



MIAMI-DADE EXPRESSWAY AUTHORITY

3790 NW 21 St. // Miami, FL 33142

www.mdxway.com

MDX PROCUREMENT/CONTRACT NO.:
RFP-15-04

MDX PROJECT/SERVICE TITLE:
GENERAL ENGINEERING CONSULTING
SERVICES (GEC-B)

EXHIBIT A

SCOPE OF SERVICES

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I. Purpose

The Consultant shall provide MDX with professional services for a wide range of engineering, planning, design, environmental, right-of-way, architectural, construction management, landscape architecture, program management, public involvement, public communications support and administrative services to manage and operate the following programs:

- A. Transportation Improvement Program
- B. Capital Improvement Program
- C. Renewal and Replacement Program
- D. 20-year Master Transportation Plan (Long Range Transportation Plan)
- E. Reports to the State of Florida and bondholders, as required by the Trust Indenture for the Miami-Dade Expressway System (the "System"); and
- F. Support for the operation, maintenance, and construction of the System

The Consultant shall provide qualified technical and professional personnel to perform, to MDX's standards and procedures, the duties and responsibilities assigned under the terms of this Contract. The Consultant shall minimize to the maximum extent possible MDX's need to apply its own resources to tasks assigned to the Consultant. MDX, at its sole discretion, may elect to expand, reduce or delete any portion of the Scope of Services, provided such action does not alter the intent of this Contract.

The Services consist of, but are not limited to, the following:

- A. Finance Support, Responsibilities and Activities under the Trust Indenture
- B. Work Program
- C. Services Contract Support
- D. Project Engineering Support
- E. Environmental Management
- F. Construction Management Services
- G. Geotechnical Services
- H. Public Involvement – Public Information Support
- I. Highway and Facilities Operations and Maintenance Support
- J. Toll Operations
- K. Intelligent Transportation Systems (ITS)
- L. Professional Right-of-Way Services Management
- M. Procurement Department Support
- N. Public Communications Support
- O. Professional Surveying & Mapping

P. Innovative Technology

MDX's business practice is to contract with two (2) Consultants to provide the Services. The Consultants are categorized as General Engineering Consultant (GEC) A, and GEC B. Generally, GEC A will be responsible for the Work Program Controls, Planning and Design Management; and GEC B will be responsible for the Construction Management Services.

However, at its sole discretion, MDX may assign any of the Services to either GEC. Both GEC's are expected to have the qualifications, expertise, and resources necessary to provide any portion of the Services with adequate notification from MDX.

Upon execution of the Contract, the GEC's shall work with MDX to implement a coordination plan to ensure a seamless transition, if applicable, and implementation of the Scope of Services by both GEC's.

MDX does not guarantee that any or all of the Services shall be assigned during the Term of the Agreement. Furthermore, the Consultant shall provide the Services on a non-exclusive basis. Assignment of the Services to the Consultant shall be solely at the discretion of MDX. MDX may also elect to have any of the Services performed by MDX staff or other consultants.

II. Location

The Consultant shall maintain at all times during the Term of the Agreement a Full Service Operational Office. In addition, the Consultant may have other offices located in Miami-Dade County or elsewhere to support the operations of the Full Service Operational Office.

III. Authorization of Services

MDX will assign the Services and authorize funds to compensate the Consultant, on an-as-needed basis, through the issuance of Task Authorizations.

The particulars of each Task Authorization shall be agreed upon by MDX and the Consultant, including tasks to be performed and the compensation to the Consultant for such tasks.

Consultant shall not be compensated for Services performed that were not pre-authorized by MDX through a Task Authorization.

Compensation to the Consultants of all Services shall be done in accordance with the Contract's Method of Compensation

IV. Services

The Consultant shall provide the Services as described below:

A. Finance Support, Responsibilities and Activities under the Trust Indenture

The Consultant shall serve as MDX's Consulting Engineer as set forth in MDX's Trust Indenture, as amended, incorporated herein by reference. As such the Consultant shall familiarize itself with the Trust Indenture and its requirements as it relates to the Consultant in the capacity of the Consulting Engineer, as well as the requirements of MDX therein.

In specific, but not limited to, the Consultant shall adhere to the requirements of the following Sections of the Trust Indenture:

Section 4.02 Payments from Construction Fund

Section 4.03 Cost of a Project

Section 4.05 Disposition of Sums in the Construction Fund

Section 5.03 Annual Inspection of System

Section 7.02 Construction of a Project

Section 7.06 Insurance

Section 7.11 Records, Accounts and Audit

Section 7.16 No Competing Systems

Section 11.01 Supplemental Indenture Without Bondholders' Consent

In addition, the Consultant must comply with the following:

1. When approving expenditures pursuant to Sections 4.02 and 5.09 of the Trust Indenture, the Consultant's approval shall certify that the goods/services have been received and as such the expenditure being approved has been incurred, and that such expenditure for goods/services is reasonable in value or priced with the industry. In addition, the Consultant shall certify

when approving expenditures that costs are capitalizable under General Accepted Accounting Standards.

