

Consultant Advisory

2011-9

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Consultant Advisory
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New Prequalification Categories

Currently MDOT has one prequalification category relating to Intelligent Transportation Systems (ITS). This category is being eliminated and two new prequalification categories relating to ITS are being implemented:

- **Intelligent Transportation Systems - Design and System Manager:**
Design of ITS devices including power and communications infrastructure and System Manager Services for their implementation.
- **Intelligent Transportation Systems – Integration:**
Configuration, integration, and testing of Intelligent Transportation Systems network equipment and components necessary to provide new and complete ITS functionality.

For those companies that are currently prequalified in the ITS prequalification category, the prequalification category will become obsolete as of March 1, 2012, at which time your company will no longer be prequalified in ITS. If you would like to apply for either of the new prequalification categories, and would like to ensure appropriate review time by MDOT staff prior to any projects being advertised with the new prequalification categories, please submit the complete prequalification application(s) by **February 1, 2012**.

The requirements for both the ITS Design and System Manager prequalification and ITS System Integration prequalification are attached for your review.

Intelligent Transportation Systems- Design and System Manager

Design of ITS devices including power and communications infrastructure and System Manager Services for their implementation.

Professional Registrations

- Two (2) or more Civil Engineers licensed in Michigan.

Equipment

Provide a statement certifying your ownership of the software listed below and that your staff is trained to use it. (Note that each version of software must be identified and must be MDOT's current version):

- MicroStation (MDOT's current version)
- TransCAD and Maptitude (MDOT's current version)
- Turbo Architecture (MDOT's current version)

Provide a statement certifying your ownership of current versions of the following items and that you have staff that is knowledgeable in the use of these items:

- MDOT Traffic & Safety Geometric Design Guides
- MDOT Standard Plans
- MDOT Pay Item Code Book
- MDOT Standard Specifications for Construction
- MDOT PPMS Manual
- National Electrical Code (NEC).

Staff Education and Experience

Project Manager-

A minimum of one (1) resume is required for this role.

- Level of education completed. Emphasis in traffic operations is beneficial, as are Masters Degrees in related fields, and PTOE.
- A minimum of five (5) years of ITS experience with at least five (5) projects involving the design of ITS devices.
- List projects showing knowledge of National and MDOT standards and procedures for ITS planning, design, and/or implementation services.

Design Engineer and other staff -

A minimum of two (2) resumes are required for this role. Provide resumes showing the following:

- Level of education completed. Bachelor of Science in Engineering is required.
- If Project Manager is not a Licensed Civil Engineer, then the Lead Design Engineer must be.
- List projects showing knowledge of National and MDOT standards and procedures for ITS planning and design and the National ITS Architecture.
- Project listing should demonstrate a wide range of experience in ITS applications, operations, studies and design including, but not limited to:
 - ITS Architecture

- ITS Planning and development studies (including long range plans, pre-deployment studies and early deployment plans)
- ITS Cost/Benefit evaluations
- Communications technologies for ITS
- Maintenance planning, estimating and scoping
- ITS infrastructure and device design
- Preparation of cost estimates for ITS projects
- Experience in designing integrated ITS systems based on industry standards to include NTCIP and TCP/IP.
- Experience and knowledge of engineering services necessary to integrate all of the various components, component systems, subsystems, and services related to ITS systems. These may include, but are not limited to, fiber-optic networking, wireless networking, licensed and unlicensed radio communications, NTCIP protocol, TCP/IP protocol, and Linux and other operating systems.
- Understanding of Advanced Traffic Management Systems (ATMS), Advanced Traveler Information Systems (ATIS), Commercial Vehicle Operations (CVO), automated toll collection and border crossings and Rural ITS issues, planning, evaluation, design and implementation
- Understanding and experience with ITS freeway, non-freeway, transit and other applications

System Manager staff -

A minimum of one (1) resume is required for this role. These may be the same staff as provided for Design Engineer/staff. Provide resume(s) showing the following:

- Level of education completed.
- List projects showing knowledge of National and MDOT standards and procedures for ITS planning and design.
- Project listing should demonstrate a wide range of experience in ITS applications, operations, integration, and design including, but not limited to:
 - Communications technologies for ITS
 - ITS infrastructure and device design
 - Oversight of ITS installation and integration contractors for ITS infrastructure projects.
 - Post-design services such as inquiry response, system testing and proofing, and the general management for the procurement of ITS devices as required.
 - Oversight of component and system acceptance tests and working with contractors, integrator, and vendors for performing all tests.
 - Preparation of cost estimates for ITS projects
 - Experience in designing integrated ITS systems based on industry standards to include NTCIP and TCP/IP.
 - Experience and knowledge of engineering services necessary to integrate all of the various components, component systems, subsystems, and services related to ITS systems. These may include, but are not limited to, fiber-optic networking, wireless networking,

- licensed and unlicensed radio communications, NTCIP protocol, TCP/IP protocol, and Linux and other operating systems.
- Understanding of Advanced Traffic Management Systems (ATMS), Advanced Traveler Information Systems (ATIS), Commercial Vehicle Operations (CVO), automated toll collection and border crossings and Rural ITS issues, planning, evaluation, design and implementation
 - Understanding and experience with ITS freeway, non-freeway, transit and other applications

Consultant Project Experience

List related projects completed within the past eight (8) years.

