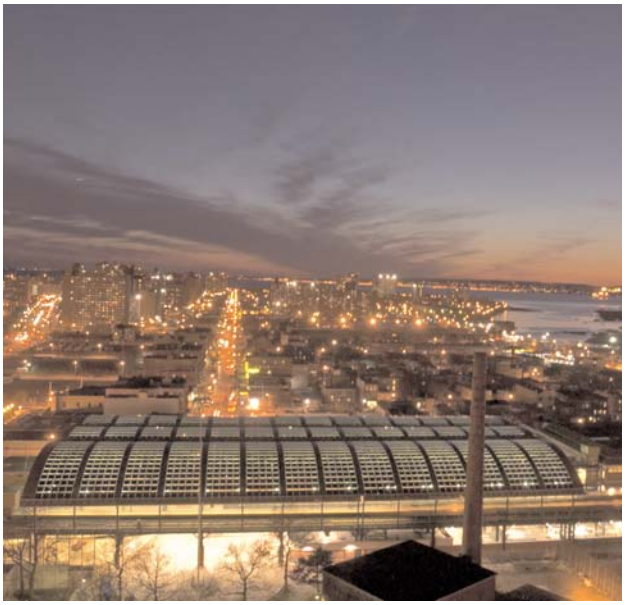

MTA Blue Ribbon Panel for Construction Excellence

Final Report

March 2008

Metropolitan Transportation Authority

March 5, 2008

Elliot Sander,
MTA Executive Director and C.E.O.
347 Madison Avenue, 7th floor
New York, New York 10017

Dear Mr. Sander:

It is with great pleasure that we submit the report of the Blue Ribbon Panel for Construction Excellence, whose mandate is to assist the MTA to improve budget and schedule performance, while maintaining a high regard from its customers.

The final report of the Panel summarizes the collective work of the panel members and the support staff from the MTA including the engineering firms engaged in data collection and analysis. The recommendations contained in the report are the culmination of work that has taken place over the past twelve months.

This report contains White Papers representing the results of deliberations at panel meetings, special meetings, or via various forms of communication. The Executive Summary identifies the specific recommended action items in the White Papers.

It was the Panel's goal to produce this report and to make available future feedback from Panel members that will serve as a tool and provide a framework that enables the MTA to meet both current and future challenges inherent in undertaking its mega projects.

The success and vitality that New York City has enjoyed over the past century can be attributed, in large measure, to its transit system. The ability of New York City to remain a world capital will, in large part, depend on the capacity of the MTA to carry out the expansion and modernization of the transit system in an organized, timely and cost-effective manner, to the fullest extent possible. The existing transit system is rapidly approaching a tipping point for the efficient movement of an increasing and unprecedented volume in ridership. Deferring the mega projects is no longer an option.

We wish the MTA much success in implementing the recommendations in our report and stand ready to support the MTA in every possible manner in this implementation effort. In particular we want to thank the entire MTA Capital Program staff for the assistance provided during the meetings of the Blue Ribbon Panel. All questions asked by the panel were answered timely and expertly by MTA personnel.

John Cavanagh, Co-Chairman

James Jones, Co-Chairman

Advice from MTA Blue Ribbon Panel for Construction Excellence

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Introduction: Influences on the MTA Capital Program

Background: The Metropolitan Transportation Authority's (MTA) operating agencies submitted their 2005-2009 Capital Plans in May 2004. The agency plans were adjusted for the effect of future inflation utilizing ten-year forecast indices which projected national cost trends for "transportation equipment," "construction of industrial buildings," the national Consumer Price Index-Urban Area, (CPI-U) etc. as well as the CPI-U for New York. The adjustments ranged from 2 to 4 percent over the five-year period.

An initial plan for $27.8 billion was approved by the MTA Board in September 2004 and subsequently a reduced plan of $21.1 billion plan was approved by the New York State Capital Program Review Board (CPRB) in July 2005. In the ten-month interval between MTA Board and CPRB approvals, the economic climate shifted significantly.

The MTA Capital Program experienced the impact of inflation fueled by the global demand for materials, a devalued US dollar, and a citywide construction boom, as well as other factors that have significantly elevated the cost of construction. In order to provide the panel the context in which the MTA is progressing its Capital Program, the following discussion of each of these influences was provided.

Commodity Price Increases: Beginning in early 2004 material price escalation began a precipitous increase, followed by a gradual reduction and stabilization. Raw material costs in some cases doubled. However, fabricated products, which are controlled primarily by factory labor costs, experienced less cost growth. The first price increase related to fabricated structural steel, which alone increased over 16 percent in 2004, and quickly followed through to other metals. The MTA recently responded by allowing for adjustment of steel escalation in some of its contracts. Between January 2005 and July 2006, the commodity cost of copper increased by over 100 percent, aluminum by 37 percent and zinc by more than 150 percent. In *Engineering News Record*'s 2Q Cost Report dated June 26, 2006 it was noted that a transformer that cost $65,000 in 2005 cost $100,000 in 2006, while fabricated copper pipe and tube increased by 94.4 percent from May 2005 to May 2006. In addition, lumber, concrete and asphalt were similarly affected. Asphalt, in particular, is tied to the price of crude oil, which also affects energy prices, and in turn, affects the cost of fabrication. Much of the cost growth was attributable to demand for commodities from competing world economies, in particular the People's Republic of China.

Devalued Dollar: Devaluation of the dollar is part of what has fueled the increase in costs during the 2002-2005 period. Since 2002, on average, the US dollar has experienced 30 percent devaluation against multiple currencies including the Euro, Canadian Dollar and Korean Won. Some industry analysts anticipated further devaluation. The effects of a weakened dollar are far reaching. Overseas contractors and supplier services cost more in dollars. Indirectly, domestic prices ultimately also rise as imports and materials traded on international commodity markets increase accordingly. Some private corporations provide hedge funds to protect against the risk of the diminishing purchasing power of the dollar.

NYC Regional Construction Market: According to a report by the New York Building Congress, the years 2006 through 2008 will see unprecedented construction levels in New York City. Public and private construction spending is expected to exceed $21 billion in each year, 2007 and 2008. Based on the latest multiyear capital plans, public construction spending in the city is projected to increase to $13 billion by 2008 – including MTA projects.

Carter & Burgess Inc., MTA's Independent Engineering Consultants, presented a timeline showing regional investment in projects with a value greater than $50 million, being undertaken through 2016. Their analysis reflects MTA and other public sector projects as well as the most significant private sector work. In the near term, projects forecast to begin or be in active construction in 2008 are valued at roughly $9 billion for civil/structural work, $1 billion for systems-type work, and $13 billion for buildings/facilities. This volume and duration of construction, and the associated "environmental preparation work" will impact the bonding capacity of contractors in the New York metropolitan area resulting in increased multi-entity ventures or fewer bidders. The MTA has already seen fewer bidders for some of its large projects.

In addition to the $21.3 billion current 2005-2009 MTA Capital Program, the timeline indicates that, through the next four years, over $30 billion in other metropolitan area work will begin, including: three major sports facilities; New Jersey Transit's Trans-Hudson Express Tunnel; New York City Department of Environmental Protection's Water Filtration Plant, Newtown Creek Plant Upgrade and continuing 3rd Water Tunnel work; Atlantic Yards Development; World Trade Center site work, which includes the PATH Terminal, Freedom Tower, WTC site infrastructure, memorial and Silverstein Properties buildings; Goldman Sachs; East Side development at the old Con Edison steam plant; Columbia University's new Manhattanville campus; on-going New York State Dormitory Authority and New York City School Construction Authority programs; and other New York City and New York State programs.

Labor & Supervision Demand: The Lower Manhattan Construction Command Center (LMCCC) has noted that the Lower Manhattan work, MTA mega-projects, New York City Department of Environmental Protection (NYCDEP) mega-projects and the two New York stadium projects would use between 75 to 100 percent of currently available specialty trade labor for a few trades. Contractors' experienced supervisory personnel are also in short supply because of the strong market. While the wage increases reported for project managers, superintendents, estimators, and supervision are within 4 percent forecast growth, shortages are driving up wages for new hires at a higher rate.

Owner Controlled Insurance Program: The MTA provides an Owner Controlled Insurance Program (OCIP) for many third-party construction projects. As a result of this OCIP, contractors do not include workmen's compensation in their labor costs or provide general liability insurance as part of their general conditions. Agencies assert that transfer of this obligation has not resulted in noticeable reduction in bid prices. In the 2000-2004 Capital Program, OCIP was budgeted at 4 percent of the cost of construction value. For the 2005-2009 Capital Program, an OCIP policy was placed at a maximum out-of-pocket value of 6 percent, or a fifty percent increase. To-date, however, MTA Risk and Insurance Management is charging the agencies approximately 4.25 percent for OCIP coverage. This lower rate is based upon current loss experience and utilization of the surplus in the captive company. MTA Long Island Railroad (LIRR) and Metro-North Railroad (MNR) budgeted 4 percent for OCIP in their Capital Programs; New York City Transit (NYCT) included an allowance of 5 percent of the estimated bid budget for OCIP within the total construction budget of each third-party contract.

New Requirements: Also contributing to increases in general condition costs are new requirements being specified by various agencies. This includes city moratoriums on street closures not contemplated at the start of a project, increased safety and security requirements at the project sites, more stringent environmental compliance and monitoring, use of low sulfur diesel fuel (requires retrofitting of equipment or purchase of new equipment) and application of information technology at the project site. MTA Bridges and Tunnels (B&T) estimates that recent security requirements will add 3 percent to the cost of construction. Additionally, depending on a project's location, contractors may have to utilize office building space in lieu of field trailers.

Conclusion: Many of the factors affecting the Capital Program are external, continuing, and beyond the immediate control of the MTA. The challenge for the Blue Ribbon Panel will be to define those contractual, operational, regulatory and construction approaches which the MTA may implement to effectively mitigate these influences, maximize the value of the current program and improve our forecasting for the next Capital Program.

Background: Successfully Implementing MTA's Large Capital Program – Advice from MTA Blue Ribbon Panel for Construction Excellence

The MTA is undertaking the largest expansion of its system in decades. At least three mega-projects are currently underway: East Side Access, Second Avenue Subway and the extension of the 7 Line, each expected to cost billions of dollars. These projects are managed by MTA Capital Construction Company (MTACC), which was established specifically to implement these and other mega-projects, free from the responsibility of operating any of MTA's transit systems. MTACC has a small staff of highly experienced engineers and project managers, draws staff through a matrix organization from New York City Transit, and utilizes consultants.

Mega-projects are, as everyone knows, a different breed of project. They are not merely regular transit projects on a grander scale: their complexities lead to their own management and logistical challenges and risks. These often cause them to go over budget and schedule. This situation is complicated further by the fact that an unprecedented number of large projects are to be implemented in this region at the same time. Not only are there MTA's three projects, but there is the new PATH Terminal at the World Trade Center site, New Jersey Transit's (NJT) Trans Hudson Express Tunnel to connect NJT's main line with a new 34th Street Station, and other large developments. New York State has also identified the Tappan Zee Bridge project and enhancing Stewart Airport as priorities for the future. MTA will be especially challenged to successfully implement its mega- and large capital projects in this environment.

In addition, MTA's Capital Program includes many other large, multi-million-dollar projects across all of the MTA operating agencies. These have been plagued recently by sparse competition and bids that significantly exceed both budgets and estimates. Projects involving complex systems and software have proven difficult to implement on time and within budget. Escalating costs mean that fewer projects included in the current 2005-2009 Capital Program can be implemented: challenging the necessary pace of system renewal and improvement.

Success requires bringing these projects in on time and within budget. The public focuses on the transportation community and draws conclusions, deserved or undeserved, about MTA's competence based on their perception of project success. Public trust and confidence in the transportation sector as a whole often lies in the balance.

The Blue Ribbon Panel was assembled in February 2007 and began meeting on March 15, 2007. The 11th and final meeting was held on January 8, 2008. The goal of this Blue Ribbon Panel was to develop a roadmap for large capital projects within this construction environment to enhance the likelihood that these projects will be built on time, within budget, and with high marks from the traveling public. The Blue Ribbon Panel included practitioners and industry representatives recognized for their expertise in implementation of large capital projects, labor supply availability, contracting industry capacity, and the dynamics of competition in the building industry created by concurrent large projects as well as other factors. A listing of the panelists follows. Their expertise was applied to MTA's large capital projects to identify risks and proactive measures to mitigate them and to identify opportunities for improvement.

The Panel addressed the following issues related to MTA's large capital projects:

- Bonding Considerations for Large Projects in a Competitive Market
- Increasing Competition by Way of Project Delivery Options
- Manpower (Labor and Management), Materials and Logistics: Constraints and Recommendations
- Contractual Provisions: Issues and Opportunities to Improve Competition
- New Technology and Mega-projects: Improving Planning and Implementation
- Project Management: Strategies to Bring Large Projects in On Time and Within Budget

The panel developed six White Papers, one for each of the above issues, which incorporate their findings and a recommended action plan. Taken together, the panel respectfully submits that these action plans provide the roadmap for MTA to follow to enhance its ability to bring large projects in on time and within budget.

The individual members of the panel stand ready to assist the MTA in further evaluating and implementing the recommendations contained herein.

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Executive Summary: Blueprint for Action

The Blue Ribbon Panel for Construction Excellence, made up of experts in all areas of construction, came together to provide recommendations to the MTA for bringing its large capital projects in on time and within budget. The efforts of the panel, which spanned approximately one year, from March 2007 until February 2008, resulted in White Paper discussions of six construction areas and the action items associated with their implementation: bonding considerations; increasing competition through project delivery methods; manpower constraints and opportunities; contractual provisions and opportunities for improvement; new technology and mega-project implementation; and project management strategies. These are summarized below, with a focus on the recommendations for improvement. All are described in detail in the succeeding White Papers. As a follow-up to this effort, the MTA will create an implementation plan for each area.

1. Bonding Considerations for Large Projects in a Competitive Market

The increasing pace of construction activity has created risks unacceptable to sureties. This has resulted in more costly bonds and limitations on total bond values, which significantly limits competition. The Blue Ribbon Panel recommended that MTA consider the following:

A Obtain full contract value coverage when a full value bond is not available: evaluate a methodology by which corporate guarantees for performance may be provided in lieu of bonds and investigate why excess layer bonds are not more widely available.

B Consider implications of less than full-value bonding where the competition may be limited or there is an economic incentive to do so. Consideration should be given to making the MTA a dual insured (in addition to the surety) on all subcontracts as an alternate means of increasing the project bond value coverage beyond that which the prime contractor can provide for self-performed work.

2. Increasing Competition by Way of Project Delivery Options

The MTA's use of two primary means of contracting – low-bid and Request for Proposal (RFP) – could be expanded to increase competition. The private sector utilizes other forms of procurement: Construction Management as Agent (CMA) and Construction Management at Risk (CMR). In CMA contracts, the "agent" lets contracts on behalf of the owner which are paid by the owner. In CMR contracts the work is also let on behalf of the owner but progresses until such time as both agree to a "guaranteed maximum price." The Blue Ribbon Panel recommended that:

A The MTA should continue to utilize low-bid procurement method for most projects due to the "simplicity" for the large number of projects and relatively low cost.

B Negotiated procurement, via RFP, should continue to be used for large or complex projects.

C MTA should select a test project to determine when/how Construction Management as Agent (CMA) or Construction Management at Risk (CMR) may be utilized when no construction begins prior to design completion.

3. Manpower (Labor and Management), Materials and Logistics: Constraints and Opportunities

Analysis of anticipated construction in the region over the next five years performed on behalf of the panel confirms increasing demands for various labor needs, commodities and supervision. This demand is not expected to peak until 2011, and will place increasing demands on existing labor and contractor resources potentially driving up the MTA's costs. The Blue Ribbon Panel recommended opportunities for the MTA to address this challenge as follows:

A Due to the cyclic nature of the industry, it is essential that the MTA work with other agencies to periodically share capital plans, continue to evaluate manpower needs, and review steps being taken to address the competition for the same resources (contractors and subcontractors).

B Management organizations have identified critical skills which are needed, and a plan to develop them. Based on a study done for them, BTEA has provided an outline of the critical skills needed, such as job schedulers and cost estimators. It was recommended that the MTA review the specification constraints placed on contractors that prevent contractors from using specialized personnel, such as safety managers, to serve multiple projects. MTA and other agencies should meet with management organizations to resolve future concerns in a timely manner.

C Since a shortage of construction management personnel is also forecast, the availability of qualified personnel for the industry, the MTA, and other agencies is a concern. The MTA should work with General Contractors Association (GCA), Building Trades Employers' Association (BTEA), American Council of Engineering Companies (ACEC), other stakeholders and other agencies to review and ameliorate the impact.

D Organized labor believes its construction trades development initiatives and resources from outside the region will be utilized to address the growth in demand. These initiatives include:
- Non-traditional Employment for Women (NEW)
- Edward J. Malloy Initiative for Construction Skills
- Helmets to Hard Hats

As shortages are identified, the MTA and other agencies should meet with the Building and Construction Trades Council of Greater New York to resolve concerns in a timely manner.

E MTA should review, with management organizations and organized labor, how to contribute to expanding contractor/subcontractor diversity, specifically by greater participation of minority- and women-owned business enterprises (M/W/BE).

F MTA should review, with the Federal Transit Administration (FTA), a means for Disadvantaged Business Enterprises (DBE) firms to participate in larger subcontracting opportunities without loss of DBE eligibility.

G The MTA should discuss with organized labor the New York State Department of Labor requirement that limits the ratio of apprentices to journeymen to 1:4 as a future opportunity to increase the number of apprentices employed without compromising safety or quality.

4. Contractual Provisions: Issues & Opportunities to Improve Competition

The panel identified several contractual provisions and/or practices as impediments to increased competition. Specifically, the panel identified opportunities for improvement in the areas of dispute resolution, damages for delay, self-perform requirements, overhead and profit (OH&P) as a basis for deleted work, extension of time, and the change order process. The panel recommended changes in these areas to more equitably distribute risk and to make the MTA a more inviting client to new contractors. Specific recommendations include:

A In keeping with their legal frameworks, the agencies should review Terms and Conditions (T&C's) regarding disputes resolution, damages for delay, self perform requirements, OH&P as a basis for deleted work, extension of time, and change order process, toward the goal of increasing competition and lowering costs.

B The industry, together with appropriate agency staff, should host forums to educate prospective bidders who are unfamiliar with Authority practices on relevant contract provisions and inform agencies of current contractor issues.

5. New Technology & Mega-projects: Improving Planning & Implementation

The panel considered the difficulties involved in accurately identifying the schedule and budget for new technology projects and other large, and/or complicated projects. The panel suggested that the projects employ a risk-based estimate of time and budget ranges in the future. MTA and national experience has been considered in order to define success in terms of risk. The panel specifically recommended that the MTA should:

A Perform risk assessments to determine individual project budgeting and scheduling for projects where there are significant uncertainties, such as new technology and mega-projects, as well as large projects (over $100 million) and those with complex phasing plans or significant customer impact. Include all stakeholders within the process and perform early in the project design (preferably at the conclusion of preliminary engineering) and repeat as part of a risk management process to help control project cost and schedule.

B Consider the 90 percent probability level as acceptance criteria for risk assessments to establish project budgets and schedules.

C Communicate the range of likely results and chosen confidence level for budgeting to all stakeholders including MTA Board members.

6. Project Management: Strategies to Bring Large Projects in On Time and Within Budget

The panel presented an overall framework for bringing projects in on time and within budget during times of increasingly tight labor market conditions and volatile commodity prices. This framework includes:

A Developing the increased skills and resources that are necessary to establish effective team leaders and provide motivation for retaining them. It should be noted that these projects require "the best and the brightest" to be successful.

B Formally adopting risk assessments and risk management activities to communicate individual project budgeting and scheduling (per 5A above).

C Adopting a formal "lessons learned" program for all agencies to assure that lessons learned are effectively communicated throughout the organization.

D Reviewing procurement strategies prior to advertising projects to maximize contractor input to design/constructability issues.

E Consider establishing a program-wide reserve fund for mega- and complex projects – in consideration of the construction environment and in addition to the project contingency established in the risk-assessments – in order to insure that the scopes that have been promised may be built.

Advice from MTA's Blue Ribbon Panel for Construction Excellence

Bonding Considerations for Large Projects in a Competitive Market

Issue: Where joint ventures are utilized, each contractor may share the risk of a joint venture and have a different surety, but each surety could be liable for completion of the entire project. The letter from the Surety & Fidelity Association of America (SFAA), Exhibit 1, Attachment 1, indicates that Sureties may be willing to provide both payment and performance bonds in the $500-$600 million range. This amount is both contractor- and project-specific and the limit would apply whether one or multiple contractors were involved.

There is also a surety that will write "excess layer" payment and performance bonds up to $250 million. This amount is claimed to be above the values specified above (see Exhibit 1, Attachment 2) but there have been none issued of which we are aware.

In addition to the bonding challenge, the size of the overall contract naturally limits competition because few firms or teams of firms take on such large single contracts.

Performance Bond: The Federal Transit Administration (FTA) normally requires a 100 percent performance bond on any federally funded construction project. However, in the most recent FTA Circular C4220.1E, Attachment 3, the FTA amended this requirement to better explain that FTA will accept a local bonding policy that may not meet the minimum requirement of a 100 percent performance bond where the local policy and related procurement procedures adequately protect the federal interest. Grantees who wish to adopt a less stringent bond requirement for a specific class of projects or for a particular project may submit the policy and rationale to their regional FTA office for approval. On projects that are not federally funded, there are no similar performance bond requirements.

The Port Authority of New York and New Jersey (PANYNJ) uses a method that checks for financial worth/stability of a company, but also depends on the sureties to pledge (as part of the bid) they would fully bond the company. They also require a technical evaluation and sign off by the engineers. In 2006, they bonded approximately 1/4 of their projects.

The FTA waived the 100 percent requirement for the federally funded PANYNJ PATH project ($1billion+), and did not require a performance bond for two reasons: (1) the contractors were all large, financially sound entities that also provided corporate guarantees, and (2) the cost of a bond would have to be written based on the full project amount, although a bond for only $250 million was offered (thus the PANYNJ viewed this as an unacceptably high premium for the bond value).

On an $875 million aviation terminal project (not federally funded), the PANYNJ did not require traditional Payment and Performance bonds from the General Contractor (GC)/Construction Manager as Agent (MA), (which performed no self-work) since a "sub-guard" type program of the contractor covered the subcontractors work for a specific period of time.

The Surety Market: The requirement for a bond for the mega-projects does not in itself limit contractor competition, because there are few contractors that can do the work independently of a bond requirement. Based on the information in Attachment 4, for recent bonds, it appears that capacity exists in the surety market to write $600 million+ in bonds. Thus, the surety market seems sufficiently robust to support projects to this limit (each surety holds joint and several liability to assure coverage). As stated above, the SFAA confirms that bonds can be expected to be written in the $500-$600 million range. The issue, as discussed with certain sureties' representatives, is that the sureties have a finite amount of risk they are willing to place with any single contractor (including joint venture teams) and in any location. According to surety industry representatives, even the practice of multiple sureties on joint venture projects does not sufficiently spread the risk because there are so few large sureties that they are frequently the same co-sureties for each joint venture member. Surety industry representatives claim that to partially address this risk (for the case of a less than full project value bond), premiums are based on the total value of a project.

Surety companies also consider the duration of a project with five years (construction and warranty period) traditionally being a limit. However, bond premiums increase with durations greater than two years (construction duration).

One surety offers "excess layer" bonds up to $250 million. This excess layer bond plus the prime bond would indicate that coverage of over $500 million should be available for the right contractor(s). Since this excess layer approach has not yet been accepted by a project owner, it remains an unknown.

The PANYNJ evaluates each project to determine whether a contractor should furnish a bond. Each contractor must obtain a full project value bid bond, unless they are mega-projects (two mega project approaches were discussed previously). The PANYNJ then performs a financial and risk evaluation to determine if a bond should be required. In 2006, for example, only 1/4 of the projects were bonded.

Since the typical MTA contractor self-performs some work and subcontracts the balance, the MTA could require the contractor to provide bonds for all subcontractors, naming the MTA as a dual obligee. This might also save money since some of the bonds would be for a shorter duration. However, the impact on competition for subcontractors that may have bonding capacity limits would have to be evaluated on a case by case basis.

Challenge: How does a contractor or combination of contractors satisfy 100 percent project value payment and performance bond requirements? Will partial project value bonding, with or without the excess bond, and company guarantees for the balance be considered acceptable in a risk-based approach? Will a co-insured approach that addresses 100 percent project value for all subcontractor bonds be acceptable? Under which circumstances will less than full project assurance be acceptable?

Action Items

The importance of understanding the surety market and various means to provide compliance with all regulations, while establishing an acceptable level of risk for the large projects that will use the RFP (only) process, cannot be overstated. Thus, the MTA should:

- Evaluate a methodology by which corporate guarantees for performance may be provided in lieu of bonds and investigate why excess layer bonds are not more widely available.
- Consider implications of less than full value bonding, where the competition may be limited or there is an economic incentive to do so. Consideration should be given to making the MTA a dual insured (in addition to the surety) on all subcontracts as an alternate means of increasing the project bond value coverage beyond that which the prime contractor can provide for self-performed work.

This White Paper and recommended actions are based on deliberations of the Blue Ribbon Panel and discussions with representatives of the surety industry and the agency cited, and do not necessarily represent the position of the MTA.

John Cavanagh, Co-Chairman

James Jones, Co-Chairman

Advice from MTA's Blue Ribbon Panel for Construction Excellence

Increasing Competition by Way of Project Delivery Options

Issue: There are several procurement methods that the MTA may employ as it executes the Capital Plan. Each method has associated advantages and disadvantages and the MTA has used some of these methods and has yet to utilize others. The challenge is to match the appropriate procurement method to specific project requirements. The purpose of this paper is to review and discuss relevant procurement methods and to identify specific project indicators (e.g., complexity, costs, schedule, and service impact) which would suggest an alternate procurement strategy. This report is drawn from an April 10, 2007 presentation by MTA Capital Construction Company to the Blue Ribbon Panel, which explored the three common MTA project delivery methods: design/bid/build; design/build; and negotiated fully designed procurements. These methods are classified as "low bid" and "best value." This paper does not address terms and conditions of a particular contracting option.

Procurement Strategies Utilized at MTA:

These strategies, or methods, fully comply with the New York State and federal procurement requirements:

Design/Bid/Build – This is the traditional "low-bid" approach to project delivery and by far the most commonly used by MTA. Simply stated, a 100 percent design is produced (either in-house or by an outside A/E consultant) and is then put out to bid, and ultimately awarded to the lowest responsive, responsible bidder. The process is highly structured and sequential, starting with the environmental review, conceptual design, preliminary engineering, final design, and preparation of the construction contract package invitation for bid (IFB), advertisement, bid opening, and contract award.

Advantages of this delivery method include:

- Owner's requirements are fully incorporated in project specifications and detailed designs.
- High level of cost certainty to the extent that the project requirements are fully incorporated in the bid documents.
- Familiar to most contractors, leading to more bidders who might otherwise be leary of the investment in a prolonged negotiation.

Disadvantages include:

- Long duration of sequential design and procurement prior to construction.
- Possible limitation of contractor innovation without the opportunity present in negotiations to discuss alternate means and methods (although by utilizing Value Engineering provisions in the contract, the contractor may propose cost-saving measures).
- Design risk carried by owner.

Design/Build – This is a negotiated project delivery method that utilizes the owner's preliminary or performance-based specifications (up to a maximum of about a 30 percent design) that are

then issued to design/build entities. The proposals of the design/build teams, which themselves may be formed only in response to a specific project, are then evaluated against stated selection criteria to determine the proposal that presents the overall "best value" to the agency. The criteria may include a combination of qualities including strength of proposed team, innovations, schedule, and cost. Design/build is intended to fast-track a project starting the construction phase at a point where the full design has yet to be completed. This method is most appropriate: 1) on standard "brick-and-mortar" jobs with which the owner has had significant past experience; 2) where the owner's requirements are clearly defined up front and are unlikely to change through the course of the project and; 3) where the contractor has full control of the work site, for example, in the case of MTA projects, design/build is most likely to succeed when the work is off the railroad, subway, bridge, or tunnel right-of-way.

Advantages of this delivery method include:

- Overall shorter project schedule relative to Design/Bid/Build.
- Contractors have more flexibility in their means and methods by controlling both design and construction whereby the design/build entity may bring an innovative approach to project design and construction.
- Design risk rests with the design/build team.

Disadvantages include:

- It may be difficult to evaluate relative advantages and disadvantages or alternate proposals prepared by different teams.
- Fewer contractors available with capabilities to design and build and therefore design/build entities may be a "marriage of convenience" between firms that have never collaborated in the past (when done as IFB). Need to show firms have worked together in the past.
- With negotiated procurement there is no savings in overall project schedule vs. IFB.
- Budget less certain based only upon the level of preliminary design prior to RFP.
- Owner has less control of equipment selected (where not specified) and user satisfaction may be problematic if expectations are not defined clearly.
- Owner must have previous project design when using similar performance criteria.

Negotiated Fully Designed Procurement – This project delivery method involves a request for proposal (RFP) that is issued based upon 100 percent design documents. Proposals are received from qualified firms and negotiations are held. The proposers are free to propose alternate construction methods, materials, project durations and, depending on the procurement, changes to the original design. Rather than being bound to award to the lowest responsive, responsible bidder as in low-bid procurement, under a negotiated procurement the owner is able to base the award on "best value." Either a one- or two-step procurement may be utilized where the qualification of bidders and review of proposals can be separate or combined activities, depending upon project specifics.

Advantages of negotiated procurements include:

- In-depth discussions leading to better scope definition for complex or first of a kind projects.

- Negotiations can address each proposing team's ideas and concerns about risks, which can lead to both cost and schedule savings.
- Allows owner and contractor to identity and more equitably manage risks by mutually agreeing to modify specifications.

Disadvantages include:

- Longer overall project schedule relative to IFB because of added time to evaluate proposals and complete negotiations.

Other Strategies Not Currently Utilized at MTA:

The MTA may not enter into reimbursable construction projects. The following strategies would require procurement activities over an extended period of time and result in substantial costs to provide competitive procurement bids for all subcontracts.

Construction Management at Risk (CMR) – When using a CMR project delivery, the owner selects the CMR team prior to completing design. The CMR participates in final design of the project on a cost-plus-fixed-fee basis. Initial elements of construction can begin prior to design completion and are paid for on a time and material cost basis. After design is completed, the owner and CMR negotiate a guaranteed maximum price (GMP) contract, usually the estimate plus a contingency, and an acceptable schedule.

Advantages of this delivery method include:

- Specific project risks are identified and addressed during design development.
- Owner can choose specialty subcontractors.
- CMR can provide input to the design.
- Savings in contingency may be shared in some contracts.

Disadvantages include:

- Can be inefficient when CMR is on cost-plus-fee basis and construction is performed under time and material.
- Owner must have detailed estimate when working with CMR to establish GMP.
- In some contracts CMR owns the contingency; use must be authorized by owner.

Construction Management as Agent (CMA) – This delivery method utilizes a cost-reimbursable CMA, either after completion of design or as the design nears completion. The CMA may issue contracts in their name as agent for the owner. The CMA is a provider of services much as with the CMR method, but is not at risk. The PANYNJ has used this method for complex projects.

Advantages of this delivery method include:

- Allows for flexibility in subcontracting methods.
- Owner owns the contingency.
- CMA can provide input to the design.

Disadvantages include:

- Reimbursable basis for CMA leads to cost uncertainties if project time is extended for any reason.
- The owner is responsible for market risks until all subcontracts are let.

Action Items

Discussion confirms the MTA's current approach to project delivery and suggests consideration of the use of CMA for unique circumstances. Specifically:

- MTA should continue to utilize low-bid procurement method for most projects due to the "simplicity" for the large number of projects and relatively low cost.
- Negotiated procurement, via RFP, should continue to be used for large or complex projects.
- MTA should select a test project to determine when/how CMA or CMR may be utilized when no construction begins prior to design completion.

This White Paper and recommended actions are based on deliberations of the Blue Ribbon Panel and do not necessarily represent the position of the MTA.

John Cavanagh, Co-Chairman

James Jones, Co-Chairman

Advice from MTA's Blue Ribbon Panel for Construction Excellence

Manpower (Labor and Management), Materials and Logistics: Constraints and Opportunities

Issue: The MTA is undertaking its largest system expansion in decades. Three mega-projects – East Side Access, Second Avenue Subway and 7 Line Extension – are currently underway as part of the expansion and have been valued in the billions of dollars. MTA's $21 billion Capital Program includes many other construction projects to be implemented by each of MTA's operating agencies, including NYC Transit, Long Island Rail Road, Metro-North Railroad, MTA Bus, and MTA Bridges and Tunnels. Along with these projects, many other projects by other entities are currently in progress or scheduled to start in the next few years. The total value of projects in New York's five boroughs projected over the next five years is in excess of $130 billion (see Figure 1 in Appendix A). The figure depicts the forecast monthly construction spending from 2008 through 2012 and is broken down into the following categories: residential, non-residential, non-building, rail infrastructure, road infrastructure, and water infrastructure. The most significant components of this spending are residential and non-residential building and tenant improvements. As such, absent a major downturn in the economy, the spending rate is anticipated to extend beyond the five-year timeline discussed in this paper. With the projected spending, availability of competitive bidders, labor, and distribution of certain materials is of major concern.

Subject: Carter & Burgess, Inc. (CB), MTA's Independent Engineering Consultant, acting as staff to the Blue Ribbon Panel, performed an analysis of projected construction in New York's five boroughs for the period of 2008 through 2012 to determine the anticipated supply and demand for management and key union trades, as well as the availability of concrete and associated trucking as one example of key materials and logistics. The panel provided overall direction to improve the results.

Methodology: The following steps were taken by CB during the analysis:

- Collected published data on construction activity within the 2008 through 2012 time frame;
- Researched and calculated corporate interior/tenant improvement activity;
- Compiled project data into Primavera scheduling software to determine overall project time frames;
- Developed electronic model to extract project-specific labor demand and schedule requirements for key trades and management;
- Researched and established associated union labor supply;
- Obtained feedback from Blue Ribbon Panel (BRP) members regarding electronic model parameters;
- Performed quality control on electronic model by analyzing data for construction activity from 2002 to 2006 and comparing to actual data from various sources;
- Extracted concrete and associated trucking demand from construction data;
- Determined current concrete batch plant production and trucking capacity (supply);
- Summarized electronic model results into monthly management and labor demand for key trades for the 2008 through 2012 time frame.

Collected published data on construction activity within the 2008 through 2012 time frame

Construction activity data was collected from a variety of sources. Sources included publications (New York Construction, Crain's New York Business, Dodge Reports, etc.), local public agency websites and information obtained directly from local public agencies. Information was gathered on a summary project basis and was divided into transportation and buildings/facilities categories with each group being further subdivided by agencies and developers/owners. A general scope of work, start and finish dates, and projected construction cost were obtained for each project.

Researched and calculated corporate interior/tenant improvement activity

During the data collection process, it was determined that a sizable volume of construction related to corporate interiors/tenant improvements (TI) was unaccounted for in the above-mentioned sources. Various alternate sources were therefore used to derive, verify and confirm data. These sources included reports from representative real estate firms including Colliers ABR, Cushman & Wakefield, and CB Richard Ellis; as well as organizations such as The Alliance for Downtown New York, Co-Star Group, Crain's New York Business, The City of New York's Financial Plan Summary Fiscal Years 2007-2011, and supplemental information from numerous articles found on the internet. Findings were corroborated with senior representatives of leading real estate companies and real estate/design and construction departments of major employers in New York City.

Projected vacancy rates were utilized in calculating the construction volume of TI work. The rates varied somewhat according to the sources cited, but were mostly consistent at a 5.4 percent average for Class A, 5.5 percent for Class B space and slightly higher for Class C space. In the methodology used, vacancy rates were presumed to remain at a constant rate of 6 percent, which is comfortably conservative when compared to the projected amount of newly constructed space. The approach adequately accommodated space coming available as a result of tenants vacating existing spaces to move into newly constructed space, as well as transitions resulting from potential consolidations in businesses such as law and financial services.

Next it was determined that of the presumed 6 percent vacancy in total inventory, 100 percent would be composed of Class A space built out by new occupants using union labor, 50 percent Class B space and 0 percent of Class C space on the assumption this space would be built out using non-union labor forces.

Another major component of TI work was annual construction within tenant occupied space covered under capital plans as an ongoing corporate expenditure. Quantification of this work was difficult as most major corporations plan for the work on an annual basis, some make no considerations for the work and smaller tenants take a reactive approach. The calculations used in this analysis focused on the known largest employers/occupants and were based on data obtained from the Alliance for Downtown New York report. An annual rate of 15 percent of total square footage for these largest tenants was earmarked for construction to accommodate future change. An additional 10 percent increase was included for anticipated activity in the remainder of Manhattan. It is CB's opinion and that of several senior corporate real estate professionals that the resultant projected total volume is very conservative and should be qualified as such.

Compiled project data into Primavera scheduling software to determine overall project time frames

A Master Schedule using Primavera System P3 software was developed and maintained. Within the schedule, project data was organized by information source and project type. Project identification code, title, start date, finish date, duration and construction value was included in the schedule. While the majority of project values were for construction only, a limited number included soft costs.

Developed electronic model to extract and summarize monthly, project-specific labor demand and schedule requirements for key trades and management

To determine the labor demand and time distribution for each project, an electronic model was created using Microsoft Excel. The model was created in such a way as to allow extraction of labor and time information in Construction Specification Industry (CSI) format from summary project information.

Beginning with summary project information, direct construction costs were separated from other indirect soft costs. Contractor general conditions, overhead and profit and contingency amounts were then subtracted from the direct construction costs. At this point, the construction costs were divided into material and labor costs by CSI format according to percentages typically found on similar projects. The percentages used were confirmed against RS Means published data and feedback from members of the Blue Ribbon Panel (BRP).

Wage rates from New York State prevailing wage schedules for New York's five boroughs were used to divide the calculated direct labor costs into total labor-hours required to perform a given element of work. The total labor-hours were next distributed across representative work crews defined by individual trade classifications for specific work elements. The total labor-hours by trade type finally were distributed across a timeline to produce a detailed time distribution for each project.

Using the same format, owner and contractor management person-hours were calculated and distributed over the same time frame. Based on industry standards, 8 percent of construction cost was assumed for owner's project managers and construction managers and approximately 7 percent of construction cost was assumed for contractor's general supervision, testing/inspection and trade supervision. A weighted hourly rate of $100 was used for purposes of this analysis.

The detailed labor and time distribution from each project was combined, as was the overall total labor demand for the analysis period of 2008 through 2012.

Researched and established associated union labor supply

Once union labor demand was established, a comparison with union labor supply was made. The union labor supply was established based on information obtained from the Department of Labor and union representatives, including members of the BRP. Deductions of 20 percent for retirees and 20 percent for travelers (out-of-area workforce) for Department of Labor listings, were taken into consideration based on input from members of the BRP. Union labor supply levels, for comparison with projected trade labor for years 2008 through 2012, were held at the same level as those reported for 2006 except where more current supply figures were confirmed by union and BRP sources.

Obtained feedback from BRP members regarding electronic model parameters

The experience of BRP members was tapped to confirm and refine analysis parameters. Feedback obtained from meetings held with various BRP members led to refinement of crew trade compositions, CSI breakdowns and supervision assumptions. These refinements were incorporated into the final version of the analysis model.

Performed quality control on electronic model by analyzing data for construction activity from 2002 to 2006 and comparing to actual data from various sources

Along with feedback from BRP members, an analysis of data from past projects for the period from 2002 to 2006 was performed to further refine the model. Data collected from Dodge reports, augmented by supplemental information to account for transportation and TI construction, was analyzed by use of the model. The resultant labor demand was then compared to labor supply information for the same period. The comparison results were consistent with BRP member feedback and confirmed the need for refinement of the model.

Extracted concrete and associated trucking demand from construction data

An analysis of concrete demand for the same period was performed using the data available in the labor demand projection model. Based on direct concrete material and labor costs, an average cost per cubic yard of concrete was assigned to various common building construction concrete work elements, including slab on grade, footings, foundation walls and metal deck topping. Despite the variability in types of projects investigated, a uniform cost per cubic yard of concrete was utilized. The result was an average quantity of concrete distributed according to the time frame described previously. Using the average concrete demand and an average truck capacity of eight cubic yards (CY) per truck, average trucking demand was extrapolated. In addition, two trips for each truck per day were assumed. See Table 1.

