

Scope of Services for City of Tampa ATMS Replacement Project - Contract 12-D-00021

The Consultant is directed to develop a functional specification for the acquisition of a new central system software for the City of Tampa Advanced Transportation Management System (ATMS). This software will replace the existing MTCS traffic signal control system for operations located at the existing Traffic Management Center (TMC).

Consultant will also review and investigate the existing traffic signal system field infrastructure which will include controllers, cabinets and communications. Consultant will then provide a design costs estimate for the replacement of the field infrastructure.

The specific tasks associated are:

Task I — Prepare Preliminary Functional Specifications

The Consultant will develop a comprehensive list of the features and functions that the current MTCS software provides. The Consultant will meet with City of Tampa TMC staff to determine which of the existing features and functions need to be included in the new ATMS software. Using this “wish list”, the Consultant will develop a preliminary functional specification for the City of Tampa ATMS. This preliminary functional specification will define all the features and functions to be provided by the ATMS. It will not, however, define the method by which the software will perform them.

Task 2— Software Selection Criteria

The Consultant will take the functional specifications developed in Task I and develop criteria with which the software selection will be made. It is anticipated the criteria will include both quantitative (cost, number of signals currently under the control of comparable software) and qualitative (ease of understanding of Users Manual operator friendliness of the software) factors. Criteria for software will include controlling the existing 523 signals as well as expansion capability to 650 intersections.

Consultant shall only investigate systems vendors that can provide communications between the central site and the controlled devices using Internet protocol (IP over ethernet) over a fiber optic, twisted pair copper and wireless network. Additional capabilities required of the new system will be NTCIP compliance and the ability to program and schedule Dynamic Message Signs.

Another desired function will be the inclusion of a video server to serve the current City of Tampa traffic monitoring system. There are currently 40 CCTVs in the system with expansion plans to 150. This is a “desired” function. Lack of a video server shall not cause a potential vendor to be eliminated.

Once the outline of basic requirements of the system software are developed, the Consultant will be tasked to research potential replacement traffic signal control systems.

The Consultant will contact vendors and be required to answer all prospective vendor questions. The Consultant will provide the functional specifications and the software selection criteria to all vendors that request them.

Task 3—Test Procedures

The Consultant will develop procedures that will be used to evaluate the software. These procedures will test each of the desired features and functions that the system provides.

The procedures will provide a numerical rating system for the softwares

An example of the procedures to be developed include the following:

- Develop a Test Plan
- Test Items that are required for functionality.
 - Interchangeability test to ensure that all components work with equipment from different manufacturers.
- Test Plan Review. This ensures that the test plan reflects the needs of the City of Tampa and FDOT,
- Testing - Some testing will be performed by the Consultant, particularly interchangeability and functionality testing.

Task 4— Evaluate Software

The Consultant will develop a schedule for the software demonstrations. The Consultant will coordinate with each vendor to ensure that they fully understand the conditions under which their system must operate and the expectations of the demonstration. For these demonstrations, each vendor will be responsible for installing their software and turning over a fully operating system on selected City arterial.

The Consultant, in conjunction with City and FDOT staff, will use the procedures developed during Task 3 to evaluate the software each vendor installs. It is anticipated that the Consultant will spend approximately two weeks to evaluate each vendor's software. The Vendor will demonstrate the various features required by the software specifications document to ensure that all the features work properly. The Consultant will then document the results of the testing, The Consultant will conduct a meeting with the City of Tampa and FDOT to present the results of the software evaluation.

Software testing involves the following elements:

- Compliance with standardized application program interfaces.
- Operating system version requirements.
- Operational functionality. This is the bulk of the testing, where the system is programmed to perform all the features required in the specification.
- Communications and integration testing. This phase is the most complicated.

Task 5— NTCIP Compliance

This testing effort requires great care. Because of the complexity of NTCIP standards for communications this test will require a detailed test plan, which will be based on the detailed specification for NTCIP compliance produced. In the previous task the better the specification, the more straightforward the testing for the NTCIP compliance.

The Consultant will also review the supplied protocols to ensure that they provide the services needed within the NTCIP standards framework.

Task 6 — Recommend Software

Based upon the evaluations conducted during Tasks 4 and 5, the Consultant will recommend the system software for the City’s ATMS. This recommendation will be fully documented.

Task 7 —Preparation of Design Costs Estimate

The City of Tampa is looking at a total traffic system replacement. The Consultant will develop an estimate of design costs for system replacement. Consultant will include in the estimate cost to provide new traffic controllers compatible with new software, also provide an estimate of cost to redesign the existing communications system. New communications system shall be a combination of existing fiber with new fiber, copper and wireless communications in combination

Deliverables:

- 1) Recommended software vendor
- 2) Record of software evaluations
- 3) Software costs (650 intersections)
- 4) Design costs for system replacement/upgrade