieved from any and all liability and obligations thereunder to the person, company or corporation to whom the CONSULTANT shall assign, transfer, convey, sublet or otherwise dispose of the Agreement, and such transferee shall forfeit and lose all moneys therefore assigned under said Agreement, except so much as may be required to pay his employees.

ARTICLE 22. PROPRIETARY RIGHTS.

The CONSULTANT agrees that if copyrights, patentable discoveries or inventions or rights in data should result from work described herein, all rights accruing from such discoveries or inventions shall be the sole property of the CONSULTANT. However, the CONSULTANT agrees to and does hereby grant to the United States Government and the State of New York an irrevocable, nonexclusive, nontransferable, paid-up license to reproduce, publish, make, use, and sell each subject invention throughout the world by and on behalf of the Government of the United States and States and domestic municipal governments, all in accordance with the provisions of 48 CFR 1-27, and other applicable Federal laws, rules and regulations.

ARTICLE 23. SUBCONTRACTORS/SUBCONSULTANTS.

All subcontractors and subconsultants performing work on this project shall be bound by the same required contract provisions as the prime CONSULTANT. All agreements between the prime CONSULTANT and a subcontractor or subconsultant shall include all standard required contract provisions, and such agreements shall be subject to review by the State.

ARTICLE 24. ORDER OF PRECEDENCE.

In the event of any inconsistency between or among the provisions and contents of this AGREEMENT, it is agreed that such inconsistency shall be resolved in the following descending order of precedence:

1. APPENDIX A;
2. The additional provisions required by state and federal law to be inserted in the AGREEMENT as set forth in APPENDIX A-1, APPENDIX B, APPENDIX B-1, and APPENDIX C;
3. This AGREEMENT, including Signature Page, Notary Page and Exhibit B;
4. SCHEDULE A (including any Exhibits);
5. SCHEDULE B (including any Exhibits);
6. The STATE's Request for Proposals (dated: [redacted]); and
7. The CONSULTANT's Proposal (dated: [redacted]).

ARTICLE 25. CERTIFICATION REQUIRED BY 49CFR, PART 29.

The signatory to this Agreement, being duly sworn, certifies that, EXCEPT AS NOTED BELOW, its company and any person associated therewith in the capacity of owner, partner, director, officer, or major stockholder (five percent or more ownership):

- 1) is not currently under suspension, debarment, voluntary exclusion, or determination of ineligibility by any federal agency;
- 2) has not been suspended, debarred, voluntarily excluded or determined ineligible by any federal agency within the past three years;
- 3) does not have a proposed debarment pending; and
- 4) has not been indicted, convicted, or had a civil judgment rendered against it by a court of competent jurisdiction in any matter involving fraud or official misconduct within the past three years.

EXCEPTIONS: - None.

ARTICLE 26. CERTIFICATION FOR FEDERAL-AID CONTRACTS.

The prospective participant certifies, by signing this Agreement to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriate funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

The prospective participant also agrees by submitting his or her bid or proposal that he or she shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such subrecipients shall certify and disclose accordingly.

ARTICLE 27. RESPONSIBILITY OF THE CONSULTANT.

(a) The CONSULTANT shall be responsible for the professional quality, technical accuracy, and the coordination of all services furnished by the CONSULTANT under this AGREEMENT. The CONSULTANT shall, without additional compensation, correct or revise any errors or deficiencies in its services. However, the STATE may in certain circumstances, provide compensation for such work.

(b) Neither the STATE's review, approval or acceptance or, nor payment for, the services required under this AGREEMENT shall be construed to operate as a waiver of any rights under this AGREEMENT or of any cause action arising out of the performance of this AGREEMENT, and the CONSULTANT shall be and remain liable to the STATE in accordance with applicable law for all damages to the STATE caused by the CONSULTANT's negligent performance or breach of contract of any of the services furnished under this AGREEMENT.

(c) The rights and remedies of the STATE provided for under this AGREEMENT are in addition to any other rights and remedies provided by law.

(d) If the CONSULTANT is comprised of more than one legal entity or any group of partners or joint venturers associated for the purposes of undertaking this agreement, each such entity acknowledges and hereby affirmatively represents and agrees that each has the power to bind the CONSULTANT and each of the others hereunder; and as such, each acts both as principal and agent of the CONSULTANT and of each of the others hereunder. Each further acknowledges and agrees that all such entities, partners or joint venturers associated for the purposes of undertaking this agreement shall be jointly and severally liable to third parties, including but not limited to the STATE, for the acts or omissions of the CONSULTANT or any other entity, partner or joint venturer hereunder.

(e) If the CONSULTANT is comprised of more than one legal entity or any group of partners or joint venturers associated for the purposes of undertaking this agreement, each such entity acknowledges and hereby affirmatively represents and agrees that the respective rights, duties and liabilities of each hereunder shall be governed by the laws of the State of New York, including but not limited to the New York Partnership Law.

ARTICLE 28. SECURITY AND CONFIDENTIALITY OF INFORMATION.

Information received as part of this AGREEMENT shall be considered Confidential Information. The CONSULTANT warrants that it will take the appropriate steps as to its personnel, agents, officers and any SUBCONTRACTOR/ SUBCONSULTANTS regarding the obligations arising under this clause to insure such confidentiality. The CONSULTANT shall have written policies and/or business procedures in place which will protect Confidential Information from unauthorized disclosure, use, access, loss, alteration or destruction. The CONSULTANT may

disclose to other parties, as authorized by the NYSDOT Project Manager, or as described in the scope of services, only the information necessary to perform services under this AGREEMENT. However, the CONSULTANT shall in no circumstance, communicate with the public or news media without prior authorization from the State designee. Neither shall the CONSULTANT disclose information deemed confidential by the State nor shall the CONSULTANT disclose any other information obtained or developed in the performance of services under this agreement without the written authorization of the State. This warranty shall survive termination of this AGREEMENT.

The CONSULTANT shall comply with the provisions of the New York State Information Security Breach and Notification Act, including General Business Law Section §889-aa and State Technology Law §208 as enacted by such Act or subsequently amended. In the event of an information security breach resulting in the unauthorized disclosure of personal information, CONSULTANT shall be liable for the costs associated with such breach if caused by CONSULTANT's negligent or willful acts or omissions, or the negligent or willful acts or omissions of the CONSULTANT's agents, officers, employees or SUBCONSULTANTS.

ARTICLE 29. VENDOR RESPONSIBILITY.

The Department of Transportation has undertaken an affirmative review of the proposed CONSULTANT's responsibility in accordance with the applicable standards outlined in Comptroller's Bulletin No. G-221, and based upon such review, reasonable assurance that the proposed contractor is responsible has been determined.

ARTICLE 30. CONSULTANT DISCLOSURE LEGISLATION.

In accordance with Chapter 10 of the Laws of 2006, the CONSULTANT shall complete the "State Consultant Services Contractor's Annual Employment Report" (Form B, Exhibit B) and submit copies to the Office of the State Comptroller, the Department of Civil Service, and the Department of Transportation on or before May 15th of each year the contract is in effect. The CONSULTANT shall provide information regarding all employees providing service under this contract, whether employed by the CONSULTANT or any subconsultant or subcontractor. Form B will capture historical information, detailing actual employment data for the most recently concluded State fiscal year (April 1st to March 31st). Annual employment reports should be submitted to the following three agencies. It is recommended, however, that consultants check the agency websites annually to confirm the addresses.

By mail:

NYS Office of the State Comptroller
Bureau of Contracts
110 State Street, 11th Floor
Albany, N. Y. 12236
Attn: Consultant Reporting

NYS Department of Civil Service
Alfred E. Smith Building
Albany, N. Y. 12239
Attn: Chapter 10 Counsel's Office

NYS Department of Transportation:

Reports that are submitted to the NYS Department of Transportation must be submitted electronically, preferably as a Word, Excel or pdf file via email to: timothy.ameche@dot.ny.gov or his successor.

ARTICLE 31. NOTICES.

Item 1. All notices permitted or required hereunder shall be in writing and shall be transmitted either:

- (a) via certified or registered United States mail, return receipt requested;
- (b) by facsimile transmission;
- (c) by personal delivery;
- (d) by expedited delivery service; or
- (e) by e-mail.

Such notices shall be addressed as follows or to such different addresses as the parties may from time-to-time designate:

New York State Department of Transportation:

Contact Person's Name: William A. Howe, Contract #C000791

Title: Director

Address: NYSDOT Contract Management Bur., 6th Fl, 50 Wolf Rd., Albany, NY 12232

Telephone Number: 518-457-2600

Facsimile Number: 518-457-2874

E-Mail Address: bill.howe@dot.ny.gov

And to:

The New York Metropolitan Transportation Council

199 Water Street, 22nd Fl

New York, NY 10038

ATTN: Mr. Ismet Apdiroglu, Admin. Group, Contract #C000791

Consultant's Name: [Redacted]

Contact Person's Name: [Redacted]

Title: [Redacted]

Address: [Redacted]

Telephone Number: [Redacted]

Facsimile Number: [Redacted]

E-Mail Address: [Redacted]

Item 2. Any such notice shall be deemed to have been given either at the time of personal delivery or, in the case of expedited delivery service or certified or registered United States mail, as of the date of first attempted delivery at the address and in the manner provided herein, or in the case of facsimile transmission or email, upon receipt.

Item 3. The parties may, from time to time, specify any new or different address in the United States as their address for purpose of receiving notice under this Agreement by giving fifteen (15) days written notice to the other party sent in accordance herewith. The parties agree to mutually designate individuals as their respective representatives for the purposes of receiving notices under this Agreement. Additional individuals may be designated in writing by the parties for purposes of implementation and administration/billing, resolving issues and problems and/or for dispute resolution.

ARTICLE 32. TITLE VI ASSURANCE.

During the performance of this contract, the consultant or contractor, for itself, its assignees and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

(1) **Compliance with Regulations:** The contractor shall comply with the Regulation relative to nondiscrimination in Federally-assisted programs of the Department of Transportation of the United States, Title 49, Code of Federal Regulations, Part 21, and the Federal Highway Administration (hereinafter "FHWA") Title 23, Code of Federal Regulations, Part 200 as they may be amended from time to time, (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this contract.

(2) **Nondiscrimination:** The Contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, or national origin, sex, age, and disability/handicap in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor shall not participate either directly or indirectly in the discrimination prohibited by 49 CFR, section 21.5 of the Regulations, including employment practices when the contract covers a program set forth in Appendix B of the Regulations.

(3) **Solicitations for Subcontractors, Including Procurements of Materials and Equipment:** In all solicitations either by competitive bidding or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the contractor of the contractor's obligations under this contract and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin, sex, age, and disability/handicap.

(4) **Information and Reports:** The contractor shall provide all information and reports required by the Regulations or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by NYSDOT or the FHWA to be pertinent to ascertain compliance with such Regulations, orders and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information the contractor shall so certify to NYSDOT's Office of Civil Rights or FHWA, as appropriate, and shall set forth what efforts it has made to obtain the information.

(5) **Sanctions for Noncompliance:** In the event of the contractor's noncompliance with the nondiscrimination provisions of this contract, NYSDOT shall impose such contract sanctions as it or the FHWA may determine to be appropriate, including, but not limited to:

(a.) withholding of payments to the contractor under the contract until the contractor complies, and/or

(b.) cancellation, termination or suspension of the contract, in whole or in part.

(6) **Incorporation of Provisions:** The contractor shall include the provisions of paragraphs (1) through (6) in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto.

The contractor shall take such action with respect to any subcontract or procurement as NYSDOT or the FHWA may direct as a means of enforcing such provisions including sanctions for non-compliance: Provided, however, that, in the event a contractor becomes involved in, or

is threatened with, litigation with a subcontractor or supplier as a result of such direction, the contractor may request NYSDOT to enter into such litigation to protect the interests of NYSDOT, and, in addition, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

ARTICLE 33. IRAN DIVESTMENT ACT.

As a result of the Iran Divestment Act of 2012 (Act), Chapter 1 of the 2012 Laws of New York, a new provision has been added to the State Finance Law (SFL), § 165-a, effective April 12, 2012. Under the Act, the Commissioner of the Office of General Services (OGS) will be developing a list (prohibited entities list) of “persons” who are engaged in “investment activities in Iran” (both are defined terms in the law). Pursuant to SFL § 165-a(3)(b), the initial list is expected to be issued no later than 120 days after the Act’s effective date, at which time it will be posted on the OGS website.

By submitting a bid in response to this solicitation or by assuming the responsibility of a Contract awarded hereunder, Bidder/Contractor (or any assignee) certifies that once the prohibited entities list is posted on the OGS website, it will not utilize on such Contract any subcontractor that is identified on the prohibited entities list.

Additionally, Bidder/Contractor is advised that once the list is posted on the OGS website, any Contractor seeking to renew or extend a Contract or assume the responsibility of a Contract awarded in response to the solicitation, must certify at the time the Contract is renewed, extended or assigned that it is not included on the prohibited entities list.

During the term of the Contract, should NYSDOT receive information that a person is in violation of the above-referenced certification, NYSDOT will offer the person an opportunity to respond. If the person fails to demonstrate that it has ceased its engagement in the investment which is in violation of the Act within 90 days after the determination of such violation, then NYSDOT shall take such action as may be appropriate including, but not limited to, imposing sanctions, seeking compliance, recovering damages, or declaring the Contractor in default.

NYSDOT reserves the right to reject any bid or request for assignment for an entity that appears on the prohibited entities list prior to the award of a contract, and to pursue a responsibility review with respect to any entity that is awarded a contract and appears on the prohibited entities list after contract award.

ARTICLE 34. CONSULTANT RESPONSIBILITY.

General Responsibility. The Consultant shall, at all times during the Agreement, remain responsible. The Consultant agrees, if requested by the Commissioner of NYSDOT or his or her designee, to present evidence of its continuing legal authority to do business in New York State, integrity, experience, ability, prior performance, and organizational and financial capacity.

Suspension or Work (for Non-Responsibility). The Commissioner of NYSDOT (or his or her designee), in his or her sole discretion, reserves the right to suspend any or all activities under this Agreement at any time when he or she discovers information that calls into question the responsibility of the Consultant. In the event of such suspension, the Consultant will be given written notice outlining the particulars of such suspension. Upon issuance of such notice, the Consultant shall comply with the terms of the suspension order. Contract activity may resume at such time as the Commissioner of NYSDOT (or his or her designee) issues a written notice authorizing the resumption of performance under the Agreement.

Termination (for Non-Responsibility). Upon written notice to the Consultant, and a reasonable opportunity to be heard with appropriate NYSDOT or staff, the Agreement may be terminated by Commissioner of NYSDOT (or his or her designee) at the Consultant's expense where the Consultant is determined by the Commissioner of NYSDOT (or his or her designee) to be non-responsible. In such event, the Commissioner of NYSDOT (or his or her designee) may complete the contractual requirements in any manner he or she may deem advisable and pursue available legal or equitable remedies for breach.

IN WITNESS WHEREOF, this **Contract No. C000791** has been executed by the STATE, acting by and through the Commissioner of Transportation, and the CONSULTANT has duly executed this Agreement effective the day and year first above written.

In addition to the acceptance of this Agreement, the Department also certifies that original copies of this signature page will be attached to all other exact copies of this Agreement.

RECOMMENDED BY THE PEOPLE OF THE STATE OF NEW YORK

York Metropolitan Transportation Council Date _____ New

NYSDOT CONTRACT MANAGEMENT DATE By: _____
DEPARTMENT OF TRANSPORTATION DATE

Consultant Certifications: I certify that all the information with respect to the “Vendor Responsibility Questionnaire” submitted by (FIRM NAME) on the ____ day of _____, 20____ pursuant to the requirements set forth in OSC Bulletin G-221 is complete true and accurate. I additionally certify nothing has occurred since the date of that submission that would result in requiring a change or alteration to any of the answers provided on the “Vendor Responsibility Questionnaire” submitted that date.

I certify that all information provided to the STATE with respect to the requirements contained in State Finance Laws Sections 139j & 139k is complete, true and accurate.

By _____ Date: _____
FIRM

NEW YORK BEST PRACTICE MODEL 2012 BASE YEAR UPDATE,

APPROVALS

ATTORNEY GENERAL

THOMAS P. DINAPOLI
STATE COMPTROLLER

By _____
Date _____

Acknowledgement for Contract #C000791

For contracts signed in New York State

State of New York)

County of) ss.:

On the ____ day of _____ in the year 20__, before me the undersigned, personally appeared _____, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

NOTARY PUBLIC

My Commission Expires: _____

For contracts signed **outside** New York State

State of)

County of) ss.:

On the ____ day of _____ in the year 20__ before me, the undersigned, personally appeared _____, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument, and that such individual made such appearance before the undersigned in _____ (insert the city or other political subdivision and the state or country or other place the acknowledgement was taken).

NOTARY PUBLIC

(Signature and office of individual taking acknowledgement.)

My Commission Expires: _____

APPENDIX A

STANDARD CLAUSES FOR NEW YORK STATE CONTRACTS

The parties to the attached contract, license, lease, amendment or other agreement of any kind (hereinafter, "the contract" or "this contract") agree to be bound by the following clauses which are hereby made a part of the contract (the word "Contractor" herein refers to any party other than the State, whether a contractor, licensor, licensee, lessor, lessee or any other party):

1. EXECUTORY CLAUSE. In accordance with Section 41 of the State Finance Law, the State shall have no liability under this contract to the Contractor or to anyone else beyond funds appropriated and available for this contract.

2. NON-ASSIGNMENT CLAUSE. In accordance with Section 138 of the State Finance Law, this contract may not be assigned by the Contractor or its right, title or interest therein assigned, transferred, conveyed, sublet or otherwise disposed of without the State's previous written consent, and attempts to do so are null and void. Notwithstanding the foregoing, such prior written consent of an assignment of a contract let pursuant to Article XI of the State Finance Law may be waived at the discretion of the contracting agency and with the concurrence of the State Comptroller where the original contract was subject to the State Comptroller's approval, where the assignment is due to a reorganization, merger or consolidation of the Contractor's business entity or enterprise. The State retains its right to approve an assignment and to require that any Contractor demonstrate its responsibility to do business with the State. The Contractor may, however, assign its right to receive payments without the State's prior written consent unless this contract concerns Certificates of Participation pursuant to Article 5-A of the State Finance Law.

3. COMPTROLLER'S APPROVAL. In accordance with Section 112 of the State Finance Law (or, if this contract is with the State University or City University of New York, Section 355 or Section 6218 of the Education Law), if this contract exceeds \$50,000 (or the minimum thresholds agreed to by the Office of the State Comptroller for certain S.U.N.Y. and C.U.N.Y. contracts), or if this is an amendment for any amount to a contract which, as so amended, exceeds said statutory amount, or if, by this contract, the State agrees to give something other than money when the value or reasonably estimated value of such consideration exceeds \$10,000, it shall not be valid, effective or binding upon the State until it has been approved by the State Comptroller and filed in his office. Comptroller's approval of contracts let by the Office of General Services is required when such contracts exceed \$85,000 (State Finance Law Section 163.6.a). However, such pre-approval shall not be required for any contract established as a centralized contract through the Office of General Services or for a purchase order or other transaction issued under such centralized contract.

4. WORKERS' COMPENSATION BENEFITS. In accordance with Section 142 of the State Finance Law, this contract shall be void and of no force and effect unless the Contractor shall provide and maintain coverage during the life of this contract for the benefit of such employees as are required to be covered by the provisions of the Workers' Compensation Law.

5. NON-DISCRIMINATION REQUIREMENTS. To the extent required by Article 15 of the Executive Law (also known as the Human Rights Law) and all other State and Federal statutory and constitutional non-discrimination provisions, the Contractor will not discriminate against any employee or applicant for employment because of race, creed, color, sex, national origin, sexual orientation, age, disability, genetic predisposition or carrier status, or marital status. Furthermore, in accordance with Section 220-e of the Labor Law, if this is a contract for the construction, alteration or repair of any public building or public work or for the manufacture, sale or distribution of materials, equipment or supplies, and to the extent that this contract shall be performed within the State of New York, Contractor agrees that neither it nor its subcontractors shall, by reason of race, creed, color, disability, sex, or national origin: (a) discriminate in hiring against any New York State citizen who is qualified and available to perform the work; or (b) discriminate against or intimidate any employee hired for the performance of work under this contract. If this is a building service contract as defined in Section 230 of the Labor Law, then, in accordance with Section 239 thereof, Contractor agrees that neither it nor its subcontractors shall by reason of race, creed, color, national origin, age, sex or disability: (a) discriminate in hiring against any New York State citizen who is qualified and available to perform the work; or (b) discriminate against or intimidate any employee hired for the performance of work under this contract. Contractor is subject to fines of \$50.00 per person per day for any violation of Section 220-e or Section 239 as well as possible termination of this contract and forfeiture of all moneys due hereunder for a second or subsequent violation.

6. WAGE AND HOURS PROVISIONS. If this is a public work contract covered by Article 8 of the Labor Law or a building service contract covered by Article 9 thereof, neither Contractor's employees nor the employees of its subcontractors may be required or permitted to work more than the number of hours or days stated in said statutes, except as otherwise provided in the Labor Law and as set forth in prevailing wage and supplement schedules issued by the State Labor Department. Furthermore, Contractor and its subcontractors must pay at least the prevailing wage rate and pay or provide the prevailing supplements, including the premium rates for overtime pay, as determined by the State Labor Department in accordance with the Labor Law. Additionally, effective April 28, 2008, if this is a public work contract covered by Article 8 of the Labor Law, the Contractor understands and agrees that the filing of payrolls in a manner consistent with Subdivision 3- a of Section 220 of the Labor Law shall be a condition precedent to payment by the State of any State approved sums due and owing for work done upon the project.

7. NON-COLLUSIVE BIDDING CERTIFICATION. In accordance with Section 139-d of the State Finance Law, if this contract was awarded based upon the submission of bids, Contractor affirms, under penalty of perjury, that its bid was arrived at independently and without collusion aimed at restricting competition. Contractor further affirms that, at the time Contractor submitted its bid, an authorized and responsible person executed and delivered to the State a non-collusive bidding certification on Contractor's behalf.

8. INTERNATIONAL BOYCOTT PROHIBITION. In accordance with Section 220-f of the Labor Law and Section 139-h of the

State Finance Law, if this contract exceeds \$5,000, the Contractor agrees, as a material condition of the contract, that neither the Contractor nor any substantially owned or person, firm, partnership or corporation has participated, is participating, or shall participate in an international boycott in violation of the federal Export Administration Act of 1979 (50 USC App. Sections 2401 et seq.) or regulations thereunder. If such Contractor, or any of the aforesaid affiliates of Contractor, is convicted or is otherwise found to have violated said laws or regulations upon the final determination of the United States Commerce Department or any other appropriate agency of the United States subsequent to the contract's execution, such contract, amendment or modification thereto shall be rendered forfeit and void. The Contractor shall so notify the State Comptroller within five (5) business days of such conviction, determination or disposition of appeal (2NYCRR 105.4).

9. SET-OFF RIGHTS. The State shall have all of its common law, equitable and statutory rights of set-off. These rights shall include, but not be limited to, the State's option to withhold for the purposes of set-off any moneys due to the Contractor under this contract up to any amounts due and owing to the State with regard to this contract, any other contract with any State department or agency, including any contract for a term commencing prior to the term of this contract, plus any amounts due and owing to the State for any other reason including, without limitation, tax delinquencies, fee delinquencies or monetary penalties relative thereto. The State shall exercise its set-off rights in accordance with normal State practices including, in cases of set-off pursuant to an audit, the finalization of such audit by the State agency, its representatives, or the State Comptroller.

10. RECORDS. The Contractor shall establish and maintain complete and accurate books, records, documents, accounts and other evidence directly pertinent to performance under this contract (hereinafter, collectively, "the Records"). The Records must be kept for the balance of the calendar year in which they were made and for six (6) additional years thereafter. The State Comptroller, the Attorney General and any other person or entity authorized to conduct an examination, as well as the agency or agencies involved in this contract, shall have access to the Records during normal business hours at an office of the Contractor within the State of New York or, if no such office is available, at a mutually agreeable and reasonable venue within the State, for the term specified above for the purposes of inspection, auditing and copying. The State shall take reasonable steps to protect from public disclosure any of the Records which are exempt from disclosure under Section 87 of the Public Officers Law (the "Statute") provided that: (i) the Contractor shall timely inform an appropriate State official, in writing, that said records should not be disclosed; and (ii) said records shall be sufficiently identified; and (iii) designation of said records as exempt under the Statute is reasonable. Nothing contained herein shall diminish, or in any way adversely affect, the State's right to discovery in any pending or future litigation.

11. IDENTIFYING INFORMATION AND PRIVACY NOTIFICATION (a) Identification Number(s). Every invoice or New York State Claim for Payment submitted to a New York State agency by a payee, for payment for the sale of goods or services or for transactions (e.g., leases, easements, licenses, etc.) related to real or personal property must include the payee's identification number. The number is any or all of the following: (i) the payee's Federal employer identification number, (ii) the payee's Federal social security number, and/or (iii) the payee's Vendor Identification Number assigned by the Statewide Financial System. Failure to include such number or numbers may delay payment. Where the payee does not have such number or numbers, the payee, on its invoice or Claim for Payment, must give the reason or reasons why the payee does not have such number or numbers.

(b) Privacy Notification. (1) The authority to request the above personal information from a seller of goods or services or a lessor of real or personal property, and the authority to maintain such information, is found in Section 5 of the State Tax Law. Disclosure of this information by the seller or lessor to the State is mandatory. The principal purpose for which the information is collected is to enable the State to identify individuals, businesses and others who have been delinquent in filing tax returns or may have understated their tax liabilities and to generally identify persons affected by the taxes administered by the Commissioner of Taxation and Finance. The information will be used for tax administration purposes and for any other purpose authorized by law. (2) The personal information is requested by the purchasing unit of the agency contracting to purchase the goods or services or lease the real or personal property covered by this contract or lease. The information is maintained in the Statewide Financial System by the Vendor Management Unit within the Bureau of State Expenditures, Office of the State Comptroller, 110 State Street, Albany, New York 12236.

12. EQUAL EMPLOYMENT OPPORTUNITIES FOR MINORITIES AND WOMEN. In accordance with Section 312 of the Executive Law and 5 NYCRR 143, if this contract is: (i) a written agreement or purchase order instrument, providing for a total expenditure in excess of \$25,000.00, whereby a contracting agency is committed to expend or does expend funds in return for labor, services, supplies, equipment, materials or any combination of the foregoing, to be performed for, or rendered or furnished to the contracting agency; or (ii) a written agreement in excess of \$100,000.00 whereby a contracting agency is committed to expend or does expend funds for the acquisition, construction, demolition, replacement, major repair or renovation of real property and improvements thereon; or (iii) a written agreement in excess of \$100,000.00 whereby the owner of a State assisted housing project is committed to expend or does expend funds for the acquisition, construction, demolition, replacement, major repair or renovation of real property and improvements thereon for such project, then the following shall apply and by signing this agreement the Contractor certifies and affirms that it is Contractor's equal employment opportunity policy that:

(a) The Contractor will not discriminate against employees or applicants for employment because of race, creed, color, national origin, sex, age, disability or marital status, shall make and document its conscientious and active efforts to employ and utilize minority group members and women in its work force on State contracts and will undertake or continue existing programs of affirmative action to ensure that minority group members and women are afforded equal employment opportunities without discrimination. Affirmative action shall mean recruitment, employment, job assignment, promotion, upgradings, demotion, transfer, layoff, or termination and rates of pay or other forms of compensation;

(b) at the request of the contracting agency, the Contractor shall request each employment agency, labor union, or authorized representative of workers with which it has a collective bargaining or other agreement or understanding, to furnish a written statement that such employment agency, labor union or representative will not discriminate on the basis of race, creed, color, national origin, sex, age, disability or marital status and that such union or representative will affirmatively cooperate in the implementation of the Contractor's obligations herein; and

(c) the Contractor shall state, in all solicitations or advertisements for employees, that, in the performance of the State contract, all qualified applicants will be afforded equal employment opportunities without discrimination because of race, creed, color, national origin, sex, age, disability or marital status.

Contractor will include the provisions of "a", "b", and "c" above, in every subcontract over \$25,000.00 for the construction, demolition, replacement, major repair, renovation, planning or design of real property and improvements thereon (the "Work") except where the Work is for the beneficial use of the Contractor. Section 312 does not apply to: (i) work, goods or services unrelated to this contract; or (ii) employment outside New York State. The State shall consider compliance by a contractor or subcontractor with the requirements of any federal law concerning equal employment opportunity which effectuates the purpose of this section. The contracting agency shall determine whether the imposition of the requirements of the provisions hereof duplicate or conflict with any such federal law and if such duplication or conflict exists, the contracting agency shall waive the applicability of Section 312 to the extent of such duplication or conflict. Contractor will comply with all duly promulgated and lawful rules and regulations of the Department of Economic Development's Division of Minority and Women's Business Development pertaining hereto.

13. CONFLICTING TERMS. In the event of a conflict between the terms of the contract (including any and all attachments thereto and amendments thereof) and the terms of this Appendix A, the terms of this Appendix A shall control.

14. GOVERNING LAW. This contract shall be governed by the laws of the State of New York except where the Federal supremacy clause requires otherwise.

15. LATE PAYMENT. Timeliness of payment and any interest to be paid to Contractor for late payment shall be governed by Article 11-A of the State Finance Law to the extent required by law.

16. NO ARBITRATION. Disputes involving this contract, including the breach or alleged breach thereof, may not be submitted to binding arbitration (except where statutorily authorized), but must, instead, be heard in a court of competent jurisdiction of the State of New York.

17. SERVICE OF PROCESS. In addition to the methods of service allowed by the State Civil Practice Law & Rules ("CPLR"), Contractor hereby consents to service of process upon it by registered or certified mail, return receipt requested. Service hereunder shall be complete upon Contractor's actual receipt of process or upon the State's receipt of the return thereof by the United States Postal Service as refused or undeliverable. Contractor must promptly notify the State, in writing, of each and every change of address to which service of process can be made. Service by the State to the last known address shall be sufficient. Contractor will have thirty (30) calendar days after service hereunder is complete in which to respond.

18. PROHIBITION ON PURCHASE OF TROPICAL HARDWOODS. The Contractor certifies and warrants that all wood products to be used under this contract award will be in accordance with, but not limited to, the specifications and provisions of Section 165 of the State Finance Law, (Use of Tropical Hardwoods) which prohibits purchase and use of tropical hardwoods, unless specifically exempted, by the State or any governmental agency or political subdivision or public benefit corporation. Qualification for an exemption under this law will be the responsibility of the contractor to establish to meet with the approval of the State.

In addition, when any portion of this contract involving the use of woods, whether supply or installation, is to be performed by any subcontractor, the prime Contractor will indicate and certify in the submitted bid proposal that the subcontractor has been informed and is in compliance with specifications and provisions regarding use of tropical hardwoods as detailed in §165 State Finance Law. Any such use must meet with the approval of the State; otherwise, the bid may not be considered responsive. Under bidder certifications, proof of qualification for exemption will be the responsibility of the Contractor to meet with the approval of the State.

19. MACBRIDE FAIR EMPLOYMENT PRINCIPLES. In accordance with the MacBride Fair Employment Principles (Chapter 807 of the Laws of 1992), the Contractor hereby stipulates that the Contractor either (a) has no business operations in Northern Ireland, or (b) shall take lawful steps in good faith to conduct any business operations in Northern Ireland in accordance with the MacBride Fair Employment Principles (as described in Section 165 of the New York State Finance Law), and shall permit independent monitoring of compliance with such principles.

20. OMNIBUS PROCUREMENT ACT OF 1992. It is the policy of New York State to maximize opportunities for the participation of New York State business enterprises, including minority and women-owned business enterprises as bidders, subcontractors and suppliers on its procurement contracts.

Information on the availability of New York State subcontractors and suppliers is available from:

NYS Department of Economic Development
Division for Small Business
Albany, New York 12245
Telephone: 518-292-5100
Fax: 518-292-5884

Email: opa@esd.ny.gov

A directory of certified minority and women-owned business enterprises is available from:

NYS Department of Economic Development
Division of Minority and Women's Business Development
633 Third Avenue
New York, NY 10017
Telephone: 212-803-2414
Email: mwbecertification@esd.ny.gov
<http://esd.ny.gov/MWBE/directorySearch.html>

The Omnibus Procurement Act of 1992 requires that by signing this bid proposal or contract, as applicable, Contractors certify that whenever the total bid amount is greater than \$1 million:

- (a) The Contractor has made reasonable efforts to encourage the participation of New York State Business Enterprises as suppliers and subcontractors, including certified minority and women-owned business enterprises, on this project, and has retained the documentation of these efforts to be provided upon request to the State;
- (b) The Contractor has complied with the Federal Equal Opportunity Act of 1972 (P.L. 92-261), as amended;
- (c) The Contractor agrees to make reasonable efforts to provide notification to New York State residents of employment opportunities on this project through listing any such positions with the Job Service Division of the New York State Department of Labor, or providing such notification in such manner as is consistent with existing collective bargaining contracts or agreements. The Contractor agrees to document these efforts and to provide said documentation to the State upon request; and
- (d) The Contractor acknowledges notice that the State may seek to obtain offset credits from foreign countries as a result of this contract and agrees to cooperate with the State in these efforts.

21. RECIPROCITY AND SANCTIONS PROVISIONS. Bidders are hereby notified that if their principal place of business is located in a country, nation, province, state or political subdivision that penalizes New York State vendors, and if the goods or services they offer will be substantially produced or performed outside New York State, the Omnibus Procurement Act 1994 and 2000 amendments (Chapter 684 and Chapter 383, respectively) require that they be denied contracts which they would otherwise obtain. NOTE: As of May 15, 2002, the list of discriminatory jurisdictions subject to this provision includes the states of South Carolina, Alaska, West Virginia, Wyoming, Louisiana and Hawaii. Contact NYS Department of Economic Development for a current list of jurisdictions subject to this provision.

22. COMPLIANCE WITH NEW YORK STATE INFORMATION SECURITY BREACH AND NOTIFICATION ACT. Contractor shall comply with the provisions of the New York State Information Security Breach and Notification Act (General Business Law Section 899-aa; State Technology Law Section 208).

23. COMPLIANCE WITH CONSULTANT DISCLOSURE LAW. If this is a contract for consulting services, defined for purposes of this requirement to include analysis, evaluation, research, training, data processing, computer programming, engineering, environmental, health, and mental health services, accounting, auditing, paralegal, legal or similar services, then, in accordance with Section 163 (4-g) of the State Finance Law (as amended by Chapter 10 of the Laws of 2006), the Contractor shall timely, accurately and properly comply with the requirement to submit an annual employment report for the contract to the agency that awarded the contract, the Department of Civil Service and the State Comptroller.