Table 1: Concrete Demand

Projected Demand	
Average Daily Demand	10,250 CY
Average Monthly Demand	205,000 CY
Average Daily Trucking Demand	640 Trucks

Determined current concrete batch plant production and trucking capacity (supply)

Local concrete batch plants were contacted directly to determine current production capacity and truck availability. The effort was limited to union concrete producers as non-union firms do not provide concrete to the vast majority of projects addressed in this study. See Table 2.

Table 2: Concrete Supply

Current Concrete Supply (Union)	
Daily plant capacity range	600-1,500 CY
Daily supply	21,000-28,000 CY
Monthly supply	441,000 – 588,000 CY
Trucking supply	741 Trucks

The result of research into local concrete plant capacity and associated trucking availability suggests an adequate supply of concrete to meet anticipated demand. While an adequate number of trucks appear to be available for the current demand, the truck number would have to increase significantly to cover available supply. In addition, the number of trucks retrofitted to satisfy low emission standards and a forecast increased number of Teamsters, which also implies the need for additional trucking, could have an impact on delivery of concrete.

Summarized electronic model results into monthly supervision and labor demand for key trades for the 2008 through 2012 time frame

The findings of CB's research for labor are summarized in Table 3, below, and Figures 1 through 8 in Exhibit 2, Appendix 2 attached to this paper. This information shows the number of people (demand) forecast for each day in a given month.

Table 3: Labor Supply and Demand Variance

Trade	**Peak Demand (2011)**	**Supply (2006)**	**Variance (People)**	**Variance (Percent)**
Carpenters*	14,855	13,157	-1,698	-12.9
Electricians**	12,018	14,186	2,168	15.3
Ironworkers*	2,552	1,524	-1,028	-67.5
Lathers*	1,813	845	-968	-114.6
Operating Engineer**	7,054	5,500	-1,554	-28.3
Teamsters**	5,038	3,900	-1,138	-29.2
Concrete Workers*	4,095	3,268	-827	-25.3
Miners (Sandhogs)**	1,540	650	-890	-136.9

* Excludes 20 percent retirees and 20 percent out-of-region

** Data obtained from union sources "at the trade," September 2007

The forecast variances show the need for additional labor for almost all key trades (Electricians show a surplus) in the New York area in 2011, when peak demand is anticipated. While labor representatives accept the analysis they believe the demand will become less as projects are cancelled or delayed.

Similarly, the findings of CB's analysis of the forecast management demand, are shown in Figure 9 in Exhibit 2, Appendix 2. While it is recognized that management supply is currently an issue, it is difficult to establish a definitive baseline given the fact that management consists of several "levels" of experience and specialties (safety supervisors, estimators, schedulers etc.) which must be considered.

Conclusions: Based on the construction spending in Exhibit 2, Appendix 1, the results have been accepted as a starting point going forward. The research and analysis performed by CB suggests an impending need for management and union labor for key trades in the upcoming years, with peak demand occurring in year 2011. Ongoing analysis should be performed to reevaluate supply/demand. Input from Union Labor organizations will be required to compare Union Labor supply and to determine what steps are being taken to develop forecasts. In like manner, contractors, subcontractors and construction management organizations will need to develop plans to address forecasts that could impact them, for all levels of management. The following are potential ramifications if the situation is not addressed in a timely manner:

- Increased overtime costs
- Increased project durations
- Increased overhead costs
- Potentially increased bonding premiums
- Decreased productivity
- Higher contractor bids due to uncertainty

Action Items

- Due to the cyclic nature of the industry, it is essential that the MTA work with other agencies to periodically share capital plans, continue to evaluate manpower needs, and review steps being taken to address the competition for the same resources (contractors and subcontractors).
- Management organizations have identified critical skills that are needed, and a plan to develop them. GCA (Appendix 3) cites one of its relatively large contractors as an example of currently being able to obtain qualified applicants. However, this offers no net gain of qualified people. It was noted also that large contractors may transfer personnel from other parts of the country to increase supervision. Based on a study done for them, BTEA has provided an outline (Appendix 4) of the additional resources for critical skills needed, and how they are addressing increasing demands for specialty skills, such as job schedulers and cost estimators. Significantly, they point out, that 75 percent of contractors are small and medium sized and do not have the financial resources to aggressively seek new personnel (as contrasted to the GCA comment). It was recommended that the MTA review the constraints placed on contractors in order to allow contractors to use specialized personnel, such as safety managers, to serve multiple projects. The MTA and other agencies should meet with management organizations to resolve future concerns in a timely manner.
- Since a shortage of construction management personnel is also forecast, the availibility of qualified personnel for the industry, MTA, and other agencies are a concern. The MTA should work with GCA, BTEA, ACEC, other stakeholders and other agencies to review and ameliorate the impact.

- Organized labor believes its construction trades development initiatives and resources from outside the region will be utilized to address the growth in demand. These initiatives include:
  - Non-traditional Employment for Women (NEW)
  - Edward J. Malloy Initiative for Construction Skills
  - Helmets to Hard Hats

  As shortages are identified, the MTA and other agencies should meet with the Building and Construction Trades Council of Greater New York to resolve concerns in a timely manner.

- MTA should review, with management organizations and organized labor, how to contribute to expanding contractor/subcontractor diversity, specifically by greater participation of M/W/BE's.

- MTA should review, with the FTA, a means for DBE firms to participate in larger subcontracting opportunities without loss of DBE eligibility.

- The MTA should discuss, with organized labor, the NYSDOL requirement that limits the ratio of apprentices to journeymen to 1:4 as a future opportunity to increase the number of apprentices employed without compromising safety or quality.

This White Paper and recommended actions are based on deliberations of the Blue Ribbon Panel and do not necessarily represent the position of the MTA.

John Cavanagh, Co-Chairman 2/28/08

James Jones, Co-Chairman 2/27/08

Advice from MTA's Blue Ribbon Panel for Construction Excellence

Contractual Provisions: Issues and Opportunities to Improve Competition

Introduction:

The current state of the construction industry is such that competition for MTA projects over $100 million is declining. Given the projected growth of the industry over the next few years, the MTA is evaluating all opportunities to attract new bidders and increase competition. One potential area where opportunities may exist is associated with general contractual provisions. Some of these provisions may impede those who are not familiar with MTA work from proposing or introduce a cost risk "premium" that can only increase with forecasted management and labor shortages. Thus, the Blue Ribbon Panel has identified provisions that the MTA should consider revising in order to increase competition amongst both established MTA bidders and new ones.

Objectives of Terms and Conditions:

Terms and Conditions are aimed at allocating risk between the MTA and the contractor. Minimizing uncertainty in project costs is a key goal as is avoidance of non-planned interruptions of agency-supplied services or extended construction durations impacting delivery of service to the riding public. The risk as perceived by the contractor may vary depending on the scope of work, and one contractor may have a different perception of risk from another. Some examples include an extended construction duration (over 4 years plus a one year warranty), which may affect bonding capacity and introduce industry future growth risks (where labor shortages and material volatility are a concern), working in a more restrictive environment than shown on the contract documents, which may introduce non-compensable impact costs, or bearing the costs of a protracted change order approval process.

The terms and conditions (T&C's) largely establish how risk is shared. For low bid procurements, these T&C's are not negotiable. However, for negotiated procurements, a few key issues have been modified by the MTA in past procurements. This experience has been considered in the Panel's review of T&C's to be reconsidered or modified for low bid procurement. While the MTA agencies have generally similar T&C's, there are differences in the key issues. Thus, while the MTA has some experience with the value various contractors have put on these issues, potential barriers to competition are worth reviewing. Therefore, continued dialogue between contractors (current and those who are not working for the MTA) and the MTA should be sought to encourage increased competition and the associated benefits.

Key Issues Identified by Contractors in T&C's:

The MTA mostly utilizes competitive sealed bid procurement. However, in a number of instances negotiated procurements have been used. This experience has allowed MTA to test the market for the value of certain T&C's. As part of the negotiated procurement process, concerns with the following T&C's have been raised by contractors and addressed on a case-by-case basis as noted below (refer-

ences are to NYCT and MTACC "Master Legal" – Exhibit 3, Attachment 1). Also noted is the approach of other MTA agencies, where different.

1. **Disputes Resolution** – Articles 8.03, 8.04, & 8.05 establish the Chief Engineer or MTA's Contract Dispute Resolution Board (CDRB) (depending on whether a technical or legal/ commercial issue is being disputed) to be the final arbiter of disputes. The CDRB is an expedited process when compared to resolution by the judicial system.

   Alternates to this process include:
   - Non-binding mediation as a precedent to arbitration.
   - Binding arbitration by an independent review board or designated independent (outside) arbiter or panel consisting of a designee by the contractor, a designee by the agency and a third designee selected by the other two designees.
   - Non-binding arbitration by a dispute resolution board or designated independent (outside) arbiter or Panel consisting of a designee by the contractor, a designee by the agency and a third designee selected by the other two designees. Disputes not resolved by use of the arbitration process would revert to the master T&C's dispute clause.
   - Resolution of disputes through litigation, i.e., elimination of the master T&C's dispute clause.

   Long Island Rail Road and Metro-North Railroad do not require the Chief Engineer or CDRB to be the sole arbiter. As such, disputes would be resolved by other means, including the judicial system.

2. **Damages for Delay-Impact Costs –** Article 2.07. The MTA's provisions for impact costs were cited by panel members as a more desirable approach than NYC procurement rules. However, New York State Office of General Services (Exhibit 3, Attachment 2) provisions reflect what contractors believe to be more equitable.

   The master T&C's allow impact costs for specified types of excusable delays. These include broader provisions for failure to provide access to the work site, issuance of a stop work order, or change orders. Discussions during negotiated procurement have considered other factors as well, such as impact costs liquidated at a flat fee.

   "Authority-provided services" require a contractor to pay for overage of agreed-to services. Subject to certain conditions, the following have been negotiated:
   - Charge overage at a fixed rate.
   - Provide extra flaggers at no additional costs.
   - Permit swapping of services (i.e., diversions, flaggers, and work trains).

   For NYCT signal contracts or contracts such as tunnel lighting that rely heavily on contractor access to the right-of-way, the "Special Conditions" section of the specifications moderate the risk of delay in Authority provided services for contractors.

   With respect to "No Damage for Delay," Metro-North is silent on exceptions.

3. **Material Price Adjustment** clauses have been considered in negotiated procurements for both an increase and a decrease in material costs.

4. **Advance Payments** have been negotiated when a price reduction and advance payment bond are provided.

The panel also identified several other T&C's, not listed above, and specification requirements that may impede greater participation by the contracting community.
These include:

a. ***Self-perform percentage requirements*** **–** Opinions were expressed that requiring anything but nominal self performance percentages limits competition. Further, self performance for large contracts increases the difficulty of achieving desirable M/W/BE goals.
b. ***Overhead and Profit (OH&P) basis for extra and deleted work*** **–** Articles 4.04 & 4.06. Opinions were expressed that the currently specified 21 percent OH&P is not adequate in today's market despite being an industry standard for some time, and should not be used as the basis of credit for deleted work because some overhead costs are expended at the start of the work.
c. ***Extension of time*** **–** Article 2.05. If a significant delay occurs before Notice of Award, a contractor should be allowed to withdraw without penalty.
d. ***Change order approval process and requirements*** **–** While not a T&C, timeliness of change order approval and payments was identified as a key issue. By increasing field authority and approval levels, and by focusing on promptly addressing change orders, the process can be accelerated. For example, at NYCT, a change order up to $10,000 can be approved by the field engineer. All other agencies vest initial or final authority with the procurement officer.

Action Items

The key issues identified by the panel form the basis for this list. The recommendations are:

- In keeping with their legal frameworks, the agencies should review the preceding T&C's – disputes resolution, damages for delay, self-perform requirements, OH&P basis for deleted work, extension of time, and change order process – toward the goal of increasing competition and lowering costs.

- The industry, together with appropriate agency staff, should host forums to educate prospective bidders who are unfamiliar with MTA practices on relevant contract provisions and inform agencies of current contractor issues.

This White Paper and recommended actions are based on deliberations of the Blue Ribbon Panel and do not necessarily represent the position of the MTA.

John Cavanagh, Co-Chairman 2/28/08

James Jones, Co-Chairman 2/27/08

Advice from MTA's Blue Ribbon Panel for Construction Excellence

New Technology and Mega-projects: Improving Planning & Implementation

Issue: New technology and mega-project investments have become a large component of the Capital Program. These initiatives have unique risks and other uncertainties (hereafter simply called risks) which differ significantly from the more standard construction commonly undertaken by the MTA. The inability to accurately quantify the impact of these risks often results in significant cost and schedule overruns and capital plan erosion, which might be preventable.

Because the current analytical framework does not adequately address risk, a new approach to understanding and managing risk associated with these projects is needed.

This report is drawn from a November 15, 2007 presentation to the Blue Ribbon Panel and subsequent discussions, which explored the benefits of performing project risk assessments for new technology and mega-projects. The risk assessment process is considered to be industry best practice. One of the primary goals of the Blue Ribbon Panel is to identify improved methods that the MTA may implement to effectively mitigate such influences, maximize the value of the current program and improve our forecasting for the next Capital Program.

Comparison of Traditional Approach to Risk Assessment: Normally, the MTA operating agencies develop project estimates utilizing the traditional method of identifying quantities, unit costs, progress rates, escalation and then adding a nominal contingency to cover all unknowns. In developing their Capital Programs, the agencies use the most current project bids and apply a general escalation rate.

Risk assessment attempts to deal with the uncertainties in a project by identifying specific elements of risk, analyzing them, and quantifying their potential impact (both cost and schedule) to the project. The process is performed, "from the ground up," meaning that all contingencies, conservatism, and escalation costs are first removed to recognize both base cost and schedule values for the project prior to considering risk. In identifying elements of risk, the Pareto principle is applied. The Pareto principle is also known as the 80/20 rule: 80 percent of the effects come from 20 percent of the causes. After identification, the various elements of risk are analyzed using probability theory. In particular, Monte Carlo Simulations (MCS) are employed utilizing a computer simulation. MCS is a method of analyzing problems by random sampling of uncertain input and providing ranges of probable outcomes. Once all significant project risks have been identified and quantitatively assessed (typically through expert judgment), a simulation is run in which the identified risks are added to the base to determine a range of likely outcomes. Based upon results from the large number of simulated cases, the relative importance of each risk can be determined and a plan to cost-effectively manage the most significant risks can then be developed.

The Risk Assessment Process: The risk assessment process begins with a workshop to define the characterization of the project. At this workshop, the project team provides a general understanding of the project scope, strategy, design status, cost estimate and schedule. The risk assessment team independently analyzes the information in order to identify the significant project uncertainties affecting cost and schedule. Cost uncertainties include allowances for design development, scope change,

unmeasured unit quantities, unforeseen site conditions, escalation, financing, etc. Schedule uncertainties include labor availability, optimistic progress rates based upon constrained completion dates, weather conditions, changed site conditions, etc. The resultant work product strips away any lumped contingencies or conservatism intended to cover these uncertainties, resulting in a "base" cost and schedule for the project. With this information a second workshop is scheduled.

The second workshop is effectively a brainstorming session between the project and risk assessment teams. The purpose of this workshop is to quantify each of the risks in terms of probabilities in order to develop ranges of cost and schedule. All project stakeholders must participate in this workshop in order for the risk assessment process to be successful. Rather than address all uncertainties at this workshop, the risk assessment and project team apply the Pareto principle by concentrating on those elements that can have a significant effect on the outcome. Once the critical elements are identified, range estimates and probabilities are developed by consensus of all team members. This is in accordance with the guiding principles of risk management which is that it is to be a collaborative and consensus-based effort.

In developing the range estimates and probabilities of occurrence for the various risks, it is important that the team members think "outside-the-box" in determining optimistic, pessimistic and most likely scenarios and assigning a probability of occurrence. As noted above, range estimates address not only unit costs but quantities, productivity rates, risk cost and schedule impacts, and escalation rates. This information is then entered into a simulation model so that the probable outcome of the many risks that have been identified may be added to the project base cost and schedule. The computer-generated MCS provides thousands of outcomes, which can then be plotted graphically. This is usually depicted in the form of a probability distribution (e.g., a skewed bell curve or an "S"-shaped cumulative probability curve) and the results are also presented in tabular form, which illustrates the probability of falling below or above a certain value (e.g., percentile confidence level). The results provide management with the capability of evaluating the adequacy of the existing budget/schedule and selecting the appropriate confidence level for the project.

Confidence levels are essentially risk acceptance criteria. The FTA uses a 90 percent probability that a budget or schedule will not be exceeded as acceptable. For some projects, which may be conservatively estimated or contain a significant amount of well-defined costs (based upon past experience), an 80 percent probability may be acceptable. Of equal importance, the identification of specific risks and quantification of their probable impact to the project enables the project team to prioritize those risks and to then develop a cost-effective risk mitigation strategy. This is often done in a third workshop, which can be scheduled once the risks have been prioritized based on the results of the second workshop. The adopted risk mitigation strategy should be considered in developing the final results and in establishing the budget and milestones.

MTA Experience and Lessons Learned: The federal government has instituted a best practice approach known as "risk assessment" for their new starts program to mitigate cost and schedule overruns on projects where it participates in the funding. MTA Capital Construction, as a requirement for receiving federal funds for the "mega-projects such as Fulton Street Transit Center, Second Avenue Subway, and East Side Access, has participated in the risk analysis process. Although it is recommended that the risk assessment be performed early during project design and repeated often as the

design progresses, FTA typically commits to performing risk analysis and funding a project after preliminary engineering has been completed. In addition, because of substantial delays and cost overruns experienced by NYCT on their high-technology projects, MTA Headquarters facilitated a risk management workshop for the Flushing Line Communications-Based Train Control (CBTC) project. This process is ongoing and has identified several significant risks to both cost and schedule for the implementation of CBTC.

Past results from these risk assessments have improved forecasting but not all risks were identified and in some cases, when identified, the range of possible outcomes was underestimated and costs have still risen somewhat from the adopted budgets, although not as much as experienced with traditional estimates. Clearly, the process must be rigorous in terms of recognizing all significant risks and include all stakeholders to be successful. Further, difficult works such as the implementation of new technology and mega-projects involve unique risks that might be underestimated, which can be compensated for to some extent by using a higher confidence level when establishing budgets.

Several lessons learned from past MTA new technology and mega-projects were also presented for panel consideration. Incorporation of these lessons should reduce risk on future projects. Specific recommendations included:

- Require the contractor to provide a team of experienced individuals with past experience working together.
- Formally assess the adequacy of the agency staffing resources that will be required to successfully implement the project.
- Utilize a negotiated procurement to select a qualified vendor.
- Include more input from operating staff during the design phase.
- Simplify the project schedule so that it may become a tool utilized by all stakeholders and include short-term milestones to continuously gauge progress.
- Provide clear testing and acceptance criteria.
- Develop a separate detailed commissioning schedule that includes both contractor and operating staff resource loading.

Summary and Conclusion: The risk assessment process improves project understanding, achieves consensus among the various project stakeholders, ensures realistic expectations, and provides for a better evaluation of scope options. The end product of risk analysis will be improved cost and schedule performance, thereby reducing the uncertainty that currently exists in the MTA Capital Program.

A significant challenge for the MTA has been estimating specific project costs early in the design stage for the purpose of capital planning and budgeting. Projects are then required to remain within these budgets. The risk analysis process inherently recognizes the fact that projects do not have a single identifiable cost at the time of planning but rather a range of likely outcomes. The current method of planning does not allow for such a range to be utilized in budgeting, but nonetheless, identifying and communicating the range of project costs as well as the confidence level chosen to establish budgets will benefit the organization and all stakeholders. This range of values should be communicated to all stakeholders, including the New York State Capital Program Review Board and MTA Board members to establish realistic expectations for project performance. Moreover, risk analysis provides guidance for risk management, which helps to control cost and schedule to better meet established budgets and milestones.

Action Items

Discussion confirms that the MTA's traditional approach to establishing project budgets and schedules is often inadequate to capture the unique risks associated with new technology and mega-projects. As such, the BRP is recommending the MTA adopt the following actions:

- For projects where there are significant uncertainties, such as new technology, mega-projects, large projects (over $100 million), and those with complex phasing plans or significant customer impact, perform risk assessments to determine individual project budgeting and scheduling. Include all stakeholders within the process and perform early in the project design (preferably at the conclusion of preliminary engineering) and repeat as part of a risk management process to help control project cost and schedule.

- Consider the 90 percent probability level as an acceptance criterion for risk assessments to establish project budgets and schedules.

- Communicate the range of likely results and chosen confidence level for budgeting to all stakeholders including the New York State Capital Program Review Board and MTA Board members.

This White Paper and recommended actions are based on deliberations of the Blue Ribbon Panel and do not necessarily represent the position of the MTA.

John Cavanagh, Co-Chairman 2/28/08

James Jones, Co-Chairman 2/27/08

Advice from MTA's Blue Ribbon Panel for Construction Excellence

Project Management: Strategies to Bring Large Projects in On Time and Within Budget

Issue: The MTA has embarked upon the largest expansion of its system in many generations. Presently, several mega-projects are underway including the East Side Access (ESA) connection of the LIRR to Grand Central Terminal, the 7 Line Extension and the construction of the first phase of the Second Avenue Subway (SAS). In July 2003, the MTA Board created the MTA Capital Construction Company (MTACC) to advance the planning and construction of these projects (commonly referred to as mega-projects) which are very different from many of the other projects within the MTA Capital Program in terms of size, complexity, and public impact. Advancing this multibillion-dollar capital investment program at a time when an unprecedented number of large projects are also being implemented throughout the region, thereby straining resources at all levels, poses a significant risk to the programs budget and schedule. For this reason, the MTA has sought advice from this Blue Ribbon Panel to better understand the unique challenges and recognize appropriate strategies towards achieving the established scheduling and budgetary goals of the agency.

Project Management

The project management process for mega-projects is essentially the same as that for any other large project where the scope is being advanced to accomplish a new goal of the owner. Since design and construction is a series of complex, changing details, success depends on larger numbers of skilled resources in order to apply and evaluate the application of means and methods. These resources include all stakeholders, working together as a unified team to achieve the common project goal. As such, a clear understanding of the end users' need is critical from planning to commissioning. The old axiom applies "good communication is a key management skill," especially for mega-projects where multiple levels of management are involved and project durations may extend for many years. In this regard a "cradle-to-grave approach" is most advantageous whereby, to the greatest extent possible, the same project managers remain with projects from planning through the design and construction phases, effectively placing ownership responsibility for the project and its timely progress with a single and fully vested project management team. This team must grow as the project moves to subsequent phases.

The basic elements for successful project management include the following activities during each phase of the project:

Planning Phase

- Involvement of all stakeholders
- Early coordination with operating agencies
- Early identification of security requirements
- Early identification of closeout requirements

Design Phase

- Challenge design team to avoid overdesign
- Early coordination with utility companies and external agencies
- Peer reviews and constructability reviews
- Continuous value engineering
- Early review of means and methods with contracting community (including contract packaging)
- Agree on testing procedures and protocols with user departments
- Thorough site investigation
- Incorporate "lessons learned" programs
- Identify, assess, and manage risks
- Evaluate bonding constraints

Procurement Phase

- Early outreach for increased competition
- Negotiate or consider modifying key contract terms

Construction Phase

- Timely decision making
- Partnering
- Quality and safety must be given a priority

Commissioning Phase

- Creation of separate commissioning schedule
- Timely assessment of commissioning resources with user departments
- Timely closeout

Risk Management

Mega-projects are challenging beyond the traditional project management requirements, not merely because of their size, but because of their complexity, required timing of funding, longer durations, and impact upon external constituencies. Successfully implementing mega-projects requires an integrated risk management process to identify and manage risk. This process should include the following, as minimum:

- Full support of upper management for resource allocation and negotiations with exterior agencies
- Prioritization of risk mitigation (especially cost and schedule conflicts)
- Tasking team members with direct responsibility for management of specific risk items and developing realistic mitigation strategies and timing
- Quantification of the results of mitigation strategies
- Regular updates of the project risk assessment analysis

Key elements in controlling project risks are an experienced project management team and a well scoped and designed project that has an estimate and schedule built on technically supported assumptions. A more thorough discussion of the risk assessment process and benefits has been provided to the MTA by the Blue Ribbon Panel in a separate White Paper titled "New Technology & Mega-projects: Improving Planning and Implementation." In addition to risk management, a robust cost and schedule trend analysis process will provide information which can be addressed in a timely manner to support risk management.

Planning Projects When Everyone's Plate is Full

Until recently, traditional project uncertainties or risks have stemmed from such items as material and labor cost escalation, experience of human resources, urban construction coordination, subsurface conditions, real estate acquisitions, community impacts, environmental issues, the mix of work within a solicitation, technology implementation, and commissioning. Volatile commodity costs, driven by global demand, further exacerbate the situation. Recent experience shows that costs for large projects are also being heavily influenced by shortages of experienced owner and industry resources and other less well understood factors such as the size of contracts, limited competition at all levels including prime contractors, sub-contractors and suppliers, and bonding limitations. In addressing these recent trends, strategies such as the use of the Request for Proposal (RFP) procurement process appears to work best for the MTA on large complex projects in that it allows the negotiation of key contract terms and input from contractors on design/ construction issues. A presentation of this topic has been provided to the MTA by the Blue Ribbon Panel in a separate white paper titled "Procurement Delivery Methods: Issues & Opportunities."

Because the risk assessment process utilizes an acceptance criterion of 90 percent probability (or less) that a project will not be overrun, a potential remains to exceed the budget. It is important that a source of funds be available to address overruns. Experience has shown that, in addition to a project contingency established in the risk assessment process, an additional reserve fund of 10 percent (on average) should be made available.

Action Items

Panel discussions confirm the unique and significant challenges that MTA presently faces in attempting to implement large projects on time and within budget. Towards meeting this challenge, the MTA should consider the following:

- Develop the increased skills and resources that are necessary to establish effective team leaders and provide motivation for retaining them. It should be noted that these projects require "the best and the brightest" to be successful.
- Formally adopt risk assessments and risk management activities to communicate individual project budgeting and scheduling (detailed in a prior panel White Paper).
- Adopt a formal "lessons learned" program for all agencies to assure that lessons learned are effectively communicated throughout the organization.
- Review procurement strategies prior to advertising projects to maximize contractor input to design/constructability issues.
- In consideration of the construction environment and in addition to the project contingency established in the risk assessments, the MTA should consider the establishment of a program-wide reserve fund (on the order of 10 percent) for its mega and complex projects in order to insure that the scopes that have been promised may be built.

This White Paper and recommended actions are based on deliberations of the Blue Ribbon Panel and do not necessarily represent the position of the MTA.

John Cavanagh, Co-Chairman Date

James Jones, Co-Chairman Date

The Surety & Fidelity Association of America

1101 CONNECTICUT AVENUE, NW, SUITE 800, WASHINGTON, DC 20036 TEL: (202) 463-0600 – FAX: (202) 463-0606
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E-mail: information@surety.org

May 22, 2007

Mr. Ronald Saporita
Director, Office of Construction Oversight
Metropolitan Transportation Authority
347 Madison Avenue
New York, NY 10017-3739

Re: Bonding for Mega Contracts

Dear Mr. Saporita:

The Surety & Fidelity Association of America (SFAA) is a national trade association of companies licensed to write fidelity and surety insurance in the United States. SFAA's approximately 500 members are sureties on the vast majority of contract performance and payment bonds written in New York and include all of the sureties active in writing very large bonds for projects comparable in scope to No. 7 Subway Line Extension.

Each surety company has its own underwriting standards and makes its own decisions. They will each apply their underwriting criteria to evaluate the contractor involved and the particulars of the project, contract and bond forms. That evaluation normally determines the work program and the largest single job on which the surety will issue performance and payment bonds for that contractor.

On very large projects, however, other factors come into play. Surety is regulated as a type of insurance, and there are legal and regulatory restrictions on the size bonds that any surety company can write. There are also internal limits and, in some cases, restrictions placed by reinsurers. Sureties for contractors with very large work programs generally have spread their risks by having multiple co-surety partners on the contractor's program, including each individual bond.

On a number of recent projects, the size of the contract has exceeded the largest single bond available. For public entities with a statutory requirement to obtain 100% performance and payment bonds, that has necessitated an amendment to the relevant statutes. For example, in California for the San Francisco Oakland Bay Bridge and in Georgia for public private initiative road projects around Atlanta, the state legislatures enacted exceptions. On the Bay Bridge project that exceeded $1 billion, the bonds were $350 million. The Georgia statute now permits the DOT discretion on projects over $350 million. In Florida, the Legislature recently amended Section 337.18, Florida Statutes, to permit the Florida Department of Transportation to require less than 100% bonds on projects over $250 million.

Mr. Ronald Saporita
May 22, 2007
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For public owners not subject to a 100% statutory requirement, bonds in an amount less than the contract price have been used even though the public entity involved had traditionally required 100% bonds. One recent example is the Croton Water Treatment Plant job in New York City which was let with $500 million performance and payment bonds on a $1.1 billion contract. The Miami-Dade County Airport Department is requiring $550 million performance and payment bonds on its $1.1 billion North Terminal project. The U.S. Army Corps of Engineers required $500 million performance and payment bonds on the National Geospatial Intelligence Agency project at Ft. Belvoir, Virginia, which is anticipated to cost over $1 billion.

The proposed No. 7 Subway Line contract falls squarely into this dilemma. The surety industry, and the sureties potentially involved on this project, would like to be able to provide the 100% performance and payment bonds which the MTA Capital Construction Company has customarily required. However, the size of the project constrains the ability of sureties to furnish 100% bonds. Based on discussions with the surety companies who can participate on such large bonds and our experience on other recent very large projects, bonds of $1 billion or more would not be available in today's market. Bonds of $500 to $600 million dollars have been written on several recent projects, and given the strength of the potential bidders, we understand that bonds in that range would be available for the No. 7 Subway Line contract.

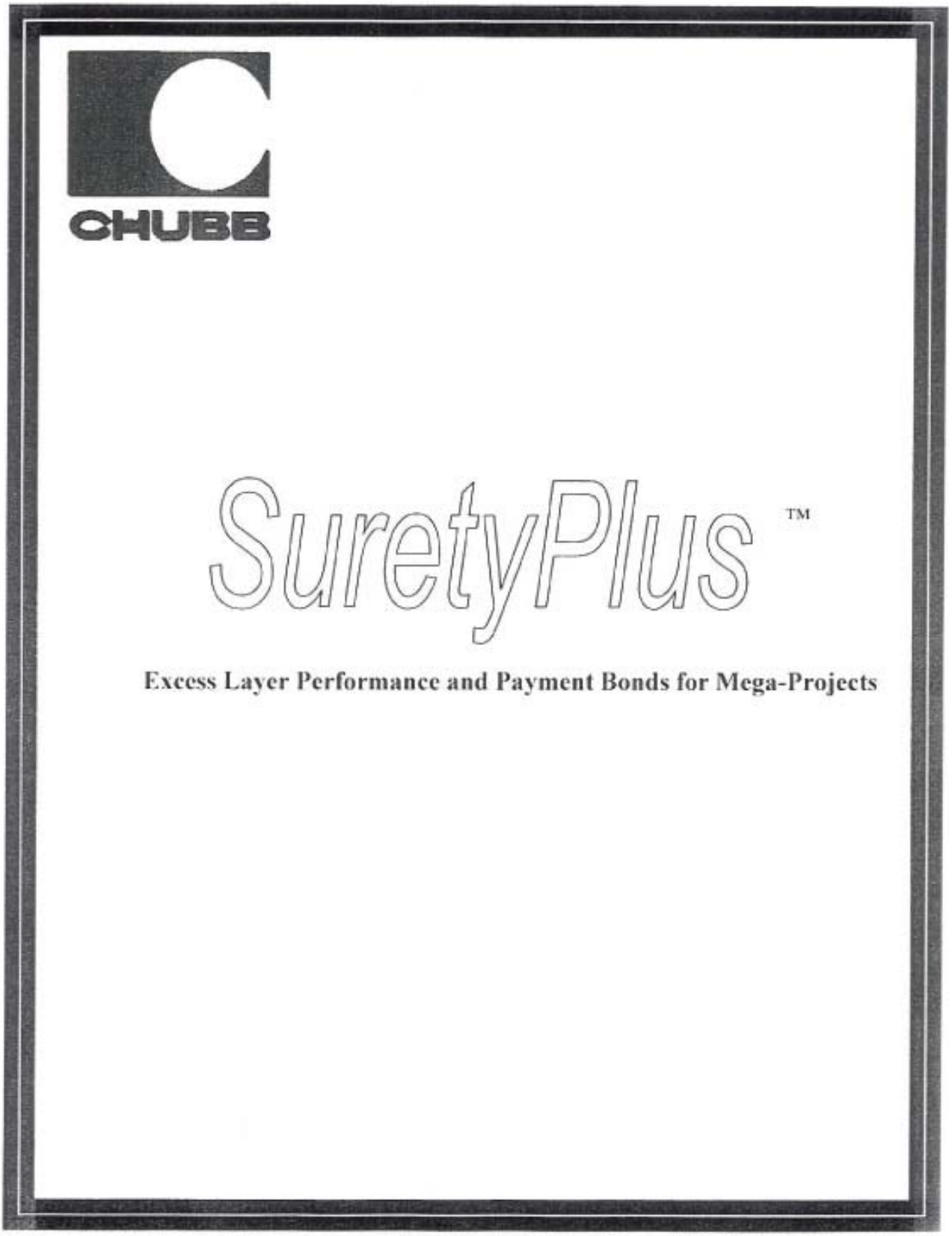
We understand that you are speaking separately with several major surety companies about their ability to provide bonds on such very large projects. If you need anything else from us, please let me know. We want to work with the MTA to reach an acceptable resolution of this difficult situation so bids on upcoming projects will not be delayed.

Sincerely yours,

Edward G. Gallagher

Edward G. Gallagher
General Counsel

cc: via E-mail: Veronique Hakim, Esq.
Jayne Czik, Esq.
Mario Socrates


CHUBB
SuretyPlus™
Excess Layer Performance and Payment Bonds for Mega-Projects

SURETYPLUS™: EXCESS LAYER PERFORMANCE AND PAYMENT BONDS FOR MEGA-PROJECTS

Background

Construction owners have recently encountered surety capacity limitations in obtaining full performance and payment bond coverage on projects with contract values over $500 million. It remains difficult for even the strongest construction firms and consortiums to procure 100% performance and payment bonds on projects over $500 million. This issue severely affects a public or private owner's ability to protect its construction budget against a catastrophic loss arising from contractor default, and may also increase project costs by potentially restricting the number of otherwise qualified firms able to compete for the contract. Moreover, for a public owner bound by statute to require performance and payment bonds covering the full amount of the contract price, seeking a legislative reduction or waiver of the bonding requirements for a specific project can lead to protracted and costly delays.

The Solution: SuretyPlus™

The Chubb Group of Insurance Companies ("Chubb"), whose principal underwriting companies are rated A++ (XV) by A.M. Best Company and are admitted in all 50 states, has developed a targeted solution to the challenges presented by limited surety capacity for mega-projects: excess layer performance and payment bonds.

Under the SuretyPlus™ program, Chubb is able to provide up to $250 million in excess surety capacity on mega-projects over $500 million. The total capacity available will depend on the amount of primary surety capacity available for a given construction firm or consortium, as well as, the amount of excess surety capacity committed to the project under consideration. By using excess layer bonds in combination with primary layer bonds, owners can now obtain 100% performance and payment bond coverage for projects up to potentially $1 billion.

Full coverage can be provided on projects over $750 million as the amount of available surety capacity increases at the primary layer. For example, in November 2004, the New York City Department of Environmental Protection obtained 100% performance and payment bonds in connection with the award of a $668,532,680 contract for the Manhattan Water Tunnel No. 3 project. Insofar as the latter project evidences the amount of capacity currently available in the primary surety market, SuretyPlus™ enables qualified consortiums to procure 100% performance and payment bonds on projects over $900 million. The following table lists some recent mega-projects for which owners obtained 100% bonds:

Project	Owner	Contract Price	P & P Bonds	Sureties
Manhattan Water Tunnel No. 3 New York, NY (Nov. 2004)	New York City Dept. of Environ. Protection	$668,532,680	$668,532,680	St. Paul Travelers, Zurich
Metro Gold Line Eastside Ext. Los Angeles, CA (June 2004)	Los Angeles County Metropolitan Authority	$600,449,000	$600,449,000	Chubb, AIG, Zurich, Safeco
US 17/Cooper River Bridge Charleston, SC (July 2001)	South Carolina Dept. of Transportation	$531,276,000	$531,276,000	AIG, Chubb, Zurich
Newtown Creek W.W.T.P. New York, NY (June 2003)	New York City Dept. of Environ. Protection	$493,000,000	$493,000,000	Travelers, Chubb, Zurich, XL, Safeco
Manhattan Tunnels Excavation New York, NY (April 2004)	New York City Metro. Transportation Auth.	$364,284,000	$364,284,000	St. Paul Travelers, Chubb, Zurich

An essential feature of the SuretyPlus™ program is that it provides seamless coverage between the primary and excess layers without altering traditional suretyship rights and obligations, whether statutory or common law. The excess performance and payment bonds follow the forms of the primary bonds,[1] thereby ensuring in the case of public projects the satisfaction of all applicable Miller Act or Little Miller Act requirements. In fact, each excess instrument expressly incorporates by reference the underlying primary instrument in its entirety.[2] While coverage under the excess instrument is triggered only if the total loss exceeds the primary instrument penalty, whether or not paid by the primary surety or sureties, the owner's rights under the excess performance bond and the third-party claimants' rights under the excess payment bond are otherwise identical to the rights conferred under the respective primary bonds. Accordingly, based upon research performed by outside counsel, we believe that no prior legislative action is required for public owners to allow the use of excess performance and payment bonds on a project. Contractors, in having the option of furnishing both primary and excess bonds on a project, remain free to use only primary bonds if the necessary capacity is available to satisfy the owner's coverage requirements. Market forces will ultimately determine when excess bonds are used, if at all, on a given project.

Summary of Program Features

- SuretyPlus™ is not an insurance product. SuretyPlus™ excess bonds function like traditional performance and payment bonds, guaranteeing both the performance of the contractor's contractual obligations to the owner and the payment of covered subcontractors and suppliers on a project. SuretyPlus™ excess bonds preserve all of the rights and obligations conferred under the underlying primary bonds. The only substantive difference between primary bonds and excess bonds is that the latter do not provide first-dollar coverage for losses incurred as a result of contractor default.

[1] Sample excess performance and payment bond forms are attached hereto as Exhibits 1 and 2, respectively.
[2] See second recital paragraph ("Whereas") in excess performance bond and excess payment bond.

2

- The attachment point for SuretyPlus™ excess bonds will be determined principally by the amount of primary surety capacity available to a contractor on a given project, but it is anticipated that SuretyPlus™ will generally be used on projects with contract values of $500 million or greater.

- SuretyPlus™ excess bonds do not contain a "drop down" clause, meaning that a claim can only be made if:

  (1) the primary instrument penalty has been exhausted; or

  (2) in the event the primary surety or sureties do not fulfill their obligations to the owner or payment bond claimants, as the case may be, the total performance bond-related loss or payment bond-related loss on the project reaches the attachment point of the respective excess instruments.

- SuretyPlus™ rates are in the range of two-tenths of one percent (0.2%) of the excess bond penalty per annum, and are payable and earned in full at project inception. The excess bond premium is subject to adjustment depending upon subsequent changes in the contract price.

- Under the SuretyPlus™ program, the same prequalification process that applies to the issuance of primary bonds will apply to the issuance of excess bonds. Projects will be underwritten on a case-by-case basis, taking into account all applicable financial, operational, technical, and legal risks.

- The SuretyPlus™ program can be easily accessed by any licensed broker or agent through Chubb Surety's branch network.

SuretyPlus™ Contact Information

Please direct any questions or requests for additional information regarding SuretyPlus™ to:

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3

Third Party Contracting Requirements

C 4220.1E
06-19-03

U.S. Department of Transportation
Federal Transit Administration
This Circular is regularly updated to reflect changes in procurement practices. Also available in [Word].

