

REQUEST FOR PROPOSAL RFP-23-008 ADVANCED TRANSPORTATION CONTROLLER (ATC)

City of Phoenix 251 W. Washington St., 8th Floor Phoenix, AZ 85003

RELEASE DATE: February 10, 2023 DEADLINE FOR QUESTIONS: March 1, 2023 RESPONSE DEADLINE: March 10, 2023, 2:00 pm

City of Phoenix REQUEST FOR PROPOSAL Advanced Transportation Controller (ATC)

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1. INTRODUCTION

1.1. Summary

The City of Phoenix invites sealed offers for providing Advanced Transportation Controllers Equipment, Critical Spare Parts, and Training. The City is expanding the existing (Light Rail Train) LRT system and replacing the current generation of controllers that are at or near the end of life. In addition, the City is exploring the use of Bus Rapid Transit (BRT) to expand highcapacity transit service throughout the City.

This contract supports the Phoenix Strategic Plan to "Provide safe, efficient, sustainable, costeffective multi-modal transportation systems to support economic growth, population growth, and competitiveness through connectivity to regional, national, and global destinations".

1.2. Background

The City of Phoenix operates over 1200 signalized intersections, including specialized applications such as Pedestrian Hybrid Beacons (PHB), freeway-arterial traffic interchanges and Light Rail Transit (LRT) intersections. A majority of the City-owned intersections are monitored and managed from the Traffic Management Center (TMC) using the TransSuite TCS central traffic management software (TransCore).

The Contractor will provide advanced transportation controllers (ATC), which shall meet the needs of the City, as described herein. The City is expanding the existing LRT system and replacing the current generation of controllers that are at or near the end of life. In addition, the City is exploring the use of Bus Rapid Transit (BRT) to expand high-capacity transit service throughout the City. Therefore, the Contractor shall provide advanced transportation controllers (ATC) that meet the City's needs, as described herein. This document specifies the minimum, general, and preferred requirements of the ATC hardware and software.

1.3. Contact Information

Daniel Han

Contracts Specialist II 251 W Washington St. FL8 Phoenix, AZ 85003 Email: <u>daniel.han@phoenix.gov</u> Phone: (602) 262-4439

Department:

Finance Central Procurement

1.4. Timeline

Schedule of Events

Solicitation Issue Date	February 10, 2023	

Pre-Offer	February 16, 2023, 9:00am
(Non-	When it's time, join the Webex meeting here.
Mandatory)	Join meeting
	More ways to join:
	Join from the meeting link
	https://cityofphoenix.webex.com/cityofphoenix/j.php?MTID=m4e0d58d80662af978864f44f64a04950
	Join by meeting number
	Meeting number (access code): 2451 178 1815
	Meeting password: mwFXPEpW989
	Tap to join from a mobile device (attendees only) +1-415-655-0001,,24511781815## US Toll Join by phone +1-415-655-0001 US Toll Global call-in numbers
	Join from a video system or application Dial <u>24511781815@cityofphoenix.webex.com</u>
	You can also dial 173.243.2.68 and enter your meeting number.
Written	March 1, 2023, 2:00pm
Inquiries Due Date	Send inquiries to: Daniel.han@phoenix.gov

Offer Due	March 10, 2023, 2:00pm local Phoenix time
Date	Electronically via Email (preferred): procurement@phoenix.gov
	Or
	Hard Copy: City of Phoenix Finance Department - Central Procurement Division. 251 W Washington ST, 8th Floor. Phoenix, AZ 85003.
	Controller submission:
	Offeror shall submit a complete package consisting of Hardware and Software of the proposed Advanced Transportation Controller for testing. This is due on the Offer Due Date.
	Please send the Controller to:
	ATTN: Daniel Han
	251 W Washington ST, 8th Floor. Phoenix, AZ 85003

2. INSTRUCTIONS

2.1. DESCRIPTION – STATEMENT OF NEED:

The City of Phoenix invites sealed offers for Advanced Transportation Controller (ATC) for a five-year contract with an option to extend up to five additional years, commencing on or about July 1, 2023 in accordance with the specifications and provisions contained herein or the "Effective Date" which is upon the award by City Council, conditioned upon signature and recording by the City Clerk's department, as required by the Phoenix City Code, whichever is later.

This solicitation is available through Arizona Relay Service 7-1-1. Please call TTY 800-367-8939 for assistance.

Notwithstanding the foregoing, this Agreement will terminate upon the earliest occurrence: by reaching the end of the term including any extensions exercised, or termination pursuant to the provisions of this Agreement.

2.2. CITY'S VENDOR SELF-REGISTRATION AND NOTIFICATION:

Vendors must be registered in the City's procurePHX Self-Registration System at <u>https://www.phoenix.gov/procure</u> to respond to solicitations and access procurement information. The City may, at its sole discretion, reject any offer from an Offeror who has not registered.

2.3. PREPARATION OF OFFER:

All forms provided in Submittal Section must be completed and submitted with the offer. The signed and completed Solicitation Disclosure form must be included or your offer may be deemed non-responsive.

It is permissible to copy Submittal forms if necessary. Erasures, interlineations, or other modifications of the offer must be initialed in original ink by the authorized person signing the offer. No offer will be altered, amended or withdrawn after the specified offer due date and time. The City is not responsible for Offeror's errors or omissions.

All time periods stated as a number of days will be calendar days.

It is the responsibility of all Offerors to examine the entire solicitation and seek clarification of any requirement that may not be clear and to check all responses for accuracy before submitting an offer. Negligence in preparing an offer confers no right of withdrawal after due date and time. Offerors are strongly encouraged to:

- A. Consider applicable laws and/or economic conditions that may affect cost, progress, performance, or furnishing of the products or services.
- B. Study and carefully correlate Offeror's knowledge and observations with the solicitation and other related data.
- C. Promptly notify the City of all conflicts, errors, ambiguities, or discrepancies that Offeror has discovered in or between the solicitation and other related documents.

- D. The City does not reimburse the cost of developing, presenting or providing any response to this solicitation. Offers submitted for consideration should be prepared simply and economically, providing adequate information in a straightforward and concise manner. The Offeror is responsible for all costs incurred in responding to this solicitation. All materials and documents submitted in response to this solicitation become the property of the City and will not be returned.
- E. Offerors are reminded that the specifications stated in the solicitation are the minimum level required and that offers submitted must be for products or services that meet or exceed the minimum level of all features specifically listed in this solicitation. Offers offering less than any minimum specifications or criteria specified are not responsive and should not be submitted.
- F. Offer responses submitted for products considered by the seller to be acceptable alternates to the brand names or manufacturer's catalog references specified herein must be submitted with technical literature and/or detailed product brochures for the City's use to evaluate the products offered. Offers submitted without this product information may be considered as non-responsive and rejected. The City will be the sole judge as to the acceptability of alternate products offered.
- G. Prices will be submitted on a per unit basis by line item, when applicable. In the event of a disparity between the unit price and extended price, the unit price will prevail unless obviously in error.

2.4. FIXED OFFER PRICE PERIOD:

All offers shall be firm and fixed for a period of 180 calendar days from the solicitation opening date. Pass-through offer adjustments will be accepted after that date provided said adjustment(s) are submitted in writing with sixty days' advance notice and are accompanied by written documentation of a manufacturer's offer increase. Offer adjustment requests shall be sent to: City of Phoenix, Finance Department, Central Procurement Division, 251 W Washington Street, Phoenix, AZ.

2.5. DELIVERY:

Delivery is an important consideration and will be a factor in determining the award. A delivery time after receipt of order (ARO) must be stated in definite terms. Should there be variations in delivery times by item, the submittal should be clear concerning these variations.

2.6. OBTAINING A COPY OF THE SOLICITATION AND ADDENDA:

Interested Offerors may download the complete solicitation and addenda from https://solicitations.phoenix.gov/ Any interested offerors without internet access may obtain this solicitation by calling the Procurement Officer or picking up a copy during regular business hours at the City of Phoenix, Finance Department, Central Procurement Division, 251 W Washington Street, Phoenix, AZ. It is the Offeror's responsibility to check the website, read the entire solicitation, and verify all required information is submitted with their offer.

2.7. EXCEPTIONS:

Offeror must not take any exceptions to any terms, conditions or material requirements of this solicitation. Offers submitted with exceptions may be deemed non-responsive and disqualified from further consideration in the City's sole discretion. Offerors must conform to all the requirements specified in the solicitation. The City encourages Offerors to send inquiries to the procurement officer rather than including exceptions in their Offer.

2.8. INQUIRIES:

All questions that arise relating to this solicitation should be directed via email to the Procurement Officer and must be received by the due date indicated in the Schedule of Events. The City will not consider questions received after the deadline.

No informal contact initiated by Offerors on the proposed service will be allowed with members of City's staff from date of distribution of this solicitation until after city council awards the contract. All questions concerning or issues related to this solicitation must be presented in writing.

The Procurement Officer will answer written inquiries in an addendum and publish any addendums on the Procurement Website.

2.9. ADDENDA:

The City of Phoenix will not be responsible for any oral instructions made by any employees or officers of the City of Phoenix regarding this solicitation. Any changes will be in the form of an addendum. The Offeror must acknowledge receipt of any/all addenda by signing and returning the document with the offer submittal.

2.10. BUSINESS IN ARIZONA:

The City will not enter contracts with Offerors (or any company(ies)) not granted authority to transact business, or not in good standing, in the state of Arizona by the Arizona Corporation Commission, unless the offeror asserts a statutory exception prior to entering a contract with the City.

2.11. LICENSES:

If required by law for the operation of the business or work related to this Offer, Offeror must possess all valid certifications and/or licenses as required by federal, state or local laws at the time of submittal.

2.12. CERTIFICATION:

By signature in the offer section of the Offer and Acceptance page(s), Offeror certifies:

- The submission of the offer did not involve collusion or other anti-competitive practices.
- The Offeror must not discriminate against any employee, or applicant for employment in violation of Federal or State Law.

• The Offeror has not given, offered to give, nor intends to give at any time hereafter, any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor, or service to a public servant in connection with the submitted offer.

2.13. SUBMISSION OF OFFER:

Offers must be in possession of the Department on or prior to the exact time and date indicated in the Schedule of Events. Late offers will not be considered. The prevailing clock will be the City Department's clock.

Offers must be submitted in one of the following ways:

- A. Submitted in a sealed envelope and the following information should be noted on the outside of the envelope:
 - 1. Offeror's Name
 - 2. Offeror's Address (as shown on the Certification Page)
 - 3. Solicitation Number
 - 4. Solicitation Title
 - 5. Offer Opening Date
 - 6. Such offers must be completed in ink or typewritten. Include the number of copies that are required as indicated in the Submittal section.
- B. Submitted electronically by email to procurement@phoenix.gov and the following information should be noted in the email:
 - 1. Offeror's Name
 - 2. Offeror's Address (as shown on the Certification Page)
 - 3. Solicitation Number
 - 4. Solicitation Title
 - 5. Offer Opening Date
 - 6. Due to file size limitations for electronic transmission (for sending or receiving), offers sent by email may need to be sent in parts with multiple emails. It is the responsibility of the Offeror to ensure that the offer (including all parts if sent in multiple emails) is timely and to confirm that there are no technical reasons that any offer submitted electronically may be delayed. The date and time on the email(s) as received/stamped by the City's inbox will provide proof of submission and verification whether the offer was received on or prior to the exact time and date indicated in the Schedule of Events.
 - 7. Any original documents (such as bonds, guaranties, powers of attorney), if required by the solicitation, must be separately delivered to and received by the City on or

prior to the exact time and date indicated in the Schedule of Events, with a clear indication of the offer for which it is attributed.

- C. If available for this solicitation, submitted electronically by file transfer site. For instructions to upload a digital offer, Offeror must first indicate its intent to apply (and submit a completed "intent to apply" form, if provided in the solicitation) by email to procurement@phoenix.gov and the following information should be noted in the email:
 - 1. Offeror's Name
 - 2. Offeror's Address (as shown on the Certification Page)
 - 3. Solicitation Number
 - 4. Solicitation Title
 - 5. Offer Opening Date
 - 6. It is the responsibility of the Offeror to ensure that the offer is timely and to confirm that there are no technical reasons that any offer submitted electronically may be delayed. The date and time on the upload as received/stamped by the City's file transfer site will provide proof of submission and verification whether the offer was received on or prior to the exact time and date indicated in the Schedule of Events.
 - 7. Any original documents (such as bonds, guaranties, powers of attorney), if required by the solicitation, must be separately delivered to and received by the City on or prior to the exact time and date indicated in the Schedule of Events, with a clear indication of the offer for which it is attributed.

2.14. PRE-AWARD QUALIFICATION

 Offeror must have been in operation a minimum of five years. The Offeror's normal business activity during the past five years will have been for providing the goods or services in this solicitation. (This information must be provided in The Submittal section, Years in Business and Customer Reference Listing of this solicitation.)

2.15. WITHDRAWAL OF OFFER:

At any time prior to the solicitation due date and time, an Offeror (or designated representative) may withdraw the offer by submitting a request in writing and signed by a duly authorized representative. If Offeror withdraws the offer electronically by email to the procurement officer, the request to withdraw must be in the form of a letter attached to the email that includes either an image of the duly authorized representative's signature or an electronic signature from a verifiable source, such as Adobe Sign, DocuSign or a similar verifiable software program.

2.16. OFFER RESULTS:

Offers will be opened on the offer due date, time and location indicated in the Schedule of Events, at which time the name of each Offeror, and the prices may be read. Offers and other information received in response to the solicitation will be shown only to authorized City personnel having a legitimate interest in them or persons assisting the City in the evaluation. Offers are not available for public inspection until after the City has posted the award recommendation on the City's website.

The City will post a preliminary offer tabulation on the City's website,

<u>https://solicitations.phoenix.gov/Awards</u> within five calendar days of the offer opening. The City will post the information on the preliminary tabulation as it was read during the offer opening. The City makes no guarantee as to the accuracy of any information on the preliminary tabulation. Once the City has evaluated the offers, the City will post an award recommendation on the website. By signing and submitting its offer, each Offeror agrees that this posting of the award recommendation to the City's website effectively serves as the Offeror's receipt of that notice of award recommendation. The City has no obligation to provide any further notification to unsuccessful Offerors.

2.17. AWARD OF CONTRACT:

Unless otherwise indicated, award(s) will be made to the most responsive, responsible Offeror(s) who are regularly established in the service, or providing the goods, contained in this solicitation and who have demonstrated the ability to perform in an acceptable manner.

- A. Factors that may be considered by the City include:
 - Technical capability of the Offeror to accomplish the scope of work required in the Solicitation. This may include performance history on past and current government or industrial contracts; and,
 - Demonstrated availability of the necessary manpower (both supervisory and operational personnel) and necessary equipment to accomplish the scope of work in the Solicitation; and,
 - 3. Safety record; and,
 - 4. Vendor history of complaints and termination for convenience or cause.
- B. Notwithstanding any other provision of this solicitation, the City reserves the right to: (1) waive any immaterial defect or informality; or (2) reject any or all offers or portions thereof; or (3) reissue a solicitation.
- C. A response to a solicitation is an offer to contract with the City based upon the terms, conditions, and specifications contained in the City's solicitation. Offers do not become contracts until they are executed by the Chief Procurement Officer or Department Director. A contract has its inception in the award, eliminating a formal signing of a separate contract. For that reason, all of the terms, conditions and specifications of the procurement contract are contained in the solicitation, and in any addendum or contract amendment.

2.18. SOLICITATION TRANSPARENCY POLICY:

Commencing on the date and time a solicitation is published, potential or actual offerors or respondents (including their representatives) shall only discuss matters associated with the solicitation with the Mayor, any members of City Council, the City Manager, any Deputy City Manager, or any department director directly associated with the solicitation (including in each case their assigned staff, except for the designated procurement officer) at a public meeting, posted under Arizona Statutes, until the resulting contract(s) are awarded to all offers or responses are rejected and the solicitation is cancelled without any announcement by the Procurement Officer of the City's intent to reissue the same or similar solicitation.

As long as the solicitation is not discussed, Offerors may continue to conduct business with the City and discuss business that is unrelated to the solicitation with the City staff. Offerors may not discuss the solicitation with any City employees or evaluation panel members.

Offerors may discuss their proposal or the solicitation with the Mayor or one or more members of the Phoenix City Council, provided such meetings are scheduled through the Procurement Officer, and are posted as open meetings with the City Clerk at least 24 hours prior to the scheduled meetings. The City Clerk will be responsible for posting the meetings. The posted notice shall identify the participants and the subject matter, as well as invite the public to participate.

With respect to the selection of the successful Offerors, the City Manager and/or City Manager's Office will continue the past practice of exerting no undue influence on the process. In all solicitations of bids and proposals, any direction on the selection from the City Manager and/or City Manager's Office and Department Head (or representative) to the proposal review panel or selecting authority must be provided in writing to all prospective Offerors.

This policy is intended to create a level playing field for all Offerors, assure that contracts are awarded in public, and protect the integrity of the selection process. OFFERORS THAT VIOLATE THIS POLICY SHALL BE DISQUALIFIED. After official Notice is received by the City for disqualification, the Offeror may follow the Protest process, unless the Solicitation is cancelled without notice of intent to re-issue.

"To discuss" means any contact by the Offeror, regardless of whether the City responds to the contact. Offerors that violate this policy will be disqualified until the resulting contract(s) are awarded, or all offers or responses are rejected and the solicitation is cancelled without any announcement by the Procurement Officer of the City's intent to reissue the same or a similar solicitation. The City interprets the policy as continuing through a cancellation of a solicitation until Council award of the contract, as long as the City cancels with a statement that the City will rebid the solicitation.