24. PROCUREMENT LOBBYING To the extent this agreement is a "procurement contract" as defined by State Finance Law Sections 139-j and 139-k, by signing this agreement the contractor certifies and affirms that all disclosures made in accordance with State Finance Law Sections 139-j and 139-k are complete, true and accurate. In the event such certification is found to be intentionally false or intentionally incomplete, the State may terminate the agreement by providing written notification to the Contractor in accordance with the terms of the agreement

25. CERTIFICATION OF REGISTRATION TO COLLECT SALES AND COMPENSATING USE TAX BY CERTAIN STATE CONTRACTORS, AFFILIATES AND SUBCONTRACTORS.

To the extent this agreement is a contract as defined by Tax Law Section 5-a, if the contractor fails to make the certification required by Tax Law Section 5-a or if during the term of the contract, the Department of Taxation and Finance or the covered agency, as defined by Tax Law 5-a, discovers that the certification, made under penalty of perjury, is false, then such failure to file or false certification shall be a material breach of this contract and this contract may be terminated, by providing written notification to the Contractor in accordance with the terms of the agreement, if the covered agency determines that such action is in the best interest of the State.

Updated December 2012

APPENDIX A-1

SUPPLEMENTAL TITLE VI PROVISIONS (CIVIL RIGHTS ACT)

During the performance of this contract, the contractor, for itself, its assignees and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

- (1) **Compliance with Regulations:** The contractor shall comply with the Regulation relative to nondiscrimination in Federally-assisted programs of the Department of Transportation of the United States, Title 49, Code of Federal Regulations, Part 21, and the Federal Highway Administration (hereinafter "FHWA") Title 23, Code of Federal Regulations, Part 200 as they may be amended from time to time, (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this contract.
- (2) **Nondiscrimination:** The Contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, or national origin, sex, age, and disability/handicap in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor shall not participate either directly or indirectly in the discrimination prohibited by 49 CFR, section 21.5 of the Regulations, including employment practices when the contract covers a program set forth in Appendix B of the Regulations.
- (3) **Solicitations for Subcontractors, Including Procurements of Materials and Equipment:** In all solicitations either by competitive bidding or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the contractor of the contractor's obligations under this contract and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin, sex, age, and disability/handicap.
- (4) **Information and Reports:** The contractor shall provide all information and reports required by the Regulations or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by NYSDOT or the FHWA to be pertinent to ascertain compliance with such Regulations, orders and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information the contractor shall so certify to NYSDOT's Office of Civil Rights or FHWA, as appropriate, and shall set forth what efforts it has made to obtain the information.
- (5) **Sanctions for Noncompliance:** In the event of the contractor's noncompliance with the nondiscrimination provisions of this contract, NYSDOT shall impose such contract sanctions as it or the FHWA may determine to be appropriate, including, but not limited to:
 - (a.) withholding of payments to the contractor under the contract until the contractor complies, and/or
 - (b.) cancellation, termination or suspension of the contract, in whole or in part.
- (6) **Incorporation of Provisions:** The contractor shall include the provisions of paragraphs (1) through (6) in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto.

The contractor shall take such action with respect to any subcontractor procurement as NYSDOT or the FHWA may direct as a means of enforcing such provisions including sanctions for non-compliance: Provided, however, that, in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the contractor may request NYSDOT to enter into such litigation to protect the interests of NYSDOT, and, in addition, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

APPENDIX B

REQUIREMENTS FOR FEDERALLY-AIDED TRANSPORTATION PROJECTS

(March 2013)

There is a substantial body of requirements attached to the use of Federal highway or transportation aid. These requirements create or overlay processes, procedures, documentation requirements, authorizations, approvals and certifications that may be substantially greater or different from those that are not funded with Federal-aid and proceed under applicable State and local laws, customs and practices. Under Title 23 of the United States Code, the New York State Department of Transportation (NYSDOT) is responsible for the administration of transportation projects in New York State to which NYSDOT provides Federal highway or transportation-related aid. Through this Agreement, which provides or is associated with such funding, NYSDOT delegates various elements of project and funding administration as described elsewhere in this Agreement. In undertaking a Federally-aided project, the Municipality/Sponsor, Authority or Project Manager designated under this Agreement with Federal-aid funding or project administration agrees to proceed in compliance with all the applicable Federal-aid requirements.

NYSDOT, in cooperation with FHWA, has assembled the body of Federal-aid requirements, procedures and practices in its "Procedures for Locally Administered Federal-Aid Projects" (available through NYSDOT's web site at: www.dot.ny.gov/plafap). In addition, the Municipality/Sponsor, Authority or Project Manager designated under this Agreement for Federal-aid funding or project administration that enters into Federally aided project construction contracts is required to physically incorporate into all its Federally aided construction contracts and subcontracts there under the provisions that are contained in Form FHWA-1273 (available from NYSDOT or electronically at: www.fhwa.dot.gov/programadmin/contracts/1273.htm).

In addition to the referenced requirements, the attention of Municipality/Sponsor hereunder is directed to the following requirements and information:

NON DISCRIMINATION/EEO/DBE REQUIREMENTS

The Municipality/Sponsor and its contractors agree to comply with Executive Order 11246, entitled "Equal Employment Opportunity" and United States Department of Transportation (USDOT) regulations (49 CFR Parts 21, 23, 25, 26 and 27) and the following:

1. **NON DISCRIMINATION.** No person shall, on the ground of race, color, creed, national origin, sex, age or handicap, be excluded from participation in, or denied the benefits of, or be subject to, discrimination under the Project funded through this Agreement.
2. **EQUAL EMPLOYMENT OPPORTUNITY.** In connection with the execution of this Agreement, the Municipality/Sponsor's contractors or subcontractors shall not discriminate against any employee or applicant for employment because of race, religion, age, color, sex or national origin. Such contractors shall take affirmative actions to ensure that applicants are employed, and that employees are treated during their employment, without regard to their race, religion, color, sex, national origin or age. Such actions shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.
3. **DISADVANTAGED BUSINESS ENTERPRISES.** In connection with the performance of this Agreement, the Municipality/Sponsor shall cause its contractors to cooperate with the State in meeting its commitments and goals with regard to the utilization of Disadvantaged Business Enterprises (DBEs) and will use its best efforts to ensure that DBEs will have opportunity to compete for subcontract work under this Agreement. Also, in this connection the Municipality or Municipality/Sponsor shall cause its contractors to undertake such actions as may be necessary to comply with 49 CFR Part 26.

As a sub-recipient under 49 CFR Part 26.13, the Municipality/Sponsor hereby makes the following assurance.

The Municipality/Sponsor shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of any United States Department of Transportation (USDOT)-assisted contract or in the administration of its Disadvantaged Business Enterprise (DBE) program or the requirements of 49 CFR Part 26. The Municipality/Sponsor shall take all necessary and reasonable steps under 49 CFR Part 26 to ensure nondiscrimination in the award and administration of the United States Department of Transportation-assisted contracts. The New York State Department of Transportation's DBE program, as required by 49 CFR Part 26 and as approved by the United States Department of Transportation, is incorporated by reference in this agreement. Implementation of this program is a legal obligation and failure to carry out its terms shall be treated as a violation of this agreement. Upon notification to the recipient of its failure to carry out its approved program, the USDOT may impose sanctions as provided for under part 26 and may, in appropriate cases, refer the matter for enforcement under [18 U.S.C. 1001](#) and/or the Program Fraud Civil Remedies Act of 1986 ([31 U.S.C. 3801](#) et seq.).

FEDERAL SINGLE AUDIT REQUIREMENTS

Non-Federal entities that expend \$500,000 or more in a year in Federal awards from all sources are required to comply with the Federal Single Audit Act provisions contained in U.S. Office of Management and Budget (OMB) Circular No. A-133, "Audits of States, Local Governments, and Non-Profit Organizations". Non-Federal entities that expend Federal awards from a single source may provide a program specific audit, as defined in the Circular. Non-Federal entities that expend less than \$500,000 in a year in Federal awards from all sources are exempt from Federal audit requirements for that year, except as noted in Sec. 215 (a) of OMB Circular A-133 Subpart B--Audits, records must be available for review or audit by appropriate officials of the cognizant Federal agency¹ the New York State Department of Transportation, the New York State Comptroller's

¹ The designated cognizant agency for audit shall be the federal awarding agency that provides the predominant amount of direct funding to a recipient unless OMB changes it.

Office and the U.S. Governmental Accountability Office (GAO).

Non-Federal entities are required to submit a copy of all audits, as described above, within 30 days of issuance of audit report, but no later than 9 months after the end of the entity's fiscal year, to the New York State Department of Transportation, Contract Audit Bureau, 50 Wolf Road, Albany, NY 12232. Unless a time extension has been granted by the cognizant Federal Agency and has been filed with the New York State Department of Transportation's Contract Audit Bureau, failure to comply with the requirements of OMB Circular A-133 may result in suspension or termination of Federal award payments.

THE CATALOG OF FEDERAL DOMESTIC ASSISTANCE

The Catalog of Federal Domestic Assistance ([CFDA](#)²), is an on-line database of all Federally-aided programs available to State and local governments (including the District of Columbia); Federally recognized Indian tribal governments; Territories (and possessions) of the United States; domestic public, quasi-public, and private profit and nonprofit organizations and institutions; specialized groups; and individuals.

THE CFDA IDENTIFICATION NUMBER

OMB Circular A-133 requires all Federal-aid recipients to identify and account for awards and expenditures by CFDA Number. The Municipality/Sponsor is required to identify in its accounts all Federal awards received and expended, and the Federal programs under which they were received. Federal program and award identification shall include, as applicable, the CFDA title and number, award number and year, name of the Federal agency, and name of the pass-through entity.

The most commonly used CFDA number for the Federal Aid Highway Planning and Construction program is 20.205.

Additional CFDA numbers for other transportation and non-transportation related programs are:

20.215	Highway Training and Education
20.219	Recreational Trails Program
20.XXX	Highway Planning and Construction - Highways for LIFE;
20.XXX	Surface Transportation Research and Development;
20.500	Federal Transit-Capital Investment Grants
20.505	Federal Transit-Metropolitan Planning Grants
20.507	Federal Transit-Formula Grants
20.509	Formula Grants for Other Than Urbanized Areas
20.600	State and Community Highway Safety
23.003	Appalachian Development Highway System
23.008	Appalachian Local Access Roads

PROMPT PAYMENT MECHANISMS

In accordance with 49 CFR 26.29, and NY State Finance Law 139-f or NY General Municipal Law 106-b(2) as applicable:

(a) You must establish, as part of your DBE program, a contract clause to require prime contractors to pay subcontractors for satisfactory performance of their contracts no later than 7 calendar days from receipt of each payment you make to the prime contractor.

(b) You must ensure prompt and full payment of retainage from the prime contractor to the subcontractor within 7 calendar days after the subcontractor's work is satisfactorily completed. You must use one of the following methods to comply with this requirement:

(1) You may decline to hold retainage from prime contractors and prohibit prime contractors from holding retainage from subcontractors.

(2) You may decline to hold retainage from prime contractors and require a contract clause obligating prime contractors to make prompt and full payment of any retainage kept by prime contractor to the subcontractor within 7 calendar days after the subcontractor's work is satisfactorily completed.

(3) You may hold retainage from prime contractors and provide for prompt and regular incremental acceptances of portions of the prime contract, pay retainage to prime contractors based on these acceptances, and require a contract clause obligating the prime contractor to pay all retainage owed to the subcontractor for satisfactory completion of the accepted work within 7 calendar days after your payment to the prime contractor.

(c) For purposes of this section, a subcontractor's work is satisfactorily completed when all the tasks called for in the subcontract have been accomplished and documented as required by the recipient. When a recipient has made an incremental acceptance of a portion of a prime contract, the work of a subcontractor covered by that acceptance is deemed to be satisfactorily completed.

(d) Your DBE program must provide appropriate means to enforce the requirements of this section. These means may include appropriate penalties for failure to comply, the terms and conditions of which you set. Your program may also provide that any delay or postponement of payment among the parties may take place only for good cause, with your prior written approval.

(e) You may also establish, as part of your DBE program, any of the following additional mechanisms to ensure prompt payment:

(1) A contract clause that requires prime contractors to include in their subcontracts language providing that prime contractors and subcontractors will use appropriate alternative dispute resolution mechanisms to resolve payment disputes. You may specify the nature of such mechanisms.

(2) A contract clause providing that the prime contractor will not be reimbursed for work performed by subcontractors unless and until the prime contractor ensures that the subcontractors are promptly paid for the work they have performed.

(3) Other mechanisms, consistent with this part and applicable state and local law, to ensure that DBEs and other contractors are fully and promptly paid.

Updated March 2013

² www.cfda.gov/

APPENDIX B-1

REQUIREMENTS FOR FEDERALLY AIDED TRANSPORTATION PROJECTS

U.S. GOVERNMENT REQUIRED CLAUSES

APPENDIX B-1

U.S. Government Required Clauses

Fly America Requirements – Applicability – all contracts involving transportation of persons or property, by air between the U.S. and/or places outside the U.S. These requirements do not apply to micro-purchases (\$3,000 or less, except for construction contracts over \$2,000).

Contractor shall comply with 49 USC 40118 (the “Fly America” Act) in accordance with General Services Administration regulations 41 CFR 301-10, stating that recipients and subrecipients of Federal funds and their contractors are required to use US Flag air carriers for US Government-financed international air travel and transportation of their personal effects or property, to the extent such service is available, unless travel by foreign air carrier is a matter of necessity, as defined by the Fly America Act. Contractor shall submit, if a foreign air carrier was used, an appropriate certification or memorandum adequately explaining why service by a US flag air carrier was not available or why it was necessary to use a foreign air carrier and shall, in any event, provide a certificate of compliance with the Fly America requirements. Contractor shall include the requirements of this section in all subcontracts that may involve international air transportation.

Buy America Requirements – Applicability – Construction Contracts and Acquisition of Goods or Rolling Stock (valued at more than \$100,000)

Contractor shall comply with 49 USC 5323(j) and 49 CFR 661, stating that Federal funds may not be obligated unless steel, iron, and manufactured products used in FTA-funded projects are produced in the United States, unless a waiver has been granted by FTA or the product is subject to a general waiver. General waivers are listed in 49 CFR 661.7, and include software, microcomputer equipment and small purchases (currently less than \$100,000) made with capital, operating, or planning funds. Separate requirements for rolling stock are stated at 5323(j)(2)(C) and 49 CFR 661.11. Rolling stock must be manufactured in the US and have a minimum 60% domestic content. A bidder or offeror shall submit appropriate Buy America certification to the municipal corporation with all bids on FTA-funded contracts, except those subject to a general waiver. Proposals not accompanied by a completed Buy America certification shall be rejected as nonresponsive. This requirement does not apply to lower tier subcontractors.

Charter Bus Requirements – Applicability – Operational Service Contracts. These requirements do not apply to micro-purchases (\$3,000 or less, except for construction contracts over \$2,000).

Contractor shall comply with 49 USC 5323(d) and (g) and 49 CFR 604, which state that recipients and subrecipients of FTA assistance may provide charter service for transportation projects that uses equipment or facilities acquired with Federal assistance authorized under the Federal transit laws (except as permitted by 49 CFR 604.2), or under 23 U.S.C. 133 or 142, only in compliance with those laws and FTA regulations, “Charter Service,” 49 CFR part 604, the terms and conditions of which are incorporated herein by reference.

School Bus Requirements – Applicability – Operational Service Contracts. These requirements do not apply to micro-purchases (\$3,000 or less, except for construction contracts over \$2,000).

Pursuant to 69 USC 5323(f) and 49 CFR 605, recipients and subrecipients of FTA assistance shall not engage in school bus operations exclusively for transportation of students and school personnel in competition with private school bus operators unless qualified under specified exemptions. When operating exclusive school bus service under an allowable exemption, recipients and subrecipients shall not use federally funded equipment, vehicles, or facilities.

Cargo Preference - Use of US-Flag Vessels – Applicability – Contracts involving equipment, materials or commodities which may be transported by ocean vessels. These requirements do not apply to micro-purchases (\$3,000 or less, except for construction contracts over \$2,000).

Contractor shall: a. use privately owned US-Flag commercial vessels to ship at least 50% of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to the underlying contract to the extent such vessels are available at fair and reasonable rates for US flag commercial vessels; b. furnish within 20 working days following the loading date of shipments originating within the US or within 30 working days following the loading date of shipments originating outside the US, a legible copy of a rated, "on-board" commercial bill-of-lading in English for each shipment of cargo described herein to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590 and to the municipal corporation (through contractor in the case of a subcontractor's bill-of-lading.) c. include these requirements in all subcontracts issued pursuant to this contract when the subcontract involves the transport of equipment,

material, or commodities by ocean vessel.

Seismic Safety – Applicability – Construction of new buildings or additions to existing buildings. These requirements do not apply to micro-purchases (\$3,000 or less, except for construction contracts over \$2,000).

Contractor agrees that any new building or addition to an existing building shall be designed and constructed in accordance with the standards required in USDOT Seismic Safety Regulations 49 CFR 41 and shall certify compliance to the extent required by the regulation. Contractor shall also ensure that all work performed under this contract, including work performed by subcontractors, complies with the standards required by 49 CFR 41 and the certification of compliance issued on the project.

Energy Conservation – Applicability – All Contracts except micro-purchases (\$3,000 or less, except for construction contracts over \$2,000)

Contractor shall comply with mandatory standards and policies relating to energy efficiency, stated in the state energy conservation plan issued in compliance with the Energy Policy & Conservation Act.

Clean Water – Applicability – All Contracts and Subcontracts over \$100,000

Contractor shall comply with all applicable standards, orders or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 USC 1251 *et seq.* Contractor shall report each violation to the municipal corporation and understands and agrees that the municipal corporation shall, in turn, report each violation as required to FTA and the appropriate EPA Regional Office. Contractor shall include these requirements in each subcontract exceeding \$100,000 financed in whole or in part with FTA assistance.

Bus Testing – Applicability – Rolling Stock/Turnkey

Contractor [manufacturer] shall comply with 49 USC A5323(c) and FTA's implementing regulation 49 CFR 665 and shall perform the following: 1) A manufacturer of a new bus model or a bus produced with a major change in components or configuration shall provide a copy of the final test report to the municipal corporation prior to the municipal corporation's final acceptance of the first vehicle. 2) A manufacturer who releases a report under para. 1 above shall provide notice to the operator of the testing facility that the report is available to the public. 3) If the manufacturer represents that the vehicle was previously tested, the vehicle being sold should have the identical configuration and major components as the vehicle in the test report, which must be provided to the municipal corporation prior to the municipal corporation's final acceptance of the first vehicle. If configuration or components are not identical, the manufacturer shall provide a description of the change and the manufacturer's basis for concluding that it is not a major change requiring additional testing. 4) If the manufacturer represents that the vehicle is "grandfathered" (has been used in mass transit service in the US before Oct. 1, 1988, and is currently being produced without a major change in configuration or components), the manufacturer shall provide the name and address of the recipient of such a vehicle and the details of that vehicle's configuration and major components.

Pre-Award & Post-Delivery Audit Requirements - Applicability – Rolling Stock/Turnkey

Contractor shall comply with 49 USC 5323(l) and FTA's implementing regulation 49 CFR 663 and submit the following certifications: (1) Buy America Requirements: Contractor shall complete and submit a declaration certifying either compliance or noncompliance with Buy America. If contractor certifies compliance with Buy America, it shall submit documentation listing 1) component and subcomponent parts of the rolling stock to be purchased identified by manufacturer of the parts, their country of origin and costs; and 2) the location of the final assembly point for the rolling stock, including a description of the activities that will take place at the final assembly point and the cost of final assembly. (2) Solicitation Specification Requirements: Contractor shall submit evidence that it will be capable of meeting the bid specifications. (3) Federal Motor Vehicle Safety Standards (FMVSS): Contractor shall submit 1) manufacturer's FMVSS self-certification sticker information that the vehicle complies with relevant FMVSS or 2) manufacturer's certified statement that the buses will not be subject to FMVSS regulations.

Lobbying – Applicability - Construction/Architectural and Engineering/Acquisition of Rolling Stock/Professional Service Contract/Operational Service Contract/Turnkey contracts over \$100,000

Byrd Anti-Lobbying Amendment, 31 U.S.C. 1352, as amended by the Lobbying Disclosure Act of 1995, P.L. 104-65 [to be codified at 2 U.S.C. § 1601, *et seq.*] - Contractors who apply or bid for an award of \$100,000 or more shall file the certification required by 49 CFR part 20, "New Restrictions on Lobbying." Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier shall also disclose the name of any registrant under the Lobbying Disclosure Act of 1995 who has made lobbying contacts on its behalf with non-Federal funds with respect to that Federal contract, grant or award covered by 31 U.S.C. 1352. Such disclosures are forwarded from tier to tier up to the recipient.

Access to Records and Reports– Applicability – As shown below. These requirements do not apply to micro-purchases (\$3,000 or less, except for construction contracts over \$2,000)

The following access to records requirements apply to this Contract:

1. Where the purchaser is not a State but a local government and is an FTA recipient or a subgrantee of FTA recipient in accordance with 49 CFR 18.36(i), contractor shall provide the purchaser, the FTA, the US Comptroller General or their authorized representatives access to any books, documents, papers and contractor records which are pertinent to this contract for the purposes of making audits,

examinations, excerpts and transcriptions. Contractor shall also, pursuant to 49 CFR 633.17, provide authorized FTA representatives, including any PMO contractor, access to contractor's records and construction sites pertaining to a capital project, defined at 49 USC 5302(a)1, which is receiving FTA assistance through the programs described at 49 USC 5307, 5309 or 5311.

2. Where the purchaser is a State and is an FTA recipient or a subgrantee of FTA recipient in accordance with 49 CFR 633.17, contractor shall provide the purchaser, authorized FTA representatives, including any PMO Contractor, access to contractor's records and construction sites pertaining to a capital project, defined at 49 USC 5302(a)1, which receives FTA assistance through the programs described at 49 USC 5307, 5309 or 5311. By definition, a capital project excludes contracts of less than the simplified acquisition threshold currently set at \$100,000.

3. Where the purchaser enters into a negotiated contract for other than a small purchase or under the simplified acquisition threshold and is an institution of higher education, a hospital or other non-profit organization and is an FTA recipient or a subgrantee of FTA recipient in accordance with 49 CFR 19.48, contractor shall provide the purchaser, the FTA, the US Comptroller General or their authorized representatives, access to any books, documents, papers and record of the contractor which are directly pertinent to this contract for the purposes of making audits, examinations, excerpts and transcriptions.

4. Where a purchaser which is an FTA recipient or a subgrantee of FTA recipient in accordance with 49 USC 5325(a) enters into a contract for a capital project or improvement (defined at 49 USC 5302(a)1) through other than competitive bidding, contractor shall make available records related to the contract to the purchaser, the Secretary of USDOT and the US Comptroller General or any authorized officer or employee of any of them for the purposes of conducting an audit and inspection.

5. Contractor shall permit any of the foregoing parties to reproduce by any means whatsoever or to copy excerpts and transcriptions as reasonably needed.

6. Contractor shall maintain all books, records, accounts and reports required under this contract for a period of not less than three (3) years after the date of termination or expiration of this contract, except in the event of litigation or settlement of claims arising from the performance of this contract, in which case contractor agrees to maintain same until the municipal corporation, FTA Administrator, US Comptroller General, or any of their authorized representatives, have disposed of all such litigation, appeals, claims or exceptions related thereto. Re: 49 CFR 18.39(i)(11).

FTA does not require the inclusion of these requirements in subcontracts.

Federal Changes – Applicability – All Contracts except micro-purchases (\$3,000 or less, except for construction contracts over \$2,000)

Contractor shall comply with all applicable FTA regulations, policies, procedures and directives, including without limitation those listed directly or by reference in the Master Agreement between the municipal corporation and FTA, as they may be amended or promulgated from time to time during the term of the contract. Contractor's failure to comply shall constitute a material breach of the contract.

Bonding Requirements – Applicability – For those construction or facility improvement contracts or subcontracts exceeding \$100,000, FTA may accept the bonding policy and requirements of the recipient, provided that they meet the minimum requirements for construction contracts as follows:

a. A bid guarantee from each bidder equivalent to five (5) percent of the bid price. The "bid guarantees" shall consist of a firm commitment such as a bid bond, certified check, or other negotiable instrument accompanying a bid as assurance that the bidder will, upon acceptance of his bid, execute such contractual documents as may be required within the time specified.

b. A performance bond on the part to the Contractor for 100 percent of the contract price. A "performance bond" is one executed in connection with a contract to secure fulfillment of all the contractor's obligations under such contract.

c. A payment bond on the part of the contractor for 100 percent of the contract price. A "payment bond" is one executed in connection with a contract to assure payment, as required by law, of all persons supplying labor and material in the execution of the work provided for in the contract. Payment bond amounts required from Contractors are as follows:

(1) 50% of the contract price if the contract price is not more than \$1 million;

(2) 40% of the contract price if the contract price is more than \$1 million but not more than \$5 million; or

(3) \$2.5 million if the contract price is more than \$5 million.

d. A cash deposit, certified check or other negotiable instrument may be accepted by a grantee in lieu of performance and payment bonds, provided the grantee has established a procedure to assure that the interest of FTA is adequately protected. An irrevocable letter of credit would also satisfy the requirement for a bond.

Bid Bond Requirements (Construction)

(a) Bid Security - A Bid Bond must be issued by a fully qualified surety company acceptable to (Recipient) and listed as a company currently authorized under 31 CFR, Part 223 as possessing a Certificate of Authority as described thereunder.

(b) Rights Reserved - In submitting this Bid, it is understood and agreed by bidder that the right is reserved by (Recipient) to reject any and all bids, or part of any bid, and it is agreed that the Bid may not be withdrawn for a period of [ninety (90)] days subsequent to the opening of bids, without the written consent of (Recipient).

It is also understood and agreed that if the undersigned bidder should withdraw any part or all of his bid within [ninety (90)] days after the bid opening without the written consent of (Recipient), shall refuse or be unable to enter into this Contract, as provided above, or refuse or be unable to furnish adequate and acceptable Performance Bonds and Labor and Material Payments Bonds, as provided above, or refuse or be unable to furnish adequate and acceptable insurance, as provided above, he shall forfeit his bid security to the extent of (Recipient's) damages occasioned by such withdrawal, or refusal, or inability to enter into an agreement, or provide adequate security therefore.

It is further understood and agreed that to the extent the defaulting bidder's Bid Bond, Certified Check, Cashier's Check, Treasurer's Check, and/or Official Bank Check (excluding any income generated thereby which has been retained by (Recipient) as provided in [Item x "Bid Security" of the Instructions to Bidders]) shall prove inadequate to fully recompense (Recipient) for the damages occasioned by default, then the undersigned bidder agrees to indemnify (Recipient) and pay over to (Recipient) the difference between the bid security and (Recipient's) total damages, so as to make (Recipient) whole.

The undersigned understands that any material alteration of any of the above or any of the material contained on this form, other than that requested, will render the bid unresponsive.

Performance and Payment Bonding Requirements (Construction)

The Contractor shall be required to obtain performance and payment bonds as follows:

(a) Performance bonds

1. The penal amount of performance bonds shall be 100 percent of the original contract price, unless the (Recipient) determines that a lesser amount would be adequate for the protection of the (Recipient).
2. The (Recipient) may require additional performance bond protection when a contract price is increased. The increase in protection shall generally equal 100 percent of the increase in contract price. The (Recipient) may secure additional protection by directing the Contractor to increase the penal amount of the existing bond or to obtain an additional bond.

(b) Payment bonds

1. The penal amount of the payment bonds shall equal:
 - (i) Fifty percent of the contract price if the contract price is not more than \$1 million.
 - (ii) Forty percent of the contract price if the contract price is more than \$1 million but not more than \$5 million; or
 - (iii) Two and one half million if the contract price is more than \$5 million.
2. If the original contract price is \$5 million or less, the (Recipient) may require additional protection as required by subparagraph 1 if the contract price is increased.

Performance and Payment Bonding Requirements (Non-Construction)

The Contractor may be required to obtain performance and payment bonds when necessary to protect the (Recipient's) interest.

(a) The following situations may warrant a performance bond:

1. (Recipient) property or funds are to be provided to the contractor for use in performing the contract or as partial compensation (as in retention of salvaged material).
2. A contractor sells assets to or merges with another concern, and the (Recipient), after recognizing the latter concern as the successor in interest, desires assurance that it is financially capable.
3. Substantial progress payments are made before delivery of end items starts.
4. Contracts are for dismantling, demolition, or removal of improvements.

(b) When it is determined that a performance bond is required, the Contractor shall be required to obtain performance bonds as follows:

1. The penal amount of performance bonds shall be 100 percent of the original contract price, unless the (Recipient) determines that a lesser amount would be adequate for the protection of the (Recipient).
2. The (Recipient) may require additional performance bond protection when a contract price is increased. The increase in protection shall generally equal 100 percent of the increase in contract price. The (Recipient) may secure additional protection by directing the Contractor to increase the penal amount of the existing bond or to obtain an additional bond.

(c) A payment bond is required only when a performance bond is required, and if the use of payment bond is in the (Recipient's) interest.

(d) When it is determined that a payment bond is required, the Contractor shall be required to obtain payment bonds as follows:

1. The penal amount of payment bonds shall equal:
 - (i) Fifty percent of the contract price if the contract price is not more than \$1 million;
 - (ii) Forty percent of the contract price if the contract price is more than \$1 million but not more than \$5 million; or
 - (iii) Two and one half million if the contract price is increased.

Advance Payment Bonding Requirements

The Contractor may be required to obtain an advance payment bond if the contract contains an advance payment provision and a performance bond is not furnished. The (recipient) shall determine the amount of the advance payment bond necessary to protect the (Recipient).

Patent Infringement Bonding Requirements (Patent Indemnity)

The Contractor may be required to obtain a patent indemnity bond if a performance bond is not furnished and the financial responsibility of the Contractor is unknown or doubtful. The (recipient) shall determine the amount of the patent indemnity to protect the (Recipient).

Warranty of the Work and Maintenance Bonds

1. The Contractor warrants to (Recipient), the Architect and/or Engineer that all materials and equipment furnished under this Contract will be of highest quality and new unless otherwise specified by (Recipient), free from faults and defects and in conformance with the Contract Documents. All work not so conforming to these standards shall be considered defective. If required by the [Project Manager], the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.
2. The Work furnished must be of first quality and the workmanship must be the best obtainable in the various trades. The Work must be of safe, substantial and durable construction in all respects. The Contractor hereby guarantees the Work against defective materials or faulty workmanship for a minimum period of one (1) year after Final Payment by (Recipient) and shall replace or repair any defective materials or equipment or faulty workmanship during the period of the guarantee at no cost to (Recipient). As additional

security for these guarantees, the Contractor shall, prior to the release of Final Payment [as provided in Item X below], furnish separate Maintenance (or Guarantee) Bonds in form acceptable to (Recipient) written by the same corporate surety that provides the Performance Bond and Labor and Material Payment Bond for this Contract. These bonds shall secure the Contractor's obligation to replace or repair defective materials and faulty workmanship for a minimum period of one (1) year after Final Payment and shall be written in an amount equal to ONE HUNDRED PERCENT (100%) of the CONTRACT SUM, as adjusted (if at all).

Clean Air – Applicability – All contracts over \$100,000

(1) Contractor shall comply with all applicable standards, orders or regulations pursuant to the Clean Air Act, 42 USC 7401 *et seq.* Contractor shall report each violation to the municipal corporation and understands and agrees that the municipal corporation will, in turn, report each violation as required to FTA and the appropriate EPA Regional Office. (2) Contractor shall include these requirements in each subcontract exceeding \$100,000 financed in whole or in part with FTA assistance.

Recycled Products – Applicability – All contracts for items designated by the EPA, when the purchaser or contractor procures \$10,000 or more of one of these items during the current or previous fiscal year using Federal funds.

The contractor agrees to comply with all the requirements of Section 6002 of the Resource Conservation and Recovery Act (RCRA), as amended (42 U.S.C. 6962), including but not limited to the regulatory provisions of 40 CFR Part 247, and Executive Order 12873, as they apply to the procurement of the items designated in Subpart B of 40 CFR Part 247.

Davis-Bacon and Copeland Anti-Kickback Acts – Applicability – Construction contracts and subcontracts, including actual construction, alteration and/or repair, including decorating and painting, over \$2,000

(1) Minimum wages - (i) All laborers and mechanics employed or working upon the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classifications and wage rates conformed under paragraph (1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers. (ii)(A) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) Except with respect to helpers as defined as 29 CFR 5.2(n)(4), the work to be performed by the classification requested is not performed by a classification in the wage determination; and (2) The classification is utilized in the area by the construction industry; and (3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination; and (4) With respect to helpers as defined in 29 CFR 5.2(n)(4), such a classification prevails in the area in which the work is performed. (B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary. (C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary. (D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(ii) (B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof. (iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the

amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program. (v)(A) The contracting officer shall require that any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met: (1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and (2) The classification is utilized in the area by the construction industry; and (3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary. (C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination with 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary. (D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(v) (B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(2) Withholding - The municipal corporation shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), all or part of the wages required by the contract, the grantee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(3) Payrolls and basic records - (i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the municipal corporation for transmission to the Federal Transit Administration. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under section 5.5(a)(3)(i) of Regulations, 29 CFR part 5. This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), U.S. Government Printing Office, Washington, DC 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. (B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following: (1) That the payroll for the payroll period contains the information required to be maintained under section 5.5(a)(3)(i) of Regulations, 29 CFR part 5 and that such information is correct and complete; (2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3; (3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract. (C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (a)(3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code. (iii) The contractor or subcontractor shall make the records required under paragraph (a)(3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the Federal Transit Administration or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(4) Apprentices and trainees - (i) Apprentices - Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator of the Wage and Hour Division of the U.S. Department of Labor determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved. (ii) Trainees - Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity - The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

(5) Compliance with Copeland Act requirements - The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

(6) Subcontracts - The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the Federal Transit Administration may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

(7) Contract termination: debarment - A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

(8) Compliance with Davis-Bacon and Related Act requirements - All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

(9) Disputes concerning labor standards - Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

(10) Certification of Eligibility - (i) By entering into this contract, contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1). (ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1). (iii) The penalty for making false statements is prescribed in 18 USC 1001.