1. PURPOSE. This circular sets forth the requirements a grantee must adhere to in the solicitation, award and administration of its third party contracts. These requirements are based on the common grant rules, Federal statutes, Executive Orders and their implementing regulations, and FTA policy. [1]

2. CANCELLATION. This circular cancels FTA Circular 4220.1D "Third Party Contracting Requirements," dated 4-15-96.

3. REFERENCES.
   a. Federal Transit Laws, 49 U.S.C. Chapter 53.

   b. Transportation Equity Act for the 21st Century 1998 (TEA-21), P.L. 105-178 as amended, TEA-21 Restoration Act 1998, P.L. 105-206.

   c. Sections 4001 and 1555 of the Federal Acquisition Streamlining Act of 1994, 41 U.S.C. § 403(11) and 40 U.S.C. § 481(b), respectively,

   d. 49 C.F.R. part 18, Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments.

   e. 49 C.F.R. part 19, Uniform Administrative Requirements for Grants and Agreements with Institutions of Higher Education, Hospitals, and Other Non-Profit Organizations.

   f. Executive Order 12612, "Federalism," dated 10-26-87.

   g. FTA Circular 5010.1C, "Grant Management Guidelines," dated 10-1-98.

   h. FTA Master Agreement.

   i. Appendix D, Best Practices Procurement Manual.

4. APPLICABILITY. This circular applies to all FTA grantees and subgrantees that contract with outside sources under FTA assistance programs. FTA grant recipients who utilize FTA formula funds for operating assistance are required to follow the requirements of this circular

for all operating contracts. These requirements do not apply to procurements undertaken in support of capital projects completely accomplished without FTA funds or to those operating and planning contracts awarded by grantees that do not receive FTA operating and planning assistance. [2]

Congestion Mitigation and Air Quality (CMAQ) and Job Access/Reverse Commute (JARC) project funds may be used for operations. Although grantees must follow circular requirements for any specific contracts that utilize CMAQ or JARC funds, the use of CMAQ and JARC funds for operations does not trigger the applicability of the circular to all other operating contracts. [3]

Grantees that utilize formula capital funds for preventive maintenance contracts are subject to the following requirements of the circular: If FTA formula capital funds are fully allocated to discrete preventive maintenance contracts, then the requirements of this circular will apply only to those discrete contracts and must be identified and tracked by the grantee. If the FTA formula funds are not allocated to discrete contracts then all preventive maintenance contracts are subject to the requirements of the circular. [4]

a. States. When procuring property and services under a grant, a State will follow the same procurement policies and procedures that it uses for acquisitions that are not paid for with Federal funds. States must, at a minimum, comply with the requirements of paragraphs 7m, 8a and b, and 9e of this circular and ensure that every purchase order and contract executed by it using Federal funds includes all clauses required by Federal statutes and executive orders and their implementing regulations. [5]

b. All Other Recipients. Subgrantees of states and all other FTA grantees (to include regional transit authorities) will administer contracts in accordance with this circular.

5. POLICY. FTA's role in grantee procurements is reflective of Executive Order 12612, Federalism. The executive order directs Federal agencies to refrain from substituting their judgment for that of their recipients unless the matter is primarily a Federal concern and to defer, to the maximum extent feasible, to the States to establish standards rather than setting national standards. In 1996, FTA reduced its role in grantee third party procurement activity in several important respects. To ensure compliance with Federal procurement requirements, FTA will continue to provide guidance and technical assistance to its grantees consistent with its Federal oversight responsibilities.

a. Grantee Self-Certification. Recognizing that most FTA grantees have experience with the third party contracting requirements of the "common grant rules" (49 C.F.R. parts 18 and 19), FTA will rely primarily on grantees' "self-certifications" that their procurement system meets FTA requirements and that a grantee has the technical capacity to comply with Federal procurement requirements. All grantees must "self certify" as part of the Annual Certification/Assurance Process. [6]

FTA will monitor compliance with this circular as part of its routine oversight responsibilities. If FTA becomes aware of circumstances that might invalidate a grantee's self-certifica-

tion, FTA will investigate and recommend appropriate measures to correct whatever deficiency may exist.

b. FTA Review of Third Party Contracts. FTA relies on the validity of each grantee's self-certification rather than on a pre-award review of third party contracts. Accordingly, FTA will rely on periodic, post-grant reviews to ensure that grantees comply with Federal requirements and standards. Grantees are still free to request FTA's pre-award review of their procurements as part of FTA's technical assistance program. Conversely, if FTA requests to review the record of a particular procurement, grantees must make their procurement documents available for FTA's pre-award (or post-award) review.

c. Procurement System Reviews. FTA is required by 49 U.S.C. §5307 to perform reviews and evaluations of grant programs and to perform a full review and evaluation of the performance of grantees in carrying out grant programs with specific reference to their compliance with statutory and administrative requirements. Accordingly, FTA will perform procurement system reviews as part of its on-going oversight responsibility. FTA may recommend "best practices" in order to assist the grantee in improving its procurement practices. In such cases, FTA will identify such recommendations as "advisory."

d. FTA Procurement Technical Assistance. FTA provides procurement training and technical assistance at both regional and national levels by offering various instructional courses, by conducting regional technical assistance conferences, by providing assistance by a contractor on an as-needed basis, and by updating and revising the FTA "Best Practices Procurement Manual. " The manual contains procurement guidance and "best practices" that grantees may choose to follow in performing their procurement functions.

e. Contract Clauses and Provisions. The Master Agreement, issued annually, lists many but not all FTA and other crosscutting Federal requirements applicable to FTA grantees. Many of these requirements are related to grantee procurements. Further guidance and suggested wording for contract clauses and provisions is provided in the "Best Practices Procurement Manual. "

f. Use of GSA Schedules is restricted to those transit properties with specific legislative authority to use them. [7]

6. DEFINITIONS. All definitions in 49 U.S.C. §5302 are applicable to this circular. The following definitions are provided:

a. "Grantee" means the public or private entity to which a grant or cooperative agreement is awarded by FTA. The grantee is the entire legal entity even if only a particular component of the entity is designated in the assistance award document. [8]

For the purposes of this circular, "grantee" also includes any subgrantee of the grantee. Furthermore, a grantee is responsible for assuring that its subgrantees comply with the

requirements and standards of this circular, and that subgrantees are aware of requirements imposed upon them by Federal statutes and regulations.

b. "State" means any of the several states of the United States, the District of Columbia, the Commonwealth of Puerto Rico, any territory or possession of the United States, or any agency or instrumentality of a State exclusive of local governments. "State" does not include any public and Indian housing agency under the United States Housing Act of 1937.

c. "FTA" refers to the Federal Transit Administration.

d. "Third party contract" refers to any purchase order or contract awarded by a grantee to a vendor or contractor using Federal financial assistance awarded by FTA.

e. "Piggybacking" is an assignment of existing contract rights to purchase supplies, equipment, or services. [9]

f. "Tag-on" is defined as the addition of work (supplies, equipment or services) that is beyond the scope of the original contract that amounts to a cardinal change as generally interpreted in Federal practice by the various Boards of Contract Appeals. "In scope" changes are not tag-ons. [10]

g. "Best Value" is a selection process in which proposals contain both price and qualitative components, and award is based upon a combination of price and qualitative considerations. Qualitative considerations may include technical design, technical approach, quality of proposed personnel, and/or management plan. The award selection is based upon consideration of a combination of technical and price factors to determine {or derive} the offer deemed most advantageous and of the greatest value to the procuring agency. [11]

h. "Design-Bid-Build" refers to the project delivery approach where the grantee commissions an architect or engineer to prepare drawings and specifications under a design services contract, and separately contracts for at-risk construction, by engaging the services of a contractor through sealed bidding or competitive negotiations. [12]

i. "Design-Build" refers to a system of contracting under which one entity performs both architectural/engineering and construction under one contract. [13]

7. GENERAL PROCUREMENT STANDARDS APPLICABLE TO THIRD-PARTY PROCUREMENTS.

a. Conformance with State and Local Law. Grantees and subgrantees shall use their own procurement procedures that reflect applicable State and local laws and regulations, provided that the procurements conform to applicable Federal law, including the requirements and standards identified in this circular. If there is no State law on a particular aspect of procurement, then Federal contract law principles will apply.

b. Contract Administration System. Grantees shall maintain a contract administration system that ensures that contractors perform in accordance with the terms, conditions, and specifications of their contracts or purchase orders.

c. Written Standards of Conduct. Grantees shall maintain a written code of standards of conduct governing the performance of their employees engaged in the award and administration of contracts. No employee, officer, agent, immediate family member, or Board member of the grantee shall participate in the selection, award, or administration of a contract supported by FTA funds if a conflict of interest, real or apparent, would be involved.
Such a conflict would arise when any of the following has a financial or other interest in the firm selected for award:

(1) The employee, officer, agent, or Board member,

(2) Any member of his/her immediate family,

(3) His or her partner, or

(4) An organization that employs, or is about to employ, any of the above.

The grantee's officers, employees, agents, or Board members will neither solicit nor accept gifts, gratuities, favors, or anything of monetary value from contractors, potential contractors, or parties to subagreements. Grantees may set minimum rules when the financial interest is not substantial or the gift is an unsolicited item of nominal intrinsic value. To the extent permitted by state or local law or regulations, such standards of conduct will provide for penalties, sanctions, or other disciplinary action for violation of such standards by the grantee's officers, employees, or agents, or by contractors or their agents.

d. Ensuring Most Efficient and Economic Purchase. Grantee procedures shall provide for a review of proposed procurements to avoid purchase of unnecessary or duplicative items. Consideration should be given to consolidating or breaking out procurements to obtain a more economical purchase.
Where appropriate, an analysis will be made of lease versus purchase alternatives and any other appropriate analysis to determine the most economical approach.

e. Intergovernmental Procurement Agreements.

(1) Grantees are encouraged to utilize available state and local intergovernmental agreements for procurement or use of common goods and services. When obtaining goods or services in this manner, grantees must ensure all federal requirements, required clauses, and certifications (including Buy America) are properly followed and included, whether in the master intergovernmental contract or in the grantee's purchase document. [14]

(2) Grantees are also encouraged to jointly procure goods and services with other grantees. When obtaining goods or services in this manner, grantees must ensure all federal requirements, required clauses, and certifications are properly followed and included in the resulting joint solicitation and contract documents. [15]

(3) Grantees may assign contractual rights to purchase goods and services to other grantees if the original contract contains appropriate assignability provisions. Grantees who obtain these contractual rights (commonly known as 'piggybacking') may exercise them

after first determining the contract price remains fair and reasonable.

f. Use of Excess Or Surplus Federal Property. Grantees are encouraged to use Federal excess and surplus property in lieu of purchasing new equipment and property, whenever such use is feasible and reduces project costs.

g. Use of Value Engineering in Construction Contracts. Grantees are encouraged to use value engineering clauses in contracts for construction projects. FTA cannot approve a New Starts grant application for final design funding or a full funding grant agreement until value engineering is complete (see FTA Circular 5010.1C).

h. Awards to Responsible Contractors. Grantees shall make awards only to responsible contractors possessing the ability to perform successfully under the terms and conditions of a proposed procurement. Consideration shall be given to such matters as contractor integrity, compliance with public policy, record of past performance, and financial and technical resources.

i. Written Record of Procurement History. Grantees shall maintain records detailing the history of each procurement. At a minimum, these records shall include:

(1) the rationale for the method of procurement,

(2) selection of contract type,
(3) reasons for contractor selection or rejection, and
(4) the basis for the contract price.

j. Use of Time and Materials Type Contracts. Grantees will use time and material type contracts only:

(1) After a determination that no other type of contract is suitable; and

(2) If the contract specifies a ceiling price that the contractor shall not exceed except at its own risk.

k. Responsibility for Settlement of Contract Issues/Disputes. Grantees alone will be responsible in accordance with good administrative practice and sound business judgment for the settlement of all contractual and administrative issues arising out of procurements. These issues include, but are not limited to, source evaluation, protests, disputes, and claims. These standards do not relieve the grantee of any contractual responsibility under its contracts.

FTA will not substitute its judgment for that of the grantee or subgrantee, unless the matter is primarily a Federal concern. Violations of the law will be referred to the local, State, or Federal authority having proper jurisdiction.

l. Written Protest Procedures. Grantees shall have written protest procedures to handle and resolve disputes relating to their procurements and shall in all instances disclose information regarding protests to FTA. All protest decisions must be in writing. A protester must

exhaust all administrative remedies with the grantee before pursuing a protest with FTA.

Reviews of protests by FTA will be limited to:

(1) a grantee's failure to have or follow its protest procedures, or its failure to review a complaint or protest; or

(2) violations of Federal law or regulation.

An appeal to FTA must be received by the cognizant FTA regional or Headquarters Office within five (5) working days of the date the protester learned or should have learned of an adverse decision by the grantee or other basis of appeal to FTA.

m. Contract Term Limitation. Grantees shall not enter into any contract for rolling stock or replacement parts with a period of performance exceeding five (5) years inclusive of options. All other types of contracts (supply, service, leases of real property, revenue and construction, etcetera) should be based on sound business judgment. Grantees are expected to be judicious in establishing and extending contract terms no longer than minimally necessary to accomplish the purpose of the contract. Additional factors to be considered include competition, pricing, fairness and public perception. Once a contract has been awarded, an extension of the contract term length that amounts to an out of scope change will require a sole source justification

n. Revenue Contracts. Revenue contracts are those third party contracts whose primary purpose is to either generate revenues in connection with a transit related activity, or to create business opportunities utilizing an FTA funded asset. FTA requires these contracts to be awarded utilizing competitive selection procedures and principles. The extent of and type of competition required is within the discretionary judgment of the grantee.

o. Tag-ons. The use of tag-ons is prohibited and applies to the original buyer as well as to others as defined in paragraph 6f.

p. Piggybacking. Piggybacking is permissible when the solicitation document and resultant contract contain an assignability clause that provides for the assignment of all or a portion of the specified deliverables as originally advertised, competed, evaluated, and awarded. If the supplies were solicited, competed and awarded through the use of an indefinite-delivery-indefinite-quantity (IDIQ) contract, then both the solicitation and contract award must contain both a minimum and maximum quantity that represent the reasonably foreseeable needs of the party(s) to the solicitation and contract. If two or more parties jointly solicit and award an IDIQ contract, then there must be a total minimum and maximum.

q. E-Commerce. E-Commerce is an allowable means to conduct procurements. If a grantee chooses to utilize E-Commerce, written procedures need to be developed and in place prior to solicitation and all requirements for full and open competition must be met in accordance with this circular.

8. COMPETITION.

a. Full and Open Competition. All procurement transactions will be conducted in a manner providing full and open competition. Some situations considered to be restrictive of competition include, but are not limited to:

(1) Unreasonable requirements placed on firms in order for them to qualify to do business;

(2) Unnecessary experience and excessive bonding requirements;

(3) Noncompetitive pricing practices between firms or between affiliated companies;

(4) Noncompetitive awards to any person or firm on retainer contracts;

(5) Organizational conflicts of interest. An organizational conflict of interest means that because of other activities, relationships, or contracts, a contractor is unable, or potentially unable, to render impartial assistance or advice to the grantee; a contractor's objectivity in performing the contract work is or might be otherwise impaired; or a contractor has an unfair competitive advantage;

(6) Specifying only a "brand name" product instead of allowing "an equal" product to be offered without listing its' salient characteristics.

Grantees may define the salient characteristics in language similar to the following:

(a) 'Original Equipment Manufacturer (OEM) part #123 or approved equal that complies with the original equipment manufacturer's requirements or specifications and will not compromise any OEM warranties'; or

(b) 'Original Equipment Manufacturer part #123 or approved equal that is appropriate for use with and fits properly in [describe the bus, engine, or other component the part must be compatible with] and will not compromise any OEM warranties' ; and

(c) Any arbitrary action in the procurement process.27.5

b. Prohibition Against Geographic Preferences. Grantees shall conduct procurements in a manner that prohibits the use of statutorily or administratively imposed in-State or local geographical preferences in the evaluation of bids or proposals, except in those cases where applicable Federal statutes expressly mandate or encourage geographic preference. This does not preempt State licensing laws. However, geographic location may be a selection criterion in procurements for architectural and engineering (A&E) services provided its application leaves an appropriate number of qualified firms, given the nature and size of the project, to compete for the contract.

c. Written Procurement Selection Procedures. Grantees shall have written selection procedures for procurement transactions. All solicitations shall:

(1) Incorporate a clear and accurate description of the technical requirements for the material, product, or service to be procured. Such description shall not, in competitive procurements, contain features that unduly restrict competition. The description may include a statement of the qualitative nature of the material, product, or service to be procured and when necessary, shall set forth those minimum essential characteristics and standards to which it must conform if it is to satisfy its intended use. Detailed product specifications should be avoided if at all possible. When it is impractical or uneconomical to make a clear and accurate description of the technical requirements, a "brand name or equal" description may be used as a means to define the performance or other salient characteristics of a procurement. The specific features of the named brand which must be met by offerors shall be clearly stated.

(2) Identify all requirements that offerors must fulfill and all other factors to be used in evaluating bids or proposals.

d. Prequalification Criteria. Grantees shall ensure that all lists of prequalified persons, firms, or products that are used in acquiring goods and services are current and include enough

qualified sources to ensure maximum full and open competition. Also, grantees shall not preclude potential bidders from qualifying during the solicitation period, which is from the issuance of the solicitation to its closing date.

9. METHODS OF PROCUREMENT. The following methods of procurement may be used as appropriate:

a. Procurement by Micro-Purchases. Micro-purchases are those purchases under $2,500. Purchases below that threshold may be made without obtaining competitive quotations. Such purchases are exempt from Buy America requirements. There should be equitable distribution among qualified suppliers and no splitting of procurements to avoid competition. The Davis-Bacon Act applies to construction contracts between $2,000 and $2,500. Minimum documentation is required: A determination that the price is fair and reasonable and how this determination was derived. The other requirements of paragraph 7(i) do not apply to micro-purchases.

b. Procurement by Small Purchase Procedures. Small purchase procedures are those relatively simple and informal procurement methods for securing services, supplies, or other property that cost more than $2,500 but do not cost more than the simplified acquisition threshold fixed at 41 U.S.C. § 403(11) (currently set at $100,000). If small purchase procedures are used, price or rate quotations shall be obtained from an adequate number of qualified sources.

c. Procurement By Sealed Bids/Invitation For Bid (IFB). Bids are publicly solicited and a firm-fixed-price contract (lump sum or unit price) is awarded to the responsible bidder whose bid, conforming to all the material terms and conditions of the invitation for bids, is the lowest in price.

(1) In order for sealed bidding to be feasible, the following conditions should be present:

(a) A complete, adequate, and realistic specification or purchase description is available;

(b) Two or more responsible bidders are willing and able to compete effectively for the business;

(c) The procurement lends itself to a firm fixed price contract and the selection of the successful bidder can be made principally on the basis of price; and

(d) No discussion with bidders is needed.

(2) If this procurement method is used, the following requirements apply:

(a) The invitation for bids will be publicly advertised and bids shall be solicited from an adequate number of known suppliers, providing them sufficient time to prepare bids prior to the date set for opening the bids;

(b) The invitation for bids, which will include any specifications and pertinent attachments, shall define the items or services sought in order for the bidder to properly respond;

(c) All bids will be publicly opened at the time and place prescribed in the invitation for bids;

(d) A firm fixed-price contract award will be made in writing to the lowest responsive

and responsible bidder. When specified in bidding documents, factors such as discounts, transportation costs, and life cycle costs shall be considered in determining which bid is lowest; Payment discounts will only be used to determine the low bid when prior experience indicates that such discounts are usually taken advantage of; and

(e) Any or all bids may be rejected if there is a sound documented business reason.

(3) The sealed bid method is the preferred method for procuring construction if the conditions in paragraph 9c(1) above apply.

d. Procurement By Competitive Proposal/Request for Proposals (RFP). The competitive proposal method of procurement is normally conducted with more than one source submitting an offer, i.e., proposal. Either a fixed price or cost reimbursement type contract is awarded. This method of procurement is generally used when conditions are not appropriate for the use of sealed bids. If this procurement method is used the following requirements apply:

(1) Requests for proposals will be publicized. All evaluation factors will be identified along with their relative importance;

(2) Proposals will be solicited from an adequate number of qualified sources;

(3) Grantees will have a method in place for conducting technical evaluations of the proposals received and for selecting awardees;

(4) Awards will be made to the responsible firm whose proposal is most advantageous to the grantee's program with price and other factors considered; and

(5) In determining which proposals is most advantageous, grantees may award (if consistent with State law) to the proposer whose proposals offer the greatest business value to the Agency based upon an analysis of a tradeoff of qualitative technical factors and price/cost to derive which proposal represents the "best value" to the Procuring Agency as defined in Section 6, Definitions. If the grantee elects to use the best value selection method as the basis for award, however, the solicitation must contain language which establishes that an award will be made on a "best value" basis.

e. Procurement Of Architectural and Engineering Services (A&E). Grantees shall use qualifications-based competitive proposal procedures (i.e., Brooks Act procedures) when contracting for A&E services as defined in 40 U.S.C. §541and 49 U.S.C. §5325(d). 31.5 Services subject to this requirement are program management, construction management, feasibility studies, preliminary engineering, design, architectural, engineering, surveying, mapping, and related services.

Qualifications-based competitive proposal procedures require that:

(1) An offeror's qualifications be evaluated;

(2) Price be excluded as an evaluation factor;

(3) Negotiations be conducted with only the most qualified offeror; and

(4) Failing agreement on price, negotiations with the next most qualified offeror be conducted until a contract award can be made to the most qualified offeror whose price is fair and reasonable to the grantee.

These qualifications-based competitive proposal procedures can only be used for the pro-

curement of the services listed above. This method of procurement cannot be used to obtain other types of services even though a firm that provides A&E services is also a potential source to perform other types of services.

These requirements apply except to the extent the grantee's State adopts or has adopted by statute a formal procedure for the procurement of these services.

f. Procurement of Design-Bid-Build. Grantees may procure design-bid-build services through means of sealed bidding or competitive negotiations. These services must be procured in a manner that conforms to applicable state and local law, the requirements of this Circular relative to the method of procurement used and all other applicable federal requirements.

g. Procurement of Design-Build. Grantees must procure design-build services through means of qualifications-based competitive proposal procedures based on the Brooks Act as set forth in Section 9e when the preponderance of the work to be performed is considered to be for architectural and engineering (A&E) services as defined in Section 9e, Qualifications-based competitive proposal procedures should not be used to procure design-build services when the preponderance of the work to be performed is not of an A&E nature as defined in Section 9e, unless required by State law.

h. Procurement By Noncompetitive Proposals (Sole Source). Sole Source procurements are accomplished through solicitation of a proposal from only one source, or after solicitation of a number of sources, competition is determined inadequate. A contract change that is not within the scope of the original contract is considered a sole source procurement that must comply with this subparagraph.

(1) Procurement by noncompetitive proposals may be used only when the award of a contract is infeasible under small purchase procedures, sealed bids, or competitive proposals and at least one of the following circumstances applies:

(a) The item is available only from a single source;

(b) The public exigency or emergency for the requirement will not permit a delay resulting from competitive solicitation;

(c) FTA authorizes noncompetitive negotiations—e.g., if FTA provides a joint procurement grant or a research project grant with a particular firm or combination of firms, the grant agreement is the sole source approval;34.5

(d) After solicitation of a number of sources, competition is determined inadequate; or

(e) The item is an associated capital maintenance item as defined in 49 U.S.C. §5307(a)(1) that is procured directly from the original manufacturer or supplier of the item to be replaced. The grantee must first certify in writing to FTA:

1 that such manufacturer or supplier is the only source for such item; and

2 that the price of such item is no higher than the price paid for such item by like customers.

(2) A cost analysis, i.e., verifying the proposed cost data, the projections of the data, and the evaluation of the specific elements of costs and profit, is required.

i. Options. Grantees may include options in contracts. An option is a unilateral right in a contract by which, for a specified time, a grantee may elect to purchase additional equipment, supplies, or services called for by the contract, or may elect to extend the term of the contract. If a grantee chooses to use options, the requirements below apply:

(1) Evaluation of Options. The option quantities or periods contained in the contractor's bid or offer must be evaluated in order to determine contract award. When options have not been evaluated as part of the award, the exercise of such options will be considered a sole source procurement.

(2) Exercise of Options.

(a) A grantee must ensure that the exercise of an option is in accordance with the terms and conditions of the option stated in the initial contract awarded.

(b) An option may not be exercised unless the grantee has determined that the option price is better than prices available in the market or that the option is the more advantageous offer at the time the option is exercised.

10. CONTRACT COST AND PRICE ANALYSIS FOR EVERY PROCUREMENT ACTION. Grantees must perform a cost or price analysis in connection with every procurement action, including contract modifications. The method and degree of analysis is dependent on the facts surrounding the particular procurement situation, but as a starting point, grantees must make independent estimates before receiving bids or proposals.

a. Cost Analysis. A cost analysis must be performed when the offeror is required to submit the elements (i.e., labor hours, overhead, materials, etc.) of the estimated cost, (e.g., under professional consulting and architectural and engineering services contracts, etc.).

A cost analysis will be necessary when adequate price competition is lacking and for sole source procurements, including contract modifications or change orders, unless price reasonableness can be established on the basis of a catalog or market price of a commercial product sold in substantial quantities to the general public or on the basis of prices set by law or regulation.

b. Price Analysis. A price analysis may be used in all other instances to determine the reasonableness of the proposed contract price.

c. Profit. Grantees will negotiate profit as a separate element of the price for each contract in which there is no price competition and in all cases where cost analysis is performed. To establish a fair and reasonable profit, consideration will be given to the complexity of the work to be performed, the risk borne by the contractor, the contractor's investment, the amount of subcontracting, the quality of its record of past performance, and industry profit rates in the surrounding geographical area for similar work.

d. Federal Cost Principles. Costs or prices based on estimated costs for contracts under grants will be allowable only to the extent that costs incurred or cost estimates included in negotiated prices are consistent with Federal cost principles. Grantees may reference their own cost principles that comply with applicable Federal cost principles.

e. Cost Plus Percentage of Cost Prohibited. The cost plus a percentage of cost and percentage of construction cost methods of contracting shall not be used.

11. BONDING REQUIREMENTS. For those construction or facility improvement contracts or subcontracts exceeding $100,000, FTA may accept the bonding policy and requirements of the grantee, provided FTA determined that the policy and requirements adequately protect the Federal interest. FTA has determined that grantee policies and requirements that meet the following minimum criteria adequately protect the Federal interest:

a. A bid guarantee from each bidder equivalent to five (5) percent of the bid price. The "bid guarantee" 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 of 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; and

c. A payment bond on the part of the contractor. 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 determined to adequately protect the federal interest are as follows:

(1) Fifty percent of the contract price if the contract price is not more than $1 million;

(2) Forty percent of the contract price if the contract price is more than $1 million but not more than $5 million; or

(3) Two and a half million dollars if the contract price is more than $5 million.

d. A Grantee may seek FTA approval of its bonding policy and requirements if they do not comply with these criteria.

12. PAYMENT PROVISIONS IN THIRD PARTY CONTRACTS.

a. Advance Payments. FTA does not authorize and will not participate in funding payments to a contractor prior to the incurrence of costs by the contractor unless prior written concurrence is obtained from FTA. There is no prohibition on a grant recipient's use of local match funds for advance payments. However, advance payments made with local funds before a grant has been awarded, or before the issuance of a letter of no prejudice or other pre-award authority, are ineligible for reimbursement.

b. Progress Payments. Grantees may use progress payments provided the following requirements are followed:

(1) Progress payments are only made to the contractor for costs incurred in the performance of the contract.38.2

(2) The grantee must obtain adequate security for progress payments. Adequate security may include taking title, letter of credit or equivalent means to protect the grantee's interest in the progress payment.38.5

13. LIQUIDATED DAMAGES PROVISIONS. A grantee may use liquidated damages if it may reasonably expect to suffer damages and the extent or amount of such damages would be difficult or impossible to determine. The assessment for damages shall be at a specific rate per day for each day of overrun in contract time; and the rate must be specified in the third party contract. Any liquidated damages recovered shall be credited to the project account involved unless the FTA permits otherwise.

14. CONTRACT AWARD ANNOUNCEMENT. If a grantee announces contract awards with respect to any procurement for goods and services (including construction services) having an aggregate value of $500,000 or more, the grantee shall:

a. Specify the amount of Federal funds that will be used to finance the acquisition in any announcement of the contract award for such goods or services; and

b. Express the said amount as a percentage of the total costs of the planned acquisition.

15. CONTRACT PROVISIONS. All contracts shall include provisions to define a sound and complete agreement. In addition, contracts and subcontracts shall contain contractual provisions or conditions that allow for:

a. Administrative, contractual, or legal remedies in instances where contractors violate or breach contract terms, including sanctions and penalties as may be appropriate. (All contracts in excess of the small purchase threshold.)

b. Termination for cause and for convenience by the grantee or subgrantee including the manner by which it will be effected and the basis for settlement. (All contracts in excess of $10,000.)

16. STATUTORY AND REGULATORY REQUIREMENTS. A current but not all inclusive and comprehensive list of statutory and regulatory requirements applicable to grantee procurements (such as Davis-Bacon Act, Disadvantaged Business Enterprise, Clean Air, and Buy America) is contained in the FTA Master Agreement. Grantees are responsible for evaluating these requirements for relevance and applicability toeach procurement. For example, procurements involving the purchase of iron, steel and manufactured goods will be subject to the "Buy America" requirements in 49 C.F.R. Part 661. Further guidance concerning these requirements and suggested wording for contract clauses may be found in FTA's Best Practices Procurement Manual. For specific guidance concerning the crosscutting requirements of other Federal agencies, grantees are advised to contact those agencies.

Jennifer L. Dorn
Administrator

[1] - FTA's purpose in re-issuing Circular 4220.1 is to incorporate policy updates contained in several Dear Colleague letters issued since 1996. At the same time, we have attempted to ease unnecessary requirements applied in our grantees' procurement processes while remaining consistent with applicable law and regulations, particularly the Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments at 49 CFR Part 18 (the Common Grant Rule). We believe many of these 'requirements' have evolved from earlier versions of the circular through varying interpretations or as unintended consequences of the language as it was drafted. To help avoid this, we have compiled these interpretive comments to better explain what FTA believes the law and regulations conveyed through the circular actually require of our grantees. As applicable laws, regulations, and contracting practices evolve, we will use these interpretive comments to continue conveying our views to our grantees and the transit industry as a whole.

[2] - As a general rule, the circular, along with the underlying requirements in the Federal transit laws and regulations, applies whenever Federal funds are involved.Those grantees authorized to use formula funds for operating assistance must apply the circular to all operating contracts – even if they are able to administratively segregate the federal funds to non-contract operating expenses. The ability to use formula funds for operating assistance hinges upon a grantee's total operating expenses and the portion of those expenses not offset by operating income. Since the entire range of operating expenses is considered in this calculation, each segment of those operating expenses must be subject to Federal standards.

Grantees that are not authorized to use formula funds for operating assistance are not required to apply the circular to their operating contracts.

FTA also applies the requirements of this Circular to recipients of cooperative agreements through provisions of those agreements.

[3] - Congestion Mitigation and Air Quality (CMAQ) and Job Access/Reverse Commute (JARC) funds may be used for operations by all grantees. The circular must be applied to all contracts that are funded, in part, by CMAQ or JARC funds. Using CMAQ or JARC funds for a specific operating contract or contracts does not trigger the requirement to apply the circular to other operating contracts. This is because the calculation required to use formula funds for operations contracts is not required as a prerequisite to using CMAQ or JARC funds for operating contracts.

[4] - Grantees who use formula capital funds for preventative maintenance contracts must apply the circular to those contracts. If, through their accounting procedures, these grantees are able to allocate the Federal funds to discrete maintenance contracts, only those discrete contracts must adhere to the circular. If unable to allocate federal funds to discrete maintenance contracts, the circular applies to all maintenance contracts.

Capital projects that don't include Federal funding are not required to conform to the circular.

Procurements of real property and art are beyond the scope of Circular 4220.1E and covered in separate guidance. [added October 2003 – Real property acquisition is covered in 49 CFR, Part 24. FTA Circular 9400.1A discusses art in transit projects. The Best Practices Procurement Manual includes extensive non-binding guidelines for applying C.9400.1A and related requirements.]

[5] - The language of this paragraph was adjusted to comport with the Common Grant Rule. FTA believes that only States – not their sub-grantees, regional transit authorities, local agencies, or any other grantees or sub-grantees – are free to apply only limited portions of the circular to their procurements.

All other grantees and sub-grantees are obligated to apply the circular to their procurements as described above.

[6] - To preclude unnecessary delay in grantee procurements, FTA does not, as a general rule, conduct pre-award reviews of third party contracts as envisioned in the Common Grant Rule. Instead, we have chosen to rely heavily on our grantees' self-certification of their procurement systems.

[7] - Within FTA's knowledge, the only grantee with full access to the GSA schedules is the Washington Metropolitan Area Transit Authority. GSA issued initial guidance implementing a program to allow state and local governments to use the GSA information technology schedule in May 2003. [deleted October 2003 – and FTA will update this section as more information becomes available.] [added October 2003 – Directions for using the GSA information technology schedule are available at http://www.gsa.gov/Portal/gsa/ep/channelView.do?pageTypeId=8199&channelPage= percent2Fep percent2Fchannel percentFgsaOverview.jsp&channelId=-13463

[8] - This definition was changed to comport with the Common Grant Rule.

[9] - FTA has introduced a limited definition of 'piggybacking' and, to differentiate vastly different practices, has separated this practice of assigning contractual rights among grantees from joint procurements or other intergovernmental agreements. Paragraph 7.e. further explains these different practices. Our intent was to eliminate some of the confusion that has grown around this term.

[10] - We have similarly attempted to limit the definition of 'tag-on' and align it with the concept of a 'cardinal change' or 'out-of-scope change.' FTA believes that earlier attempts to categorize virtually any change in quantity, for example, as a forbidden 'tag-on' failed to account for the realities of the marketplace and unnecessarily limited grantees from exercising reasonable freedom to make those minor adjustments "fairly and reasonably within the contemplation of the parties when the contract was entered into." Freund v. United States, 260 U.S. 60 (1922).

In applying the concept of 'cardinal change' to third party contracts, FTA recognizes that this is a difficult concept, not easily reduced to a percentage, dollar value, number of changes, or other objective measure that would apply to all cases. We also recognize that the various Boards of Contract Appeals, Federal courts, and Comptroller General have wrestled with these issues over many years and built an extensive array of case law differentiating in-scope from out-of-scope or cardinal changes. We do not imply that the Boards of Contract Appeals cases are controlling, only that we will look to their collective wisdom in judging where changes in grantee contracts fall along the broad spectrum between clearly in-scope and clearly out-of-scope changes. It is our intent to monitor our grantees and oversight contractors to ensure this concept is well understood and uniformly applied, and to issue additional guidance as necessary to assist our grantees in exercising this authority.Before attempting any change in quantity of major items

(e.g., buses, rail cars), grantees should review their contract clauses to ensure they allow for such changes. For instance, in Federal practice, the 'changes' clause from the Federal Acquisition Regulation has been interpreted not to allow changes in quantity of major items. Federal contracting officers use additional clauses specific to this desired flexibility when they anticipate that there may be a need to add quantities of these major items.

[11] - This new definition was intended to recognize the concept of best value. The language is intended neither to limit nor dictate qualitative measures grantees may employ.

[12] - This definition was added only to acknowledge this method of construction contracting.

[13] - This definition was added only to acknowledge this method of construction contracting.

[14] - Sub-paragraph (1) looks primarily to State government contracts that allow subordinate government agencies to buy from established schedules akin to the GSA schedules in Federal practice. FTA believes grantees may buy through these contracts provided all parties agree to append the required Federal clauses in the purchase order or other document that effects the grantee's procurement. When buying from these schedule contracts, grantees should obtain Buy America certification before entering into the purchase order. Where the product to be purchased is Buy America compliant, there is no problem. Where the product is not Buy America compliant, the grantee will still have to obtain a waiver from FTA before proceeding.

[15] - Sub-paragraph (2) reflects FTA's belief that grantees should consider combining efforts in their procurements to obtain better pricing through larger purchases. Joint procurements offer the additional advantage of being able to obtain goods and services that exactly match each cooperating grantee's requirements. We believe this is superior to the practice of 'piggybacking' since 'piggybacking' does not combine buying power at the pricing stage and may limit a grantee's choices to those products excess to another grantee's needs.

[16] - Sub-paragraph (3) reflects grantees' continuing ability to assign contractual rights to others – 'piggybacking.' FTA believes it is extremely important that grantees ensure they contract only for their reasonably anticipated needs and do not add quantities or options to contracts solely to allow them to assign these quantities or options at a later date.

[17] - The first sentence in this paragraph was drawn from the Common Grant Rule and reflects FTA's encouragement of value engineering. It is important to note that some contractual arrangements (e.g., design-build contracts) may inherently include value engineering concepts and principles. Where this is the case, FTA does not require separate value engineering proposals, change orders, or other processes. From a procurement view, the concept of value engineering is more important than the form it takes.

[18] - This paragraph is taken from the Common Grant Rule. FTA recognizes that these written records will vary greatly for different procurements. For a $100 credit card purchase from a lumberyard, all of the required information may be able to be inferred from the receipt and/or bill itself. More substantial procurements may include voluminous analysis. FTA believes the rule of reason must be applied to this requirement and the documents comprising a procurement history should be commensurate with the size and complexity of the procurement itself.

[19] - Prior versions of the circular contained the language in this paragraph related to "disclos[ing] information regarding protests to FTA." We noted that this provision allowed for widely differing interpretations but found ourselves bound by the Common Grant Rule. FTA believes this provision requires grantees to, at a minimum, informally notify their FTA regional offices when they receive a protest related to a contract required to comply with the circular and to similarly keep their regional offices apprised of the status of those protests. Regional offices may require grantees to forward copies of particular protests or all protests for information or review purposes at any time.

[20] - This paragraph has been aligned with the Common Grant Rule and practice by adding "violations of Federal law or regulation" to the basis of FTA protest jurisdiction. FTA will continue to limit its review of grantee protest decisions and will read this Common Grant Rule provision in conjunction with the provisions that express our intent to avoid substituting FTA's judgment for those of its grantees. FTA will not consider each and every appeal of grantees' protest decisions simply because a federal law or regulation may be involved. Instead, FTA will exercise discretionary jurisdiction over those cases deemed to involve issues important to the overall third party contracting program.

[21] - Additionally, we have noted that requiring an appeal to be filed within five days of 'the violation' yet also requiring protestors to extinguish their local remedies before filing with FTA led to some confusion. We have attempted to clarify this standard by starting the protestor's clock when it receives actual or constructive notice of an adverse decision or that a grantee failed to have or follow its procedures or review a complaint.

[22] - Although the 'five-year rule' has been eliminated for all but rolling stock and replacement part contracts (i.e., those for which the rule is statutorily required), FTA expects grantees to be judicious about the terms of their contracts. Sound business judgment should underlie any decision on contract term, whether or not it exceeds five years. This sound business judgment should be evident in the procurement files. In keeping with the general tone of the new circular, contract extensions will be viewed with an eye to whether they are in-scope and out-of-scope contract changes. Out-of-scope changes will, of course, be regarded as new procurements and the normal sole source rules will apply. [inserted October 2003 Regarding rolling stock, this provision is intended only to reflect the statutory five-year rule and not in any way to limit grantees beyond the statute. FTA interprets this five-year period as the requirements from day one of the contract to those at the end of the fifth year. In determining what a requirement for today is, we look at the date a piece of equipment is needed, then back the date off to offset the necessary lead time for delivery. If it takes 18 months to deliver a product and it is needed 18 months from now, it is a requirement today. If (assuming the same 18 month lead time) the transit agency enters into a contract on January 1st, year 1 and needs a piece of equipment delivered in March of year 7, it is a requirement in September of year 5 (March of year 7 minus 18 months) and can be ordered then under the contract. If the transit needs a piece of equipment in January of year 8, it is a requirement of July of year 6 and the transit agency could not order it under this contract since it is a requirement beyond the five-year limitation. As this example shows, the five-year rule does not mean delivery, acceptance, or even fabrication must be completed in five years – only that a contract is limited to purchasing five years of requirements.

[23] - When addressing revenue contracts, FTA allows grantees broad latitude in determining what level of competition is appropriate for a particular contract. As an example, where a grantee wishes to enter into a contract to allow advertising on the sides of buses and there are several potential competitors for that limited space, a competitive process would be required to allow interested parties an equal chance at obtaining this limited opportunity. Where a grantee wishes to enter into a contract to allow a private utility to run cable through subway tunnels and is willing to grant similar contracts/licenses to others similarly situated (since there is room for a substantial number of such cables without interfering with transit operations), no competition would be required since the opportunity is open to all.