2.19. PROTEST PROCESS:

Offeror may protest the contents of a solicitation no later than seven days before the solicitation deadline when the protest is based on an apparent alleged mistake, impropriety or defect in the solicitation. Protests filed regarding the solicitation may be addressed by an amendment to the solicitation or denied by the City. If denied, the opening and award will proceed unless the City determines that it is in the City's best interests to set new deadlines, amend the solicitation, cancel or re-bid.

Therefore, unless otherwise notified by a formal amendment, the Protester must adhere to all solicitation dates and deadlines, including timely filing of an offer, regardless of filing a protest.

Offeror may protest an adverse determination issued by the City regarding responsibility and responsiveness, within seven days of the date the Offeror was notified of the adverse determination.

Offeror may protest an award recommendation if the Offeror can establish that it had a substantial chance of being awarded the contract and will be harmed by the recommended award. The City will post recommendations on the City's website to award the contract(s) to an Offeror(s). Offeror must submit award protests within seven days after the posting of the award recommendation, with exceptions only for good cause shown, within the City's full and final discretion.

All protests will be in writing, filed with the Procurement Officer identified in the solicitation and include the following:

- Identification of the solicitation number;
- The name, address and telephone number of the protester;
- A detailed statement describing the legal and factual grounds for the protest, including copies of relevant documents;
- The form of relief requested; and
- The signature of the protester or its authorized representative.

The Procurement Officer will render a written decision within a reasonable period after the protest is filed. The City will not request City Council authorization to award the contract until the protest process is complete. All protests and appeals must be submitted in accordance with the City's Procurement Code, (Phoenix City Code, Ch. 43) and any protests or appeals not submitted within the time requirements will not be considered. Protests must be filed with the Procurement Officer.

2.20. PUBLIC RECORD:

All Offers submitted in response to this solicitation will become the property of the City and become a matter of public record available for review pursuant to Arizona State law. If an Offeror believes that a specific section of its Offer response is confidential, the Offeror will isolate the pages marked confidential in a specific and clearly labeled section of its Offer response. An Offeror may request specific information contained within its Offer is treated by the Procurement Officer as confidential provided the Offeror clearly labels the information "confidential." To the extent necessary for the evaluation process, information marked as "confidential" will not be treated as confidential. Once the procurement file becomes available for public inspection, the Procurement Officer will not make any information identified by the Offerors as "confidential" available to the public unless necessary to support the evaluation process or if specifically requested in accordance with applicable public records law. When a public records request for such information is received, the Procurement Officer will notify the Offeror in writing of any request to view any portion of its Offer marked "confidential." The Offeror will have the time set forth in the notice to obtain a court order enjoining such disclosure.

If the Offeror does not provide the Procurement Officer with a court order enjoining release of the information during the designated time, the Procurement Officer will make the information requested available for inspection.

2.21. LATE OFFERS:

Late Offers must be rejected, except for good cause. If a late Offer is submitted, the Department will document the date and time of the submittal of the late Offer, keep the Offer and notify the Offeror that its Offer was disqualified for being late.

2.22. RIGHT TO DISQUALIFY:

The City reserves the right to disqualify any Offeror who fails to provide information or data requested or who provides materially inaccurate or misleading information or data. The City further reserves the right to disqualify any Offeror on the basis of any real or apparent conflict of interest that is disclosed by the Offeror submitted or any other data or information available to the City. This disqualification is at the sole discretion of the City. By submission of a solicitation response, the Offeror waives any right to object now or at any future time, before any agency or body including, but not limited to, the City Council of the City or any court as to the exercise by the City of such right to disqualify or as to any disqualification by reason of real or apparent conflict of interest determined by the City. The City reserves the right to replace the disqualified Offeror.

2.23. CONTRACT AWARD:

The City reserves the right to award a contract by individual line items, by group, all or none, or any other combination most advantageous to the City. The City reserves the right to multiple award.

2.24. DETERMINING RESPONSIVENESS AND RESPONSIBILITY:

Offers will be reviewed for documentation of minimum qualifications, completeness, and compliance with the Solicitation requirements. The City reserves sole discretion to determine responsiveness and responsibility.

Responsiveness: Nonresponsive Offers will not be considered in the evaluation process. The solicitation states criteria that determine responsiveness, and the solicitation includes terms and conditions that if included or excluded from Offers (as the case may be) will render an Offer nonresponsive.

Exceptions, conditions, reservations, or understandings are presumed to be unacceptable, and an Offer that includes unacceptable exceptions, conditions, reservations, or understandings may be rejected as nonresponsive. Alternatively, the City in its sole discretion may instruct in writing that any Offeror remove the conditions, exceptions, reservations or understandings. If the Offeror fails to do so in writing, the City may determine the Offer to be nonresponsive.

Responsibility: To obtain true economy, the City must conduct solicitations to minimize the possibility of a subsequent default by the contractor, late deliveries, or other unsatisfactory performance that may result in additional administrative costs. It is important that the Offeror be a responsible contractor. Responsibility includes the Offeror's integrity, skill, capacity, experience, and facilities for conducting the work to be performed.

The Procurement Officer will review each Offer to determine if the Offeror is responsible. The City's determination as to whether an Offeror is responsible will be based on all information furnished by the Offeror, interviews (if any), and information received from Offeror's references, including information about Offeror's history, terminations for convenience or cause, contract breach lawsuits or notices of claim and any other sources the City deems appropriate. Award of the Contract resulting from the solicitation will not be made until any necessary investigation, which each Offeror agrees to permit by submitting its Offer, is made by the City as it deems necessary. A review of responsibility may occur up to contract award.

The Offeror's unreasonable failure to promptly supply information about an inquiry with respect to responsibility may be grounds for a determination of non-responsibility with respect to such Offeror.

2.25. EVALUATION OF COMPETITIVE SEALED OFFERS:

The City will use its discretion in applying the following processes to this solicitation. Any ties in scoring will be resolved with a best and final price request and the lowest price will prevail.

2.26. DETAILED EVALUATION OF OFFERS AND DETERMINATION OF COMPETITIVE RANGE:

During deliberations, the Evaluation Panel will reach a consensus score for each evaluation criterion except price. The Procurement Officer will score the price, which will be added to the overall consensus score. The overall consensus scores will determine the Offerors' rankings and which Offers are within the Competitive Range, when appropriate.

2.27. OFFERS NOT WITHIN THE COMPETITIVE RANGE:

The City may notify Offerors of Offers that the City determined are not in the Competitive Range.

2.28. DISCUSSIONS WITH OFFERORS IN THE COMPETITIVE RANGE:

The City will notify each Offeror whose Offer is in the Competitive Range or made the 'short list' and provide in writing any questions or requests for clarification to the Offeror. Each Offeror so notified may be interviewed by the City and asked to discuss answers to written or oral questions or provide clarifications to any facet of its Offer. The Offerors in the competitive range may be required to provide a demonstration of their product.

Demonstrations - Offerors in the competitive range may be invited to construct a hands-on sample or presentation of their solution at the City of Phoenix. In addition, each finalist may prepare and deliver a presentation of their proposed solution based on the script developed by the evaluation panel. The City may also require a hands-on lab demonstration designed specifically for the evaluation panel. The results of the surveys will be tabulated and delivered to the evaluation team for the final review and solution selection session(s).

If an Offer in the Competitive Range contains conditions, exceptions, reservations or understandings to or about any Contract or Solicitation Scope requirement, the City may discuss or negotiate the conditions, exceptions, reservations or understandings during these meetings. But the City in its sole discretion may reject any and all conditions, exceptions, reservations and understandings, and the City may instruct any Offeror to remove the conditions, exceptions, reservations or understandings. If the Offeror fails to do so, the City may determine the Offer is nonresponsive, and the City may revoke its determination that the Offer is in the Competitive Range.

To the fullest extent permitted by law, the City will not provide any information, financial or otherwise, to any Offeror about other Offers received in response to this solicitation. During discussions with Offerors in the Competitive Range, the City will not give Offerors specific prices or specific financial requirements that Offerors must meet to qualify for further consideration. The City may state that proposed prices are too high with respect to the marketplace or otherwise unacceptable. Offerors will not be told of their relative rankings before Contract award.

2.29. BEST AND FINAL OFFERS (BAFO):

A BAFO is an option available for negotiations. Each Offeror in the Competitive Range, which is determined in the City's sole discretion, may be afforded the opportunity to amend its Offer and make one BAFO.

If an Offeror's BAFO modifies its initial Offer, the modifications must be identified in the BAFO. The City will evaluate BAFOs based on the same requirements and criteria applicable to initial Offers. The City will adjust appropriately the initial scores for criteria that have been affected by Offer modifications made by a BAFO. Based on the criteria defined in the solicitation as weighted, the City will then perform final scoring and prepare final rankings.

The Evaluation Panel will recommend the Offer that is the best value and most advantageous to the City based on the evaluation criteria.

The City reserves the right to make an award to an Offeror whose Offer is the highest rated, best value, and most advantageous to the City based on the evaluation criteria, without conducting written or oral discussions with any Offeror, without negotiations, and without soliciting BAFOs.

3. SCOPE OF WORK

3.1. INTRODUCTION

The City of Phoenix invites sealed offers for providing Advanced Transportation Controllers Equipment, Critical Spare Parts, Technical Support and Training.

3.2. BACKGROUND

The City of Phoenix operates over 1200 signalized intersections, including specialized applications such as Pedestrian Hybrid Beacons (PHB), freeway-arterial traffic interchanges, and Light Rail Transit (LRT) intersections. A majority of the City-owned intersections are monitored and managed from the Traffic Management Center (TMC) using the TransSuite TCS central traffic management software (TransCore).

The City is expanding the existing LRT system and replacing the current generation of controllers that are at or near the end of life. In addition, the City is exploring the use of Bus Rapid Transit (BRT) to expand high-capacity transit service throughout the City. Therefore, the Contractor shall provide advanced transportation controllers (ATC) that meet the City's needs, as described herein. This document specifies the minimum, general, and preferred requirements of the ATC hardware and software.

3.3. GENERAL REQUIREMENTS

The Contractor shall provide

- A. A controller currently available and operating in the field at a minimum of 100 intersections. If the number of installations is less than 100, more references for the product shall be required.
- B. Units under development or otherwise incomplete or not fully in compliance with these specifications are not acceptable.
- C. The TranSuite TCS software that uses the Simple Transportation Management Protocol (STMP) and five dynamic objects to perform the following operations:
 - Once per second status polling (a long status object and a short status object depending on available bandwidth to the controller).
 - o Time get/set
 - Pattern Setting and special function control.
 - System detector uploads.
- D. A controller capable to support the following operations using the dynamic objects listed above:
 - Once/second status using the NTCIP short Alarm, unit Alarm1, and unit Alarm2.
 - Time management
 - Set time

- Time broadcast
- Get time
- o Commanding a controller to run a specific pattern
- o Upload of system detector data using NTCIP volume and occupancy objects
- E. The proposed controller shall be integrated with TransSuite TCS to allow upload/download of NTCIP 1202 logical blocks (Section 3.6. Operating Systems Requirement) and any contractor proprietary objects. The Contractor shall provide the proprietary objects to TransCore under appropriate non-disclosure agreements.
- F. The proposed controller shall support field-to-center communications over both a minimum 10/100 base and 1 GB Ethernet network.
- G. All timing and operational parameters shall be stored in the non-volatile memory of the controller unit. If the proposed controller requires actual operation with the database being in volatile memory, the controller database stored in the non-volatile memory must be an exact copy of the operating database. Upon power loss and restoration to the controller unit, the database in non-volatile memory must be automatically utilized for the restarted controller.

3.4. MINIMUM REQUIREMENTS

The Contractor shall:

- A. Ensure that the Contractor's equipment is integrated with TransSuite TCS version 9.3 or newer version, using NTCIP protocols.
- B. Integration of the proposed controller shall include the ability to communicate with TransSuite TCS with 99% reliability using either point-to-multipoint protocol (PMPP) over FSK modems or using UDP/IP with NTCIP protocols.
- C. All electronic components, workmanship, and functionality of Contractor's proposed controller assembly shall conform to the applicable standards for TS-2 traffic signal controllers mandated by the National Electrical Manufacturers Association's (NEMA) current edition NEMA Standards Publication TS2-2003 v02.06 for Traffic Controller Assemblies with National Transportation Communications for ITS Protocol (NTCIP) requirements. <u>https://www.ntcip.org/wp-content/uploads/2018/11/NTCIP1202v0219f.pdf</u>
- D. All components of the Contractor's proposed controller assembly shall meet the environmental, design, and operating standards outlined in NEMA Standards Publication TS2-2003 v02.06, Section 2. <u>https://www.ntcip.org/wp-</u> <u>content/uploads/2018/11/NTCIP1202v0219f.pdf</u>
- E. Be fully responsible for the cost of any modifications in TransSuite TCS or the controller firmware to make the new controller operational with the City's existing TransSuite TCS.

- Scheduling of the software modifications necessary within the City of Phoenix TransSuite is the sole responsibility of the Contractor and must be completed within 45 days from the beginning of Phase II (testing).
- F. The controller software shall allow the user to dynamically configure and modify input pins on an individual, pin by pin basis to be functioning with the existing NEMA TS2 type 1 and 2 cabinets while the controller is on-line. The controller software shall allow the user to configure and modify output pins on an individual, pin by pin basis only while the controller is off-line. The user shall be able to perform such configurations and modifications from the controller front plane.

3.5. HARDWARE REQUIREMENTS

The Contractor shall ensure the following:

- A. The proposed controller enclosure shall be aluminum with a protective finish and enclose all electrical components of the proposed controller.
 - 1. The controller enclosure shall be designed for placement on the shelf of the City's existing NEMA TS1 cabinets and TS2 Type 1 cabinets.
- B. All hardware and electrical components should be modular for ease of replacement and repair.
- C. All proposed controller input/output connectors, fuse holder, indications, displays and control devices required for the operation and adjustments of the controller are mounted on the front panel.
 - 1. External power switch shall not be provided or shall be disabled if provided.
- D. All keypads shall be mounted on the controller front panel and shall be made of waterresistant, poly-vinyl material.
- E. The minimum required memory shall include:
 - 1. 16 MB flash memory
 - 2. 64 MB SDRAM
 - 3. 1 MB non-volatile SRAM
- F. The memory shall be able to expand up to:
 - 1. 64 MB flash memory
 - 2. 128 MB SDRAM
 - 3. 2 MB non-volatile SRAM
- G. The proposed controller engine board and CPU performance shall be compliant with the ATC standard 5.2b or later version published by the American Association of State Highway and Transportation Officials (AASHTO), Institute of Transportation Engineers

(ITE), and NEMA. <u>https://www.ite.org/technical-resources/standards/atc-controller/version-5-2b/</u>

- H. The display screen shall have a minimum of 16 lines with 40 characters each.
- I. The proposed controller shall provide at least two 100 Base-T Ethernet ports with independent user programmable subnets (IP address, Subnet Mask and default Gateway).
- J. The proposed controller shall provide a minimum of one (1) high speed Universal Serial Bus (USB 2.0) port. The user shall be able to transfer the controller database to/from a standard File Allocation Table (FAT) formatted USB flash drive via the USB port using a front panel user interface.
- K. The proposed controller shall provide seven (7) serial interface ports. These serial ports' performance shall comply with the ATC standard 5.2b or later version. At least one port shall be capable of Synchronous Data Link Control (SDLC).

3.6. OPERATING SYSTEM REQUIREMENTS

- A. The proposed controller shall use a Linux operating system (O/S) with kernel version 3.0 or later and shall include standard POSIX libraries for application support including real-time extensions of POSIX 1003.1b. <u>https://www.standards.its.dot.gov/Factsheets/Factsheet/14</u>
- B. Operating system updates shall be completed over an Ethernet connection, serial connection or directly from a USB flash drive plugged into the controller's front panel.
- C. The access to the proposed controller operating system via Telnet or File Transfer Protocol (FTP) or Secure Shell (SSH) connection shall require the user to "log in" with password. The password shall be encrypted and not be stored in a clear text file in the controller's memory. The password shall not be enabled by default. The user shall be able to enable/disable the available access connections.
- D. To facilitate application-level access to the ATC hardware, a Board Support Package (BSP) shall be provided for access to hardware-specific drivers.

3.7. INTERSECTION SIGNAL CONTROL SOFTWARE REQUIREMENTS

- A. GENERAL SOFTWARE REQUIREMENT
 - 1. The software shall provide at a minimum, the functionality, and operations specified in the NEMA TS-2 with NTCIP v02.06 standard.
- **B. BASIC TIMING PARAMETERS**

The software shall:

1. Default to standard dual-ring, 8-phase NEMA configuration with leading left turns (odd-numbered phases).

- 2. Support a minimum of 16 vehicle phases.
- 3. Support a minimum of 4 phasing rings.
- 4. Support a minimum of 8 pedestrian phases.
- 5. Support a minimum of 16 overlaps.
- 6. Support a minimum of 6 transit phases.
- 7. Support each transit phase output channel shall be able to control two and three section signal head for light rail vehicles. Advanced warning sign control shall be provided by each transit phase.
- 8. Support stop timing and interval advance.
- 9. Provide volume/density phase timing.
- 10. Support dual entry selectable by phase.
- 11. Support multiple recall modes: minimum, maximum, pedestrian and soft.
- 12. Provide leading and lagging pedestrian intervals.
 - a. A leading pedestrian interval shall start a specified time interval before the adjacent through movement phase and shall allow pedestrians to establish a presence in the crosswalk and thereby reduce conflicts with turning vehicles.
 - b. A lagging pedestrian interval shall start a specified time interval after the adjacent through movement phase and shall allow a waiting right-turn queue to clear before the pedestrian walk indication is presented and reduce conflicts with rightturning vehicles.
- 13. Provide exclusive pedestrian intervals.
 - a. An exclusive pedestrian phase shall dedicate an additional phase for the exclusive use of all pedestrians. This additional phase is configured such that no vehicular movements are served concurrently with pedestrian traffic.
- 14. Be capable of operating a flashing yellow arrow for protected/permissive mode, protected only and permissive only left turn. The operation mode shall be fully compliant with the description in the 2009 Manual on Uniform Traffic Control Devices (MUTCD) chapter 4D and shall be programmed and changed by time-of-day (TOD) or day-of-week (DOW) schedules.<u>https://mutcd.fhwa.dot.gov/kno_2009r1r2.htm</u>
- 15. Allow the user to reverse the sequence of phase pair (alternate sequence) without making changes to the ring/barrier structure programmed.
- 16. Support full operation of Pedestrian Hybrid Beacon as described in the 2009 MUTCD, chapter 4. The software shall be capable of operating the Pedestrian Hybrid Beacon in coordination with adjacent traffic signals.