Contract Work Hours & Safety Standards Act – Applicability – Contracts over \$100,000

(1) Overtime requirements - No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of 40 hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of 40 hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages - In the event of any violation of the clause set forth in para. (1) of this section, contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in para. (1) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by the clause set forth in para. (1) of this section.

(3) Withholding for unpaid wages and liquidated damages - the municipal corporation shall upon its own action or upon written request of USDOL withhold or cause to be withheld, from any moneys payable on account of work performed by contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours & Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in para. (2) of this section.

(4) Subcontracts - Contractor or subcontractor shall insert in any subcontracts the clauses set forth in this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. Prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in this section.

No Government Obligation to Third Parties - Applicability – All contracts except micro-purchases (\$3,000 or less, except for construction contracts over \$2,000)

(1) The municipal corporation and contractor acknowledge and agree that, notwithstanding any concurrence by the US Government in or approval of the solicitation or award of the underlying contract, absent the express written consent by the US Government, the US Government is not a party to this contract and shall not be subject to any obligations or liabilities to the municipal corporation, the contractor, or any other party (whether or not a party to that contract) pertaining to any matter resulting from the underlying contract.

(2) Contractor agrees to include the above clause in each subcontract financed in whole or in part with FTA assistance. It is further agreed that the clause shall not be modified, except to identify the subcontractor who will be subject to its provisions.

Program Fraud and False or Fraudulent Statements or Related Acts – Applicability – All contracts except micro-purchases (\$3,000 or less, except for construction contracts over \$2,000)

(1) Contractor acknowledges that the provisions of the Program Fraud Civil Remedies Act of 1986, as amended, 31 USC 3801 *et seq.* and USDOT regulations, "Program Fraud Civil Remedies," 49 CFR 31, apply to its actions pertaining to this project. Upon execution of the underlying contract, contractor certifies or affirms the truthfulness and accuracy of any statement it has made, it makes, it may make, or causes to be made, pertaining to the underlying contract or FTA assisted project for which this contract work is being performed. In addition to other penalties that may be applicable, contractor further acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submittal, or certification, the US Government reserves the right to impose the penalties of the Program Fraud Civil Remedies Act (1986) on contractor to the extent the US Government deems appropriate.

(2) If contractor makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submittal, or certification to the US Government under a contract connected with a project that is financed in whole or in part with FTA assistance under the authority of 49 USC 5307, the Government reserves the right to impose the penalties of 18 USC 1001 and 49 USC 5307(n)(1) on contractor, to the extent the US Government deems appropriate.

(3) Contractor shall include the above two clauses in each subcontract financed in whole or in part with FTA assistance. The clauses shall not be modified, except to identify the subcontractor who will be subject to the provisions.

Termination – Applicability – All Contracts over \$10,000, except contracts with nonprofit organizations and institutions of higher learning, where the threshold is \$100,000

a. Termination for Convenience (General Provision) the municipal corporation may terminate this contract, in whole or in part, at any time by written notice to contractor when it is in the municipal corporation's best interest. Contractor shall be paid its costs, including contract close-out costs, and profit on work performed up to the time of termination. Contractor shall promptly submit its termination claim to the municipal corporation. If contractor is in possession of any the municipal corporation property, contractor shall account for same, and dispose of it as the municipal corporation directs.

b. Termination for Default [Breach or Cause] (General Provision) If contractor does not deliver items in accordance with the contract delivery schedule, or, if the contract is for services, and contractor fails to perform in the manner called for in the contract, or if contractor fails to comply with any other provisions of the contract, the municipal corporation may terminate this contract for default.

Termination shall be effected by serving a notice of termination to contractor setting forth the manner in which contractor is in default. Contractor shall only be paid the contract price for supplies delivered and accepted, or for services performed in accordance with the manner of performance set forth in the contract.

If it is later determined by the municipal corporation that contractor had an excusable reason for not performing, such as a strike, fire, or flood, events which are not the fault of or are beyond the control of contractor, the municipal corporation, after setting up a new delivery or performance schedule, may allow contractor to continue work, or treat the termination as a termination for convenience.

c. Opportunity to Cure (General Provision) the municipal corporation in its sole discretion may, in the case of a termination for breach or default, allow contractor an appropriately short period of time in which to cure the defect. In such case, the notice of termination shall state the time period in which cure is permitted and other appropriate conditions

If contractor fails to remedy to the municipal corporation's satisfaction the breach or default or any of the terms, covenants, or conditions of this Contract within ten (10) days after receipt by contractor or written notice from the municipal corporation setting forth the nature of said breach or default, the municipal corporation shall have the right to terminate the Contract without any further obligation to contractor. Any such termination for default shall not in any way operate to preclude the municipal corporation from also pursuing all available remedies against contractor and its sureties for said breach or default.

d. Waiver of Remedies for any Breach In the event that the municipal corporation elects to waive its remedies for any breach by contractor of any covenant, term or condition of this Contract, such waiver by the municipal corporation shall not limit its remedies for any succeeding breach of that or of any other term, covenant, or condition of this Contract.

e. Termination for Convenience (Professional or Transit Service Contracts) the municipal corporation, by written notice, may terminate this contract, in whole or in part, when it is in the municipal corporation's interest. If the contract is terminated, the municipal corporation shall be liable only for payment under the payment provisions of this contract for services rendered before the effective date of termination.

f. Termination for Default (Supplies and Service) If contractor fails to deliver supplies or to perform the services within the time specified in this contract or any extension or if the contractor fails to comply with any other provisions of this contract, the municipal corporation may terminate this contract for default. the municipal corporation shall terminate by delivering to contractor a notice of termination specifying the nature of default. Contractor shall only be paid the contract price for supplies delivered and accepted, or services performed in accordance with the manner or performance set forth in this contract.

If, after termination for failure to fulfill contract obligations, it is determined that contractor was not in default, the rights and obligations of the parties shall be the same as if termination had been issued for the municipal corporation's convenience.

g. Termination for Default (Transportation Services) If contractor fails to pick up the commodities or to perform the services, including delivery services, within the time specified in this contract or any extension or if contractor fails to comply with any other provisions of this contract, the municipal corporation may terminate this contract for default. the municipal corporation shall terminate by delivering to contractor a notice of termination specifying the nature of default. Contractor shall only be paid the contract price for services performed in accordance with the manner of performance set forth in this contract.

If this contract is terminated while contractor has possession of the municipal corporation goods, contractor shall, as directed by the municipal corporation, protect and preserve the goods until surrendered to the municipal corporation or its agent. Contractor and the municipal corporation shall agree on payment for the preservation and protection of goods. Failure to agree on an amount shall be resolved under the Dispute clause. If, after termination for failure to fulfill contract obligations, it is determined that contractor was not in default, the rights and obligations of the parties shall be the same as if termination had been issued for the municipal corporation's convenience.

h. Termination for Default (Construction) If contractor refuses or fails to prosecute the work or any separable part, with the diligence that will insure its completion within the time specified, or any extension, or fails to complete the work within this time, or if contractor fails to comply with any other provisions of this contract, the municipal corporation may terminate this contract for default. the municipal corporation shall terminate by delivering to contractor a notice of termination specifying the nature of default. In this event, the municipal corporation may take over the work and complete it by contract or otherwise, and may take possession of and use any materials, appliances, and plant on the work site necessary for completing the work. Contractor and its sureties shall be liable for any damage to the municipal corporation resulting from contractor's refusal or failure to complete the work within specified time, whether or not contractor's right to proceed with the work is terminated. This liability includes any increased costs incurred by the municipal corporation in completing the work.

Contractor's right to proceed shall not be terminated nor shall contractor be charged with damages under this clause if:

1. Delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of contractor. Examples of such causes include: acts of God, acts of the municipal corporation, acts of another contractor in the performance of a contract with the recipient, epidemics, quarantine restrictions, strikes, freight embargoes; and

2. Contractor, within 10 days from the beginning of any delay, notifies the municipal corporation in writing of the causes of delay. If in the municipal corporation's judgment, delay is excusable, the time for completing the work shall be extended. the municipal corporation's judgment shall be final and conclusive on the parties, but subject to appeal under the Disputes clauses.

If, after termination of contractor's right to proceed, it is determined that contractor was not in default, or that the delay was excusable, the rights and obligations of the parties will be the same as if termination had been issued for the municipal corporation's convenience.

i. Termination for Convenience or Default (Architect & Engineering) the municipal corporation may terminate this contract in whole or in part, for the municipal corporation's convenience or because of contractor's failure to fulfill contract obligations. the municipal corporation shall terminate by delivering to contractor a notice of termination specifying the nature, extent, and effective date of termination. Upon receipt of the notice, contractor shall (1) immediately discontinue all services affected (unless the notice directs otherwise), and (2) deliver to the municipal corporation all data, drawings, specifications, reports, estimates, summaries, and other

information and materials accumulated in performing this contract, whether completed or in process. If termination is for the municipal corporation's convenience, it shall make an equitable adjustment in the contract price but shall allow no anticipated profit on unperformed services. If termination is for contractor's failure to fulfill contract obligations, the municipal corporation may complete the work by contract or otherwise and contractor shall be liable for any additional cost incurred by the municipal corporation. If, after termination for failure to fulfill contract obligations, it is determined that contractor was not in default, the rights and obligations of the parties shall be the same as if termination had been issued for the municipal corporation's convenience.

j. Termination for Convenience or Default (Cost-Type Contracts) the municipal corporation may terminate this contract, or any portion of it, by serving a notice of termination on contractor. The notice shall state whether termination is for convenience of the municipal corporation or for default of contractor. If termination is for default, the notice shall state the manner in which contractor has failed to perform the requirements of the contract. Contractor shall account for any property in its possession paid for from funds received from the municipal corporation, or property supplied to contractor by the municipal corporation. If termination is for default, the municipal corporation may fix the fee, if the contract provides for a fee, to be paid to contractor in proportion to the value, if any, of work performed up to the time of termination. Contractor shall promptly submit its termination claim to the municipal corporation and the parties shall negotiate the termination settlement to be paid to contractor. If termination is for the municipal corporation's convenience, contractor shall be paid its contract close-out costs, and a fee, if the contract provided for payment of a fee, in proportion to the work performed up to the time of termination.

If, after serving a notice of termination for default, the municipal corporation determines that contractor has an excusable reason for not performing, such as strike, fire, flood, events which are not the fault of and are beyond the control of contractor, the municipal corporation, after setting up a new work schedule, may allow contractor to continue work, or treat the termination as a termination for convenience.

Government-wide Debarment and Suspension (Nonprocurement) – Applicability – Contracts over \$25,000

This contract is a covered transaction for purposes of 49 CFR Part 29. As such, the contractor is required to verify that none of the contractors, its principals, as defined at 49 CFR 29.995, or affiliates, as defined at 49 CFR 29.905, are excluded or disqualified as defined at 49 CFR 29.940 and 29.945.

The contractor is required to comply with 49 CFR 29, Subpart C and must include the requirement to comply with 49 CFR 29, Subpart C in any lower tier covered transaction it enters into.

By signing and submitting its bid or proposal, the bidder or proposer certifies as follows:

The certification in this clause is a material representation of fact relied upon by the municipal corporation. If it is later determined that the bidder or proposer knowingly rendered an erroneous certification, in addition to remedies available to the municipal corporation, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment. The bidder or proposer agrees to comply with the requirements of 49 CFR 29, Subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.

Contracts Involving Federal Privacy Act Requirements – Applicability - When a grantee maintains files on drug and alcohol enforcement activities for FTA, and those files are organized so that information could be retrieved by personal identifier, the Privacy Act requirements apply to all contracts except micro-purchases (\$3,000 or less, except for construction contracts over \$2,000)

The following requirements apply to the Contractor and its employees that administer any system of records on behalf of the Federal Government under any contract:

(1) The Contractor agrees to comply with, and assures the compliance of its employees with, the information restrictions and other applicable requirements of the Privacy Act of 1974, 5 U.S.C. § 552a. Among other things, the Contractor agrees to obtain the express consent of the Federal Government before the Contractor or its employees operate a system of records on behalf of the Federal Government. The Contractor understands that the requirements of the Privacy Act, including the civil and criminal penalties for violation of that Act, apply to those individuals involved, and that failure to comply with the terms of the Privacy Act may result in termination of the underlying contract.

(2) The Contractor also agrees to include these requirements in each subcontract to administer any system of records on behalf of the Federal Government financed in whole or in part with Federal assistance provided by FTA.

Civil Rights Requirements– Applicability – All contracts except micro-purchases (\$3,000 or less, except for construction contracts over \$2,000)

The following requirements apply to the underlying contract:

(1) Nondiscrimination - In accordance with Title VI of the Civil Rights Act, as amended, 42 USC 2000d, Sec. 303 of the Age Discrimination Act (1975), as amended, 42 USC 6102, Sec. 202 of the Americans with Disabilities Act (1990), 42 USC 12132, and 49 USC 5332, contractor shall not discriminate against any employee or applicant for employment because of race, color, creed, national origin, sex, age, or disability. Contractor shall also comply with applicable Federal implementing regulations and other requirements FTA may issue.

(2) Equal Employment Opportunity - The following equal employment opportunity requirements apply to the underlying contract:

(a) Race, Color, Creed, National Origin, Sex - In accordance with Title VII of the Civil Rights Act, as amended, 42 USC 2000e, and 49 USC 5332, contractor shall comply with all applicable equal employment opportunity requirements of USDOL, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, USDOL," 41 CFR 60 *et seq.*, (implementing Executive Order No.

11246, "Equal Employment Opportunity," as amended by Executive Order No. 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," 42 USC 2000e), and any applicable Federal statutes, executive orders, regulations, and policies that may in the future affect construction activities undertaken in the course of the project. Contractor shall take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, creed, national origin, sex, or age. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. In addition, contractor shall comply with any implementing requirements FTA may issue.

(b) Age - In accordance with Sec. 4 of the Age Discrimination in Employment Act (1967), as amended, 29 USC 623 and 49 USC 5332, contractor shall refrain from discrimination against present and prospective employees for reason of age. Contractor shall also comply with any implementing requirements FTA may issue.

(c) Disabilities - In accordance with Sec. 102 of the Americans with Disabilities Act (ADA), as amended, 42 USC 12112, contractor shall comply with the requirements of US Equal Employment Opportunity Commission (EEOC), Regulations to Implement Equal Employment Provisions of the Americans with Disabilities Act, 29 CFR 1630, pertaining to employment of persons with disabilities. Contractor shall also comply with any implementing requirements FTA may issue.

(3) Contractor shall include these requirements in each subcontract financed in whole or in part with FTA assistance, modified only if necessary to identify the affected parties.

Breaches and Dispute Resolution – Applicability – All contracts over \$100,000

Disputes arising in the performance of this contract which are not resolved by agreement of the parties shall be decided in writing by the municipal corporation's authorized representative. This decision shall be final and conclusive unless within ten days from the date of receipt of its copy, contractor mails or otherwise furnishes a written appeal to the municipal corporation's CEO. In connection with such appeal, contractor shall be afforded an opportunity to be heard and to offer evidence in support of its position. The decision of the municipal corporation's CEO shall be binding upon contractor and contractor shall abide by the decision.

Performance During Dispute - Unless otherwise directed by the municipal corporation, contractor shall continue performance under this contract while matters in dispute are being resolved.

Claims for Damages - Should either party to the contract suffer injury or damage to person or property because of any act or omission of the party or of any of his employees, agents or others for whose acts he is legally liable, a claim for damages therefore shall be made in writing to such other party within ten days after the first observance of such injury or damage.

Remedies - Unless this contract provides otherwise, all claims, counterclaims, disputes and other matters in question between the municipal corporation and contractor arising out of or relating to this agreement or its breach will be decided by arbitration if the parties mutually agree, or in a court of competent jurisdiction within New York State.

Rights and Remedies - Duties and obligations imposed by the contract documents and the rights and remedies available thereunder shall be in addition to and not a limitation of any duties, obligations, rights and remedies otherwise imposed or available by law. No action or failure to act by the municipal corporation or contractor shall constitute a waiver of any right or duty afforded any of them under the contract, nor shall any such action or failure to act constitute an approval of or acquiescence in any breach thereunder, except as may be specifically agreed in writing.

Patent and Rights Data – Applicability – Research projects in which FTA finances the purpose of the grant is to finance the development of a product or information. These patent and data rights requirements do not apply to capital projects or operating projects, even though a small portion of the sales price may cover the cost of product development or writing the user's manual or to micro-purchases (\$3,000 or less, except for construction contracts over \$2,000)

Contracts Involving Experimental, Developmental, Or Research Work.

A. Rights in Data - This following requirements apply to each contract involving experimental, developmental or research work: (1) The term "subject data" used in this clause means recorded information, whether or not copyrighted, that is delivered or specified to be delivered under the contract. The term includes graphic or pictorial delineation in media such as drawings or photographs; text in specifications or related performance or design-type documents; machine forms such as punched cards, magnetic tape, or computer memory printouts; and information retained in computer memory. Examples include, but are not limited to: computer software, engineering drawings and associated lists, specifications, standards, process sheets, manuals, technical reports, catalog item identifications, and related information. The term "subject data" does not include financial reports, cost analyses, and similar information incidental to contract administration.

(2) The following restrictions apply to all subject data first produced in the performance of the contract to which this Attachment has been added: (a) Except for its own internal use, the Purchaser or Contractor may not publish or reproduce subject data in whole or in part, or in any manner or form, nor may the Purchaser or Contractor authorize others to do so, without the written consent of the Federal Government, until such time as the Federal Government may have either released or approved the release of such data to the public; this restriction on publication, however, does not apply to any contract with an academic institution. (b) In accordance with 49 C.F.R. § 18.34 and 49 C.F.R. § 19.36, the Federal Government reserves a royalty-free, non-exclusive and irrevocable license to reproduce, publish, or otherwise use, and to authorize others to use, for "Federal Government purposes," any subject data or copyright described in subsections (2)(b)1 and (2)(b)2 of this clause below. As used in the previous sentence, "for Federal Government purposes," means use only for the direct purposes of the Federal Government. Without the copyright owner's consent, the Federal Government may not extend its Federal license to any other party. 1. Any subject data developed under that contract, whether or not a copyright has been obtained; and 2. Any rights of copyright purchased by the Purchaser or Contractor using Federal assistance in whole or in part provided by FTA. (c) When FTA awards Federal assistance for experimental, developmental, or research work, it is

FTA's general intention to increase transportation knowledge available to the public, rather than to restrict the benefits resulting from the work to participants in that work. Therefore, unless FTA determines otherwise, the Purchaser and the Contractor performing experimental, developmental, or research work required by the underlying contract to which this Attachment is added agrees to permit FTA to make available to the public, either FTA's license in the copyright to any subject data developed in the course of that contract, or a copy of the subject data first produced under the contract for which a copyright has not been obtained. If the experimental, developmental, or research work, which is the subject of the underlying contract, is not completed for any reason whatsoever, all data developed under that contract shall become subject data as defined in subsection (a) of this clause and shall be delivered as the Federal Government may direct. This subsection (c), however, does not apply to adaptations of automatic data processing equipment or programs for the Purchaser or Contractor's use whose costs are financed in whole or in part with Federal assistance provided by FTA for transportation capital projects. (d) Unless prohibited by state law, upon request by the Federal Government, the Purchaser and the Contractor agree to indemnify, save, and hold harmless the Federal Government, its officers, agents, and employees acting within the scope of their official duties against any liability, including costs and expenses, resulting from any willful or intentional violation by the Purchaser or Contractor of proprietary rights, copyrights, or right of privacy, arising out of the publication, translation, reproduction, delivery, use, or disposition of any data furnished under that contract. Neither the Purchaser nor the Contractor shall be required to indemnify the Federal Government for any such liability arising out of the wrongful act of any employee, official, or agents of the Federal Government. (e) Nothing contained in this clause on rights in data shall imply a license to the Federal Government under any patent or be construed as affecting the scope of any license or other right otherwise granted to the Federal Government under any patent. (f) Data developed by the Purchaser or Contractor and financed entirely without using Federal assistance provided by the Federal Government that has been incorporated into work required by the underlying contract to which this Attachment has been added is exempt from the requirements of subsections (b), (c), and (d) of this clause, provided that the Purchaser or Contractor identifies that data in writing at the time of delivery of the contract work. (g) Unless FTA determines otherwise, the Contractor agrees to include these requirements in each subcontract for experimental, developmental, or research work financed in whole or in part with Federal assistance provided by FTA. (3) Unless the Federal Government later makes a contrary determination in writing, irrespective of the Contractor's status (*i.e.*, a large business, small business, state government or state instrumentality, local government, nonprofit organization, institution of higher education, individual, etc.), the Purchaser and the Contractor agree to take the necessary actions to provide, through FTA, those rights in that invention due the Federal Government as described in U.S. Department of Commerce regulations, "Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements," 37 C.F.R. Part 401. (4) The Contractor also agrees to include these requirements in each subcontract for experimental, developmental, or research work financed in whole or in part with Federal assistance provided by FTA.

B. Patent Rights - The following requirements apply to each contract involving experimental, developmental, or research work:

(1) General - If any invention, improvement, or discovery is conceived or first actually reduced to practice in the course of or under the contract to which this Attachment has been added, and that invention, improvement, or discovery is patentable under the laws of the United States of America or any foreign country, the Purchaser and Contractor agree to take actions necessary to provide immediate notice and a detailed report to the party at a higher tier until FTA is ultimately notified. (2) Unless the Federal Government later makes a contrary determination in writing, irrespective of the Contractor's status (a large business, small business, state government or state instrumentality, local government, nonprofit organization, institution of higher education, individual), the Purchaser and the Contractor agree to take the necessary actions to provide, through FTA, those rights in that invention due the Federal Government as described in U.S. Department of Commerce regulations, "Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements," 37 C.F.R. Part 401. (3) The Contractor also agrees to include the requirements of this clause in each subcontract for experimental, developmental, or research work financed in whole or in part with Federal assistance provided by FTA.

Transit Employee Protective Provisions – Applicability – Contracts for transit operations except micro-purchases (\$3,000 or less, except for construction contracts over \$2,000)

(1) Contractor shall comply with applicable transit employee protective requirements as follows:

(a) Transit Employee Protective Requirements for Projects Authorized by 49 USC 5311 in Nonurbanized Areas - If the contract involves transit operations financed in whole or in part with FTA assistance authorized by 49 USC 5311, the contractor shall comply with the terms and conditions of the Special Warranty for the Nonurbanized Area Program that is most current, and any alternative comparable arrangement specified by U.S. DOL for application to the project, in accordance with U.S. DOL guidelines, "Section 5333(b), Federal Transit Law," 29 C.F.R. Part 215, and any revision thereto. [New amendments to U.S. DOL guidelines, "Section 5333(b), Federal Transit Law," 29 C.F.R. Part 215, were published at 73 Fed. Reg. 47046 et. Seq., August 13, 2008.]

(2) Contractor shall also include any applicable requirements in each subcontract involving transit operations financed in whole or in part with FTA assistance.

Disadvantaged Business Enterprise (DBE) – Applicability – Contracts over \$3,000 awarded on the basis of a bid or proposal offering to use DBEs

a. This contract is subject to the requirements of Title 49, Code of Federal Regulations, Part 26, Participation by Disadvantaged Business Enterprises in Department of Transportation Financial Assistance Programs. The national goal for participation of Disadvantaged Business Enterprises (DBE) is 10%. The New York State goal is available by contacting the Department. The municipal corporation's overall goal for DBE participation is listed elsewhere. If a separate contract goal for DBE participation has been established for this procurement, it is listed elsewhere. b. The contractor shall not discriminate on the basis of race, color,

national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of this DOT-assisted contract. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the municipal corporation deems appropriate. Each subcontract the contractor signs with a subcontractor must include the assurance in this paragraph (*see* 49 CFR 26.13(b)). c. If a separate contract goal has been established, Bidders/offerors are required to document sufficient DBE participation to meet these goals or, alternatively, document adequate good faith efforts to do so, as provided for in 49 CFR 26.53. d. If no separate contract goal has been established, the successful bidder/offeror will be required to report its DBE participation obtained through race-neutral means throughout the period of performance. e. The contractor is required to pay its subcontractors performing work related to this contract for satisfactory performance of that work no later than 30 days after the contractor's receipt of payment for that work from the municipal corporation. In addition, the contractor may not hold retainage from its subcontractors or must return any retainage payments to those subcontractors within 30 days after the subcontractor's work related to this contract is satisfactorily completed or must return any retainage payments to those subcontractors within 30 days after incremental acceptance of the subcontractor's work by the municipal corporation and contractor's receipt of the partial retainage payment related to the subcontractor's work. e. The contractor must promptly notify the municipal corporation whenever a DBE subcontractor performing work related to this contract is terminated or fails to complete its work, and must make good faith efforts to engage another DBE subcontractor to perform at least the same amount of work. The contractor may not terminate any DBE subcontractor and perform that work through its own forces or those of an affiliate without prior written consent of the municipal corporation.

Incorporation of Federal Transit Administration (FTA) Terms – Applicability – All contracts except micro-purchases (\$3,000 or less, except for construction contracts over \$2,000)

The preceding provisions include, in part, certain Standard Terms & Conditions required by USDOT, whether or not expressly stated in the preceding contract provisions. All USDOT-required contractual provisions, as stated in FTA Circular 4220.1F, are hereby incorporated by reference. Anything to the contrary herein notwithstanding, all FTA mandated terms shall be deemed to control in the event of a conflict with other provisions contained in this Agreement. The contractor shall not perform any act, fail to perform any act, or refuse to comply with any request that would cause the municipal corporation to be in violation of FTA terms and conditions.

Drug & Alcohol Abuse and Testing – Applicability – Operational service contracts except micro-purchases (\$3,000 or less, except for construction contracts over \$2,000)

The Contractor agrees to comply with the following Federal substance abuse regulations: a. Drug-Free Workplace. U.S. DOT regulations, "Drug-Free Workplace Requirements (Grants)," 49 C.F.R. Part 32, that implements the Drug-Free Workplace Act of 1988, 41 U.S.C. §§ 701 et seq. b. Alcohol Misuse and Prohibited Drug Use. FTA Regulations, "Prevention of Alcohol Misuse and Prohibited Drug Use in Transit Operations," 49 CFR Part 655, to the extent applicable.

Other Federal Requirements

Full and Open Competition – In accordance with 49 U.S.C. § 5325(h) all procurement transactions shall be conducted in a manner that provides full and open competition.

Prohibition Against Exclusionary or Discriminatory Specifications – Apart from inconsistent requirements imposed by Federal statute or regulations, the contractor shall comply with the requirements of 49 USC 5323(h)(2) by refraining from using any FTA assistance to support procurements using exclusionary or discriminatory specifications.

Conformance with ITS National Architecture – Contractor shall conform, to the extent applicable, to the National Intelligent Transportation Standards architecture as required by SAFETEA-LU Section 5307(c), 23 U.S.C. Section 512 note and follow the provisions of FTA Notice, "FTA National Architecture Policy on Transit Projects," 66 Fed. Reg. 1455 et. seq., January 8, 2001, and any other implementing directives FTA may issue at a later date, except to the extent FTA determines otherwise in writing.

Access Requirements for Persons with Disabilities – Contractor shall comply with 49 USC 5301(d), stating Federal policy that the elderly and persons with disabilities have the same rights as other persons to use mass transportation services and facilities and that special efforts shall be made in planning and designing those services and facilities to implement that policy. Contractor shall also comply with all applicable requirements of Sec. 504 of the Rehabilitation Act (1973), as amended, 29 USC 794, which prohibits discrimination on the basis of handicaps, and the Americans with Disabilities Act of 1990 (ADA), as amended, 42 USC 12101 *et seq.*, which requires that accessible facilities and services be made available to persons with disabilities, including any subsequent amendments thereto.

Notification of Federal Participation – To the extent required by law, in the announcement of any third party contract award for goods and services (including construction services) having an aggregate value of \$500,000 or more, contractor shall specify the amount of Federal assistance to be used in financing that acquisition of goods and services and to express that amount of Federal assistance as a percentage of the total cost of the third party contract.

Interest of Members or Delegates to Congress - No members of, or delegates to, the US Congress shall be admitted to any share or part of this contract nor to any benefit arising therefrom.

Ineligible Contractors and Subcontractors - Any name appearing upon the Comptroller General's list of ineligible contractors for federally-assisted contracts shall be ineligible to act as a subcontractor for contractor pursuant to this contract. If contractor is on the Comptroller General's list of ineligible contractors for federally financed or assisted construction, the municipal corporation shall cancel, terminate or suspend this contract.

Other Contract Requirements - To the extent not inconsistent with the foregoing Federal requirements, this contract shall also include those standard clauses attached hereto, and shall comply with the municipal corporation's Procurement Guidelines, available upon request from the municipal corporation.

Compliance With Federal Regulations - Any contract entered pursuant to this solicitation shall contain the following provisions: All USDOT-required contractual provisions, as set forth in FTA Circular 4220.1F, are incorporated by reference. Anything to the contrary herein notwithstanding, FTA mandated terms shall control in the event of a conflict with other provisions contained in this Agreement. Contractor shall not perform any act, fail to perform any act, or refuse to comply with any grantee request that would cause the municipal corporation to be in violation of FTA terms and conditions. Contractor shall comply with all applicable FTA regulations, policies, procedures and directives, including, without limitation, those listed directly or incorporated by reference in the Master Agreement between the municipal corporation and FTA, as may be amended or promulgated from time to time during the term of this contract. Contractor's failure to so comply shall constitute a material breach of this contract.

Real Property - Any contract entered into shall contain the following provisions: Contractor shall at all times comply with all applicable statutes and USDOT regulations, policies, procedures and directives governing the acquisition, use and disposal of real property, including, but not limited to, 29 CFR 18.31, 49 CFR 24 Subpart B, FTA Circular 5010.1D, and FTA Master Agreement, as they may be amended or promulgated during the term of this contract. Contractor's failure to so comply shall constitute a material breach of this contract.

Access to Services for Persons with Limited English Proficiency. To the extent applicable and except to the extent that FTA determines otherwise in writing, the Recipient agrees to comply with the policies of Executive Order No. 13166, "Improving Access to Services for Persons with Limited English Proficiency," 42 U.S.C. § 2000d-1 note, and with the provisions of U.S. DOT Notice, "DOT Guidance to Recipients on Special Language Services to Limited English Proficient (LEP) Beneficiaries," 70 *Fed. Reg.* 74087, December 14, 2005.

Environmental Justice. The Recipient agrees to comply with the policies of Executive Order No. 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," 42 U.S.C. § 4321 note, except to the extent that the Federal Government determines otherwise in writing.

Environmental Protections – Compliance is required with any applicable Federal laws imposing environmental and resource conservation requirements for the project. Some, but not all, of the major Federal laws that may affect the project include: the National Environmental Policy Act of 1969; the Clean Air Act; the Resource Conservation and Recovery Act; the comprehensive Environmental response, Compensation and Liability Act; as well as environmental provisions with Title 23 U.S.C., and 49 U.C. chapter 53. The U.S. EPA, FHWA and other federal agencies may issue other federal regulations and directives that may affect the project. Compliance is required with any applicable Federal laws and regulations in effect now or that become effective in the future.

Geographic Information and Related Spatial Data – Any project activities involving spatial data or geographic information systems activities financed with Federal assistance are required to be consistent with the National Spatial Data Infrastructure promulgated by the Federal Geographic Data Committee, except to the extent that FTA determines otherwise in writing.

Federal Single Audit Requirements For State Administered Federally Aid Funded Projects Only

Non-Federal entities that expend \$500,000 or more in a year in Federal awards from all sources are required to comply with the Federal Single Audit Act provisions contained in U.S. Office of Management and Budget (OMB) Circular No. A-133, Audits of States, Local Governments, and Non-Profit Organizations. Non-Federal entities that expend Federal awards from a single source may provide a program specific audit, as defined in the Circular. Non-Federal entities that expend less than \$500,000 in a year in Federal awards from all sources are exempt from Federal audit requirements for that year, except as noted in '3052.215(a), but records must be available for review or audit by appropriate officials of the Federal agency, the New York State Department of Transportation, the New York State Comptroller's Office and the U.S. General Accounting Office (GAO). Non-Federal entities are required to submit a copy of all audits, as described above, within 30 days of issuance, to the New York State Department of Transportation, Contract Audit Bureau, 50 Wolf Rd, Albany, NY 12232.

Catalog of Federal Domestic Assistance (CFDA) Identification Number

The municipal project sponsor is required to identify in its accounts all Federal awards received and expended, and the Federal programs under which they were received. Federal program and award identification shall include, as applicable, the CFDA title and number, award number and year, name of the Federal agency, and name of the pass-through entity.

The CFDA number for the Federal Transit Statewide/Metropolitan Transportation Planning (Section 5304) is 20.505. A

Recipient covered by the Single Audit Act Amendments of 1996 and OMB Circular A-133, "Audits of States, Local Governments, and Non-Profit Organizations," agrees to separately identify the expenditures for Federal awards under the Recovery Act on the Schedule of Expenditures of Federal Awards (SEFA) and the Data Collection Form (SF-SAC) required by OMB Circular A-133. The Recipient agrees to accomplish this by identifying expenditures for Federal awards made under Recovery Act separately on the SEFA, and as separate rows under Item 9 of Part III on the SF-SAC by CFDA number, and inclusion of the prefix "ARRA" in identifying the name of the Federal program on the SEFA and as the first characters in Item 9d of Part III on the SF-SAC.

Updated September 2013

APPENDIX C

SPECIAL EQUAL EMPLOYMENT OPPORTUNITY PROVISIONS

Specific Equal Employment Opportunity Responsibilities

1. GENERAL (a) Equal employment opportunity requirements not to discriminate and to take affirmative action to assure equal employment opportunity, as required by Federal Executive Order 11246, Federal Executive Order 11375, and NYS Executive Order 45, are set forth in required Contract Provisions (Form PR-1273 or 1316, as appropriate) and those Special Provisions which are imposed pursuant to Section 140 of Title 23, U.S.C., as established by Section 22 of the Federal-Aid Highway Act of 1968. Non-discrimination and affirmative action are also required by the State Labor Law, Section 220-e, as amended, and the Regulations of the NYS Department of Transportation relative to federally-assisted programs (Title 49, Code of Federal Regulations, Part 21 and Section 21.5), including employment practices when the agreement covers a program set forth in Appendix B of the Regulations. The requirements set forth in these Special Provisions shall constitute the specific affirmative action requirements for projects activities under this contract.

(b) The CONSULTANT will work with the STATE and the Federal Government in carrying out equal employment opportunity obligations and in their review of their activities under this contract.