Another example where competition may be limited is in the area of leveraged leasing. Many grantees are taking advantage of the opportunities to obtain a portion of the tax benefits available to private sector investors who lease or buy grantee assets through innovative financing techniques that keep possession and continuing control of the assets in the grantee's hands while transferring ownership for tax purposes. As grantees seek arrangers to construct these transactions, they should use some competitive procedure (but note that since these contracts are not Federally funded and involve no Federally-funded assets, the contract with the arranger need not comply with the circular) process. When the grantee's arranger constructs the actual transaction (a contract that will involve Federally-funded assets so FTA must approve of the transaction), competition is limited by securities regulations.

An emerging area that combines aspects of Federally funded construction and revenue contracting is that of joint development. Certainly the circular has to apply to the Federally funded construction aspects of joint development but revenue contracting aspects make for difficult procurement practice decisions. FTA will work with grantees on a case-by-case basis to craft approaches that satisfy the statutory and regulatory requirements while preserving the benefits of this innovative contracting strategy to the maximum possible extent.

[24] - As discussed above, 'piggybacking' is still allowable. Given the opportunities for joint procurements, inter-governmental procurements, and other innovative means of obtaining goods and services, grantees should pay renewed attention to their procurement practices to ensure they contract only for their reasonably anticipated requirements and do not build excess capacity into their contracts simply to assign rights to others at a later date.

[25] - This paragraph was added to recognize that a well-structured e-commerce procurement system is acceptable.

[26] - Grantees have expressed frustration when attempting to capture the salient characteristics of common parts and items that must be precisely engineered to be useful and for which simple notations (such as original equipment manufacturer's part numbers) describe, in a practical sense, the requirements. Sub-paragraph (6) was annotated to demonstrate two potential (although not required) means by which grantees can meet the Common Grant Rule's requirement to list salient characteristics when using a 'brand name or equal' specification without attempting to reverse-engineer a complicated part to discern precise measurements or specifications.

[27] - This is meant only as an example of how a grantee might define salient characteristics, not as an exclusive means of doing so. Other examples can be found in the Best Practices Procurement Manual.

[28] - Prequalification and the Common Grant Rule's requirement to allow potential bidders to qualify throughout solicitation periods has led to substantial confusion among some grantees. Prequalification lists are most common in recurring requirements for goods that take some period of time to evaluate to determine if they satisfy the grantee's standards. In those cases, grantees must accept submissions for evaluation, even during ongoing procurement actions. Evaluation need not be accelerated or truncated and FTA does not believe a particular solicitation must be held open to accommodate a potential bidder who submits a person, firm, or product for approval before or during that solicitation.

Additionally, some procurement methods may include preliminary steps that should not be confused with prequalification. For instance, in Federal practice, 41 USC 253m allows for a two-phase selection procedure for large design-build projects and FTA believes grantees may also use that procedure. Essentially, the two-phase selection procedure allows the contracting officer to solicit proposals for design-build projects in two steps, the first a review of technical qualifications and technical approach to the project and the second a complete proposal. This allows the contracting officer to narrow the competitive range in the first step without a requirement for extensive proposal review on the government's part or expensive proposal drafting on potential contractors' parts. This two-phase selection procedure is separate and distinct from prequalification and is but one method grantees may use in their procurements.

[29] - Determination of fair and reasonable pricing for micro-purchases (usually credit card purchases) has been seen as a burden by some grantees. FTA believes that determination may be done quickly and efficiently in several ways. One possible method would be for the official tasked to review and authorize payment of a credit card bill to annotate (by stapling a preprinted sheet to the bill, stamping the bill with a rubber stamp, or even asking the credit card provider to print an appropriate statement on each bill) a finding such as ' I have examined the expenditures reflected on this bill and determined that each reflects a reasonable price based on market prices offered by the vendors to the general public.'

[30] - This is not intended to imply that any purchase under $2,500 must be treated as a micro-purchase or that any purchase under $100,000 must be treated as a small purchase. Grantees remain free to set lower thresholds as they deem fit for either or both of these procurement methods.

[31] - Sub-paragraph (5), like paragraph 6.g., recognizes the concept of best value. Once again, FTA does not wish to dictate any particular factors or analytic process. Solicitations must, of course, tell potential competitors for the contract what the basis for award will be.

[32] - FTA has expanded this section to better explain the breadth of this statutorily prescribed procurement method. FTA recognizes that most of the services listed (e.g., surveying) are not performed by architectural or engineering services companies. Qualifications-based competitive proposals (i.e., Brooks Act procedures) still must be applied to these procurements because of the statutory directive in 49 U.S.C. 5325(d).

[33] - This paragraph was added to explain the requirements that apply to design-build procurements because they involve significant architectural, engineering, or other services that normally require qualifications-based competitive proposals but also include significant work that does not require this extraordinary procurement method. Grantees should determine which portion of the work is predominant and follow the method for that type of procurement. We would normally expect the construction portion of a design-build procurement to be predominant and, in that case, normal procurement methods can be used in lieu of qualification-based competitive proposals (the Brooks Act method).

[34] - This paragraph was changed from prior versions of the circular to eliminate the phrase "or acceptance" of a single proposal when discussing what constitutes a sole source procurement. FTA believes that, upon receiving a single bid (or proposal) in response to a solicitation, the grantee should determine if competition was adequate. This determination may include a review of the specifications to determine if they were unduly restrictive or contacting sources that chose not to submit a bid or solicitation. It is only if the grantee determines that competition was inadequate that the procurement should proceed as a sole source procurement. The mere fact that only one bid or proposal was received does not automatically mean competition was inadequate since many unrelated factors could cause potential sources not to submit a bid or proposal. [34.5] - Added October 2003 - This list of justifications is copied from the Common Grant Rule, 49 CFR 18.36(d)(4) which includes authority to use a sole source procurement when the "awarding agency [FTA] authorizes noncompetitive proposals." To ensure grantees have flexibility equal to that of Federal contracting officers, FTA authorizes procurement by noncompetitive proposals in all of the circumstances described in Part 6.3 of the Federal Acquisition Regulations, even if it is not specifically mentioned in this list of justifications.

[35] - Cost and Price Analysis. Cost or price analysis has proven difficult for grantees in some cases. FTA believes price analysis for micro-purchases may be conducted on a limited basis as discussed above (paragraph 9a). Similarly, an abbreviated price analysis may be used for small purchases in most cases. One method to record this analysis is through use of a preprinted form on which a contracting officer (or other responsible person) can annotate a finding of fair and reasonable pricing and check off the most common reasons why this would be so such as catalog or market prices offered in substantial quantities to the general public, regulated prices (e.g., for many utilities purchases), or comparison with recent prices for similar goods and services.

Where cost analysis is required, some grantees have found difficulty obtaining the information necessary to conduct a proper cost analysis. The requirements for cost analysis are based in the Common Grant Rule and require action beyond FTA or DOT's authority to change. FTA continues to seek an equitable, practical solution to this problem consistent with the flexibility Federal contracting officers enjoy under the federal Acquisition Regulation.

[36] - The language in this section has been amended from prior versions of the circular to better explain that FTA will accept a local bonding policy that meets the minimums of paragraphs a, b, and c but that a policy that does not meet these minimums still may be accepted where the local policy adequately protects the Federal interest. Grantees who wish to adopt less stringent

bonding requirements generally, for a specific class of projects, or for a particular project may submit the policy and rationale to their regional office for approval. [added October 2003 – There is no FTA approval required for more stringent bonding requirements. Additionally, FTA does not require bonds for rolling stock, services, maintenance, operations, or any other contracts – only for construction.]

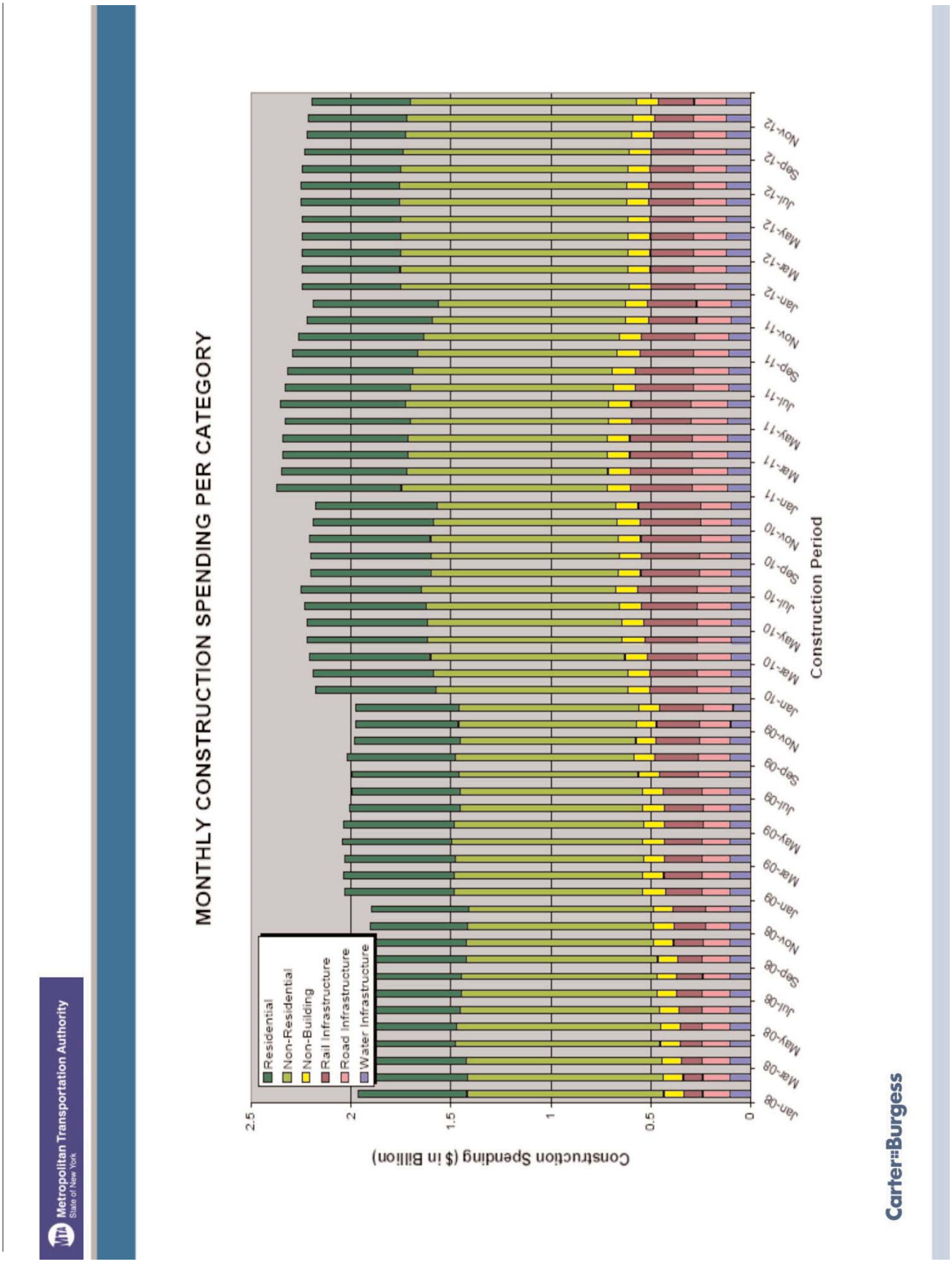
[37] - The language in this section has been amended from previous versions of the circular to explain that grantees may make advance payments from local share funds. Where grantees wish to make advance payments with FTA funds, they should contact their regional office to obtain FTA concurrence. FTA believes there are various sound business reasons for providing advance payments under a number of circumstances and, where we find adequate security for the advance payment combined with a sound business reason to grant the advance payment, will normally grant the required concurrence. These advance payments may be in the nature of mobilization payments, start-up costs, or other advances backed by sound business judgment and adequate security. [added October 2003 – Additionally, grantees may make advance payments with either local match or FTA funds for those purchases where advance payment is customary in the commercial marketplace such as utility services and subscriptions. FTA concurrence in these circumstances is only required where the advance payment or payments exceed $100,000.]

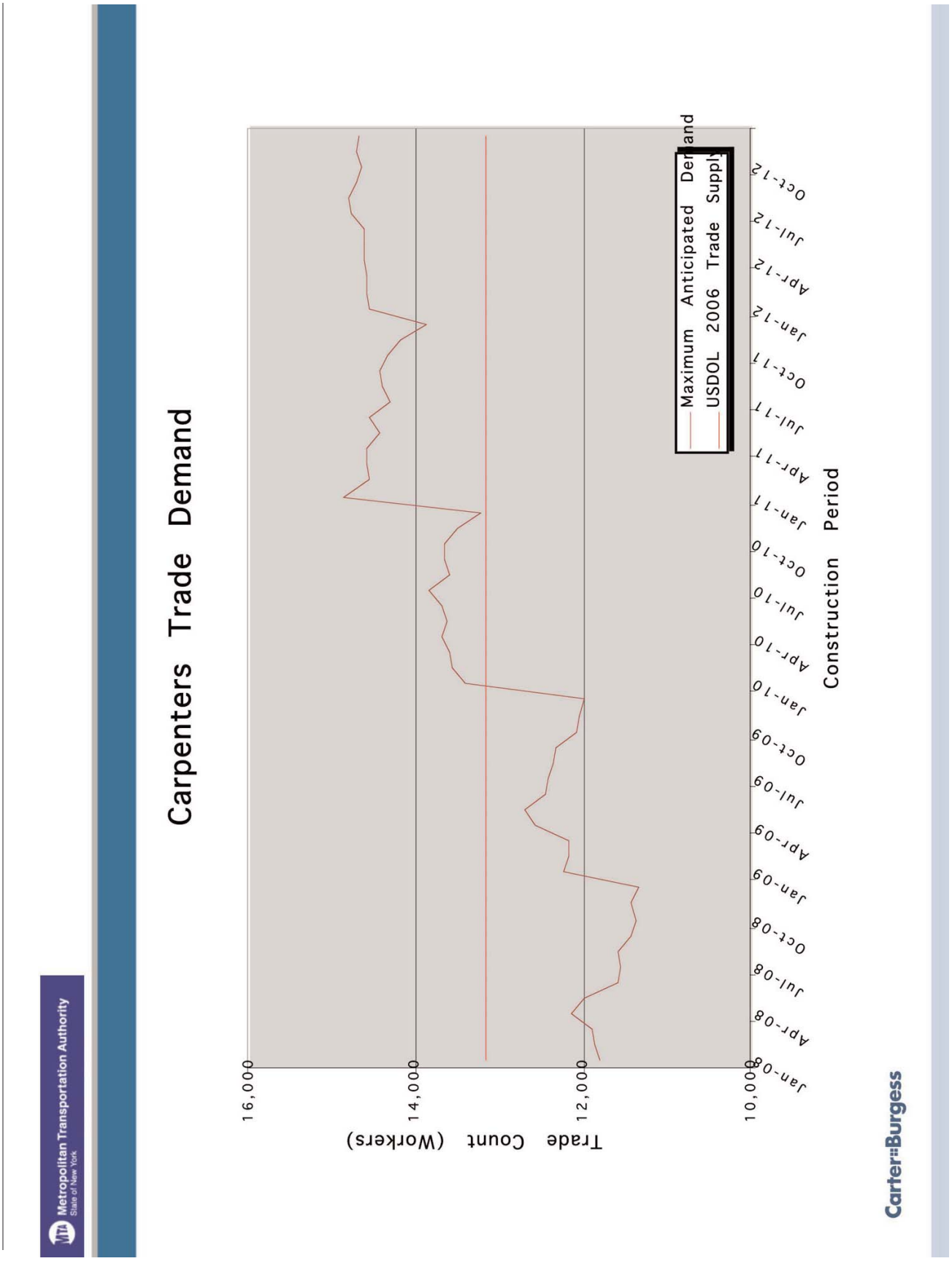
[38] - We have re-drafted the paragraph related to progress payments to account for the practical reality that taking title to work in progress may not be desirable in some cases.
38.5 - [added October 2003 – "Adequate security" should reflect the practical realities of different procurement scenarios and factual circumstances. For example, adequate security may consist of taking title to work in progress in a rolling stock procurement, receiving a draft document in a consulting contract, or receiving some portion of recurring services under a services contract. Grantees should always consider the costs associated with this security (e.g., bonds or letters of credit must be purchased in the commercial marketplace) and the impact those costs have on the contract price, as well as the consequences of incomplete performance as they consider what constitutes adequate security for a given procurement.]

[39] - The measurement period for liquidated damages may be something other than a day, where some other measuring period is appropriate.

Recent Large Bonded Projects

Project	Contract Amount	Bond Amount
Bay Bridge Superstructure	$ 1,400,000,000	$ 350,000,000
Croton WWTP – NYC	$ 1,100,000,000	$ 500,000,000
Manhattan Water Tunnel – NY	$ 668,532,680	$ 668,532,680
Metro Gold Line – CA	$ 600,449,000	$ 600,449,000
US 17/ Cooper River Bridge	$ 531,276,000	$ 531,276,000
Tom Bradley Terminal (LAX)	$ 504,000,000	$ 504,000,000
Newtown Creek WWTP – NY	$ 493,000,000	$ 493,000,000
East Side Access Tunnel – NYC	$ 428,000,000	$ 428,000,000
CTA Blue Line	$ 370,000,000	$ 370,000,000
DART Corridors	$ 365,000,000	$ 365,000,000
Manhattan Tunnels Excavation	$ 364,284,000	$ 364,284,000
Total	**$ 6,824,541,680**	


MONTHLY CONSTRUCTION SPENDING PER CATEGORY
Residential
Non-Residential
Non-Building
Rail Infrastructure
Road Infrastructure
Water Infrastructure
Construction Spending ($ in Billion)
0
0.5
1
1.5
2
2.5
Construction Period
Jan-08
Mar-08
May-08
Jul-08
Sep-08
Nov-08
Jan-09
Mar-09
May-09
Jul-09
Sep-09
Nov-09
Jan-10
Mar-10
May-10
Jul-10
Sep-10
Nov-10
Jan-11
Mar-11
May-11
Jul-11
Sep-11
Nov-11
Jan-12
Mar-12
May-12
Jul-12
Sep-12
Nov-12
Metropolitan Transportation Authority
State of New York
Carter Burgess


Carpenters Trade Demand
Metropolitan Transportation Authority
State of New York
Maximum Anticipated Demand
USDOL 2006 Trade Supply
Trade Count (Workers)
16,000
14,000
12,000
10,000
Jan-08
Apr-08
Jul-08
Oct-08
Jan-09
Apr-09
Jul-09
Oct-09
Jan-10
Apr-10
Jul-10
Oct-10
Jan-11
Apr-11
Jul-11
Oct-11
Jan-12
Apr-12
Jul-12
Oct-12
Construction Period
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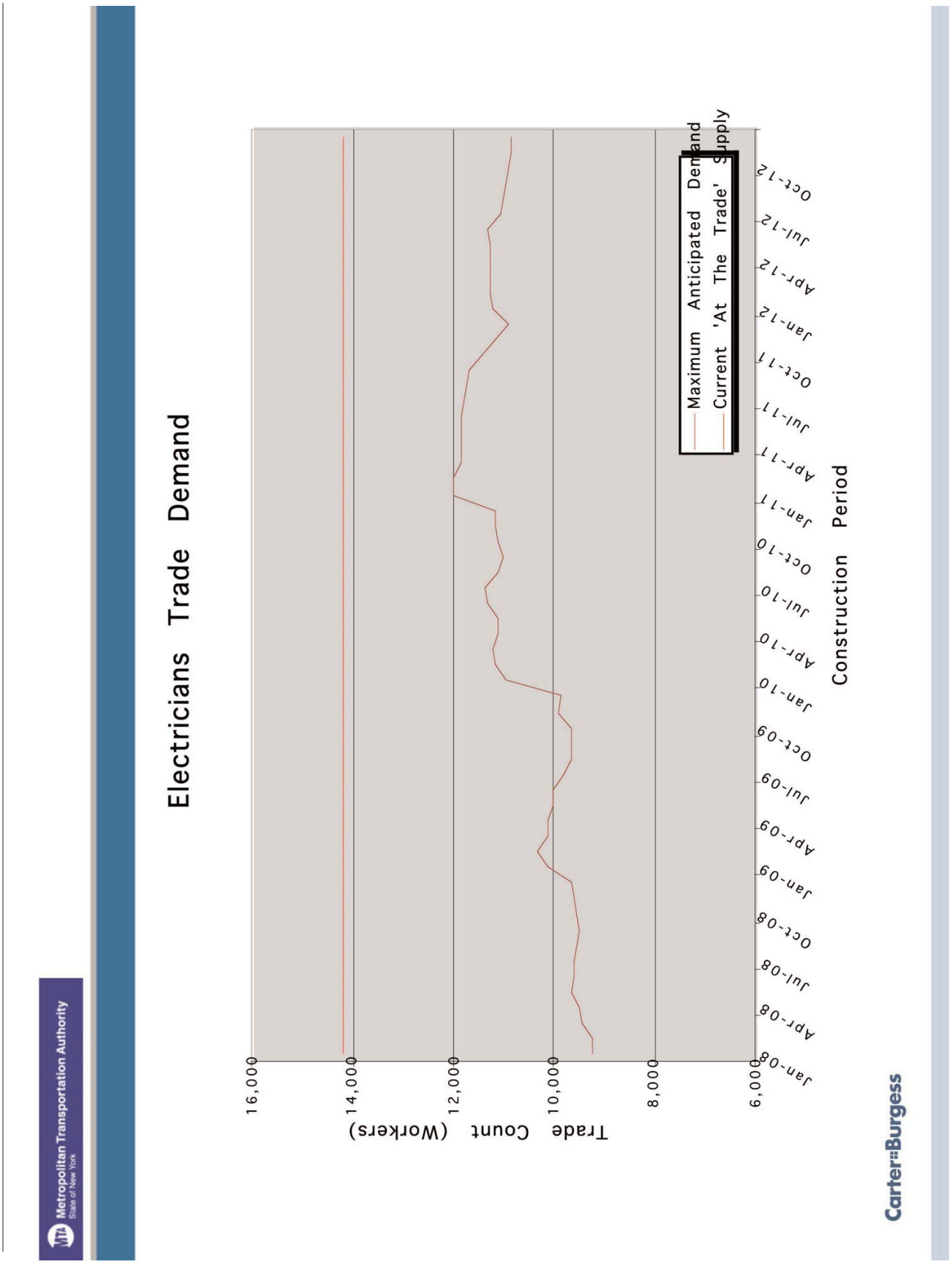
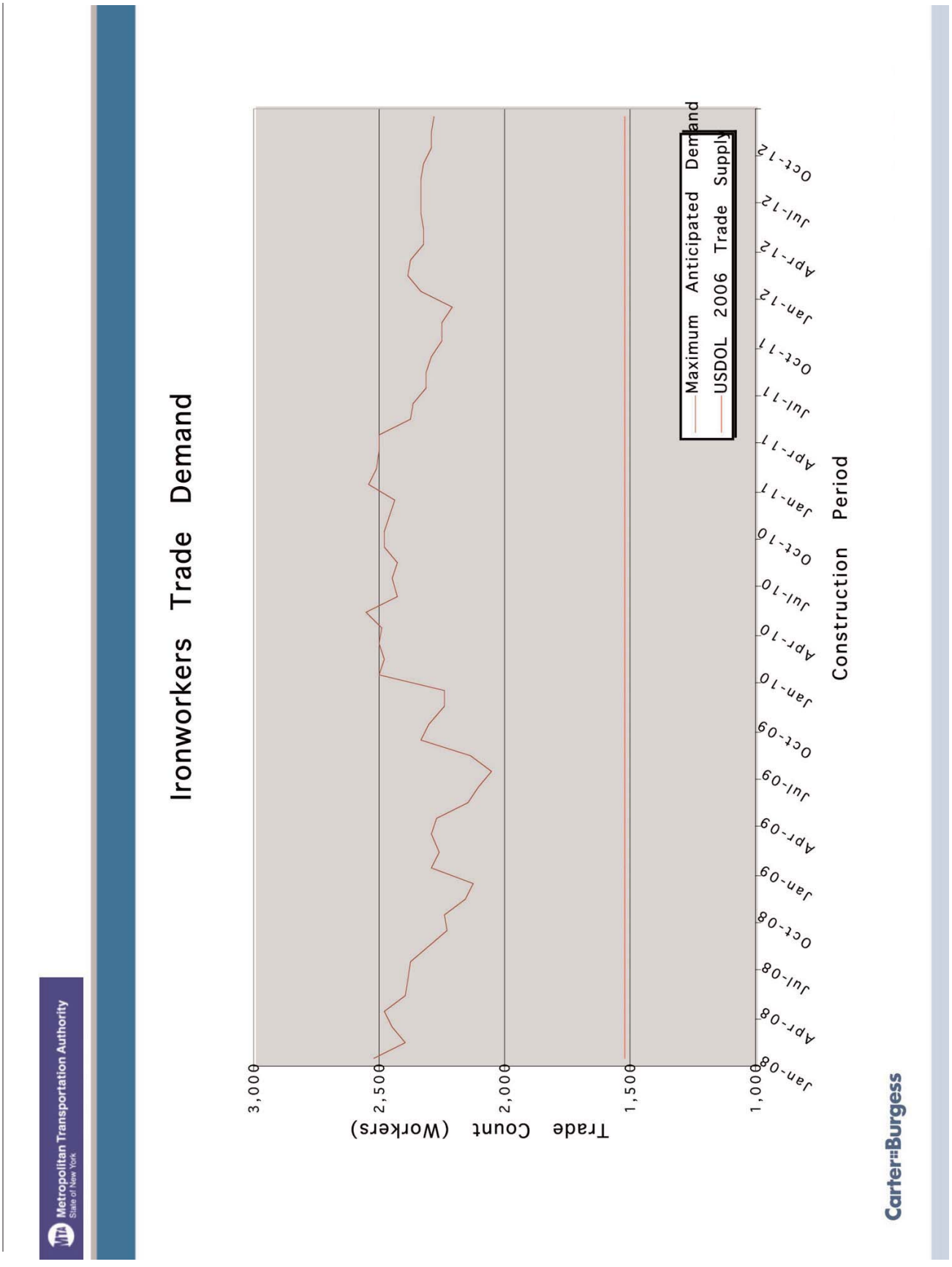

Electricians Trade Demand
Metropolitan Transportation Authority
State of New York
Maximum Anticipated Demand
Current 'At The Trade' Supply
Trade Count (Workers)
16,000
14,000
12,000
10,000
8,000
6,000
Jan-08
Apr-08
Jul-08
Oct-08
Jan-09
Apr-09
Jul-09
Oct-09
Jan-10
Apr-10
Jul-10
Oct-10
Jan-11
Apr-11
Jul-11
Oct-11
Jan-12
Apr-12
Jul-12
Oct-12
Construction Period
Carter::Burgess


Ironworkers Trade Demand
Metropolitan Transportation Authority
State of New York
Maximum Anticipated Demand
USDOL 2006 Trade Supply
Trade Count (Workers)
3,000
2,500
2,000
1,500
1,000
Construction Period
Jan-08
Apr-08
Jul-08
Oct-08
Jan-09
Apr-09
Jul-09
Oct-09
Jan-10
Apr-10
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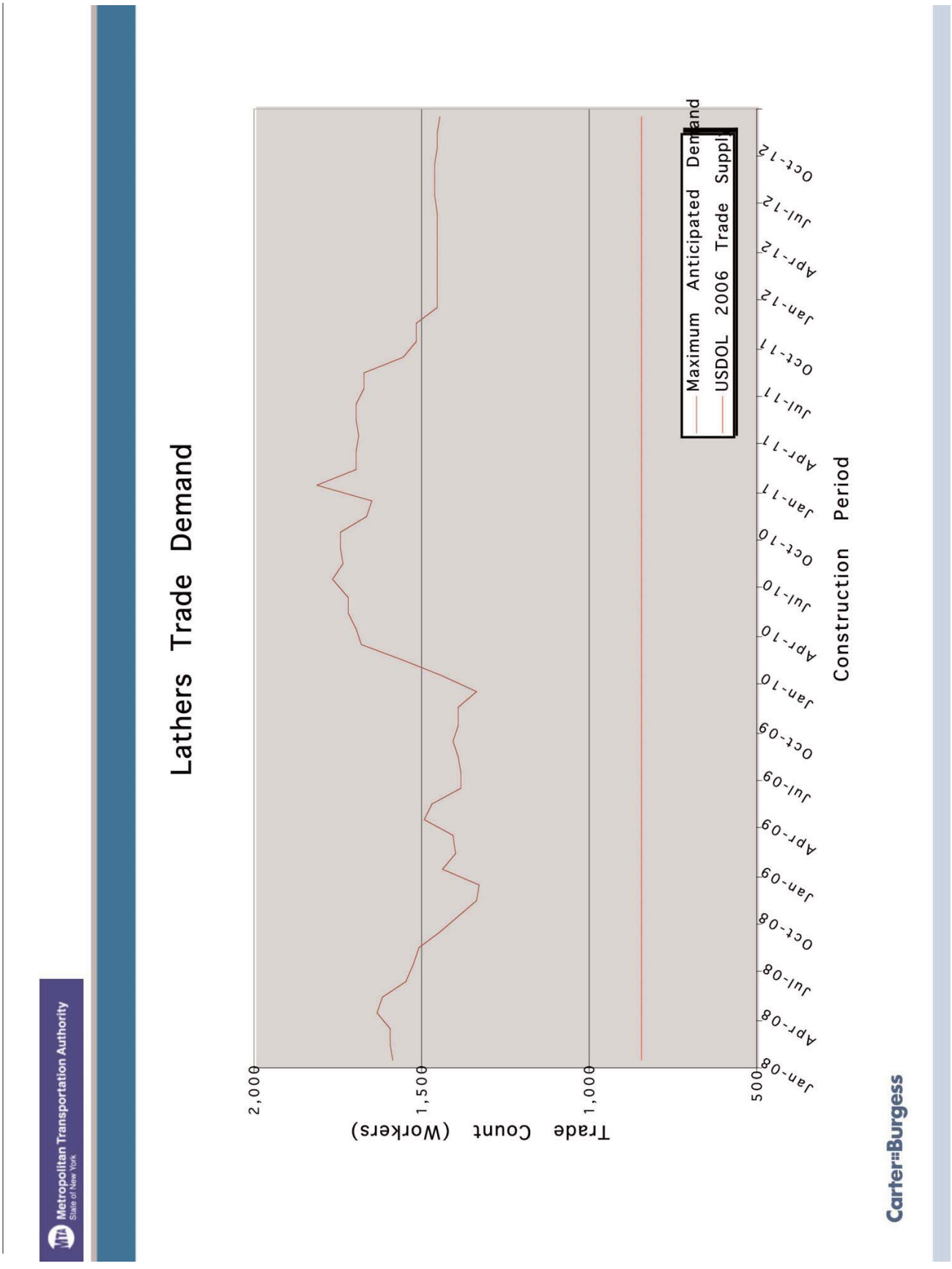
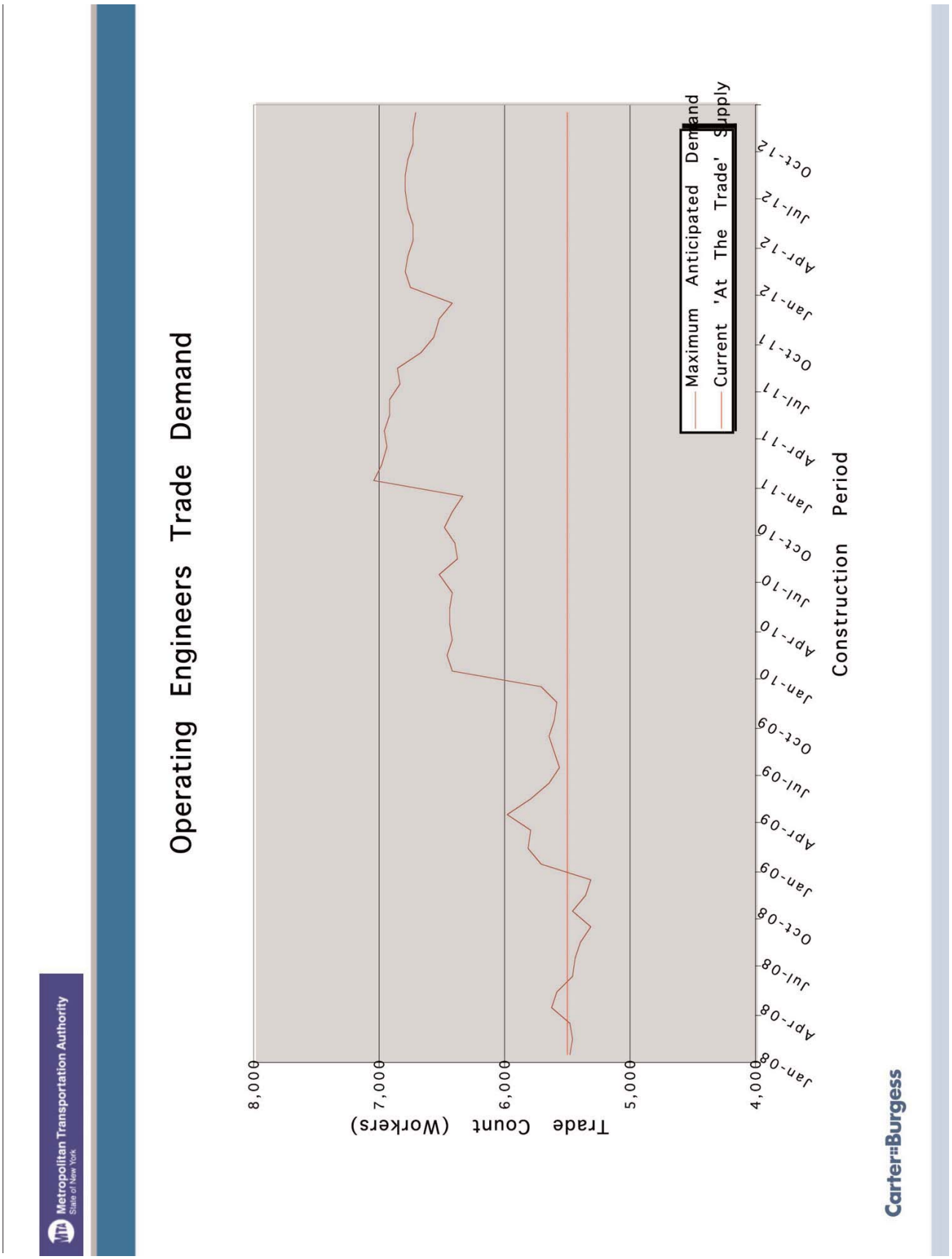
Oct-10
Jan-11
Apr-11
Jul-11
Oct-11
Jan-12
Apr-12
Jul-12
Oct-12
Carter Burgess


Lathers Trade Demand
Metropolitan Transportation Authority
State of New York
Trade Count (Workers)
2,000
1,500
1,000
500
Maximum Anticipated Demand
USDOL 2006 Trade Suppl
Jan-08
Apr-08
Jul-08
Oct-08
Jan-09
Apr-09
Jul-09
Oct-09
Jan-10
Apr-10
Jul-10
Oct-10
Jan-11
Apr-11
Jul-11
Oct-11
Jan-12
Apr-12
Jul-12
Oct-12
Construction Period
Carter Burgess


Operating Engineers Trade Demand
Metropolitan Transportation Authority
State of New York
Maximum Anticipated Demand
Current 'At The Trade' Supply
Trade Count (Workers)
8,000
7,000
6,000
5,000
4,000
Construction Period
Jan-08
Apr-08
Jul-08
Oct-08
Jan-09
Apr-09
Jul-09
Oct-09
Jan-10
Apr-10
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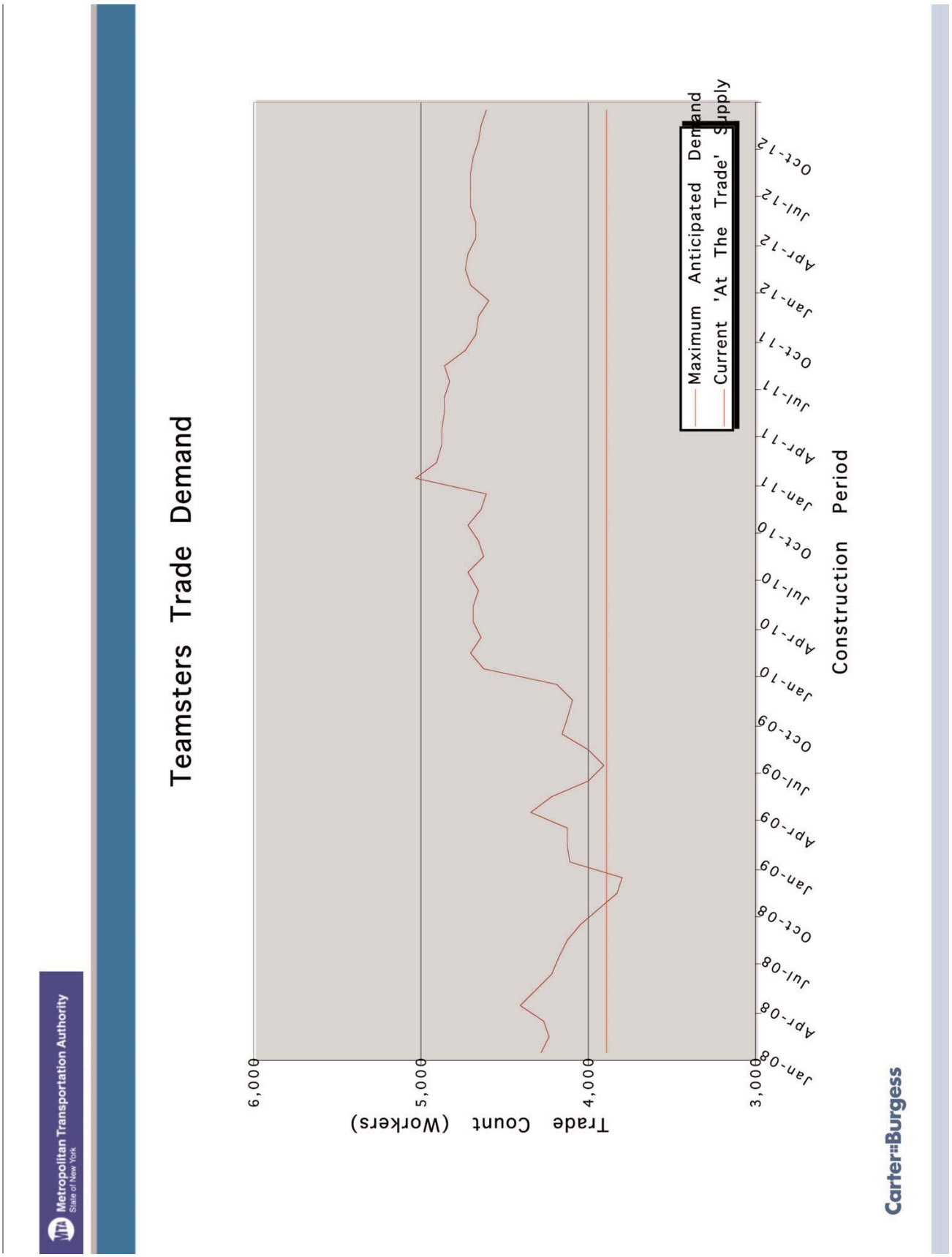
Jan-12
Apr-12
Jul-12
Oct-12
Carter Burgess