- 17. Be able to activate the following parameters selectable by phase through time-of-day schedules:
 - a. Call-to-Non-Actuated (CNA) I & II
 - b. Rest-in-Walk
 - c. Pedestrian Re-service
 - d. Pre-time
- 18. Provide two sets of Walk intervals per phase. Walk I shall be enabled by default and the user shall be able to enable Walk II through TOD commands or an extended push button press.
- 19. Provide minimum bike green time selectable by phase. The minimum green shall be activated by a bike detector call. It shall have no effect if the phase has no bike detector input.
- 20. Be able to extend all-red interval. During the red clearance interval, if the red extend detector input is true, the red clearance will be extended until it reaches a predefined red maximum, or the red extend detector input goes false.
- 21. The controller start-up process shall support phase and interval selected by program entry. The start-up process shall follow the City's operational requirements which will include two options:

Option I	Option II
Flash all red for the programmed interval	Flash yellow/red for the programmed interval
All red for the programmed interval	Yellow on main street and red on side street for the programmed interval
Then begin service on the selected phase greens	All red for the programmed intervals
Normal sequence follows	Normal sequence follows

- 22. No active phase shall be skipped during the first cycle timed. A constant vehicle call, and pedestrian call shall be placed on each active phase for one cycle as part of the controller start-up process.
- 23. Provide a minimum of three "maximum green time" by phase that can be selected by a coordination plan and time-of-day schedules.

- 24. Support "backup protection" or "anti-backup" option selectable by phase.
 - a. This option is intended to prevent "yellow trap" condition due to serving the "backup" phases in the same barrier group. With this option, the backup phase will be omitted, and calls will be placed on the "backup protection call" phases that are outside of the current barrier group. This will allow a simultaneous termination of all barrier group phases followed by service to the backup protection call phases. From there, the controller will return to the backup barrier group and serve the phases that were previously omitted.
- 25. Provide a minimum of four sets of phase timing plans (phase bank) that can be selected by a coordination plan, free mode or time-of-day schedule.
- 26. Provide a minimum of four sets of phase recall data that can be selected by a coordination plan or time-of-day schedule.
- C. COORDINATION:

- 1. Support a minimum of 128 signal timing plans/patterns, which can call for coordinated, free or programmed flash operation.
- 2. Coordinate with single and multiple yield points.
 - a. The yield point determines when the coordinated phases will terminate and yield to non-coordinated phases. With single yield point mode, the coordinated phases only have a single termination point to serve the subsequent phases. With multiple yield points, the coordinated phases will stay on until the start time of a subsequent conflicting phase.
- 3. Support phase re-service in coordination mode (conditional service).
 - a. When phases are timing such that the next phases to be served require a barrier crossing, all timing phases must be ready to terminate before the phases across the barrier are served. If one phase is ready to terminate in one ring but one or more phases in the other rings are not ready to terminate, the phase that is ready to terminate may conditionally "backup" and serve a phase that is sequentially before it if:
 - i. There is a call in a conflicting concurrent barrier group.
 - ii. The "backup" phase is programmed as a conditional service phase.
 - iii. The "backup" phase is in the same concurrent barrier group as the other timing phases.
 - iv. There is sufficient time remaining before max time out of the phase(s) not prepared to terminate.

- 4. Support multiple offset recovery options:
 - a. Short way
 - b. Long Way
 - c. Short/Long way
 - d. Dwell
- 5. Be able to be programmed to run coordination with vehicle split less than programmed walk + pedestrian + yellow + all red.
- 6. Support phase and pedestrian recall or omit per coordination plan.
- 7. Support floating and fixed force-off modes. The user shall be able to select force-off mode for each coordination plan/pattern.

D. DETECTOR INPUTS

- 1. Support a minimum of 64 vehicle detector inputs and a minimum of 8 pedestrian detector inputs.
- 2. Provide detector diagnostics:
 - a. No activity
 - b. Max presence
 - c. Erratic counts
 - i. If a detector diagnostic indicates that the associated detector input has failed, a user-defined recall mode (see Item 3.8.B.28) shall be placed on the associated phase.
 - ii. A minimum of two alternate values for the detector diagnostics shall be selectable by TOD.
- 3. Provide user-definable cabinet input function mappings. This will allow the user to map any detector input to one or more phases.
- 4. Support bicycle detection which can be assigned to be a bike call, vehicle call, and/or a pedestrian call.
- 5. Be able to assign any detector as a system detector.
- Support a minimum of 32 system detectors and each system detector shall accumulate volume and occupancy data on a user defined incremental interval (in minutes). A minimum of 72-hour volume and occupancy data with 15-minute intervals shall be logged and stored in the controller.

- a. The controller shall be able to enable/disable multiple Car logic (minimum two) per detection input channel for protected/permissive turn movement where protected turns only appear if the minimum number of cars is detected prior to start of green.
- E. PEDESTRIAN OVERLAPS

- 1. Support pedestrian overlaps.
 - a. Pedestrian Overlaps shall allow a pedestrian movement to be active with more than one phase. A Pedestrian Overlap shall be serviced any time a parent phase pedestrian call is serviced. The Pedestrian Overlap timing shall be generated from the active parent phase's timing. A pedestrian overlap shall take the walk and don't walk times from each of the parent phases. Unlike a vehicle overlap, the pedestrian overlap shall become active with each parent phase and terminate with each parent phase.
- 2. Support NTCIP normal overlap described in NTCIP 1202:2005 v02.19. https://www.ntcip.org/wp-content/uploads/2018/11/NTCIP1202v0219f.pdf
 - a. The overlap output shall be controlled by the parent phases. The overlap output shall be green in the following situations:
 - i. (1) When an overlap parent phase is green.
 - ii. (2) When an overlap parent phase is yellow (or red clearance) and an overlap parent phase is next.
 - b. The overlap output shall be yellow when a parent phase is yellow, and an overlap included phase is not next. The overlap output shall be red whenever the overlap green and yellow are not ON.
 - c. Support NTCIP MinusGreenYellow overlap described in NTCIP TS 3.5, 2.10.2.2.
 - a. The overlap output shall be green in the following situations:
 - i. (1) When an overlap parent phase is green, and an overlap modifier phase is NOT green.
 - ii. (2) When an overlap parent phase is yellow (or red clearance) and an overlap parent phase is next, and an overlap modifier phase is NOT green.
 - b. The overlap output shall be yellow when an overlap parent phase is yellow, and an overlap modifier phase is NOT yellow, and an overlap parent phase is not next. The overlap output shall be red whenever the overlap green and yellow are not ON.
- 3. Support an overlap for LRT operation described below.

- a. The overlap indication is a special two-section head driven by the overlap's green and red outputs. During the overlap's yellow clearance interval, the green output flashes.
- b. The overlap output shall be green in the following situations:
 - i. When an overlap parent phase is green, and an overlap modifier phase is NOT in service and no termination detector is actuated.
 - ii. When an overlap parent phase is yellow (or red clearance) and an overlap parent phase is next, and an overlap modifier phase is NOT in service and no termination detector is actuated.
- c. Any modifier phase in service or selected as phase-next will stop the overlap from outputting green.
- d. If pedestrian service is enabled for the overlap, it shall time concurrently with the overlap green timers.
- e. The overlap shall be able to flash red indication prior to the overlap going green. This indication will be displayed during the preceding non-parent phase.
- 4. Support overlap trailing (Green Clearance).
 - a. Normally, if a parent phase is terminating and no other parent phase is timing or a phase next selection, the terminating parent phase's yellow and red are also output to the overlap. Overlap trailing provides a means of extending the overlap's green and then timing a specified yellow and red. When the last parent phase begins its yellow change, the overlap's green interval is extended by the specified Trailing Green time. After trailing Green has timed out, the specified Trailing Yellow and Trailing Red intervals start to time as the overlap's yellow change and red clearance interval.

F. PREEMPTION

- 1. Support a minimum of 8 preempt inputs which can be used for emergency vehicle preemption (EVP) or rail road preemption (RRP) operations.
- 2. Preemption routines shall be in accordance with the NEMA TS-2 specifications (v02.06).
- 3. Be capable of activating warning lights, blank out signs and other auxiliary devices during a preemption sequence.
- 4. Accept infrared preemption input for emergency vehicle preemption system.
- 5. Permit or allow any combination of vehicle phases, overlap and pedestrian phases during preemption operation.

- a. All phases and overlaps that are not permitted will be terminated (subject to minimum green, walk and pedestrian clearance timing) and omitted.
- 6. Support rest-in-walk for pedestrian phases during dwell interval of preemption. The flagged pedestrian phases shall be able to remain in the Walk state in the absence of a serviceable conflicting call.

G. TRANSIT SIGNAL PRIORITY

The software shall

- 1. Provide the ability to designate more than one set of priority phases.
- 2. Provide the ability to extend the designated transit priority phase green by a predetermined amount of time up to 90 seconds when a transit priority call is received during the priority phase.
- 3. Provide the ability to truncate selected non-priority phases to a predetermined value when a transit priority call is received while the intersection is in a phase other than the priority phase.
- 4. Be able to stay in coordination while truncating or extending or omitting phases for a transit priority call. Transit signal priority shall not require any function or feature programming of additional controller rings.
- 5. Be able to keep the next set of priority phases selected when priority active.
- 6. Be able to provide a queue jump indication for the bus before the adjacent vehicles receive a green indication. The indication allows a bus to cross the intersection and merge into the through lane without having to yield to other vehicles.
- 7. Be able to switch to alternate sequences to better serve early arriving transit vehicle without going to free.
 - a. The alternate sequences shall be activated if the controller determines that truncating phase times will not enable the transit priority phase to serve in time for the arriving transit vehicle.

H. PEER-TO-PEER COMMUNICATION

- 1. Support peer-to-peer communication that allows any controller to send messages to other controllers (peer controllers) connected in the same network via an Ethernet connection.
- 2. Be able to assign a minimum of 8 peer controllers to any controller.
- 3. Peer controllers shall be configured and selected by the user via the controller front panel:

- 4. The user shall be able to select peer controllers by entering intersection identification and/or IP address.
- 5. The user shall be able to select any peer controller's input, output, or event data to initiate a peer-to-peer message which can be received by the local controller. The data shall include, but not limited to:
 - i. Phase Green, Phase Yellow, Phase Red
 - ii. Ped Walk, Ped Clearance, Ped DontWalk
 - iii. Overlap Green, Overlap Yellow, Overlap Red,
 - iv. Overlap Ped Walk, Overlap Ped Clearance, Overlap Ped DontWalk
 - v. Phase On, Phase Next, Overlap On
 - vi. Phase Call, Ped Call, Overlap Call, Overlap Ped Call
 - vii. Vehicle Detector, Ped Detector, Priority Detector
 - viii. Preempt Call, Preempt Actuation, Preempt Entry, Preempt Dwell, Preempt Exit
 - ix. Special Functions, Auxiliary Functions, Alarm Inputs
 - x. Active Plan, Active Priority
 - xi. Cabinet Input or Output Functions
- 6. The user shall be able to assign an internal control to the receiving controller upon the receipt of a peer-to-peer message from its peer controllers. The internal control shall be available in the software and shall include but not limited to:
 - i. Phase Call, Ped Call, Overlap Call,
 - ii. Vehicle Detector, Ped Detector, Priority Detector
 - iii. Preempt Call, Check-in, Checkout
 - iv. Special Functions, Auxiliary Functions, Alarm Inputs
 - v. Phase Hold, Phase Omit, Ped Omit, Walk Hold
 - vi. Force Off, Ped Recycle
 - vii. Min Recall, Walk Rest, Free
 - viii. Overlap WalkHold, Overlap PedOmit
 - ix. All the above configuration data shall be able to be uploaded/downloaded to/from the City's TransSuite TCS.

- 7. The active peer link communication status (Success or Fail) of each controller shall be able to be updated on the TransSuite TCS ATMS Map on a second-by-second base.
- 8. The controller software shall be able to display the status of all active peer connections between the local controller and the peer controllers. This status display shall be similar to the following sample table:

TABLE 3.7.H.8.		
Peer ID	IP Address	
		CommStatus
1	192.168.16.205	ОК
2	192.168.16.206	ОК
3	192.168.16.207	Erro
4	192.168.16.208	OK

9. The controller software shall be able to display the status of all peer messages that are actively being received from any remote controller. The software shall also be able to display the status of all peer messages that are actively being sent out to any remote controller. The status display shall be similar to the following sample table:

TABLE 3.7.H.9.				
I.Peer ID	Send Message	Index Receive	Message	Index
1	VehDetCall	1		
2			PhaseOn	2
3	SpecFunc	2		

- 10. The controller software shall be able to allow the user to assign priority request (check-in) and priority release (check-out) detector inputs to each transit priority phase. The software shall be able to reverse the check-in and check-out detector inputs and provide the corresponding priority when a light rail train is operating against the normal direction of traffic.
- 11. The controller software shall provide delay timer for priority request detector and priority release detector. The delay time is the pre-determined amount of time up to 100 seconds during which the request or release call is latched while the delay is being timed and will be acknowledged by the software at the end of delay period even if the detector is no longer active.
- I. TIME BASE SCHEDULE

- 1. The software shall provide the following schedule types:
 - a. Time of Day/Day of Week
 - b. Holiday
 - c. Temporary
- 2. The software shall automatically sort the schedule chronologically by the time of day entry.
- 3. The schedule types shall be prioritized as follows:
 - a. Holiday Overrides all other schedule types
 - b. Temporary Overrides active Time of Day/Day of Week schedule
 - c. Active Time of Day/Day of Week
- 4. The software shall provide at least 32 events in each schedule that can be activated by Time of Day/Day of Week.
- 5. The software shall support a minimum of 32 Time of Day/Day of Week Schedules.
- 6. Each schedule shall support, as a minimum, the following operational functions:
 - a. Call-to-Non-Actuated (CNA) I & II
 - b. Rest-in-Walk
 - c. Pedestrian Re-service (Pedestrian Re-cycle)
 - d. Phase omit
 - e. Second Walk/Ped Clearance interval
 - f. Plan sets
 - g. Flashing operations
 - h. Special functions
- 7. The user shall be able to schedule holiday events at least one year in advance.
- 8. The software shall support both fixed and floating holidays.
- 9. The software shall support an external system defined pattern for a temporary event that will expire after a user defined period. Upon completion of the time period, the software shall revert back to the default schedule.

3.8. ACCESS AND SECURITY LEVELS REQUIREMENTS

- A. The controller software shall provide user name and password protection to access the controller through the front panel. Password shall not be enabled by default.
 - 1. User name and password shall be configured by the City.

2. Security levels of the software shall include view only, access to modify timing parameters, and access to modify phasing configurations.

3.9. ALARM REQUIREMENTS

- A. The controller shall provide alarms classified as one of the following types:
 - 1. Critical
 - 2. Non-Critical
 - 3. Detector Fault
 - 4. Coordination
 - 5. Communication
 - 6. Preempt
- B. Critical alarms shall include, but not limited to the following:
 - 1. Power failure
 - 2. Stop time
 - 3. Local flash
 - 4. MCU flash
 - 5. Cycle failure
- C. Non-Critical alarms shall include, but not limited to the following:
 - 1. External start
 - 2. Uninterruptible Power Supply (UPS) Low battery
 - 3. Cabinet door open
 - 4. Cabinet Fan out
 - 5. Local override
- D. Detector Fault alarms shall include, but not limited to the following:
 - 1. No activity fault
 - 2. Max presence fault
 - 3. Erratic count fault
 - 4. Communications fault
 - 5. Configuration fault
- E. Coordination alarms shall include, but not limited to the following:

- 1. Cycle fault
- 2. Coordination fault
- 3. Coordination failure
- 4. Offset transitioning
- 5. Coordination active
- 6. Local free
- F. Communication alarms shall include the following:
 - 1. System communication failure
 - 2. Peer-to-peer communication failure
- G. Preempt alarms shall include, but not limited to the following:
 - 1. Preempt input active
- H. The controller software shall log all alarms.
- I. The controller software shall be able to configure alarms to the messages that will be transmitted to the Central Traffic Control Software.