2. The Consultant shall monitor the construction of the System Plan by making periodic construction inspections and reports.
3. The Consultant shall advise and confer with MDX concerning the budget for operation, maintenance, and repair of the MDX System. The Consultant shall prepare monthly, quarterly, and/or annual draw schedule for construction and renewal and replacement funds.
4. The Consultant shall monitor progress of constructing the System Plan and evaluate any proposed modifications, alterations or changes in design, alignment or location which will substantially increase the cost of the System Plan.
5. In addition, the Consultant shall prepare a Consulting Engineer's Report to include at minimum the following:
 - a) Purpose of the Report
 - b) Project Description
 - c) Implementation Schedule
 - d) Cost Estimates Escalated to Scheduled Dates
 - e) Operations & Maintenance Impacts
 - f) Renewal & Replacement Impacts
 - g) Sign Certificate of Consulting Engineer for bond sales
6. At the direction of MDX, the Consultant shall prepare reports, documents or other engineering analyses which may assist MDX in delivering the 5-year Transportation Improvement Program, 5-year Capital Improvement Program, 5-year Renewal & Replacement Program, 20-year Master Transportation Plan, as well as any necessary reports to the State of Florida and the bondholders.
7. If applicable, within thirty (30) Calendar Days from the execution of the Contract, the Consultant shall provide written acceptance of the Work Program projects documentation from the previous GEC, including but not limited to:
 - a) Project scope, cost estimates and budgets
 - b) Work Program General Ledger account balances

8. The Consultant shall coordinate MDX's Work Program with the Miami-Dade County Metropolitan Planning Organization (MPO), Florida Department of Transportation (FDOT) and other local agencies.
9. The Consultant shall complete all necessary reports and back up information for the Florida Transportation Commission (FTC) and year end audit for each fiscal year reporting cycles.
10. The Consultant shall assist and support all analysis of traffic and revenue. The Consultant shall review and coordinate information/data from the MDX General Traffic & Revenue Consultant in order to sign off on the Certificate of Investment Grade Traffic and Revenue Study required for bond issuance.
11. The Consultant shall assist and support the MDX Chief Financial Officer on any MDX finance related matter, as may be needed.

B. Work Program

The Consultant shall assist MDX with the following:

1. Developing and managing the 5-year Transportation Improvement Program and 5-year Capital Improvement Program (the Work Program), including:
 - a) The coordination of existing transportation plans (e.g. Turnpike, FDOT, Aviation, Miami-Dade County, local agencies) and the Dade County Comprehensive Plan to determine impact on MDX System.
 - b) Prepare report of current and proposed projects on MDX System.
 - c) Coordinate the Work Program financial affordability with the Chief Financial Officer.
 - d) Develop Work Program based on current work phases, project needs and current and anticipated revenue.
 - e) Prepare final document(s) and brochures.
 - f) Representation of MDX at technical meetings (including MPO's CIP Development Committees).
 - g) Provide management and support for public involvement activities.
 - h) Coordination of MDX's Property Acquisitions.

- i) Provide management and support for public involvement activities.
 - j) Coordination of MDX's Property Acquisitions.
2. Maintain and manage the 20-year Master Transportation Plan, including:
 - a) Development and review of socioeconomic data.
 - b) Development and review of the transportation network.
 - c) Provide mapping and plotting services.
 - d) Provide services in Traffic and Revenue or coordination with MDX's Traffic and Revenue Consultant as it relates to modeling services pertaining to travel demand model including calibration/validation and forecasting.
 - e) Financial resources review and updating.
 - f) Development of the Transportation Plan and prepare final document(s) and brochures.
 - g) Provide support for public involvement activities.
 - h) Representation of MDX at technical meetings (including MPO's LRTP Committees).
3. Review of each local comprehensive plan or plan amendment for applicability to MDX.
4. Attend Development of Regional Impact (DRI) Pre-application Conference and prepare response to applications for developmental approval.
5. Prepare the 5-year Transportation Improvement Program, 5-year Capital Improvement Program and 20-year Master Transportation Plan for the System.
6. Review of design traffic modeling as provided by the MDX General Traffic & Revenue Consultant, or as needed perform the traffic modeling services.
7. Coordination with and support of the MDX Operations and Maintenance Program.
8. Management and coordination of the MDX Toll Collection and Operations System.

9. Management and coordination of the MDX Traffic Management Center (TMC).
10. Management and coordination of the MDX Intelligent Transportation System (ITS).
11. Management and coordination of the MDX Property Acquisition Program (Right-of-Way).
12. Coordination with MDX General Counsel (both in-house counsel and outside counsel).
13. Preparation and review of interchange justification/modification reports.
14. Determination and verification of vehicle count and classification data.
15. Certification of estimated project costs for economic feasibility determination.
16. Informing the public of the status and impact of projects.
17. Additional support may also include assistance with development of strategic initiatives, including leveraging partnerships and strengthening associations with public and private partnerships.
18. MDX Work Program Tracking, Support and Development
 - a) Program Controls Manual:

The Consultant shall develop and maintain a Program Controls Manual that clearly outlines the controls processes used by the GEC's to support MDX in the development, tracking and delivery of the MDX Work Program for purposes of providing improved program performance through effective communication and increased accuracy of program data. The Program Controls Manual should include duties and responsibilities for all involved in the process and should address areas including, but not limited to:

 - Work Program Development and Updates
 - Project Delivery
 - Change Management

- Tracking of Expenses
 - Safeguarding Funds
 - Communication & Reporting
 - Document Control
 - Information Technology Systems
- b) Cost Estimating Methodology Manual:
The Consultant shall develop and maintain a Cost Estimating Methodology Manual that clearly outlines the process used by the Consultant in the preparation, validation and approval of cost estimates for MDX projects. The manual should include templates for typical procurement methods used by MDX as well as guidelines for risk analysis, application of cost escalation factors, and determination of contingency levels at a minimum.
- c) Develop cost estimates for all projects in the MDX Work Program, as well as non-Work Program Projects. Ensure that a cash flow for existing MDX bond accounts are tracked and thoroughly coordinated with MDX Engineering and Finance Departments. MDX Work Programs run on a fiscal year beginning on July 1st of each year and finishing on June 30th of the following year.
- d) All costs for each project are to be developed for the entire project from planning through final acceptance. All necessary information such as on-going maintenance and operations costs of a project are to be considered. The Consultant shall provide a written opinion that all cost estimates are reasonable no less than once every fiscal year.

C. Services Contract Support

The Consultant shall assist MDX in the acquisition of and management of contracts for:

1. Professional services as defined in Section 287.055, Florida Statutes, relative to the acquisition of architecture, professional engineering, landscape architecture and land surveying; and
2. Other contractual services required for the implementation of the Work Program, including construction contracts. For the purpose

of this provision, the terms consultant and contractor; work and services are used interchangeable.