Teamsters Trade Demand
Metropolitan Transportation Authority
State of New York
Maximum Anticipated Demand
Current 'At The Trade' Supply
Trade Count (Workers)
6,000
5,000
4,000
3,000
Construction Period
Jan-08
Apr-08
Jul-08
Oct-08
Jan-09
Apr-09
Jul-09
Oct-09
Jan-10
Apr-10
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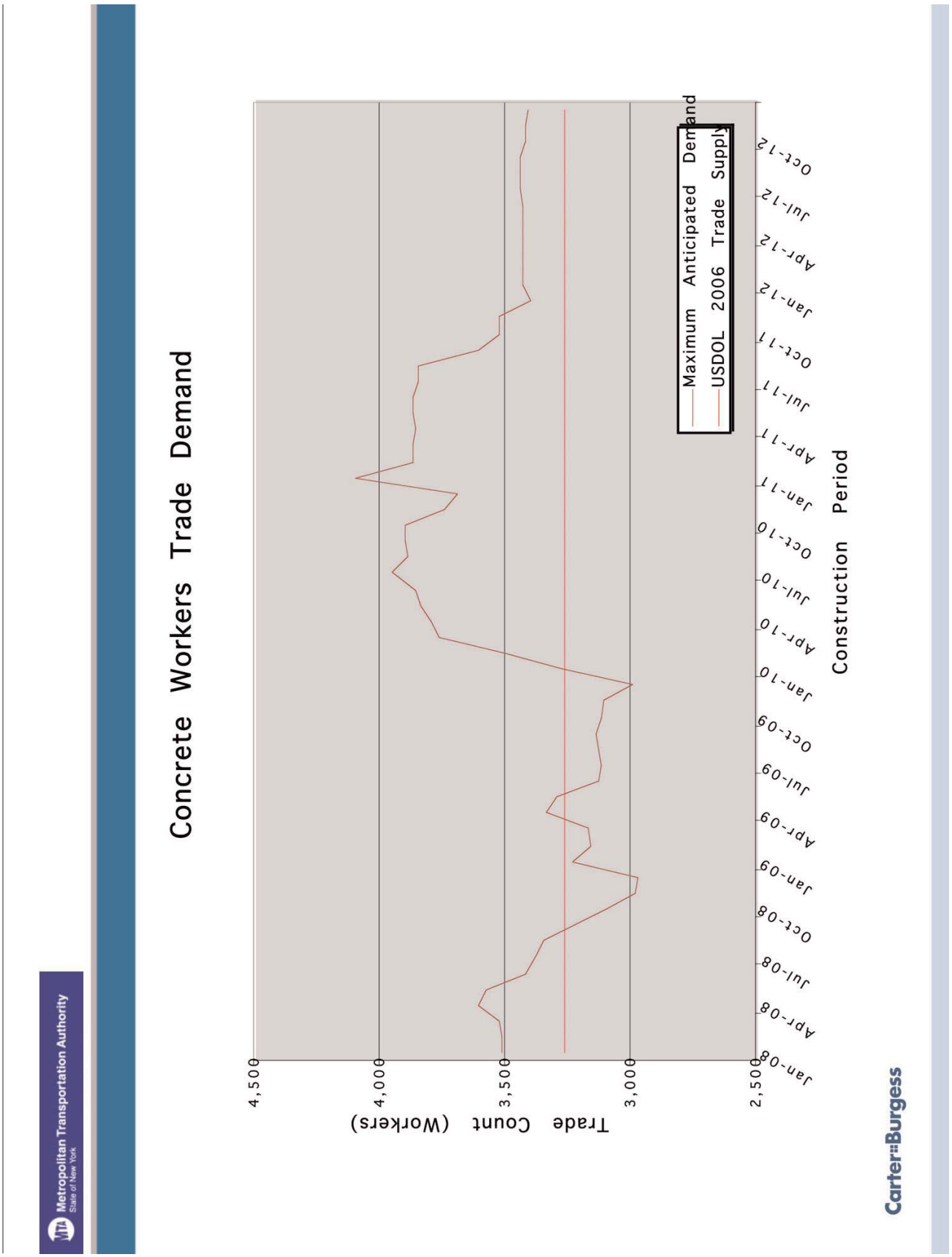
Jan-12
Apr-12
Jul-12
Oct-12
Carter Burgess


Concrete Workers Trade Demand
Metropolitan Transportation Authority
State of New York
Maximum Anticipated Demand
USDOL 2006 Trade Supply
Trade Count (Workers)
4,500
4,000
3,500
3,000
2,500
Construction Period
Jan-08
Apr-08
Jul-08
Oct-08
Jan-09
Apr-09
Jul-09
Oct-09
Jan-10
Apr-10
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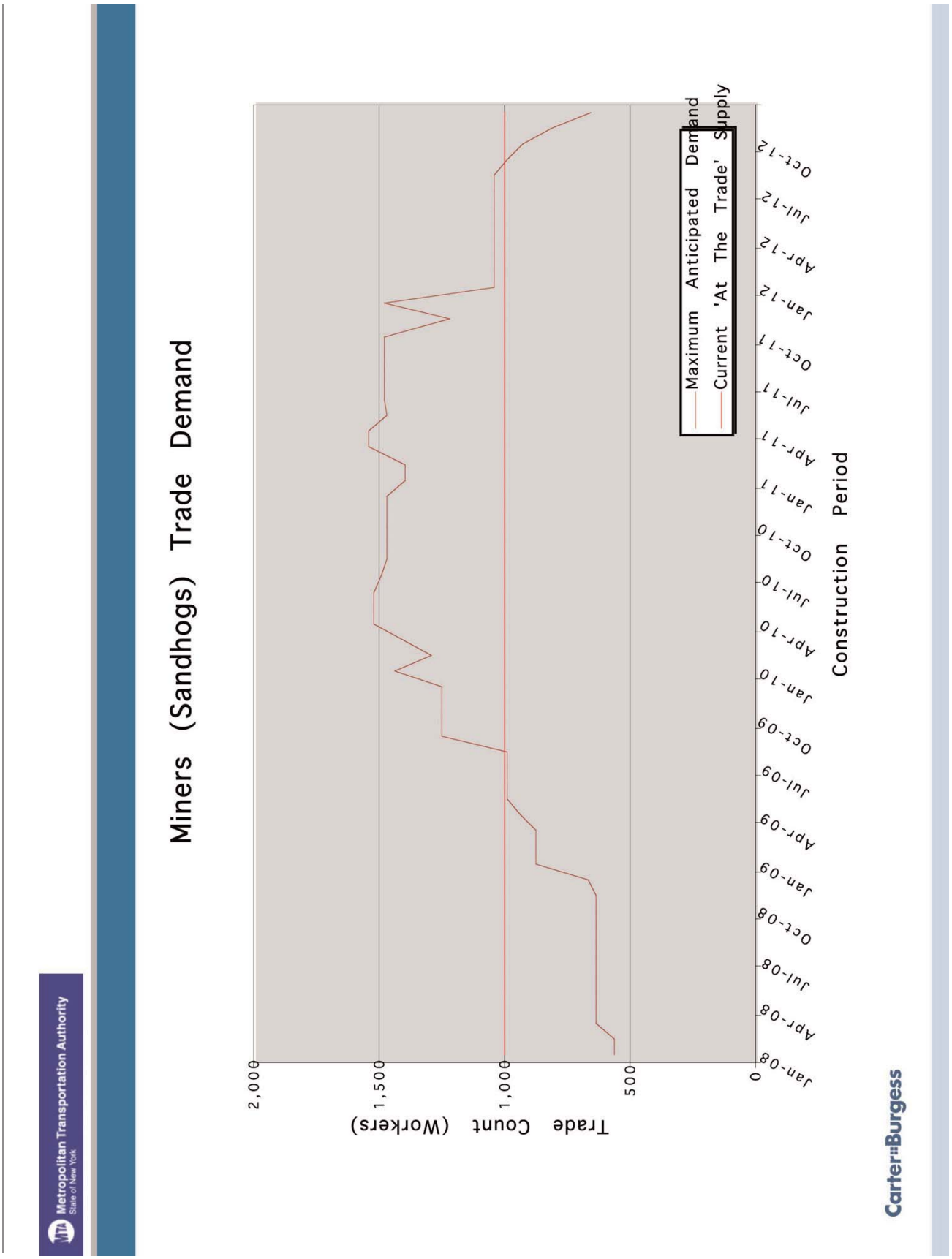
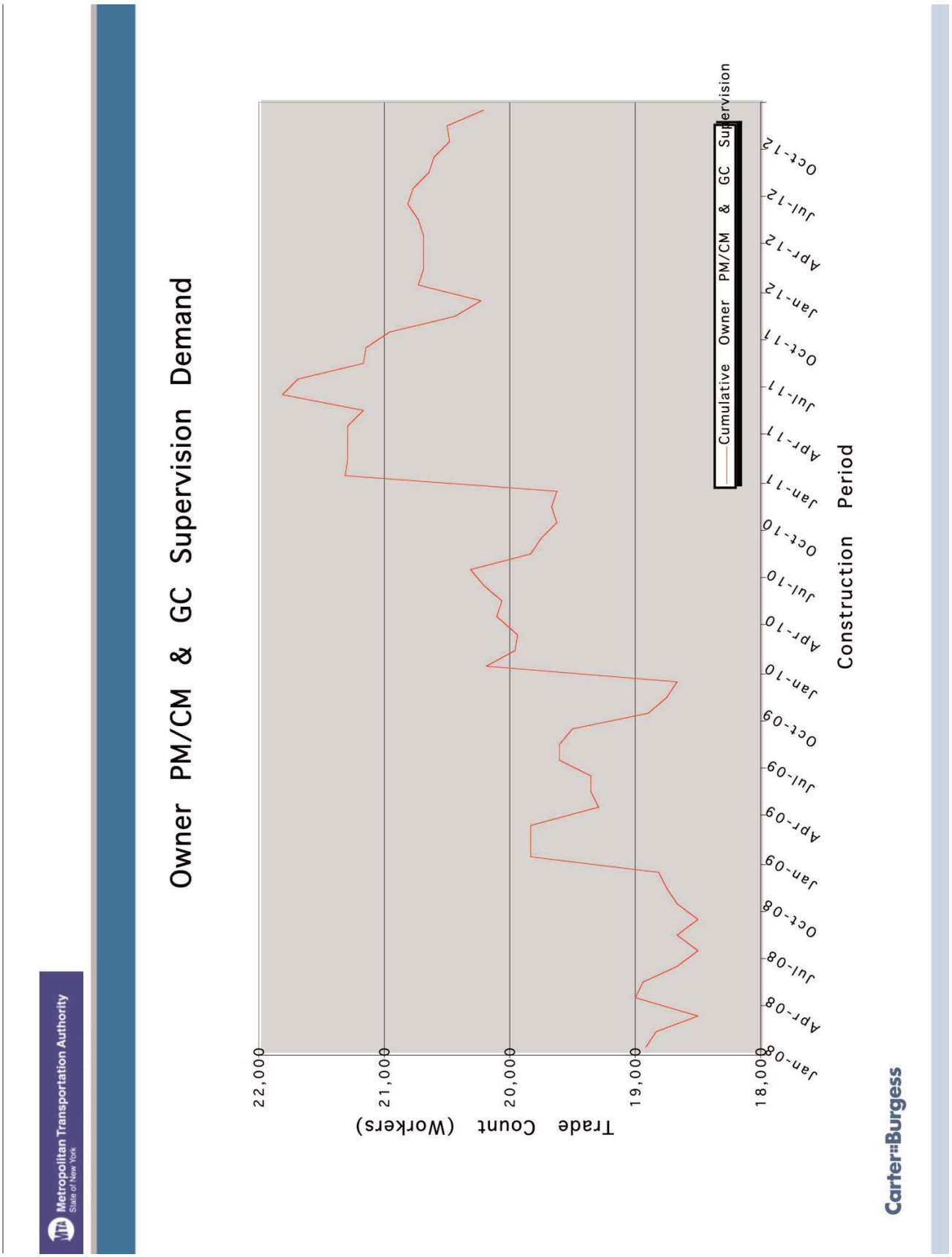
Jan-12
Apr-12
Jul-12
Oct-12
Carter Burgess


Miners (Sandhogs) Trade Demand
Metropolitan Transportation Authority
State of New York
Trade Count (Workers)
2,000
1,500
1,000
500
0
Maximum Anticipated Demand
Current 'At The Trade' Supply
Jan-08
Apr-08
Jul-08
Oct-08
Jan-09
Apr-09
Jul-09
Oct-09
Jan-10
Apr-10
Jul-10
Oct-10
Jan-11
Apr-11
Jul-11
Oct-11
Jan-12
Apr-12
Jul-12
Oct-12
Construction Period
Carter Burgess


Owner PM/CM & GC Supervision Demand
Metropolitan Transportation Authority
State of New York
Trade Count (Workers)
22,000
21,000
20,000
19,000
18,000
Cumulative Owner PM/CM & GC Supervision
Jan-08
Apr-08
Jul-08
Oct-08
Jan-09
Apr-09
Jul-09
Oct-09
Jan-10
Apr-10
Jul-10
Oct-10
Jan-11
Apr-11
Jul-11
Oct-11
Jan-12
Apr-12
Jul-12
Oct-12
Construction Period
Carter Burgess

THE GENERAL CONTRACTORS ASSOCIATION OF NEW YORK, INC.

Christopher O. Ward
Managing Director

December 3, 2007

Mr. Ronald Saporita
Director
Office of Construction Oversight
Metropolitan Transportation Authority
347 Madison Ave.
New York, NY 10165

Dear Mr. Saporita:

The General Contractors Association has reviewed the draft of the Blue Ribbon Panel's Manpower report. We agree that, based on present conditions, project labor and management staffing needs will reach a peak in 2011. At the same time, current trends in the city's and state's economy, potential adverse financial impacts and the uncertainty of securing new funding, could substantially impact the labor resource profile as projects are postponed or schedules are extended. Nonetheless, the members of the General Contractors Association are prepared for and have planned for a robust period of employment.

In recent years, all sectors of the construction industry have had to compete with financial services firms and management consultants for the limited pool of engineering graduates, and a downturn in Wall Street will again make construction an attractive career choice for new graduates. To publicize career opportunities and to attract students to the heavy construction industry, the GCA has initiated a summer internship and scholarship program at the college level, as well as a high school level internship program through the Department of Education's Career and Technical Education program.

To date, individual GCA members have not experienced shortages of qualified applicants for positions they are seeking to fill. In the past year, one GCA member has successfully added over 150 people at all levels of project management, and reported little difficulty in recruiting personnel. On numerous projects, contractors are entering joint ventures to capitalize on resource strengths, and this trend will continue to serve as a vehicle to staff projects. Also, firms will recruit and transfer personnel from other parts of the country to work on major projects in New York. Companies are also developing internal retention and succession plans to ensure a steady influx of trained personnel to fill positions naturally vacated by attrition.

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Although various industry demographic studies have shown that a vast majority of the industry's senior project management personnel will reach retirement age in the next ten to fifteen years, this fact will have little impact on the MTA's capital program. First, the timeframe for anticipated mass attrition of the baby boomers is well beyond the peak of the MTA's expansion program. Second, demographic forecasts of retirements typically do not consider that in good economic times, people tend to delay retirement to take advantage of higher earnings, overtime, salary advances, bonuses and other incentives. Demographic trends can thus be discounted as presenting any significant threat to the contractors' ability to staff projects. Given that the construction industry draws most of its personnel from the geographic area in which the companies are located, the companies will increasingly reflect the metropolitan area's diverse population.

The GCA members are addressing the need for specialized personnel, such as safety managers, by recruiting outside the civil engineering field and providing both classroom and on the job training. Ensuring a sufficient supply of workers will largely depend on the staffing requirements imposed by the MTA and other owners. When determining project staffing requirements, the MTA must be cognizant of industry conditions and must avoid burdening the contractors with duplicative requirements that add little value to the project. Wherever possible, the MTA must allow the contractors to allow properly trained and skilled individuals to serve multiple roles.

Simultaneously, while the contractors are evaluating strategies to meet their recruiting and staffing needs, the MTA should be doing the same. Outsourcing, attrition without replacement and limited training opportunities depleted the MTA's project management staff over the years. The constraints of the civil service system present significant barriers to recruitment and foster a culture that does not recognize and reward decision-making and aggressive resolution of issues. Successful execution of the MTA's capital program will require more than a sufficient number of personnel to staff the projects; it will require an ongoing collaborative effort at all levels to make economical and efficient business decisions, resolve problems and work together to keep projects on schedule and within budget.

Sincerely,

Denise M. Richardson

Denise M. Richardson
Deputy Managing Director

BTEA: NEW YORK'S ALLIANCE OF UNION CONTRACTORS
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Louis J. Coletti
President & CEO

December 6, 2007

Ron Saporita
Director, Office of Construction Oversight
Metropolitan Transit Authority
347 Madison Avenue
New York, NY 10017

RE: MTA Panel For Construction Excellence Manpower Restraints

Dear Mr. Saporito:

The report provides the best data and analyses to date of the projected shortage of skilled labor based on the assumption that the scheduled capital projects moves forward as planned.

The report also recognizes that the supply of management personnel is also an issue. However, it is difficult to establish a definite baseline.

The BTEA, at the direction of its contractor membership, has begun to play a larger role in the area of workforce development.

Based on a study Building Jobs: A Blueprint For the "New" New York done for the BTEA, it was projected that if the large public and private projects being planned were to move forward, contractors would need to add the following personnel to meet the demand:

- Project managers and assistant project managers
- Superintendents and assistant superintendents
- Job schedulers

Another result of the survey showed that the need for new personnel in these job categories was preventing existing personnel from being promoted.

Most if not all of the large construction managers and general contractors have aggressive recruitment programs in colleges and community colleges to address the issue. These initiatives are proving to be successful to a degree. However, the construction industry remains one of the lowest ranked occupational choices of graduating students primarily caused by the historic cyclical nature of the industry.

With 75% of the industry being made up of small- and medium-sized contractors, the problem is more acute. They do not have the financial resources to seek new personnel in an aggressive way and thus relying on newspaper ads, word of mouth, raiding from their competitors and other less formal approaches.

In order to address this issue, the BTEA entered into partnership with Manhattan Community College to train for the job scheduler title.

Of the 15 graduates of this initial program, 10 have been placed with BTEA contractor firms in permanent jobs and we are continuing efforts to place the other five. A second class of about 20 students is underway right now.

In addition, the BTEA has expanded its partnership to include a new training program for cost estimators which will begin in January 2008.

A third initiative is a BTEA program which is providing funding to its member contractors for training to its existing workforce for promotional opportunities. The concept being, that by providing these upgrade-training opportunities, it will create new job openings for the students currently in our programs as well as others.

Workforce development is a major priority for the BTEA and its contractor members both in the short and long term. Only by continuing to focus on these programs will we be able to address the need for new project management personnel.

Best Regards,

Louis J. Coletti

Louis J. Coletti
President & CEO
Building Trades Employers' Association

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CHAPTER 1: GENERAL PROVISIONS AND DEFINITIONS

ARTICLE 1.01 WORK TO BE DONE

A The Contractor shall do all work including furnishing all labor, materials, plant, tools, supplies and other means of construction necessary for completion of the Project in accordance with the Contract Documents.

B Miscellaneous and Incidental Work. The Contractor will protect, support and maintain all structures, which includes the Railroad, and any other real property whether owned by the Authority or any other person or entity, with their appurtenances and connections as the same may be affected by the Contractor's performance of the Work; and promptly reconstruct and restore all structures which are damaged thereby to at least as good a condition as existed before the construction was begun. All such work shall be known as "Miscellaneous and Incidental Work."

C The words "Work" or "Project" shall mean all matters and things herein agreed to be constructed, furnished, installed, or done, by or on the part of the Contractor and includes Miscellaneous and Incidental Work.

ARTICLE 1.02 DEFINITIONS

A The words "addendum" or "addenda" to mean the additional contract provisions issued in writing by the Authority prior to the receipt of bids.

B The word "Authority," or the initial letters "NYCTA," or "TA," or initial letters of like import to mean the New York City Transit Authority, a public benefit corporation existing by virtue of Title 9 of Article 5 of Public Authorities Law of New York State and any other authority, board, body, commission, official or officials to which or to whom the powers now belonging to the said Authority in respect to the location, construction, equipment, maintenance and operation of transit facilities shall, by virtue of any act or acts, hereafter pass or be held to appertain.

C The words "Award Date" to mean the date the Notice of Award is issued.

D The words "Beneficial Use" shall mean a written determination by the Engineer that a discrete portion of the Work or identified equipment is sufficiently complete and fit for its intended purpose, in accordance with the Contract, that the Authority is able to physically occupy such portion of the Work or utilize such equipment. The portions of the Work and the equipment subject to a determination of Beneficial Use, if any, are identified in the **SPECIAL CONDITIONS.**

E The words "City" or "New York" to mean the City of New York according to its boundaries as of the Award Date of this Contract unless in the case of the words "New York" the context indicates that the State of New York is intended.

F The word "Consultant" to mean the consulting engineer or other person or firm hired by the Authority to act on behalf of the Engineer to perform certain services, including but not limited to design or inspection relating to the Project. For purposes of this Contract, the Consultant, his officers and employees shall be deemed agents of the Authority.

G The words "Contract" and "Contract Documents" to mean collectively the Information for Bidders; the Bid' the Contract Terms And Conditions; the Specifications; all Addenda issued; the Special Conditions; Schedule R, Bonding Requirements and Forms Of Bonds; the Appendix; the Contract Drawings; and the Notice Of Award, as applicable. The Contract and Contract Documents are also deemed to include by reference those portions of the Responsibility Questionnaire, which contain additional conditions and obligations on the contractor and rights in favor of the Authority.

H The word "Contractor" to mean the individual, firm or corporation, its successors and assigns, that enters into the Contract to perform the Project. For convenience, the Contractor is hereinafter referred to as if the Contractor were an individual.

I The words "Critical Path Method" or "Bar Chart" or the letters "CPM" to mean Contractor's proposed schedule of work as set forth in **ARTICLE 2.03, CONTRACTOR'S DETAILED SCHEDULE OF WORK.**

J The words "daily newspapers" to mean any newspaper regularly published in New York every day or every day except Saturdays, Sundays and holidays.

K The words "directed," "required," "permitted," "ordered," "designated," "selected," "prescribed" or words of like import used in the specifications or upon the drawings to mean respectively, the direction, requirement, permission, order, designation, selection or prescription of the Engineer; and similarly the words "approved," "acceptable," "satisfactory," "equal," "necessary," or words of like import to mean, respectively, approved by, or acceptable or satisfactory to, or equal, or necessary in the opinion of the Engineer.

L The letters "DOT" to mean the United States Department of Transportation.

M The word "Engineer" to mean the individual designated in the Notice of Award to administer the Contract (except for those business functions reserved for the Division of Materiel's designee), or any replacement for such individual who shall be subsequently designated by the Authority. The words "Chief Engineer" to mean the officer designated by the Authority to resolve technical disputes as set forth below in **ARTICLE 8.03, DISPUTES RESOLUTION PROCEDURE**.

N The words "Excusable Delay" to mean delays which satisfy the criteria set forth below in **ARTICLE 2.05, EXTENSION OF TIME**.

O The words "existing structure" to mean all real property, used, owned or leased by the Authority in place on Award Date or installed thereafter by other contractors, the City, or persons or firms employed by the Authority during the life of this Contract.

P The words "Extra Work" to mean the changes to the Contract as fully set forth below in **ARTICLE 4.03, EXTRA WORK** (for "Deleted Work," see **ARTICLE 4.06**).

Q The words "Final Completion" to mean the completion of all Work to the satisfaction of the Engineer, including all Remaining Work, as set forth in **CHAPTER 2, PROVISIONS RELATING TO TIME.**

R The words "Final Payment" to mean the payment described below in **ARTICLE 3.07, PROVISIONS RELATING TO FINAL PAYMENT.**

S The words "Force Majeure" to mean acts of God, fire, earthquake, explosion, epidemic, riots, civil disturbance, strike, war, injunctions of governmental entities, embargoes, blockades or excessive inclement weather based on data from the National Oceanic and Atmospheric Administration.

T The words "furnish" or "furnishing" to mean providing, manufacturing, fabricating and delivering to the site of the Project all materials, plant, power, tools, patterns, supplies, appliances, vehicles and conveyances necessary or required for the completion of the Project.

U Not Used

V The words "Gross Sum Bid" or "Aggregate Total Bid" to mean the total of the items set forth in the Price Schedule of the Bid as stated in the **BID.**

W The words "Guarantee Work" or "Warranty Work" to mean all work required to be done by Contractor to meet its obligations under **CHAPTER 9, INSPECTION, TESTING AND GUARANTEES.**

X The words "Impact Costs" to mean the equitable adjustment to which Contractor may be entitled in accordance with **ARTICLE 2.07, CONTRACTOR'S DAMAGES FOR DELAY.**

Y The word "Inspector" to mean any representative of the Engineer designated by him to act as inspector.

Z The words "installation" or "install" or "installing" to mean completely assembling, erecting and connecting all material, parts, components, appliances and supplies and related equipment necessary or required for the completion of the Project.

AA The words "Miscellaneous and Incidental Work" to mean the work described in **ARTICLE 1.01, WORK TO BE DONE.**

BB The letters "MTA" to mean the Metropolitan Transportation Authority, and any other board, body, commission, official or officials to which or to whom the powers now belonging to the said authority in respect to the location, construction, equipment, maintenance and operation of transit facilities or the purchase of rapid transit cars under the provisions of Article 5, Title 11 of the Public Authorities Law of the State of New York shall, by virtue of any act or acts, hereafter passed or be held to appertain.

CC The words "New York City Transit System" or the letters "NYCTS" to mean the rapid transit and surface transit facilities of the Authority including all rolling stock, appurtenances and equipment.

DD The word "notice" to mean any written notice, direction or similar communication.

EE The words "Notice of Award" shall mean the document that apprises the Contractor that this Contract has been awarded by the Authority to the Contractor and is in full force and effect.

FF The words "Preliminary Estimate" or "Preliminary Estimate Certificate" shall mean the document prepared by the Engineer in connection with the amount to be invoiced by Contractor during a billing period.

GG The words "Progress Payment" shall mean the periodic payment to be made to the Contractor by the Authority in accordance with **ARTICLE 3.05, PROGRESS PAYMENTS.**

HH The words "Project Site" or "Work Site" to mean the site or sites of the Work.

II The words "Punch List Work" to mean the minor defects or omissions identified by the Engineer in determining that the Work is Substantially Complete, which are to be completed prior to Final Completion of the Work as set forth in **ARTICLE 2.02, SUBSTANTIAL COMPLETION AND FINAL COMPLETION.**

JJ The word "Railroad" to mean the rapid transit facilities of the Authority, including all appurtenances, rolling stock and equipment.

KK The words "Remaining Work" to mean the work which is to be completed after Substantial Completion as set forth in **ARTICLE 2.02, SUBSTANTIAL COMPLETION AND FINAL COMPLETION.**

LL The words "State" or "New York State" to mean the State of New York.

MM The words "Stop Work Order" shall mean the suspension of the Work as set forth below in **ARTICLE 2.08, STOP WORK ORDERS.**

NN The word "Subcontractor" to mean any person, firm or corporation, other than the employees of the Contractor, who contracts to furnish labor, or labor and materials, at the Work Site or in connection with the Project, whether directly or indirectly on behalf of the Contractor and whether or not in privity of contract with the Contractor.

OO The words "Substantial Completion" or "Substantially Complete" to mean the event fully set forth in **ARTICLE 2.02, SUBSTANTIAL COMPLETION AND FINAL COMPLETION.**

PP The words "Certificate of Substantial Completion" to mean the document issued by the Engineer in connection with Substantial Completion.

QQ The word "Supplier" to mean any individual, firm or corporation that contracts to furnish materials, equipment or supplies for incorporation in or in connection with the Project.

RR The words "Total Contract Price" or "TCP" shall mean the total amount payable to the Contractor in accordance with **CHAPTER 3, PRICE AND PAYMENTS,** for the Work (as same may be adjusted in accordance with **CHAPTER 4, CHANGES TO THE CONTRACT**) and is based on the Gross Sum Bid (as extended based upon the actual quantities thereof ordered or required and provided in accordance with the Contract Documents) stipulated in the Price Schedule of the Bid.

SS The letters "UMTA" or "FTA" to mean the United States Department of Transportation, Federal Transit Administration (formerly known as Urban Mass Transportation Administration).

TT The words "Work" or "Project" shall be as described in **ARTICLE 1.01, WORK TO BE DONE.**

UU "Elevation 100," as referred to in this Contract, is equal to 2.653 feet above mean sea level at Sandy Hook, United States Coast and Geodetic Survey datum.

VV The words "Schedule Document" shall mean the base line and required updates to the Bar Chart or CPM, as required by **ARTICLE 2.03, CONTRACTOR'S DETAILED SCHEDULE OF WORK** and the **SPECIFICATIONS**.

ARTICLE 1.03 NOTICES

A The delivery of any notice, direction, or communication to the Contractor at the address set forth in the Bid or to the Authority at the address specified in the Notice of Award shall be made by depositing the same in a postpaid wrapper directed to the aforesaid addresses in any post office box regularly maintained by the United States Postal Service and shall be deemed to be sufficient service thereof as of the earlier of the date of such actual delivery or three days after such depositing. The address may be changed at any time by notice in writing from the Contractor to the Engineer. Nothing contained herein shall be deemed to preclude or render inoperative the personal service of any notice, direction or communication upon the Contractor, or if the Contractor be a corporation, upon any officer, director or designated agent thereof.

B Nothing in the above paragraph shall be deemed to serve as a waiver by the Authority of any requirements for the service of notice of process with respect to the filing of a claim or the institution of an action or proceeding as provided by law or elsewhere in this Contract.

ARTICLE 1.04 GENERAL RULES OF INTERPRETATION

A References to a specific paragraph, section, or schedule shall be construed as references to that specified paragraph, section or schedule in this Contract, unless otherwise indicated.

B References to any agreement or other instrument shall be deemed to include such agreement or other instrument as it may, from time to time, be modified, amended, supplemented, or restated in accordance with its terms.

C The terms "hereof," "herein," "hereby," "herewith," "hereto," and "hereunder" shall be deemed to refer to this Contract.

D All references to an "article" shall be deemed to refer to an article of these **CONTRACT TERMS AND CONDITIONS**, unless expressly indicated otherwise.

E The headings of the paragraphs are inserted for convenience only and shall not affect the construction or interpretation of this Contract.

F All references to "days" shall be deemed to be calendar days, unless otherwise expressly indicated.

G All references to "business days" shall be deemed to be references to the days of Mondays through Fridays, exclusive of Authority-observed holidays.

H All notices hereunder must be in writing, in accordance with **ARTICLE 1.03, NOTICES**, unless expressly indicated otherwise.

I As used herein the singular shall mean and include the plural; the masculine gender shall mean and include the feminine and neuter genders; and vice versa.

ARTICLE 1.05 CHARACTER OF WORK

A The Project is to be constructed for actual use and operation as part of an intra-urban transit system according to the best rules and usages of engineering, construction, and transit system equipment.

B In work of this character it is impossible either to show all details in advance or to forecast all exigencies precisely. The Contract Documents are to be taken, therefore, as indicating the amount of work, its nature and the method of construction.

Where no specific requirements are given, the Work shall conform to the latest applicable standards of nationally recognized associations which sponsor the particular type of work involved and materials shall conform to the standards of the Institute of Electrical and Electronic Engineers, the Electronic Industries Association, American Society of Mechanical Engineers, American Society of Heating and Ventilating Engineers, American National Standards Institute, American Society for Testing and Materials, and the National Board of Fire Underwriters.

In the event of any doubt as to the meaning of any portion of the **SPECIFICATIONS** or **CONTRACT DRAWINGS**, or in the event a standard of workmanship or material is not specified, the Contract shall be interpreted as requiring the Contractor to perform the work in the best and most workmanlike manner and to supply materials of the best class. The

Contractor shall also perform the work with the highest regard to the safety of life and property and according to the lines, levels and directions given by the Engineer, and to the satisfaction of the Authority, as well as any provision set forth in the specifications.

ARTICLE 1.06 DIFFERING SITE CONDITIONS

A The Contractor shall promptly, and before such conditions are disturbed, notify the Engineer in writing of: (1) latent physical conditions at the site differing materially from those indicated in the Contract Documents; or (2) physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as occurring in work of the character provided for in this Contract but unknown to the Contractor until encountered during prosecution of the Work. The Engineer shall promptly investigate such condition(s) to determine if the condition(s) constitute a differing site condition as described in sub-clauses (1) or (2) above. Should the Engineer determine that a differing site condition exists which causes an increase or decrease in the Contractor's cost of, or the time required for, performance of any part of the Work, the Engineer shall notify Contractor of same, and within a reasonable time, not to exceed fifteen (15) days, Contractor shall provide a detailed Change Order Proposal in accordance with **ARTICLE 4.04, CHANGE ORDER PROCEDURE AND BASIS FOR PAYMENT**. The Engineer's determination shall be subject to review by the Contractual Disputes Review Board as set forth in **ARTICLE 8.03, DISPUTES RESOLUTION PROCEDURE**.

B No claim for an extension of time and/or an equitable adjustment by the Contractor due to a differing site condition under this **ARTICLE** shall be allowed unless: (i) the condition giving rise to such claim could not have been discovered during a reasonable site inspection prior to award (whether or not same was actually conducted), and (ii) the Contractor has given the notice required in (a) above and met all requirements in **ARTICLE 2.05, EXTENSIONS OF TIME**.

C (c) The requirements of **ARTICLES 4.04, CHANGE ORDER PROCEDURE AND BASIS FOR PAYMENT, AND 4.05, EXTRA WORK DIRECTIVE,** concerning equitable adjustments for compensation for Extra Work shall apply to any change under this Article for differing site conditions. No claim by the Contractor for an equitable adjustment hereunder shall be allowed if asserted after final payment under this Contract.

ARTICLE 1.07 CONSENT OF AUTHORITY REQUIRED FOR SUBLETTING OR ASSIGNMENT

If the Contractor assigns, transfers, conveys, sublets, or otherwise disposes, of this Contract or its right, title or interest in or to the same or any part thereof without the previous consent in writing of the Authority, such action shall be an Event of Default under **ARTICLE 7.01, EVENT OF DEFAULT**. Nothing herein shall either restrict the right of the Contractor to assign monies due or to become due pursuant to Section 9-318 of the New York State Uniform Commercial Code or be construed to hinder, prevent or affect any assignment by the Contractor for the benefit of his creditors, made pursuant to applicable law.

ARTICLE 1.08 SUBCONTRACTS

A Any Subcontractor or Supplier which required and received pre-award approval in accordance with the paragraph entitled **BIDDER'S QUALIFICATIONS/RESPONSIBILITY** in the **INFORMATION FOR BIDDERS** must be utilized by the Contractor for the portion of the Work for which they were approved. The Authority will generally not entertain any post-award substitutions of any such Subcontractor or Supplier in the absence of compelling circumstances to do so.

B To the extent that approval of a Subcontractor or Supplier would be required by the **INFORMATION FOR BIDDERS**, but was not secured prior to Contract Award, then Contractor must obtain Authority approval prior to utilizing any such Subcontractor or Supplier. The Authority shall review requests for approval in accordance with the criteria and requirements set forth in the **INFORMATION FOR BIDDERS**. If a proposed Subcontractor or Supplier is not approved, the Contractor may propose another Subcontractor or Supplier, or, if it chooses to perform such portion of the Work itself, Contractor should so notify the Engineer. In addition, the Contractor shall apprise the Engineer of the addition, deletion or substitution of any Subcontractor or Supplier it proposes to make, including pertinent information or reasons(s) therefor. The Authority reserves the right to disapprove such proposed Subcontractor or Supplier for reasonable cause.

C Regarding any Subcontractor or Supplier, whether approved prior to or after the Award Date, or whether approval is required, the Contractor shall fully inform the Subcontractor of all provisions and requirements of this Contract relating either directly or indirectly to the work to be performed and the materials to be furnished under such subcontract agreement or purchase agreement and the agreement shall expressly stipulate that labor performed and/or equipment/materials furnished shall comply with the requirements of the Contract. The agreement between the Contractor and each Subcontractor/ Supplier shall contain terms and conditions that are in accordance with applicable law regarding payments by contractors, and unless proscribed by law, such agreements between Contractor and Subcontractor/Supplier relating to payment and retainage shall be no less favorable to the Subcontractor/Supplier than are those with respect to the Contractor as set forth in this Contract. Approval of any Subcontractor or Supplier by the Authority shall not operate as a waiver of any right against the Contractor or third parties nor shall it relieve the Contractor of any of its obligations to perform the Work as herein set forth.

D Each of the foregoing provisions shall be applicable to any further subletting of any part of the Work by a subcontractor to another subcontractor and, for the purposes of this **ARTICLE**, upon such further subletting, the subcontractor of the first tier shall be deemed the Contractor.

ARTICLE 1.09 PRELIMINARY OCCUPANCY

The Authority reserves the right at all times to deliver, place and install furnishings and equipment in the Project as the Work progresses, as long as there is no interference with the Contractor. Such preliminary occupancy shall in no event be construed as Substantial Completion or Beneficial Use; however, where the Authority is occupying a portion of the Work (which had not been contemplated by the Parties to be co-occupied during the performance of the Work), the Authority will be responsible for damage or loss to such portion of the Work caused by the Authority's preliminary occupancy.

ARTICLE 1.10 ACCURATE PRICING DATA AND NO FALSE /FRAUDULENT SUBMITTALS

A GENERAL REQUIREMENTS AND CRIMINAL PENALTIES

1 All submittals and/or requests by Contractor, on behalf of itself and any Subcontractor or Suppliers, in connection with requests for extension of time, compensation for Extra Work, claims submitted in accordance with Article 8.03, DISPUTES RESOLUTION PROCEDURE, as well as all other documents or submissions related to the Contract, shall be made in good faith and with full, accurate and complete supporting documentation and shall not be misleading, false or fraudulent. The Contractor is advised that the submission of false or fraudulent documentation in connection with claims or requests for extensions of time or for monetary compensation may result in criminal penalties.

2 Any request for an extension of time or monetary compensation, whether for Extra Work or in settlement of a claim, must be submitted with adequate supporting documentation. Any deliberate failure or refusal on the Contractor's part to provide adequate supporting documentation accompanying a submittal shall be deemed to be an act of bad faith on the part of the Contractor. In the event that the Contractor submits a request which the Authority determines to have been misleading, false, fraudulent or submitted in bad faith, then the request shall be rejected in its entirety and any offer or settlement whether proposed or actual shall be rescinded.

3 Any cost or pricing submission by Contractor directly or on behalf of any Subcontractor or Supplier, including claimed profit or overhead fees, shall be complete, accurate and current. In the event that any such entity furnishes costs or pricing data that is not accurate, and thereby increases the cost to the Authority associated with the submission, the price, cost or claim settlement shall be reduced accordingly, and the Contract shall be modified to reflect the reduction.

B RECOVERY BY AUTHORITY OF ITS COSTS

Notwithstanding anything to the contrary otherwise contained in **ARTICLE 8.03, DISPUTES RESOLUTION PROCEDURE**, claims by the Authority for violations of this Article shall be adjudicated by a New York State or federal court of competent jurisdiction. In the event of a determination by such court that the Contractor has violated the terms of this provision, the Authority shall be entitled to recover its costs in connection with its review, consideration or response to any such submittal and/or defense of any such claim or dispute. Such costs shall generally be computed in accordance with the Authority's "Schedule of Rates for Services Rendered to Outside Parties" in effect at the time such costs are incurred. Where such Schedule does not cover the type of services in question or its use is otherwise inappropriate in the judgment of the Engineer, the costs shall be computed as directed by the Engineer. Nothing contained in this paragraph shall be deemed to limit or impair any other rights or remedies of the Authority under the Contract.

ARTICLE 1.11 CONFIDENTIAL INFORMATION, APPROVAL FOR PUBLICATION OF REPORTS AND PRESS RELEASES

A. CONFIDENTIAL INFORMATION

1. For purposes of this Article, the term "Contractor" shall be deemed to include its principals, members, directors, officers and employees, and shall also be deemed to include its Subcontractors, Suppliers, consultants and agents, as well as their principals, members, directors, officers, employees, agents and consultants. The Contractor and the above-mentioned individuals or entities shall keep confidential all information furnished to it (them) by the Authority or otherwise learned or derived by it (them) about or in connection with this Project, any other MTA/Authority project or contract or MTA/Authority policies, procedures, operations, or infrastructure ("Confidential Information"). Confidential Information includes, but is not limited to, specifications, drawings, plans, diagrams, sketches, renderings and other technical data and information, as well as all designs, maps, surveys, design calculations, shop drawings, charts, photographs (including "progress photographs") and CADD materials and media. Confidential Information pertaining to this Project may only be utilized in connection with such Project and by individuals who, in fact, have a "need to know" the contents of such Confidential Information, and must be appropriately safeguarded by the Contractor from disclosure to anyone who is not so authorized by the Authority to have access thereto.

2. Neither the Contractor nor any of the above-mentioned individuals or entities may sell, transfer, disclose, display or otherwise make available to anyone any part of such Confidential Information without the prior written consent of the Authority.