3.10. COMMUNICATION REQUIREMENTS

- A. The controller shall simultaneously support the following types of communications:
 - 1. Controller to Central Traffic Signal Control Software
 - 2. Peer-to-peer between local controllers
- B. The controller shall simultaneously support center to field communications through the following interfaces:
 - 1. 10/100 Ethernet RJ-45 connector
 - 2. EIA/TIA 232-E compliant 9-pin connector
 - 3. FSK modem
- C. The controller shall be able to be polled every one second.
- D. The controller shall support receipt of a Traffic Control System Time Broadcast for setting the clock.
- E. The controller shall support File Transfer Protocol (FTP) for uploading and downloading files.
- F. The controller software shall comply with NTCIP 2202:2001 Internet (TCP/IP and UDP/IP) Transport Profile.

G. The controller software shall provide the ability to ping at least four network devices simultaneously and show success or fail and latency in millisecond. The results shall be displayed in one screen similar to the following table 3.10.G:

TABLE 3.10.G.		
IP Address	Status	Latency(ms)
192.168.16.205	Success	55
192.168.16.206	Success	60
192.168.16.207	Succe	50
192.168.16.208	Success	55

- H. The controller shall support upload/download all front panel programmable data within one minute with direct IP connection using NTCIP protocol to a desktop computer or a laptop.
- I. The Controller Ethernet interface shall be able to withstand an ARP (Address Resolution Protocol) Storm, Denial of Service (DoS or DDoS) attack and a MAC spoofing attack of any size and any duration without causing the controller to go into flash or effect any of the primary traffic control functions other than communication to the central traffic control system or to other controllers. The Intersection shall remain operational until the ARP storm or the DoS attack has subsided. It is understood that during such attacks or storms communication of the controller to the traffic control system and to other peer controllers may be lost. However, the intersection shall remain operational and the controller shall remain unaffected by these events.
- J. The MAC address of the controller network interface card shall be unique and shall be only assigned by the controller manufacturer.
- K. The MAC address of the controller network interface card will be printed on a serial number label affixed to the controller enclosure.
- L. The Offeror shall provide electronic and hard copies of controller programming manual and maintenance manual.

3.11. TRAINING

The expectation is that all staff that attends all training sessions will be fully trained on how to program the related software and operate the controller. Consultant will describe the philosophy for suggested training requirements for their product line from initial delivery to end-of-life. Include a summary of the content of the initial training and the ongoing training.

All in-person training classes will be held at the City's Street Transportation Department Signal Shop, 2141 E. Jefferson Street, Phoenix. If the location changes, the City will notify the Contractor in advance.

- A. Initial Training The first iteration of classroom and hands on trainings shall be provided at the beginning of the contract, within 2 months, 60 days, of the contract start date, at no cost to the City. The Contractor shall provide all personnel, materials, and hand-outs to the City as part of the initial training for 20 City Street Transportation staff. Contractor's initial training shall include at a minimum:
 - 1. Two 2-hour sessions of classroom training for City Street Transportation staff.
 - a. The first two-hour session of classroom trainings shall consist of basic controller operation
 - 2. Two 2-hour sessions of hands-on controller training.
 - a. The second two-hour session of classroom trainings shall consist of advanced controller functions.
 - b. Offeror shall provide training for any proprietary functions of the controller that is not listed within the Advanced Controller Technical Specifications.
 - 3. The classroom training sessions shall cover the following functions below, as referenced in the Scope of Work.
 - a. Classroom Training Session 1 (2 Hours):
 - i. Basic Timing Parameters (Scope of Work 3.7B)
 - ii. Coordination (Scope of Work 3.7C)
 - iii. Detector Inputs (Scope of Work 3.7D)
 - iv. Pedestrian Overlaps (Scope of Work 3.7E)
 - v. Preemption (Scope of Work 3.7F)
 - vi. Time Base Schedule (Scope of Work 3.7I)
 - b. Classroom Training Session 2 (2 Hours):
 - i. Transit Signal Priority (Scope of Work 3.7G)
 - ii. Peer-to-Peer Communication (Scope of Work 3.7H)
 - 4. Each 2-hour classroom training sessions shall be followed by a 2-hour hands-on session relating to the topics discussed in the classroom.
- B. Contractor's training plan for the balance of the contract period shall include recommendations based on entry level, intermediate, and advanced skill levels and consist of both classroom and hands-on training.
 - 1. On-going Training The City may order additional training as needed for the life of the contract.

- 2. All additional training shall be provided at the Offeror's price for each 2-hour classroom and hands on session.
- 3. Training may be required to be provided for any of City three shifts (Monday through Thursday).
- 4. It is anticipated that the classroom size will be approximately twenty (20) participants.

3.12. SUPPORT & MAINTENANCE

Contractor shall provide two different types of support and maintenance:

- A. Technical Support
 - At times, the City may ask the contractor for field or bench technical support. Contractor shall provide a quote detailing work needed to be completed and estimated manpower utilizing the unit costs per/hour provided for the Tier 1, Tier 2, and Tier 3 Tech Support in Attachment B – Submittals - Pricing Proposal. The unit cost per/hour shall include any travel, per diem, or other incidental costs related to providing technical support. As part of the Offeror's submission, a description shall be provided for each of the three-tier support levels.
 - a. **Tier 1 support** is defined as a traffic signal technician who can provide field support such as an IMSA Level II traffic signal technician.
 - **b.** Tier 2 support is defined as an expert product and service support technician such as IMSA Level III traffic signal technician.
 - **c. Tier 3 support** is defined as software and hardware high-end engineering support from the manufacturer.
 - 2. Communication

Contractor shall:

- a. Respond within 8 hours of a request, but no longer than 24 hours, and provide notification that they are actively working to resolve the issue.
- b. Provide 24/7-hour support.
- c. Provide a single point of contact for all communication.
- B. Professional Support
 - 1. When needed, the contractor shall provide manufacturer-certified professional support for their product either remotely or on-site to provide modifications at the request of the City to the firmware/software.
 - 2. The City and Contractor shall develop a quote for the requested services when requested by City. Contractor shall provide a quote detailing work needed to be completed and estimated manpower utilizing the unit cost per/hour provided for

Professional Support from Attachment B - Submittals - Pricing Proposal. Services can be provided at the prices bid for hourly, daily, or weekly basis.

- a. Reimbursable Costs for On-Site Professional Services
 - i. First Day of On-site Professional Services (8-hour day), shall include the instructor and related expenses (including fee, airfare, hotel, meals and transportation. The daily rate should be all-inclusive of these costs.
- 3. Remote services shall not include any travel and expenses (per diem) as the professional service provider will be given remote access in compliance with City remote access IT requirements. Professional support provided by an individual employed in Arizona will be considered the same as remote services with no compensation for travel and expenses.

3.13. PREFERRED FEATURES

- A. It is preferred that the controller can provide an on-board web server that hosts a graphical user interface for monitoring and configuring the controller or provides access to the controller via Ethernet application.
 - The web server interface shall provide access from any internet enabled device with a web browser which can be Internet Explorer 5.0 and higher, Firefox 1.0 and higher. No additional or proprietary software shall be needed to use the web interface. With the specified web browsers, the user shall be able to view all controller status and edit all front panel programmable parameters.
- B. It is preferred that the controller can provide two SDLC capable serial ports.
- C. It is preferred that the software supports cycle-by-cycle split adjustment for each coordination plan.
 - 1. Cycle-by-cycle split adjustment shall be able to move available time from phases that are under-saturated to the phases that are over-saturated.
- D. It is preferred for the controller to have logging features. Logs should be remotely accessible and provide high resolution event-based data that is retrievable through TransSuite.
- E. It is preferred that the actuated coordinated phases can gap out early and unused time can be distributed to movements with greater demand.
- F. It is preferred that the controller shall support the request of download all data from the Central Traffic Signal Control Database to the local controller through the front panel. The controller front panel shall provide user menu to support this operation.
- G. It is preferred that the controller can communicate with the City's existing light rail intersection controllers which use NextPhase software via peer-to-peer communication to exchange light rail control information including:
- 1. Phase status
- 2. Detector calls
- 3. Preemption status
- 4. Priority status
- 5. Special functions
- 6. Alarm inputs
- H. It is preferred that the Basic Parameters (Scope of Work 3.7B):
 - 1. Support 24 vehicle phases.
 - 2. Support 6 phasing rings.
 - 3. Support 8 transit phases.

3.14. DELIVERY

All equipment shall be delivered within 60 calendar days of the receipt of orders.

4. EVALUATION PROCESS

This evaluation process will be performed in two steps. Offeror's product must pass Step I successfully to be evaluated in Step II.

Step I – Performance Testing, (See Exhibit A and B). Pass-or-Fail Evaluation

Step II – Panel Evaluation Scoring (see Evaluation Criteria table below)

No.	Evaluation Criteria	Scoring Method	Weight (Points)
1.	 Approach to Scope of Work A. Discuss the Offeror's approach to communications with the City Scope of Work 3.12. B. Describe the technical support process for each Tier mentioned in Scope of Work 3.12.A Support and Maintenance. C. Describe the professional support process as mentioned in Scope of Work 3.12.B Support and Maintenance. 	Points Based	275 (27.5% of Total)

Evaluation Criteria

2.	Qualific Expertis	ations, Experience, and se of the Firm	Points Based	250 (25% of Total)
	A.	Provide the Offeror's background data, including years in business and experience providing Advanced Transportation Controllers to cities or agencies similar in size and scope to the City of Phoenix.		
	B.	Provide a list of all projects for deploying and support of the Advanced Transportation Controller equipment and services in operation for a minimum of five (5) years either completed or in process. The documentation shall include:		
		 Detailed information of the agency and locations for which the controllers were purchased. 		
		2. Controller model sold		
		 Agency Name, Address, Point of Contact Name (Name, Phone Number, and Email Address) 		
		 Number of years the controller has been in operation 		
		5. A brief overview of the controller's function		
	C.	Provide Offeror's references to include at least three (3) clients/projects in which the contractor provided recommended controller, training, and technical support. Proposer shall provide details of similar prior projects to include:		
		1. Description of the project		
		2. Equipment and services provided.		
		3. Size of the project (number of controllers)		

	 Dates when material/service was provided. Project Owner. Reference information (two current names with telephone number per project) 		
3.	 Approach to Training A. Describe the Offeror's approach to providing training to City staff, including classroom and hands-on training, and online materials, and how you will evaluate the effectiveness of the training to ensure understanding of the proposed product by the City staff. Scope of Work 3.11. 	Points Based	225 (22.5% of Total)
	 In addition, the offeror shall provide a training plan and curriculum in the response. 		

4.	Demonstrated Relevant Experience of Key Staff	Points Based	100 (10% of Total)
	 A. Provide qualifications, expertise, and availability of all personnel to be assigned to the City. In addition, the Offeror shall provide at least three names of the company's key personnel who will be involved in the delivery of project deliverables of the advanced traffic controllers including their length of employment with the company and at least two (2) comparable projects in which they have participated in a similar role as it pertains to this scope of work. Include relevant experience deploying and supporting advanced transportation controllers of similar size and complexity as the City of Phoenix. B. Demonstrate relevant experience to show that Key Staff members can interface with existing and proposed controller equipment. 		
5.	Pricing Proposal	Points Based	100 (10% of Total)
6.	Preferred Features Preferred Features will be recorded by City Testers on Exhibit C. Points are assigned for each Preferred Feature.	Points Based	50 (5% of Total)

5. STANDARD TERMS AND CONDITIONS

5.1. DEFINITION OF KEY WORDS USED IN THE SOLICITATION:

Shall, Will, Must: Indicates a mandatory requirement. Failure to meet these mandatory requirements may result in the rejection of Offer as non-responsive.

Should: Indicates something that is recommended but not mandatory. If the Contractor fails to provide recommended information, the City may, at its sole option, ask the Contractor to provide the information or evaluate the offer without the information.

May: Indicates something that is not mandatory but permissible.

For purposes of this solicitation, the following definitions will apply:

"A.R.S." Arizona Revised Statute

"Buyer" or "Procurement Officer" City of Phoenix staff person responsible for the solicitation. The City employee or employees who have specifically been designated to act as a contact person or persons to the Contractor, and responsible for monitoring and overseeing the Contractor's performance under this contract.

"City" The City of Phoenix

"Contractor" The individual, partnership, or corporation who, as a result of the competitive process, is awarded a contract by the City of Phoenix.

"Contract" or "Agreement" The legal agreement executed between the City of Phoenix, AZ and the Contractor.

"Days" Means calendar days unless otherwise specified.

"Chief Procurement Officer" The contracting authority for the City of Phoenix, AZ, authorized to sign contracts and amendments thereto on behalf of the City of Phoenix, AZ.

"Employer" Any individual or type of organization that transacts business in this state, that has a license issued by an agency in this state and employs one or more employees in this state. Employer includes this state, any political subdivision of this state and self-employed persons. In the case of an independent contractor, employer means the independent contractor and does not mean the person or organization that uses contract labor. (A.R.S. 23-211).

"Offer" Means a response from a supplier, contractor or service provider to a solicitation request that, if awarded, binds the supplier, contractor or service provider to perform in accordance with the contract. Same as bid, proposal, quotation or tender.

"Offeror" Any Vendor, Seller or Supplier submitting a competitive offer in response to a solicitation from the City. Same as Bidder or Proposer.

"Solicitation" Means an Invitation for Bid (IFB), Request for Proposal (RFP), Request for Quotations (RFQ), Request for Qualifications (RFQu) and request for sealed bids, or any other type of formal procurement which the City makes public through advertising, mailings, or some other method of communication. It is the process by which the City seeks information, proposals, bids or quotes from suppliers.

"Suppliers" Firms, entities or individuals furnishing goods or services to the City.

"Vendor or Seller" A seller of goods or services.

- 5.2. CONTRACT INTERPRETATION:
 - A. **APPLICABLE LAW:** This Contract will be governed by the law of the State of Arizona, and suits pertaining to this Contract will be brought only in Federal or State courts in Maricopa County, State of Arizona.
 - B. CONTRACT ORDER OF PRECEDENCE: In the event of a conflict in the provisions of the Contract, as accepted by the City and as they may be amended, the following will prevail in the order set forth below:
 - 1. Federal terms and conditions, if any
 - 2. Special terms and conditions
 - 3. Standard terms and conditions
 - 4. Amendments
 - 5. Statement or scope of work
 - 6. Specifications
 - 7. Attachments
 - 8. Exhibits
 - 9. Instructions to Contractors
 - 10. Other documents referenced or included in the Solicitation
 - C. ORGANIZATION EMPLOYMENT DISCLAIMER: The Agreement resulting hereunder is not intended to constitute, create, give rise to or otherwise recognize a joint venture agreement or relationship, partnership or formal business organization of any kind, and the rights and obligations of the parties will be only those expressly set forth in the agreement. The parties agree that no persons supplied by the Contractor in the performance of Contractor's obligations under the agreement are considered to be City's employees and that no rights of City civil service, retirement or personnel rules accrue to such persons. The Contractor will have total responsibility for all salaries, wage bonuses, retirement, withholdings, workmen's compensation, occupational disease compensation, unemployment compensation, other employee benefits and all taxes and premiums appurtenant thereto concerning such persons, and will save and hold the City harmless with respect thereto.
 - D. **SEVERABILITY:** The provisions of this Contract are severable to the extent that any provision or application held to be invalid will not affect any other provision or application of the contract which may remain in effect without the invalid provision or application.

- E. **NON-WAIVER OF LIABILITY:** The City of Phoenix as a public entity supported by tax monies, in execution of its public trust, cannot agree to waive any lawful or legitimate right to recover monies lawfully due it. Therefore, any Contractor agrees that it will not insist upon or demand any statement whereby the City agrees to limit in advance or waive any right the City might have to recover actual lawful damages in any court of law under applicable Arizona law.
- F. PAROL EVIDENCE: This Agreement is intended by the parties as a final expression of their agreement and is intended also as a complete and exclusive statement of the terms of this agreement. No course of prior dealings between the parties and no usage in the trade will be relevant to supplement or explain any term used in this Contract. Acceptance or acquiescence in a course of performance rendered under this contract will not be relevant to determine the meaning of this Contract even though the accepting or acquiescing party has knowledge of the nature of the performance and opportunity to object.

5.3. CONTRACT ADMINISTRATION AND OPERATION:

- A. **RECORDS:** All books, accounts, reports, files and other records relating to the contract will be subject at all reasonable times to inspection and audit by the City for five years after completion of the contract. Such records will be produced at a City of Phoenix office as designated by the City. Confidentiality will be maintained, and City will not violate any proprietary or other confidentiality agreements vendor has in place.
- B. **DISCRIMINATION PROHIBITED:** Contractor agrees to abide by the provisions of the Phoenix City Code Chapter 18, Article V as amended. Any contractor, in performing under this contract, will not discriminate against any worker, employee or applicant, or any member of the public, because of race, color, religion, sex, national origin, age or disability nor otherwise commit an unfair employment practice. The supplier and/or lessee will take action to ensure that applicants are employed, and employees are dealt with during employment without regard to their race, color, religion, sex, or national origin, age or disability and adhere to a policy to pay equal compensation to men and women who perform jobs that require substantially equal skill, effort and responsibility, and that are performed within the same establishment under similar working conditions. Such action will include but not be limited to the following: Employment, promotion, demotion or transfer, recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training; including apprenticeship. The supplier further agrees that this clause will be incorporated in all subcontracts with all labor organizations furnishing skilled, unskilled and union labor, or who may perform any such labor or services in connection with this contract. Contractor further agrees that this clause will be incorporated in all subcontracts, job-contractor agreements or subleases of this agreement entered into by supplier/lessee.
- C. EQUAL EMPLOYMENT OPPORTUNITY AND PAY: In order to do business with the City, Contractor must comply with Phoenix City Code, 1969, Chapter 18, Article V, as

amended, Equal Employment Opportunity Requirements. Contractor will direct any questions in regard to these requirements to the Equal Opportunity Department, (602) 262-6790.