The Consultant shall assist MDX as follows:

1. Develop scopes of work, and all special contract provisions and project concept reports.
2. Prepare estimated man loading requirements and estimates of costs for proposed services.
3. Develop milestone schedules of overall time relationships authorized for the performance of services and coordination between various entities that are to be involved in a project.
4. Coordinate with MDX's General Counsel.
5. Assist with the development of Solicitation Documents and/or Contract Documents.
6. Prepare for coordinating and/or conducting Scope of Services meetings and preparing official minutes.
7. Assist in the negotiations of rates, staff hours, and method of compensation and contract terms with consultants.
8. Review and evaluate consultant fee proposals.
9. Conduct and expedite pre-award audits.
10. Provide assistance in the analysis and development of reasonable and industry standardized insurance requirements for the various services. The analysis shall take into consideration risk, cost, and impact on available competition.
11. Review and determine validity of consultant claims for extra work and/or extensions of time for performance of services.
12. Develop entitlement analysis required to substantiate a supplemental agreements and work orders.
13. Review and evaluate appropriateness of consultant submitted fee proposals for supplemental services.

14. Review and recommend for approval consultants' requests for payment.
15. Monitor consultant performance of services to establish adequacy relative to contract requirements.
16. Prepare necessary documentation to effectuate a contract termination or completion, including obtaining all required releases and waivers.
17. Monitor compliance with invoice submittals and payments to subcontractors, Small Businesses, and Local Businesses.
18. Track work authorizations and correspondence.
19. Assist in the standardization of scopes of services normally used to solicit services.
20. Maintain an audit file for each contract which will include original contract, all correspondence, changes, amendments, clarifications, payment schedules.
21. Ensure that contractor is in compliance with legal requirements, MDX policies, specifications and procedures and applicable government regulations.
22. Implementation of standardized MDX design preferences including, but not limited to, the MDX Enhancement Manual.
23. Plans review and tracking distribution.
24. Assist MDX in the coordination and management of various controls and reporting systems to:
 - a) Schedule, track and monitor status of contract activities.
 - b) Provide and/or obtain subcontract advice on technical matters requiring specialized skills, techniques or equipment.

D. Project Engineering Support

As directed by MDX, the Consultant shall perform the following services:

1. Management

a) Project Development Services and Support

- i. Review preliminary engineering documents including, but not limited to, engineering reports and all environmental documents.
- ii. Review and recommend project limits or work for project design.
- iii. Develop conceptual design documents, including but not limited to, project design criteria, pavement design, geotechnical information and surveying that form the basis of the preliminary engineering and design contract packages.

b) Project Control Services Support

- i. Monitor project scheduling requirements and major milestone events for engineering/construction activities such as the following:
 - a. Project Development and Environmental Studies
 - b. Design
 - c. Environmental
 - d. Permits
 - e. Property acquisition
 - f. Utility and railroad relocations
 - g. Construction
 - h. Landscape (System-wide or project specific)
 - i. Intelligent Transportation Systems (ITS)
- ii. Evaluate physical progress of design activities versus schedule progress and report significant variances.
- iii. Prepare and issue periodic status reports on project progress and document problems and delays.

- iv. Prepare engineering estimates of project costs operations & maintenance impacts and renewal and replacement impacts
- v. Assist in or prepare comparative cost estimates:
 - a. Claims analyses
 - b. Level of work efforts (man hour estimates)
- vi. Provide a Work Program cash drawdown schedule as requested by MDX.
- vii. Provide required certified confirmation/information related to the Work Program for the preparation of the annual financial statements in accordance with Generally Accepted Accounting Principles (GAAP) including, but not limited to:
 - a. Construction-in-Progress, retainage and relevant accounts receivable balances/costs are correct as provided by MDX.
 - b. MDX owns/entitled to the completed Work Program project.
 - c. That MDX has been notified:
 - When a Work Program project needs to be placed in service and recognize as an asset.
 - When a Work Program project-related capital asset was disposed of and should be written off.
 - Of any recommended impairments to Work Program projects or Work Program projects that were previously placed in services.
 - d. All Governmental Accounting Standards Board (GASB) pronouncements have been applied correctly in overseeing the Authority's Work Program.

c) Administrative Support

- i. Analyze claims against MDX arising out of a project or work thereon and provide support as required to effect the settlement of such claims.
- ii. Furnish testimony by the Consultant in hearings, condemnation proceedings or other litigation and prepare trial exhibits.
- iii. Represent MDX on transportation task teams and at technical meetings.

2. Design and Permitting Support

As directed by the MDX, the Consultant shall provide the following Services:

a) Design Support

- i. Engineering support staff to serve as MDX's Drainage Engineer, Structural Engineer, CADD Manager, Geotechnical Engineer, Traffic Operations Engineer and other staff as needed.
- ii. Review and coordinate the work with other agencies and consultants related to design projects.
- iii. Review and comment on the preparation by MDX and other consultants of construction documents and of preliminary and final estimates of construction costs. Recommend acceptance and approval by MDX of such plans, specifications and estimates based on such reviews.
- iv. Review design development compliance with approved project design criteria.
- v. Review and provide written response on the adequacy of all submittals by other agencies and design consultants for all plans, projects and reports related to the MDX System including, but not limited to, structural plans, roadway plans, building plans and engineering reports.
- vi. Advise and consult on questions of engineering with respect to project design.
- vii. Monitor design consultants' performance to determine adequacy of work performed relative to contract requirements.