3. The Contractor and the above-mentioned individuals or entities shall not and hereby represent and warrant that it/they will not (nor will it/they through an agent or third party), unless agreed to in writing by the Authority: (i) send, ship, mail, deliver, email or otherwise transmit in or by any fashion whatsoever (whether manually, by machine, by facsimile or other electronic or digital technology or by other technology or method), or (ii) enter into or issue an agreement, subcontract or other instrument to send, ship, mail, deliver, email or otherwise transmit in or by any fashion whatsoever (whether manually, by machine, by facsimile or other electronic or digital technology or by other technology or method), any such Confidential Information in any form or by any means (and if in electronic form, for any such Confidential Information to be transmitted to or reside in a computer or electronic device located) outside of the United States.

4. The Contractor shall advise each of its employees, agents, consultants, Subcontractors and Suppliers who may be exposed to such Confidential Information of their obligation to maintain the confidentiality thereof. In addition, the Contractor agrees to cooperate fully and provide any assistance necessary to ensure the confidentiality of the Confidential Information.

5. At any time during the term of this Contract, the Contractor shall forthwith deliver to the Authority any and all media containing any Confidential Information as the Authority shall request. The special confidentiality obligations as set forth in this Article shall continue

until specifically released by the Authority in writing, except where release thereof has been finally ordered by a court of competent jurisdiction.

6. The Contractor and the above-mentioned individuals or entities hereby represent and warrant that at the conclusion of the Project or upon its termination, any Confidential Information that is to be retained by it/them for archival/audit/legal purposes shall be certified as such and shall be maintained in a secure facility, and that it/they shall maintain care, custody and control over any and all media containing any Confidential Information while in such secure facility and until any and all media containing the Confidential Information are either returned to the Authority or destroyed as provided in paragraph 7., below.

7. Except as provided in paragraph 6, above, at the conclusion of the Project or upon its termination, unless otherwise instructed in writing by the Authority, the Contractor and the above-mentioned individuals or entities shall destroy its/their copies of any and all media containing all Confidential Information such that recognition or reconstruction of the Confidential Information is precluded. Unless otherwise permitted by the Authority, cross-cut shredding of hardcopy items, physical destruction of diskettes, floppies, CDs, DVDs, and any other recordable media, deleting of electronic items by permanent deletion or non-retrievable/irreversible placement in delete-overwrite status are the Authority's required methods of such destruction with respect to documents or materials containing Confidential Information which the Authority has instructed are to be destroyed.

8. In the event the Contractor or any of the above-mentioned individuals or entities learns or believes that Confidential Information has been released or believes that Confidential Information is about to be released, the Authority shall be notified immediately.

B. Approval for Publication of Reports

The Contractor and the above-mentioned individuals or entities shall neither publish nor circulate in any form or media any Confidential Information or any reports, studies, analyses, recommendations, or any other materials of whatsoever nature prepared by the Contractor or any of the above-mentioned individuals or entities, without first obtaining the written approval of the Authority.

C. Press Releases

To the fullest extent permitted by law, the Contractor and the above-mentioned individuals or entities agree(s) that it/they will not issue any news release to the public press or any publication wholly or partly related to its/their work under this Contract without first obtaining the written approval of the Authority. The Contractor and the above-mentioned individuals or entities further agree(s) that it/they will not make speeches, engage in public appearances, publish articles or otherwise publicize its work under this Contract without the prior written approval of the Authority.

D. Violations of this Article

Breach of any of the foregoing provisions may be deemed by the Authority to be a material breach of the Contract. It is understood and agreed that in the event of any such breach by the

Contractor of these provisions, damages may not be an adequate remedy and the Authority shall be entitled to injunctive relief to restrain any such breach or threatened breach.

E. Requirements Pertaining to Security-Sensitive Information

If so indicated in the Contract Documents that this Contract contains Authority or MTA security-sensitive information, the Contractor understands and agrees that nothing contained in this Article shall be deemed to supersede any inconsistent requirements or provisions contained elsewhere in the Contract Documents pertaining to such Authority or MTA security-sensitive information. In the event of a conflict between provisions or requirements contained in this Article and those elsewhere in the Contract Documents pertaining to such Authority or MTA security-sensitive information, the more stringent provision or requirement shall be deemed to apply.

CHAPTER 2

PROVISIONS RELATING TO TIME

ARTICLE 2.01 TIME FOR COMMENCEMENT AND COMPLETION OF WORK

The Contractor shall begin the Work within ten (10) days after the date of the Notice of Award, and shall thenceforth prosecute the Work continuously and diligently. The Contractor shall within

(See **INFORMATION FOR BIDDERS DATA SHEET**)

from the date of the Notice of Award substantially complete the Work as set forth in **ARTICLE 2.02, SUBSTANTIAL COMPLETION AND FINAL COMPLETION**. The conclusion of this period of time, as it may be extended under **ARTICLE 2.05, EXTENSION OF TIME**, shall be the "Substantial Completion Date."

ARTICLE 2.02 SUBSTANTIAL COMPLETION AND FINAL COMPLETION

A. Substantial Completion shall be declared by the Engineer upon his determination that all Work, except for Remaining Work, as defined in ARTICLE 1.02, DEFINITIONS, is complete and fit for its intended purpose. Among the items upon which the issuance of a Certificate of Substantial Completion is contingent include but are not limited to: (i) the testing and approval by the Engineer of all operating systems, including but not limited to mechanical and electrical systems and their component parts; (ii) the submission of all final operation and maintenance manuals approved by the Engineer; (iii) submission of final as-built drawings for the work approved by the Engineer; (iv) submission of all other remaining deliverables approved by the Engineer, unless expressly not required to be approved prior to Substantial Completion; and (v) completion of all required training of Authority personnel and submission of all required training materials.

B. When the Contractor is of the opinion that the Work is Substantially Complete, Contractor may submit to the Engineer a written request that the Engineer inspect the Work so as to determine whether Substantial Completion has been achieved. Upon such request, the Authority must respond within twenty-five (25) days of its receipt with either (i) a Certificate of Substantial Completion or (ii) an explanation of the reasons why the Work is not Substantially Complete, including a list of open items necessary to achieve Substantial Completion. The issuance of this Certificate shall not relieve the Contractor from its obligation hereunder to complete the work. Nothing in this Article precludes the Engineer from making a determination of Substantial Completion in the absence of a request therefor by the Contractor.

In the event any portion of the Work is set forth in the Special Conditions as subject to a Beneficial Use certification, then the procedure set forth above for issuance of a Certificate of Substantial Completion shall be used, i.e., the Engineer shall respond to such request within twenty-five (25) days of its receipt with either (i) a "Beneficial Use Certification" identifying the applicable portions of the Work so certified and a punch list, or (ii) an explanation of the reasons why the Beneficial Use Certification cannot be issued, including a list of open items necessary to achieve Beneficial Use.

C. The work remaining after Substantial Completion to complete the Work shall be known as the "Remaining Work." The Remaining Work shall be limited to "Punch List Work," except the Engineer may, in his sole discretion, include the following types of work as part of Remaining Work (i) street restoration and permanent pavement work which cannot be done because of seasonal factors such as cold weather (provided sufficient temporary pavement is complete); (ii) work which cannot be done until the Authority or third persons perform other work which is not the Contractor's responsibility under the Contract; and (iii) work necessary to correct any omission or defect attributable to the Contractor whether or not discovered or discloses after Substantial Completion has been declared. The Engineer shall issue a Remaining Work list within ten (10) days of the issuance of the Certificate of Substantial Completion.

D. Contractor shall submit a schedule for the completion of the Remaining Work to the engineer within ten (10) days of receipt of the Remaining Work list. The Engineer shall advise the Contractor whether the schedule has been accepted or requires certain modifications. The time set by the Engineer to complete Punch List Work shall be no more than ninety (90) days from the issuance of the Certificate of Substantial Completion. When in the opinion of the Engineer the Remaining Work is properly complete, the Engineer shall issue a Final Completion Certificate.

In the event of an emergency or that Contractor fails to diligently prosecute the Remaining Work or Punch List Work in connection with Substantial Completion or Beneficial Use, the Authority may complete such Remaining Work or Punch List Work, either by its own forces or by other contractors and deduct the Authority's costs thereof from the Final Payment. If such costs exceed the amount available from the Final Payment, the Contractor shall immediately upon demand pay such excess to the Authority.

E. Upon Substantial Completion, the Contractor shall remove its tools, materials and equipment from the Work Site, except for the tools, materials and equipment needed to complete the Remaining Work, or unless otherwise authorized in writing by the Engineer.

ARTICLE 2.03 CONTRACTOR'S DETAILED SCHEDULE OF WORK

A. The Contractor shall schedule the Project in accordance with the technical requirements set forth in the applicable section of the **SPECIFICATIONS** (see **INFORMATION FOR BIDDERS DATA SHEET**). The Contractor shall have broad discretion in scheduling the Project. The Authority's basis for its rejection of any Schedule Document, including any changes in critical path method logic, durations, staffing, quantities or costs submitted pursuant to this **ARTICLE**, shall generally be limited to a determination that the Schedule Document lacks logic, is unreasonable, is incomplete may create unsafe working conditions, or is inconsistent with any other contractual requirement, such as a phasing plan, or with available Authority services (as described in the relevant provisions of the Specifications.)

B. With respect to any submission by the Contractor under this **ARTICLE**, no review or acceptance by the Engineer shall release or relieve the Contractor from its obligation to fully and properly complete the Work, or any other duty, responsibility or liability imposed on it under this Contract, including, but not limited to the obligation to complete the Work within the time set forth in **ARTICLE 2.01, TIME FOR COMMENCEMENT AND COMPLETION OF WORK.**

Review and acceptance by the Engineer of Contractor's project schedule and updates is for conformance to the requirements of the Contract only, and does not relieve the Contractor of any of its responsibility whatsoever for the accuracy or feasibility of the project schedule, or of the Contractor's ability to meet the Substantial Completion date, nor does such review and acceptance expressly or implied warrant, acknowledge or admit the reasonableness of the logic, durations, staffing, costs or equipment loading of the Contractor's project schedule and updates, nor may it be deemed to constitute notice to the Authority as required by law or by ARTCLE 1.03, NOTICES.

C. Contractor shall submit to the Engineer for review and acceptance any changes in critical path method logic, staffing quantities, costs and/or durations in accordance with the applicable section of the specifications setting forth the scheduling requirements.

D. Neither the inclusion of changes into a Schedule Document (whether to the initial or base-line schedule or any updates thereto) by the Contractor nor the acceptance or acquiescence in, by the Engineer thereof, shall be construed as constituting extensions of time to the Contract duration as set forth in ARTICLE 2.01, TIME FOR COMMENCEMENT AND COMPLETION OF WORK. Such changes are deemed to be for the purpose of keeping the schedule up-to-date in order to reflect the work to be accomplished and to include the best time estimate for work yet to be completed.

E. The Schedule Document must be submitted to the Engineer in proper form and in a timely manner, as required by this Article and the applicable section of the Specifications. Receipt by the Engineer of the required Schedule Document in conformance with all contractual requirements shall be a condition precedent to the Contractor's entitlement to any payment which may otherwise be due.

F. In the event that the Contractor submits, and the Engineer accepts, a Schedule Document calling for a shorter Substantial Completion of the Project, or shorter intermediate milestones (in the case where the Contract Documents so provide), than that set forth in ARTICLE 2.01, TIME FOR COMMENCEMENT AND COMPLETION OF WORK, the accepted shorter Substantial Completion or intermediate milestone date(s) shall be utilized in the Project schedule, however, it will not affect the contractual Substantial Completion date(s) stated thereunder.

The time period between the shorter Substantial Completion or milestone date(s) and the contractual Substantial Completion or milestone date(s) shall be considered project float available to offset delays by either party. The entitlement to Impact Costs or the assessment of Liquidated Damages shall continue to be measured by the contractual Substantial Completion or milestone date(s).

G. In the event that an updated Schedule Document is not timely submitted by the Contractor or is determined by the Engineer to be grossly inadequate, the Authority may, in its discretion and for its own internal use, update the Schedule Document with its own forces or through a consultant/contractor and charge the Contractor the costs thereof, provided, however, that this shall not relieve the Contractor of its obligation to submit such updated Schedule Document.

ARTICLE 2.04 AUTHORITY DAMAGES IN CASE OF DELAY

A. Time is of the essence of this Contract. The Contractor is firmly obligated and guarantees to meet the stipulated completion date(s). In the event of a delay in Substantial Completion beyond the Substantial Completion Date, as such time may be extended by the Authority as hereinafter provided in this Chapter, the Authority shall be paid damages for such delay. Inasmuch as the amount of such damages and the loss to the Authority will be extremely difficult to ascertain, it is hereby expressly agreed that such damages will be liquidated and paid as follows:

The Contractor shall pay to the Authority for each and every day of the aforementioned delay, except Sundays and legal holidays, the sum of

(See **INFORMATION FOR BIDDERS DATA SHEET**)

which sum is hereby agreed upon not as a penalty but as liquidated damages.

B. The Authority shall have the right to deduct liquidated damages assessments from any monies due or which may thereafter become due to the Contractor under this Contract; and in case the amount which may become due hereunder shall be less than the amount of liquidated damages due to the Authority, the Contractor shall pay the difference upon demand by the Authority.

ARTICLE 2.05 EXTENSION OF TIME

A. In the event that the Contractor is actually and necessarily delayed in the progress of the Work to the extent that the delay will extend the Substantial Completion date as a result of: (i) the act, neglect or failure of the Authority, another Authority Contractor, a utility or governmental entity (which act, neglect or failure occurs for reasons outside of the Contractor's control), or (ii) a differing site condition within the meaning of **ARTICLE 1.06, DIFFERING SITE CONDITIONS**; or (iii) a Force Majeure, the Authority will extend the Substantial Completion Date (or intermediate milestone date in the case where provided for in the Contract Documents) provided that the following conditions are met:

1. the cause of the delay arises after the Contractor's receipt of the Notice of Award and neither was nor could have been anticipated by the Contractor before such Notice is received;

2. the delay is affecting an item(s) on the critical path as indicated in a current updated Schedule Document;

3. the effect of such cause of delay cannot be avoided or mitigated by the exercise of all reasonable precautions, efforts and measures, including changes to the sequencing of the work, whether before or after the occurrence of the cause of delay; and

4. the Contractor makes a written request and provides other information to the Authority as described in this **ARTICLE**.

A delay meeting all the conditions of this paragraph (a) shall be deemed an Excusable Delay. Any other delay shall be deemed a non-excusable delay. A "Concurrent Delay" shall be the

period of delay during which an Excusable Delay overlaps with a non-excusable delay. Notwithstanding any provision of **ARTICLE 2.07, CONTRACTOR'S DAMAGES FOR DELAY** to the contrary, during (i) a Concurrent Delay, or (ii) an Excusable Delay which arose because of the action or lack thereof of another Authority Contractor or of a utility or governmental entity for reasons outside of the Contractor's control, then while Contractor shall be entitled to an extension of time, it shall not be entitled to seek Impact Costs associated with such Concurrent or Excusable Delay.

B. In regard to an injunction, strike or interference of public authority which may delay the Project, the Contractor shall promptly give the Authority a copy of the injunction or other orders and copies of the papers upon which the same shall have been granted. The Authority shall be accorded the right to intervene or become a party to any suit or proceeding in which any such injunction shall be obtained and to move to dissolve the same or otherwise, as the Authority may deem proper.

C. Any reference in this **ARTICLE** to the Contractor shall be deemed to include materialmen, suppliers and permitted subcontractors, whether or not in privity of contract with the Contractor. The provisions of this **ARTICLE** shall be included in all material, supply and subcontractor agreements entered into by the Contractor.

D. The Authority reserves the right to rescind or shorten any extension previously granted, if subsequently, the Authority determines that any information provided by Contractor in support of a request for an extension of time was erroneous; provided however, that such information or facts, if known, would have resulted in a denial of the request for an Excusable Delay. Notwithstanding the above, the Authority will not rescind or shorten any extension previously granted if the Contractor acted in reliance upon the granting of such extension and such extension was based on information which, although later found to have been erroneous, was submitted in good faith by the Contractor.

E. The request required under paragraph (a) above, shall be made within ten (10) days after the time when Contractor knows or should have known any cause for which it may claim an extension of time and shall provide any actual or potential basis for an extension of time, identifying such cause and describing, to the satisfaction of the Engineer, the nature and expected duration of the delay and its effect on the completion of that part of the Work identified in the request. The Contractor shall furnish such additional information or documentation as the Authority shall reasonably deem necessary or helpful in considering the requested extension within fifteen (15) days, unless otherwise agreed to in writing by the Authority. The Contractor must also comply with requirements set forth in the Specifications regarding Contractor's Schedule Document. Contractor shall not be entitled to an extension of time unless the Contractor affirmatively demonstrates to the satisfaction of the Authority, that it is entitled to such extension.

F. Within thirty (30) days of its receipt of all such information and documentation (or within thirty (30) days of Contractor's filing of the original request in the event the Authority requires no such additional material) the Authority shall advise the Contractor of its decision on such requested extension; except that, where it is not reasonably practicable for the Authority to render such decision in the thirty (30) day period, it shall, prior to the expiration of such period, advise the Contractor that it will require additional time and the approximate date upon which

it expects to render such decision.

G. Neither the permitting of the Contractor to proceed with the Project subsequent to the date specified in **ARTICLE 2.01, TIME FOR COMMENCEMENT AND COMPLETION OF WORK** (as such date may have been extended pursuant to this ARTICLE), the making of any payments to the Contractor, nor the issuance of any Change Order, shall operate as a waiver on the part of the Authority of any rights under this Contract, including but not limited to the assessment of liquidated damages or declaring Contractor in default.

H. In the event of an Excusable Delay to the Substantial Completion Date, the Authority reserves the right, at any time, to direct the Contractor to accelerate the performance of the Work so as to eliminate or reduce the projected delay. Any revision to the projected completion date that may result from such an acceleration directive shall become the new Substantial Completion Date.

I. The Contractor shall be compensated for additional costs incurred as a result of acceleration in accordance with the terms of **ARTICLES 4.03, EXTRA WORK; 4.04, CHANGE ORDER PROCEDURE AND BASIS FOR PAYMENT; AND 4.05, EXTRA WORK DIRECTIVE**. In no event shall the Contractor be entitled to any additional compensation, beyond that provides for in the aforesaid articles, for any acceleration efforts.

J. Nothing in this paragraph shall be construed to modify the Contractor's obligation to mitigate delay pursuant to **PARAGRAPH A** of this **ARTICLE**, or otherwise create a basis for compensation for reasonable mitigation efforts.

ARTICLE 2.06 EXTENSION OF TIME NOT CUMULATIVE

In case the Contractor shall be delayed at any time or for any period by two or more of the causes above-mentioned in **ARTICLE 2.05, EXTENSION OF TIME, PARAGRAPHS A AND B**, the Contractor shall not be entitled to a separate extension for each one of the causes but only one period of extension shall be granted for the delay.

ARTICLE 2.07 CONTRACTOR'S DAMAGES FOR DELAY

A. Except as otherwise specifically provided for in this **ARTICLE**, the Contractor agrees to make no claim for compensation or damages for delay of any kind in the performance of this Contract on behalf of itself, subcontractors or suppliers whether occasioned by any act or omission of the Contracting Party or the Authority or any of their representatives (whether it is an Excusable Delay within the meaning of **ARTICLE 2.05**, **EXTENSION OF TIME**, or otherwise) and Contractor agrees that any such claim shall be compensated for solely by an extension of time to complete performance of the Work as provided therein. In this regard, the Contractor alone hereby specifically assumes the risk of such delays, including without limitation: delays in processing or approving shop drawings, samples or other submittals; or the failure to render determinations, approvals, replies, inspections or tests of the Work, in a timely manner. Notwithstanding any provision of subparagraph (b) below, Contractor shall not be entitled to compensation or damages for delay of any kind relating to the delay of an intermediate milestone date (if such date(s) are provided for in the Contract Documents).

B. In the event of an Excusable Delay associated with the Authority's failure to provide access to the Work Site, issuance of a Change Order, or issuance of a Stop Work Order pursuant to **ARTICLE 2.08, STOP WORK ORDERS**, and as a result of any of the foregoing, the Contractor demonstrates that it will be actually and necessarily delayed in meeting the Scheduled Substantial Completion Date, the Contractor shall be entitled to Impact Costs, to the extent, if any, hereinafter set forth. However, the parties acknowledge that any failure or delay (whether with respect to the number, duration, timing, availability or other aspect of Authority-provided services) by the Authority to in providing a service such as, but not limited to, access and protection personnel, flagging staff, inspectors, diversions or work trains shall not constitute a failure to provide access to the Work Site and therefore is not subject to an assessment of Impact Costs.

C. Impact Costs shall only be allowed for periods of the above-mentioned types of Excusable Delays which are not concurrent with any other non-Excusable Delays, or other Excusable Delays which do not give rise to Impact Costs, and which are actually, reasonably and necessarily incurred and verifiable by appropriate documentation. Contractors claiming impact costs for delays affecting a Subcontractor shall provide proof of a pre-existing liability to that Subcontractor for the costs claimed.

D. Impact Costs shall include only the following:

1. Increased wages attributable to work being performed by trades in a higher wage period.

2. Increased field office expenses.

3. Increased cost to purchase materials.

4. Increased cost to store materials, to the extent that the Contractor can demonstrate that such storage is specific to this Project.

5. Cost incurred to keep the Work Site open, such as temporary power and sanitary facilities.

6. Extended insurance and bonding.

7. With respect to rented equipment, the lesser of the actual rental cost or the reasonable rental value (as reflected in the latest edition of the "Rental Rate Blue Book" published by K-III Directory Corp.) for idled equipment on the Work Site. With respect to owned heavy construction equipment, the additional cost of maintaining the equipment consistent with (and in an amount not to exceed) the price schedule set forth in the latest edition of the "Contractor's Equipment Cost Guide" as published by Dataquest/Dun & Bradstreet.

E. In no event will the Authority be required to pay Impact Costs, nor is the Authority liable under this Contract for sums, which are in the nature of consequential damages, decreased productivity or efficiency, profits or indirect costs (such as Contractor's home office overhead and general and administrative expenses including claims preparation). Acceptance by the Contractor of any payments made by the Authority in connection with this Article shall serve as a release to

the Authority and Contracting Party from all claims and liability to the Contractor arising out of such delay.

F. The Contractor shall have no right to rescind or terminate this Contract, and Contractor shall have no cause of action under any theory of quasi-contract or quantum meruit by reason of any delay, obstruction, or interference of any kind or duration whatsoever, and whether or not compensable hereunder.

ARTICLE 2.08 STOP WORK ORDER

A. The Authority may, at any time, by written order to the Contractor, require the Contractor to stop all, or any part, of the Work for a period of ninety (90) days (or any lesser period), commencing no sooner than the date the order is delivered to the Contractor, and for any further period to which the parties may agree. Any such order shall be specifically identified as a "Stop Work Order" issued pursuant to this Article. Within the period of ninety (90) days (or the lesser period specified) after a Stop Work Order is delivered to the Contractor, or within any extension of that period to which the parties shall have agreed, the Authority shall:

1. cancel the Stop Work Order, or

2. terminate the Contract as provided in **ARTICLES 2.09, TERMINATION FOR CONVENIENCE BY THE AUTHORITY** or in **2.10**, **TERMINATION FOR CONVENIENCE - INTEGRITY MATTERS**, or

3. delete the Work covered by such Stop Work Order as provided in **ARTICLE 4.06, DELETED WORK**.

B. If a Stop Work Order issued under this **ARTICLE** is cancelled or the period of the order or any extension thereof expires, the Contractor shall resume work without compensation to the Contractor for such suspension other than:

1. extending the time for the Contract Completion Date to the extent that, in the opinion of the Engineer, the Contractor may have been delayed by such suspension; and

2. Impact Costs as described in **ARTICLE 2.07, CONTRACTOR'S DAMAGES FOR DELAY**;

except that in the event the Engineer determines that the suspension of work was necessary due to Contractor's defective or incorrect work, unsafe work conditions caused by the Contractor or any other reason caused by Contractor's fault or omission, the Contractor shall be entitled to neither compensation nor an extension of time of any nature as a result of the issuance of this Stop Work Order.

ARTICLE 2.09 TERMINATION FOR CONVENIENCE BY THE AUTHORITY

In addition to cancellation or termination as otherwise provided in the Contract Documents, the Authority (as agent for the Contracting Party) may at any time, in its sole discretion, with or without

cause, terminate this Contract by written notice to the Contractor and in such event:

A. The Contractor shall, upon receipt of such notice, unless otherwise directed by the Authority:

1. stop work on the date specified in the notice ("the Effective Date");

2. take such action as may be necessary for the protection and preservation of the Authority's materials and property;

3. cancel all cancelable orders for material and equipment;

4. assign to the Authority and deliver to the site or any other location designated by the Engineer any non-cancelable orders for material and equipment that is not capable of use except in the performance of this Contract and has been specifically fabricated for the sole purpose of this Contract and not incorporated in the Work;

5. take no action which will increase the amounts payable by the Authority under this Contract; and

6. take reasonable measure to mitigate the Authority's liability under this **ARTICLE**.

B. In the event that the Authority exercises its right to terminate the Contract pursuant to this **ARTICLE**, the Authority will pay the Contractor:

1. its actual cost or the fair and reasonable value, whichever is less, of (i) the portion of the Work completed in accordance with the Contract up to the Effective Date, and (ii) non-cancelable material and equipment that is not capable of use except in the performance of this Contract and has been specifically fabricated for the sole purpose of this Contract but not incorporated in the Work; and

2. ten percent (10%) of the difference between the Total Contract Price and the aggregate of all payments made apart from those due pursuant to sub-paragraph (b)1. above.

C. The fair and reasonable value shall be based upon Total Contract Price. In no event shall any payments under this **ARTICLE** exceed the contract price of such items.

D. The amount due hereunder shall be offset by all payments made to the Contractor.

E. All payments pursuant to this Article shall be accepted by the Contractor in full satisfaction of all claims against the Contracting Party and the Authority arising out of the termination including, without limitation, lost profits, overhead or other consequential damages. Further, the Authority may deduct or set off against any sums due and payable pursuant to this **ARTICLE** any claims it may have against the Contractor. All payments pursuant to this Article are subject to audit.

ARTICLE 2.10 TERMINATION FOR CONVENIENCE - INTEGRITY MATTERS

The Authority at its discretion may terminate the Contract for convenience based on integrity matters if, during the Contract term: (i) the Contractor, a Contractor director, officer, principal, or managerial employees or owner of a ten percent (10%) or more interest in the Contractor, is convicted of a crime involving a public contract; or (ii) significant concerns about the Contractor's integrity are raised based upon an evaluation of the events underlying any other determination, or an indictment or other allegation, that the Contractor or a Contractor's director, officer, principal, or managerial employee, or owner of a ten percent (10%) or more interest in the Contractor, is involved in a criminal or other unlawful activity. In such event, the procedures set forth in Paragraph A of **ARTICLE 2.09, TERMINATION FOR CONVENIENCE BY THE AUTHORITY**, above, shall apply, and the Contractor shall be entitled to the payment set forth in Paragraph B.1 of such **ARTICLE 2.09**, but the Contractor shall not be entitled to any payment as set forth in Paragraph B.2. of such **ARTICLE 2.09**.

CHAPTER 3

PRICE AND PAYMENTS

ARTICLE 3.01 PRICE TO INCLUDE

The Authority shall pay and the Contractor shall accept the amounts set forth in the Price Schedule of the Bid as full compensation for all costs and expenses of completing the Work in accordance with the Contract, including, but not limited to, all labor and material required to be done or furnished under this Contract; all overhead, expenses, fees and profits including the cost of providing storage yard or facilities; all risks and obligations set forth in the Contract; any applicable fees or taxes; and all expenses due to any unforeseen difficulty encountered in the prosecution of the Work, except as otherwise expressly set forth in **ARTICLE 1.06**, **DIFFERING SITE CONDITIONS**.

ARTICLE 3.02 VARIABLE QUANTITIES CLAUSE

With respect to any unit price item as to which an estimated quantity is set forth in the Bid, such unit price shall apply regardless of the actual quantity of such item ultimately utilized in, or required by, the Work; except that, if the actual quantity for a unit price item differs from the estimated quantity in the Price Schedule by more than ten percent (10%), then the Engineer shall review whether application of the Unit Price would cause a substantial inequity to either party, and, if so, the Unit Price for such item will be equitably adjusted, upward or downward, as determined by the Engineer.

ARTICLE 3.03 DETAILED COST BREAKDOWN FOR LUMP SUM ITEMS

Not later than thirty (30) days from the Notice of Award, the Contractor shall submit to the Engineer, for approval, quintuplicate copies of a detailed cost breakdown of all items of work, labor and materials included in the following lump sum Items:

(See **INFORMATION FOR BIDDERS DATA SHEET**)

The cost breakdown for each lump sum Item ("DCB Price") shall include its proportionate share of overhead, profit, premium on bond, insurance and all other expenses involved. The quantities and unit prices shall be extended to show the total amount for each item of work and the sum of these amounts shall total in each case the exact amount of the lump sum price(s) for the Item. The following non-construction items and associated cost are to be identified as separate line items in the detailed cost breakdown: CPM Schedule Documents and updates, operation and maintenance manuals, testing, training, as-built drawings and microfilm. The DCB Prices shall be in proper balance and shall be subject to approval by the Engineer. The Contractor shall revise the detailed estimate, if necessary, to make it consistent with the approved CPM or Bar Chart, as applicable.

ARTICLE 3.04 PROMPT PAYMENT

A. All payments will be made pursuant to Section 2880 of the Public Authorities Law (the "Prompt Payment Law") and the MTA's implementing rules, officially called the Statement of Rules and Regulations With Respect To Prompt Payment (the "Prompt Payment Statement"). Any terms used in this chapter which are not defined herein, shall have the meanings ascribed

in the Prompt Payment Statement. The Prompt Payment Statement is codified in Volume 21 of the New York Code of Rules and Regulations, Part 1002.

B. In accordance with the Prompt Payment Statement, all payments will be made within thirty (30) days, excluding legal holidays, of the Receipt of Invoice, as defined for Progress Payments, Payment on Substantial Completion, and Final Payment, in **ARTICLES 3.05, PROGRESS PAYMENTS; 3.06, PAYMENT UPON SUBSTANTIAL COMPLETION; AND 3.07, PROVISIONS RELATING TO FINAL PAYMENT** respectively, subject to paragraphs below.

C. The Authority reserves the right to conduct an inspection or audit of any Preliminary Estimate, the Substantial Completion Payment Estimate and the Final Payment Estimate to verify that the amount to be paid is in accordance with the provisions of the Contract. The applicable "Receipt of Invoice" date under **ARTICLES 3.05, PROGRESS PAYMENTS; 3.06, PAYMENT UPON SUBSTANTIAL COMPLETION;** and **3.07, PROVISIONS RELATING TO FINAL PAYMENT** will be deemed extended ten (10) business days in the event the Authority elects to perform this function.

D. Notwithstanding anything to the contrary in the Contract, the thirty (30) day payment period in paragraph (b) above will be tolled as set forth below, whenever the audit or inspection reveals a defect in delivered materials or services, or suspected improprieties of any kind, which might include, but is not limited to, a determination by the Engineer that the Contractor is in breach of a material term of this Contract. In any such case, the date of "Receipt of Invoice" date shall be tolled to the date that acceptable goods or services are delivered or provided, or the date that the impropriety is resolved.

E. Interest for late payments hereunder shall be payable in accordance with the Prompt Payment Statement.

F. The Designated Payment Office shall mean the office of the Engineer as described in the Notice of Award which may be changed at any time by the Authority upon notification in writing to the Contractor.

ARTICLE 3.05 PROGRESS PAYMENTS

A. Progress Payments will be made periodically for the value of the work performed and for materials not incorporated into the Work in accordance with paragraph (c) of this Article. For a Progress Payment, the Receipt of Invoice shall mean the later of the dates that (i) the Preliminary Estimate is issued or (ii) the Supporting Documentation is received at the Designated Payment Office, as described respectively in paragraphs (b) and (d) below.

B. The following will constitute the procedure for the issuance of a Preliminary Estimate:

1. At the Contractor's request, but not more often than once a month, the Engineer and the Contractor shall perform a joint inspection of the Work and/or materials not incorporated into the Work. Upon completion of the joint inspection, the Engineer shall prepare the Preliminary Estimate based upon the Engineer's determination of the reasonable value of (i)

the work performed, including materials incorporated in the Work and (ii) materials meeting the requirements set forth in paragraph (c) below, which have not been included in any other Preliminary Estimate. The Engineer's determination shall be based upon the prices set forth in the Bid, or the detailed cost breakdown, as applicable. Where a detailed cost breakdown is required, the Preliminary Estimate shall not include any amount for work covered by a detailed cost breakdown which has not been approved by the Engineer. Notwithstanding the foregoing, a Preliminary Estimate will not be issued unless the total value is at least equal to $10,000.

2. The Contractor shall sign the Preliminary Estimate upon acknowledging thereon the items with which it agrees and which it disputes (including items omitted). The date the Contractor delivers to the Engineer such Preliminary Estimate (the "Preliminary Estimate Delivery Date"), shall be the date the Preliminary Estimate is issued for the amount agreed between the Engineer and the Contractor thereunder.

3. The amount in the Preliminary Estimate in dispute is subject to the disputes resolution provisions of **ARTICLE 8.03, DISPUTES RESOLUTION PROCEDURE**. The Preliminary Estimate Delivery Date shall also be deemed to be the date of Engineer's determination for purposes of that ARTICLE. If the Contractor prevails with respect to any disputed amount, then the Preliminary Estimate shall be deemed issued for such amount retroactive to the Preliminary Estimate Delivery Date.

C. The reasonable value or cost, whichever is less, of materials not yet incorporated in the Work, which are on the Work Site or off the Work Site, shall be included in a Preliminary Estimate, provided the conditions precedent set forth below are met. If such materials are stored off the Work Site, the Contractor agrees to pay any additional costs incurred by the Authority in connection with any inspection of such materials.

1. The Engineer determines that such materials appear to meet the requirements of the Specifications and are suitably stored and secured.

2. The Contractor submits to the Engineer (i) proof satisfactory to the Authority that Contractor has free and clear title to such materials, and (ii) the Contractor's representation that all such materials shall remain free and clear of and from all debts, claims, liens, mortgages, taxes and encumbrances.

3. If any such material is off the Work Site, the Authority may also require a lease of or license to use the real property where such materials are stored. Such lease shall be without cost to the Authority in form and substance satisfactory to the General Counsel to the Authority.

4. If any such materials are stored outside the City, the Contractor agrees to accept responsibility for and to pay all sales, compensation, use, personal and property taxes that may be levied against the Authority by any state or subdivision thereof on account of such material.

5. The Contractor, at its expense, shall transfer title to any such materials to be included in a Preliminary Estimate free and clear of and from all debts, claims, liens, mortgages, taxes and encumbrances by conveyance in form and substance satisfactory to the General Counsel

to the Authority.

6. For any materials included in a Preliminary Estimate which may subsequently become lost, damaged or unsatisfactory, the amount thereof as allowed by the Engineer shall be deducted from succeeding payments to the Contractor.

D. Supporting Documentation: The required supporting documentation for Progress Payments under this Contract, set forth below, shall be a condition precedent to the issuance of the payment to the related Preliminary Estimate.

1. Contractor's affidavit certifying that its Subcontractors and Suppliers have been paid the amount due to them for the work performed and materials furnished by each of them which were encompassed by any previous progress payments made to the Contractor.

2. Contractor's certification of compliance with the minimum wage rates and other provisions and stipulations in accordance with applicable law, where required.

3. Where this Contract calls for submittal and use of Schedule Documents, the Contractor's certification endorsed by the Engineer that it is in compliance with any provisions thereof which are listed as conditions precedent to payment.

4. Where this Contract requires reporting on progress toward fulfillment of MBE/WBE goal(s), the Contractor's certification that it is in compliance with any provisions thereof listed as conditions precedent to payment.

5. Any submission specified in paragraph (c) above with respect to materials not yet incorporated into the Work.

6. Any other document specified in the Contract as a condition precedent for purposes of Progress Payments.

ARTICLE 3.06 PAYMENT UPON SUBSTANTIAL COMPLETION

A. The "Receipt of Invoice" for the Payment on Substantial Completion shall mean the later of the date (i) the Substantial Completion Payment Estimate is issued, or (ii) the Supporting Documentation is received at the Designated Payment Office, as described respectively in paragraphs (b) and (c) below.

B. The Engineer shall, concurrently with the issuance of the Certificate of Substantial Completion, as provided in **ARTICLE 2.02, SUBSTANTIAL COMPLETION AND FINAL COMPLETION**, prepare a Substantial Completion Payment Estimate covering (i) the entire value of the work performed that has not been the subject of previous Progress Payments and is still due and owing to the Contractor; and (ii) the amount of retainage held pursuant to **ARTICLE 5.02, RETAINED PERCENTAGE**, less an amount equal to twice the value of any Remaining Work, as determined by the Engineer in accordance with that ARTICLE and less any other withholdings, reductions or set-offs permitted under the Contract.

1. The Contractor shall sign the Substantial Completion Payment Estimate upon acknowledging thereon the items which it agrees and disputes (including items omitted). The date the Contractor delivers to the Engineer such Substantial Completion Payment Estimate (the "Substantial Completion Estimate Delivery Date") shall be the date the Substantial Completion Payment Estimate is issued for the amount agreed between the Engineer and the Contractor thereunder.

2. The amount in the Substantial Completion Payment Estimate in dispute is subject to the disputes resolution provisions (**ARTICLE 8.03, DISPUTES RESOLUTION PROCEDURE**) of this Contract. The Substantial Completion Estimate Delivery Date shall also be deemed to be the date of Engineer's determination for purposes of ARTICLE 8.03. If the Contractor prevails with respect to any disputed amount, then the Substantial Completion Payment Estimate shall be deemed issued for such amount retroactive to the Substantial Completion Estimate Delivery Date.

C. In addition to the Supporting Documentation required for a Progress Payment detailed in **ARTICLE 3.05, PROGRESS PAYMENTS**, the required supporting documentation for the Payment on Substantial Completion is as follows:

1. A release by the Contractor of the Contracting Party and the Authority, in a form approved by the General Counsel of the Authority, of all claims and liability to the Contractor for anything theretofore done or furnished for, or in any way relating to, the Work, except those claims expressly deleted from the scope of said release and those claims or potential claims pertaining to monies being withheld by the Authority.

2. A statement in writing of each and all alleged claims of the Contractor against the Contracting Party or the Authority.

3. Any other document or item specifically required by the Contract as a condition precedent to the Payment on Substantial Completion.

ARTICLE 3.07 PROVISIONS RELATING TO FINAL PAYMENT

A. The Receipt of Invoice for the Final Payment shall be the later of the date that (i) the Authority issues the Final Payment Certificate, and (ii) the Supporting Documentation is received at the Designated Payment Office, as described respectively in paragraphs (b) and (c) below.

B. The Engineer shall, concurrently with the issuance of the Final Completion Certificate, prepare a Final Payment Estimate covering any monies due and owing to the Contractor.

1. The Contractor shall sign the Final Payment Estimate upon acknowledging thereon the items which it agrees and disputes (including items omitted). The date the Contractor delivers to the Engineer such Final Payment Estimate (the "Final Payment Estimate Delivery Date"), shall be the date the Final Payment Estimate is issued for the amount agreed between the Engineer and the Contractor thereunder.

2. The amount in the Final Payment Estimate in dispute is subject to the disputes resolution

provisions (**ARTICLE 8.03, DISPUTES RESOLUTION PROCEDURE**) of the Contract. The date of the Final Payment Estimate Delivery Date shall also be deemed to be the date of Engineer's determination for purposes of ARTICLE 8.03. If the Contractor prevails with respect to any disputed amount, then the Final Payment Estimate shall be deemed issued for such amount retroactive to the Final Payment Estimate Delivery Date.

C. In addition to the Supporting Documentation required for a Progress Payment detailed in **ARTICLE 3.05, PROGRESS PAYMENTS**, , as applicable, the required supporting documentation for the Final Payment is as follows:

1. Subcontractor and Supplier guarantee(s), if any, specifically set forth in the Contract Documents.

2. Any other supporting document or item specifically stated by the Contract to be a condition precedent to the Final Payment.

ARTICLE 3.08 PAYMENTS RELATED TO GUARANTEE OBLIGATIONS

A. The Authority may withhold from any payments to be made subsequent to the commencement of any applicable guarantee period, such sums as may reasonably be necessary to ensure completion of guarantee obligations with respect to defective work, equipment, or materials which have been identified by the Engineer.

B. The Authority may deduct from any payment due the Contractor an amount equal to its costs incurred on account of the Contractor's failure to fully perform its guarantee obligations.