- 1. For a Contractor with 35 employees or fewer: Contractor in performing under this Agreement shall not discriminate against any worker, employee or applicant, or any member of the public, because of race, color, religion, sex, national origin, age, or disability, nor otherwise commit an unfair employment practice. The Contractor will ensure that applicants are employed, and employees are dealt with during employment without regard to their race, color, religion, sex, national origin, age, or disability. Such action shall include but not be limited to the following: employment, promotion, demotion or transfer, recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training; including apprenticeship. The Contractor further agrees that this clause will be incorporated in all subcontracts related to this Agreement that involve furnishing skilled, unskilled and union labor, or who may perform any such labor or services in connection with this Agreement. Contractor further agrees that this clause will be incorporated in all subcontracts, Contractor agreements or subleases of this agreement entered into by supplier/lessee.
- 2. For a Contractor with more than 35 employees: Contractor in performing under this Agreement shall not discriminate against any worker, employee or applicant, or any member of the public, because of race, color, religion, sex, national origin, age, or disability, nor otherwise commit an unfair employment practice. The Contractor will ensure that applicants are employed, and employees are dealt with during employment without regard to their race, color, religion, sex, national origin, age, or disability, and shall adhere to a policy to pay equal compensation to men and women who perform jobs that require substantially equal skill, effort, and responsibility, and that are performed within the same establishment under similar working conditions. Such action shall include but not be limited to the following: employment, promotion, demotion or transfer, recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training; including apprenticeship. The Contractor further agrees that this clause will be incorporated in all subcontracts with all labor organizations furnishing skilled, unskilled and union labor, or who may perform any such labor or services in connection with this contract. Contractor further agrees that this clause will be incorporated in all subcontracts, job-Contractor agreements or subleases of this Agreement entered into by supplier/lessee. The Contractor further agrees not to discriminate against any worker, employee or applicant, or any member of the public, because of sexual orientation or gender identity or expression and shall ensure that applicants are employed, and employees are dealt with during employment without regard to their sexual orientation or gender identity or expression.

- 3. **Documentation:** Suppliers and lessees may be required to provide additional documentation to the Equal Opportunity Department affirming that a nondiscriminatory policy is being utilized.
- 4. **Monitoring:** The Equal Opportunity Department shall monitor the employment policies and practices of suppliers and lessees subject to this article as deemed necessary. The Equal Opportunity Department is authorized to conduct on-site compliance reviews of selected firms, which may include an audit of personnel and payroll records, if necessary
- D. LEGAL WORKER REQUIREMENTS: The City of Phoenix is prohibited by A.R.S. § 41-4401 from awarding a contract to any Contractor who fails, or whose subcontractors fail, to comply with A.R.S. § 23-214(A). Therefore, Contractor agrees that:
 - 1. Contractor and each subcontractor it uses warrants their compliance with all federal immigration laws and regulations that relate to their employees and their compliance with A.R.S. § 23-214, subsection A.
 - 2. A breach of a warranty under paragraph 1 will be deemed a material breach of the contract that is subject to penalties up to and including termination of the contract.
 - The City of Phoenix retains the legal right to inspect the papers of any Contractor or subcontractor employee who works on the contract to ensure that the Contractor or subcontractor is complying with the warranty under paragraph 1
- E. **HEALTH, ENVIRONMENTAL AND SAFETY REQUIREMENTS:** The Contractor's products, services and facilities will be in full compliance with all applicable Federal, State and local health, environmental and safety laws, regulations, standards, codes and ordinances, regardless of whether or not they are referred to by the City. At the request of City representatives, the Contractor will provide the City:
 - 1. Environmental, safety and health regulatory compliance documents (written safety programs, training records, permits, etc.) applicable to services provided by the Contractor in this contract
 - 2. A list of all federal, state, or local (EPA, OSHA, Maricopa County, etc.) citations or notice of violations issued against their firm or their subcontractors including dates, reasons, dispositions and resolutions.
 - 3. The City will have the right, but not the obligation to inspect the facilities, transportation vehicles or vessels, containers and disposal facilities provided by the Contractor or subcontractor. The City will also have the right to inspect operations conducted by the Contractor or subcontractor in the performance of this agreement. The City further reserves the right to make unannounced inspections of the Contractor's facilities (during normal business hours).
- F. **COMPLIANCE WITH LAWS:** Contractor agrees to fully observe and comply with all applicable Federal, State and local laws, regulations, standards, codes and ordinances

when performing under this Contract regardless of whether they are being referred to by the City. Contractor agrees to permit City inspection of Contractor's business records, including personnel records to verify any such compliance. Because the contractor will be acting as an independent contractor, the City assumes no responsibility for the Contractor's acts

- G. LAWFUL PRESENCE REQUIREMENT: Pursuant to A.R.S. §§ 1-501 and -502, the City of Phoenix is prohibited from awarding a contract to any natural person who cannot establish that he or she is lawfully present in the United States. In order to establish lawful presence, this person must produce qualifying identification and sign a City-provided affidavit affirming that the identification provided is genuine. This requirement will be imposed at the time of contract award. In the event the prevailing responder is unable to satisfy this requirement, the City will offer the award to the next-highest scoring responder. The law does not apply to fictitious entities such as corporations, partnerships and limited liability companies.
- H. **CONTINUATION DURING DISPUTES:** Contractor agrees that notwithstanding the existence of any dispute between the parties, insofar as is possible, under the terms of the contract, the Contractor will continue to perform the obligations required of Contractor during the continuation of any such dispute unless enjoined or prohibited by an Arizona Court of competent jurisdiction.
- I. **EMERGENCY PURCHASES:** The City reserves the right to purchase from other sources those items which are required on an emergency basis and cannot be supplied immediately from stock by the Contractor.

5.4. COSTS AND PAYMENTS:

- A. **GENERAL:** Any prompt payment terms offered must be clearly noted by the Contractor on all invoices submitted to the City for the payment of goods or services received. The City will make every effort to process payment for the purchase of material or services within thirty to forty-five calendar days after receipt of a correct invoice, unless a good faith dispute exists to any obligation to pay all or a portion of the account. Payment terms are specified in the Offer.
- B. **PAYMENT DEDUCTION OFFSET PROVISION:** Contractor acknowledges that the City Charter requires that no payment be made to any Contractor as long as there is an outstanding obligation due to the City. Contractor agrees that any obligation it owes to the City will be offset against any payment due to the Contractor from the City.
- C. LATE SUBMISSION OF CLAIM BY CONTRACTOR: The City will not honor any invoices or claims which are tendered one year after the last item of the account accrued.
- D. **DISCOUNTS:** Payment discounts will be computed from the date of receiving acceptable products, materials and/or services or correct invoice, whichever is later to the date payment is mailed.

- E. **NO ADVANCE PAYMENTS:** Advance payments are not authorized. Payment will be made only for actual services or commodities that have been received, unless addressed specifically in the Scope of work for subscription services.
- F. **FUND APPROPRIATION CONTINGENCY:** The Vendor recognizes that any agreement entered into will commence upon the day first provided and continue in full force and effect until termination in accordance with its provisions. The Vendor and the City herein recognize that the continuation of any contract after the close of any given fiscal year of the City, which ends on June 30th of each year, will be subject to the approval of the budget of the City providing for or covering such contract item as an expenditure therein. The City does not represent that said budget item will be actually adopted, said determination being the determination of the City Council at the time of the adoption of the budget.
- G. **MAXIMUM PRICES:** The City will not be invoiced at prices higher than those stated in any contract resulting from this Offer. Contractor certifies, by signing this Offer that the prices offered are no higher than the lowest price the Contractor charges other buyers for similar quantities under similar conditions, as applicable and shown by quotes for like services and goods. Contractor further agrees that any reductions in the price of the goods or services covered by this Offer and occurring after award will apply to the undelivered balance. The Contractor will promptly notify the City of such price reductions.
- H. **F.O.B. POINT:** All prices are to be quoted F.O.B. destination, unless specified elsewhere in this solicitation.

5.5. CONTRACT CHANGES:

- A. **CONTRACT AMENDMENTS:** Contracts will be modified only by a written contract amendment signed by persons duly authorized to enter into contracts on behalf of the Contractor. No verbal agreement or conversation with any officer, agent, or employee of the City either before or after execution of the contract, will affect or modify any of the terms or obligations contained or to be contained in the contract. Any such verbal agreements or conversation shall be considered as unofficial information and in no way binding upon the City or the Contractor. All agreements shall be in writing and contract changes shall be by written amendment signed by both parties.
- B. ASSIGNMENT DELEGATION: No right or interest in this contract nor monies due hereunder will be assigned in whole or in part without written permission of the City, and no delegation of any duty of Contractor will be made without prior written permission of the City, which may be withheld for good cause. Any assignment or delegation made in violation of this section will be void.
- C. **NON-EXCLUSIVE CONTRACT:** Any contract resulting from this solicitation will be awarded with the understanding and agreement that it is for the sole convenience of the

City. The City reserves the right to obtain like goods or services from another source when necessary.

5.6. RISK OF LOSS AND LIABILITY:

- A. **TITLE AND RISK OF LOSS:** The title and risk of loss of material or service will not pass to the City until the City actually receives the material or service at the point of delivery; and such loss, injury, or destruction will not release seller from any obligation hereunder.
- B. **ACCEPTANCE:** All material or service is subject to final inspection and acceptance by the City. Material or service failing to conform to the specifications of this contract will be held at Contractor's risk and may be returned to the Contractor. If so returned, all costs are the responsibility of the Contractor. Noncompliance will conform to the cancellation clause set forth in this document.
- C. FORCE MAJEURE: Except for payment of sums due, neither party will be liable to the other nor deemed in default under this contract if and to the extent that such party's performance of this contract is prevented by reason of force majeure. The term "force majeure" means an occurrence that is beyond the control of the party affected and occurs without its fault or negligence. Force majeure will not include late performance by a subcontractor unless the delay arises out of a force majeure occurrence in accordance with this force majeure term and condition. If either party is delayed at any time in the progress of the work by force majeure, the delayed party will notify the other party in writing of such delay, as soon as is practical, of the commencement thereof and will specify the causes of such delay in such notice. Such notice will be hand-delivered or mailed certified-return receipt and will make a specific reference to this provision, thereby invoking its provisions. The delayed party will cause such delay to cease as soon as practicable and will notify the other party in writing when it has done so. The time of completion will be extended by contract modification for a period of time equal to the time that results or effects of such delay prevent the delayed party from performing in accordance with this contract.
- D. LOSS OF MATERIALS: The City does not assume any responsibility, at any time, for the protection of or for loss of materials, from the time that the contract operations have commenced until the final acceptance of the work by the City.
- E. **CONTRACT PERFORMANCE:** Contractor will furnish all necessary labor, tools, equipment, and supplies to perform the required services at the City facilities designated, unless otherwise specifically addressed in the scope, or elsewhere in this Agreement. The City's authorized representative will decide all questions which may arise as to the quality and acceptability of any work performed under the contract. If, in the opinion of the City's authorized representative, performance becomes unsatisfactory, the City will notify the Contractor. The Contractor will have 30 days from that time to correct any specific instances of unsatisfactory performance, unless a different amount of time is specified in the agreement. In the event the unsatisfactory performance is not corrected within the time specified, the City will have the immediate right to complete the

work to its satisfaction and will deduct the cost to cover from any balances due or to become due the Contractor. Repeated incidences of unsatisfactory performance may result in cancellation of the agreement for default.

F. **DAMAGE TO CITY PROPERTY:** Contractor will perform all work so that no damage to the building or grounds results. Contractor will repair any damage caused to the satisfaction of the City at no cost to the City. Contractor will take care to avoid damage to adjacent finished materials that are to remain. If finished materials are damaged, Contractor will repair and finish to match existing material as approved by the City at Contractor's expense.

5.7. CITY'S CONTRACTUAL RIGHTS:

Whenever one party to this contract in good faith has reason to question the other party's intent to perform, the former party may demand that the other party give a written assurance of this intent to perform. In the event that a demand is made and no written assurance is given within five days, the demanding party may treat this failure as an anticipatory repudiation of this contract.

- A. **NON-EXCLUSIVE REMEDIES:** The rights and remedies of the City under this Contract are non-exclusive.
- B. DEFAULT IN ONE INSTALLMENT TO CONSTITUTE BREACH: Each installment or lot of the agreement is dependent on every other installment or lot and a delivery of nonconforming goods or a default of any nature under one installment or lot will impair the value of the whole agreement and constitutes a total breach of the agreement as a whole.
- C. **ON TIME DELIVERY:** Because the City is providing services which involve health, safety and welfare of the general public, delivery time is of the essence. Delivery must be made in accordance with the delivery schedule promised by the Contractor.
- D. DEFAULT: In case of default by the Contractor, the City may, by written notice, cancel this contract and repurchase from another source and may recover the excess costs by (1) deduction from an unpaid balance due; (2) collection against the bid and/or performance bond, or (3) a combination of the aforementioned remedies or other remedies as provided by law.
- E. COVENANT AGAINST CONTINGENT FEES: Seller warrants that no person or selling agent has been employed or retained to solicit or secure this contract upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employers or bona fide established commercial or selling agencies maintained by the seller for the purpose of securing business. For breach or violation of this warranty, the City will have the right to annul the contract without liability or in its discretion to deduct from the contract price a consideration, or otherwise recover the full amount of such commission, brokerage or contingent fee.

- F. **COST JUSTIFICATION:** In the event only one response is received, the City may require that the Contractor submit a cost proposal in sufficient detail for the City to perform a cost/price analysis to determine if the Offer price is fair and reasonable.
- G. WORK PRODUCT, EQUIPMENT AND MATERIALS: All work product, equipment, or materials created or purchased under this contract belongs to the City and must be delivered to the City at City's request upon termination of this contract. Contractor agrees to assign to City all rights and interests Contractor may have in materials prepared under this contract that are "works for hire" within the meaning of the copyright laws of the United States, including any right to derivative use of the material.

5.8. CONTRACT TERMINATION:

A. GRATUITIES: The City may, by written notice to the Contractor, cancel this contract if it is found that gratuities, in the form of entertainment, gifts or otherwise, were offered or given by the Contractor or any agent or representative of the Contractor, to any officer or employee of the City making any determinations with respect to the performing of such contract. In the event this contract is canceled by the City pursuant to this provision, the City will be entitled, in addition to any other rights and remedies, to recover or withhold from the Contractor the amount of the gratuity.

B. CONDITIONS AND CAUSES FOR TERMINATION:

- 1. This contract may be terminated at any time by mutual written consent, or by the City, with or without cause, upon giving thirty-day written notice to Contractor. The City at its convenience, by written notice, may terminate this contract, in whole or in part. If this contract is terminated, the City will be liable only for payment under the payment provisions of this contract for services rendered and accepted material received by the City before the effective date of termination. Title to all materials, work-in-process and completed but undeliverable goods, will pass to the City after costs are claimed and allowed. The Seller will submit detailed cost claims in an acceptable manner and will permit the City to examine such books and records as may be necessary in order to verify the reasonableness of any claims.
- 2. The City reserves the right to cancel the whole or any part of this contract due to failure of Contractor to carry out any term, promise, or condition of the contract. The City will issue a written notice of default to Contractor for acting or failing to act as in any of the following:
 - a. In the opinion of the City, Contractor provides personnel who do not meet the requirements of the contract;
 - b. In the opinion of the City, Contractor fails to perform adequately the stipulations, conditions or services/specifications required in this contract;
 - c. In the opinion of the City, Contractor attempts to impose on the City personnel or materials, products or workmanship, which is of an unacceptable quality.

- d. Contractor fails to furnish the required service and/or product within the time stipulated in the contract;
- e. In the opinion of the City, Contractor fails to make progress in the performance of the requirements of the contract and/or give the City a positive indication that Contractor will not or cannot perform to the requirements of the contract.
- C. CONTRACT CANCELLATION: All parties acknowledge that this contract is subject to cancellation by the City of Phoenix pursuant to the provision of Section 38-511, Arizona Revised Statutes.

5.9. STATE AND LOCAL TRANSACTION PRIVILEGE TAXES:

In accordance with applicable state and local law, transaction privilege taxes may be applicable to this transaction. The state and local transaction privilege (sales) tax burden and legal liability to remit taxes are on the vendor that is conducting business in Arizona and the City of Phoenix. Any failure by the Contractor to collect applicable taxes from the City will not relieve the Contractor from its obligation to remit taxes. It is the responsibility of the prospective bidder to determine any applicable taxes. The City will look at the price or offer submitted and will not deduct, add or alter pricing based on speculation or application of any taxes, nor will the City provide advice or guidance. If you have questions regarding your tax liability, please seek advice from a tax professional prior to submitting your offer. You may also find information at https://www.phoenix.gov/finance/plt or https://www.azdor.gov/Business.aspx. Once your offer is submitted, the Offer is valid for the time specified in this Solicitation, regardless of mistake or omission of tax liability. If the City finds over payment of a project due to tax consideration that was not due, the Contractor will be liable to the City for that amount, and by contracting with the City, the Contractor agrees to remit any overpayments back to the City for miscalculations on taxes included in a offer price.

5.10. TAX INDEMNIFICATION:

Contractor will pay all federal, state and local taxes applicable to its operation and any persons employed by the Contractor, and require the same of all subcontractors. Contractor will hold the City harmless from any responsibility for taxes, damages and interest, if applicable, contributions required under federal, and/or state and local laws and regulations and any other costs including transaction privilege taxes, unemployment compensation insurance, Social Security and Worker's Compensation, and require the same of all subcontractors.