- viii. Review and provide written responses regarding the development of design and construction comparative cost estimates.
- ix. Assist in evaluation of environmental documentation.
- x. Advise and consult on questions of engineering with respect to existing and proposed construction on the System.
- xi. Accomplish incidental and emergency design activities as may be required and authorized.
- xii. Provide special engineering services, including special studies and economic advisory/analytical services.
- xiii. Provide final design work for special projects as determined by MDX.
- xiv. Coordination and support for all activities related to the Property Acquisition Program including, but not limited to, coordination with property appraisal firms, environmental consultants and MDX General Counsel and eminent domain attorneys.
- xv. Provide geotechnical advisory support services where directed.
- xvi. Provide support and coordination on communications for public awareness.
- xvii. Review, coordinate and verify available traffic data and develop additional data as directed.
- xviii. Traffic operations support to include traffic counts, pavement and signing plans, signalization plans and other functions as directed by MDX.
- xix. Design reviews for the Automatic Vehicle Identification System/Electronic Toll and Traffic Management System/Violation Enforcement Systems collectively known as *SunPass*[™] and, on an as needed basis, assist in managing the implementation and/or installation thereof in accordance with design requirements and schedule.
- xx. Archive and retain all plans, submittals and contract documents. Assure that all said documents are located within the MDX Content Management System and final plans, as-builds and contract close-out documents in the appropriate developmental software format and in PDF form.

b) Permitting Support

- i. Prepare and/or review and provide written comments on permit requirements and compliance. This will include permits issued by MDX as well as those required by outside agencies.
- ii. Develop and maintain an inventory of environmental permits, permit requirements, permitting schedule and permit preparation support.
- iii. Assist in the review of plans and provisions for Environmental Assessment/Environmental Impact Statement (EA/EIS) compliance.
- iv. Review local zoning requirements for compliance and coordination with these agencies.
- v. Review plans, special provisions and construction activities for permit compliance.

E. Environmental Management

When requested by MDX, the Consultant shall be required to furnish expertise in the following areas:

Wetlands ecology, botany, biology, chemistry, geology, hydrology, archaeology, engineering, noise analysis, air analysis, social and cultural analysis, wildlife ecology, hazardous materials, traffic analysis, landscape architecture, CADD, GIS and any others necessary to manage the following program areas within environmental management policies:

1. Project Development and Environment (“PD&E”) Support
 - a) Prepare & develop State Environmental Impact Report (SEIRs) as determined by MDX.
 - b) Manage, review and comment upon the PD&E submittals, as prepared by MDX, FDOT and/or PD&E consultants, to insure conformance and compliance with PD&E manual (FDOT/MDX procedures), State, Federal and local laws and regulations.
 - c) Manage, review and coordinate, as needed, PD&E public involvement process.
2. Environmental Permit Support

- a) Monitor environmental permit status and production schedules.
 - b) Identify permit conditions and their effects on the development of the construction documents.
 - c) Monitor compliance with permit conditions and requirements during construction and maintenance and prepare documentation and submittals for compliance with National Pollutant Discharge Elimination Systems (NPDES), including adherence to inter-local agreements.
3. Environmental Management Support
 - a) Review DRI and sub-DRI development plans which affect MDX because of their access, traffic impact and Right-of-Way needs/impacts.
4. Consultant Review and Oversight
 - a) Review and comment on preparation by MDX and/or FDOT and/or their consultants on environmental documents and/or contracts associated with the environmental management program.
 - b) Review and prepare recommendations of environmental reports submitted by environmental consultants.
 - c) Coordinate with governmental agencies, including but not limited to, Miami-Dade County's Environmental Resources Management office on environmental issues.
 - d) Perform or oversee environmental studies deemed necessary by MDX.

F. Construction Management Services

1. Construction Contract Management:
 - a) Consultant will be responsible for all MDX construction contracts and assisting all CEI's in the management the MDX projects. Consultant shall provide all the services outlined in Section C herein entitled *Services Contract Support* for all construction contracts.
2. Construction Support

- a) Provide constructability and bid-ability review of plans and specifications, as necessary, in packaging of construction contract bids.
- b) Review and evaluate pre-bid construction contract document packages and recommend possible changes for improvement to strengthen these documents as a management tool during construction.
- c) Review terms and conditions of special provisions, technical special provisions and standard supplemental specifications to recommend changes to better meet construction objectives.
- d) Study the need for and recommend advanced construction contracts for clearing, grubbing and removal of obstacles and buildings prior to letting of individual construction contracts.
- e) Ensure compliance for each segment of construction as to distribution of approved drawings and specifications and other data in reference to contract terms and conditions; i.e. permits, regulations, coordination, construction methods, utilities, communication and alternative construction methods.
- f) Prepare and maintain a monthly construction work status and monitor the SB and LB payout curves for accuracy on all active construction contracts.
- g) Coordinate project support services.
- h) Coordinate utility relocation within active construction contracts.
- i) Review and respond to questions of an engineering nature in relation to active construction problems on projects. Attend and participate in pre-construction conferences to assist project managers and CEIs.
- j) Monitor the turnaround time of shop drawings and request for information as submitted by contractors.
- k) Assist in preparing all construction related documents, including but not limited to, community outreach criteria for the management and oversight of construction related activities.
- l) Assist in preparing construction related documents for Dispute Review Board and/or Litigation, should the need arise.
- m) Attend and participate in value engineering studies.
- n) Assist in developing Engineer's Estimate for projects not requiring plans.
- o) Perform detailed review and bid analysis of contractor's Bid tabulation submittals in comparison with the

Engineer's Estimate and in regard to balanced line item prices.

- p) Perform or oversee any and all other CEI and CEIO functions necessary for timely and cost effective project completion in accordance with industry practice and in the best interest of MDX.