C. The Engineer, prior to withholding or deducting any monies hereunder, shall give the Contractor notice of the defective work, equipment or material and the basis for the withholding or deduction.

D. Upon the Engineer's certification that the Contractor has fulfilled its guarantee obligations, the Authority will pay the Contractor any sums of money so retained as provided in paragraph (a), above, subject to Contractor's submission of, or compliance with, any remaining documentation or obligation, as the case may be, in accordance with this Contract.

ARTICLE 3.09 SET OFFS, WITHHOLDINGS AND DEDUCTIONS

A. The Authority may set off, deduct, or withhold from any payment due the Contractor, such sums as may be specifically allowed in the Contract or by applicable law including, without limitation, the following:

1. an amount of any claim by a third party, as provided in **ARTICLE 5.03, WITHHOLDING MONEY DUE CONTRACTOR TO MEET CLAIMS, LIENS OR JUDGEMENTS**;

2. any amounts allowed under **ARTICLES 2.02, SUBSTANTIAL COMPLETION AND FINAL COMPLETION; 2.04, AUTHORITY DAMAGES IN CASE OF DELAY; 3.04, PROMPT PAYMENT, PARAGRAPH (D) OR 3.08, PAYMENTS RELATED TO**

GUARANTEE OBLIGATIONS;

3. any unpaid legally enforceable debt owed by the Contractor to the Authority and/or the Contracting Party, as provided in the Authority's Prompt Payment Statement.

B. Any withholding which is ultimately held to have been wrongful shall be paid to Contractor in accordance with the Prompt Payment Statement.

ARTICLE 3.10 PAYMENT BY THE CONTRACTOR TO SUBCONTRACTOR(S) AND SUPPLIER(S)

The Contractor agrees to make all payments with respect to its Subcontractors and Suppliers in accordance with Section 139-f of the State Finance Law. Nothing provided therein or herein shall create any obligation on the part of the Authority or Contracting Party to pay or to see to the payment by the Contractor of any monies to any Subcontractor or Supplier, nor create any relationship in contract or otherwise, implied or expressed, between any such Subcontractor or Supplier and the Authority or Contracting Party. The Contractor shall include in all subcontracts that:

1. within fifteen (15) calendar days of the receipt of any payment from the Authority, the Contractor shall pay each of its Subcontractors and Suppliers the proceeds from the payment representing the value of the work performed and/or materials furnished by the Subcontractor and/or Supplier and reflecting the percentage of the Subcontractor's work completed or the Supplier's material supplied in the invoice approved by the Authority and based upon the actual value of the subcontract or purchase order, less an amount necessary to satisfy any claims, liens or judgments against the Subcontractor or Supplier which have not been suitably discharged, and less any retained amount as described in Section 139-f (2) of the State Finance Law;

2. within fifteen (15) calendar days of the receipt of payment from the Contractor, the Subcontractor and/or Supplier shall pay each of its subcontractors and suppliers in the same manner as the Contractor has paid the Subcontractor/Supplier;

3. any payment for work performed or materials supplied that has been properly invoiced and is more than thirty (30) days due, shall bear interest at the rate set from time to time by the State Tax Commission.

ARTICLE 3.11 NO ESTOPPEL AND NO WAIVER

A. The Authority and the Contracting Party shall not be precluded or estopped by any payment or certificate made or given by the Contracting Party, Authority, the Engineer or other officer, agent or appointee thereof under any provision of this Contract from, at any time either before or after the completion of all of the Contractor's obligations under this Contract and payment therefor pursuant to any Preliminary Estimate, Substantial Completion Payment Estimate, or Final Payment Estimate, showing the true and correct classification, amount, quality and character of the work done and materials furnished by the Contractor, or from showing at any time that such certificate is untrue or incorrect or improperly made in any particular or that the work and materials or any part thereof do not in fact conform to the requirements of this

Contract. The Authority and the Contracting Party shall not be precluded or estopped, notwithstanding any certificate and payment in accordance therewith, from demanding and recovering from the Contractor such damages as it may sustain by reason of its failure to comply with the Contract Documents.

B. Neither the acceptance by the Authority or the Engineer or any of the employees of the Authority, nor any order, measurement or certificate by the Engineer nor any order by the Authority for payment of money nor any payment for, nor acceptance of, the whole or part of the Work nor any extension of time, nor any possession taken by the Authority or the employees of the Authority shall operate as a waiver of any portion of this Contract or of any power herein reserved to the Authority or of any right to damages herein provided; nor shall any waiver of any breach of this Contract be held to be a waiver of any other or subsequent breach.

CHAPTER 4

CHANGES TO THE CONTRACT

ARTICLE 4.01 NO ORAL CHANGES

Except to the extent expressly set forth in the Contract, no change in or modification, termination or discharge of this Contract, in any form whatsoever, shall be valid or enforceable unless it is in writing and signed by the party to be charged therewith or its duly authorized representative.

ARTICLE 4.02 CLARIFICATION OF CONTRACT DRAWINGS

The Authority shall have the right during the progress of the Work to clarify the Contract Drawings to the extent that such does not materially alter such drawings and to add explanatory specifications without the same being deemed a change to the Contract.

ARTICLE 4.03 EXTRA WORK

A. The Authority reserves the right to order changes which may result in additions to the amount, type or value of the Work shown in the Contract Documents and which are within the general scope of the Contract in accordance with this Article. Any such changes will be known as "Extra Work" and shall result in the issuance of a Change Order.

B. No Extra Work shall be performed except pursuant to written orders of the Engineer expressly and unmistakably indicating his intention to treat the work described therein as Extra Work. In the absence of such an order, if the Engineer shall direct, order or require any work which the Contractor deems to be Extra Work, the Contractor shall nevertheless comply therewith and shall promptly and immediately upon beginning the performance thereof or incurring costs attributable thereto, give written notice to the Engineer stating why he deems such work (hereinafter "Disputed Work") to be Extra Work. Said notice is for the purposes of: (1) affording an opportunity to the Engineer to cancel promptly such order, direction or requirement; (2) affording an opportunity to the Engineer to keep an accurate record of the materials, labor and other items involved; and (3) affording an opportunity to the Authority to take such action as it may deem advisable in light of such Disputed Work. The Disputed Work notice must include a statement regarding any claimed entitlement to a requested extension to the Contract Schedule or claim for Impact Costs, if any.

ARTICLE 4.04 CHANGE ORDER PROCEDURE AND BASIS FOR PAYMENT

A. Extra Work shall result in a Change Order reflecting an equitable adjustment to the Total Contract Price representing reasonable costs related to the change in the Work. In addition, the Change Order will include the estimated Allowable Impact Costs with respect to the Extra Work in accordance with **ARTICLE 2.07, CONTRACTOR'S DAMAGES FOR DELAY,** provided in no event shall Allowable Impact Costs hereunder include any item of cost and expense otherwise payable under the Contract, including the related Change Order or Extra Work Directive, as the case may be. Extra Work may also result in an equitable adjustment in the Contract schedule for performance for both the Extra Work and any other work on the criti-

cal path necessarily affected by the Extra Work.

B. 1. The Authority shall initiate the Change Order procedure by a notice to Contractor (hereinafter called "Notice of Proposed Change Order") setting forth the proposed Extra Work. As promptly as practical, but in no event more than fifteen (15) calendar days of the Contractor's receipt of Notice of a Proposed Change Order (or such longer period as the Engineer may allow, under exceptional circumstances), the Contractor shall provide to the Engineer a detailed Change Order Proposal which shall include requested revisions to the Contract, including but not limited to adjustments to the cost for the Extra Work, estimated allowable Impact Costs associated with the Extra Work and schedule for performance, as provided above. Any unauthorized delay in the submittal of the Change Order Proposal shall result in a day-for-day reduction in any extension of time to which Contractor would otherwise have been entitled for the Extra Work.

2. The Contractor is required to provide sufficient accurate and current data in support of each of the components of the Change Order Proposal (labor and material costs, allowable Impact Costs and Schedule revisions) demonstrating its reasonableness. In furtherance of this obligation, the Contractor must submit cost breakdowns of any submitted claimed expenses, including but not limited to: material cost, labor cost, labor rates by trade and work classification and overhead rates in support of the Contractor's Change Order Proposal. The Contractor agrees that the Change Order Proposal with respect to price will in no event include a combined profit and home office overhead rate in excess of twenty-one percent (21%) of the direct labor and material costs, unless the Engineer determines that the complexity and risk of the Extra Work is such that an additional factor is appropriate. However, when the Extra Work is going to be performed by other than the Contractor's own forces or affiliates, Contractor shall be paid the reasonable cost of the work plus an additional five percent (5%) to cover Contractor's profits, superintendence, administration, insurance and home office overhead expenses.

C. 1. Where the Authority determines that the nature of the Extra Work is such that its cost cannot be accurately estimated, the Contractor shall be entitled to an adjustment to the Total Contract Price based on the "Actual and Necessary Net Cost" for the Extra Work as defined below. In the event that the Authority is willing to issue a Change Order based on payment to the Contractor for its Actual and Necessary Net Cost, the Authority shall so provide in its Notice of Proposed Change Order. Contractor's Change Order Proposal shall then reflect its acknowledgement of same, and include any request for allowable Impact Costs and Schedule revisions, with any necessary supporting documentation.

2. "Actual and Necessary Net Cost" shall be deemed to include the actual and necessary cost of the Extra Work for: (i) labor, including in addition to wages, contributions, if any, made by the Contractor as employer pursuant to bona fide collective bargaining labor agreements applicable to the Work; (ii) an engineering field survey party, consisting exclusively of a chief of party, an instrument person, and one or more rodmen, the number of rodmen to be subject to the approval of the Engineer, which cost in addition to wages shall include contributions, if any, made by the Contractor as employer pursuant to bona fide collective bargaining labor agreements applicable to the Work; (iii) insurance upon the aforementioned labor and field survey party under the Workers' Compensation law but in no event to

exceed Contractor's present rates; (iv) contributions pursuant to the State Unemployment Insurance Law; (v) excise taxes pursuant to the Federal Social Security Act; (vi) any increase in premiums for public liability and property damage insurance or performance and payment bonds occasioned solely by the Extra Work; (vii) all materials used upon doing the Work or incorporated in the Work: (viii) the actual and necessary operating expense of plant (except the expense of supplies and small tools not operated by mechanical or electric power), power for such plant and a reasonable rental for the same (including small power tools), as determined by the Engineer; and (ix) furnishing and installing temporary lighting and heating facilities required solely for the Extra Work and, when and as determined by the Engineer, the cost, if any, of power or fuel expended therefor; but the amount of labor, materials, plant, facilities and power to be paid for shall not exceed the amount which, in the opinion of the Engineer, is necessary in the performance of such Extra Work.

3. Except as otherwise specifically provided in subparagraph (b) the said twenty-one percent (21%) shall be deemed to include the cost of heat, light, use and upkeep of tools, supplies, administration, engineering, superintendence, insurance (except as otherwise provided as a direct charge in subparagraph i) and all loss, damages, risks and expenses herein mentioned in **CHAPTER 6, CONTRACTOR'S LIABILITY AND INSURANCE**.

4. The amount of insurance upon such labor and field survey party under the Workers' Compensation Law shall be determined by the amount of the wages actually and necessarily paid for such labor and field survey party and the rate of insurance for such labor and field survey party either in the State Insurance Fund or in any stock corporation or mutual association authorized to transact the business of workers' compensation insurance in this State, as the case may be. If the Contractor shall not have insured either in such State Insurance Fund or in any such stock corporation or mutual association, the rate allowed will be the rate which it would have been required to pay for such insurance in the State Insurance Fund had it insured therein.

5. In case any work or materials shall be required to be done or furnished under the provisions of this **ARTICLE**, the Contractor shall at the end of each day furnish to the Authority such documentation as the Authority may require to support all costs of the Extra Work. If payments on account are desired as the Work progresses, the Contractor shall render an itemized statement showing the total amount expended for each class of labor and for each kind of material on account of each item of such work as a condition precedent to the inclusion of such payment in any partial estimate. Upon the request of the Authority, the Contractor shall produce for audit by the Authority books, vouchers, collective bargaining labor agreements, records or other documents showing the actual cost for labor and materials. Such documents shall not be binding on the Authority. Any question or dispute as to the correct cost of such labor or materials or plant shall be determined by the Engineer.

6. In case the Contractor is ordered to perform work under this **ARTICLE**, which, in the opinion of the Engineer, is impracticable to have performed by the Contractor's own employees, the Contractor will, subject to the approval of the Engineer, be paid the actual cost to Contractor of such work, and in addition thereto five percent (5%) to cover the Contractor's superintendence, administration and other overhead expenses.

7. Payment of any amount under the foregoing subparagraphs of this Article shall be subject to subsequent audit and approval, disapproval, modification or revision by representatives of the Authority, the Contracting Party, the State and the Government.

D. The Contractor must utilize the last, accepted CPM update (or Bar Chart) and status it to the date of delay event for use in its Change Order proposal to establish the cost and schedule modification. Contractor's Change Order Proposal must include a schedule subnet and an explanation of the cost and schedule impact of the Extra Work on the Project. The Contractor must clearly demonstrate how it proposes to incorporate the Extra Work into the Schedule Document. If Contractor fails to notify the Engineer of the schedule changes associated with a Notice of Proposed Change Order by submitting a time extension request with accurate and complete supporting documentation, then, it will be deemed to be an acknowledgment by Contractor that the proposed Extra Work will not have any scheduling consequences. The Change Order Proposal may be accepted or modified by negotiations between the Contractor and the Authority. The Engineer reserves the right to reject any Change Order Proposal which does not include accurate or complete supporting documentation. Following negotiations on direct costs and any necessary schedule adjustment associated with the Extra Work, a Change Order shall be executed in writing by both parties (which, for the Authority, shall be the Division of Materiel's authorized officer).

E. Regarding any request for Impact Costs, Contractor must submit sufficient documentation of any such costs in accordance with ARTICLE 2.07, CONTRACTOR'S DAMAGES FOR DELAY. Following the issuance of the notice to proceed for the Extra Work, the parties will negotiate to reach agreement as to what will be entitled to be paid as any allowable Impact Costs associated with the Change Order, in the event that Substantial Completion of the Work is actually and necessarily delayed by the performance of the Extra Work. These negotiations shall continue for a period not to exceed sixty (60) days, at which time – in the absence of an agreement on Impact Costs – the Authority shall issue an Extra Work Directive for impact costs (if any) to which it believes Contractor to be entitled. If Contractor further disagrees with the terms of the Extra Work Directive or the Authority's determination that Contractor is not entitled to any Impact Costs, it shall initiate a Dispute in accordance with ARTICLE 8.03, DISPUTES RESOLUTION PROCEDURE, within ten (10) days of the issuance of the Extra Work Directive, as set forth in ARTICLE 4.05, EXTRA WORK DIRECTIVE.

F. The execution by Contractor of a Change Order shall operate as a release of the Contracting Party and the Authority from all claim and liability to the Contractor relating to, or in connection with, the Extra Work, including any additional claims (beyond that which was included in its Change Order Proposal and subject to the terms above) for impact costs and time extensions, and further including any claims for any prior act, neglect, fault or default of the Authority relating to the Extra Work.

ARTICLE 4.05 EXTRA WORK DIRECTIVE

A. If the parties fail to reach agreement with respect to deletion of work pursuant to ARTICLE 4.06, DELETED WORK, or Extra Work pursuant to ARTICLE 4.05, EXTRA WORK DIRECTIVE, or in case of exigent circumstances, the Authority may nevertheless issue a directive regarding the proposed deletion or Extra Work ("Extra Work Directive"). Any modifications to

the proposed Extra Work set forth in the Notice of Proposed Change Order must be previously reflected in a revised Notice of Proposed Change Order submitted in accordance to ARTICLE 4.04, CHANGE ORDER PROCEDURE AND BASIS FOR PAYMENT. Immediately upon receipt, the Contractor shall be obligated to proceed with the work, or deletion of Work, as set forth in an Extra Work Directive.

B. If the Contractor is unwilling to agree to the terms of the Extra Work Directive, Contractor must initiate a Dispute regarding the issue(s) upon which the parties were unable to agree in accordance with ARTICLE 8.03, DISPUTES RESOLUTION PROCEDURE. Contractor shall furnish a written statement to the Chief Engineer within ten (10) days of the Extra Work Directive, based upon any aspect of such Directives which the Contractor disputes; provided, however, that such dispute must relate to specific matters raised or specific matters reserved by the Contractor in its Change Order Proposal that were not resolved prior to the issuance of the Extra Work Directive. The written statement must set forth all details of Contractor's claims including the manner that the disputed item was specified in the Contractor's proposal. During the pendency of any dispute hereunder, the Contractor must proceed with work as set forth in the Extra Work Directive unless otherwise advised by the Engineer's written instructions. In the event that there is a dispute as to price, the Extra Work Directive shall include the amount which the Authority is willing to pay Contractor for the Extra Work (or in the event deleted work, the credit therefor), or identify the estimated Allowable Impact Costs or extension of time for the Extra Work. During the pendency of the Dispute, Contractor will be paid in accordance with the Authority's estimate for the Extra Work or credit for deleted work, as stated in the Extra Work Directive. In the event that, as a result of the decision by the Arbiter or other settlement between the parties, another price or credit for the Extra Work is determined to be payable to Contractor or time extension is determined to be due, the Extra Work Directive will be modified to reflect the final determination of the cost or time for the Extra Work. Payment made hereunder will be in full satisfaction of Contractor's claim for an adjustment to the Total Contract Price or Schedule.

C. Payment of any amount under the foregoing subparagraphs of this Article shall be subject to subsequent audit and approval, disapproval, modification or revision by representatives of the Authority, the Contracting Party, the State and the Government.

ARTICLE 4.06 DELETED WORK

A. The Authority reserves the right to delete portions of the Work which shall result in a reduction to the Total Contract Price. In the event that the Authority issues a Notice of Proposed Change Order which would result in a reduction in the amount, type or value of the Work, Contractor shall submit a Change Order Proposal in accordance with the procedures set forth in ARTICLE 4.04, CHANGE ORDER PROCEDURE AND BASIS FOR PAYMENT, which proposal would reflect a credit in the amount payable to Contractor and a schedule adjustment for the portion of the Work to be deleted and/or other portions of the Work on the critical path.

B. The Credit submitted in the Change Order Proposal which will result in a reduction to the Total Contract price must be based on the unit prices included in the Bid or upon a demonstrated reasonable cost associated with that portion of the Work being deleted, and including any savings associated with a schedule adjustment. With respect to the deletion of work which was to

have been performed by Contractor's own forces: (1) the credit shall also include the Contractor's combined overhead and anticipated profit associated with that work at the rate of twenty-one percent (21%) of the direct labor and material. With respect to the deletion of work which was to have been performed by a Subcontractor or Supplier, the credit shall include: (1) an additional five percent (5%) of the amount thereof, representing Contractor's overhead, administration and profit on that portion of the work; and (2) twenty-one percent (21%) of the amount of the deleted work, representing the Subcontractor's or Supplier's overhead and profit on that portion of the Work. The above-noted percentages shall apply unless the Authority determines that a different percentage for overhead and/or profit is appropriate.

C. In the event that the parties are unable to agree on the terms of the credit Change Order Proposal, including any schedule adjustment, then the procedures regarding the Extra Work Directive set forth in ARTICLE 4.05, EXTRA WORK DIRECTIVE shall apply.

CHAPTER 5

SECURITY FOR THE PERFORMANCE OF WORK

ARTICLE 5.01 PERFORMANCE AND PAYMENT BONDS

A. The Contractor shall be required to furnish Performance, Payment and Advance Payment Bonds as set forth in PARAGRAPH 17 of the Information for Bidders.

B. In case a surety shall become insolvent, its license is revoked or suspended, or in the case of a surety approved on the basis that it is listed as an approved federal surety, that such federal approval is revoked or suspended, the Contractor, within ten (10) days after notice by the Authority, shall substitute other and sufficient surety or sureties. If the Contractor fails to do so, such failure shall be an Event of Default.

C. In lieu of defaulting the Contractor under paragraph (b) above, the Authority may allow the Contractor to continue the Work, in which event the Authority may deduct from any monies then due or which thereafter may come due to the Contractor the amount for which the surety shall be held and bound upon the said bond. The monies so deducted may be held by the Authority as collateral security for the performance of the conditions of the bonds and such monies shall in such case be deemed to have been paid to the Contractor under this Contract.

ARTICLE 5.02 RETAINED PERCENTAGE

As additional security for the faithful performance of this Contract, the Authority shall deduct and retain from all progress payments 5 percent (5%) of the amount certified to be due thereunder.

ARTICLE 5.03 WITHHOLDING MONEY DUE CONTRACTOR TO MEET CLAIMS, LIENS OR JUDGMENTS

A. If at any time a claim, lien or judgment shall be made by any person or corporation against the Contractor, the Contracting Party, the Authority, the State or the Government for which Contractor is liable under this Contract or otherwise by law, with respect to matters pertaining to the Work, the amount of such claim, lien or judgment or so much thereof as may be deemed reasonable shall be retained by the Authority, in addition to the other sums herein authorized by the Contract to be so retained, out of any monies then due or thereafter becoming due to the Contractor hereunder as security for the payment of such claim, lien or judgment. If the liability of any such party on such claim(s) or lien(s) shall have been finally adjudicated by a judgment of a court of competent jurisdiction or such claim(s) or lien(s) shall have been admitted by the Contractor to be valid, then the claim or lien or judgment may be paid from the amount so retained hereunder, credited against the payments due to the Contractor, and the balance, if any, paid to the Contractor.

B. Should any claim, lien or judgment remain unsatisfied at the time the Substantial Completion or Final Payments are due, the Authority shall have the right to retain out of either payment a sum it determines to be sufficient to protect the Contracting Party and the Authority in regard to all such unsatisfied claims, liens and judgments. In lieu of the foregoing, the Authority may

require other security.

C. In case the amount thus retained should be insufficient to pay the amount adjudicated to be due upon such claim, lien or judgment, the Contractor shall pay the amount of the deficiency to the Authority.

D. Notwithstanding anything in this Article to the contrary, in the event of a claim by persons or corporations other than the Contracting Party or Authority, the Authority shall not withhold money due to the Contractor provided the Authority receives adequate written assurance from the Contractor's insurance carrier or surety on bonds required hereunder that the insurer or surety will assume all responsibility in connection with the claim including defending the Contractor, Contracting Party or Authority in any lawsuit, and paying any judgment based on said claim. The Authority shall have sole discretion to determine the adequacy of the assurance furnished.

ARTICLE 5.04 SUBSTITUTION OF APPROVED SECURITIES

A. The Contractor may from time to time withdraw portions of the amounts so retained under **ARTICLE 5.02, RETAINED PERCENTAGE** or monies otherwise withheld under the Contract provided any such monies have not been applied by the Authority for reimbursement to itself or a third party in accordance with applicable provisions of the Contract by depositing with the Fiscal Officer of the Authority approved securities with a market value equal to the amount to be withdrawn.

B. The Contractor shall pay to the Authority the service charges then in effect for the custodial safekeeping of securities deposited with the Authority by the Contractor pursuant to the terms of this Contract.

C. (c) Approved securities are: securities of the United States Government; State of New York; City of New York; the Authority; the MTA or Triborough Bridge and Tunnel Authority. Other securities may be submitted for Authority approval. All such securities must be payable to, run in favor of, or be transferred to, the Authority. In case the securities shall, during the term of the Contract, diminish in market value in the opinion of the Authority, or are sold as set forth in **ARTICLE 5.05 USE OF MONIES WITHHELD**, then, within ten (10) days after notice, the Contractor shall deposit cash or securities to restore the value to that originally stated.

1. A failure by the Contractor to deposit such cash or securities in accordance herewith shall be an Event of Default.

2. In lieu of defaulting the Contractor, the Authority may allow the Contractor to proceed with the Work and may deduct from any monies then due or which thereafter may become due to the Contractor the amount necessary to restore the original valuation of such securities, and to hold such amount in lieu thereof.

D. The Authority shall pay to the Contractor all interest, dividends and other income on the securities, when and as collected. If the securities are in the form of coupon bonds, the coupons as they respectively become due shall be delivered to the Contractor; provided, however, that the

Contractor shall not be entitled to interest, dividends or other income on any securities the proceeds of which shall be used or applied as authorized under the Contract.

ARTICLE 5.05 USE OF MONIES WITHHELD

Deposits, retainage or other monies withheld, whether in cash or securities substituted shall be security for the faithful performance of the Contract by the Contractor. In case any default causes loss, damage or expense to the Contracting Party or the Authority, then the Authority may apply the amount necessary to restore such loss, damage or expense including liquidated damages, out of the said securities (which may be sold), deposits, retainage or other monies.

CHAPTER 6

CONTRACTOR'S LIABILITY AND INSURANCE

ARTICLE 6.01 INDEMNIFIED PARTIES

A. The term "Indemnified Parties", whenever referred to in this Contract shall consist of the following parties including their officers, employees and agents:

1. The City
2. The Authority
3. The State
4. The MTA

ARTICLE 6.02 RESPONSIBILITY FOR INJURIES TO PERSONS AND PROPERTY

A. The Contractor shall be solely responsible for (1) all injuries (including death) to persons, including but not limited to employees of the Contractor and Subcontractors and Indemnified Parties and (2) damage to property, including but not limited to property of the Indemnified Parties, the Contractor or its Subcontractors. The liability hereunder shall be limited to such injuries or damage occurring on account of, or in connection with, the performance of the Work, whether or not the occurrence giving rise to such injury or such damage happens at the Project Site or whether or not sustained by persons or to property while at the Project Site, but shall exclude injuries to such persons or damage to such property to the extent caused by the negligence of the Contracting Party or the Authority.

B. The Contractor's liability hereunder includes any injury (including death) or damage to property related to the performance of, including the failure to perform, Miscellaneous and Incidental Work.

C. The Contractor expressly acknowledges that it has reviewed the Contract Documents and if the Work be done without fault or negligence on the part of the Contractor, such Work will not cause any damage to the foundations, walls or other parts of adjacent, abutting or overhead buildings, railroads, bridges, structures or surfaces.

ARTICLE 6.03 INDEMNIFICATION

A. The Contractor shall indemnify and save harmless the Indemnified Parties, to the fullest extent permitted by law, from loss and liability upon any and all claims and expenses, including but not limited to attorneys' fees, on account of such injuries to persons or such damage to property, irrespective of the actual cause of the accident, irrespective of whether it shall have been due in part to negligence of the Contractor or its subcontractors or negligence of the Indemnified Parties, or of any other persons, but excepting bodily injuries and property damage to the extent caused by the negligence of the Contracting Party or the Authority.

B. The term "loss and liability," as used herein, shall be deemed to include, but not be limited to, liability for the payment of workers' compensation benefits under the Workers' Compensation

Law of the State of New York, or of judgments under the Federal Employees' Liability Act or similar statutes.

C. Except as otherwise provided in (a) above, the liability of the Contractor under this Article is absolute and is not dependent upon any question of negligence on its part or on the part of its agents, officers or employees. The approval of the Authority of the methods of doing the Work or the failure of the Authority to call attention to improper or inadequate methods or to require a change in methods or to direct the Contractor to take any particular precautions or to refrain from doing any particular thing shall not excuse the Contractor in case of any such injury to person or damage to property.

D. In case any damage shall occur to any part of the New York City Transit System (except only for the removal of such parts thereof as the Contractor is specifically required by this Contract to remove) on account of the Work, and the Contractor is responsible therefor, the Authority shall have the right to cause such damage to be repaired and to charge the expense of such repairs to the Contractor. In the event that such work is performed by the Authority, then the Authority shall deduct the amount of such expense that may be incurred in repairing any such damage from any monies due or to become due to the Contractor under this Contract or any other agreement between the Contractor and the Contracting Party or the Authority.

ARTICLE 6.04 RISK OF LOSS TO THE WORK

A. The Contractor assumes risk of loss or damage to the Work to the fullest extent permitted by applicable law, irrespective of whether such loss or damage arises from acts or omissions (whether negligent or not) of the Contractor, the Authority or third persons, or from any cause whatsoever, excepting loss or damage arising solely from negligent or willful acts of the Authority, occurring prior to Substantial Completion and risk of loss or damage to Remaining Work until Final Completion of all the Work, except that if the failure to complete the Remaining Work causes damage to the Work or other parts of the NYCTS, the Contractor shall be responsible for all resulting loss or damage. When risk of loss to the work (or a portion thereof) is transferred to the Authority, the Authority shall thereafter assume responsibility for the care, protection and ordinary upkeep (excluding Contractor's warranty obligations) for said Work, except to the extent that Contractor remains responsible for Remaining Work or is otherwise responsible for loss or damage as provided in this chapter.

B. In the event that a part of the Work is identified in the Special Conditions as subject to the Authority's determination of Beneficial Use, then risk of loss for the specified part of the Work shall transfer to the Authority upon the Beneficial Use Certification, except that if the absence of any work awaiting completion subsequent to issuance of the Beneficial Use Certification causes damage to the Work or the NYCTS, the Contractor shall be responsible for all resulting loss or damage.

C. Contractor's obligation hereunder is to immediately repair, replace and make good such loss or damage so as to restore the Work to the same character and condition as before the loss or damage in accordance with the Contract Documents without cost to the Authority.

D. Risk of loss or damage to work trains, cranes, or special equipment supplied and operated by

the Authority shall be on the Authority, but the Contractor shall be responsible for loss or damage thereto arising out of Contractor's failure to fulfill a contractual obligation hereunder or the negligence or willful act of the Contractor, its subcontractors and suppliers.

ARTICLE 6.05 REQUIRED INSURANCE

Except as otherwise provided in the **SPECIAL CONDITIONS**, the Contractor shall procure, at its sole cost and expense, and shall maintain in force at all times during this Contract until Final Completion, policies of insurance as set forth in **SCHEDULE A, INSURANCE REQUIREMENTS**.

CHAPTER 7

CONTRACTOR'S DEFAULT

ARTICLE 7.01 EVENT OF DEFAULT

A. An Event of Default shall mean a material breach of the Contract by the Contractor which, without limiting the generality of the foregoing and in addition to those instances specifically referred to in the Contract as a material breach or an Event of Default, shall include a determination by the Engineer that: (i) performance of this Contract is unnecessarily or unreasonably delayed; (ii) the Contractor is willfully violating any of the provisions of the Contract Documents or is not executing the same in good faith and in accordance with this Contract; (iii) the Contractor has abandoned the Work; (iv) Contractor has become insolvent (other than as a bankrupt), or has assigned the proceeds of this Contract for the benefit of creditors, or taken advantage of any insolvency statute or debtor or creditor law or if his property or affairs have been put in the hands of a receiver; (v) Contractor has failed to obtain an approval required by the Contract; or (vi) the Contractor has failed to provide "adequate assurance" as required under paragraph (b) hereof.

B. When, in the opinion of the Engineer, reasonable grounds for insecurity exist with respect to the Contractor's ability to perform the Work or any portion thereof, the Authority may request that Contractor, within a reasonable time, provide written adequate assurance of its ability to perform in accordance with the Contract. Such assurance must be provided by Contractor within the time set forth in the Authority's request.

ARTICLE 7.02 NOTICE OF DEFAULT/OPPORTUNITY TO CURE

If an Event of Default occurs, the Authority may so notify the Contractor ("Default Notice"), specifying the basis(es) for such default, and advising the Contractor that, unless such default be rectified to the satisfaction of the Authority within seven (7) days from such Default Notice, the Contractor shall be in default; except that, at its sole discretion, the Authority may extend such seven (7) day period for such additional period as the Authority shall deem appropriate without waiver of any of its rights hereunder. The Default Notice shall specify the date the Contractor is to discontinue all Work (the "Termination Date"), and thereupon, unless previously rescinded by the Authority, the Contractor shall discontinue the Work upon the Termination Date.

ARTICLE 7.03 REMEDIES IN THE EVENT OF DEFAULT

A. Upon Contractor's default, the Authority shall have the right to either complete the Work with its own forces and/or other contractors or to require the Surety to complete the Work under the Performance Bond hereunder. The Authority, in connection with its right to complete the Work, may take possession of and use any or all of the materials, plant, tools, equipment, supplies and property of every kind provided by the Contractor, and/or procure other materials, plant, tools, equipment, supplies and property for the completion of the same, and to charge the expense of said labor, materials, plant, tools, equipment, supplies and property to the Contractor.

B. If a Default occurs, Contractor shall be liable for all damages resulting from the Default, including the difference between the Total Contract Price and the amount actually expended by the Authority to complete the Work, and further including the liquidated damages herein referred to for delay in the completion of the Work beyond the Substantial Completion Date. The Contractor shall also remain liable for any other liabilities and claims related to the Contract. All damages may be deducted and paid out of such monies due the Contractor.

C. The Authority may also bring any suit or proceeding for specific performance or for injunction or to recover damages or to obtain any other relief or for any other purpose proper under this Contract.

D. The Authority may in its sole discretion waive a default by the Contractor, but no such waiver, and no failure by the Authority to take action in respect to any default, shall be deemed a waiver of any subsequent default.

E. If the Authority makes a determination pursuant to this Chapter to hold the Contractor in default and/or terminate the Contract for cause, and it is determined subsequently for any reason whatsoever that either such determination was improper, unwarranted or wrongful, then any such termination shall be deemed for all purposes to have been a termination for convenience in accordance with **ARTICLE 2.09, TERMINATION FOR CONVENIENCE BY THE AUTHORITY**. The Contractor agrees that it shall be entitled to no damages, allowance or expenses of any kind other than as provided for in that ARTICLE in connection with any such termination.

ARTICLE 7.04 THE CONTRACTING PARTY AND THE AUTHORITY MAY AVAIL THEMSELVES OF ALL REMEDIES

The Contracting Party and the Authority may avail themselves of each and every remedy herein specifically given to them or now or hereafter existing at law or in equity or by statute, and each and every such remedy shall be in addition to every other remedy so specifically given or otherwise so existing and may be exercised from time to time and as often and in such order as may be deemed expedient by the Authority, and the exercise, or the beginning of the exercise, of one remedy shall not be deemed to be a waiver of the right to exercise, at the same time or thereafter, any other remedy.

CHAPTER 8

AUTHORITY OF THE ENGINEER: DISPUTES AND CLAIMS

ARTICLE 8.01 AUTHORITY OF THE ENGINEER

A. The Contractor hereby authorizes the Engineer to determine in the first instance all questions of any nature whatsoever arising out of, under, or in connection with, or in any way related to or on account of, this Contract including without limitation: questions as to the value, acceptability and fitness of the Work; questions as to either party's fulfillment of its obligations under the Contract, negligence, fraud or misrepresentation before or subsequent to acceptance of the Bid; questions as to the interpretation of the Specifications and Contract Drawings; and claims for damages, compensation and losses.

B. The Engineer may give orders to do work which he determines to be necessary for Contractor to fulfill the Contractor's obligations under the Contract. The Engineer may also give orders in every case in which an unsafe condition shall arise in performance of the Work.

C. The Engineer will promptly provide appropriate explanations and reasons for his determinations and orders hereunder, if requested by the Contractor. All determinations under this article shall be reasonable.

D. The Contractor shall be bound by all determinations or orders and shall promptly obey and follow every order of the Engineer, including the withdrawal or modification of any previous order and regardless of whether the Contractor agrees with the Engineer's determination or order. Orders shall be in writing unless not practicable, in which event any oral order must be confirmed in writing by the Engineer as soon thereafter as practicable.

E. The Contractor shall have a representative at the Work Site at all times during performance of the Work authorized to receive orders from the Engineer.

ARTICLE 8.02 APPROVALS BY ENGINEER; NO LIABILITY

Any review, acceptance or approval by the Engineer shall be construed merely to mean that the Engineer was unaware of any reason, at that time, to object thereto. No such approval by the Engineer of any modification, sample, Schedule Document, substitution, drawing or other matter shall impose any liability upon the Authority or Contracting Party, nor shall any such approval change any of the requirements of the Contract Documents or relieve the Contractor of any responsibilities under the Contract, including without limitation, the accuracy of drawing or any obligation under any warranty provision.

ARTICLE 8.03 DISPUTES RESOLUTION PROCEDURE

A. The provisions of this Article shall constitute the Contractor's sole means for challenging any determination, order or other action of the Engineer pursuant to **ARTICLES 8.01, AUTHORITY OF THE ENGINEER OR 8.02**, **APPROVALS BY ENGINEER; NO LIABILITY**, or otherwise asserting against the Contracting Party or Authority any claim of whatever nature

arising under, or in any way relating to, this Contract (any such challenge or assertion by the Contractor shall be herein referred to as a "Dispute"). Exhaustion of these dispute resolution procedures including the judicial review set forth in **ARTICLE 8.03, DISPUTES RESOLUTION PROCEDURES** shall be the parties' sole remedy in connection with any Dispute.

B. The parties to this Contract hereby authorize and agree to the resolution of all Disputes arising out of, under, or in connection with, the Contract in accordance with the following and pursuant to the procedures set forth in paragraph (c) hereof:

1. With respect to any Dispute which relates in whole or primary part to technical issue(s) under the Contract including, without limitation, determinations as to the acceptability or fitness of any work, the meaning or interpretation of the Specifications or Contract Drawings, the question of whether Disputed Work falls within the scope of the Specifications, the acceptability of any proposed substitutions, modifications or other submission under the Contract, the disapproval of proposed Subcontractors or Suppliers (to the extent such disapproval is related to technical issues), the determination of Excusable Delay to the extent the delay claim is related to a technical matter, the question of whether Beneficial Use, Substantial Completion or Final Completion has been achieved, or the nature and extent of any Remaining Work, the parties hereby authorize the Chief Engineer of the Authority (the "Chief Engineer"), acting personally, to render a final and binding decision.

2. With respect to any Dispute other than those specified in sub-paragraph (1) hereof, except where the parties agree to elect resolution thereof by the Chief Engineer, the parties hereby authorize the Authority's Contractual Disputes Review Board (CDRB) to render a final and binding decision in accordance with the "Guidelines for the Submission of Disputes to the CDRB" which are available from the Procurement Representative and incorporated herein by reference. It is understood and agreed that the composition of the CDRB shall be comprised of officers and employees of MTA, and/or its respective affiliate agencies, but excluding for purposes of disputes arising from NYCTA contracts, participants from the Authority. The parties further agree that the above-mentioned Guidelines may be subject to periodic amendment by the Authority; however such amendment would not alter any substantive or due process rights accorded the Contractor under this **ARTICLE**.

C. All Disputes shall be initiated through a written submission by either party (such submission to be hereinafter referred to as the "Dispute Notice"), to the Chief Engineer or the CDRB, as the case may be (hereinafter jointly referred to as "the Arbiter"), within the time specified in the Contract or, if no time is specified, within ten (10) days of the determination which is the subject of the Dispute. Within ten (10) days after the submission of such Dispute Notice, the party initiating the Dispute must provide the Arbiter with all evidence and other pertinent information in support of the party's position and/or claim. Within thirty (30) days from the date of the Dispute Notice, the party against whom the Dispute

Notice was filed shall submit any and all materials which it deems pertinent to the Arbiter. Upon submission of a Dispute Notice to the CDRB, either party may request that the CDRB provide informal non-binding mediation in an effort to reach a settlement of the dispute. If requested, the CDRB shall appoint a mediator to meet with the parties in accordance with the

"Guidelines for the Submission of Disputes to the CDRB." Each party agrees to participate in mediation at the request of the other. If mediation is unsuccessful or is not undertaken, the Arbiter shall render its decision in writing and deliver a copy of same to the parties within a reasonable time not to exceed sixty (60) days after the receipt of all materials. In rendering such decision, the Arbiter may seek such technical or other expertise as it shall deem necessary or appropriate (notifying both parties to the dispute when he so seeks such other information or expertise) and seek any such additional oral and/or written argument or materials from either or both parties to the dispute as it deems fit. The Arbiter shall have the discretion to extend the time for submittals required hereunder.

The Arbiter's ability to render and the effect of a decision hereunder shall not be impaired or waived by any negotiations or settlement offers in connection with the matter presented, whether or not the Arbiter participated therein, or by any prior decision of others, or by any termination or cancellation of this Contract. The decision of the Arbiter shall be final and binding on both parties.