5.11. TAX RESPONSIBILITY QUALIFICATION:

Contractor may be required to establish, to the satisfaction of City, that any and all fees and taxes due to the City or the State of Arizona for any License or Transaction Privilege taxes, Use Taxes or similar excise taxes, are currently paid (except for matters under legal protest). Contractor agrees to a waiver of the confidentiality provisions contained in the City Finance Code and any similar confidentiality provisions contained in Arizona statutes relative to State Transaction Privilege Taxes or Use Taxes. Contractor agrees to provide written authorization to the City Finance Department and to the Arizona State Department of Revenue to release tax information relative to Arizona Transaction Privilege Taxes or Arizona Use Taxes in order to assist the Department in evaluating Contractor's qualifications for and compliance with contract for duration of the term of contract.

5.12. NO ISRAEL BOYCOTT:

If this Contract is valued at \$100,000 or more and requires Contractor (a company engaging in for-profit activity and having ten or more full-time employees) to acquire or dispose of services, supplies, information technology, or construction, then Contractor must certify and agree that it does not and will not boycott goods or services from Israel, pursuant to Title 35, Chapter 2, Article 9 of the Arizona Revised Statutes. Provided that these statutory requirements are applicable, Contractor by entering this Contract now certifies that it is not currently engaged in, and agrees for the duration of the Contract to not engage in, a boycott of goods or services from Israel.

5.13. NO FORCED LABOR OF ETHNIC UYGHURS:

If this Contract requires Contractor (a company engaging in for-profit activity and having ten or more full-time employees) to acquire or dispose of services, supplies, information technology, goods, or construction, then pursuant to Title 35, Chapter 2, Article 10 of the Arizona Revised Statutes Contractor must certify and agree that it and any contractors, subcontractors, or suppliers it utilizes do not and will not use the forced labor of ethnic Uyghurs in the People's Republic of China or any goods or services produced by such forced labor. Provided these statutory requirements are applicable, Contractor, by entering this Contract, now certifies it is not currently engaged in, and agrees for the duration of the Contract to not engage in, (a) the use of forced labor of ethnic Uyghurs in the People's Republic of China; or (c) the use of any contractors, subcontractors, or suppliers that use the forced labor or any goods or services produced by the forced labor of ethnic Uyghurs in the People's Republic of China; or (c) the use of any contractors, subcontractors, or suppliers that use the forced labor or any goods or services produced by the forced labor of ethnic Uyghurs in the People's Republic of China; or (c) the use of any contractors, subcontractors, or suppliers that use the forced labor or any goods or services produced by the forced labor of ethnic Uyghurs in the People's Republic of China; or (c) the use of any contractors, subcontractors, or suppliers that use the forced labor or any goods or services produced by the forced labor of ethnic Uyghurs in the People's Republic of China.

6. SPECIAL TERMS AND CONDITIONS

6.1. FREE ON BOARD (FOB):

Prices quoted shall be FOB destination and delivered, as required, to the following point(s): Traffic Signal Shop, 2141 East Jefferson Street, Phoenix, AZ 85034

6.2. PRICE:

All prices submitted shall be firm and fixed for the initial two-year of the contract. Thereafter, price increases will be considered annually provided the adjustments are submitted in writing with 60 days' notice to the Procurement Officer. Price increase requests shall be accompanied with written documentation to support the increase, such as a letter from the manufacturer, published price index, applicable change in law, etc. Price decrease requests do not require supporting documentation and are allowed at any time during the contract term.

The City will be the sole judge in determining the allowable increase amount. Price increases agreed to by any staff other than the Chief Procurement Officer are invalid. The Contractor acknowledges and agrees to repay all monies paid because of a requested price increase unless the increase was specifically approved, in writing, by the Chief Procurement Officer.

6.3. METHOD OF ORDERING:

Contractor shall deliver items and/or services only upon receipt of a written purchase order. All Contractor invoices and packing/delivery tickets must include the City of Phoenix purchase order number.

6.4. METHOD OF INVOICING:

Invoice must be emailed in .pdf format to <u>invoices@phoenix.gov</u> and must include the following:

- City purchase order number or shopping cart number
- Items listed individually by the written description and part number.
- Unit price, extended and totaled.
- Quantity ordered, back ordered, and shipped.
- Applicable tax
- Invoice number and date.
- Delivery address.
- Payment terms.
- FOB terms.
- Remit to address

6.5. METHOD OF PAYMENT:

Payment to be made from Contractor's invoice and a copy of the signed delivery/service ticket submitted to cover items received and accepted during the billing period.

6.6. PARTIAL PAYMENTS:

Partial payments are authorized on individual purchase orders. Payment will be made for actual goods and services received and accepted by the City.

6.7. SUPPLIER PROFILE CHANGES:

It is the responsibility of the Contractor to promptly update their profile in procurePHX at <u>https://www.phoenix.gov/procure</u>. If Contractor's legal identify has changed, the Procurement Officer must be notified immediately. Failure to do so may result in non-payment of invoices and contract termination.

6.8. AUTHORIZED CHANGES:

The City reserves the right at any time to make changes in any one or more of the following: (a) specifications; (b) methods of shipment or packing; (c) place of delivery; (d) time of delivery; and/or (e) quantities. If the change causes an increase or decrease in the cost of or the time required for performance, an equitable adjustment may be made in the price or delivery schedule, or both. Any claim for adjustment will be deemed waived unless asserted in writing within thirty days from the receipt of the change. Price increases or extensions of delivery time will not be binding on the City unless evidenced in writing and approved by the Chief Procurement Officer prior to the institution of the change.

6.9. SUSPENSIONS OF WORK:

The City reserves the right to suspend work wholly or in part if deemed necessary for the best interest of the City. This suspension will be without compensation to the Contractor, other than to adjust the contract completion/delivery requirements.

6.10. HOURS OF WORK:

All work under this contract shall be coordinated with the City's authorized Department representative. Any changes to the established schedule must have prior written approval by the City's authorized Department representative.

6.11. POST AWARD CONFERENCE:

A post-award conference will be held prior to commencement of any work on the project. The purpose of this conference is to discuss critical elements of the work schedule and operational problems and procedures.

6.12. PERFORMANCE INTERFERENCE:

Contractor shall notify the City's authorized Department representative immediately of any occurrence and/or condition that interferes with the full performance of the contract and confirm it in writing within 24 hours.

6.13. COOPERATIVE AGREEMENT:

In addition to the City and with approval of the Contractor, this contract may be extended for use by other municipalities and government agencies in the State of Arizona.

6.14. ADVERTISING:

Contractor will not advertise or publish news releases concerning this contract without the prior written consent of the Chief Procurement Officer, and the City will not unreasonably withhold permission.

6.15. EXCLUSIVE POSSESSION:

All services, information, computer program elements, reports, and other deliverables which may be created under this contract are the sole property of the City of Phoenix and will not be used by the Contractor or any other person except with prior written permission by the City.

6.16. STRICT PERFORMANCE:

Failure of either party to insist upon the strict performance of any item or condition of the contract or to exercise or delay the exercise of any right or remedy provided in the contract, or by law, or the acceptance of materials or services, obligations imposed by this contract, or by law, will not be deemed a waiver of any right of either party to insist upon the strict performance of the contract.

6.17. LICENSES AND PERMITS:

Contractor will keep current Federal, State, and local licenses and permits required for the operation of the business conducted by the Contractor as applicable to this contract.

6.18. DELIVERY:

All deliveries shall be made between the hours of 8:00 a.m. and 2:30 p.m., local time, Monday through Friday, excluding City holidays.

6.19. DELIVERY/SERVICE TICKET:

Contractor shall provide a packing list or service ticket for items delivered to the City or services provided to the City. Tickets should include the following and a legible copy shall be provided to the City:

- Date
- City purchase order number
- Written description of services which were provided
- Itemized list of materials which were delivered, including quantity
- A unique identification number and Contractor name
- Signature of City employee who accepted for the materials/services

6.20. MISCELLANEOUS FEES:

Additional charges for fuel surcharges, delivery charges, dealer prep, environmental fees, waste disposal, shop supplies, set-up, freight and/or shipping and handling, etc. will not be paid. These costs must be incorporated in the pricing provided in the bid price schedule.

Labor rates (Shop and On-site) shall be charged as a flat hourly rate and are allowed only in performance of services under this agreement. Travel hours and other incidental fees will not be permitted under this agreement. Labor hours will be from "check-in" to "check-out" at the worksite.

6.21. INDUSTRY STANDARDS:

It is intended that the manufacturer in the selection of components will use material and design practices that are the best available in the industry for the type of operating conditions to which the item will be subjected. Component parts shall be selected to give maximum performance, service life and safety and not merely meet the minimum requirements of this specification. All parts, equipment and accessories shall conform in strength, quality of material and workmanship to recognized industry standards.

The term "heavy duty" if used in these specifications shall mean that the item to which the term is applied shall exceed the usual quantity, quality, or capacity supplied with standard production items and it shall be able to withstand unusual straining, exposure, temperature, wear and use.

The City reserves the right to waive minor variations if, in the opinion of the City's authorized Department representative, the basic unit meets the general intent of these specifications.

The product offered shall not include a major component that is of a prototype nature or has not been in production for a sufficient length of time to demonstrate reliability.

If the specifications stated herein for component items do not comply with legal requirements, the Contractor shall so notify the City prior to the Offer opening due date.

6.22. INSPECTION AND ACCEPTANCE:

Each product delivered shall be subject to complete inspection by the City prior to acceptance. Inspection criteria shall include, but not be limited to, conformity to the specifications, mechanical integrity, quality, workmanship and materials. Ten business days will be allowed for this process. If delivered items are unacceptable and returned to the Contractor prior to acceptance, an additional five business days will be allowed for inspection when subsequent delivery occurs. It shall be the Contractor's responsibility to pick up unacceptable products, correct the deficiencies, and return the product following the corrections.

6.23. MANUALS:

All complete operating manuals and parts manuals are to be furnished upon delivery at no additional cost to the City. Manuals and other materials shall show all Advanced Transportation Controller specifications and mechanical troubleshooting in paper and electronic media.

6.24. NEW EQUIPMENT:

All items offered shall be new equipment supplied from the manufacturer. Offers for remanufactured/refurbished equipment will be considered as non-responsive and rejected.

6.25. PRODUCT DISCONTINUANCE:

The City may award contracts for products and/or models of equipment because of this solicitation. If a product or model is discontinued by the manufacturer, the City, in its sole discretion, may allow the Contractor to provide a substitute for the discontinued item. Contractor shall request permission to substitute a new product or model and will provide the following:

- A formal announcement from the manufacturer that the product or model has been discontinued.
- Documentation from the manufacturer that names the replacement product or model.
- Documentation that provides clear and convincing evidence that the replacement meets or exceeds all specifications required by the original solicitation
- Documentation that provides clear and convincing evidence that the replacement will be compatible with all functions or uses of the discontinued product or model.
- Documentation from the manufacturer confirming that the price for the replacement item will be the same as the discontinued item.
- The Chief Procurement Officer will be the sole judge in determining the allowable substitute, new product or model change for discontinued item.

6.26. REPAIR AND REPLACEMENT PARTS GUARANTEE:

Following the expiration of any express or implied warranty applicable to those goods, furnished to the City under this contract, Contractor agrees to supply the City (as well as its agents, representatives, Contractors, and hires) with in-stock repair and replacement parts carrying a full manufacturer's warranty at a cost that shall not exceed the cost it would charge if it were contracted to service or install those repair and replacement parts.

6.27. REPLACEMENT PARTS AVAILABILITY:

A response to this solicitation shall constitute a guarantee by the Contractor that a stock of replacement parts for the specified equipment is locally available. Captive parts must be available within 48 hours following the placement of an order. Contractor shall provide parts delivery, to include deliveries on Saturday. If special handling and/or freight are required, the Contractor will assume all charges.

6.28. SUBSTITUTION OF SPECIFIED ITEMS:

Whenever in the specifications any item or process is requested or identified by manufacturer name, proprietary name, or patent such specifications shall be used to facilitate descriptions of the item or process and shall be followed by the words "or equal". The Contractor may offer any item or process that is equal in every respect. However, if the item or process delivered is not, in the opinion of the City of Phoenix, equal in every respect to the specifications, then the Contractor must furnish the item or material that is equal, in the opinion of the City.

6.29. SPECIFICATIONS:

The specifications and/or drawings associated with this project are intended to generally describe a complete installation. Any additional materials or labor required for the complete project as intended shall be provided by the Contractor, even if it has not been detailed in this document.

6.30. TRANSITION OF CONTRACT:

Contractor will, without limitation, provide important information to a successor Contractor and the City to ensure continuity of service at the required level of proficiency and agrees to provide to the City all files, supplies, data, records, and any other properties or materials of the City, which the City owns or has rights to pursuant to this contract and which are in the possession of Contractor. The provisions of this section will survive the expiration or termination of this contract.

7. DEFENSE AND INDEMNIFICATION

7.1. Standard General Defense and Indemnification

Contractor ("Indemnitor") must defend, indemnify, and hold harmless the City of Phoenix and its officers, officials (elected or appointed), agents, and employees ("Indemnitee") from and against any and all claims, actions, liabilities, damages, losses or expenses (including but not limited to court costs, attorney fees, expert fees, and costs of claim processing, investigation and litigation) of any nature or kind whatsoever ("Losses") caused, or alleged to be caused, in whole or in part, by the wrongful, negligent or willful acts, or errors or omissions of Indemnitor or any of its owners, officers, directors, members, managers, agents, employees or subcontractors ("Indemnitor's Agents") arising out of or in connection with this Contract. This defense and indemnity obligation includes holding Indemnitee harmless for any Losses arising out of or recovered under any state's Workers' Compensation Law or arising out of the failure of Indemnitor or Indemnitor's Agents to conform to any federal, state or local law, statute, ordinance, rule, regulation or court decree. Indemnitor's duty to defend Indemnitee accrues immediately at the time a claim is threatened or a claim is made against Indemnitee, whichever is first. Indemnitor's duty to defend exists regardless of whether Indemnitor is ultimately found liable. Indemnitor must indemnify Indemnitee from and against any and all Losses, except where it is proven that those Losses are solely a result of Indemnitee's own negligent or willful acts or omissions. Indemnitor will be responsible for primary loss investigation, defense and judgment costs where this indemnification applies. In consideration of the award of this Contract, Indemnitor waives all rights of subrogation against Indemnitee for losses arising from the work performed by Indemnitor or Indemnitor's Agents for the City of Phoenix. The obligations of Indemnitor under this provision survive the termination or expiration of this Contract.

8. INSURANCE REQUIREMENTS

8.1. VENDOR'S INSURANCE:

Vendor must procure insurance against claims that may arise from or relate to performance of the work hereunder by Vendor and its agents, representatives, employees and subcontractors. Vendor and subcontractors must maintain that insurance until all their obligations have been discharged, including any warranty periods under this Contract.

The City in no way warrants that the limits stated in this section are sufficient to protect the Vendor from liabilities that might arise out of the performance of the work under this Contract by the Vendor, its agents, representatives, employees or subcontractors and Vendor may purchase additional insurance as they determine necessary.

8.2. SCOPE AND LIMITS OF INSURANCE:

Vendor must provide coverage with limits of liability not less than those stated below. An excess liability policy or umbrella liability policy may be used to meet the liability limits provided that (1) the coverage is written on a "following form" basis, and (2) all terms under each line of coverage below are met.

8.3. Commercial General Liability – Occurrence Form

General Aggregate \$2,000,000 Products – Completed Operations Aggregate \$1,000,000 Personal and Advertising Injury \$1,000,000 Each Occurrence \$1,000,000

• The Vendor's insurance coverage must be primary and non-contributory with respect to any insurance or self-insurance carried by the City.

8.4. Automobile Liability

Bodily Injury and Property Damage coverage for any owned, hired, and non-owned vehicles used in the performance of this Contract.

Combined Single Limit (CSL) \$1,000,000

8.5. Worker's Compensation and Employers' Liability

Workers' Compensation Statutory Employers' Liability: Each Accident \$100,000 Disease – Each Employee \$100,000 Disease – Policy Limit \$500,000

- Policy must contain a waiver of subrogation against the City of Phoenix.
- This requirement does not apply when a Vendor is exempt under A.R.S. §23-902(E), **AND** when such Vendor executes the appropriate sole proprietor waiver form.

8.6. Professional Liability (Errors and Omissions Liability)

Each Claim \$1,000,000

Annual Aggregate \$1,000,000

- The policy must cover liability arising from the failure to meet the professional standards required or expected in the delivery of those services as defined in the Scope of Services of this Contract.
- Vendor warrants that any retroactive date under the policy must precede the effective date of this Contract; and that either continuous coverage will be maintained, or an extended reporting period will be exercised for a period of two (2) years beginning at the time work under this Contract is completed.

8.7. NOTICE OF CANCELLATION:

For each insurance policy required by the insurance provisions of this Contract, the Vendor must provide to the City, within 5 business days of receipt, a notice if a policy is suspended, voided or cancelled for any reason. Such notice must be mailed, emailed, or hand delivered to **procurement@phoenix.gov or 251 W Washington St. 8th Floor, Phoenix, AZ, 85003.**

8.8. ACCEPTABILITY OF INSURERS:

Insurance is to be placed with insurers duly licensed or authorized to do business in the state of Arizona and with an "A.M. Best" rating of not less than B+ VI. The City in no way warrants that the required minimum insurer rating is sufficient to protect the Vendor from potential insurer insolvency.