(c) The CONSULTANT and all their sub-consultants and/or sub-contractors holding sub-contracts of \$10,000 or more will comply with the following minimum specific requirements of equal employment opportunity: (The equal employment opportunity requirements of Executive Order 11246, as set forth in Volume 6, Chapter 4, Section 1, Subsection 1 of the Federal-Aid Highway Program Manual, are applicable to contractors and sub-contractors.) The CONSULTANT will include these requirements in every sub-contract with such modification of language as is necessary to make them binding on the sub-contractor.

2. EQUAL EMPLOYMENT OPPORTUNITY POLICY The CONSULTANT, their sub-consultant and/or sub-contractor or any person acting on behalf of the CONSULTANT or sub-consultant and/or sub-contractor will accept as their operating policy the following statement which is designed to further the provision of equal employment opportunity to all persons without regard to their race, color, religion, sex, national origin, age, disability or marital status, and to promote the full realization of equal employment opportunity through a positive continuing program. "It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, or during consideration for employment, without regard to their race, religion, sex, or color, national origin, age, disability or marital status. Such non-discriminatory action shall include, but not be limited to: employment, job assignment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

3. EQUAL EMPLOYMENT OPPORTUNITY OFFICER The CONSULTANT will designate and make known to the New York State Department of Transportation contracting officers an Equal Employment Opportunity Officer and a Minority Business Enterprise officer (hereinafter referred to as the EEO Officer and M.B.E. Officer) who will have the responsibility for and must be capable of effectively administering and promoting an active equal employment opportunity program and who must be assigned adequate authority and responsibility to do so.

4. DISSEMINATION OF POLICY (a) All members of the CONSULTANT's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the CONSULTANT's equal employment opportunity policy and contractual responsibilities to provide equal employment opportunity in each grade and classification of employment. To insure that the above agreement will be met, the following actions will be taken as a minimum:

(1) Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less than once every six months, at which time the CONSULTANT's equal employment opportunity policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer or other knowledgeable company official.

(2) All new supervisory (first level of supervision and above) or personnel office employees will be given a thorough indoctrination by the EEO Officer or other knowledgeable company official covering all major aspects of the CONSULTANT's equal employment opportunity obligations within thirty days following their reporting for duty with the CONSULTANT.

(3) All personnel who are engaged in direct recruitment for the project will be instructed in the CONSULTANT's procedures for locating and hiring minority group employees by the EEO Officer or appropriate company official. (Minority group referred to herein shall mean Black, Hispanic, Asian/Pacific Islander, American Indian/Alaskan.)

(b) In order to make the CONSULTANT's equal employment opportunity policy known to all employees, prospective employees and potential sources or employees, i.e., schools, employment agencies, labor unions (where appropriate), college placement officers, etc., the CONSULTANT will take the following actions:

(1) Notices and posters setting forth the CONSULTANT'S equal employment opportunity policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

(2) The CONSULTANT's equal employment opportunity policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

(c) In all solicitations either by competitive bidding or negotiation made by the CONSULTANT for work to be performed under a sub-contract, including procurements of materials or equipment, each potential sub-contractor or supplier shall be notified by the CONSULTANT of the CONSULTANT's obligations under this agreement and the Regulations relative to non-discrimination.

5. RECRUITMENT (a) When advertising for employees, the CONSULTANT will include in all advertisements for employees the notation: "An

Equal Opportunity Employer." All such advertisements will be published in newspapers or other publications having a large circulation among minority groups in the area from which the project work force would normally be derived. These advertisements shall state that all qualified applicants will be afforded equal employment opportunity without regard to race, religion, sex, color, national origin, age, disability or marital status.

(b) The CONSULTANT will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minority group applicants, including, but not limited to, State employment agencies, schools, colleges and minority group organizations. To meet this requirement, the CONSULTANT's EEO Officer will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority group applicants may be referred to the CONSULTANT for employment consideration. In the event the CONSULTANT has a valid bargaining agreement providing for exclusive hiring hall referrals, the CONSULTANT is expected to observe the provisions of that agreement to the extent that the system permits the CONSULTANT's compliance with equal employment opportunity contract provisions. (The U.S. Department of Labor has held that where implementation of such agreements have the effect of discriminating against minorities or women, or obligates the CONSULTANT to do the same, such implementation violates Executive Order 11246.

(c) The CONSULTANT will encourage present employees to refer minority group applicants for employment by posting appropriate notices or bulletins in areas accessible to all such employees. In addition, information and procedures with regard to referring minority group applicants will be discussed with employees.

6. PERSONNEL ACTIONS Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age, disability or marital status. The following procedures shall be followed:

(a) The CONSULTANT will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

(b) The CONSULTANT will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory practices.

(c) The CONSULTANT will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the CONSULTANT will promptly take corrective action. If the review indicated that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

(d) The CONSULTANT will promptly investigate all complaints of alleged discrimination made in connection with obligations under this agreement, will attempt to resolve such complaints, and will take appropriate corrective action within 15 days. All subsequent corrective actions or decisions will also be documented and forwarded to the NYS Department of Transportation Compliance Officer within 7 days after such action has taken place. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the CONSULTANT will inform every complainant of the results and all of their avenues of appeal should the complaint be denied.

7. TRAINING AND PROMOTION (a) The CONSULTANT will assist in locating, qualifying and increasing the skills of minority group and women employees, and applicants for employment.

(b) Consistent with the CONSULTANT's work force requirements and as permissible under the Federal and State regulations, the CONSULTANT shall make full use of training programs; i.e., apprenticeship and on-the-job training programs for the geographical area of contract performance. In the event the Training Special Provision is provided under this contract, this subparagraph is superseded thereby.

(c) The CONSULTANT will advise employees and applicants for employment of available training programs and entrance requirements for each.

(d) The CONSULTANT will periodically review the training and promotion potential of minority group and women employees and will encourage eligible employees to apply for such training and promotion.

8. UNIONS If the CONSULTANT relies in whole or in part upon unions as a source of employees, the CONSULTANT will use their best effort to obtain the cooperation of such unions to increase opportunities for minority groups and women within the unions, and, to effect referrals by such unions of minority and female employees. The CONSULTANT will send to each labor union or representative of workers with which he has or is bound by a collective bargaining or other agreement or understanding, a notice to be provided by the State Division of Human Rights, advising such labor union or representative of the CONSULTANT's compliance and with the non-discrimination clauses. Actions by the CONSULTANT, either directly or through a CONSULTANT's association acting as agent, will include the procedures set forth below:

(a) The CONSULTANT will use their best efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minority group members and women for membership in the unions and increasing the skills of minority group employees and women so that they may qualify for higher paying employment.

(b) The CONSULTANT will use their best efforts to incorporate an equal employment opportunity clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age, disability or marital status.

(c) The CONSULTANT is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union, and such labor union refuses to furnish such information to the CONSULTANT. The

CONSULTANT shall so certify to the STATE and shall set forth what efforts have been made to obtain such information. Further, if the CONSULTANT was directed to do so by the contracting agency as part of the bid or negotiations of this contract, the CONSULTANT shall request such labor union or representative to furnish him with a written statement that such labor union or representative accepts the non-discrimination clauses and will affirmatively cooperate, within the limits of its legal and contractual authority, in the implementation of the policy and provisions of these non-discrimination clauses or that it consents and agrees that recruitment, employment and the terms and conditions of employment under this contract shall be in accordance with the purposes and provisions of these non-discrimination clauses. If such labor union or representative fails or refuses to comply with such a request that it furnish such a statement, the CONSULTANT shall promptly notify the State Division of Human Rights and set forth what efforts have been made to obtain such information.

(d) In the event the union is unable to provide the CONSULTANT with a reasonable flow of minority and women referrals within the time limit set forth in the collective bargaining agreement, the CONSULTANT will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age, disability or marital status, making full efforts to obtain qualified and/or qualifiable minority group persons and women. (The U.S. Department of Labor has held that it shall be no excuse that the union with which the CONSULTANT has a collective bargaining agreement providing for exclusive referral failed to refer minority employees.) In the event the union referral practice prevents the CONSULTANT from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such CONSULTANT shall immediately notify the New York State Department of Transportation.

9. AFFIRMATIVE ACTION IN SUBCONTRACTING (a) The CONSULTANT will not discriminate on the grounds of race, religion, sex, color, national origin, age, disability or marital status in the selection of subcontractors, including procurements and leases of equipment.

(b) If the CONSULTANT determines to use a subcontractor as part of this agreement, affirmative action shall be taken to increase the participation of minority business firms in that work. As part of that affirmative action, the CONSULTANT will identify and contact minority business firms and solicit proposals for the work to be subcontracted. The STATE will provide a list of names of minority business firms to the CONSULTANT. Another source that should be contacted for a list of minority business firms is the Governor's Office of Minority & Women's Business Development (GOMWBD).

(c) The CONSULTANT will document the affirmative action steps taken to comply with paragraph 9b. Such documentation will be provided at the time or submittal of a formal proposal to the State's Contracts Bureau.

(d) By execution of this agreement, the CONSULTANT certifies that the affirmative action steps in 9a, 9b & 9c above were taken when soliciting proposals for the work in this agreement indicated to be subcontracted and that these steps will be taken should any work be subcontracted in the future.

(e) The CONSULTANT will insure binding subcontractor and vendor compliance with their EEO obligations. The CONSULTANT will take such actions in enforcing such provisions of such subcontract or purchase order as the contracting agency may direct, including sanctions or remedies for non-compliance. If the CONSULTANT becomes involved in or is threatened with litigation with a subcontractor or a vendor as a result of such direction by the contracting agency, the CONSULTANT shall promptly so notify the Attorney General, requesting him to intervene and protect the interest of the State of New York.

10. RECORDS AND REPORTS (a) The CONSULTANT will keep such records as are necessary to determine compliance with the CONSULTANT's equal employment opportunity obligations. The records kept by the CONSULTANT will be designed to indicate:

- (1) The number of minority and non-minority group members and women employed in each work classification on the project, where required by the NYS D.O.T Compliance Officer.
- (2) The progress and efforts being made in cooperation with unions to increase employment opportunities for minorities and women (applicable only to CONSULTANTS who rely in whole or in part on unions as a source of their work force).
- (3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minority and female employees.
- (4) The progress and efforts being made in securing the services of minority group subcontractors or subcontractors with meaningful minority and female representation among their employees.
- (5) Compliance with all other requirements in these provisions such as meetings, instructions, employment efforts, etc.

(b) The CONSULTANT will comply with Sections 291-299 of the Executive Law and Civil Rights Law and will provide all information and reports required by the Regulations, or orders and instructions issued pursuant thereto, and will permit access to its books, records, accounts and other sources of information, and its facilities as may be determined by State or Federal officials to be pertinent to ascertain compliance with such Regulations, orders and instructions. All such records must be retained for a period of three years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the State and the Federal Highway Administration.

(c) Failure to comply with these Special EEO Provisions may be considered unsatisfactory performance and may subject the agreement to termination under the termination article of this agreement. Non-compliance may result in the CONSULTANT's being declared ineligible for future agreements made by or on behalf of the STATE or a public authority or agency of the STATE, until he satisfies the State Commissioner of Human Rights that he has established and is carrying out a program in conformity with the provisions of these non-discrimination clauses. Such finding shall be made by the State Commissioner of Human Rights after conciliation efforts by the State Division of Human Rights have failed to achieve compliance with these non-discrimination clauses and after a verified complaint has been filed with the State Division of Human Rights, notice thereof has been given to the CONSULTANT and an opportunity has been afforded them to be heard publicly before the State Commissioner of Human Rights or official designee. Such sanctions may be imposed and remedies invoked independently of or in addition to sanctions and remedies otherwise provided for by law. These may include, but are not limited to:

- (1) withholding of payments to the CONSULTANT under the agreement until the CONSULTANT complies, and/or

(2) cancellation, termination or suspensions of the agreement in whole or in part.

11. TRAINING SPECIAL PROVISIONS This Training Special Provision supersedes paragraph 7.b above and is in implementation of 23 CFR Subpart A, Section 230.111 & Executive Order 11246.

As part of the CONSULTANT's equal employment opportunity affirmative action program training shall be provided as follows:

The CONSULTANT shall provide on-the-job training aimed at developing full competence in the job classification involved.

The number of months of training to be provided under these special provisions is previously stated in Article II.

In the event that the CONSULTANT subcontracts a portion of the contract work, it shall be determined how many, if any, of the trainees are to be trained by the subcontractor, provided however, that the CONSULTANT shall retain the primary responsibility for meeting the training requirements imposed by this special provision. The CONSULTANT shall also insure that this training special provision is made applicable to such subcontract.

The number of trainees shall be distributed among the work classifications on the basis of the CONSULTANT's needs. Along with their proposal, the CONSULTANT shall submit to the New York State Department of Transportation for approval the proposed number of trainees to be trained in each selected classification, their estimated salaries and a training schedule. The salaries to be paid trainees shall not be less than 75 percent of the average hourly rate approved in the agreement for the classification to be trained. During the period from the beginning of the project to its completion, the trainee shall receive reasonable salary increases commensurate to the abilities and effort exerted by the trainee. The training schedule required should indicate the start of work and appropriate incremental salary steps in accord with the above.

Training and upgrading the proficiency of minorities and women is a primary objective of this Training Special Provision. Accordingly, the CONSULTANT shall make every effort to enroll minority trainees and women (e.g., by conducting systematic and direct recruitment through public and private sources likely to yield minority and women trainees) to the extent that such persons are available within a reasonable area of recruitment. The CONSULTANT will be responsible for demonstrating the steps that have been taken in pursuance thereof, prior to a determination as to whether the CONSULTANT is in compliance with this Training Special Provision. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

No employee shall be employed as a trainee in any classification in which they have successfully completed a training program or in a classification in which they have been employed. The CONSULTANT should satisfy this requirement by including appropriate questions in the employee application or by other suitable means. Regardless of the method used, the CONSULTANT's records should document the findings in each case.

The minimum length and type of training for each classification will be as established in the training schedule developed by the CONSULTANT and approved by the State and Federal Highway Administration. The State and the Federal Highway Administration shall approve a program if it reasonably calculated to meet the equal employment opportunity obligations of the CONSULTANT and to assist in qualifying the average trainee toward proficiency in the classification concerned by the end of the training period. Approval of a training program shall be obtained from the State prior to commencing work on the classification covered by the program. Training is permissible in lower level management positions. Some offsite training is permissible as long as the training is an integral part of an approved training program and does not comprise a significant part of the overall training.

The CONSULTANT will be reimbursed for the cost of any and all training under the payment terms of this agreement. This can include offsite training cost as discussed above. All offsite training must be defined in the training schedule. All costs claimed or calculated for training must be directly related to the work defined in the scope of this agreement and/or added by supplemental agreement.

The CONSULTANT must demonstrate their best efforts and evidence good faith in hiring trainees for positions in the classification in which they have completed training.

The CONSULTANT shall furnish the trainee a copy of the program they will follow in the training. The CONSULTANT shall provide each trainee with a certification showing the type and length of training satisfactorily completed.

The CONSULTANT will provide for the maintenance of records and furnish periodic reports documenting their performance under this Training Special Provision.

Updated December 2012

OSC Use Only: Reporting Code: Category Code:

State Consultant Services Contractor's Annual Employment Report Report Period: April 1, to March 31,

Contracting State Agency Name: NYSDOT Agency Code: 3900283 Contract Number: C000791 Contract Term: to / / Contractor Name: Contractor Address: Description of Services Being Provided: NEW YORK BEST PRACTICE MODEL 2012 BASE UPDATE

Scope of Contract (Choose one that best fits): Analysis <input type="checkbox"/> Evaluation <input type="checkbox"/> Research <input type="checkbox"/> Training <input type="checkbox"/> Data Processing <input type="checkbox"/> Computer Programming <input type="checkbox"/> Other IT consulting <input type="checkbox"/> Engineering <input type="checkbox"/> Architect Services <input type="checkbox"/> Surveying <input type="checkbox"/> Environmental Services <input type="checkbox"/> Health Services <input type="checkbox"/> Mental Health Services <input type="checkbox"/> Accounting <input type="checkbox"/> Auditing <input type="checkbox"/> Paralegal <input type="checkbox"/> Legal <input type="checkbox"/> Other Consulting <input checked="" type="checkbox"/>
--

O*Net Employment Category & ONET Employment Category Name	Number of Employees	Number of Hours Worked	Amount Payable Under the Contract
Total this page	0	0	\$ 0.00
Grand Total			

Name of person who prepared this report: Preparer's Signature: _____ Title: _____ Phone #: _____ Date Prepared: / /
--

Attachment 5

Part II Cost Proposal Instructions

Part II of your proposal consists of a Cost Proposal which sets forth the lump sum total cost for performing all of the work in your proposed technical scope of services. Your Cost Proposal shall contain the following elements:

1. **Proposed Staffing/Fully Loaded Rate Schedule.** Present a schedule which will include a descriptive job title for each employee assigned to this project, his/her current and projected hourly salary rate (regular time), and the consultant's fee, for each year of the contract (for the base three-year term of the contract). If additional titles are used but are not assigned, they must be listed. Offerors must present one Rate Schedule per firm in its team (prime consultant plus any sub-consultants that are being proposed), making multiple copies of the exhibit, as needed. Fully loaded hourly rates for all sub-consultants must also be included.
2. **A Staffing Table by Task Without Rates/Costs.** Present a schedule which shall list all descriptive job titles for the staff to be assigned to this project and to which tasks they are assigned to, depicting the proposed number of hours to accomplish each task. No rate or cost information is to be presented in this schedule. The schedule shall be prepared to distinguish anticipated assignment by project section/task. A sample without rate schedule is included in the RFP for illustration purposes. **THIS SCHEDULE MUST BE INCLUDED IN YOUR PART I TECHNICAL SUBMISSION – DO NOT INCLUDE THIS SCHEDULE IN YOUR PART II COST SUBMISSION.**
3. **A Staffing Table by Task With Rates/Costs.** Present a schedule which shall list all descriptive job titles for the staff to be assigned to this project and to which tasks they are assigned to, depicting the proposed number of hours, their corresponding fully-loaded rates, and the resulting labor costs to accomplish each task. The schedule shall be prepared to distinguish anticipated assignment by project section/task. A fictitious example with rate schedule is included in the RFP for illustration purposes.
4. **Direct Non-Salary Costs.** Present a direct non-salary cost schedule shall list by task number the items of direct non-salary costs (out-of-pocket expenses) expected to be incurred in the performance of the project. It's ideal to relate these costs by their corresponding tasks, as applicable. A fictitious example of a direct non-salary cost schedule is included in the RFP for illustration purposes. Travel, meals and lodging reimbursements shall be limited to the prevailing maximum rates established by the NY State Comptroller. The latest state and nationwide maximum reimbursement rates are available at the following Web site: <http://www.gsa.gov/>.

Subconsultant costs (if any) shall be shown in the schedule. On separate sheets, explain each item with all factors leading to the derivations of the costs attributable to subconsultants.
5. **Milestone Payment Schedule (Summary).** Present a final milestone payment schedule, which will summarize the direct labor; direct non-salary applied overhead costs, other direct non-personal costs and project-related fees for the Project in accordance with the technical schedule of service delivery. This RFP does not present a sample milestone payment schedule. Based on the lump sum costs and milestone payment schedule offered, present a proposed percentage of the lump sum for each key deliverable for which payment would be requested. It is suggested that, were commensurate with the proposed scope of services, that the offered milestone payment schedule be sub-divided to consider a firm's cash flow requirements (especially for longer duration tasks or to divide deliverables into draft and final).

Attachment 5

(Fictitious Example)

Proposed Staffing/Fully Loaded Rate Schedule (by Title) Contract C000791

Consultant Name:

TITLE	NAME	% of Labor	(a) YEAR ONE DIRECT LABOR	(b) OVER HEAD (__%)	(c) FEE (__%) Not to exceed 10%	(a)+(b)+(c) YEAR ONE BILLING RATE	YEAR TWO BILLING RATE	YEAR THREE BILLING RATE
Project Manager								
Transportation Analyst								
Technical Analyst								
Administrative Analyst								
Administrative Assistant								
Public Involvement Specialist								
Economist								
Demographer								
Statistician								
Specialty Planner								
IT Specialist								
Transportation Modeler								
GIS Specialist								

**Attachment 5
(Fictitious Example)**

TASK ASSIGNMENT JOB TITLE ¹	TASK 1.0	TASK 2.0	TASK 3.0	TASK 4.0	TASK 5.0	TASK 6.0	TASK 7.00	TOTAL HOURS
Consultant Project Mgr	6	3	4	2	2	1	0	18
Consultant Task Manager	12	30	40	20	15	20	20	298
Transportation Planner II	98	30	40	25	25	40	40	157
Transportation Analyst III	62	30	40	22	100	40	30	324
Technical Analyst I	20	30	40	20	25	25	25	185
Administrative Analyst II	81	33	45	75	120	160	50	564
Administrative Assistant	0	0	0	0	0	0	0	0
PI Specialist	5	5	20	60	20	20	20	150
Economist	0	0	0	0	0	0	0	0
Demographer	0	0	0	0	0	0		0
Statistician	0	0	0	0	0	0	0	0
Specialty Planner	0	0	0	0	0	0	0	0
IT Specialist	0	0	0	0	0	0	0	0
Transportation Modeler	0	0	0	0	0	0	0	0
GIS Specialist	0	0	0	0	0	0	0	0
TOTAL	284	161	229	224	307	306	185	1696

¹: Suggested Titles: Not representative of titles to be proposed.

Attachment 5

(Fictitious Example)

**Attachment 5
(Fictitious Example)**

Staffing Table by Task With Rates/Costs Schedule

TASK ASSIGNMENT STAFFING (With Rates) C000791

Consultant Name: _____

TASK ASSIGNMENT JOB TITLE ¹	TASK 1.0	TASK 2.0	TASK 3.0	TASK 4.0	TASK 5.0	TASK 6.0	TASK 7.00	TOTAL HOURS	HOURLY RATE	DIRECT TECHNICAL LABOR
Project Director	6	3	4	2	2	1	0	18	55.00	\$990
Project Mgr	12	30	40	20	15	20	20	298	45.00	\$13,410
Transportation Planner II	98	30	40	25	25	40	40	157	34.00	\$5,338
Transportation Analyst III	62	30	40	22	100	40	30	324	34.00	\$11,016
Technical Analyst I	20	30	40	20	25	25	25	185	25.00	\$4,625
Administrative Analyst II	81	33	45	75	120	160	50	564	25.00	\$14,088
Administrative Assistant	0	0	0	0	0	0	0	0	0.00	\$0
PI Specialist	5	5	20	60	20	20	20	150	20.00	\$3,000
Economist	0	0	0	0	0	0	0	0	0.00	\$0
Demographer	0	0	0	0	0	0	0	0	0.00	\$0
Statistician	0	0	0	0	0	0	0	0	0.00	\$0
Specialty Planner	0	0	0	0	0	0	0	0	0.00	\$0
IT Specialist	0	0	0	0	0	0	0	0	0.00	\$0
Transportation Modeler	0	0	0	0	0	0	0	0	0.00	\$0
GIS Specialist	0	0	0	0	0	0	0	0	0.00	\$0
	0	0	0	0	0	0	0	0	0.00	\$0
TOTAL	284	161	229	224	307	306	185	1696		\$52,467

¹: Suggested Titles: Not representative of titles to be proposed.

ATTACHMENT 5

Direct Non-Salary Costs Schedule C000791

(Fictitious Example)

FIRM NAME: _____

SUMMARY ESTIMATED BUDGET

John Doe Consultants

Study for Study's Sake

Item IA. Direct Technical Salaries (estimated) (Overtime not reimbursable) \$52,467

Item II. Direct Non-Salary Cost (estimated) \$3,500

Item III. Overhead (estimated @ ____%) \$78,701

Item IV Fixed Fee (No Great Then 10%) \$13,374

(Sub-Consultant cost) \$51,932

Total Estimated Cost \$199,974

=====

Estimated Budget is provided for information purposes only, for future contracting purposes on Lump Sum Contracts.

Attachment 6

Consultant's Responsibility When Proposing Former NYSDOT Employees

It is the consultant's responsibility to ensure they propose staff that is eligible to work on the proposed project. It is an individual's responsibility to comply with the Public Officer's Law.

The following procedure applies if either of the following criteria is met.

- It is two years or less between the date that the individual is proposed and the individual's date of separation from the State.
- The individual proposed has worked on the project while employed by NYSDOT regardless of how long ago they left NYSDOT.

Procedure

- Before the consultant proposes an individual, the individual must obtain an opinion from the New York State Ethics Commission that approves their participation in the project as they are proposed.
- A copy of this opinion must be on file in the consultant's office and available for review by NYSDOT if requested.
- Failure to obtain New York State Ethics approval for an individual's participation in a project may jeopardize the firm's designation for that project.

Attachment 7

DBE Participation Information

Please complete the following table for the prime firm and all subconsultants (consultant team composition): please identify each firm's full legal name, checking if they are a certified DBE by utilizing the NYSUCP DBE Directory, and indicating each firm's percentage of the **total budget** (or total contract cost) for the contract. Please keep in mind that only NYSUCP certified DBEs are eligible to count toward attainment of this federally-funded procurement with a DBE participation goal.

Further, participation by a certified DBE prime consultant DOES NOT count towards attainment of the contract's 18% DBE participation goal.

If the total budget for all proposed, certified participating DBEs is less than the 18% DBE Participation Goal set for contract #C000791, then the proposing prime firm is required to fill out and submit the **DBE Participation Solicitation Log (Attachment 8)**, and the **DBE Goal Attainment Explanation Letter**. Further, prime consultants certified as a DBE are still required to either meet the Department's DBE subconsultant participation goal via their meaningful participation, or are required to fill out and submit the **DBE Subconsultant Participation Solicitation Log (Attachment 8)** unless their outreach efforts results in proposed DBE subconsultant.

Please provide a copy of the firm's DBE letter from a NYSUCP certifying partner with your Part II proposal.

Firm Legal Name	NYSUCP Certified DBE		% of Total Budget
	DBE	None	
A. Prime Consultant			
B. Sub-Consultants			
Total			100%

Attachment 8

**DBE Subconsultant Participation Solicitation Log
(Good Faith Effort Documentation)**

CONTRACT NO. __C000791_____		DBE PARTICIPATION GOAL: 18%		PAGE NUMBER ___ OF ___	
PRIME FIRM NAME/ADDRESS/ZIP CODE		CONTACT PERSON		TELEPHONE NUMBER (INCLUDE AREA CODE)	
				E-MAIL	
SOLICITED COMPANY NAME AND CONTACT PERSON	TELEPHONE (WITH AREA CODE)	FEDERAL EMPLOYER ID #	WORK TYPES BEING SOLICITED	TYPES AND DATES OF CONTACTS	CONTACT RESULT(S)

**INSTRUCTIONS FOR COMPLETING Attachment 8
DBE Subconsultant Participation Solicitation Log
(Good Faith Effort Documentation)**

To be deemed responsive to this solicitation, Consultants whose proposed DBE participation does not meet the established Disadvantaged Business Enterprises (DBE) participation goal must document and report their efforts to solicit participation by certified DBE in this Non-Architecture/Non-Engineering contract. The **DBE Participation Solicitation Log** is used for this purpose.

PLEASE NOTE: **Only participation by NYSUCP certified DBE prime consultants as well as NYSUCP certified DBE subconsultants may count toward goal attainment.**

Guidance concerning Good Faith Efforts in meeting DBE participation goals in Federally-funded contracts is located at the end of this section.

The log is to be filled out and submitted with the proposing firm's Cost and Contract Proposal. In order for a proposal to be determined as responsive when the DBE participation goal is not attained at all or only partially attained, then the proposer must complete all sections of this form and submit a **DBE Participation Solicitation Log**, along with a **DBE Goal Attainment Explanation Letter**, documenting the firm's Good Faith Effort.

***** DBE CERTIFICATION IS A FEDERAL PROGRAM CERTIFICATION. ***
IT IS SEPARATE AND DISTINCT FROM THE NEW YORK STATE MBE & WBE PROGRAM. PLEASE
DO NOT CONFUSE THE TWO. FIRMS WITH QUESTIONS REGARDING THESE PROGRAMS ARE
ENCOURAGED TO SUBMIT WRITTEN QUESTIONS**

CONTRACT NO: Enter NY State DOT contract number (Example: C012345).

DBE PARTICIPATION GOAL: Enter applicable DBE participation goal percentage as stated in the proposal.

PAGE NO.: Enter 1 of 1; or 1 of 2 and 2 of 2; etc. Use additional forms as needed.

PRIME NAME/ADDRESS/ZIP CODE: Enter name of the Prime Consultant, its address and zip code.

CONTACT PERSON: Enter the name of the person *your* firm has designated as the authorized contact person for this solicitation.

CONTACT PERSON TELEPHONE AND E-MAIL: Enter area code, phone number and e-mail address for the person *your* firm has designated as the authorized contact person for this solicitation.

DBE CONSULTANTS SOLICITED:

SOLICITED COMPANY NAME AND CONTACT PERSON: Enter name of solicited firm and name of the individual associated with the firm to whom the solicitation inquiry was sent.

TELEPHONE (With Area Code): Enter TELEPHONE number of the solicited firm.

FEDERAL EMPLOYER ID #: Enter the Federal Employer Identification Number of the solicited firm.

WORK TYPE(S) BEING SOLICITED: Enter the work type(s) or Commercial Useful Function for which this firm has been solicited in connection with the Scope of Services for this contract. (NOTE: Work type codes are provided for every certified firm listed in the DBE Registry (see RFP cover letter).

TYPES AND DATES OF CONTACT: Enter dates on which your firm contacted the solicited firm, either by mail (date solicitation sent), telephone (including date and time of call) or other person-to-person contacts. Identify the type of contact by prefacing each date with ‘M’ if a mail contact; ‘T’ if a telephone call; and ‘D’ if a direct meeting with the firm.

CONTACT RESULT(S): Enter the code(s) which indicates the result(s) of your solicitation.

***** USE ADDITIONAL PAGES AS NEEDED *****

A description of the codes to use is as follows:

CODE DESCRIPTION:

- 1 This firm is unavailable to participate in the contract for the reason(s) stated on the DBE Solicitation Response. (Attach explanation to the Log.)
- 2 This firm is no longer in business. (NOTE: If this action is checked, attach your explanation as to why the solicitation was sent to the firm and how evidence that it was no longer in business was obtained. Attach the returned envelope showing that it was undeliverable, for instance.
- 3 The soliciting Prime Consultant was unable to reach this firm after having a telephone conversation to follow-up on the DBE participation solicitation inquiry. (NOTE: Indicate In the Types and Dates of Contact column the dates and times at which follow-up was attempted.)
- 4 This firm did not respond to repeated telephone messages. (NOTE: Indicate in the Types and Dates of Contact column the dates and times at which messages were left).

Attachment 8
Guidance Concerning Good Faith Efforts
In Meeting DBE Participation Goals In Federally-Funded Contracts

The following is a list of types of actions that demonstrate good faith efforts in obtaining DBE participation for federally-funded contracts. This list is not exclusive or exhaustive. The bidder must show that it took all necessary and reasonable steps to achieve a DBE goal which, by their scope, intensity, and appropriateness to the objective, could reasonably be expected to obtain sufficient DBE participation, even if they were not fully successful.

- Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, utilizing the NYSUCP DBE Directory – <http://biznt.nysucp.net>) the interest of all certified DBEs who have the capability to perform the work of the contract. The bidder must solicit this interest within sufficient time to allow the DBEs to respond to the solicitation. The bidder must determine with certainty if the DBEs are interested by taking appropriate steps to follow up initial solicitations.
- Selecting portions of the work to be performed by DBEs in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the bidder might otherwise prefer to perform these work items with its own forces.
- Providing interested DBEs with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.
- Negotiating in good faith with interested DBEs – it is the bidder’s responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBEs that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBEs to perform the work.
- A bidder using good business judgment should consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm’s price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding a DBEs is not in itself sufficient reason for failure to meet the contract DBE goal. Also, the ability or desire to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts.
- Do not reject DBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The contractor’s standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union versus non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the contractor’s efforts to meet the project goal.
- Making efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or contractor.

**2005 Update and Re-Calibration of the NYMTC
New York Best Practice Model (NYBPM)**

Attachment 9

**2005 Update and Re-Calibration of the NYMTC
New York Best Practice Model (NYBPM)**

FINAL REPORT

**Prepared for the
New York Metropolitan Transportation Council**

**By the
Systems Analysis Group, PB / Parsons Brinckerhoff**

June 29, 2009

**2005 Update and Re-Calibration of the NYMTC
New York Best Practice Model (NYBPM)**

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New York Best Practice Model (NYBPM)**

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[APPENDIX C: BPM 2002 and 2005 – CORE MODEL “SCORE-CARD” REPORTS](#)

[APPENDIX D: CALIBRATION AND VALIDATION DATA SOURCES](#)

APPENDIX E: commuter rail service updates

All appendixes for this report may be requested from:

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New York Best Practice Model (NYBPM)**

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Executive Summary

1.1 INTRODUCTION AND OVERVIEW

1.1.1 Introduction: Model Update 2005

The purpose of this report is to document the work done in the past year to prepare the New York Best Practice Model (BPM), which refers to the set of data bases and regional travel demand models used by the New York Metropolitan Transportation Council, the New York Metropolitan Planning Organization (MPO) for the forecasting and estimation of mobile source emissions as part of the region's pending Conformity Analysis of the Transportation Improvements Plan (TIP) and Long Range Plan.

The report is organized according to the basic elements of the work that has been done to update and prepare the BPM and post-processing system for use in conformity analysis:

- Section 2: Updates of the data bases that support the BPM, from the Base Year 2002 to a new Base Year 2005 set, including updated Socioeconomic/Demographic (SED) data, 2000 Census data, as well as highway and transit counts.
- Section 3: Revision and updates to both the BPM highway and transit networks, including corrections and updates that incorporate improvements and changes implemented in the regional transportation system since the 2002 base year. It also includes updating the highway and transit costs to 2005 dollars.
- Section 4: Modification of several BPM application procedures, including a major improvement in the External Auto travel model, correcting the taxi generation, updates to bus vehicle pre-loads correspondence file, accounting for one-way tolls on tour level choices by using blended skims in MDSC, revisions to PAP and multi-class assignment.
- Section 5: Re-Calibration of the BPM to a Base Year 2005, based on the revised set of input data and new calibration targets.

1.1.2 Overview of the NYMTC Best Practice Model

A brief overview of the NYMTC Best Practice Models (BPM) is useful in understanding the BPM 2005 Update and Re-Calibration effort documented in this report. A complete description of the BPM can be found in the *General Final Report: New York Best Practice Model*¹.

