

## **Bid Proposal Requirements**

The Bidder/Contractor shall submit the requested information detailing the specific features of their ATCS as part of the Bid Proposal Pamphlet for each of the six categories outlined below:

### **1. Project Understanding**

- a. Provide a summary of the primary goals and objectives for the project.
- b. Provide detail regarding the quality assurance plan that your firm will conduct to ensure contract performance and ATCS performance.

### **2. Project Adaptability**

- a. Provide a detailed explanation on how the proposed adaptive traffic control system adapts to changes in the traffic stream in real-time.
  - i. The ATC system shall be capable of measuring queues at each approach several times per minute and scheduling green time accordingly.
- b. Describe how the system intelligently assigns green time at each intersection locally.
- c. Describe how the system moves platoons of vehicles through the corridor globally.
- d. Provide a detailed explanation of how the system is capable of uncompromised bi-directional progression.
- e. Provide detail on the proposed ATCS's dependency (or lack of dependency) on a central server.
- f. Provide detail on how the proposed ATCS accommodates pedestrian movements in conjunction with coordinated traffic movements within a group of traffic signals.
- g. Provide detail on the specific data the system will collect and provide in a viewable format and provide examples of the viewable format.
  - i. The system shall be capable of reporting delay for all movements for all time periods, enabling comparison of traffic operations pre- and post- system turn-on.

### **3. Primary System Requirements**

- a. The ATCS shall determine the order of phases at a user-specified intersection.
  - i. The calculation will be based on the optimization function instantaneous actuation of non-repetitive sequences based on the traffic volume and delay data observed at each approach at the time of actuation.
- b. System should maximize the throughput on coordinated routes, provide smooth flow along coordinated routes, and manage the length of queues on all legs of signalized intersections.

- c. The ATCS shall provide yellow trap protection when running protected/permitted left turn operations with green ball or flashing yellow arrow.
- d. The ATCS shall support variable left-turn phasing (e.g. protected only, protected/permitted, and permitted only) based upon user-configured time of day schedule.
- e. The ATCS shall not prevent the protected left turn phase to lead or lag the opposing through phase based upon user-configured conditions.
- f. When a large change in traffic demand is detected, the ATCS shall respond within the next cycle period, subject to user-configured limits.
- g. The ATCS shall not prevent any phases from being designated as a coordinated phase.
- h. The ATCS shall not prevent the controller from displaying flashing yellow arrow left turn or right turn.
- i. The ATCS shall be compatible with the following detector technologies:
  - i. Physics based: Radar.
  - ii. Video and Physics based: IP Capable Cameras & Radar.
- j. The ATCS shall use the following alternate data sources for operations in the case of failure of a video camera detector:
  - i. Data from a user-specified alternate detector (e.g. loop, radar, etc.).
  - ii. Stored historical data from the failed detector.
- k. The ATCS shall store the following data by movement in 15 minute increments:
  - i. Volume
- l. The ATCS shall store the following data by movement in 5-minute or smaller increments:
  - i. Queue Length
  - ii. First-Vehicle Delay
- m. The ATCS shall adjust signal timing so that vehicles approaching a signal that have been served during a user-specified phase at an upstream signal do not stop.
- n. The ATCS shall be remotely accessible and configurable through the agency network.
- o. The ATCS shall permit local and remote manual override.
- p. The ATCS system shall permit a security management and administrative system that allows access and operational privileges to be assigned, monitored and controlled by an administrator, and conform to the access and security policy of the City.