8.9. VERIFICATION OF COVERAGE:

Vendor must furnish the City with certificates of insurance (ACORD form or equivalent approved by the City) as required by this Contract. The certificates for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf.

All certificates and any required endorsements are to be received and approved by the City before work commences. Each insurance policy required by this Contract must be in effect at or prior to commencement of work under this Contract and remain in effect for the duration of the project. Failure to maintain the insurance policies as required by this Contract or to provide evidence of renewal is a material breach of contract.

All certificates required by this Contract must be sent directly to **procurement@phoenix.gov or 251 W Washington St. 8th Floor, Phoenix, AZ, 85003.** The City project/contract number and project description must be noted on the certificate of insurance. The City reserves the right to review complete copies of all insurance policies required by this Contract at any time. **DO NOT SEND CERTIFICATES OF INSURANCE TO THE CITY'S RISK MANAGEMENT DIVISION**.

8.10. APPROVAL:

Any modification or variation from the insurance coverages and conditions in this Contract must be documented by an executed contract amendment.

9. SUBMITTALS

9.1. Copies

Please submit one original, one copies, and one electronic copy (portable drive or CD) of the Submittal Section and all other required documentation. Please do not lock the electronic copy with password protection so that the CITY may digitally incorporate the successful offer into the awarded contract.

Please submit only the Submittal Section, do not submit a copy of the entire solicitation document. This Offer will remain in effect for a period of 180 calendar days from the opening date, and is irrevocable unless it is in the City's best interest to release offer(s).

9.2. Solicitation Response Check List

Use this check list as a tool to review your submission to ensure that all required documents and forms are included.

The written offer should be:

- Typewritten for ease of evaluation
- Signed by an authorized representative of the Offeror
- Submitted with contact information for the individual(s) authorized to negotiate with the City
- **Offeror's Proposal** A detailed proposal describing the firm or individual's qualifications and experience responsive to the requirements of the solicitation and evaluation criteria (Section 4, Evaluation Process, Evaluation Criteria table).
 - Approach to Scope of Work
 - o Qualifications, Experience, and Expertise of the Firm
 - Approach to Training
 - o Demonstrated relevant Experience of Key Staff
- Attachment A Form A1 and Form A2, Submittal and Compliance Forms
- Controller Installation Manual
- Letter from Transcore ITS LLC
 - The contractor shall provide a letter from TransCore ITS, LLC (supplier of TransSuite TCS) stating that the controller is currently integrated with TransSuite TCS version 9.3 or newer version, using NTCIP protocols. Integration of the proposed controller shall include the ability to communicate with TransSuite TCS with 99% reliability using either point-to-multipoint protocol (PMPP) over FSK modems or using UDP/IP with NTCIP protocols. The letter from TransCore should be provided with the vendor's response to the original RFP.

- Attachment B Submittals Pricing Proposal A completed pricing proposal with all requested prices completed.
- **Submittal Forms** All submittal forms are completed and signed. Submittal Forms contains:
 - o C Submittals 24h Emergency Contact
 - D Submittals Conflict of Interest
 - E Submittals Costs and Payments
 - F Submittals Debarment & Exclusion
 - G Submittals Delivery
 - H Submittals Offer Page
 - o I Submittals References
 - o J Submittals Warranty
- Contractor shall provide a complete package consisting of hardware and software (all items requested from the Scope of Work) with their submittal for use by the City for testing (See Evaluation Process and Exhibit A and B). Failure to provide the controller with the offer may result in rejection of the Offer for non-responsiveness. See 1.4 Schedule of Events: Offer Due Date for instruction.
- Addenda Signed copies of all published addenda.

Offers must be in possession of the Department on or prior to the exact time and date indicated in the Schedule of Events. Late offers will not be considered. Electronic submission is preferred. Due to file size limitations for electronic transmission, offers sent by email may need to be sent in parts with multiple emails. It is the responsibility of the Offeror to ensure that the offer is received timely and that there are no technical reasons for delay. Please refer to the Instructions Section for complete information regarding the submission of offers.

9.3. Additional Quantities

The City anticipates considerable activity under the resultant contract(s). However, no guarantee can be made as to actual availability analysis and disparity study of the utilization of Disadvantaged Business Enterprise (DBE), that will be purchased under this contract. The City reserves the right to add, change or delete quantities or items as circumstances may require.

Note: Offers taking exception to this option for additional quantities clause shall indicate in their offer.

EXHIBIT A - ACCEPTANCE TESTING PROCEDURE

1. PURPOSE

The purpose of this exhibit is to provide a standardized process for testing new controllers. It sets forth the testing sequence and acceptance criteria for the selection of a new controller platform(s). The testing process will be used to determine controllers that meet the requirements stated in Section 3 Scope of Work.

It is the intent of the City to use the testing process described herein to identify one or more complete controller package(s), consisting of both hardware and software, for procurement and installation within the City. If a submitted controller package is identified for procurement, the Offeror submitting the package shall be fully responsible for furnishing the complete package and providing support during the period of the contract.

Changes to the controller hardware and/or software shall not be permitted after a controller has been tested and selected. If the Offeror creates a newer version of the controller (hardware or software) after testing and selection, the Offeror may propose to provide the newer versions as part of a purchase order. The Offeror must document all the changes in the newer version of the controller in comparison to the tested and approved version of the controller. The City will have the sole discretion to accept or reject a newer version as part of an order. Hardware and/or software changes shall not be a justification for a price change.

Testing will be evaluated based on a pass-or-fail scale. Offerors who do not record a "yes" or 'pass" in all test logs in Exhibit B Section will not be considered for Step II Panel Evaluation Scoring.

Exhibit C is for recording preferred features only and will not affect pass-orfail. Testing for preferred features will be in conjunction with Exhibit B.

2. TESTING PROCESS

Testing will be conducted as follows:

- Phase I Bench Testing basic controller functions will be evaluated.
- Phase II Bench Testing testing of advanced controller functions, such as peer-to-peer communication, transit signal priority, and any proprietary functions of the controller.
 - All successfully bench-tested controllers will be moved to Phase III-Pre-Field Testing and Field Testing. Successful bench testing indicates that the controller was tested and meets functional and operational requirements as indicated in the testing process and

documented in Phase I and Phase II Bench Testing forms (**EXHIBIT B - SECTION 2 AND 3**).

- Phase III Pre-Field and Field Testing
 - Pre-Field testing Prior to installation of the controllers in the field cabinet, the configured controllers with the intersection datasets will be tested in the Traffic Signal Shop.
 - The field-tested controllers will be installed in three adjacent NEMA TS-2 Type 1 cabinets within the City.

3. TESTING SETUP

3.1 BENCH TESTING

PHASE I BENCH TESTING will be used to verify the compliance of the controller with the following sections of the ATC controller specification as listed below (refer to 3. Scope of Work):

- The setup for bench testing will be recorded in EXHIBIT B SECTION 1, and the results of the testing will be recorded in the **PHASE I BENCH TESTING (EXHIBIT B SECTION 2)**.
- Bench testing of the controllers will be performed at the City of Phoenix Traffic Signal Shop.
- The controller will be installed in a City standard NEMA TS-2 Type 1 cabinet.
- The controller to be tested shall be a TS-2 Type 2 controller that has both A, B, & C connectors (for a NEMA TS-1 cabinet) and the SDLC connector used in a NEMA TS-2 Type 1 cabinet.
- The controller will be tested in the NEMA TS-2 Type one cabinet by utilizing the A connector for power and the SDLC connection for the remainder of the connections.
- All cabinet components load switches, malfunction monitoring unit (MMU), power supply (PS), detector cards, bus interface units (BIUs), relays, and preemption cards will be provided by the City in the cabinet according to City specifications.
- The cabinet and the MMU will be set up for operating eight (8)-vehicle phases, four (4) pedestrian phases, and four (4) overlaps.
- A communications switch providing connectivity to TransSuite will be installed in the cabinet and connected to the controller.
- The cabinet outputs will be wired to a light board to display eight vehicle signals and four pedestrian signals.

- The cabinet will be powered by connecting it to a 120 Volts Alternate Current (VAC) power source.
- The startup process for the equipment will be observed.
- If any operational anomaly or discrepancy is observed, the cabinet will be powered off and the appropriate connections will be checked. The cabinet will be powered on again.
- Once a satisfactory start-up process is observed, the controller will be loaded with an 8-Phase Standard Test Program that will be used for testing the controller for Phase I Bench Testing to verify the general functionalities of the controller.
- After completing the testing for the 8-Phase traffic signal operation, the cabinet will be rewired to operate a Pedestrian Hybrid Beacon (PHB). The outputs from the cabinet will be connected to a light board to output the pedestrian crossing signals and the vehicular signals for a PHB.
 - o Item 3.3. General Requirements
 - o Item 3.4. Minimum Requirements
 - o Item 3.5 Hardware Requirements
 - o Item 3.6. Operating System Requirements
 - Item 3.7. Intersection Signal Control Software Requirements
 - o Item 3.7.A. General Software Requirement
 - o Item 3.7.B. Basic Timing Parameters
 - Item 3.7.C. Coordination
 - Item 3.7.D. Detector Inputs
 - Item 3.7.E. Pedestrian Overlaps
 - Item 3.7.F. Preemption
 - Item 3.7.I. –Time Base Schedule
 - o Item 3.8. Access and Security Level Requirements
 - o Item 3.9. Alarms Requirements
 - Item 3.10. Communications Requirements

PHASE II BENCH TESTING

- The results of the testing will be recorded in the **PHASE II BENCH TESTING FORM (EXHIBIT B – SECTION 3).**
- Phase II Bench Testing will commence after Phase I- Bench Testing is completed.
- Phase II will test the advanced controller features of the cabinet.
- The features that will be tested, along with the section of the specifications these references, are listed below.
 - o 3.7.G Transit Signal Priority
 - 3.7.H Peer-to-Peer Communication
 - o 3.11. Optional Features
- Three (3) cabinets will be set up to operate eight (8) vehicle phases, four (4) pedestrian phases, two (2) transit phases, and two (2) blackout signs.
 - The setup of the cabinet will be similar to a typical 8phase signalized LRT intersection within COP.
 - Cabinets will be connected using a daisy-chain network topology with the controllers connected to TransSuite.
 - Cabinets outputs will be wired to a light board display with vehicle signals, pedestrian signals, and blank-out signs.
- Successful completion and results recorded on Exhibit B Section 2 and Section 3 (Phase I and Phase II Bench Testing) will be considered the pre-requisite for field testing.

*Note: Bench Testing can take up to a month and a half for each Offeror.

3.2 FIELD TESTING

PHASE III PRE-FIELD TESTING AND FIELD TESTING (combined)

- The results of the testing will be recorded in PHASE III FIELD TESTING (EXHIBIT B SECTION 4 and SECTION 5).
- The field-tested controllers will be installed in three (3) adjacent NEMA TS-2 Type 1 cabinets within the City. To verify the Transit Signal Priority operation and the peer-to-peer communication, the intersections selected for field testing will be existing LRT intersections. The databases for the three controllers will be

configured to match the existing databases for these intersections.

- **Pre-Field Testing:** Prior to installation of the controllers in the field cabinet, the configured controllers with the intersection datasets will be tested in the Traffic Signal Shop using the cabinet setup for bench testing for at least 48 hours to ensure no failures are noted.
- Field Testing:
 - Prior to the installation of the controllers in the field cabinets, COP officials will inform Valley Metro of the testing. This will allow Valley Metro LRT operators to observe any anomalies in operation at the intersections and report to the City.
 - After the installation of the controllers in the field cabinets, approximately two weeks of **Field Testing** will be conducted for all Offerors.
 - The City will monitor the operation of the signals at these intersections from TransSuite.

Note: Estimated Phase III Field Testing can take up to 22 days for each Offeror.

4. Acceptance Criteria

Standard NEMA functions (such as phase, ring, preemption, detection, time base, and other proprietary controller functions) will be considered to perform acceptably if the outputs from these functions perform within acceptable tolerances specified in the NEMA TS-2 specifications and as per the City's Advanced Traffic Controller specifications. If any of these functions produce non-standard NEMA form outputs or incorrect load switch indications, those functions will be deemed to have failed to meet the acceptance criteria for those functions.

- Any operational or performance issues identified during the bench testing or the field testing of the controllers will be communicated to the representative of the Offeror.
- Any operational failures that impact the safe operation of the intersection will be deemed a critical issue.
- The determination of whether an issue will be considered critical will be the sole discretion of the City. Provided below is a partial listing of some issues that will be considered critical.
 - Controller puts the intersection into flash without the MMU detecting any conflicts or controller flash input being activated.

- Controller does not put a call for an actuated vehicle, transit or pedestrian phase even though a detection call is registered.
- o Controller re-starts on its own without any related input.
- Controller provides less clearance time than the programmed values.
- If a critical failure(s) is discovered during the bench or field testing of the controller, the testing will be stopped, and the Offeror will be notified of the failure(s).

• Failure Remedy:

- Phase I and II Bench Testing Failures
 - The Offeror will be provided a period of thirty (30) calendar days from the day of the identified failure(s) to provide and install a solution to fix the failure(s) for the first critical failure(s) and five (5) calendar days for any subsequent critical failures identified for a maximum period of 40 days to resolve no more than three (3) failures.
 - Non-critical failures **resolved** within 24 hours **will not count** towards the maximum of three allowed failures.
 - Non-critical failures **not resolved** within 24 hours **will count** towards the maximum of three allowed failures.
 - All critical failures will count towards the maximum of three allowed failures.
- Phase III Pre-Field Testing and Field Testing Failures
 - Pre-Field Testing Failures
 - A maximum of any three (3) failures during Pre-Field testing will be given to the Offeror. Offeror shall provide an immediate response (within 2 hours) to fix any dataset failures.
 - The three failures allowed for Pre-Field testing are separate from the failures mentioned above in Phase I and II Bench Testing failures.
 - All non-critical and critical failures will count towards the three maximum failures.
 - Any failures noted during the 48 hours of Pre-Field testing will require a restart of the test and reset of the 48-hour duration required to pass Pre-Field testing.
 - Field Testing

- No remedy for any failures is to be given to the Offeror for field testing.
- All failure and remedy will be recorded in Exhibit B Section 6.
- If the Offeror fails to provide a workable solution to fix a critical issue within the allotted timeframe, the controller will be deemed to have failed the testing and no further testing of the controller will be performed.

During the testing process, controller operations will be monitored and logged from TransSuite. Controllers that are fully integrated with TransSuite and can be easily monitored will be preferred over those that are not. During field testing, the ease of use of the controller by City's Street Transportation Department staff will be evaluated and rated.

The controller operation should be able to clearly distinguish between essential and non-essential items and prioritize essential functions over non-essential functions. If a non-essential function fails, it should not put the controller into flash but rather activate an alarm that can be monitored from TransSuite. An example would be if the controller Ethernet port is faced with an ARP storm, it should shutoff that port and not produce anomalies in the outputs from the controller.

5. Testing Timeline

Phase I and II Bench testing = Up to a month and a half for each Offeror

Phase III Pre-Field Testing and Field testing = Up to 22 days to be fully compliant

*Note:

The City of Phoenix estimates that eight (8) weeks total will be needed for the testing of Advanced Transportation Controllers. The Procurement Officer will notify the Offeror about the testing start dates.

The City does not anticipate having Offerors present during bench and field testing. The Procurement Officer will contact the Offeror if there are any questions or issues. The Offerors shall be available for phone calls or a video call meeting during the bench and field testing to answer questions.

EXHIBIT B (To be filled by the City of Phoenix) – SECTION 1 - CABINET/CONTROLLER TESTING FORM

Cabinet Database:				
Controller Test by:	Date Completed:			
Installat	tion			
Date Installed:				
Installed By:				
Cabinet Type:E	Brand:			
Print Number:S	t Number:Serial Number:			

Communications Established with TransSuite? (YES/NO)

Equipment	Brand/Type	Serial Number
Controller		
MMU		
Power Supply		
Preemption Card #1		
Preemption Card #2		
Detector Brand		
3.7.A – Intersection Signal Control General Software Requirement		
--	-------------	----
	Yes	No
3.7.A.1. Does the software comply with NEMA TS-2 (with NTCIP v02.06) standard?		
3.7.B – Basic Timing Parameters		
	Yes	No
3.7.B.1. Does the software default to standard dual-ring, 8-phase NEMA configuration with leading left turns (odd-numbered phases)?	n 🗆	
3.7.B.2. Does the software support a minimum of sixteen (16) vehicles phases		
3.7.B.3. Does the software support a minimum of [4] phasing rings?		
Number of Phasing Rings Supported		
3.7.B.4. Does the software support a minimum of [8] pedestrian phases?		
3.7.B.5. Does the software support a minimum of [16] overlaps?		
3.7.B.6. Does the software support a minimum of [6] transit phases?		
Number of Transit Phases Supported		
3.7.B.7. Does each transit phase have the ability to control two and three section sign heads?	nal 🗆	
3.7.B.7. Does each transit phase have the ability to provide advanced warning sign control?		
3.7.B.8. Does the software support stop timing and interval advance?		
3.7.B.9. Does the software provide volume/density phase timing?		
3.7.B.10. Does the software support dual entry, selectable by phase?		
3.7.B.11. Does the software support a "minimum", "maximum", "pedestrian", and "soft recall mode?	t" 🗆	
3.7.B.12. Does the software provide leading and lagging pedestrian intervals?		
3.7.B.12.a. Does the leading pedestrian interval start at a specified time interval befor the adjacent movement phase?	re 🗆	
3.7.B.12.b. Does the lagging pedestrian interval start at a specified time interval after adjacent through movement phase, and allow a waiting right-turn queue to b cleared before the pedestrian walk indication is presented?	the □ De	

3.7.B.– Basic Timing Parameters		
3.7.B.13. Does the software allow for exclusive pedestrian intervals?	Yes □	No □
Does the software dedicate an additional phase for exclusive pedestrian use ir which NO vehicular movements are served concurrently with pedestrian traffic	n 🗆 ?	
3.7.B.14. Is the software capable of operating a flashing yellow arrow for protected/permissive mode, protected only and permissive only left turn?		
Can this mode be programmed and changed by time-of-day (TOD) or day-of- week (DOW) scheduling?		
3.7.B.15. Does the software allow the user to reverse the sequence of phase pair (alternate sequence) without making changes to the ring/barrier structure programmed?		
3.7.B.16. Does the software support for full operation of Pedestrian Hybrid Beacon as described in the 2009 MUTCD, Chapter 4?		
3.7.B.17. Is the software able to activate the following parameters selectable by phase through TOD schedules?		
Call-to-Non-Actuated (CAN) I & II		
Rest-in-Walk		
Pedestrian Re-service (Pedestrian Re-cycle)		
Pre-time		
 3.7.B.18. Does the software provide two sets of walking intervals per phase? Is Phase I enabled by default? 		
 Can Phase II be enabled by either a TOD command or an extended push button press? 		
3.7.B.19. Does the software provide a minimum bike green time, which is selectable by Is the green time only able to be activated by a bike detector call?	phase? 🗆	
3.7.B.20. Does the software provide the ability to extend an all-red interval?		
Can this red clearance be extended until it reached a pre-defined red maximur	m 🗆	
(if the red extended detector input is true) or the red extend detector input goe	s false? □	

3.7.B.– Basic Timing Parameters

37B21	Does the start-up	process	support either	of the two	start-up options	s?
0.7.0.21.	Doco inc otari up	p1000033 .	Support onnor		Start up option	5.