Regional Model Area

In order to adequately model travel in the New York region, the BPM networks, zones and the Regional Travel – Household Interview Survey (RT-HIS) survey data are representative of the full 28 county region. The focus of the planning application and calibration of the model to date, however, has been on the ten counties that comprise the NYMTC planning jurisdiction and air quality attainment area.

While for Conformity Analysis done by NYMTC with the BPM model is focused on twelve (12) New York counties, the BPM model area consists of the entire 28 county metropolitan

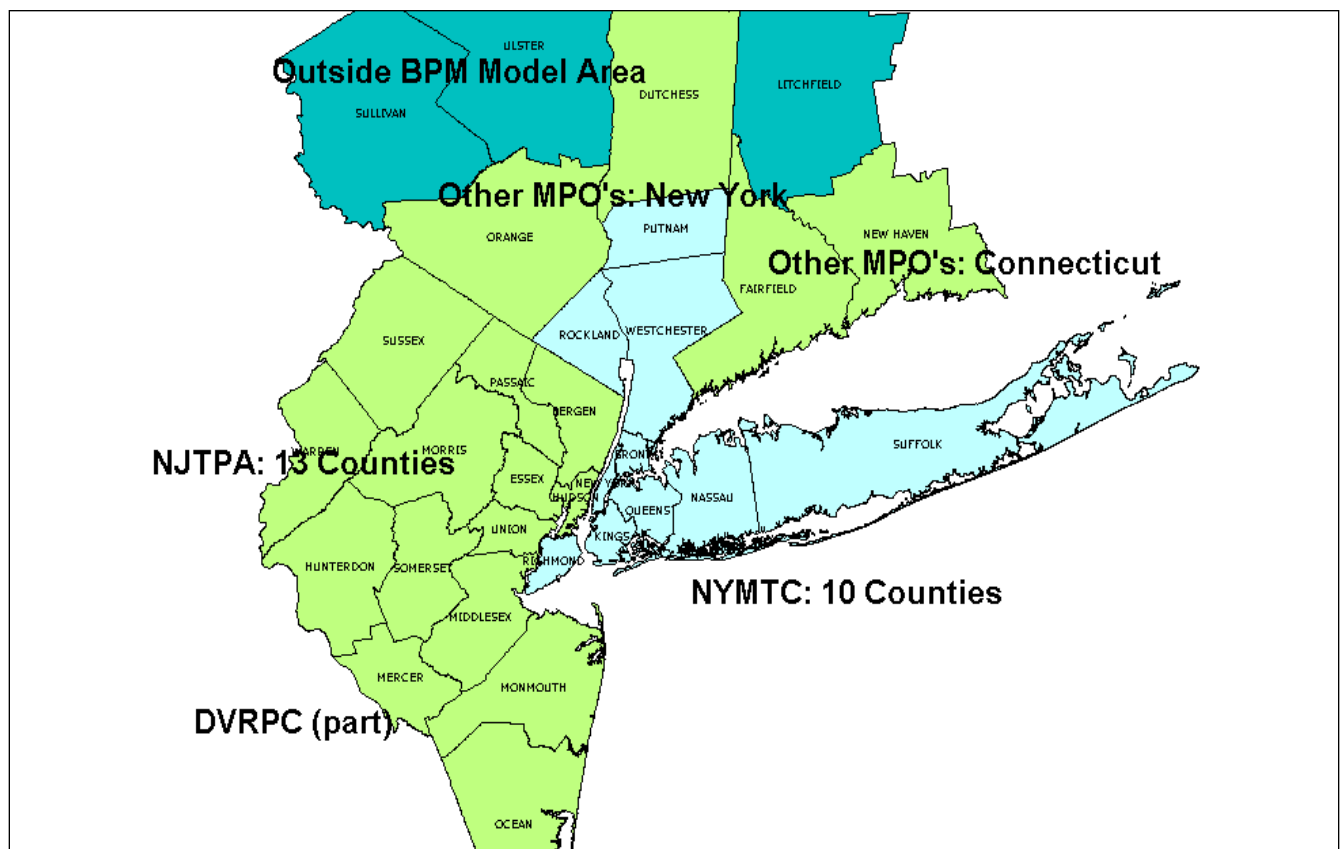
¹ *General Final Report: New York Best Practice Model*. Draft Final – January 30, 2005. Prepared by Parsons Brinckerhoff / PB Consult for NYMTC.

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region, including portions of New York, New Jersey, and Connecticut. It is comprised of more than 3,500 transportation analysis zones and includes most types of road facilities, from minor arterials and above, and all forms of public transportation. In addition to 10 New York counties in the NYMTC planning regions, the BPM model area includes the 13 counties in northern New Jersey that are part of the North Jersey Planning Authority (NJTPA), Mercer County (part of the Delaware Valley Regional Planning Commission or DVRPC), Dutchess and Orange Counties in the Hudson Valley, and Fairfield and New Haven Counties in Connecticut. The inclusion of Sussex, Warren, and Hunterdon Counties in New Jersey established the Delaware River as the western boundary of the study area. This boundary dramatically reduces the number of external stations on the western border and encompasses virtually all of the transit and railroad services that cross the Hudson River.

The map included in Figure 1.1 below shows the BPM model study area.

Figure 0-1: New York Metropolitan Region: NYMTC and BPM Model Area



- NYMTC (MPO) Counties
- 1-New York (Manhattan)
- 2-Queens
- 3-Bronx
- 4-Kings (Brooklyn)
- 5-Richmond (Staten Island)
- 6-Nassau

- 7-Suffolk
- 8-Westchester
- 9-Rockland
- 10-Putnam
- Other New York
- 11-Orange

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12-Dutchess

NJTPA (MPO) Counties

14-Bergen

15-Passaic

16-Hudson

17-Essex

18-Union

19-Morris

20-Somerset

21-Middlesex22-Monmouth

23-Ocean

24-Hunterdon

25-Warren

26-Sussex

Other NJ Counties (part of DVRPC)

28-Mercer

Connecticut Counties

13-Fairfield

27-New Haven

Model Structure

The BPM was designed and developed based on contemporary best practices in travel demand modeling and extensive field research over the last few years. The guiding principle in developing this model set was to incorporate the best modeling structures and components available that could be practically implemented within the project time and budget framework. As such, the BPM is representative of the emerging set of activity / tour-based models of regional travel demand models which are characterized by the following key features:

- Comprehensive coverage of *all modes and vehicle types* in detailed highway and transit simulations.
- Use of *tour* (or paired journeys) as the basic unit of modeling, instead of *trip* that is used in conventional demand models of the previous generation.
- Use of *micro-simulation* approach to generate forecasts that are discrete choices for individuals, as opposed to probabilities that represent market segment shares in conventional models.
- Using the contemporary conceptual framework of *daily activity agenda* of individuals with accounting for intra-household interactions between members and constraints on peoples' travel in terms of both time and space.
- The BPM is a complex model that is designed to predict the detailed travel patterns of the region's diverse population for all modes of travel, by introducing some important innovative extensions beyond conventional travel demand models.

The overall structure of the models and procedures that comprise the BPM is shown in the highly simplified schematic found in Figure 1.2. While in many respects, the data flow of the NYMTC model can be seen to be similar to that of conventional "4-Step" travel forecasting models – travel production, distribution, mode choice and assignment – the following main features of the BPM are distinctive, and represent best practice in travel demand modeling.

Journey-Based Models

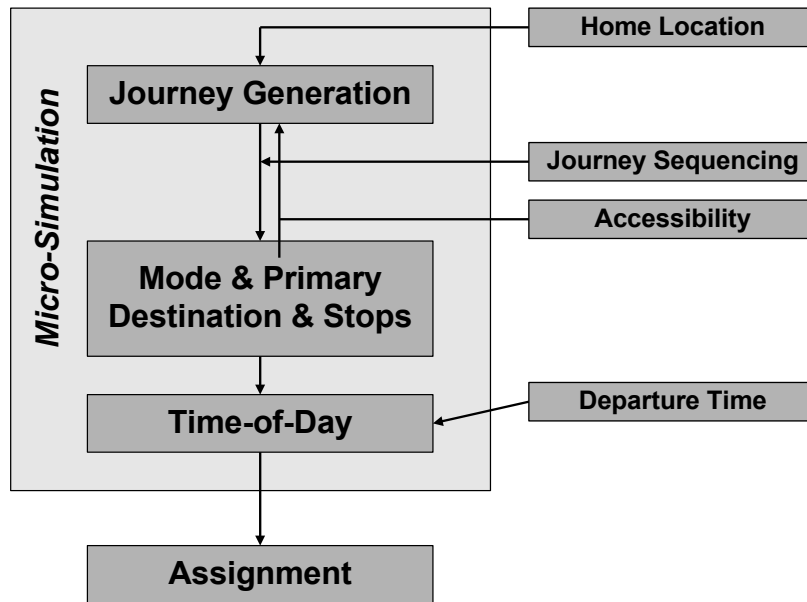
Among its innovations is the new model's use of the concept of "journeys" rather than the more traditional "trips." The journey, defined as travel between principal locations, identifies anchor points in an individual's travel pattern, such as home, work or school.

In the conventional model, for example, a trip would be classified and analyzed as a home-to-work travel, only if its origin was home and its destination the workplace, and there were not intermediate stops made between the two points. If the individual were to make a stops at a day care center, gym or other for some other activity, the conventional model interprets the two isolated trips, and do not take into account that the general travel pattern is a commute to work. The use of the journey construct allows for the purpose and time of each segment to be linked , providing additional insight and accuracy for the modeling and predicting traveler decisions and analyzing their needs.

Thus use of the journey helps planners form a more realistic analysis that is based on the various decisions made by travelers between these locations, such as mode, purpose, destination, frequency and location of intermediate stops, as well as time of day periods.

The nine million households of the study area generate 25 million paired journeys per day for the base year 1996.

Figure 0-2: General Modeling Structure of the BPM



Micro-simulation Approach

Where traditional models operate at the zone level, with matrix tables of aggregate flows, the BPM uses the micro-simulation method to simulate the travel pattern of each person and each individual journey in the region. The micro-simulation method provides many advantages, and a finer level of detail which, when combined with the BPM's use of the journey, increases the accuracy and usefulness of the travel demand forecasts.

Applications Software

The BPM was developed using a combination of customized programs and TransCAD GIS software. The models are run using a menu-driven system with partial user interaction, currently supported by the CENTRAL Software. The PPSUITE system is used for post-processing for CMS and Air Quality analysis.

The Highway and Road Network

The BPM highway network contains more than 53,000 links, including most minor arterial roadways and above-roadway facilities. The database includes information on number of lanes, functional class, speed, parking restriction, truck-usage. As inputs to the BPM core models, the networks are used to estimate travel times and distances between all parts of the

Section 1: Executive Summary

regions (by Traffic Analysis Zones (TAZ's), and then for assignment of models forecast travel demand flows (trip tables) to produce link level volumes flows by vehicle class (Single Occupancy Vehicles (SOV), High Occupancy Vehicles (HOV), Taxi, Trucks, and Commercial Vans), as well as speeds reflecting volumes and capacities.

The Transit Network

The transit network in the BPM is a very complex network and is based on information provided by the Metropolitan Transit Authority (MTA), New Jersey Transit (NJ Transit), and other transit operators in the region. The network has 100 NY city subway routes, 900 commuter rail routes, 2300 bus routes and 50 ferry routes as well as the sidewalk network in Manhattan. In addition, the transit network components also include station to station transfer databases, walk/drive links for rail and other transit connectivity, route coding and fare coding.

1.2.3 Model Estimation, Calibration and Validation

The development of the BPM travel forecasting model was based on the statistical analysis of data specifically collected or otherwise related to the 28 County New York metropolitan region, and to resident travel within the region. While the form and structure of the BPM models are essentially generic, it is through the process of model estimation and calibration that the BPM has become a “local” model of travel within the tri-state region.

The estimation data sets for the original model development – Base Year 1996 – were constructed from various data sources in a format specific to each model and to the requirements of the ALOGIT software. The RT-HIS conducted in 1997 and 1998 constituted the primary data source for the model estimation. The RT-HIS was also the primary basis for the calibration of the BPM, supplemented by 1990 Census Data, such as the Public Use Micro-Sample (PUMS) data, and the Census Transportation Planning Package (CTPP) data. Highway volume assignments were calibrated based on the 1996 Screenline Count Data base.

1.2 SUMMARY AND OVERVIEW

The work that has been done to properly update the New York Best Practice Model for a new Base Year 2005 (from the previous Base Year 2002), and to validate the updated BPM regional travel demand model for use in further applications for SIP / TIP and Plan air quality Conformity Analysis.

The key data bases that support the BPM were updated to a new Base Year 2005 from the previous Base Year 2002 supporting databases, including updated base year Socioeconomic /Demographic (SED) data, 2000 Census data, and highway and transit counts needed for re-calibration and validation. Substantial revisions and updates have been made to both the BPM highway and transit networks, including corrections and updates that incorporate improvements and changes implemented in the regional transportation system since the 2002 base year.

In addition, several BPM computer application procedures have been improved or added to the set of procedures that comprise the BPM modeling system. These include a major improvement in the External Auto travel model, correcting inaccuracies in the MDSC and PAP models, and creating the opportunity for better calibration and validation of the BPM. Also, the correspondence for creating bus preloads in the highway network was updated and corrected thereby enhancing the realism of the traffic simulation on the region's road network, particularly for those roadways where significant numbers of buses affect carrying capacity. Revisions such as redefining the PCU for trucks, restrictions by vehicle classes and separation of Taxi trips from HOV2 were made to the multi-class assignment method in the BPM.

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 to better match both observed highway and transit travel in the region's 28 county model area, and to provide reliable future year forecasts.

BPM Data Updates

2.1 SOCIOECONOMIC DEMOGRAPHIC (SED) DATA – 2005 BASE YEAR

2.1.1 Basic SED Data Items for the BPM

The BPM uses a fairly limited subset of population and employment-related zonal data items required as inputs to both base year and future year model applications. The 15 specific zonal SED items are listed in Table 2-1.

Table 0-1 Summary of Socioeconomic and Demographic Data (SED) Inputs for BPM

SED Item #	Description	Name	Units
1	Population in Households	HHPop	persons
2	Population in Group Quarters	GQPop	persons
3	Institutional	GQPopIns	persons
4	Street people	GQPopStr	persons
5	Other Group Quarters (Colleges & Universities, Military, etc.)	GQPopOth	persons
6	Number of Households	HHnum	households
7	Household Size (# of Persons):	HHSize	persons/household
8	Employed Labor Force - Workers (by residence)	ELF	persons
9	Mean Household Income	HHincx	2005 Dollars
10	Employment (at workplace) - Total	EmpTot	persons
11	Employment (at workplace) – Retail	EmpRet	persons
12	Employment (at workplace) – Office	EmpOff	persons
13	Earnings per worker (at workplace)	EarnWork	2005 Dollars
14	University enrollment (at institution)	UnvEnrol	persons
15	School enrollment: K-12 Total (at school)	K12ETot	persons

2.1.2 Development of Base Year 2005 SED

The original BPM was developed and calibrated using estimated Base Year 1996 SED zonal data. The update of the BPM for Base Year 2005 required the development of current estimates of the each of the data items listed in Table 2.1, also at the transportation analysis zone (TAZ) level.

As part of the BPM 2005 update described in this report, a new set of SED data inputs, was developed by Urbanomics for NYMTC, for Base Year 2005. The data was converted to TAZ level using the new 2000 Census based tract and MCD allocation-to-TAZ factors. Since these data are direct inputs to the NYBPM, and directly influence the production and attraction of travel to and from the 3,586 zones the comprise the BPM, it was important to review and develop confidence in their accuracy before adopting them for the re-calibration of the BPM travel models for the new Base Year 2005.

A summary at the county level to compare updated Base 2005 SED data with both the current Base 2002 (used by the BPM for base year calibration as part of the 2002 Update), and with the current “forecast”2005 (from the 2002 Update series) can be found in Appendix A: County-Level Comparison of SED Data Inputs to the BPM.

TAZ level data checks were made by comparing the new 2005 Base Year data and the current 2002 Base Year data used in the BPM, for those SED input data items that most directly affect travel origins and destinations, namely:

- Number of Households
- Employed Labor Force (by Residence)
- Mean Household Income
- Employment: Total
- Employment: Retail
- Workers Earnings (by Work Place)
- Enrollment: University
- Enrollment – K-12.

This table of listings for all zones was provided to facilitate additional review and checking by NYMTC and Urbanomics. Some of the specific zone differences were attributed to changes in zonal boundaries between the 2002 data (1990 Census based tract and MCD geography), and the new 2005 TAZ’s (2000 Census based tract and MCD geography).

A set of checks for logical constancy among the key data items was done in SPSS, problems were resolved and no offending data were found in any of the four basic checks made for each zone -Negative values, Population in zone is less than # of households, Employed labor force greater than population and Sum of office and retail employment exceed total employment.

2.2 UPDATES WITH CENSUS 2000 AND ACS 2006 DATA

The update of the BPM included the use of new census data made available from Census 2000, replacing the prior data from the 1990 Census that was available when the original BPM was developed. This included:

- TAZ layer was revised based on 2000 Census tracts and MCD data. A new TAZ to tract/MCD correspondence was created for developing SED data by TAZ.
- American Community Survey (ACS) 2006 journey-to-work flow data, used to update estimated target values for the re-calibration of both the Destination and Mode choice models for work travel.

2.3 HIGHWAY TRAFFIC COUNTS

The BPM screenline volume database was developed as the principal source of observed traffic volume data for use in both Base Year 1996 and 2002 calibration and validation of the BPM. It consisted of about 2,200 highway network link records, with estimated volume data by direction, by hour, for each link in the database. The screenline database covers the ten New York counties that comprise the NYMTC area, and all interstate crossings between New York and New Jersey. This section of the report provides documentation for the development of the BPM screenline database update from the 2002 base year to the current 2005 base year.

As part of screenline count update effort, NYMTC identified and compiled a set of traffic volume databases and documents from the various regional and sub-regional agencies, including New York State Department of Transportation (NYSDOT) TF3 files, New York City Department of Transportation (NYCDOT) intersection counts and county volume databases/reports. Using methods applied in the development of prior BPM screenline count databases (1996, and 2002), the appropriateness of each traffic volume database or document, as well as the validity of the individual records were reviewed and incorporated into the 2005 NYMTC BPM screenline database¹. The BPM screenline database consists of 2,256 highway network links, which translates to a total of 3,597 directional traffic count volumes. For locations where traffic counts are not available, the traffic volumes are estimated using the Traffic Volume Estimation Program (TRAVEP).

The screenline database updating process involved the following steps:

- Review the available traffic volume sources.
- Extract the applicable traffic volumes from available sources.
- Compile the traffic volumes into a single database.
- Select the most representative traffic volumes from multiple matching records.
- Index the traffic count volumes to year 2005 by applying growth factors.
- Run “TRAVEP ” - a program that applies adjustment factors, distributes daily traffic counts into 24-hourly volumes, and estimates traffic volumes for screenline links with no available traffic count volumes.

Three Levels of Screenlines: The 2,215 BPM highway network links that comprise the screenline database were selected to according to a three-level hierarchy of cutlines reflecting their significance for regional model calibration and analysis; (See Table 2-2).

- Priority 1: County Borders - screenlines have the highest significance capturing county-to-county travel flows (342 links)
- Priority 2: Intra-County Quadrants / Major – subdividing each county in quadrants (922 links)

¹ Where applicable, an individual count record was examined for consistency with historical data on the same and/or adjacent roadway sections. Other information such as date/duration of survey period and relevant changes in traffic configuration were also considered.

Section 2: BPM Data Updates

- Priority 3: Sub-Quadrant /Minor– further subdividing screenlines (e.g., within county screenlines reflecting local travel patterns) have the lowest significance, in terms of regional analysis (960 links).

The data sources, including all documents and databases, such as NYSDOT TF3 files, NYCDOT intersection counts, county and sub-regional agency volume databases/reports and regional corridor or other transportation study reports, compiled by NYMTC in 2003, are regarded as the primary data sources for the 2005 BPM screenline database updating process. The secondary data sources reflect the observed traffic data from the 2002 BPM screenline database. (See Table 2-3)

A set of procedures were developed and performed to search for appropriate traffic volumes from each data source and convert into a format consistent with the 1997 or 2002 pre-adjusted (i.e. containing non-estimated traffic volumes only) screenline database. All screenline link records updated in 2005 were then extracted from the individual data source files, and appended to the secondary data source (i.e. the 1997 and 2002 pre-adjusted database). Finally, a selection process was performed to filter out multiple matching records for each screenline link.

Table 0-2 Screenline Links by Functional Class Group and Priority Level

Functional Class Group	Priority - Screenline Level: Number of Links			Total
	1:County	2:Major	3: Minor	
1 FC 1,11,12,20	95	183	190	468
2 FC 2,6,14,16	192	630	683	1505
3 FC 7-9,17,19	58	120	105	283
All Links	345	932	977	2256
Functional Class Group	Priority - Percent of All Screenline Links			Total
	1:County	2:Major	3: Minor	
1 FC 1,11,12,20	4.2%	8.1%	8.4%	20.7%
2 FC 2,6,14,16	8.5%	27.9%	30.3%	66.7%
3 FC 7-9,17,19	2.6%	5.3%	4.7%	12.5%
All Links	15.3%	41.3%	43.3%	100.0%

Table 0-3 Screenline Links by Functional Class Group and Data Source

Functional Class Group	Count Type/Source: Number of Links				Total
	Full Class Count	Other Actual / Partial Count	Agency Est. Daily	No Data or Estimate	
1 FC 1,11,12,20	385	8	32	43	468
2 FC 2,6,14,16	742	178	130	455	1,505
3 FC 7-9,17,19	87	11	55	130	283
All Links	1,214	197	217	628	2,256
Functional Class Group	Count Type/Source: Percent of All Screenline Links				Total
	Full Class Count	Other Actual / Partial Count	Agency Est. Daily	No Data or Estimate	
1 FC 1,11,12,20	17.1%	0.4%	1.4%	1.9%	20.7%
2 FC 2,6,14,16	32.9%	7.9%	5.8%	20.2%	66.7%
3 FC 7-9,17,19	3.9%	0.5%	2.4%	5.8%	12.5%
All Links	53.8%	8.7%	9.6%	27.8%	100.0%

2.4 TRANSIT COUNTS

The transit counts available for use in the BPM Base Year 2005 Update were taken from the Hub-Bound Travel 2005 Report, made available by NYMTC. Specifically, the total number of persons entering the Manhattan Central Business District (CBD), on a typical Fall weekday, were obtained from that report’s “Table 14: Where, When and How People Entered the Hub on a Fall Day in 2005.”

The 2005 estimates, along with the 2002 estimates used in the previous BPM validation are shown in Table 2.4, by the three sectors: 60th Street (from the North, East River Sector (from the East), and New Jersey Sector (from the West). The table shows a substantial growth in transit from New Jersey in the 3 year period between these base years.

Section 2: BPM Data Updates

Table 0-4 Transit Ridership Counts / Weekday Hub-Bound: 2005 and 2002 Base Years

PART A: TOTAL WEEKDAY - 2005 - INBOUND

	60TH ST SECTOR	BROOKLYN SECTOR	QUEENS SECTOR	STATEN ISLAND SECTOR	COMBINED: EAST RIVER	N. J. SECTOR	ALL SECTORS
Bus	52,014	30,668	16,101		46,769	181,272	280,055
Rapid Rail	<u>752,625</u>	<u>645,045</u>	<u>438,585</u>		<u>1,083,630</u>	<u>89,336</u>	<u>1,925,591</u>
Subway and Bus	804,639	675,713	454,686		1,130,399	270,608	2,205,646
Ferry & Tram		<u>171</u>	<u>2,206</u>	<u>32,697</u>	35,074	<u>19,319</u>	<u>54,393</u>
Subway+Bus+Ferry	804,639	675,884	456,892	32,697	1,165,473	289,927	2,260,039
Commuter Rail	97,562		114,229		114,229	72,364	284,155
Total Transit	902,201	675,884	571,121	32,697	1,279,702	362,291	2,544,194

PART B: TOTAL WEEKDAY - 2002- INBOUND

	60TH ST SECTOR	BROOKLYN SECTOR	QUEENS SECTOR	STATEN ISLAND SECTOR	COMBINED: EAST RIVER	N. J. SECTOR	ALL SECTORS
Bus	56,991	33,227	17,232		50,459	153,030	260,480
Rapid Rail	<u>751,826</u>	<u>644,741</u>	<u>406,895</u>		<u>1,051,636</u>	<u>73,166</u>	<u>1,876,628</u>
Subway and Bus	808,817	677,968	424,127		1,102,095	226,196	2,137,108
Ferry & Tram		<u>282</u>	<u>1,140</u>	<u>32,649</u>	<u>34,071</u>	<u>32,699</u>	<u>66,770</u>
Subway+Bus+Ferry	808,817	678,250	425,267	32,649	1,136,166	258,895	2,203,878
Commuter Rail	100,286	1,457	139,009		140,466	75,842	316,594
Total Transit	909,103	679,707	564,276	32,649	1,276,632	334,737	2,520,472

PART C: TOTAL WEEKDAY - Growth in Transit Trips

	60TH ST SECTOR	BROOKLYN SECTOR	QUEENS SECTOR	STATEN ISLAND SECTOR	COMBINED: EAST RIVER	N. J. SECTOR	ALL SECTORS
Bus	(4,977)	(2,559)	(1,131)		(3,690)	28,242	19,575
Rapid Rail	<u>799</u>	<u>304</u>	<u>31,690</u>		<u>31,994</u>	<u>16,170</u>	<u>48,963</u>
Subway and Bus	(4,178)	(2,255)	30,559		28,304	44,412	68,538
Ferry & Tram		<u>-111</u>	<u>1,066</u>	<u>48</u>	<u>1,003</u>	<u>(13,380)</u>	<u>(12,377)</u>
Subway+Bus+Ferry	(4,178)	(2,366)	31,625	48	29,307	31,032	56,161
Commuter Rail	(2,724)	(1,457)	(24,780)		(26,237)	(3,478)	(32,439)
Total Transit	(6,902)	(3,823)	6,845	48	3,070	27,554	23,722

PART D: TOTAL WEEKDAY - Percent Growth in Transit

	60TH ST SECTOR	BROOKLYN SECTOR	QUEENS SECTOR	STATEN ISLAND SECTOR	COMBINED: EAST RIVER	N. J. SECTOR	ALL SECTORS
Bus	-9%	-8%	-7%		-7%	18%	8%
Rapid Rail	<u>0%</u>	<u>0%</u>	<u>8%</u>		<u>3%</u>	<u>22%</u>	<u>3%</u>
Subway and Bus	-1%	0%	7%		3%	20%	3%
Ferry & Tram		<u>-39%</u>	<u>94%</u>	<u>0%</u>	<u>3%</u>	<u>-41%</u>	<u>-19%</u>
Subway+Bus+Ferry	-1%	0%	7%	0%	3%	12%	3%
Commuter Rail	-3%		-18%		-19%	-5%	-10%
Total Transit	-1%	-1%	1%	0%	0%	8%	1%

BPM Network Updates

3.1 HIGHWAY NETWORK

A major component of the BPM 2005 Update was the coding of corrections and updates for the NYMTC Base Highway Network, from which a new Base Year 2005 network was built using the standard BPM project coding and updating procedures (“Step 1 / Step 2 and Build” processes). The new coding that was applied to the 2002 Base to obtain a 2005 new base network came from three general sources as described below.

3.1.1 General Updates from Planning Studies Using the BPM

Coding updates done by consultants and other agencies using the NYMTC BPM as part of planning studies in the region provided useful information to update the BPM 2005 highway network as a result data developed in these corridor studies. These included existing year highway network update projects coded by:

- Earth Tech, as part of the Tappan Zee Bridge Study in the Mid-Hudson corridor.
- Parsons Transportation Group, as part of the Gowanus Major Investment Study (MIS) in Brooklyn.
- Parsons Brinckerhoff, as part of CATS, Henry Hudson Toll Study and others

3.1.2 TIP Projects Completed Before or by 2005

With input from the member NYMTC TCCs (New York City, Nassau, and Suffolk), these network updates were incorporated to reflect prior TIP projects that were built since the 2002 base year BPM network. The prior Step 1 / Step 2 BPM coding from prior TIP analyses could be used to incorporate these changes into the updated BPM 2005 Base Year.

3.1.3 Corrective Actions and Modifications as Part of Re-Calibration

Most of this coding was done by NYMTC with assistance from the consultant team regarding corrections needed to make the BPM base network a more accurate representation of the regional transportation system and included the following:

- The Truck Usage Restriction values were updated for the 2005 network based on revised values provided by Urbitran, primarily sourced from commercial vehicle restriction information provided by NYCDOT.
- General checks for appropriate value of link attributes such as functional class and county code were done by NYMTC and corrections were included in the base network.

3.1.4 Representation of Tolls in BPM Highway Network

The BPM was originally developed for Base Year 1996, using survey data and other inputs developed for that point in time, including tariffs or the toll facilities in the region. The behavioral relationship estimated for the travel choice models between travelers’ perception of the relative disutility of travel time and monetary cost reflects conditions at that point in time. In other words, the value of time implied by the BPM choice models are appropriately expressed in 1996 dollars.

Before the 2002 Update, tolls were coded in the BPM highway network data based on the cash auto toll value, or the cash heavy truck estimated average toll coded on links where tolls are charged, with tariff values being those in place in 1996/97. This basic representation of tolls ignored various forms of discounts available to different travel segments, but was a reasonable way to incorporate the toll component of travel into the BPM choice models as part of their statistical estimation, and for the calibration of the assignment procedures.

With the introduction of EZ-Pass, and various time-of-day toll policies in the region, starting with the Port Authority of NY/NJ's March 2001 toll change, this method represents even more of a simplification of reality than it did when originally implemented in the BPM. As part of the BPM 2002 Update, consideration was given to the modifications to the BPM data structures and enhancements to the choice models that would be needed to better address the new tolling policies, and also to account for generally higher average toll costs (at least in nominal dollars). It was determined that a meaningful improvement in how the BPM could model tolls will require time and resources beyond the available timeline for the 2002 Update.

For the 2005 Update, it was decided that the 1996/97 dollar tolls be converted to 2005 dollars. The auto tolls on Port Authority and MTA facilities were calculated based on weighted Cash (30%) and EZPass (70%) tolls, where a general average percentage EZPass (70%) users on bridges/tunnels was obtained from the recent MTA 2006 OD surveys. For PA bridges and tunnels, tolls were further averaged (1/3rd for peak and 2/3rd for off-peak) across time-of-day to compute an average toll. Average truck tolls were computed by Urbitran based on truck size distribution (number of axles) on different facilities. This change required implementing a procedure within the BPM MDSC model to “re-index” (e.g. by CPI) the estimated value of time related coefficients on cost components in the choice model utility expressions.

As in prior versions of the BPM, tolls are implemented as link attributes, coded in the highway networks database. As explained above, auto tolls represent average daily costs per vehicle. Average daily truck (6 or more tires) tolls are coded in a separate field in the highway network. Estimated truck tolls were updated to reflect real truck tolls in 2005, weight-averaged by both the volume and tolls applied in each truck toll class (typically number of axles).

3.1.5 Updated Vehicle Operating Cost and Value of Time

The vehicle operating cost (VOC) and value of time (VOT) was scaled by CPI to convert into 2005 dollar equivalent. The VOT for autos were calculated by time period based on VOT by purpose and distribution of highway journeys by purpose over the day. In addition to the above changes, the sensitivity of tolls for auto modes only was reduced by half in the fixed vehicle operating cost computation in Netprep. The revised VOC and VOT values for the BPM 2005 Update version are shown in **Figure 3-1**.

Figure 0-1: 2005 Vehicle Operating Costs and Value of Time by Vehicle Class

Vehicle Type	Operating Cost (¢/mile)	VOT (AM) (¢/min)	VOT (MD) (¢/min)	VOT (PM) (¢/min)	VOT (NT) (¢/min)
Auto (SOV)	20	28.3	31.6	27.5	26.5
Truck	43.4	83.33	83.33	83.33	83.33

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Commercial Vans	19.2	75	75	75	75
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3.1.6 Bus Vehicles on the Highway Network - Update

The highway transit correspondence file (HWYTRANS.dbf) used for bus preloads was updated to include new bus routes to ensure that the updated 2005 bus coding is properly accounted for in the new 2005 highway system simulation. Also, errors were found in the existing file where multiple road network links (in series) were tagged to the same transit line layer. This would have resulted in higher bus preloads on these specific links. We would strongly recommend that the user should follow the guidelines specified in NYMTC BPM User Documentation for editing this file.

3.1.7 Highway Network Capacities and Free Flow Speeds

A review of the congested travel times produced by the assignment process in the BPM 2002, indicated that the simulated speeds were generally too slow, and the travel times somewhat too long. Adjustments were made that generally increased speeds and reduced the modeled travel times by upward adjustment of capacities, and in particular, relaxing the constraining effects of higher density Areatypes on limited access facilities.

Table 3-1 shows the freeflow speeds by Areatype and Physical Link Type (PLT) for BPM update 2005 and 2002. The cells highlighted in grey show the cases for which the freeflow speeds have been changed between the 2002 and 2005 update.

Table 3-2 shows the revised capacity values for BPM 2005 update along with the capacity values for 2002 Update. The capacities are generally relaxed and increased as noted above, and are also larger since with the 2005 update they are expressed in terms of passenger car equivalent/units, not average vehicles as before in 2002. The capacities were also increased for Centroid connectors from 100 vphpl to 10,000 pcuphpl to eliminate issues with later versions of TransCAD (4.8 and later).