3. Construction Management Support

- a) Review construction inspection reports relating to contractor(s) performance and communicate, through CEI(s) only and with Contractor(s) if necessary, regarding non-conformance with plan specifications, workmanship, etc.
- b) Analyze contract change requests during the course of construction and recommend the appropriate action.
- c) Review and analyze claims and disputes and recommend courses of actions. Provide for independent review and analysis of claims, including independent review, analysis and verification of accounting procedures used by contractors in the submittal of claims.
- d) Review and analyze construction contracts including recommendations to MDX's Program Manager for appropriate courses of action with authority delegated to the Construction Program Manager as defined in the MDX General Specification.
- e) Monitor and provide technical support to the CEI construction manager for the project construction quality control/quality assurance program with regard to:
 - i. Conformance
 - ii. Reliability
 - iii. Acceptance
 - iv. Rejection, requiring:
 - Rework
 - Repair
 - Replacement
 - Re-verification
 - v. Document quality control
 - vi. Material Testing Surveillance
- f) Develop and administer a quality assurance/quality control program to review and evaluate CEI Consultant's performance in accordance with Department procedures, specifications and rules. Review and evaluate CEI recommendation regarding contractor's performance in

- accordance with the applicable procedures, specifications and rules, as necessary, and directed by MDX's Program Manager.
- g) Verify through the CEI Consultant that the construction contractor has procured all necessary construction permits, material allocations and other permits and authorizations required in connection with the construction of a project.
 - h) When requested, assist the CEI Consultant with coordinating utility relocation activities with the utility companies.
 - i) Serve as liaison between MDX, the CEI Consultant, the construction contractors and interested public and private agencies to promote cooperation during the construction process.
 - j) Monitor the activities of the CEI Consultant as to their compliance with their contracts with MDX. If non-compliance is observed, recommend and upon MDX's approval, implement corrective actions.
 - k) When contract drawings are revised, obtain and distribute copies to all affected parties.
 - l) Prepare monthly status reports applicable to all phases of the construction operation and such special reports as may be required, to keep MDX advised with respect to construction progress on all projects.
 - m) Review and recommend for payment, monthly billings from the CEI Consultant MDX's Program Manager.
 - n) Monitor the CEI Consultant's preparation of record drawings to verify that they are being prepared and maintained in a timely manner.
 - o) Monitor and audit final estimates and perform administrative tasks associated with contract closeout documents.
 - p) Provide project inspectors and engineering technicians to MDX's Program Manager on an as needed or emergency basis.
 - q) Provide incidental CEI services as directed.
 - r) Assist in the development of safety guidelines and a safety policy for construction purposes and assist in the implementation and coordination of safety awareness training program.
 - s) Develop and maintain an "Emergency Preparedness and Response Manual" and provide support as needed in an area-wide emergency such as hurricanes and/or other catastrophic events.

- t) Develop, maintain and administer a document control system.

4. Materials Support

The Consultant may be authorized to perform the following materials research, sampling, testing and analysis in the field and/or laboratory:

- a) Independent Assurance/Independent Verification Testing and Analysis:

- i. Coordinate and perform Independent Assurance Inspections on all technicians who are involved with acceptance/verification sampling and testing of construction materials in the field and in the laboratory.

- b) Verification Testing and Analysis:

- i. Coordinate and perform Verification Sampling and Testing in the field and/or laboratory for Turnpike construction projects in support of the CEI personnel assigned to the project by Construction.

- c) Materials Testing/Support:

- i. Provide technical support to MDX's Construction, Production, and Maintenance personnel pertaining to construction materials, as requested.

- d) Bituminous:

The Consultant shall assist in reviews for Construction, Production and Maintenance as follows:

- i. Review that all Bituminous Independent Verification requirements are met.
 - ii. Review and monitor that all Bituminous Verification requirements are met.
 - iii. Monitor that all preliminary pavement-coring activities are timely and acceptable.
 - iv. Review and monitor asphalt technical support to Construction, Production and Maintenance.

- v. Assist and review Asphalt Mix Designs: approve, monitor, revise, transfer and terminate as applicable.
- vi. Assist in approving asphalt plant quality control plans as required by MDX.
- vii. Verify and if necessary stop or restrict asphalt plant production as required by Department.
- viii. When requested, provide recommendations to Construction regarding the disposition of substandard materials.
- ix. Assist in approving alternate corrective methods for straightedge deficiency repair and/or recommend innovative and more modern strategies.
- x. Assist in bituminous plan review during all phases in design.
- xi. Assist in investigating failing asphalt pavements.
- xii. Communicate with other Agencies in Florida, e.g. Florida's Turnpike, other districts of the Florida Department of Transportation, Dade County and asphalt organizations, regarding asphalt related issues.

5. Materials Contract Administration:

The Consultant shall assist in providing contracts/certification services as required by MDX which may include, but are not limited to, the following services for the Agency:

- a) Create and maintain a Materials Contract Administration Quality Control Plan for MDX's Materials.
- b) Review and approve Consultant invoices; monitor the execution of services and request contract modifications when appropriate and/or required, which include time extensions, new pay items, additional funds, de-encumbered funds, personnel approvals and other miscellaneous modifications.
- c) Create and maintain project controls system for materials contract administration.
- d) Material certification.
- e) Create and maintain a Material Certification Quality Control Plan for MDX.
- f) Review contract plans and specifications for materials inspection and testing requirements. Review requirements with CEI before construction.
- g) Create and maintain the project controls system used to ensure materials inspection & testing requirements are

- being met throughout construction process.
- h) Periodically print, review, summarize and distribute reports of material testing deficiencies.
 - i) Periodically review CEI material certification efforts during construction and prepare and distribute written report of findings.
 - j) Conduct final material certification review at project acceptance. Determine unresolved issue(s) and coordinate resolution(s) with CEI and/or other parties.
 - k) Determine exceptions to material certification.
 - l) Prepare and distribute the final material certification with exceptions as appropriate.