	Option I		Option II		
	• Flash all red for the program	mmed interval	• Flash yellow/red for the programmed interval		
	• All red for the programmed	• Yellow on main street and red for the programmed intervals	l on side str	eet	
	• Then begin service on the s greens	selected phase	• All red for the programmed in	ntervals	
	Normal sequence follows		• Normal sequence follows		
	Yes	No	Yes	No	
				Yes	No
3.7.B.2	23. Does the software provide a phases that can be selected	minimum of [3] by a coordinatio	"maximum green" time by n plan and TOD schedules?		
3.7.B.2	24. Does the software support a which is selectable by phase	"backup protec ?	tion" or "anti-backup" option,		
3.7.B.2	25. Does the software provide a bank) that can be selected by schedule?	minimum of [4] a coordination	phase timing plans (phase plan, free mode or TOD		

3.7.B.26. Does the software provide a minimum of [4] sets of phase recall data that can be selected by coordination plan or TOD schedule?

3.7.C. – Coordination

			Yes	No
3.7.C.1.	Does the which ca	software support a minimum of [128] signal timing plans/patterns, n call for coordinated, free or a programmed flash operation?		
3.7.C.2.	Does the	software support coordination with single and multiple yield points?		
3.7.C.3.	Does the (conditio	software support phase re-service in coordination mode nal service)?		
3.7.C.4.	Does the	software support the following offset recovery options?		
	•	Short way		
	٠	Long way		
	•	Short/Long way		
	•	Dwell		
3.7.C.5.	Does the split less	software support programming to run coordination with a vehicle than a programmed walk+pedestrian+yellow+all red?		
3.7.C.6.	Does the coordina	software support phase and pedestrian recall or the omitting of per tion plan?		
	•	Does the software support a cycle-by-cycle split adjustment per		
		coordination plan?		
	•	Is the cycle-by-cycle split able to move available time from phases		
		that are under-saturated to phases that are over-saturated?		
	•	Does the software allow for the early gap-out of actuated		
		coordinated phases?		
	•	Does the software allow for unused time to be distributed to		
		movements with greater demand?		
3.7.C.7.	Does the	software support floating and fixed force-off modes?		
(Can the us	ser select a force-off mode for each coordination plan/pattern?		

3.7.D. – Detector Inputs		
3.7.D.1. Does the software support a minimum of [64] vehicle detector inputs? Does the software support a minimum of [8] pedestrian detector inputs?	Yes □ □	No □ □
3.7.D.2. Does the software provide the following detector diagnostics?		
No activity		
Max presence		
Erratic counts		
Does the software provide a minimum of [2] alternative values for the detector diagnostics, which shall be selectable by TOD?		
3.7.D.3. Does the software provide user-definable cabinet input function mappings?		
3.7.D.4. Does the software support bicycle detection which can be assigned to a bike call, vehicle call, and/or a pedestrian call?		
3.7.D.5. Does the software allow the user to assign any detector as a system detector?		
3.7.D.6. Does the software support a minimum of [32] system detectors, capable of accumulating volume and occupancy data on a user-defined incremental interval?		
Can the software log and store a minimum of [72-hour] volume and occupancy data with [15-minute] intervals?		
3.7.D.6.a Can the controller enable/disable multiple Car logic (minimum [2]) per detection input channel for protected/permissive turn movement where protected turns only appear if the minimum number of cars is detected to start of green?		

3.7.E. – Pedestrian Overlaps		
	Yes	No
3.7.E.1. Does the software support pedestrian overlaps?3.7.E.2. Does the software support NTCIP normal overlap (as described in NTCIP TS 3.5, 2.10.2.2)?		
3.7.E.2.C Does the software support NTCIP MinusGreenYellow overlap (as described in NTCIP TS 3.5, 2.10.2.2)?		
 3.7.E.3. Does the software support an overlap for the following LRT operation described below? The overlap indication is a special two-section head driven by the overlap's green and red outputs. During the overlap's yellow clearance interval, the green output flashes. The overlap output shall be green in the following situations: When an overlap parent phase is green, and an overlap modifier phase is NOT in service and no termination detector is actuated. When an overlap parent phase is yellow (or red clearance) and an overlap parent phase is next, and an overlap modifier phase is NOT in service or selected as phase-next will stop the overlap from outputting green. If pedestrian service is enabled for the overlap, it'll time concurrently with the overlap green timers. The overlap shall be able to flash red indication prior to the overlap going green. This indication will be displayed during the preceding non-parent phase. 		
3.7.E.4. Does the software support overlap trailing (Green Clearance)?		

3.7.F. – Preemption		
	Yes	No
3.7.F.1. Does the software support the minimum required [8] preempt inputs?		
3.7.F.2. Are preemption routines in the software in accordance with the NEMA TS-2 specifications (v02.06)?		
3.7.F.3. Is the software capable of activating warning lights, blankout signs and other auxiliary devices during a preemption sequence?		
3.7.F.4. Does the software accept infrared preemption input?		
Does the software accept initiated preemption input? Does the software have the ability for the active coordination plan to run in sequence behind the preemption, and to exit preemption in sync or choose exit phases?		
 Does the software permit or allow any combination of vehicle phases, overlap and pedestrian phases during preemption operation? 		
3.7.F.6. Does the software support rest-in-walk for pedestrian phases? during dwell interval of preemption?		

3.7.I. – Time Base Schedule

Yes	No
Yes	No
	Yes Yes

3.7.I. – Time Base Schedule

3.7.I.5. Does the software so	upport the minimum required [32] TOD/DOW schedules?		
3.7.I.6. Does the software so operation functions?	chedule support, as a minimum, the following		
•	Call-to-Non-Actuated (CNA) I & II		
•	Rest-in-Walk		
•	Pedestrian Re-service (Pedestrian Re-cycle)		
•	Phase omit		
•	Second Walk/Ped Clearance interval		
•	Second/Third phase maximum greens		
•	Plan sets		
•	Flashing operations		
•	Special functions		
3.7.I.7. Does the software have the ability to schedule holiday events at least one year in advance?			
3.7.I.8 Does the software su	pport both fixed and floating holidays?		
3.7.I.9. Does the software so	upport temporary event patterns?		

3.8. – Security			
3.8.A. Does the software provide username and password protection?	∕es □	No]
3.8.A.1. Can the username and password be reconfigured to the City's preference?]
3.8.A.2. Does the software allow for multiple security levels of access (such as a "view only" mode, access to modify timing parameters, and access to modify phasing configurations)?]
3.9. – Alarms			
3.9.A. Does the controller provide one of the following alarms classified as the following?	Y	es	No
Critical		l	
Non-Critical		l	
Detector Fault		I	
Coordination		l	
Communication		I	
 Preempt 3.9.B. IF the controller alarm is classified as Critical, mark if the following features are provided: 	⊡ Y€	es	□ No
Power failure			
Stop time			
Local flash			
MMU flash			
Cycle failure			
3.9.C. IF the controller alarm is classified as Non-Critical, mark if the following features are provided:	e Y€	s	No
External start			
Uninterruptible Power Supply (UPS) Low battery			
Cabinet door open			
Cabinet Fan out			
Local override			

<u>3.9. – Alarms</u>

3.9.D. IF the controller provides detector fault alarms, mark if the following features are provided:

		Yes	No
•	No activity fault		
•	Max presence fault		
•	Erratic count fault		
•	Communications fault		
•	Configuration fault		

3.9.E. IF the controller provides detector fault alarms, mark if the following features are provided:

	•		Yes	No
	•	Cycle fault		
	•	Coordination fault		
	•	Coordination failure		
	•	Offset transitioning		
	•	Coordination active		
	•	Local free		
3.9.F. IF	the co are p	ontroller alarm is classified as Communications, mark if the following features rovided:		
	o o. p.		Yes	No
	•	System communication failure		
	•	Peer-to-peer communication failure		
3.9.G. IF	the c	controller alarm is classified as Preempt, mark if the following features are ded:		
			Yes	No
	•	Preempt input active		

<u>3.9. – Alarms</u>		
3.9.H. Does the software log all alarms?	Yes □	No
3.9.I. Does the software allow for the configuration of alarms to the messages that will be transmitted to the Central Traffic Control Software?		
3.10. – Communications		
3.10.A. Does the controller simultaneously support both Controller-to-Central Traffic Signal Control Software and P2P between local controllers?	Yes □	No
3.10.B Does the controller simultaneously support center-to-field communications through the following interfaces?	ne	
 10100 Ethernet RJ45 connector EIA/TIA 232-E compliant 9-pin connector FSK modem 		
3.10.C. Is the controller able to be polled every one second?		
Does the controller support the request to download all data from the Central Traffic Signal Control Database to the controller through the front panel?		
3.10.D. Does the controller support receipt of a Traffic Control System Time Broadcast for setting the clock?		
3.10.E. Does the controller support File Transfer Protocol (FTP) for uploading and downloading files?		
3.10.F. Does the controller comply with NTCIP 2202:2001 Internet (TCP/IP and UDP/IP) Transport Profile?		
3.10.G. Does the controller provide the ability to ping at least [4] network devices simultaneously and show success or fail and latency in millisecond?		
3.10.H. Does the controller support upload/download of all front-panel programmable data within one minute with direct IP connection using NTCIP protocol to a desktop computer or a laptop?		
3.10.I. Can the Controller Ethernet interface withstand an Address Resolution Protocol (ARP) Storm, Denial of Service (DoS or DDoS) attack and a MAC spoofing attack of any size and duration without causing the controller to go into flash or effect any of the primary traffic control functions other than communication to the Central Traffic Control system or to other controllers?		

3.10. – Communications		
	Yes	No
3.10.J. Is the MAC address of the controller network interface card unique?		
3.10.K. Is the MAC address of the controller network interface card printed on a serial number label affixed to the controller enclosure?		

<u>3.7.G –</u>	Transit Sigr	nal Priority		
3762	Does the soft	ware allow for the ability to extend a dedicated transit priority phase	Yes	No
5.7.6.2.	green by a pi	re- determined time for up to [90] seconds?		
3.7.G.3.	Does the soft predetermine in a phase ot	ware provide the ability to truncate selected non-priority phases to a d value when a transit priority call is received while the intersection is her than the priority phase?		
3.7.G.4.	Does the con for a transit p	troller stay in coordination while truncating/extending/omitting phases priority call?		
3.7.G.6.	Does the con adjacent veh	troller provide a queue jump indication for a transit vehicle before the icles receive a green indication?		
3.7.G.7.	Does the soft an early arriv	ware have the ability to switch to alternate sequences to better serve ing transit vehicle?		
<u>3.7.H –</u>	Peer-to-pee	r Communication		
			Yes	No
3.7.H.1	. Does the sof	tware support peer-to-peer communication between any other controller		
v	vithin its netwo	rk?		
3.7.H.2	. Does the sof	tware allow the user to assign a minimum of [8] peer controllers?		
3.7.H.3	. Are peer con	trollers configurable by the user via the controller front panel?		
3.7.H.4 id	. Does the sof lentification an	tware allow the user to select peer controllers by entering intersection d/or IP addresses?		
3.7.H.5	. Does the sof	tware allow the user to select any peer controller's input, output, or event data		
to	o initiate a p2p	message which can be received by the local controller?		
D	o the available	p2p messages include the following?		
	•	Phase Green, Phase Yellow, Phase Red		
	•	Ped Walk, Ped Clearance, Ped DontWalk		
	•	Overlap Green, Overlap Yellow, Overlap Red		
	•	Overlap Ped Walk, Overlap Ped Clearance, Overlap Ped DontWalk		
	•	Vehicle Detector, Ped Detector, Priority Detector		
	•	Preempt Call, Preempt Actuation, Preempt Entry, Preempt Dwell, Preempt Exit		
	•	Special Functions, Auxiliary Functions, Alarm Inputs		
	•	Active Plan, Active Priority		

<u>3.7.H – Peer-to-peer Communication</u>

	Yes	No
3.7.H.6. Does the user have the ability to assign an internal control to the receiving controller upon the receipt of a p2p message from its peer controllers?		
	Yes	No
Phase Call, Ped Call, Overlap Call		
Vehicle Detector, Ped Detector, Priority Detector		
 Special Function, Auxiliary Functions, Alarm Inputs 		
Phase Hold, Phase Omit, Ped Omit, Walk Hold		
Force Off, Ped Recycle		
Min Recall, Walk Rest, Free		
Overlap WalkHold, Overlap PedOmit		
3.7.H.7. Does the active peer link communication status (Success or Fail) update on the TransSuite TCS ATMS Map on a second-by-second basis?		
3.7.H.8. Does the software display the status of all active peer connections between the local controller and peer controllers? Is the format similar to that shown within the specs?		
3.7.H.9. Does the software actively display the current status of all peer messages that are actively being sent/received to and from the controller? Is the format similar to that shown within the specs?		
3.7.H.10. Does the software allow the user to assign priority request (check-in) and priority release (check-out) detector inputs to each transit priority phase? Does the software allow the user to reverse detector inputs for transit detectors check-in/check-out?		
3.7.H.11. Does the software provide a delay timer for the priority request detector and priority release detector?		

Miscellaneous Features Yes No 3.4.F. Does the software allow for dynamic pin configuration? □ □

EXHIBIT B – SECTION 4 – FIELD TEST LOG

1. Pre-Field Testing Controller Setup

Fields shall be checked off when databases have been set up and tested successfully in the shop environment for at LEAST [48] hours and installed in the field cabinet.

Control Database	Control Database	Control Database
1	2	3

EXHIBIT B – SECTION 5 – FIELD TEST LOG

1. Field Testing Controller Setup

Fields shall be checked off when databases have been set up and installed successfully in the field cabinet.

Control Database	Control Database	Control Database
1	2	3

2. Peer Setup Configuration and Testing

			Pe	er Cor	mmunicatio	on Check
	Intersection Name	IP Address	Peer 1		Peer 2	
			Pass	Fail	Pass	Fail
Controller 1						
Controller 2						
Controller 3						

3. TransSuite Verification

Did the controller connect successfully to the Central Control System?				
Yes	No			

EXHIBIT B – SECTION 6 – FAILURE AND RESOLUTION LOG

Controller IP:

Intersection:

Observation	Action Item	Resolution

EXHIBIT C – PREFERRED FEATURES TESTING

		Yes	No
3.13.A.	Does the Controller provide an on-board web server that hosts a graphical user interface for monitoring and configuring the controller or provides access to the controller via Ethernet application?		
3.13.A.1	Does the web server interface provide access from any internet enabled device with a web browser which can be Internet Explorer 5.0 and higher, Firefox 1.0 and higher? No additional or proprietary software shall be needed to use the web interface. With the specified web browsers, the user shall be able to view all controller status and edit all front panel programmable parameters.		
3.13.B.	Does the Controller provide two SDLC capable serial ports?		
3.13.C.	Does the software support cycle-by-cycle split adjustment for each		
	Does Cycle-by-cycle split adjustment able to move available time from phases that are under-saturated to the phases that are over- saturated?		
3.13.D.	Does the controller have logging features? Logs should be remotely accessible and provide high resolution event-based data that is retrievable through TransSuite.		
3.13.E.	Do the actuated coordinated phases gap out early and unused time distributed to movements with greater demand?		
3.13.F.	Does the controller support the request of download all data from the Central Traffic Signal Control Database to the local controller through the front panel? Does the controller front panel shall provide user menu to support this operation.		
3.13.G.	Does the controller communicate with the City's existing light rail intersection controllers which use NextPhase software via peer-to-peer communication		
	 Phase Status? Detector Calls? Preemption status? Priority status? Special Functions? Alarm inputs? 		
3.13.H.	Does the controller support: 24 vehicle phases? 6 phasing rings? 8 transit phases?		

Note: There are 18 questions, and each "Yes" counts as 2.7778 points, up to 50 points.