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Table 0-1: Free Flow Speed Comparison between 2005 and 2002 Update

		Free Flow Speed - BPM (2005)										
		Areatype										
	PLT	1	2	3	4	5	6	7	8	9	10	11
Toll Barrier	1	20	25	28	29	29	29	30	30	31	31	33
Bridge	2	50	50	55	55	57	57	58	58	59	59	60
Tunnel	3	40	40	40	40	40	40	40	40	40	40	40
Freeway Class 1	4	54	55	56	58	59	60	62	64	65	68	76
Freeway Class 2	5	52	52	54	56	57	58	60	62	63	66	74
Parkway Class 1	6	48	49	51	53	53	54	56	58	60	62	70
Parkway Class 2	7	40	42	45	48	48	49	51	53	55	57	65
Parkway Class 3	8	35	37	39	42	45	46	47	49	51	53	61
Prin. Hwy Class1	9	35	37	39	42	45	46	47	49	51	53	61
Prin. Hwy Class2	10	25	28	31	36	38	39	43	43	44	47	59
Arterial Class1	11	20	23	30	32	33	34	35	36	37	38	46
Arterial Class2	12	14	16	20	24	25	26	27	27	28	29	37
Arterial Class3	13	13	15	19	23	24	25	26	27	28	29	37
Arterial Class4	14	9	12	16	20	21	22	23	26	27	28	36
Arterial Class5	15	9	11	15	18	19	20	21	23	25	27	33
Collector/ Local	16	9	10	14	16	17	18	19	20	23	25	29
Ramp, High Speed	17	34	38	42	46	46	47	49	50	51	54	60
Ramp, outer loop	18	26	28	32	33	38	38	43	43	43	47	55
Ramp, inner loop	19	18	21	25	27	32	32	37	37	37	41	49
Ramp Diamond	20	17	19	21	24	25	25	27	27	28	29	34
Centroid Connectors	21	11	12	13	13	18	18	18	22	23	26	33

		Free Flow Speed - BPM (2002)										
	PLT	1	2	3	4	5	6	7	8	9	10	11
Toll Barrier	1	20	25	28	29	29	29	30	30	31	31	33
Bridge	2	40	42	44	46	48	50	52	54	56	58	60
Tunnel	3	40	40	40	40	40	40	40	40	40	40	40
Freeway Class 1	4	44	46	53	58	59	60	62	64	65	68	76
Freeway Class 2	5	42	44	51	56	57	58	60	62	63	66	74
Parkway Class 1	6	42	43	48	53	53	54	56	58	60	62	70
Parkway Class 2	7	37	38	43	48	48	49	51	53	55	57	65
Parkway Class 3	8	32	33	37	42	45	46	47	49	51	53	61
Prin. Hwy Class1	9	32	33	37	42	45	46	47	49	51	53	61
Prin. Hwy Class2	10	21	22	29	37	38	39	43	43	44	47	59
Arterial Class1	11	15	19	26	32	33	34	35	36	37	38	46
Arterial Class2	12	9	13	20	24	25	26	27	27	28	29	37
Arterial Class3	13	8	12	19	23	24	25	26	27	28	29	37
Arterial Class4	14	6	9	16	20	21	22	23	26	27	28	36
Arterial Class5	15	6	8	15	18	19	20	21	23	25	27	33
Collector/ Local	16	6	7	14	16	17	18	19	20	23	25	29
Ramp, High Speed	17	29	36	42	46	46	47	49	50	51	54	60
Ramp, outer loop	18	20	25	30	33	38	38	43	43	43	47	55
Ramp, inner loop	19	14	19	24	27	32	32	37	37	37	41	49
Ramp Diamond	20	12	18	21	24	25	25	27	27	28	29	34
Centroid Connectors	21	6	10	13	13	18	18	18	22	23	26	33

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Table 0-2: Capacity Comparison between 2005 (VPUPHPL) and 2002 Update (VPHPL)

		Capacity - BPM (2005)										
		Areatype										
PLT		1	2	3	4	5	6	7	8	9	10	11
Toll Barrier	1	270	350	440	490	600	600	600	650	710	710	760
Bridge	2	1,580	1,640	1,690	1,750	1,750	1,750	2,180	2,180	2,240	2,290	2,350
Tunnel	3	1,420	1,470	1,530	1,580	1,580	1,580	2,020	2,020	2,070	2,130	2,180
Freeway Class 1	4	1,670	1,833	1,965	2,050	2,150	2,290	2,290	2,290	2,350	2,350	2,400
Freeway Class 2	5	1,635	1,793	1,917	2,000	2,093	2,177	2,240	2,240	2,290	2,290	2,350
Parkway Class 1	6	1,635	1,793	1,917	2,000	2,027	2,177	2,240	2,240	2,290	2,290	2,350
Parkway Class 2	7	1,530	1,673	1,798	1,893	1,920	2,070	2,180	2,180	2,240	2,290	2,350
Parkway Class 3	8	1,425	1,553	1,680	1,770	1,813	1,963	2,070	2,070	2,130	2,240	2,290
Prin. Hwy Class1	9	1,425	1,553	1,680	1,770	1,813	1,963	2,070	2,070	2,130	2,240	2,290
Prin. Hwy Class2	10	1,320	1,433	1,605	1,700	1,757	1,907	2,020	2,020	2,070	2,180	2,240
Arterial Class1	11	800	960	1,030	1,200	1,150	1,200	1,470	1,580	1,690	1,750	1,800
Arterial Class2	12	650	790	880	1,040	1,040	1,090	1,470	1,580	1,690	1,690	1,750
Arterial Class3	13	530	650	790	930	930	980	1,310	1,420	1,530	1,530	1,580
Arterial Class4	14	500	610	690	820	820	870	1,200	1,310	1,420	1,470	1,530
Arterial Class5	15	460	570	690	820	820	870	1,090	1,200	1,310	1,360	1,420
Collector/ Local	16	380	480	590	710	760	820	1,090	1,200	1,310	1,310	1,360
Ramp, High Speed	17	930	930	930	980	980	980	1,090	1,090	1,090	1,250	1,250
Ramp, outer loop	18	760	760	760	760	760	760	820	820	820	930	930
Ramp, inner loop	19	380	380	380	380	440	440	490	490	490	600	600
Ramp Diamond	20	490	490	490	490	550	550	600	600	600	710	710
Centroid Connectors	21	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000

		Capacity- BPM (2002)										
PLT		1	2	3	4	5	6	7	8	9	10	11
Toll Barrier	1	245	320	405	450	550	550	550	600	650	650	700
Bridge	2	1,450	1,500	1,550	1,600	1,600	1,600	2,000	2,000	2,050	2,100	2,150
Tunnel	3	1,300	1,350	1,400	1,450	1,450	1,450	1,850	1,850	1,900	1,950	2,000
Freeway Class 1	4	1,190	1,400	1,575	1,750	1,950	2,100	2,100	2,100	2,150	2,150	2,200
Freeway Class 2	5	1,155	1,360	1,530	1,700	1,900	2,050	2,050	2,050	2,100	2,100	2,150
Parkway Class 1	6	1,155	1,360	1,530	1,700	1,700	2,050	2,050	2,050	2,100	2,100	2,150
Parkway Class 2	7	1,050	1,240	1,395	1,600	1,600	1,950	2,000	2,000	2,050	2,100	2,150
Parkway Class 3	8	945	1,120	1,260	1,450	1,500	1,850	1,900	1,900	1,950	2,050	2,100
Prin. Hwy Class1	9	945	1,120	1,260	1,450	1,500	1,850	1,900	1,900	1,950	2,050	2,100
Prin. Hwy Class2	10	840	1,000	1,215	1,400	1,450	1,800	1,850	1,850	1,900	2,000	2,050
Arterial Class1	11	735	880	945	1,100	1,050	1,100	1,350	1,450	1,550	1,600	1,650
Arterial Class2	12	595	720	810	950	950	1,000	1,350	1,450	1,550	1,550	1,600
Arterial Class3	13	490	600	720	850	850	900	1,200	1,300	1,400	1,400	1,450
Arterial Class4	14	455	560	630	750	750	800	1,100	1,200	1,300	1,350	1,400
Arterial Class5	15	420	520	630	750	750	800	1,000	1,100	1,200	1,250	1,300
Collector/ Local	16	350	440	540	650	700	750	1,000	1,100	1,200	1,200	1,250
Ramp, High Speed	17	630	720	810	900	900	900	1,000	1,000	1,000	1,150	1,150
Ramp, outer loop	18	420	480	585	650	700	700	750	750	750	850	850
Ramp, inner loop	19	210	240	315	350	400	400	450	450	450	550	550
Ramp Diamond	20	280	320	405	450	500	500	550	550	550	650	650
Centroid Connectors	21	70	80	90	100	100	100	100	100	100	100	100

3.1.8 Final BPM 2005 Updated Highway Network

These updates were incorporated into the base network, along with other minor corrections, throughout the recalibration process. The final updated base network is HN080714.dbd released as part of the BPM 2005 Update 090629¹.

After all the changes were incorporated in the new base highway network (HN080714.dbd), the Link IDs and Node IDs were renumbered to as set of continuous ids, starting with 1. Therefore, projects (PROJ/CHGS files) to build alternative networks for use with the new version of the 2005 BPM will need to be coded “on-top” of this new base highway network referencing these reset link IDs. These projects can have numbers starting from 001.

¹ The highway network included in the final BPM 2005 Update version includes only minor corrections to the principal network developed as of July 14, 2008 and consequently retains the name HN080714

3.2 TRANSIT SERVICES AND NETWORK UPDATE

The BPM 2005 updated transit network was developed in two stages – for rail and ferry transit services, and for bus route changes.

3.2.1 Rail Transit Update

In the first stage, the consultant team (AECOM Consult) updated all the fixed guide-way transit services, reflecting operational and schedule changes in effect as of year 2005.

These included service changes for the following rail operations:

- Long Island Railroad (LIRR)
- Metro North Railroad
- New Jersey Transit Commuter Railroad
- PATH
- New York City Transit Subway Services
- Hudson-Bergen LRT Service
- Regional Ferry Services
- JFK AirTrain Service

The specific changes incorporated in the computer rail service update are listed in detailed in Appendix E.

3.2.2 Bus Services Update

For the prior 2002 BPM Update, a major effort was made by NYMTC, with the cooperation of the MTA and New York City Transit to update the bus routes and operational data to reflect Year 2002 bus services in the New York portions of the BPM model area. This new coding represented a major improvement to the original bus network coding that was compiled for the original Base Year 1996 BPM. No additional bus network review or updates were done as part of the 2005 Update.

3.2.3 Transit Fares

The 2002 BPM transit fares were coded in Year 1996 dollars, corresponding the former base year of the NYMTC BPM (and model estimation). For forecast year fares, the identical fares are applied – meaning that the existing process assumes fares will rise with inflation.

The MTA and other regional transit agencies have passed along additional fare increases to their users, which may have generally exceed the rate of inflation. AECOM has updated the fares to represent Year 2005 fare policies, with average fare values represented in 2005 dollars. Like tolls and other costs update for the 2005 BPM, these fares are transformed within the processing of the BPM so that they are modeled consistently with the original mode choice model parameters estimated with 1996 dollars.

Improved BPM Application Procedures

The set of improvements to BPM application procedures done as part of the Update 2005 work are described in this section:

- Revised External (Auto) method - *base year and forecast*
- Enhanced the Mode Destination and Stop Choice Model,
- Revised Pre-Assignment Processor (PAP) and Time-of-Day (TOD)
- Updating the Highway Assignment and Skimming Procedures
- Blending of Skims/Tour-Level Skims
- Revised Transit Network Skimming Procedures
- Updated Truck and Van Trip Table Estimation and Forecasting Procedures
- Implementation of Standard Global Iterations with Feedback

4.1 EXTERNAL AUTOS TRAVEL MODEL

An external model was developed in 2001 to account for Internal-External, External-Internal and External-External trips¹. Prior to BPM 2002 update, a significant problem was uncovered with the External Auto model developed for the original BPM Base Year 1996 model. The model was seen to be substantially over-stating average trip lengths for external-internal trips, resulting in high proportions of these trips even on roads in the core of the region. As part of the 2002 update, a count-based synthesized matrix solution for the Base Year was developed, and forecasted with simple Iterative Proportional Fitting (IPF) procedures. As part of the BPM 2005 update, this "patch" was replaced with an external model that is similar to the original formulation, with appropriate corrections and re-calibration, as well as with a linkage for the regional SED forecasts.

First, the model code of the original external model was carefully checked. While there was no obvious coding error found, a few calculations surprised as they were not described in the documentation. For instance, the average of two distance values was calculated by " $a * b / 2$ ". This calculation was changed to " $(a + b) / 2$ ".

In the previous version, employment and population had a constant weight of 1, regardless of trip purpose. In other words, both for work trips and non-work trips, employment had the same weight to select a destination zone. In this update, a new factor has been introduced to give employment a higher weight for HBW trips (90 percent) and a lower weight for all other purposes (50 percent). Thus, HBW trips are mostly attracted by employment, whereas HBO and NHB trips are equally attracted by employment and population.

At the external end of both IE and EI trips, no population or employment information is available. The external end is an external station, serving many destinations outside the BMP study area. Therefore, not population or employment is used to select the external station, but rather the auto traffic volumes at each external station serve as a weight to select the external station.

¹ A full description of this external model can be found in: *Transportation Models and Data Initiative. Technical Memorandum. Task 14.8.D. External Travel: Data Files and Procedures for the NYMTC Best Practice Model. New York, Nov 27th 2001.*

As it was discovered that too many trips go from External into Manhattan, a scaling factor was introduced, that reduces the weight of population and employment for the very dense zones in Manhattan and increases the weight of areas with a lower activity density (scaledValue = value*0.1, applied to both population and employment).

Given the applied parameters, distance had a very small impact on the number of trips between two zones; the simulation was dominated by a constant parameter (α). To increase distance sensitivity, the constant was replaced by a parameter γ in the denominator of the gravity model:

Previous equation:

$$Flow_{i,j} = \alpha \cdot \left(\frac{Pop_j + Emp_j}{\left(\frac{Dist_{i,j} \cdot Dist_{j,i}}{2}\right)^2} \right)^\beta$$

New equation:

$$Flow_{i,j} = \frac{\delta \cdot Pop_j + \delta \cdot Emp_j^{scaler}}{\left(\frac{Dist_{i,j} + Dist_{j,i}}{2}\right)^\gamma}$$

The socio-demographic data was updated with 2005 numbers and target data for the number of IE/EI trips was set to the 2005 values (even though the previous growth-factored values from 1996 resulted into very similar volumes for 2005 as the new values). The new parameters δ , scalar and γ were calibrated to match the average counts on the 21 bridges and tunnels across Hudson, Manhattan and East River. Several values on single bridges do not match the count data, the model design is too simplistic to achieve the number of bridge crossings at that level of detail, and a lack of accurate count data decreases the likelihood of matching the bridge counts individually. The total number of bridge crossings, however, matches with a deviation of 0.3 percent.

Furthermore, the new version of the external model distinguishes vehicle occupancy for external trips. The four trip purposes (HBW, HBO, NHB and through trips) are distributed among 3 vehicle classes (SOV, HOV2, HOV3+) based on pre-fixed distributions for vehicle occupancy by purpose as defined in C:\0_BPM1\5_RunBin\7_ext

TripPurposeByVehicleOccupancy.prn. These data were derived from the 1997/1998 Household Interview Survey. The survey did not include external travelers. It was assumed that external trips have the same occupancy distribution as internal trips (for HBW, HBO and NHB). Through trips are assumed to have the same occupancy distribution as HBO trips.

4.2 RESTRUCTURE/MODIFY SPECIFIED BPM PROCEDURES

4.2.1 Mode, Destination and Stop Choice (MDSC)

As part of the 2005 Update, the MDSC model was enhanced for the following -

Account for one-way tolls on tour level choices – In the earlier version of BPM, AM period skims (only) were used for mandatory tour-level mode and destination choice modeling, and MD skims were used for non-mandatory purposes. This created an inconsistency for origin-destination interchanges that involve one-way auto toll collection. For example, given the Eastbound collection of tolls at the Trans-Hudson crossings, the auto toll is zero for a resident of Manhattan looking at work in New Jersey when considering their outbound AM trip, but would be the full toll for the New Jersey resident considering work travel choices to Manhattan. This problem has been corrected in the 2005 BPM version by using highway skims that are “blended” across all four

time periods in both inbound and outbound directions using blending weights by purpose as explained in Section 4.2.4.

Parking Cost – In the 2002 BPM version, the parking cost was defined in dollars and used in utilities as cents which made its impact on choice making insignificant. This issue has been fixed and user defined parking cost file option has been added to the program. The user can define parking costs for work and non-work purposes by employment density index. An example file with default parking costs values has been included in the BPM transmittal (C:\0_BPM1\0_SetUp\2_LUT\2_MDC\ParkingCosts.txt).

Representation of Vehicle Operating Costs - the highway operating cost was specified as 20¢/mile which is consistent with the highway assignment and skimming procedure.

4.2.2 Pre-Assignment Processor (PAP) and Time-Of-Day (TOD)

Trip Tables/Multi-Class: The current 6 table structure (SOV, HOV2 with Taxis, HOV3+, External autos, Vans, Trucks) of highway trip tables was reorganized to provide for explicit simulation, analysis and report of additional travel vehicle market segments. Taxis were separated from the HOV2 table so that transportation policies and costs unique to each mode can be reflected in the modeling. External autos were allocated to the SOV, HOV2 and HOV3 specific as a discrete mode and table by estimated vehicle occupancy.

Table 0-1: Revised Structure of BPM Highway Vehicle Trip Tables

Table in Highway Vehicle Trip Table	BPM 2002 - Vehicle Class/Source	Revised BPM - Vehicle Class/Source
Table 1	SOV's only	SOV's (w/ externals)
Table 2	HOV2 (w/ Taxis)	HOV2 (w/ externals)
Table 3	HOV3+	HOV3+ (w/ externals)
Table 4	Externals (auto)	Taxis
Table 5	Trucks	Trucks
Table 6	Other Commercial / Vans	Other Commercial / Vans

Trip Mode Assignment for Drive to Transit Modes - the logic of trip mode assignment for the inbound leg of drive-to-transit and drive-to-commuter rail trips was incorrect in the previous BPM version. Instead of reversing the drive-access and line-haul transit segments of the outbound leg, it applied them in the same order for the inbound (or return to home) leg of the tour. This was corrected in 2005 Update BPM so that the sequence of trip modes is transit,

then drive-egress.

4.2.3 Highway Assignment and Skimming

The highway assignment scripts and procedures were revised/updated to include the following features:

Highway Network Settings - The scripts were updated to account for the restructuring of highway trip tables - taxis are separated from HOV2 and external trips (which were earlier located in the table#4) are distributed among SOV and HOV tables. The link usage restriction for Taxis was eliminated allowing taxis to use HOV lanes. New Turn Penalties were defined to prohibit global U-turns in the highway network.

Assignment Parameters – The standard highway assignment procedure is revised to assignment all four time periods to a convergence level of 0.001 and 100 maximum iterations, whichever is reached earlier. For the base year run, all four time periods converge to 0.001 within 100 iterations. For the last BPM update, when bus preloads were added to the highway assignment procedure, the passenger car equivalents (PCE) for buses was defined as 3. However, PCE for other vehicle categories was unchanged, defaulting to 1. In this 2005 Update, the PCE for trucks has been redefined as 2 to account for size impacts on traffic.

Feedback/Convergence (MSA version) – the scripts were revised to include highway assignment for all four time periods for each iteration and blending of skims.

Volume Delay Functions\BPR – the parameters (alpha and beta) for BPR function in BPM are defined by Physical Link Type (PLT) classification. These parameters were reviewed and revised to generally ease network congestion effects (travel times increases over free flow times) when demand exceeds capacities. **Table 4-2** shows the alpha and beta values by PLT for 2005 and 2002 calibration. The alpha parameter has been relaxed for bridges & tunnels, freeways, parkways, principal highway and arterials. The ratio of congested time to free flow time as a function of volume-to-capacity ratio is shown in **Figure 4-1** and **Figure 4-2** for 2005 and 2002 BPR parameters.

Table 0-2: Comparison of BPR Parameters between 2005 and 2002 Update

PLT	LINKNAME	2002 Update		2005 Update	
		ALPHA	BETA	ALPHA	BETA
1	Toll Barrier	1.0	4.0	1.0	4.0
2	Bridge	2.5	5.0	2.0	5.0
3	Tunnel	2.5	5.0	2.0	5.0
4	Freeway, Class 1	2.5	5.0	1.5	5.0
5	Freeway, Class 2	2.5	5.0	1.5	5.0
6	Parkway, Class 1	2.5	5.0	1.5	5.0
7	Parkway, Class 2	2.0	4.0	1.5	4.0
8	Parkway, Class 3	2.0	4.0	1.5	4.0
9	Princ. Hwy Class 1	2.0	2.0	1.0	2.0
10	Princ. Hwy Class 2	2.0	2.0	1.0	2.0
11	Arterial, Class 1	2.0	2.0	1.0	2.0
12	Arterial, Class 2	2.0	2.0	1.0	2.0
13	Arterial, Class 3	2.0	2.0	1.0	2.0
14	Arterial, Class 4	2.0	2.0	1.0	2.0
15	Arterial, Class 5	0.5	2.0	0.5	2.0
16	Collector/Locals	0.5	2.0	0.5	2.0
17	Ramp, high speed	1.0	4.0	1.0	4.0
18	Ramp, outer loop	1.0	4.0	1.0	4.0
19	Ramp, inner loop	1.0	4.0	1.0	4.0
20	Ramp, diamond	1.0	4.0	1.0	4.0
21	Centroid Connector	0.0	1.0	0.001	1.001

Figure 0-1: BPR Curves for BPM 2005 Update

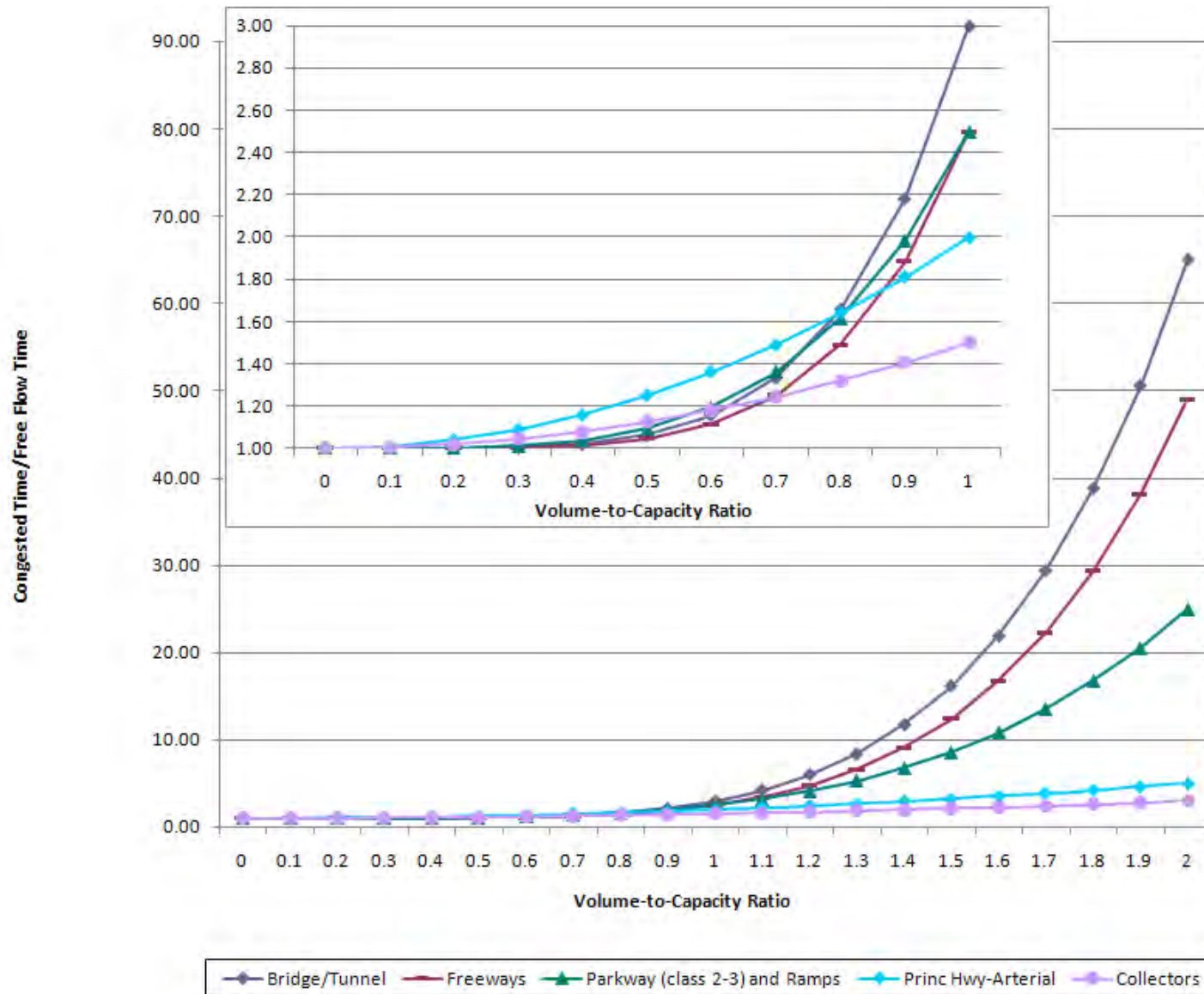
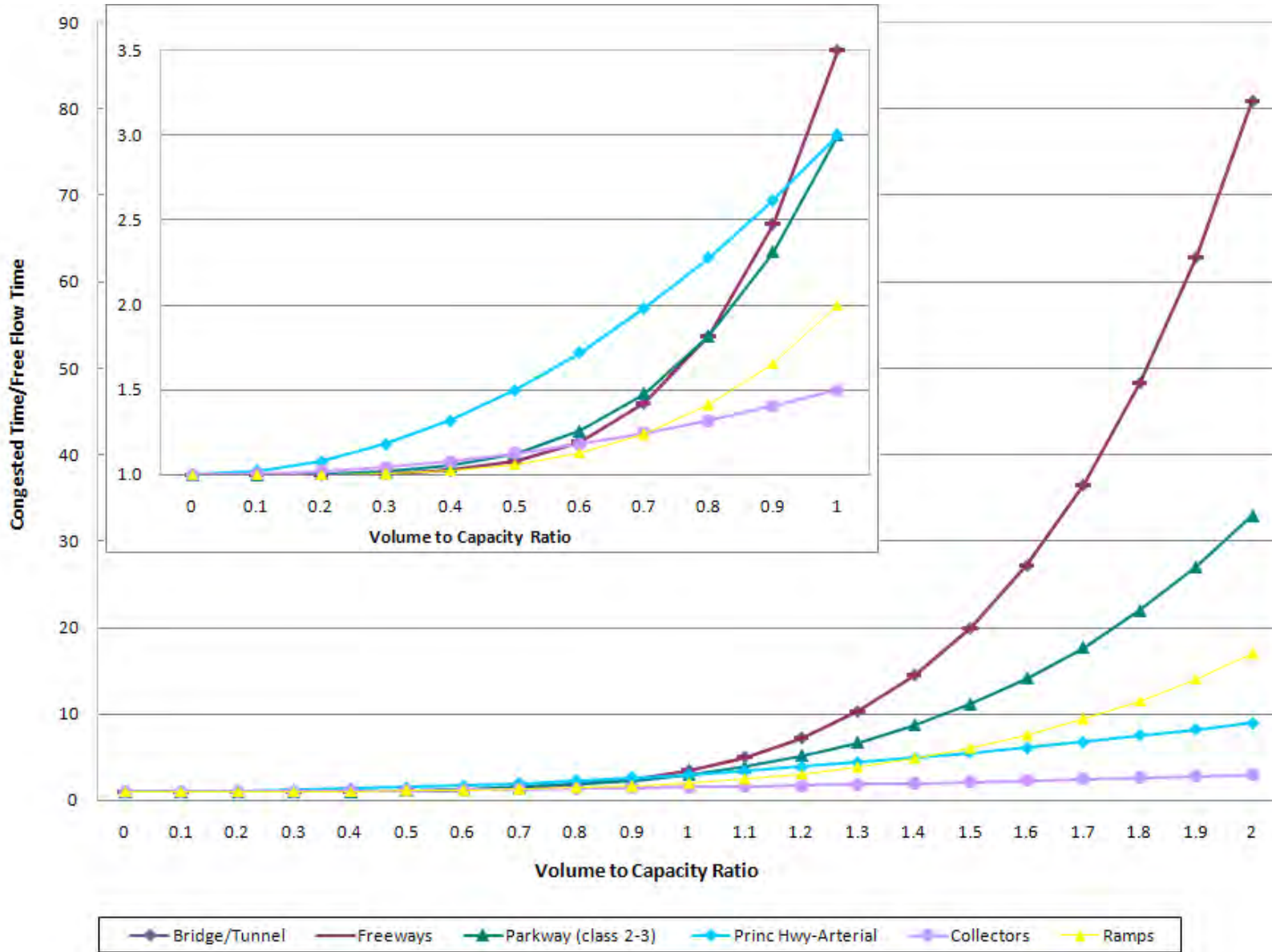


Figure 0-2: BPR Curves for BPM Update 2002



4.2.4 Highway Network Skims - Blending of Tour-Level Skims

Network “skims” of origin-to-destination travel times, costs, and other measures of level of service for available travel mode choices are the key inputs to BPM modeling of mode, destination and stop choice in MDSC. As explained above with respect to changes to how auto tolls are skimmed, in the earlier version of BPM, AM period skims (only) were used for mandatory tour-level mode and destination choice modeling, and MD skims were used for non-mandatory purposes. In the 2005 Update BPM, tour-level choices for each activity type are now modeled using “blended” travel times and costs taken from all four time periods, in both the outbound (from Home) and inbound (to Home) legs of the tour, using blending weights by purpose as explained below.

The highway skims for auto modes (SOV, HOV2, HOV3+ and Taxis) for four time periods were weight-averaged based on direction, purpose and Origin-Destination Group. The weights were calculated based on the Household survey distributions for 6 purposes (work, school, university, maintenance, discretionary and at-work), four time periods (AM, MD, PM and NT), direction of journey (outbound and inbound) and 3 OD groups (within Manhattan, to/from Manhattan and Others) as shown in **Table 4-3**.

The blended skims are calculated for length, time and toll fields only since only these fields are used for Mode, Destination and Stop Choice model. The blended skim value is the average of outbound factors multiplied by skim plus inbound factors multiplied by transpose of skim fields. The equation below shows how blended skims of Time ($BTime_{ijp}$) from origin i to destination j for purpose p is calculated, where $ofac_{ijp}$ and $ifac_{ijp}$ are the blending factors in the outbound and inbound directions, respectively.

$$BTime_{ijp} = \frac{ofac_{ijp} \times Time_{ij} + ifac_{ijp} \times Time_{ji}}{2}$$

Table 0-3: Blending factors by purpose, direction of journey, time period and OD Group

Origin – Destination	Direction of Journey and Time Period		Work	School	Univer.	Maint.	Discret.	At Work
Within Manhattan	Outbound	AM	0.795	0.928	0.588	0.259	0.096	0.168
		MD	0.160	0.072	0.360	0.484	0.390	0.730
		PM	0.033	0.000	0.052	0.175	0.453	0.090
		NT	0.013	0.000	0.000	0.081	0.061	0.012
	Inbound	AM	0.020	0.004	0.021	0.074	0.003	0.025
		MD	0.126	0.622	0.459	0.526	0.365	0.828
		PM	0.648	0.371	0.364	0.258	0.201	0.108
		NT	0.206	0.003	0.156	0.142	0.431	0.039
To/From Manhattan	Outbound	AM	0.851	0.955	0.563	0.330	0.185	0.213
		MD	0.084	0.045	0.310	0.492	0.347	0.612
		PM	0.022	0.000	0.114	0.130	0.424	0.171
		NT	0.043	0.000	0.013	0.048	0.043	0.004
	Inbound	AM	0.012	0.000	0.002	0.049	0.010	0.017
		MD	0.121	0.688	0.303	0.473	0.239	0.724
		PM	0.726	0.262	0.353	0.318	0.297	0.204
		NT	0.140	0.050	0.341	0.159	0.454	0.054
Others	Outbound	AM	0.758	0.938	0.627	0.234	0.166	0.141
		MD	0.142	0.041	0.221	0.407	0.298	0.805
		PM	0.041	0.020	0.149	0.292	0.435	0.049
		NT	0.058	0.001	0.003	0.067	0.102	0.005
	Inbound	AM	0.025	0.004	0.028	0.113	0.024	0.049
		MD	0.263	0.732	0.448	0.429	0.266	0.881
		PM	0.595	0.245	0.285	0.277	0.295	0.065
		NT	0.116	0.019	0.238	0.181	0.415	0.005

4.2.5 Transit Network and Skimming Procedures

Park N’ Ride Costs: A problem was found with the POSTPNRT program which is used to lookup and post highway distances, times and tolls to the transit PNR connection links. The issue is that the highway skims used in the process stores tolls in cents, while other elements of drive access costs (parking costs at lots) are stored in dollars. The program is bringing in toll costs in cents and mixing them with other costs in dollars. A revised, recompiled and tested program is included in the full updated BPM procedures, so that the tolls are converted into dollars properly. The impact of this is expected to be minor for the overall region, and mostly limited to affecting trips from Eastern Rockland and Orange County who use a toll facility to access MNR Hudson Line service at Tarrytown and Beacon. The revision is expected however to affect the base year calibration.

Updated Transit Networks and New TAZ Layer: The TAZ layer was re-created for BPM 2005 update using Census 2000 tract and MCD boundary data. The BPM transit procedures use the TAZ layer in a variety of ways in the transit procedures, which include:

- Each transit stop must by definition fall within a valid TAZ boundary.

- The TAZ centroid locations are used by the automated process to generate park-and-ride links between zones and PNR transit stations. In New Jersey, the TAZ centroid locations are “manually” coded, consistent with the coding by NJ TRANSIT of park-and-ride links.
- The TAZ layer is used to generate percent walks to transit, to establish the percentages of zones that can walk to transit.

While the boundaries of individual TAZ’s changed in only a very modest way with the update, if at all, there were some significant overarching changes to the overall layer which caused issues with the BPM transit processes:

- An offset between the “old” and “new” BPM TAZ Layer which probably occurred due to the old Lion vs. Tiger issues with NYC mapping. This pushed some of the transit stations outside of a TAZ boundary (for instance ferries or Hudson Line pushed in to the Hudson River) when using the new TAZ layer. Instead of recoding the location of the transit stations, which would have been nearly impossible to implement, the TAZ layer boundaries were slightly expanded to ensure that these stations were included in the updated zone definitions.
- Because of this offset the centroid locations between the “old” and “new” BPM TAZ locations have shifted slightly. The input transit networks were updated to ensure proper centroid locations and centroid locality definitions.
- In the BPM automated process, the PNR links are build for the NYMTC region. With the “new” TAZ layer, the coordinates for PNR links update automatically. However, the NJ TRANSIT process is taken directly from the NJ TRANSIT NJTDFM. When the coordinates for the TAZ changed in New Jersey, the link coordinates were not updated as part of the PNR build process. For BPM 2005 Update, a utility was created to update the coordinates of the TAZ layer in the manual NJT links.