6. Earthwork:

The Consultant shall assist in providing earthwork services required by MDX which may include, but are not limited to, the following services for the Agency:

- a) Support and assist CEI construction personnel in the construction of the density log book.
- b) Assist in performing independent assurance inspections/observations in the field.
- c) Perform periodic assessments of construction materials records at the project level.
- d) Assist in ensuring that all earthwork independent assurance requirements are met.
- e) Assist in ensuring that all earthwork independent verification requirements are met.
- f) Assist the CEI in ensuring that all earthwork verification requirements are met.
- g) Provide earthwork related technical support to Construction, Production and Maintenance.
- h) Assist in approving earth material mines quality control plans as required by the Agency.
- i) When requested, provide recommendations to MDX Construction regarding the disposition of substandard materials.
- j) Assist in earthwork plan review during all phases in design.
- k) Assist in investigating failing subgrade and base sections.
- l) Communicate with other Agencies in Florida, e.g. Florida's Turnpike, other districts of the Florida Department of Transportation, the County and appropriate organizations, regarding earthwork related issues.

7. Concrete:

The Consultant shall assist in providing concrete services required by MDX, which may include but are not limited to the following services for the Agency:

- a) Assist CEI in ensuring that all concrete independent assurance requirements are met.
- b) Assist CEI in ensuring that all concrete independent verification requirements are met.
- c) Assist CEI in ensuring that all concrete verification requirements are met.
- d) Assist CEI in ensuring that all preliminary concrete activities are timely and acceptable.
- e) Provide concrete technical support to Construction, Production and Maintenance.
- f) Assist in approving concrete mix designs: approve, monitor, revise, transfer and terminate as applicable.
- g) Assist in approving concrete plant quality control plans as required by Agency.
- h) Review and assist CEI in stopping or restricting concrete plant production as required by the Agency.
- i) When requested, provide recommendations to Construction regarding the disposition of substandard materials.
- j) Assist in approving alternate corrective methods for concrete deficiencies and their repairs.
- k) Assist in concrete structures plan review during all phases in design.
- l) Assist in investigating concrete in pavements, concrete structures and other applications.
- m) Communicate with other Agencies in Florida, e.g. Florida's Turnpike, other districts of the Florida Department of Transportation, the County and appropriate organizations, regarding concrete related issues.

G. Geotechnical Services

The Consultant shall provide geotechnical services in support of MDX's Production, Construction and maintenance offices. The services, when requested by the Agency, may include, but are not limited to, the following:

1. Geotechnical plan review during all phases in design.

2. Review test borings, static cone penetrometer tests, piezocone and other field testing.
3. Review geotechnical laboratory testing in case of conflicts.
4. Assist the CEI in reviewing Ground Penetration Radar and other geophysics tests.
5. Assist in reviewing and evaluating pile installation plans.
6. Pile Driving Analyzer (PDA) services.
7. Determination of production pile length and installation criteria.
8. Construction support for any foundation, as required and requested by construction.
9. Evaluation of drilled shaft installation plan.
10. Condition survey and documentation of existing structures.
11. Assist and recommend Monitoring devices for noise and vibration if required.
12. Review installed geotechnical instrumentation.
13. Calculate and interpret geotechnical instrumentation data.
14. Review installed water observation wells for adequacy and compliance.
15. Review and inspect sheet pile wall installation and prestressed soil anchors.
16. Assist in analyzing unforeseen conflicts and/or events of a geotechnical nature, provide or review proposed repair methods and monitor the implementation of repair methods.
17. Shop drawing review.
18. Contamination investigation.
19. Communicate with other Agencies in Florida e.g. Florida's Turnpike, other districts of the Florida Department of Transportation, the County and geotechnical engineering organizations, regarding geotechnical related issues.

H. Public Involvement – Public Information Support

The Consultant may be directed, on a case-by-case basis, to assist and support MDX Public Information and Public Communication staff in providing the following public awareness services associated with the MDX Work Program, to lead or participate in any public information programs and to inform the public on the status and impact of Work Program projects as follows:

1. Provide information to the public through establishment of contact with the media and use of any communication tools necessary to effectively inform the public. This includes, but is not limited to, MDX Weekly Traffic Advisories on construction projects for roadway closures, detours, etc.
2. Coordinate and Schedule public meetings, workshops, hearings and other possible communications vehicles in order to provide project status information.
3. Assist MDX staff in public outreach, public information updates, public meetings, community awareness plans, public involvement plans, coordination of updating elected officials, public communications support, etc.
4. Assist MDX staff, as needed, to update, enhance and develop the MDX website as it relates to content and project information.
5. Attend regular meetings with MDX Public Information and Public Communication staff.

I. Highway and Facilities Operations and Maintenance

The Consultant may be directed, on a case-by-case basis, to assist and support MDX staff in providing the following highway, facility or maintenance related services:

1. Cost estimates and implementation plans for all MDX related System-Wide needs from studies, action plans and implementation strategies for safety, speed, crash analysis, signage or any other engineering related needs.
2. Procurement document development assistance for maintenance and operational services.

3. Monitoring, review and certification in accordance with Section IV, Services, all Contract oversight performed by MDX staff where work is funded through the MDX Work Program.
4. Preparation of Operations and Maintenance (O & M) projections and the 20 year Renewal and Replacement (R & R) plan.
5. Support for MDX staff as needed for coordination and management for all scopes of services described herein as it relates to engineering, maintenance, facilities or roadway operational needs.

J. Toll Operations

The Consultant may be directed, on a case-by-case basis, to assist and support MDX staff in providing the following toll system related services:

1. Cost estimates and implementation plans for all MDX related toll system needs.
2. Expertise in toll systems, in-lane systems, back office systems and customer service needs within the toll industry.
3. Project Management and Certification of Trust Indenture for all toll related services.
4. Coordination and management for all Scopes of Services described herein as it relates to engineering, toll operations and System-wide needs such as: assist in planning of toll collection facilities and equipment to consider such concepts as open-road tolling, assist in establishing design requirements for toll facilities, assist in the acquisition of toll systems and equipment (hardware and software) including establishing design and specification requirements, assist in the management of contracts for installation and maintenance of toll equipment and tollbooths, and assist in managing contracts pertaining to toll collection activities.