- A minimum of five (5) projects must be listed. Projects completed for the Michigan Department of Transportation will be given a higher consideration. Projects with Michigan municipalities where an understanding of MDOT design methodology was demonstrated will also be considered.
- All projects listed for other states should be for other public sector organizations (state Departments of Transportation, local municipalities, transit agencies, etc.).
- For each project to be submitted for evaluation, provide the name and phone number of the owner's representative. This person may be contacted to provide a reference.
- Each project listing shall describe the work performed by the applying firm.

Intelligent Transportation Systems – Integration

Configuration, integration, and testing of Intelligent Transportation Systems (ITS) network equipment and components necessary to provide full and complete ITS functionality.

Professional Registrations/Certification

- Technical staff certified as Registered Communication Design Distributor (RCDD).
- Staff must include at least one either Cisco Certified Network Associate (CCNA) or Alcatel-Lucent Network Routing Specialist II (NRS II)

Equipment

Provide a statement certifying your ownership of the software listed below and that your staff is trained to use it. (Note that each version of software must be identified and must be MDOT's current version):

- MicroStation (MDOT's current version)
- TransCAD and Maptitude (MDOT's current version)
- Turbo Architecture (MDOT's current version)

Provide a statement certifying your ownership of current versions of the following items and that you have staff that is knowledgeable in the use of these items:

- MDOT Standard Plans
- MDOT Standard Specifications for Construction
- National Electrical Code (NEC)

Staff Education and Experience

Project Manager –

A minimum of one (1) resume is required for this role. Provide resumes showing the following:

- Level of education completed.
- Emphasis in traffic operations is beneficial, as are Masters Degrees in related fields.
- A minimum of five (5) years integration experience. Projects completed within the past five (5) years are given higher emphasis.
- List of projects showing knowledge of National and MDOT standards and procedures for ITS integration.

System Engineer –

A minimum of one (1) resume is required for this role. Provide resumes showing the following:

- Possession of a Bachelor of Science in Electrical Engineering, Electrical and Computer Engineering, Computer Science or a closely related discipline.
- Actively involved in transportation infrastructure integration projects within the past three (3) years.
- Thorough understanding of the ITS National Architecture.
- Possesses at least five (5) years of experience with system integration projects.
- Experience in developing, installing, documenting, and testing network and microprocessor-based systems, including software, hardware, communications, and real-time control and diagnostics.

- Experience in developing complete integrated systems based on industry standards to include NTCIP and TCP/IP.
- Experience and knowledge of engineering services necessary to integrate all of the various components, component systems, subsystems, and services related to ITS systems. These may include, but are not limited to, Fiber-Optic Networking, Wireless Networking, including licensed and unlicensed radio communications, NTCIP protocol, TCP/IP protocol, and Linux and other operating systems.
- Development of interface control documents to assure the effective operation and interchange of information among various elements of the ITS system, services, and users.
- Ability to analyze system requirements, functional capabilities, and development of test plans to assure that developed ITS systems, services, and support facilities adhere to the standards, specifications, and plans.
- Experience in developing comprehensive listing of tests to document system operational compliance with performance criteria as approved by MDOT.

Additional Staff resumes should show experience in the following:

- Communications technologies for ITS
- ITS Network and Integration Design for ITS
- ITS construction engineering and oversight
- Preparation of cost estimates for ITS
- Unit testing and software integration
- Wide Area Network (WAN) expertise
- Communication via fiber or wireless communications infrastructure
- Configuration of ITS devices including video surveillance (CCTV), microwave vehicle detection systems (MVDS), dynamic message signs (DMS), and other field devices to operate and exchange information with MDOT Traffic Operations Centers and ATMS software.
- Understanding of Advanced Traffic Management Systems (ATMS) and Advanced Traveler Information Systems (ATIS), Arterial Management, Freeway Management, Transit Management, Incident Management, Emergency Management, Electronic Payment, Traveler Information, Information Management, Crash Prevention and Safety, Roadway Operations and Maintenance, Road Weather Management, and Commercial Vehicle Operations
- FCC and FAA frequency coordination, clearance, and licensing
- Radio coverage analyses and propagation
- Splicing, terminating, and testing of fiber optic cable

Consultant Project Experience

List related projects completed within the past eight (8) years.

- A minimum of five (5) projects must be listed.
- For each project to be submitted for evaluation, provide the name and phone number of the owner's representative. This person may be contacted to provide a reference.
- Each project listing shall describe the work performed by the applying firm.