4.2.6 Standard Model Run – Global Iterations with Feedback and Averaging for Convergence

With both faster computer processors and processing efficiencies available in TransCAD 4.8 used for the BPM 2005 Update, it has become possible and practical for the user to perform multiple iterations of the BPM with feedback to produce model outcomes / forecasts that approach the desired properties of general user equilibrium, in which network level of service inputs (e.g. highway travel times) to the choice models are generally consistent with the simulated level of service outputs. A standard protocol has been developed and applied for both the base year calibration, and for model runs for future year or scenario forecasts as outlined in **Figure 4-3**.

Figure 4-3: NYBPM Global Iterations – Standard Protocol

Base Calibration - 4 Global Iterations

Iter #	Global Iterations	Input		Model Run Output					
		Trip Tables	Hwy (h) & Transit (t) Skims	Core BPM Trip Tables Out	Trip Tables Assigned	Hwy Link Flows Out	Link Flows Skimmed	Hwy Skims	Transit Assignment
0	"Pre-Skimming"	P	-	-	A	A	A	A-h	
1	Model Run		A-h & A-t	B	B	B	B	B	
2	Model Run (w MSA TT & LV)		B	C	$BC=(B+C)/2$	BC	$BC=(B+BC)/2$	BC	
3	Model Run (w MSA TT)		BC	D	$BCD = (B+C+D)/3$	D	D	D	
4-Final	Model Run		D-h & D-t	E	E	E	E	E	E

Planning Scenario Run - 4 Global Iteration Unaveraged Final

Iter #	Global Iterations	Input		Model Run Output					
		Trip Tables	Hwy (h) & Transit (t) Skims	Core BPM Trip Tables Out	Hwy and Transit Trip Tables Assigned	Hwy Link Flows Out	Link Flows Skimmed	Hwy Skims	Transit Assignment
0	"Pre-Skimming"	BCD (base) or BCD-I "inflated" (future)	-	-	F	F	F	F-h	
1	Model Run		F-h & F-t	G	G	G	G	G	
2	Model Run (w MSA TT & LV)		G	H	$GH=(G+H)/2$	GH	$GH=(G+H)/2$	GH	
3	Model Run (w MSA TT)		GH	I	$GHI = (G+H+I)/3$	I	I	I	
4-Final	Model Run		I-h & I-t	J	J	J	J	J	J

Using methods developed in prior BPM models improvement tasks¹ the base year 2005 calibration was done using 4 global iterations with feedback. However, the first 3 iterations with averaging of link flows and trip tables were used to create a calibrated averaged trip table. This trip table was used to create pre-skims for the final iteration. Similar approach is extended to a planning scenario run.

The BPM 2005 model run protocol as also outlined in **Figure 4-3** prescribes a methodology to use with any available scenario year trip table (BCD or BCD-I) as the starting point and run with 3 global iterations, with Multiple Successive Averaging (MSA) of both link flows and trip tables in order to get an averaged converged trip table (GHI). Once the GHI trip table is created, it is used as the starting trip table to create pre-skims. Then, the pre-skims are used to recreate transit skims and run core BPM models for a final global iteration.

The purpose of this procedure is to produce BPM forecasts based on feedback of averaged travel times and trip tables resulting in more stable and reliable network simulation results. However, the averaging is not preserved for the last iteration in order to have a full consistency between the micro-simulation (HAJ and MDSC) model results, and trip tables/assignment results.

4.3 TRUCK AND COMMERCIAL VAN PROCEDURES

This sections briefly² discusses the development of base year calibrated truck and commercial vehicle trip tables and forecasting procedures. This work was performed by AECOM (formerly, Urbitran Associates).

4.3.1 Truck and Commercial Vehicle Matrix Forecasting Procedures

The truck and van trip tables were re-estimated for the base year 2005 using the BPM Truck Flow Estimating Model (BPM-TFEM). This model was previously developed and used by Urbitran to estimate the original 1996 model.

In BPM, the commercial vehicles with 2 axles and 6 (or more) tires are classified as “trucks”, and all other commercial vehicles are generically classified as “commercial van”. The truck table contains daily vehicle trips for all internal and external zones in the BPM; whereas, the commercial van trip matrix contains only internal-internal movements (i.e. within the 28 county BPM region).

As part of the BPM 2005 update, AECOM compiled a recently-collected truck and commercial vehicle traffic volume data within the NYMTC BPM 28-county boundary, modified the input database for TFLOW and applied TFLOW to estimate 2005 truck and commercial van trip matrices. The resulting trip matrices were examined to determine their reasonability.

¹ Technical Memorandum: BPM Enhancement – Feedback with Convergence (included as part of BPM Installation Version 070424-Beta), April 14, 2007. PB / Parsons Brinckerhoff.

² For detailed discussion, please refer the two memoranda: “*BPM 2005 Truck and Commercial Van Trip Matrix Estimation*” and “*Truck and Commercial Van Trip Matrix Forecasting Procedure*” by Alen Lau at AECOM (formerly, Urbitran Associates).

4.3.2 Truck and Commercial Vehicle Matrix Forecasting Procedures

This section discusses the methodology for estimating future trip tables of daily truck and commercial van zone-to-zone movements. In the BPM, both truck and commercial van trips are modeled for the 3586 “internal” traffic analysis zones (TAZ) of the modeled area. Only for trucks, the trip tables also include vehicular movements from and to external stations.

The truck and commercial van daily trip matrix forecasting procedure consists of following five components:

Impedance matrix preparations

The impedance, which represents generalized cost, is calculated using the midday highway skims using the below equation.

$$\text{Impedance} = \text{ttime} + \text{toll-cost}/\text{VOT} + \text{distance} \times \text{VOC}/\text{VOT} + \text{Truck Penalty} \times \text{distance}$$

Where, *ttime* is the congested travel time (in minutes) for mid-day period, *toll-cost* is the per-vehicle toll cost (in cents), *VOT* is the value-of-time (cents/minute), *VOC* is vehicle operating cost per unit distance (cents/mile) and *Truck Penalty* is the “calibrated” values from the base year trip table estimations (minutes/mile) which is only applicable to trucks.

Internal trip estimation

This process estimates the daily internal-internal trip tables for trucks and commercial vans using growth factors and gravity models. The growth factors for each zone are calculated based on the ratio of estimated daily trip ends between future year and base years. A simple regression model based on household numbers, retail employment, office employment and other employment for the zone is used to compute daily trip ends. Finally, a gravity model is used to distribute daily trips between OD pairs based on impedance matrix.

External-External (E-E) trip estimation (for trucks only)

The base year truck origins and destinations are multiplied by the projected growth in all-vehicle traffic at each external station. These growth rates are used to FRATAR the external-external portion of the base year truck trip table to estimate the future year external-external truck trips.

Internal-External(I-E)/ External –Internal(E-I) trip estimation (for trucks only)

The total number of E-E truck trip ends at each external station are removed from the estimated total daily truck trip ends to yield the estimated combined daily I-E and E-I truck trip ends (which are I-E truck productions). The I-E truck trip attractions are estimated for each zone in proportion to the internal truck trip ends, such that the total I-E attractions equals the total I-E productions. It is followed by the distribution of trips using a gravity model.

Post-Estimation Processing

Finally, the three components of the future year truck trip table (Internal, External-External, and Internal-External/External-Internal) are combined and exported to ASCII (TAB Delimited) format. During this step, the Internal-External matrix is split into Internal-External trips and External-Internal trips, based on proportions derived from the base year trip matrix.

The future year commercial van trip table is also exported to ASCII (TAB Delimited) format but includes the internal-internal trips.

Re-Calibration and Validation of BPM 2005

5.1 REVIEW OF BPM 2002 METHODS AND VALIDATION

As part of updating the BPM, a re-calibration of the BPM to a Base Year 2005 was done based on the revised set of input data, new calibration targets, and improved application procedures discussed in the preceding sections of this report.

The 2002 update simplified the original 1996 calibration structure of the BPM by substantially reducing the number of applied “constants”. Later, a problem was found with too many taxi trips generated due to elimination of very high negative constants for taxis (-999) estimated during the 1996 auto calibration. Also, due to schedule and budget constraints for the 2002 update, the transit calibration was only done to the hub bound counts.

5.2 RE-CALIBRATION PROCESS AND PRINCIPLES

The current re-calibration process was guided by the following principles:

- Focus on Highway Validation, the most critical for the accurate generation of travel forecasting inputs to air quality analysis.
- Aim for a calibration that is generally on the “low side” of observed or estimated counts, accounting for the missing components of travel not modeled in the BPM (e.g. visitors, airport access, police and other fleet vehicle activities).
- Obtain more a uniform regional pattern of volume-count measures with a focus on inter-county screenlines and major crossings (bridges and tunnels) in the region.
- Auto Calibration for Mode Choice model

As discussed in prior sections of this report, the re-calibration of the BPM used:

- A new set of various traffic counts / Screenline counts update 2005
- Transit counts / Hub-bound 2005
- MTA’s RTFM trip tables and Metrocard data for borough-to-borough
- Journey-to-Work flow data at the district level from the ACS 2006¹

The following general rules were applied in the calibration procedure in order to preserve the behavioral properties and elasticities of the estimated model system to the maximum possible extent:

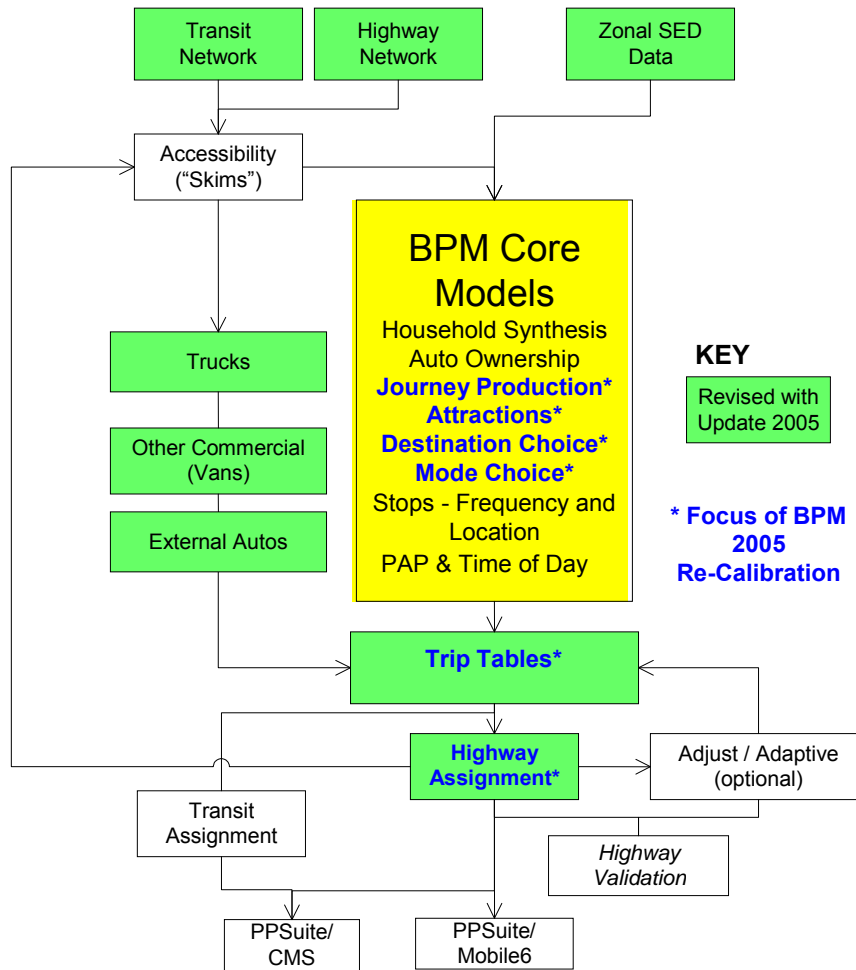
- Only Alternative Specific Constants (ASC) and several general scaling parameters are adjusted:

¹ The ACS is a new continuous Bureau of the Census survey that is replacing the decennial long-form survey as the source for journey-to-work information. For a number of reasons, the data collected in the second year of the program (2006) are considered more reliable and robust.

- Behavioral properties and elasticities of the original model are preserved;
- Aggregate targets are matched;
- Minimal possible adjustments spread over the maximum possible number of segments – avoid over-specification;
- Adjustments were made only if there was a definite indication on the same type of problem from different sources of information:
 - Behavioral sense and logical explanation;
 - From top (major screen-lines) to bottom (individual facilities);
 - Iterative procedure with incremental small adjustments at each iteration and re-evaluation for the next iteration;
 - Adjustments were made based on an iterative procedure with incremental small shifts at each iteration and careful re-evaluation for the next iteration; and
 - Adjustments were based on behavioral factors and logical explanation of the original source of discrepancy.

As shown in Figure 5-1, the re-calibration of the BPM focused on simplifying and revising the parameters for the core models model and correcting the external travel flows on the network.

Figure 0-1: General Structure of the BPM and Focus of BPM 2005 Re-Calibration



The applied approach relied on the following uses of the available data to support the re-calibration:

- Comparison of the model outcome to the aggregate targets:
 - Traffic and transit counts
 - Aggregate HIS statistics
- Identification of the source of the problem:
 - Journey generation
 - Destination choice
 - Mode choice
 - Assignment (route choice)
- Incremental shift of the related alternative-specific constants by manual review and adjustment

5.2.1 Development of Calibration Targets

The calibration target data for NYBPM is largely taken from aggregate summaries and tabulations of the RT-HIS, weighted and expanded to represent base year 2005 regional households. Other data sources for calibration and validation include the American Community Survey (ACS) 2006, other socioeconomic, employment and land use data. Finally, highway screen line count data, New York City Metrocard data and MTA's aggregated RTFM calibrated trip tables were used to re-weight the RT-HIS.

For the first set of calibration tests run for 2005 Update, new household weights were calculated based on American Community Survey (ACS) 2006 data. Using these weights (HIS05), survey trip tables were created from the HIS journey records and were assigned to the highway network. The output volumes were compared to the screenline counts and a matrix-adjustment process was applied to develop OD correction/expansion factors for the auto travel records in the HIS. The volume to count comparison and matrix adjustment was applied for multiple iterations, where in the first 5 iterations screenline links Priority Level 2 counts were compared to the volumes, next 10 iterations only the Priority Level 1 counts were compared, and in the last 5 iterations only Major Regional Crossings counts were compared to the modeled volumes. The final adjusted trip table after 20 iterations was compared to the original survey trip table and county-to-county adjustment factors were calculated by time periods. Since, these adjustment factors are at trip level; they were averaged based on the origin and destination of the trips within the journey for computing the journey level factors in the HIS journey records. The factors were further averaged across outbound and inbound journeys because they represent different time periods of the day. T

Using this new interim set weights on highway model survey records, the survey highway trip tables were recreated, and another round of highway assignment/matrix adjustment was run with 3 iterations of adjustment to Priority Level 2 counts, 5 iterations of adjustment to priority level 1 counts and final 3 iterations of adjustment to only the Major Regional Crossing counts. The factors were revised based on the tour-level OD adjustment factors from this final round of matrix adjustment. The result of this step is to create a final base year 2005 expansion factor weight that is based not only on the 2005 household characteristics, but is also reconciled to observed traffic count volumes, applied to the SOV and HOV household interview journey survey tour records (HIS05REC).

A similar process was developed and applied to reconcile the survey transit mode records to observed transit flows, available from two sources – New York City Metrocard data for subway/buses and aggregate RTFM trip tables. Since, Metrocard data was considered more accurate for New York City, it was used for re-weighting transit (walk to transit and drive to transit) trips between the four boroughs (Manhattan, Queens, Brooklyn and Bronx) of New York City which are connected by subway and buses. Staten Island was not included because the Metrocard data does not represent ferry riders which constitute a large number of transit riders from Staten Island to other boroughs. For all other OD pairs for transit and all ODs for commuter rail, the aggregated RTFM trip tables were used to reweight the survey. Since both data sources provided daily transit trips, it was not possible to determine the direction of journeys between trips from given origin i to destination j and from j to i . Therefore, the normalization was carried out for ij and ji combined.

5.2.2 Core Model Adjustments Review / Revision

In most cases, the NYMTC 2002 set of parameter adjustments were initially set to neutral values (0 or 1) and the adjustments were recalculated as part of the calibration processes based on new calibration targets for 2005. The calibration was based on the survey-based targets developed for the 2005 update, as described above in Section 5.2.1.

Travel production levels – journey frequency (in HAJ)

The scaling factors generally reset to 1.0 and then in an iterative process were adjusted for different purposes based on the targets from re-weighted HIS.

Destination Choice Calibration

Three sets of calibration constants are used for the destination choice model -

- Attractions – minimal use or changes to 2002 calibration scaling factors;
- Distance scaling – linear and exponential terms – were unchanged from 2002.
- District-to-District constants – the use of these was substantially reduced from the 2002 calibration, both in terms of the number of district-to-district interchanges with non-zero constants, and in the magnitude of the constant where applied. These constants were specified for county-to-county pairs in previous version of BPM. For 2005 Update, and consistent with a regional-level calibration¹, the adjustments were computed at a more aggregate level (11X11 super -zones) where counties outside of New York City were aggregated into super-zones. The calibration was carried out manually by running multiple iterations of MDSC model and making small adjustments in every round.

Mode Choice Calibration

For the current BPM calibration, the “observed” or “target” mode shares were developed primarily from the RT-HIS survey data, with appropriate 2005 weights applied in the tabulations of mode shares by tour-purpose. The motorized mode targets were computed for aggregate origin destination pairs based on meaningful travel corridors such as from Long Island to Manhattan. The indices developed to define the origin and destination pair varies by purpose and are shown in Appendix B.

The non-motorized targets were also revised based on the 2005 weights for HIS and were defined in an entirely different fashion than the motorized targets. Since, the non-motorized mode choice occurs before the destination choice only origins are known for these trips. The adjustments for non-motorized are based on origins only rather than based on both origin and destination. The work purpose non-motorized targets were also compared to the American Community Survey (ACS) mode shares.

These motorized and non-motorized targets were used in the auto calibration procedure of MDSC model to compute mode specific adjustment constants. It should be noted that the auto-calibration is done only during the calibration process and the targets are not used thereafter in regular forecasting model runs. The final mode share adjustment factors from the calibration runs are to be used in all BPM runs, base year and future, for all scenarios to be analyzed.

¹ It should be noted that for corridor-level calibration, where local area data are available and there is a need for a higher level of calibration in a project study area, the user can develop and apply destination choice calibration constants at the original 33 x 33 district level (Counties, except Manhattan in 4 sub-areas).

A full listing of the BPM core model constants used as parameters in the BPM 2005 re-calibration, including the market segment indices² for origin aggregation, non-motorized targets and estimated adjustment factors, are provided in Appendix B: BPM 2005 Calibration Parameters.

5.2.3 Counts – for Major Regional Crossings

- “Typical” fall weekday values in screenline database were double checked, but no changes were required.
- Vehicle classification counts – % auto, truck, other commercial, non-revenue – for the PANY/NJ crossings were compiled and reported as part of the validation. Vehicle class data for other roads and crossings, however, were not available for use in the 2002 update.

5.2.4 Trip Table Evaluation

- Flows from the 2005 BPM transit trip tables were extracted and analyzed with respect to Hub-Bound sectors cordons as primary basis for assessing mode choice validation.

5.2.5 Highway Assignment Tests

- PB began a focused calibration effort on the AM period and daily directional flows, which included a Systematic / Region-Wide focus aimed at shifting volumes from lower to higher facility types.
- The BPR parameters were slightly revised during the calibration to shift volumes from lower to higher level facilities. The final BPR parameters are discussed in Section 4.2.3.
- The sensitivity of toll for autos was reduced by ½ in highway assignment to account for less diversions between multiple alternate routes (free and tolled) which are located close by, e.g., east river crossing between Manhattan and Queens/Brooklyn.

5.2.6 Crossings and Tolled Facilities

- Verified VOTs in GLC assignment path-building are consistent with mode choice model estimated parameters (relationship of coefficients on time and costs variables). The auto VOTs were recalculated for each time period based on weighted average of VOTs by purpose of tours by time period .
- Average daily toll – weighted average by payment type (EZpass vs. Cash) instead of “cash” value as coded in 2002 Update.
- The tolls were updated to 2005 dollar costs and also account for toll hikes up to year 2005.
- Considered revising how HOV costs are applied (i.e., remove scaling by # of occupants), but retained current method of scaling costs by number of occupants.

5.2.7 Log of Calibration Tests and Model Runs

² It should be noted that for corridor-level calibration, where local area data are available and there is a need for a higher level of calibration in a project study area, the user has access to redefine the geographic-basis for mode choice calibration of the BPM.

The history of the series of BPM model runs with details regarding the iterative steps done as part of the calibration process is shown in **Table 5.1**. While this not intended to fully document all the detail of the calibration process, such a log was useful to systematically progress the 2005 Update calibration and it does provide a general accounting of process.

Table 0-1: Log of Last Round of BPM Re-Calibration Runs for Base Year 2005

Run #	Date	Description	Input Skims
B1	Jul-17-2008	Base Year Run -2002 Calib Factors.	Created using EDC M1-B1 trip tables.
B2	Jul-17-2008	With Intra County to County factors from 2002 Calib and other county-to-county constants equal to zero.	
B3 - B11	Jul-17-2008	Run MDSC only - adjustment to county-to-county factors.	
B12	Jul-30-2008	Test Run - Constraint for work reduced from 100% to 90% in MDSC.	
B13-21	Jul-30-2008	Run MDSC only - adjustment to county-to-county factors.	
C1	Aug-11-2008	MDC Auto Calibration with 5 Iterations - starting with zero constants	
D1-D3	Aug-12- 2008	3 Rounds of County-to-County Calibration	
E1	Aug-13-2008	MDC Auto Calibration with 5 Iterations - starting with C1 output Mode Choice Constants	
E2	Aug-15-2008	MDC Auto Calibration with 5 Iterations- Revised Non-Motorized Targets; revised low income work and at-work motorized targets.	
F1	Aug-25-2008	County to County Constants from E2 were capped at +/-5	E2
F2	Aug-28-2008	MDC Auto Calibration - Revised targets and highway assignment with reduced toll sensitivity for autos.	
F3	Aug-28-2008	Attraction Correction constants set to 1	F2
F4	Aug-28-2008	Adjustment to Attraction Correction constants - MDSC run only	
F5	Aug-28-2008	HAI Production Factors - further adjustments in targeted counties	
G1	Sep-23-2008	HIS re-weighted based on highway assignment adjustment to counts. HAI factors were revised based on revised targets and Attraction Constants set to 1.	F5
G2	Sep-24-2008	Adjustment to Attraction Correction constants - MDSC run only	
G3	Sep-25-2008	Adjustment to Work Attraction Correction constants - MDSC run only	
G4	Sep-25-2008	Adjustment to Work and At-work Attraction Correction constants - MDSC run only	
G5	Sep-25-2008	County to County Factors - further adjustment at targeted purposes and counties - MDSC Only	

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Run #	Date	Description	Input Skims
G6	Sep-25-2008	County to County Factors - further adjustment at targeted purposes and counties - MDSC Only	
G7	Sep-26-2008	Full model Run with G6 Adjustment factors	
G8	Sep-27-2008	Adjustment to mode choice constants to increase transit (from NJ and East river) - MDSC Only	G7
G9	Sep-28-2008	Full run with Adjustments to Productions, Attractions and County-to-county factors.	
G10	Sep-29-2008	Income revised for Monmouth county.	
G11	Sep-30-2008	Revised County-county factors, production/attraction factors and mode choice targets	
G11b	Oct-1-2008	Highway Assignment Only. The SpeedCap was revised to lower the capacities for PLT 4-10, atype1-6. The Networks were rebuild and assignment was done with G11 trip tables.	
G12	Oct-2-2008	Revisions to County-county factors, production/attraction factors and mode choice targets	
G13	Oct-2-2008	Similar to G12 but with G11b skims and updated Highway Network with lower Capacities.	
G12 (1-4)	Oct-3-2008	The four step model - with 3 iterations of MSA for highway model and last regular model run.	
G14(1-4)	Oct-3-2008	Revised VDFs for highway assignment - alpha value increased for PLT 2-8.	Preskims using G13 trip tables
G14-4B	Oct-7-2008	Rerun PAP and Highway assignment for G14(4) with updated Truck and Van procedures.	
G14C	16-Oct	With the Calibrated Input trip tables (14B), a full model run was done with BPM installation 081002 and TransCAD 575 . Also, the random number seed was fixed in PAP.	
G15 (1-4)	16-Oct	Full Model Run with Skims recycled.	G14(4C)
G15B (1-4)	20-Oct	Full Model Run with Skims recycled.	G15(4)
G15 (4thC)	5-Nov	Only Run External Model, PAP and highway assignment. A bug (2005 input flows were considered like 1996 flows) was found in the external model and it was corrected which will reduce the number of external trips.	
G15 (4thC2)	5-Nov	Only Run External Model, PAP and highway assignment. The External model counts for NY State stations were revised based on the CALCNT05D version.	
G15C(4)	14-Nov	Full 3 MSA iteration and one regular iteration model run with updated external model procedures and data.	G15(4)

5.3 VALIDATION RESULTS

The validation results for the updated and re-calibrated BPM 2005 are reported in this section of the report with respect to three general categories of evaluation:

- BPM Core Choice Models
- Highway Assignment Results
- Transit – flows across Hub-Bound Sectors

5.3.1 Core Choice Models

As discussed in Section 5.2 above, the calibration factors were simplified for some models (such as destination choice) and a full set of calibration constants was restored for mode choice models as part of the BPM 2005 update. The full set of calibration factors for the core models are found in Appendix B.

A full set of validation reports can be found in Appendix D. The validation reports are included for the following data-

HIS05- NYMTC Regional Travel - Household Interview Surveyed 1997/98 - with 2005 Household Expansion (per ACS)

HIS05REC - NYMTC Regional Travel - Household Interview Surveyed 1997/98 - with Reconciliation Factors

BPM05 – 2005 base\model year – G15C(4)

BPM02 – 2002 base\model year – RC-55G-5C

ACS06 – American Community Survey 2006 (where applicable)

RTFM – MTA’s Regional Transportation Forecasting Model 2005 Outputs

MetroCard – MetroCard Based Linked Trip Estimates (Caliper May 2004)

The reports are done for various core model component outputs at journey and trip level, whichever is applicable. The employed labor force and total employment between 2002 and 2005 base years are also compared. Table 5-2 shows the list and components of the summary reports-

Table 0-2 Listing of the Calibration/Validation Reports

Section	Component		Geography	Table	Units / Measures	Data Source *
D1	SED		11 Districts	by BPM Purpose (8)	ELF EMPTOT Diff	HIS05, HIS05REC, BPM05, BPM02
D2	HAI		11 Districts	by BPM Purpose (8)	P's A's Diff	HIS05, HIS05REC, BPM05, BPM02
D3	DEST	a	11 x 11	by BPM Purpose (8)	Out-bound Journeys - O x D	HIS05, HIS05REC, BPM05, BPM02
		b	11 x 11	by BPM Work (All)	Out-bound Journeys - O x D	ACS06, HIS05, HIS05REC, BPM05, BPM02
		c	11 x 11	By Mode	Trips (all)	
				Auto Transit		HIS05, HIS05REC, [MetroCard + RTFM], HIS05, HIS05REC,
D4	MODE	a	11 x 11	by BPM Work (all) by Mode	Out-bound Journeys - O x D	HIS05, HIS05REC, BPM05, BPM02
				Auto Commuter Rail Transit Non-Motorized All		
		b		by BPM non-Work Purpose (5) by Mode	Out-bound Journeys - O x D	ACS06, HIS05, HIS05REC, BPM05, BPM02
D5	MODE: Trips		11 x 11	by TOD (4 Periods), Weekday	Trips (all) - Vehicle	HIS05, HIS05REC, BPM05, BPM02
				Auto Commuter Rail Transit		
D6	Link Volumes		11 x 11	by TOD (4 Periods), Weekday	Volumes - all vehicles	HIS05, HIS05REC, BPM05, BPM02
				Auto	Compared to Counts	
D7	Transit: Trips		Hub-Bound	Weekday Total	Transit trips entering CBD	RTFM, HIS05, HIS05REC, BPM05, BPM02
				Commuter Rail Transit	Compared to Counts	

5.3.2 Highway Assignment Validation

The calibration results presented in this section summarize the BPM validation results for the highway assignments for the BPM 2005 Update and Re-Calibration. These are presented with respect to the acceptability and validation criteria that were developed for the Air Quality Inter-Agency Consultation Group (AQICG) developed for the original BPM Base Year 1996, in conjunction with the Project Advisory Committee (PAC), primarily based on criteria from published FHWA guidelines.

The original 1996 BPM calibration was a two staged calibration process:

- “Base” or “Model” results - reflecting calibration of the full model chain of the core BPM models prior to the assignment step, including the auto-ownership, journey production and attraction, destination and mode choice, and time of day models, and
- “Matrix Adjustment to Counts” - post-model direct adjustment of the base year or model vehicular trip tables to available counts made in an iterative procedure of assignments, volume and count skimming, and OD matrix flow adjustments to minimize deviations between assigned flow and counts. The procedure produces an adjusted set of base year tables and adjustment factors (for forecasting future years) for each vehicular trip table used in the BPM multi-class assignment -- SOV auto, HOV2, HOV3+, Taxi, Trucks, and Other commercial vehicles. This method produced the adjustment factors used as part of the “Adaptive” assignment process of the BPM when used for future year forecasts vehicular trip tables in the original Base Year 1996 BPM.

As part of the 2002 BPM update and re-calibration, it was determined that an adequate and reasonable level of validation with respect to highway volume counts could be achieved without imposing the second matrix adjustment stage used in the original BPM Base Year 1996 calibration. Consequently, the validation statistics presented here reflect assignment to the regional highway network of the “base” or “model” only set of trip tables. Also, as a result, future year forecasts were produced without the factoring of forecast trip tables. The basic highway procedures remain unchanged for BPM 2005 Update. However, the mode tables in highway trip tables were rearranged, highway link attributes (such as free flow speed and capacities) were revised and the parameters used for the highway assignment procedure were also updated/revised.

The evaluations of the BPM assignments with respect to traffic counts are based on comparison of model volume flows with respect to the updated set of regional Year 2005 screenline counts that are described in Section 2.3.

The results in the following tables in this section are summarized at several different levels of aggregation, including:

- *All network links* - 37,000 with centroid connector links excluded. Note that while there is complete representation of principal roadways in the BPM network (Major Arterials and above), the some minor arterials are not represented, and only a small portion of collectors, and local streets are included.
- *Screenline Data* – the three tier system of cutlines in the NY 12-county area, for which a database of actual and synthesized, hourly by direction, but without vehicle classification counts – 2,256 links in the BPM highway network in the updated 2005 screenline database.

- *Inter-County Screenlines* – the first tier of Screenline database counts on all roads crossing county boundaries.
- *Major River Crossings* – for each bridge and tunnel connecting New York and New Jersey (Interstate crossings), as well all Manhattan crossings and upper Hudson River bridges in the model region.

In the following set of tables, measures of the model volume / count deviation are shown using standard FHWA criteria. The measures of validations are shown for road classifications listed above, and by Volume Group and Functional Class group.

For the use of BPM model in Conformity Analysis, model base year volumes are compared to the best available traffic counts (Screenline count database), and goodness-of-fit statistics are reviewed, focusing at the County by Functional Class group level, and looking at average and RMSE volume-to-count deviations. The difference in modeled flow and counts for weekday county screenlines is within $\pm 3\%$ for New York City Boroughs, Nassau and Westchester. For counties farther from New York City such as Suffolk, Putnam, Orange, Rockland and Dutchess, the difference is between -9% to -15% . The flow to count deviation by function class group is increases with lower level facilities but is within FHWA Desirable Deviation Range. This is the primary focus for assessing the acceptability of the model for mobile source emissions analysis, where the essential BPM inputs to the AQ analysis are similarly aggregated link VMT, along with average speeds that are subsequently developed with the PPSuite post-processing procedures.

The volumes for the major regional crossings are also considered, especially for the bridges and tunnels that connect Manhattan Island to the other NYC boroughs and New Jersey, given the huge influence Manhattan has on regional travel patterns. These model validation results, summarized by crossing groups that represent regional cordons, are shown in Table 5-9 and Table 5-10 for the prior 2002 and the current 2005 update, respectively. The results for 2005 are generally improved over 2002, particularly for the “core” area Manhattan crossings that comprise about 85% of the total traffic counted on all regional crossing tunnels, within 2% of counts overall, and most major crossings less than 5% deviation from counts. In both base years, however, there exists an overall over assignment in the southern SIB corridor, and an under-assignment for the northern Mid- Hudson bridge, of about 15% overall. Both of these cases could be addressed in the framework of ongoing regional model improvement with further work and resources, but neither is considered problematic at this point for the requirements of the more aggregate-based regional mobile source emissions modeling that applied for NYMTC’s Conformity Analysis.

In corridor transportation studies employing the BPM, the regionally calibrated BPM is used as the foundation for the travel forecasting done to support planning of transportation for the corridor. For these studies, substantial additional sub-area data and modeling resources are budgeted to implement refinements “on top” of the regional model, to improve details of the representation of the highway and transit systems, and of travel patterns within the study corridor, in order to achieve a level of calibration and validation needed for these specific studies. To substantially improve facility-level calibration properly, a thorough investigation of each potential source of distortion in the model needs to be done systematically as the more generalized regional model validation is done within the corridor they serve, focused on subarea zonal SED input data, the transit and highway networks,

travel generation, OD distribution, mode choice, including external travel, and finally highway assignment.

Additional and more detailed highway validation results are also found in Appendix D: Detailed Highway Validation Results.