K. Intelligent Transportation Systems (ITS)

The Consultant may be directed, on a case-by-case basis, to assist and support MDX staff in providing the following ITS related services:

1. Cost estimates and implementation plans for all MDX related ITS needs.
2. Expertise in ITS needs within the transportation industry.
3. Project Management and Certification of Trust Indenture for all ITS related services.
4. Coordination and management for all Scopes of Services described herein as they relate to engineering, ITS and System-wide needs.

L. Professional Right-of-Way "ROW" Services Management

The Consultant may be directed, on a case-by-case basis, to assist and support MDX staff in providing the following right-of-way related services:

1. The Consultant will provide management and oversight services necessary to coordinate, plan, direct and control right-of-way activities necessary to certify right-of-way for construction. These activities must be performed in accordance with applicable Florida Statutes, Florida Administrative Code (F.A.C.) rules and FDOT Procedure Topic 575-000-000, Right-of-Way Manual. These activities include, but are not limited to:
 - a) Prepare parcel plans, budget and man power forecasts in order to provide ROW Work Program Numbers.
 - b) Oversee preparation of Cost Estimate Report.
 - c) Order Title Searches and Updates from General Counsel as needed.
 - d) Order fee proposals, prepare Task Authorizations and approve invoices for payment for Appraisal, Environmental Testing, Business Damage Consultant and Surveying contracts.
 - e) Negotiate with property owners to acquire parcels.
 - f) Approve all Closing Statements and order funds needed for closing.
 - g) Prepare Agenda Item Reports for all action items that require MDX Committee and Board approvals.
 - h) Prepare and deliver Initial Offer Letters to Owners.
 - i) Prepare and deliver Business Damage Letters to parcel Tenants.

- j) Prepare Suit Packages that are sent to Eminent Domain Counsel when suits need to be filed.
 - k) Maintain Database for all ROW projects. The database and its structure shall be approved by MDX. The database shall be easily accessible to MDX.
 - l) Assist Eminent Domain Counsel with “Requests for Production” and “Interrogatories” for suits file.
 - m) Coordinate with General Counsel on all types of issues related to the acquisition of properties.
 - n) Coordinate with Engineering Project Managers.
 - o) Hold monthly production meetings to discuss status of all projects.
 - p) Attend Coordination Meetings for projects as required.
 - q) Oversee Property Management of all acquired parcels.
 - r) Identify excess and surplus properties and recommend disposal or leasing of said properties.
 - s) Assist MDX Procurement staff on Scope of Services preparation and evaluation criteria.
2. The Consultant may be responsible for coordinating, managing, planning, directing and controlling or performing the following services:
- a) Appraisal and Appraisal Review:
 - i. Contracting and oversight of appraisers providing an unbiased analysis, opinion, review or conclusion relating to the nature, quality, value or utility of an interest in real estate and all other services set forth in Chap. 14-75.003(7)(p), F.A.C.; perform incidental appraisal and conduct appraisal review work as required. Interpreting real estate valuation principles, and estimating parcel and project costs.
 - b) Acquisition, Negotiation, Closing and Order of Taking:
 - i. Contracting and oversight of consultants engaged in making purchase offers; conducting negotiations; interpreting right-of-way maps and construction plans; preparing documentation of acquisition activities; conducting real estate closings; preparing and filing eminent domain

lawsuits and all other services set forth in Chap. 14-75.003(7)(q), F.A.C. Perform incidental acquisition, negotiation, closing and order of taking work as required.

M. Procurement Department Support

The Consultant may be directed, on a case-by-case basis, to assist and support MDX staff in providing the following Procurement Department support related services:

1. Assist the MDX Procurement staff on all procurements related to the implementation of the Work Program. Support may include, but it's not limited to, development of both technical and administrative documents, as well as technical support throughout the procurement process.
2. All support must adhere to the MDX Procurement Policy, procedures and must be coordinated with the MDX Procurement office.
3. Develop, maintain and coordinate with all departments on a Procurement Letting Plan.

N. Public Communications Support

1. The Consultant may be directed, on a case-by-case basis, to assist and support MDX staff in providing the following public communications related services:
 - a) Executive Director Support
 - b) Board Support
 - c) MDX Director Support
2. The Consultant may be directed, on a case-by-case basis, to present, assist, support or develop the following:
 - a) Strategic Workshops as they relate to industry topics, agency management, agency business model or policy approaches.
 - b) Project Long Range Planning Workshops (Visioning) or project development.
 - c) Marketing and advertising strategies for MDX.

- d) Identify media planning and placement opportunities.
 - e) Prepare audio/video presentations.
 - f) Develop and produce creative materials, advertisement concepts, campaigns and collateral material.
 - g) Provide production services.
 - h) Develop and/or manage social media strategies for MDX.
 - i) Design, enhance and maintain existing MDX website.
 - j) Application development and production.
 - k) Miscellaneous tasks as needed in order to conduct day-to-day business of the Authority.
3. The Consultant shall provide Project Management and oversight, including planning, scheduling, directing and controlling project activities from concept development through the completion of a project.

O. Professional Surveying and Mapping

The Consultant shall provide professional staff to advise and confer with the Department in the performance of Professional Surveying and Mapping functions, whether in the support of design operations or stand-alone survey operations.

The Consultant may be authorized to perform the following:

1. Location Survey
 - a) Review/coordinate and manage the work of surveying and mapping consultants.
 - b) Review and provide written response on the adequacy of all location/design surveys.
 - c) Advise and consult on questions of surveying and mapping with respect to project intent.
 - d) Incidental survey work as required.
 - e) Monitor surveying and mapping consultants' performance of services to determine adequacy of Work performed relative to Contract intent.
 - f) Advise and consult on questions of surveying and mapping with respect to the construction of the project.
 - g) Provide surveying and mapping support services as required.