D. In the event that a dispute is submitted to the CDRB pursuant to sub-paragraph (b)(2) hereof and the party against whom the Dispute Notice was filed asserts that such dispute is properly within the domain of the Chief Engineer as defined in sub-paragraph (b)(1), that party shall file with the CDRB a notice as to its position in this regard within the time otherwise permitted for its submission of all materials pursuant to paragraph (c). The filing of such a notice shall stay all further proceedings with respect to the Dispute, including the submission of materials, pending disposition of such question by the CDRB. The CDRB may request such material(s) and/or argument(s) as it deems appropriate in connection with such question and shall render its decision within ten (10) days of its receipt of all such material(s) and/or argument(s). The party against whom the Dispute Notice was filed shall, within ten (10) days of such decision, thereupon submit any and all materials which it deems pertinent with respect to the substance of the Dispute to the Arbiter as thus determined.

E. It is expressly understood and agreed that the pendency of a Dispute hereunder shall at no time and in no respect constitute a basis for any modification, limitation or suspension of Contractor's obligation to fully perform in accordance with the Contract and that Contractor shall remain fully obligated to perform the Work notwithstanding the existence of any such Dispute.

ARTICLE 8.04 ADDITIONAL PROVISION RELATING TO THE PROSECUTION OF CLAIMS FOR MONEY DAMAGES

A. Except as otherwise provided in the Contract, if the Contractor claims or intends to claim compensation for any damage or loss sustained by reason of any act, neglect, fault or default of the Contracting Party or the Authority, the Contractor shall furnish a written notice to the Engineer setting forth the nature of the claim and the extent of the damage sustained within seven (7) days of the incurrence of such loss or damages. This written notice shall constitute the Contractor's submission to the Engineer for the purposes of requesting the Engineer's determination in accordance with **ARTICLE 8.01, AUTHORITY OF THE ENGINEER**. Any such claim shall state as fully as then possible all information relating thereto and shall be supported by any then available documentation, including daily records showing all costs incurred. Such

information shall be supplemented with any and all further information, including information relating to the quantum of losses or damages sustained, as soon as practicable after it becomes or reasonably should become known to the Contractor.

B. Any claim for compensation or monetary damages, the successful prosecution of which necessarily depends upon a technical determination favorable to the Contractor, may not proceed unless and until the Contractor first obtains such a favorable determination with respect to the technical issue and must be made within five (5) days of such determination; notwithstanding the foregoing, Contractor must submit to the Engineer any documentation or proof in support of the monetary claim within seven (7) days of the incurrence of such loss or damage as otherwise set forth above in order to proceed with such a claim.

C Compliance with the provisions hereof shall constitute a condition to the Contractor's submission of a Dispute pursuant to **ARTICLE 8.03, DISPUTES RESOLUTION PROCEDURE** with respect to any claim for compensation and the Contractor shall be deemed to have waived any claim not submitted in accordance herewith.

ARTICLE 8.05 CHOICE OF LAW, CONSENT TO JURISDICTION AND VENUE

A. Any final determination of the Arbiter with respect to a Dispute initiated pursuant to **ARTICLE 8.03, DISPUTES RESOLUTION PROCEDURE** shall be subject to review solely in the form of a challenge following the decision by the Arbiter, in a Court of competent jurisdiction of the State of New York, County of Kings or New York, under Article 78 of the New York Civil Practice Law and Rules or a United States Court located in New York City, under the procedures and laws applicable in that court, it being understood the review of the Court shall be limited to the question of whether or not the Arbiter's determination is arbitrary, capricious or lacks a rational basis. No evidence or information shall be introduced or relied upon in such proceeding which has not been duly presented to the Arbiter in accordance with said ARTICLE 8.03.

B This Contract shall be deemed to be executed in the City of New York, State of New York, regardless of the domicile of the Contractor, and shall be governed by and construed in accordance with the laws of the State of New York.

C. To effect this agreement and intent the Contractor agrees:

1. If the Contracting Party or the Authority initiate any action against the Contractor in Federal Court or in New York State Court, service of process may be made on the Contractor either in person, wherever such Contractor may be found, or by registered mail addressed to the Contractor at its address as set forth in this Contract, or to such other address as the Contractor may provide to the Authority in writing.

2. With respect to any action between the Contracting Party or the Authority and the Contractor in New York State Court, the Contractor hereby expressly waives and relinquishes any rights it might otherwise have (i) to move to dismiss on grounds of forum non conveniens, (ii) to remove to Federal Court and (iii) to move for a change of venue to a New York State Court outside Kings or New York County.

3. With respect to any action between the Contracting Party or the Authority and the Contractor in Federal Court located in New York City, the Contractor expressly waives and relinquishes any right it might otherwise have to move to transfer the action to a United States Court outside the City of New York.

4. If the Contractor commences any action against the Contracting Party and/or the Authority in a court located other than in the City and State of New York, upon request of the Authority, the Contractor shall either consent to a transfer of the action to a court of competent jurisdiction located in the City and State of New York as above described or, if the court where the action is initially brought will not or cannot transfer the action the Contractor shall consent to dismiss such action without prejudice and may thereafter reinstitute the action in a court of competent jurisdiction in New York City as above-described.

CHAPTER 9

INSPECTION, TESTING AND GUARANTEES

ARTICLE 9.01 INSPECTION

A. At all times during the Contract, the Engineer shall have the right to make the most thorough and minute inspection of the Work, including materials and their manufacture or preparation, and to draw the attention of the Contractor to all defects in workmanship or materials or other errors or variations from the Contract requirements.

B. The right of inspection by the Authority herein provided is intended solely for the benefit of the Authority. Neither the right of inspection nor any failure to draw attention to or point out such defects, errors or variations shall give the Contractor any right or claim against the Contracting Party or Authority or shall in any way relieve the Contractor from its obligations under the terms of the Contract.

C. If the Work or any part thereof shall be found defective, the Contractor shall without cost to the Authority forthwith remedy such defect in a manner to comply with the Contract.

D. The Contractor shall at all times provide the Engineer and his designated representatives all facilities necessary, convenient or desirable for inspecting the Work. The Engineer and any designated representative shall be admitted any time without delay to any part of the Project and shall be permitted to inspect materials at any place or stage of their manufacture, preparation, shipment or delivery.

Any inspection hereunder shall not unreasonably disrupt the Contractor's performance of the Work.

ARTICLE 9.02 UNCOVERING FINISHED WORK

The Engineer's right to make inspections shall include the right to order the Contractor to uncover or take down portions of finished work. Should the work thus exposed or examined prove to be in accordance with the Contract, the uncovering or taking down and the replacing and the restoration of the parts removed will be treated as Extra Work for purpose of computing additional compensation and an extension of time; but should the work exposed or examined prove unsatisfactory, such uncovering, taking down, replacing and restoration shall be at the expense of the Contractor. Such expenses shall also include repayment to the Authority for any and all expenses or costs incurred by it, including employees' salaries or otherwise, in connection with such uncovering, taking down, replacing and restoration.

ARTICLE 9.03 TESTS

A. All tests required to be performed by Contractor shall be done as set forth in the Specifications and shall be made at the expense of the Contractor.

B. The Engineer shall be apprised of all such tests in advance to be able to witness any such tests.

ARTICLE 9.04 WARRANTY OF CONSTRUCTION

A. For a period of one year from the date of Substantial Completion, the Contractor warrants that the Work conforms to the Contract requirements and is free of any patent or latent defect of the material or workmanship. Nothing in the above intends or implies that this warranty shall apply to work which has been abused or neglected by the Authority or the user of the structure upon which the Work is performed.

B. Notwithstanding the foregoing, if the **SPECIAL CONDITIONS** provide for Beneficial Use, the Contractor's warranty on that part of the Work for which a Beneficial Use Certification has been issued shall begin on the date of such certification.

C. The warranty hereunder shall be in addition to whatever rights the Authority may have under law. The Contractor's obligation under this warranty shall be, at its own cost and expense, promptly to repair or replace (including cost of removal and installation), that item (or part or component thereof) which proves defective or fails to comply with the Contract Documents within the warranty period such that it complies with the Contract Documents.

D. In case the Contractor shall fail to repair or replace defective work in accordance with the terms of this warranty or if immediate repair or replacement of defective work is necessary, the Authority shall have the right to cause such repair or replacement to be made at the expense of the Contractor. All such work performed by Authority employees shall be charged to the Contractor in accordance with the Authority's "Schedule of Rates For Services Rendered To Outside Parties" in effect at the time the repair or replacement is made.

E. The warranty covering any defective work shall be reinstated for a period of one (1) year effective as of the date when the defect is remedied. If the defect is found to have a significant effect on any other part, component or item, the reinstatement of the warranty shall then be extended to cover the part, component or item so affected as well, and shall start as of the date the interrelated parts, components and items function properly. The warranty reinstatement provided for in this subparagraph shall apply only to the first replacement or repair of any such item, part and component and, in the case of a failure which has a significant effect on another part, component or item, to the first extension of the said warranty to such affected items, parts and components.

F. All guarantees and warranties under this Contract are fully enforceable by the Authority acting in its own name.

ARTICLE 9.05 SPECIFIC GUARANTEES

Any additional guarantees and warranties required under the Contract are set forth in the **SPECIAL CONDITIONS.**

ARTICLE 9.06 MANUFACTURER'S WARRANTIES AND GUARANTEES

The Contractor shall obtain all manufacturers' warranties and guarantees of all equipment and materials required by this Contract in the names of the Authority and the Contracting Party and shall deliver

same to the Authority; provided that the delivery of such manufacturers' warranties and guarantees shall in no respect relieve the Contractor of its obligation under the preceding provisions of this **CHAPTER.**

CHAPTER 10

MISCELLANEOUS PROVISIONS

ARTICLE 10.01 NEW YORK STATE LABOR LAW

A. Contractor agrees that it will cause all persons employed upon the Work, including its Subcontractors, agents, officers and employees, to comply with all applicable laws in the jurisdiction in which the Work is performed. It further agrees to comply with the requirements of the State Labor Law. More particularly, if any part of the Work falls within the purview of the State Labor Law, the Contractor agrees as to such part of the Work to comply therewith, including Sections 220, 220-a, 220-b, 220-d, 222-a and 223 thereof, as amended and supplemented. In conformity with such sections of the Labor Law, the Contractor agrees and stipulates that no laborer, worker, or mechanic in the employ of the Contractor, Subcontractor or other person doing or contracting to do the whole or a part of the Work shall be permitted or required to work more than eight (8) hours in any one calendar day, nor more than five (5) days in any one week, except in cases of extraordinary emergency as defined in Section 220 of the Labor Law; and further that the wages to be paid for a legal day's work (as defined in Section 220) to all classes of such laborers, worker or mechanics upon the Work or upon any material to be used upon or in connection therewith shall be not less than the prevailing rate for a day's work (as defined in Section 220) and shall be paid in cash provided, however, that an employer may pay his employees by check after complying with the procedures prescribed in Section 220; and that each laborer, worker or mechanic employed by the Contractor or by any Subcontractor or other person on, about, or upon the Work shall receive the wages and supplements provided for in said Section 220 of the Labor law.

B. The Contractor agrees to comply with the requirements of Section 222-a of the Labor Law, as amended and supplemented. The Contractor agrees that, where work is performed wherein a harmful dust hazard is created for which appliances or methods for the elimination of harmful dust have been approved by the board of standards and appeals, the Contractor shall install, maintain, and effectively operate such appliances and methods. The Contractor further agrees that, if the provisions of Section 222-a, as amended and supplemented, are not complied with, the Contract shall be void.

C. The schedule of wages and supplements required to be filed with the Authority by the New York City Comptroller prior to advertisement of this Contract in accordance with Section 220 (3) of the Labor Law is annexed hereto in the Appendix to this Contract and is hereby incorporated herein. The Contractor shall be fully responsible in connection with any changes or modifications in such rates or supplements, whether mandated by statute, judicial determination, union contracts, or otherwise, and in no event will the Contractor be entitled to additional compensation with respect to any such increases in wages and supplements which may go into effect during the life of this Contract. Where there are differences in City, State and Federal wage rates for a particular classification of work, they shall be resolved by applying the higher

rates.

D. The Contractor and every Subcontractor hereunder shall post in a prominent and accessible place on the site of the Work a legible statement of all wage rates and supplements as specified in the contract to be paid for the various classes of mechanics, worker, or laborers employed on the Work.

E. Before any payments will be made under this contract, the Contractor and all Subcontractors performing any part of the Work shall file in the office of the Chief Fiscal Officer of the Contracting Party verified statements provided for in Section 220-a of the Labor Law, certifying to the amounts then due and owing from the Contractor and Subcontractors for daily or weekly wages or supplements on account of labor performed upon the Work under this Contract, and setting forth therein the names of the persons whose wages or supplements are unpaid and the amount due to each respectively. The Contractor shall set forth in his statement the names of all its Subcontractors and each Subcontractor shall likewise in his statement set forth names of its Subcontractors. If the Contractor or Subcontractor has no Subcontractor, it shall so state in his statement. If there be nothing due and owing to any laborer for daily or weekly wages or supplements on account of labor performed, verified statements to that effect shall be filed by the Contractor and all Subcontractors before any payments are made under this Contract. The statements required shall be verified by the oath of the Contractor or Subcontractor as the case may be that it has read such statement subscribed by it and knows the contents thereof, and that the same is true of its own knowledge.

F. The Chief Fiscal Officer may deduct, from any amount certified under this contract to be due to the Contractor, the sum or sums admitted in the aforesaid statements to be due and owing on account of the aforesaid daily or weekly wages or supplements, as provided in Section 220-b of the Labor Law.

G. If this Contract shall fall within the purview of the provisions of Chapter 615 of the Laws of 1922, known as the Workers' Compensation Law, and acts amendatory thereof, it shall be void and of no effect unless the person or corporation making or performing the same shall secure compensation for the benefit of, and keep insured during the life of this contract the employees engaged thereon, in compliance with the provisions of said Law.

[Continued on next page.]

F. The Contractor shall keep a record card of every employee engaged in the performance of the Work under this Contract whether employed by the Contractor or by a Subcontractor, on which shall be given:

Contract _____

Project and Location _____

Employee's Name _____ Payroll or Badge No _____

Employee's Address _____

_

Title of position _____ Hourly Wage $ _____

Classification _____ Fringe Benefits _____
(Journeyman, Reg. Apprentice, Etc.)

Resided in N.Y. State since _____

Where born _____

Naturalized _____
(Date) (Court) (Location)

Employed by _____
(To be signed by Contractor's representative)

G. Said cards shall be kept in the office of the Contractor and shall be available for inspection by duly authorized representatives of the Authority during business hours of the day. If required, the Contractor shall file with the Authority the above information on duplicate cards to be furnished by the Contractor.

H. The Contractor shall also submit to the Authority the completed weekly payroll report forms issued by the office of the Comptroller and furnished by the Authority. However, on Federally funded projects or where the Contractor produces a computerized payroll printout, the Contractor may, with the permission of the Authority, submit the same payroll information on Federal regulation forms or copies of his computerized payroll in lieu of the payroll report forms issued by the Comptroller.

ARTICLE 10.02 EQUAL EMPLOYMENT OPPORTUNITIES FOR MINORITY GROUP MEMBERS AND WOMEN

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, 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. For purposes of this Article affirmative action shall mean recruitment, employment, job assignment, promotion,

upgradings, demotion, transfer, layoff, or termination and rates of pay or other form of compensation.

B. At the request of the Authority, 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.

C. The Contractor shall state, in all solicitations or advertisements for employees, that, in the performance of this 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.

D. After award of this Contract, the Contractor shall submit to the Engineer and a copy to the Authority's Division of Business Programs a work force utilization report, in a form and manner required by the Authority, of the work force actually utilized on this Contract, broken down by specified ethnic background, gender, and Federal Occupational Categories or other appropriate categories specified by the Authority.

E. Within sixty (60) days of the execution of this Contract, the Contractor shall submit a staffing plan to the Engineer and a copy to the Authority's Division of Business Programs, in a form and manner required by the Authority, which shall contain information on employees projected to work on activities related to the Contract. This information must be broken down by specified ethnic background gender and related job titles.

F. After the award of the Contract, the Contractor shall submit to the Engineer and a copy to the Authority's Division of Business Programs, on a monthly basis, in a form and manner required by the Authority, throughout the life of the Contract, a work force utilization report which details employees' hours worked on activities related to this Contract. This information must be broken down by specified ethnic background, gender and related job titles.

G. The Contractor will include the provision of paragraphs (a) through (f) above, in every subcontract in such a manner that the provisions will be binding upon each subcontractor as to work in connection with this Contract, including the requirement that subcontractors and parties to this Contract shall undertake or continue existing programs of affirmative action to ensure that minority group members and women are afforded equal employment opportunities without discrimination, and, when requested, provide to the Contractor information on the ethnic background, gender, and Federal Occupational Categories of the employees to be utilized on this Contract.

ARTICLE 10.03 ANTITRUST ASSIGNMENT

The Contractor hereby assigns, sells and transfers to the Contracting Party all right, title and interest in and to any claims and causes of action arising under the antitrust laws of New York State or of the United States relating to the particular goods or services purchased or procured by the Authority under

this Contract.

ARTICLE 10.04 PATENTS, COPYRIGHTS AND INFRINGEMENT CLAIMS

A. All inventions, ideas, designs and methods contained in the Contract Documents in which the Authority has, or acquires patent, copyright or other related intellectual property rights (hereinafter referred to as patents or patentable subject matter) shall remain reserved for the exclusive use of the Authority and may not be utilized, reproduced or distributed by or on behalf of the Contractor, or any employee, subcontractor or agent without the written consent of the Authority except to the extent necessarily required in connection with performance of the Work.

B. If, pursuant to performance of the Work, the Contractor or any of its agents, officers, employees or subcontractors shall produce any patentable subject matter, the Authority, the Contracting Party and their respective subsidiaries shall thereupon have, without cost or expense, an irrevocable, non-exclusive, royalty-free license to make, have made or use, either themselves or by another contractor or other party on their behalf, such subject matter in connection with any work or any activity now or hereafter undertaken by or on behalf of the Authority, the Contracting Party or any of their respective subsidiaries. The license herein granted shall not be transferable and shall not extend to contractors or other parties except to the extent of their work or activity on behalf of the Authority, the Contracting Party or their subsidiaries.

C. All drawings, parts lists, data, and other papers of any type whatsoever, whether in the form of writing, figures or delineations, which have been or may be received from the Contractor at any time either prior or subsequent to execution of the Contract and which are prepared in connection with the Contract and submitted to the Authority shall become the property of the Authority. Except to the extent that rights are held by Contractor or others under existing valid patents and are not given to the Authority, the Authority shall have the right to use or permit the use of all such drawings, data, and other papers, and also any oral information of any nature whatsoever received by the Authority, and any ideas or methods represented by such papers and information, for any purposes and at any time without other compensation than that specifically provided herein, and no such papers or information shall be deemed to have been given in confidence and any statement or legend to the contrary on any of said drawings, data, or other papers shall be void and of no effect.

D. The Contractor shall be liable and responsible for any claims made against the Indemnified Parties for any infringements of patents by the use or supplying of patented tools, articles, appliances, structures, materials, devices, applications, methods, ways, processes or any other patent in the performance or completion of the Work or by the use of any process or method connected with the Work or by the use of any materials used upon the Work, except to the extent that a claim results from the Contractor's use of a material or product specifically required by the Authority in the Specifications. The Contractor shall save harmless and indemnify the Indemnified Parties from and against all costs, expenses and damages which any of them shall incur or be obligated to pay by reason of any such infringement or claim of infringement, and shall, at the election of the Authority, defend at the Contractor's sole expense all such claims in connection with any alleged infringement.

E. If the Authority be enjoined from using any portion of the Work as to which the Contractor is to indemnify the Authority against patent claims, the Authority may at its option and without thereby limiting any other right it may have hereunder or at law or in equity, require the Contractor to supply at its own expense, temporarily or permanently, facilities not subject to such injunction and not infringing any patent and if the Contractor shall fail to do so, the Contractor shall, at its expense, remove such offending facilities and refund the cost thereof to the Authority or take such steps as may be necessary to ensure compliance by the Authority with such injunction, to the satisfaction of the Authority.

F. The Contractor is responsible to determine whether a prospective Supplier or Subcontractor is a party to any litigation involving patent infringement, trademark, antitrust or other trade regulation claims or is subject to any injunction which may prohibit it under certain circumstances from selling equipment to be used or installed under this Contract. The Contractor enters into any agreement with a party to such litigation at his own risk and the Contracting Party and the Authority will not undertake to determine the merits of such litigation. The Contracting Party and the Authority, however, reserve the right to reject any article which is the subject of such litigation or injunction when in their judgment use of such article as a result of such circumstances would delay the Work or be unlawful.

ARTICLE 10.05 RELATIONSHIP BETWEEN CONTRACTING PARTY OR AUTHORITY AND OTHERS

Nothing contained herein shall be deemed to give any third party claim or cause of action against the Contracting Party or Authority beyond such as may otherwise exist without regard to this Contract.

ARTICLE 10.06 AUDIT AND INSPECTION

The Contractor shall permit authorized representatives of the Authority, Contracting Party, Government, State or City to inspect and review all of Contractor's work, materials, payrolls, records of personnel, invoices of materials and other relevant construction, equipment, data and records, and to audit the books and records pertaining to the Project or Contract.

ARTICLE 10.07 INDEPENDENT CONTRACTOR

The Contractor agrees that, in accordance with its status as an independent contractor, it will conduct itself with such status, that it will neither hold itself out as nor claim to be an officer or employee of the Authority, Contracting Party, State or City, by reason hereof, and that it 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 Authority, Contracting Party, or State, including, but not limited to, Workers' Compensation coverage, Unemployment Insurance benefits, Social Security coverage or Retirement membership or credit.

ARTICLE 10.08 GENERAL REPRESENTATIONS AND WARRANTIES

In order to induce the Authority to enter into and perform this Contract, Contractor represents and warrants to the Authority that:

A. Existence; Compliance with Law The Contractor (i) is duly incorporated, organized, validly existing and in good standing as a corporation under the laws of the jurisdiction of its incorporation and is duly qualified and in good standing under the laws of each jurisdiction where its ownership, lease, or operation of property in the conduct of its property or business requires, and (ii) has the power and authority and the legal right to conduct the business in which it is currently engaged and to enter into this Contract.

B. Authority The Contractor has full power, authority and legal right to execute, deliver and perform the Contract to which it is a party. The Contractor has taken all necessary action to authorize the execution, delivery and performance of the Contract.

C. No Legal Bar The execution, delivery and performance of the Contract do not and will not violate any provision of any existing law, regulation, or of any order, judgment, award or decree of any court or government or of the charter or by-laws of the Contractor or of any mortgage, indenture, lease, contract, or other agreement or undertaking to which the Contractor is a party or by which the Contractor or any of its properties or assets may be bound, and will not result in the creation or imposition of any lien on any of its respective properties or assets pursuant to the provisions of any such mortgage, indenture, lease, contract or other agreement or undertaking.

D. No Litigation Except as specifically disclosed to the Authority in writing prior to the date hereof, no claim, litigation, investigation or proceeding of or before any court, arbitrator or governmental authority is currently pending nor, to the knowledge of the Contractor, is any claim, litigation or proceeding threatening against the Contractor or against its properties or revenues (i) which involves a claim of defective design or workmanship in connection with any contract entered into by the Contractor or (ii) which, if adversely determined, would have an adverse effect on the business, operations, property or financial or other condition of the Contractor. For purposes of this paragraph, a claim, litigation, investigation or proceeding may be deemed disclosed to the Authority if the Authority has received, prior to the date hereof, detailed information concerning the nature of the matter involved, the relief requested, and a description of the intention of the Contractor to controvert or respond to such matter.

E. No Default The Contractor is not in default in any respect in the payment or performance of any of its obligations or in the performance of any mortgage, indenture, lease, contract or other agreement or undertaking to which it is a party or by which it or any of its properties or assets may be bound, and no such default or Event of Default (as defined in any such mortgage, indenture, lease, contract, or other agreement or undertaking) has occurred and is continuing or would occur solely as a result of the execution and performance of this Contract. The Contractor is not in default under any order, award, or decree of any court, arbitrator, or government binding upon or affecting it or by which any of its properties or assets may be bound or affected, and no such order, award or decree would affect the ability of the Contractor to carry on its business as presently conducted or the ability of the Contractor to perform its obligations under this Contract or any of the other financing to which it is a party.

F. No Inducement or Gratuities

1. Contractor warrants that no person or selling agency has been employed or retained to solicit or secure this Contract upon any agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by Contractor for the purpose of securing business.

2. Additionally, Contractor warrants that no inducements (in the form of entertainment, gifts, offers of employment, or any other thing of value) or gratuities have been offered or given or will be offered or given to any official or employee of the Authority (including individuals who were recent employees of the Authority). The Contractor further warrants that during the term of the contract it shall not make any offers of employment of any Authority employee, or solicit or interview therefor, without obtaining the written approval of the employee's Department Head.

3. For breach or violation of the foregoing warranties, the Authority shall have the right to cancel the Contract without liability or, at its discretion, to deduct from the Total Contract Price or otherwise to recover the full amount of such commission, percentage, brokerage or contingent fee, or gratuities, and to include the occurrence of such a breach or violation in assessments of the Contractor's responsibility in future bids.

ARTICLE 10.09 PROHIBITION ON PURCHASE OF TROPICAL HARDWOODS

A. Except as hereinafter provided, New York State Finance Law Section 165, prohibits public benefit corporations (the Authority) from requiring or permitting the use of tropical hardwood or wood product.

B. The provisions of this Article shall not apply where the Contracting Officer finds that:

1. no person or entity doing business in the state is capable of performing the Contract using acceptable non-tropical hardwood species; or

2. the restriction would violate the terms of a grant to the Authority from the Federal Government; or

3. the use of tropical woods is deemed necessary for purposes of historical restoration and there exists no available acceptable non-tropical wood species.

C. As used in this **ARTICLE**:

1. "Non-tropical hardwood species" shall mean any and all hardwood that grows in any geographically temperate regions, as defined by the United States Forest Service, and is similar to tropical hardwood in density, texture, grain, stability or durability. Non-tropical hardwood, the use or purchase of which is preferred under this Article, shall include, but not be limited to those species listed in New York State Finance Law Section 165, paragraph 1.

2. "Tropical hardwood" shall mean any and all hardwood, scientifically classified as angiosperme that grows in any tropical moist forest. A list of tropical hardwoods is found in New York State Finance Law Section 165, paragraph 1.

3. "Tropical rainforests" shall mean any and all forests classified by the scientific term "Tropical moist forests," the classification determined by the equatorial region of the forest and average rainfall.

4. "Tropical wood products" shall mean any wood products, wholesale or retail, in any form, including but not limited to veneer, furniture, cabinets, paneling mouldings, doorskins, joinery, or sawnwood, which are composed of tropical hardwood except plywood.

ARTICLE 10.10 OMNIBUS PROCUREMENT ACT OF 1992

A. In compliance with the New York State Omnibus Procurement Act of l992, if the Gross Sum Bid or the Lump Sum enumerated in the Bid is equal to or greater than one million dollars, this **ARTICLE** shall apply to this Contract.

1. If this Contract is awarded in an amount equal to or greater than one million dollars, the Contractor will be required to document its efforts to encourage the participation of New York State business enterprises as Suppliers and Subcontractors by showing that the Contractor has:

i. solicited bids, in a timely and adequate manner, from New York State business enterprises including certified minority-owned business;

ii. contacted the New York State Department of Economic Development to obtain listings of New York State business enterprises;

iii placed notices for Subcontractors and Suppliers in newspapers, journals and other trade publications distributed in New York State; or

iv. participated in bid outreach conferences.

2. If the Contractor determines that the New York State business enterprises are not available to participate on the Contract as Subcontractors or Suppliers, the Contractor shall provide a statement indicating the method by which such determination was made. If the Contractor does not intend to use Subcontractors, the Contractor shall provide a statement verifying such.

3. If this Contract is awarded in an amount equal to or greater than one million dollars, the Contractor will be required to notify New York State residents of employment opportunities through listing any such positions with Community Services Division of the New York State Department of Labor, or providing for such notification in such manner as is consistent with existing collective bargaining contracts or agreements.

ARTICLE 10.11 COMPLIANCE WITH LAWS, RULES AND REGULATIONS

The Contractor and any Subcontractor must comply with all local, State and Federal laws, rules and regulations applicable to this Contract and to the Work to be done hereunder, whether or not referenced in the Contract Documents.

ARTICLE 10.12 GRAND JURY TESTIMONY

Upon refusal of the Contractor as an individual or as member, partner, director or officer of the Contractor, if the Contractor be a firm, partnership or corporation, when called before a grand jury, governmental department, commission, agency or any other body which is empowered to compel the attendance of witnesses and examine them under oath, to testify in an investigation or to answer any relevant questions concerning any transaction or contract entered into with the State, or any political subdivision thereof, or a public authority or with any public department, agency or official of the State or any political subdivision thereof, when immunity has been granted to the witness against subsequent use of such testimony, or any evidence derived therefrom in any subsequent criminal proceeding:

Such individual, or any firm, partnership or corporation of which he is a member, partner, director or officer shall be disqualified for a period of five (5) years after such refusal from submitting bids for, or entering into or obtaining any contracts, leases, permits or licenses with the City, the MTA or the Authority or submitting bids for or entering into, or obtaining any contracts, leases, permits or licenses which will be paid out of any monies under the control of or collected by the City, the MTA, the Authority and/or shall be subject to such other action appropriate under the circumstances; and

this Contract and any and all such existing contracts, leases, permits or licenses made with or obtained by any such individual or with or by the firm, partnership, or corporation of which he/she is a member, partner, director or officer may be cancelled or terminated by the City, the MTA or the Authority or the contracting agency or be subject to such action appropriate under the circumstances thereto without incurring any penalty or damages on account of such cancellation or termination, but any monies owing for goods delivered, work done, or rentals, permit or license fees due, prior to the cancellation or termination, shall be paid.

ARTICLE 10.13 NOT USED

ARTICLE 10.14 ASIAN LONGHORNED BEETLE

A. Any work under this Contract, whether performed by the Contractor or any of its subcontractors, that involves the handling or removal of any "host material" originating from within the Asian Longhorned Beetle ("ALB") quarantine zone, as defined by New York State Department of Agriculture and Markets ("NYSDAM"), must be performed: (1) in accordance with federal, state and local laws and regulations regarding the eradication of the ALB, including Part 139 of the New York State Agriculture and Markets Law ("NYS AML"); and (2) by a Contractor (or subcontractor) that is certified by NYSDAM, to perform such work. Copies of such certification must be provided to the Authority before any work involving host material is commenced.

   1. "Host material" generally includes all firewood (of hardwood species) and trees, logs, green lumber, stumps, roots, branches (whether living, cut or dead) that is one-half inch or more in diameter and one of the trees listed in NYS AML Part 139.3.

B. Prior to the handling or disposal of any host material within the quarantine zone, an NYSDAM-certified person must perform an inspection for the presence of ALB infestation.

1. If an ALB infestation is detected, then all work related to the handling or disposal of that host material must cease and the Contractor shall immediately contact the Project Manager for further action. Work involving the infested host material may not restart until written notification to proceed is received from the Project Manager.

2. If no ALB infestation is detected, then the host material, if living, may be left untouched. If the host material was discovered cut, dead or to be removed, it must be handled or disposed of pursuant to the regulations set forth by NYSDAM.

ARTICLE 10.15 CONTRACT DOCUMENTS CONTAIN ALL TERMS

These Contract Documents contain all the terms and conditions agreed upon by the parties hereto, and no other agreement, oral or otherwise, regarding the subject matter of this Contract shall be deemed to exist or to bind any of the parties hereto, or to vary any of the terms contained herein.

ARTICLE 10.16 ALL LEGAL PROVISIONS INCLUDED

It is the intent of the parties that each and every provision of law required to be inserted in this Contract should be and is inserted herein. Every such provision is to be deemed to be inserted herein, and if any such provision is not inserted or is not inserted in correct form, then this contract shall be deemed amended by such insertion so as to comply strictly with the law and without prejudice to the rights of either party hereunder.

ARTICLE 10.17 DETERMINATIONS REGARDING AMBIGUITIES AND ORDER OF PRECEDENCE

A. If this Contract contains any errors, inconsistencies, ambiguities, or discrepancies, including typographical errors, the Contractor shall request a clarification of same by requesting a determination by the Engineer.

B. If there is a conflict between provisions of the Contract Documents, upon request for a determination by the Engineer, the following order of precedence shall generally apply:

1. The Addenda, if any
2. The Information for Bidders Data Sheet
3. The Special Conditions
4. The Information for Bidders section and the Contract Terms and Conditions
5. The Contract Drawings and Specifications (These documents complement each other – see **SPECIFICATION SECTION 1B-1.1 – SPECIFICATIONS AND CONTRACT DRAWINGS TO COMPLEMENT EACH OTHER AND ARTICLE 4.02 CLARIFICATION OF CONTRACT DRAWINGS**).
6. The Appendix, except that items contained in the Appendix having the force of law are not deemed superseded by anything to the contrary contained in items 1 through 5, above.

C. Nothing in the above is intended to supersede the certifications, representations and statements contained in the Bid.

ARTICLE 10.18 SEVERABILITY

If this Contract contains any provision found to be unlawful, the same shall be deemed to be of no effect and shall be deemed stricken from the Contract without affecting the binding force of the Contract as it shall remain after omitting such provision.

ARTICLE 10.19 SURVIVAL

In addition to any provision expressly set forth as surviving the expiration or termination of this Contract, any provision of this Contract whose purpose would be defeated or rendered meaningless by the expiration or earlier termination hereof shall be deemed to survive any such expiration or termination.

CHAPTER 11

FEDERAL REQUIREMENTS

ARTICLE 11.01 FEDERAL DRUG AND ALCOHOL TESTING REQUIREMENTS

SCHEDULE X, FEDERAL DRUG AND ALCOHOL TESTING REQUIREMENTS, APPLIES TO THIS CONTRACT WHEN THE INFORMATION FOR BIDDERS DATA SHEET indicates that the Authority believes that "safety-sensitive functions" (as defined in 49 CFR Part 655) are involved in this Contract.

[END OF SECTION]

CONTRACT NO.: _____

In WITNESS WHEREOF, this Contract has been executed by both the NEW YORK CITY TRANSIT

AUTHORITY and _____, the CONTRACTOR*, on the day and year indicated on the applicable "Acknowledgment" documents. The CONTRACTOR, if a corporation, has also affixed its seal to this instrument on the day and year indicated on the "Acknowledgment for the CONTRACTOR" document.

THE NEW YORK CITY TRANSIT AUTHORITY

by: _____
Assistant Chief Procurement Officer

THE CONTRACTOR

_____(Seal)
Exact Name of Contractor

by: _____

Title: _____

* The Contractor, if a partnership or corporation, must execute this Contract in the exact firm or corporate name as it appears in its partnership agreement or certificate of incorporation. If the Contractor is a corporation and this Contract is executed by an Officer other than the President or Vice President, the Contractor shall furnish a certified copy of by-laws or a resolution authorizing said Officer to sign, unless same has previously been furnished to the Authority. If the Contractor is a joint venture, and an individual executes this Contract on behalf of more than one member of the joint venture, documentation shall be furnished establishing such individual's authority to bind each such member.

ACKNOWLEDGMENT FOR THE AUTHORITY

STATE OF NEW YORK,)
) SS.:
COUNTY OF)

On this _____ day of _____ 20____ , before me personally

appeared _____ to me known, who, being by me

first duly sworn, did depose and say: That he/she is the _____ of the New York City Transit Authority, the public benefit corporation described in and which executed the foregoing instrument and that he/she acknowledged to me that he/she signed his/her name thereto pursuant to the authorization of said Authority.

_____
Notary Public

ACKNOWLEDGMENT FOR CONTRACTOR

STATE OF)
) SS.:
COUNTY OF)

On this _____ day of _____ 20___, before me personally appeared _____, known to me to be the person who executed the foregoing instrument, who, being duly sworn by me did depose and say that s/he resides at _____, in the City of _____ , in the County of _____, in the State of _____; and further that s/he:

[Mark an X in the appropriate box and complete the accompanying statement.]

(If an individual): executed the foregoing instrument in her/his name and on her/his own behalf.

☐ (If a corporation): is the _____ of _____, the corporation in said instrument; that, by authority of the Board of Directors of said corporation, s/he is authorized to execute the foregoing instrument on behalf of the corporation for the purposes set forth therein; and that, pursuant to that authority, s/he executed the foregoing instrument in the name of and on behalf of said corporation as the act and deed of said corporation.

☐ (If a partnership): is the _____ of _____, the partnership described in said instrument; that, by the terms of said partnership s/he is authorized to execute the foregoing instrument on behalf of the partnership for the purposes set forth therein; and that, pursuant to that authority, s/he executed the foregoing instrument in the name of and on behalf of said partnership as the act and deed of said partnership.

☐ (If a limited liability company): is a duly authorized member of _____ LLC, the limited liability company described in said instrument; that, s/he is authorized to execute the foregoing instrument on behalf of the limited liability company for the purposes set forth therein; and that, pursuant to that authority, s/he executed the foregoing instrument in the name of and on behalf of said limited liability company as the act and deed of said limited liability company.

_____
Notary Public

STATE OF NEW YORK - EXECUTIVE DEPARTMENT

OFFICE OF GENERAL SERVICES - DESIGN & CONSTRUCTION GROUP

DOCUMENT 00701
GENERAL CONDITIONS
JANUARY 2003 EDITION

TABLE OF ARTICLES

NOTE: Article 19 modified 03/06/2003
Article 9 modified 06/29/2004

ARTICLE 17A - DELAYS

17A.1 For the purposes of this contract, the term delay includes delay, disruption, interference, inefficiencies, impedance, hindrance and acceleration.

17A.2 The Contractor agrees to make claim only for additional costs from causes listed below, attributable to delay in the performance of this contract, occasioned by any act or omission to act by the State or any of its representatives. The Contractor also agrees that delay from any other cause shall be compensated for solely by an extension of time to complete the performance of the work.

17A.2.1 The failure of the State to take reasonable measures to coordinate and progress the work.

17A.2.2 Extended delays attributable to the State in the review or issuance of orders-on-contract or field orders, in shop drawing reviews and approvals or as a result of the cumulative impact of multiple orders on contract, which constitute a qualitative change to the project work and which have a verifiable impact on project costs.

17A.2.3 The unavailability of the site for such an extended period of time which the Director determines to significantly affect the scheduled completion of the contract.

17A.2.4 The issuance by the Director of a stop work order relative to a substantial portion of work for a period exceeding thirty days.

17A.3 The Contractor shall provide "notice of claim" of an anticipated claim for delay to the Contracting Officer by personal service or certified mail no more than fifteen days after the Contractor knew or ought to have known of the facts which form the basis of the claim. The Contracting Officer shall acknowledge receipt of the Contractor's notice, in writing, within five days. The Contractor agrees that the State shall have no liability for any damages which accrue more than fifteen days prior to the delivery or mailing of the required notice. The notice shall at a minimum provide a description of any operations that were, are being, or will be delayed, the date(s) and reasons for the delay, and, to the extent known, the information required by Section 17A.6 below. In no case, shall oral notice to the Director's Representative or contracting officer constitute notice under this provision or be deemed to constitute a waiver of the written notice requirement.

17A.4 Failure by the Contractor to adequately progress the completion of the work will be considered in determining the causes of delay. For any claim asserted under this Article, the Contractor shall keep detailed written records of the costs and shall make them available to the Contracting Officer at any time for the purposes of audit and review. Failure by the Contractor to provide the required written notice or to maintain and furnish records of the costs of such claims to the Contracting Officer shall constitute a waiver of the claim.

17A.5 The provisions of this Article apply only to claims for extra or additional costs attributable to delay and do not preclude determinations by the Director allowing reimbursement for additional costs for extra work pursuant to Article 10 of the General Conditions of the contract.

17A.6 REQUIRED CONTENT OF CLAIM SUBMISSION.

17A.6.1 As noted in Section 17.A.3 above, all claims for delay shall be submitted in writing to the Contracting Officer and must be in sufficient detail to enable the Contracting Officer to ascertain the basis and the amount of each claim. The following information shall be provided by the Contractor upon request of the Contracting Officer if not previously supplied:

a. A description of the operations that were delayed, the reasons for the delay and an explanation of how they were delayed.

b. A detailed factual statement of the claim providing all necessary dates, locations and items of work affected by the claim.

c. An as-built chart, "Critical Path Method" scheme or other diagram or chart depicting in graphic form how the operations were or are claimed to be adversely affected including the report and conclusions of all engineering and scheduling experts or other consultants, if any.

d. The date on which actions resulting in the claim occurred or conditions resulting in the claim became evident.

e. A copy of the approved project schedule and a copy of the "notice of claim" required for the specific claim by Section 17A.3 of the contract.