Table 0-3 Inter-County Screenlines – Base / Model Calibration – 2005 Update

Inter-County Screenline	Weekday				By Time Period: % Diff			
	Counts	Assigned	Difference	% Diff	AM	PM	MD	NT
Manhattan – Queens	331,921	294,947	-36,974	-11%	5%	-2%	-4%	-38%
Manhattan – Bronx	672,225	619,986	-52,239	-8%	-5%	1%	3%	-31%
Manhattan – Brooklyn	368,646	386,724	18,078	5%	14%	15%	23%	-26%
Manhattan – NJ (Bergen, Hudson)	527,717	538,496	10,779	2%	5%	7%	12%	-18%
Queens - Bronx	297,289	311,327	14,038	5%	5%	17%	13%	-23%
Queens - Brooklyn	815,401	789,110	-26,291	-3%	-1%	7%	4%	-27%
Queens - Nassau	1,170,855	1,250,294	79,439	7%	1%	20%	9%	-5%
Bronx - Westchester	696,763	741,486	44,723	6%	3%	12%	16%	-11%
Brooklyn - Staten Island	193,687	185,967	-7,720	-4%	11%	-6%	2%	-26%
Staten Island - NJ (Union)	180,477	198,064	17,587	10%	10%	11%	27%	-13%
Nassau - Suffolk	608,021	552,279	-55,742	-9%	-11%	-6%	-10%	-10%
Westchester - Rockland	143,291	119,397	-23,894	-17%	-21%	-3%	-14%	-33%
Westchester - Putnam	220,235	204,229	-16,006	-7%	-6%	-14%	-5%	-2%
Westchester - Orange	19,370	22,097	2,727	14%	19%	36%	18%	-21%
Westchester - Connecticut	213,244	197,142	-16,102	-8%	-2%	-9%	-5%	-21%
Rockland - Orange	182,223	130,699	-51,524	-28%	-28%	-36%	-29%	-15%
Rockland - NJ (Bergen)	328,982	350,313	21,331	6%	16%	6%	5%	-2%
Putnam - Dutchess	146,703	108,576	-38,127	-26%	-25%	-30%	-27%	-20%
Putnam - Connecticut	105,291	112,808	7,517	7%	12%	-5%	6%	23%
Orange - Dutchess	77,076	64,384	-12,692	-16%	-21%	-27%	-15%	2%
Orange - NY External	169,567	167,455	-2,112	-1%	-34%	-15%	4%	57%
Orange - NJ (Passaic, Sussex)	68,178	60,682	-7,496	-11%	-25%	-20%	-14%	21%
Dutchess - Connecticut	32,865	28,892	-3,973	-12%	-29%	-15%	-11%	17%
Dutchess - NY External	93,336	96,598	3,262	3%	-37%	-9%	14%	76%
Total	7,663,363	7,531,952	-131,411	-2%	-2%	3%	4%	-16%

Table 0-4 County Screenlines – Base / Model Calibration – 2005 Update

Screen-lines for Counties	Weekday				By Time Period: % Diff			
	Counts	Assigned	Difference	% Diff	AM	PM	MD	NT
1 Manhattan	1,900,509	1,840,153	-60,356	-3%	3%	5%	8%	-28%
2 Queens	2,615,466	2,645,679	30,213	1%	1%	13%	6%	-19%
3 Bronx	1,666,277	1,672,799	6,522	0%	0%	9%	10%	-22%
4 Kings	1,377,734	1,361,801	-15,933	-1%	5%	7%	8%	-26%
5 Staten Island	374,164	384,031	9,867	3%	10%	2%	14%	-20%
6 Nassau	1,778,876	1,802,574	23,698	1%	-4%	10%	2%	-7%
7 Suffolk	608,021	552,279	-55,742	-9%	-11%	-6%	-10%	-10%
8 Westchester	1,292,903	1,284,350	-8,553	-1%	-2%	2%	6%	-13%
9 Rockland	654,496	600,409	-54,087	-8%	-6%	-8%	-8%	-12%
10 Putnam	472,229	425,614	-46,615	-10%	-8%	-17%	-9%	-2%
11 Orange	516,414	445,315	-71,099	-14%	-27%	-23%	-12%	15%
12 Dutchess	349,980	298,450	-51,530	-15%	-28%	-22%	-12%	10%

Table 0-5 Volume Group - 2005 Update Base / Model Calibration – All Screenline Links (only)

Volume Group	Scrn. Network Links	Daily County	Daily BPM Flow	Difference	BPM Deviation % Diff	FHWA Desirable Deviation Range	% RMSE BPM from Est.	
More than 80,000	53	95,695	92,095	(3,600)	-4%	21%	19%	
70,000-79,999	60	74,795	75,855	1,060	1%		25%	
50,000-69,999	145	60,493	57,296	(3,196)	-5%		32%	
25,000-49,999	444	34,036	31,063	(2,972)	-9%		22%	49%
10,000-24,999	965	16,086	14,229	(1,857)	-12%		25%	61%
5,000-9,999	335	7,562	8,341	780	10%		29%	107%
2,500-4,999	141	3,622	5,503	1,881	52%		36%	167%
1,000-2,499	49	1,884	5,911	4,027	214%		47%	347%
Less than 1,000	23	665	4,130	3,465	521%		60%	1021%
Total	2,215	23,529	22,220	(1,309)	-6%		53%	

Table 0-6 Functional Class – 2005 Base / Model Calibration – Screenlines (only) for the NYMTC 12 Region

Volume Group	Sern. Network Links	Daily County	Daily BPM Flow	Difference	BPM Deviation % Diff	FHWA Desirable Deviation Range	% RMSE BPM from Est.
1. FC 1,11,12	440	49,698	50,541	843	2%	7%	30%
2. FC 2,6,14,16	1,485	18,481	16,581	(1,900)	-10%	15%	67%
3. FC 7,8,9,17,19	256	7,580	6,072	(1,508)	-20%	25%	104%
	2,181	23,499	22,199	(1,300)	-6%		53%

Table 0-7 Simple Correlation - Model Volumes and Counts

BPM Network Component	Number of Links	Parsons R²	Parsons R²- Weighted by Length
All Screenlines	2247	0.85	0.88
FHWA Minimum Correlation of Determination			0.88

Figure 0-2 Hudson Crossings - Daily Model Volumes vs. Counts

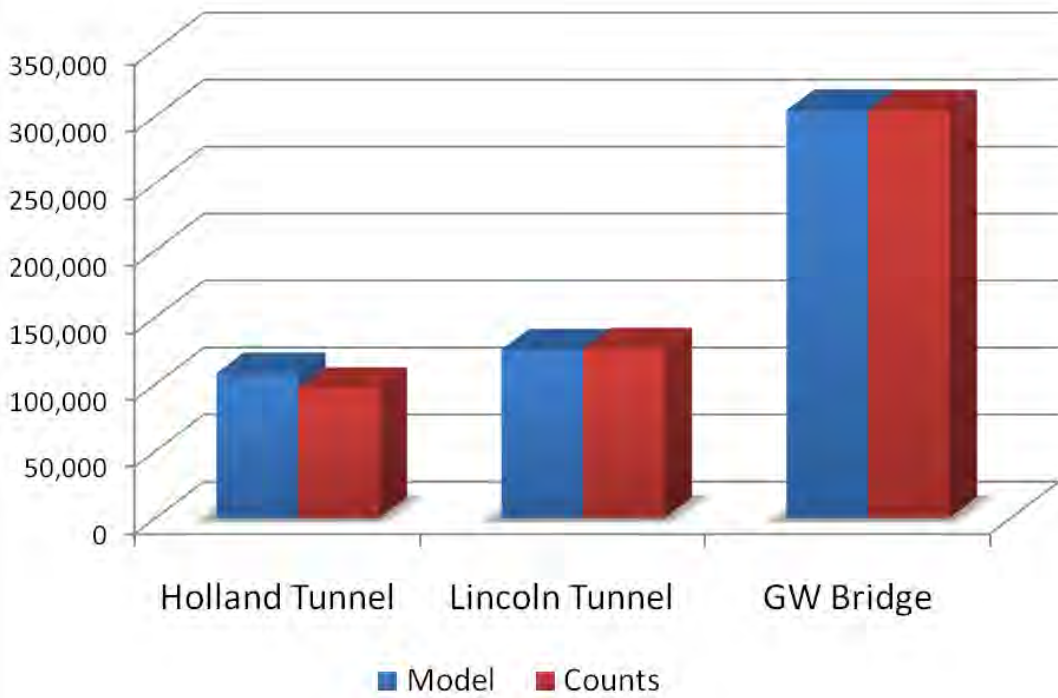


Figure 0-3 Hudson Crossings - AM Peak Model Volumes vs. Counts

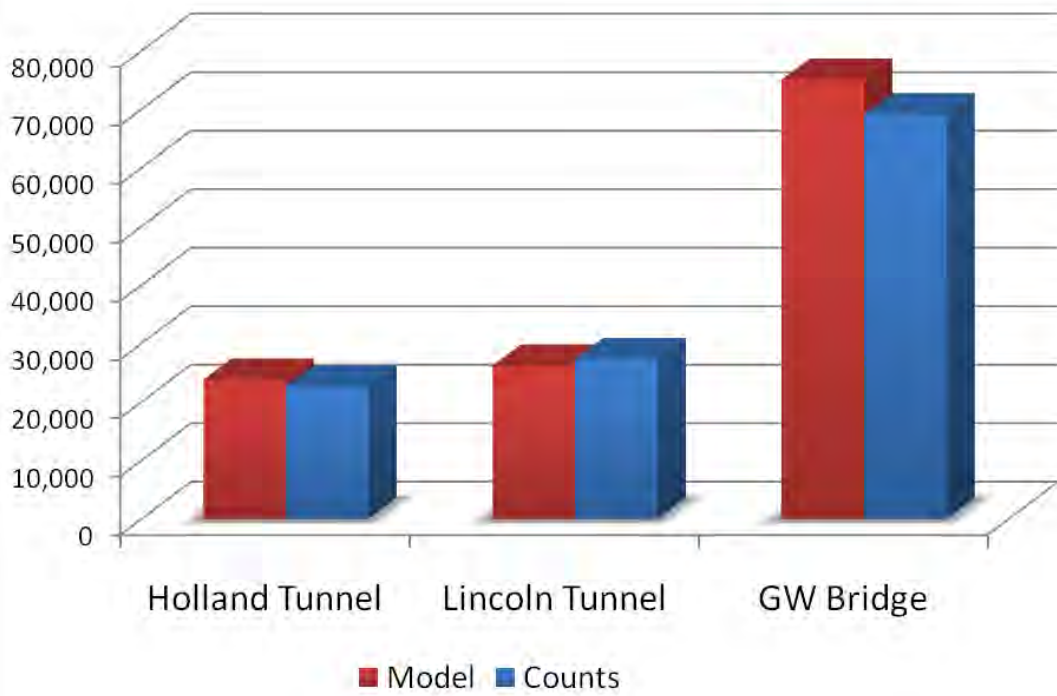


Figure 0-4 Hudson Crossings - AM Peak Model Volumes vs. Counts by Direction

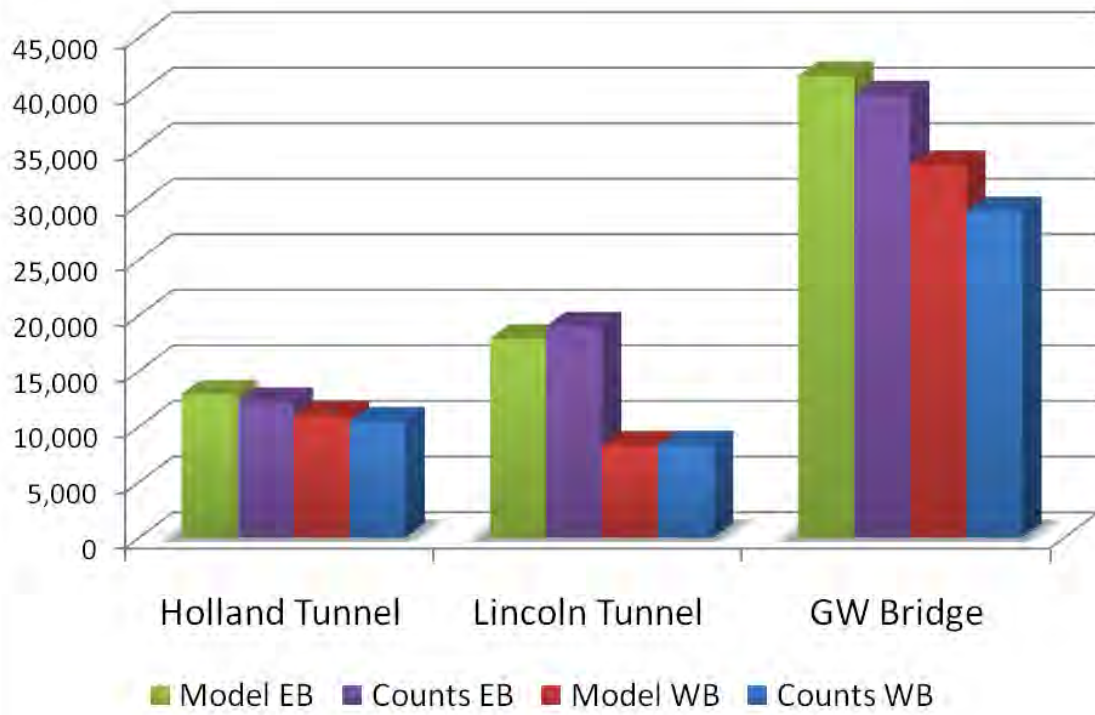


Figure 0-5 East River Crossings - Daily Model Volumes vs. Counts

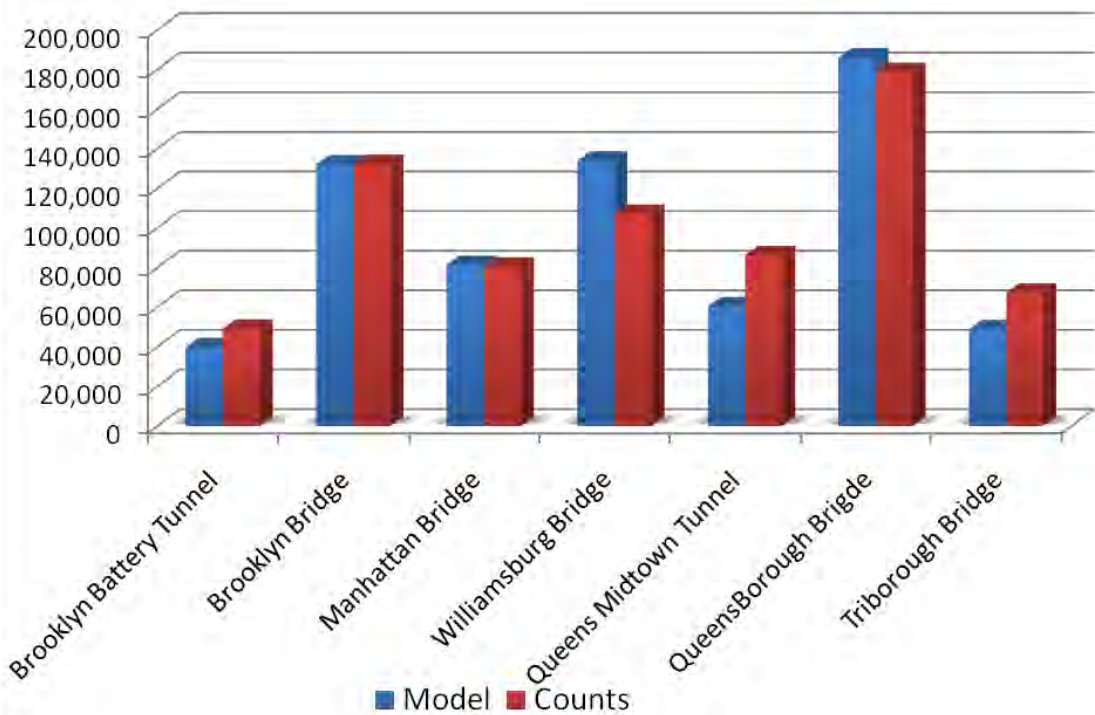


Figure 0-6 Mid-Hudson River Crossings - Daily Model Volumes vs. Counts

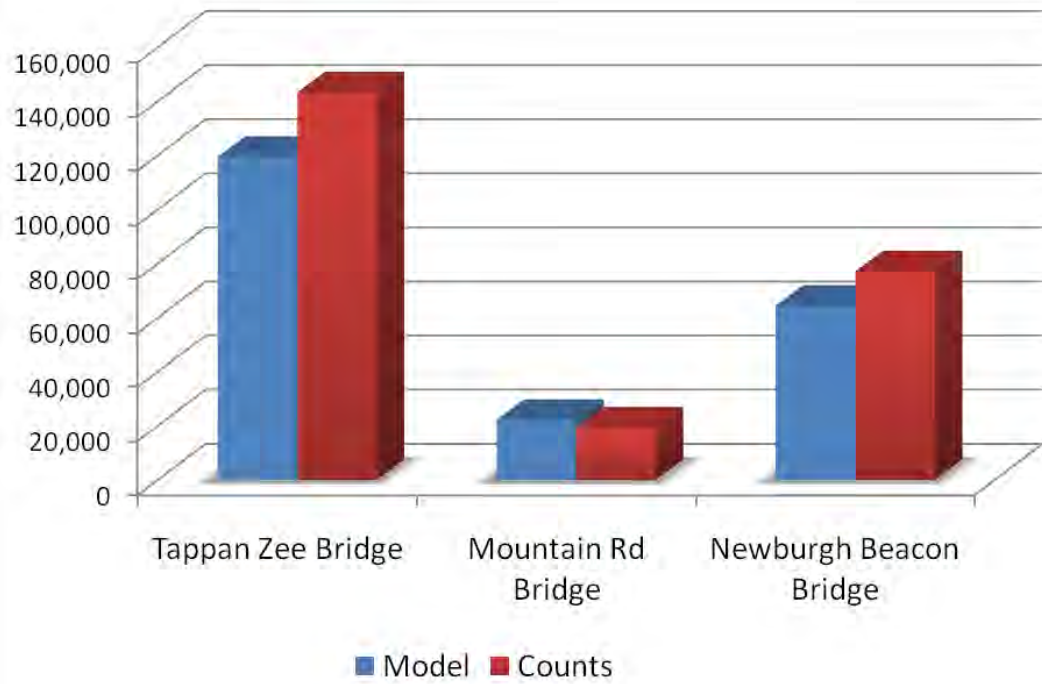


Figure 0-7 Staten Island Crossings - Daily Model Volumes vs. Counts

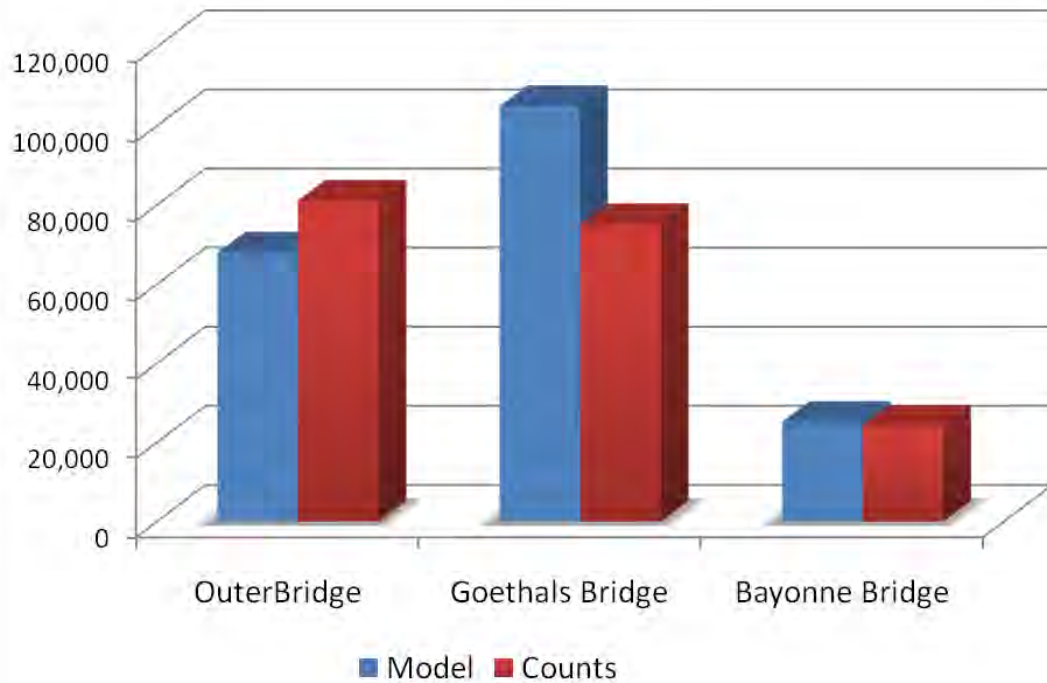


Table 0-8 East River Sector - Summary of Tolled and Free Crossings: 2005 Volume Deviations from Count

Free or Tolled Crossings	Weekday	By Time Periods			
		AM	Midday	PM	Night
All Crossings	-3%	10%	8%	3%	-30%
Tolled facilities*	-15%	-2%	-7%	-12%	-47%
Free Bridges	7%	23%	21%	18%	-22%

* Includes Verrazano Bridge

Table 0-9 BPM Modeled Volumes and Typical Weekday Counts – 2002 Update

Major Crossing Cordon Summary	% of total	Counts	Model Volumes	Deviation	%Diff
East River Crossings (inc. VNB) - NYC & MTA	33%	914,113	914,235	122	0.0%
Bronx- Manhattan Crossings	23%	649,990	570,545	-79,445	-12.2%
Hudson River Crossings - PANYNJ	18%	511,570	474,267	-37,303	-7.3%
Bronx- Queens Crossings - MTA	11%	300,052	383,491	83,439	27.8%
Mid-Hudson Bridges	8%	225,872	195,228	-30,644	-13.6%
Staten Island Bridges - PANYNJ	6%	177,985	202,565	24,580	13.8%
All Crossings	100%	2,779,582	2,740,331	-39,251	-1.4%

Table 0-10 BPM Modeled Volumes and Typical Weekday Counts – 2005Update

Major Crossing Cordon Summary	% of total	Counts	Model Volumes	Deviation	%Diff
East River Crossings (inc. VNB) - NYC & MTA	32%	894,254	884,918	-9,336	-1.0%
Bronx- Manhattan Crossings	23%	647,575	633,882	-13,693	-2.1%
Hudson River Crossings - PANYNJ	19%	527,717	535,968	8,251	1.6%
Bronx- Queens Crossings - MTA	11%	297,289	293,626	-3,663	-1.2%
Mid-Hudson Bridges	9%	239,737	206,877	-32,860	-13.7%
Staten Island Bridges - PANYNJ	6%	180,477	205,733	25,256	14.0%
All Crossings	100%	2,787,049	2,761,004	-26,045	-0.9%

5.3.3 Transit Validation

The assignment procedures for transit, however, unlike the highway assignment are for the AM 4 hour peak period only. Figures 5-8 and Table 5-11 shows the results of the BPM 2005 update and re-calibration with respect to modeled transit trips and observed weekday transit travel entering the Manhattan CBD or Hub, on a typical Fall day.

Full calibration of the BPM for AM peak period transit assignment would involve review and possible adjustment to the time-of-day factors that allocate daily transit trips to the morning peak period assigned, as well as detailed checking of the route system coding and assignment parameters. This level of calibration was not done for transit loadings as part of the original Base Year 1996 model implementation or any of the updates (2002 and 2005 Update). It is anticipated that with a proposed effort by NYMTC to focus on enhancing the BPM for use in transit planning, enhancements to the mode choice model will be made along with a more close calibration of the transit assignments, along with other extensions of the NYMTC model aimed at extending the transit forecasting and analysis capabilities of the BPM.

Figure 0-8 BPM 2005 Transit Validation – Three Sectors Hub-Bound Sectors

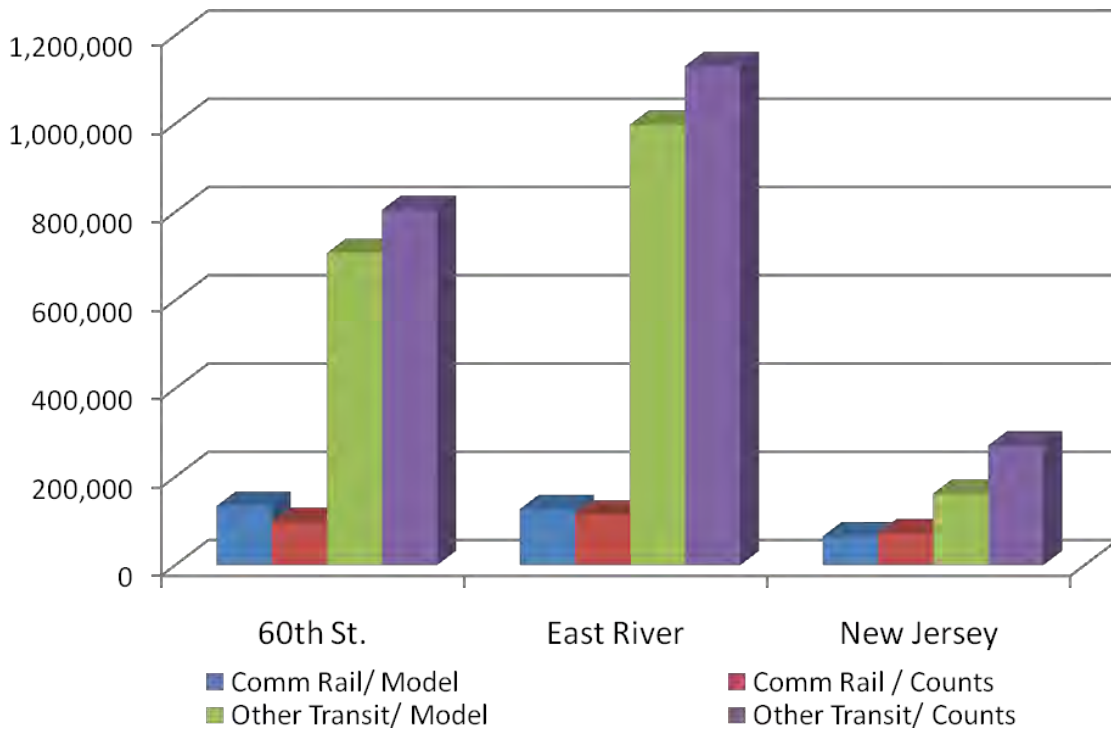


Table 0-11 BPM 2005 Transit Validation – to Hub-Bound Counts

Scenario: 2005 MODEL/BASE YEAR G15C(4)
 Hub-Bound 2005 - Daily Inbound

Total - All Transit					
Sector		BPM Trips	Counts 2005	Difference	% Diff
60th St.	1	840,690	902,201	-61,511	-7%
East River	2	1,124,233	1,244,628	-120,395	-10%
New Jersey	3	<u>226,928</u>	<u>342,972</u>	<u>-116,044</u>	<u>-34%</u>
		2,191,851	2,489,801	-297,950	-12%

Commuter Rail (only) *					
Sector		BPM Trips	Counts 2005	Difference	% Diff
60th St.	1	133,858	97,562	36,296	37%
East River	2	126,535	114,229	12,306	11%
New Jersey	3	<u>65,205</u>	<u>72,364</u>	<u>-7,159</u>	<u>-10%</u>
		325,598	284,155	41,443	15%

Other Transit: Bus, Subway, Ferries, LRT, etc.					
Sector		BPM Trips	Counts 2005	Difference	% Diff
60th St.	1	706,832	804,639	-97,807	-12%
East River	2	997,698	1,130,399	-132,701	-12%
New Jersey	3	<u>161,723</u>	<u>270,608</u>	<u>-108,885</u>	<u>-40%</u>
		1,866,253	2,205,646	-339,393	-15%

*NOTE: BPM Commuter Rail includes trips that used CR but enter the Hub by Subway or PATH.

Attachment 9

You may request **APPENDIXES** for this report from Ali Mohseni at (212)383-7215
or e-mail to: Ali.Mohseni@dot.ny.gov

**APPENDIX A: SUMMARY OF UPDATED
SOCIOECONOMIC/DEMOGRAPHIC (SED) DATA**

APPENDIX B: BPM 2005 CALIBRATION PARAMETERS

**APPENDIX C: BPM 2002 and 2005 – CORE MODEL “SCORE-
CARD” REPORTS**

APPENDIX D: CALIBRATION AND VALIDATION DATA SOURCES

APPENDIX E: Commuter Rail Service Updates

- **METRO-NORTH RAILROAD**
- **LONG ISLAND RAIL ROAD**
- **NEW JERSEY TRANSIT**

ATTACHMENT 10

Attachment #10 by reference; the complete report: *Transportation Models and Data Initiative Final Report on NYBPM* can be found on the NYMTC website via:
http://www.nymtc.org/project/BPM/model/bpm_finalrpt.pdf ;

if you have difficulty, an electronic copy of the report is available upon request; call Ali Mohseni at (212)383-7215 or e-mail to: Ali.Mohseni@dot.ny.gov

ATTACHMENT 11

SCREENLINE COUNT DATABASE

Field Name	Type	Width	Decimal
UNIQUEID	Character	13	0
SCL_LINKID	Character	15	0
RTNAME	Character	30	0
BRIDGE	Character	26	0
RTNO	Character	8	0
FRRTNO	Character	11	0
FRXTR	Character	28	0
TORTNO	Character	10	0
TOXTR	Character	28	0
FCLASS	Integer	9	0
LG2AB	Integer	2	0
LG3AB	Integer	2	0
BAOPTION	Character	11	0
EBP_ID	Character	10	0
SCLID	Character	9	0
REF_MARKER	Character	18	0
STATION	Character	10	0
COMMONDIR	Real Number	14	0
DUAL_DIR	Integer	11	0
PRIORITY	Character	10	0
AM12_1AB	Integer	11	0
AM1_2AB	Integer	11	0
AM2_3AB	Integer	11	0
AM3_4AB	Integer	11	0
AM4_5AB	Integer	11	0
AM5_6AB	Integer	11	0
AM6_7AB	Integer	11	0
AM7_8AB	Integer	11	0
AM8_9AB	Integer	11	0
AM9_10AB	Integer	12	0
AM10_11AB	Integer	12	0
AM11_12AB	Integer	12	0
PM12_1AB	Integer	11	0
PM1_2AB	Integer	10	0
PM2_3AB	Integer	11	0
PM3_4AB	Integer	11	0
PM4_5AB	Integer	11	0
PM5_6AB	Integer	11	0
PM6_7AB	Integer	11	0

PM7_8AB	Integer	11	0
PM8_9AB	Integer	11	0
PM9_10AB	Integer	12	0
PM10_11AB	Integer	12	0
PM11_12AB	Integer	12	0
DAILY_AB	Integer	11	0
STD_AB	Character	9	0
SEAF_AB	Real Number	10	3
AXLF_AB	Real Number	10	3
AADT_AB	Integer	11	0
YEAR_AB	Integer	11	0
AM12_1BA	Integer	11	0
AM1_2BA	Integer	11	0
AM2_3BA	Integer	11	0
AM3_4BA	Integer	11	0
AM4_5BA	Integer	11	0
AM5_6BA	Integer	11	0
AM6_7BA	Integer	11	0
AM7_8BA	Integer	11	0
AM8_9BA	Integer	11	0
AM9_10BA	Integer	12	0
AM10_11BA	Integer	12	0
AM11_12BA	Integer	12	0
PM12_1BA	Integer	11	0
PM1_2BA	Integer	10	0
PM2_3BA	Integer	11	0
PM3_4BA	Integer	11	0
PM4_5BA	Integer	11	0
PM5_6BA	Integer	11	0
PM6_7BA	Integer	11	0
PM7_8BA	Integer	11	0
PM8_9BA	Integer	11	0
PM9_10BA	Integer	12	0
PM10_11BA	Integer	12	0
PM11_12BA	Integer	12	0
DAILY_BA	Integer	11	0
STD_BA	Character	9	0
SEAF_BA	Real Number	10	3
AXLF_BA	Real Number	10	3
AADT_BA	Integer	11	0
YEAR_BA	Integer	11	0
CODE	Character	7	0
COMMENTS	Character	60	0
LINKCOUNT	Integer	12	0
COUNTY	Integer	10	0
MISC	Character	41	0

LAST_UPD	Integer	12	0
LOC_ID	Character	18	0

ATTACHMENT 12

NON-COLLUSIVE BIDDING CERTIFICATION
REQUIRED BY SECTION 139-D OF THE STATE FINANCE LAW

SECTION 139-D, Statement of Non-Collusion in bids to the State:

BY SUBMISSION OF THIS BID, BIDDER AND EACH PERSON SIGNING ON BEHALF OF BIDDER CERTIFIES, AND IN THE CASE OF JOINT BID, EACH PARTY THERETO CERTIFIES AS TO ITS OWN ORGANIZATION, UNDER PENALTY OF PERJURY, THAT TO THE BEST OF HIS/HER KNOWLEDGE AND BELIEF:

[1] The prices of this bid have been arrived at independently, without collusion, consultation, communication, or agreement, for the purposes of restricting competition, as to any matter relating to such prices with any other Bidder or with any competitor;

[2] Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the Bidder and will not knowingly be disclosed by the Bidder prior to opening, directly or indirectly, to any other Bidder or to any competitor; and

[3] No attempt has been made or will be made by the Bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.

A BID SHALL NOT BE CONSIDERED FOR AWARD NOR SHALL ANY AWARD BE MADE WHERE [1], [2], [3] ABOVE HAVE NOT BEEN COMPLIED WITH; PROVIDED HOWEVER, THAT IF IN ANY CASE THE BIDDER(S) CANNOT MAKE THE FOREGOING CERTIFICATION, THE BIDDER SHALL SO STATE AND SHALL FURNISH BELOW A SIGNED STATEMENT WHICH SETS FORTH IN DETAIL THE REASONS THEREFORE:

[AFFIX ADDENDUM TO THIS PAGE IF SPACE IS REQUIRED FOR STATEMENT.]

Subscribed to under penalty of perjury under the laws of the State of New York, this _____ day of _____, 20____ as the act and deed of said corporation of partnership.

NON-COLLUSIVE BIDDING CERTIFICATION
REQUIRED BY SECTION 139-D OF THE STATE FINANCE LAW

IF BIDDER(S) (ARE) A PARTNERSHIP, COMPLETE THE FOLLOWING:

NAMES OF PARTNERS OR PRINCIPALS LEGAL RESIDENCE

_____	_____
_____	_____
_____	_____
_____	_____

IF BIDDER(S) (ARE) A CORPORATION, COMPLETE THE FOLLOWING:

NAME LEGAL RESIDENCE

_____	_____
President:	
_____	_____
Secretary:	
_____	_____
Treasurer:	
_____	_____
President:	
_____	_____
Secretary:	
_____	_____
Treasurer:	

Attachment 12

**NON-COLLUSIVE BIDDING CERTIFICATION
REQUIRED BY SECTION 139-D OF THE STATE FINANCE LAW**

Identifying Data

Potential Contractor: _____

Address: _____
Street

City, Town, etc.

Telephone: _____ Title _____

If applicable, Responsible Corporate Officer

Name: _____ Title _____

Signature: _____

Joint or combined bids by companies or firms must be certified on behalf of each participant.

Legal name of person, firm or corporation

Legal name of person, firm or corporation

By _____
Name

Name

Title

Title

Address: _____
Street

Address: _____
Street

City State

City State