- h) Establish and maintain a record keeping system and archives approved by MDX. All records and archives must be accessible to MDX.
- i) Meet and coordinate with public officials of government agencies and civic groups as required.
- j) Provide management services necessary to coordinate, plan, direct and control the surveying and mapping program.
- k) Manage the contracts associated with the surveying and mapping program in accordance with the Department surveying and mapping procedures and directives.

2. Right-of-Way Mapping

- a) Review, coordinate and manage the work of surveying and mapping consultants.
- b) Review and comment on the preparation of consultant Right-of-Way mapping Phase I, II, III, and IV completion; review and comment on the preparation of consultant Legal Descriptions; review and comment on the preparation of consultant Appraisal Sketches. Based on such reviews, recommend acceptance and approval by the Department of said items.
- c) Advise and consult on questions of surveying and mapping with respect to project intent.
- d) Incidental survey work as required.
- e) Monitor surveying and mapping consultants' performance of services to determine adequacy of Work performed relative to Contract intent.
- f) Advise and consult on questions of surveying and mapping with respect to the acquisition of property interests for the project.
- g) Provide surveying and mapping support services as required.
 - i. Establish and maintain a record keeping system and archives approved by MDX. All records and archives must be accessible to MDX.
 - ii. Meet and coordinate with public officials of government agencies and civic groups as required.

- iii. Provide management services necessary to coordinate, plan, direct and control the surveying and mapping program.
- iv. Manage the contracts associated with the surveying and mapping program in accordance with the Department surveying and mapping procedures and directives.

P. Innovative Technology

As an objective of its strategic plan, MDX is looking to expand on its use of technology to increase efficiency in all aspects of its operation, and for potential generation of non-toll revenue. The Consultant shall stay abreast of and actively seek all advances in technology in the transportation industry as well as ancillary technologies which may improve the overall operations of MDX including, but not limited to, providing an enhanced quality of life and customer service to MDX's current and future customers.

V. Electronic Working Environment – Content Management System

MDX has contracts with numerous outside consultants, each generating numerous documents and data. Historically, this has been an enormous task keeping track and having both **Work In Progress** and **Official Documents** to be readily accessible to MDX staff. Data such as Design Drawings, Geographical Information Systems (GIS), spreadsheets and calculations and financial reports have been an ongoing challenge for MDX staff to access.

In order to promote better accessibility and to facilitate communication between MDX and all Consultants working on behalf of MDX, MDX will be implementing a Centralized Content Management System (CMS). The main objective of the CMS will be to centralize all documents, files and electronic data on a single data repository to facilitate the accessibility and availability of such documents to MDX and its consultants. In addition, the CMS will offer document control capabilities to assist the users with the process of version control.

MDX shall require that both GEC A and B log into this system in the course of doing Work. This includes, but is not limited to, all "Work in Progress" documents and files, including both CADD and GIS files. MDX will develop a working directory structure such that this work can be performed. Any exception to this will be approved (in writing) on a case-by-case basis.

All Work shall be performed and stored on the MDX CMS. Currently, MDX operates and maintains high speed communication lines between MDX and its remote sites. These communication lines are based on a Metro-Ethernet solution provided by local carrier AT&T (this is subject to change and MDX reserves the right to change this carrier) through the Department of Management Services (DMS) of the State of Florida.

VI. Technical Requirements

- A. The minimum connection speed from remote sites to MDX data center shall be 100Mbps. Selected firms will have the option to go with the DMS solution or explore other alternatives as long as they meet the minimum connection speed.
- B. Workstations need to be running Microsoft Windows 7 or later versions of that operating system and must maintain the latest service packs and security updates.
- C. Workstations shall be capable of running Citrix or Remote Desktop client applications.
- D. Workstations shall have antivirus software with their latest signature updates.

MDX shall be responsible for the data storage to store documents and their revisions, authenticating server and firewall between MDX and remote sites. In addition, MDX will be responsible for the daily backup as part of a system-wide Disaster Recovery and Business Continuity Plan.

Each GEC shall be responsible for all costs associated with the initial installation of the communication lines and monthly recurring costs. If during the length of this Contract any of the selected firms decides to relocate their offices, they shall also be responsible for any relocation costs associated with the communication lines. Any sub-consultants working for the selected firms shall have to connect to the MDX System through the GEC communication lines.

VII. Specifications for Work

Provided below are lists of standards utilized by MDX. These lists are by no means all inclusive, but suggestive of the regulations governing the Consultant's performance. The Consultant shall comply with **ALL** applicable federal, state and local regulations in performance of services.

A. Plans & Specifications

The Consultant shall ensure that all documents, studies and construction plans, as applicable, are prepared in accordance with the latest editions of the standards utilized by MDX which include, but are not limited to, publications such as:

1. AASHTO, "A Policy on Geometric Design of Highways and Streets"
2. Geometric Geodetic Accuracy Standards
3. FDOT Soils and Foundations Manual
4. FDOT Flexible Pavement Design Manual for New Construction and Pavement Rehabilitation
5. FHWA Manual on Uniform Traffic Control Devices
6. FDOT Standard Specifications for Road and Bridge Construction
7. FDOT Roadway Plans Preparation Manual
8. South Florida Building Codes - Dade County Edition
9. Standard Building Code
10. FDOT Basis of Estimates Manual
11. FDOT Construction Project Administration Manual
12. Federal Highway Program Manual
13. FDOT Drainage Manual
14. FDOT Field Sampling and Testing Manual
15. FDOT Structures Design Guidelines Manual
16. FDOT Structures Detailing Manual
17. AASHTO Roadside Design Guide
18. FDOT Roadway and Traffic Design Standards
19. FDOT Utility Accommodation Manual
20. FDOT CADD Manual

B. Professional Services Contract Documents and Retention

The Consultant shall ensure that all hard copies of Contract documents and support documentation are stored at the Consultant's office through project completion. Once a project is closed out, delivery of project files to MDX must be coordinated with MDX.