



**Request for Proposal
For
Adaptive Signal Control Technology for Waterloo**
Issued by:

IOWA DEPARTMENT OF TRANSPORTATION
Purchasing Section
Proposal 16950

Response Due Date: August 31, 2016

Must be submitted no later than 1:00 PM Central Time
Responses received after this date will be rejected

***For information about this notice, and during this procurement,
interested persons shall contact only:***

Zach Gillen, Purchasing Agent
800 Lincoln Way
Ames, Iowa 50010
Phone: 515-239-1347
Fax: 515-239-1538
E-Mail: zachary.gillen@dot.iowa.gov

Issued addenda will be posted to internet website:

<http://www.iowadot.gov/purchasing/lettingschedule.htm>

Procurement Timetable

The following dates are set forth for informational and planning purposes. However, the Department reserves the right to change the dates. All times listed are Central Time.

Event/Dates	Section Reference	Date/Time
Issue RFP	cover	August 5, 2016
Number of returned Responses Required 1-original Technical and 1-Cost Proposal (1-removable media for each original Technical and Cost Proposal) 3-Hard Copies of Technical Proposal	4.1.3	
Responders' Conference <input type="checkbox"/> <i>Box will be checked when attendance is mandatory</i>	2.32	N/A
DOT Response from Responder's Conference Questions	2.32	N/A
Responder Questions, Requests for Clarification, & Changes <i>(no later than)</i>	2.2/2.5	August 17, 2016
DOT Response to Questions Issued <i>(no later than)</i>	2.2/2.5	August 24, 2016
Response Due Date	2.8/2.9	August 31, 2016
Presentations & Demonstrations "Short list" <i>(by invitation only)</i>	2.24/ 5.3	N/A
Announce Successful Responder Intent to Award* <i>see note below</i>	2.25	September 8, 2016
Completion of Contract negotiations <i>(Preparation for execution of the contract)</i>	2.25	September 16, 2016
Contract Begins	Response 6.2	September 28, 2016
Contract Length Start Date --- End Date --- Renewals	6.2	Start: 9/28/16 End: 9/27/2021 Renewals: 0

Intent to Award

It is intended that Responses will be evaluated and a notice of intent to award will be issued within thirty (30) days of the Response due date. Response prices, terms and conditions must be held firm for a 180-day period from the date of the notice of intent to award the contract. See Section 4.2.13



Solicitation Response

		Response Due Date August 31, 2016	Time 1:00 P.M.	Location 800 Lincoln Way, Ames, IA	
Proposal Number 16950	Description Adaptive Signal Control Technology for Waterloo				
Contract Begin Date September 28, 2016	Contract Completion Date September 27, 2021	Bid Bond N/A	Performance Bond (Y/N) N/A	Liquidated Damages N/A	
Purchasing Agent assigned Zach Gillen	E-mail Address zachary.gillen@dot.iowa.gov	Phone 515-239-1347	Fax 515-239-1538		
RESPONDER INFORMATION					
Company Name				Federal Tax ID	
Street Address		City	State	Zip Code	
Contact Name	E-mail Address	Phone	Fax		
Responder agrees to sell goods/services or both at the same prices, terms and conditions to any other Iowa state agency, Regent or Political Subdivision upon request. Please check Yes or No. <input type="checkbox"/> Yes <input type="checkbox"/> No			Responder is an Iowa Targeted Small Business <input type="checkbox"/> Yes <input type="checkbox"/> No		

GENERAL INFORMATION

This solicitation includes the Solicitation Response cover page, Schedule of Prices, Standard Terms and Conditions, Supplemental terms (if any), Specifications, Plans and Drawings, mailing label and all other information needed to prepare and submit a response to the solicitation. Information in the "Solicitation Response" above must be typed or completed in ink, signed, and returned in a flat style envelope along with any other information required in the solicitation prior to the response due date and time. Please use the furnished mailing label, or label the response as "Iowa Department of Transportation, proposal number and response due date on the outside of the return envelope. Responders may personally deliver, mail, or select a carrier that ensures timely delivery. **Faxed or e-mail responses will not be accepted.**

If required, each response must be accompanied by a bid bond in an accepted form, in the percent amount indicated above. Refer to the Standard Terms and Conditions for the accepted forms in which the bid bond requirement may be fulfilled. **Responses without a required bid bond will not be considered for award.** If the intended awarded responder fails to enter into a formal contract within fifteen (15) days after award is made for any reason on their part, the bid bond may be retained by the State.

The entire contents of this solicitation, Addendums, Schedule of Prices, Specifications, Plans and Drawings, Supplemental Terms and Conditions, Standard Terms and Conditions, shall become part of the contract.

We certify that we have not, either directly or indirectly, entered into any agreement or participated in any collusion or otherwise taken any action in restraint of free competition; that no attempt has been made to induce any other person or firm to submit or not to submit a response; that this response has been independently arrived at without collusion with any other responder, competitor, or potential competitor; and that this response has not been knowingly disclosed prior to the opening of responses to any other responder or competitor.

We certify that all materials, equipment goods and/or services proposed meet or exceed the specifications and will be supplied in accordance with the entire contents of this solicitation including delivery schedules. We promise to complete the contract within the contract period, or pay any liquidated damages, if stipulated, for each calendar day as set forth in the solicitation documents.

Signed _____ Date _____

Schedule of Prices
Request for Proposal 16950
Adaptive Signal Control Technology for Waterloo

Item #	Description	QTY	Unit	Unit Cost	Total Cost
1	US 63 Intersections. See section 3.7.1 & 3.7.2	11	EA	\$	\$
2	City Traffic Operations Center (TOC) Implementation See Section 3.7.4	1	EA	\$	\$
3	Training – See Section 3.6.3	1	EA	\$	\$
4	Central Control Software/Server – See Section 3.7.3	1	EA	\$	\$
5	Maintenance/Support – See Section 3.6.1 & 3.6.2	1	EA	\$	\$

Grand Total \$ _____

I hereby certify that this Response meets or exceeds the minimum requirements including specifications and addendums.

Authorized
Signature:

Contact Person:

Company:

(Print Name)

Address:

Federal Tax I.D. No.: _____

(City) (State) (Zip Code)

Contractor's
Registration No (If applicable): _____

Phone No: _____

Email: _____

Fax No.: _____

I acknowledge receipt of addendums.: _____



Iowa Department of Transportation Standard Terms and Conditions

For

Submission of Quotations, Bids or Proposals

-FORMAL-

Formal is the procurement process required by Iowa law when the estimated, aggregate amount of the purchase equals or exceeds \$50,000.

The entire contents of this solicitation shall become a part of a contract or purchase order. In case of a discrepancy between the contents of the solicitation documents, the following items listed by descending order shall prevail:

- Addendums to the solicitation
- Solicitation
 - Schedule of Prices
 - Specifications
 - Plans and Drawings
- Supplemental Terms and Conditions
- Standard Terms and Conditions

(Example - if a statement in the specifications contradicts a statement in the Standard Terms and Conditions, the statement in the specifications shall apply)

Preparation of Solicitation or Bid Response: All responses must clearly address all aspects of the solicitation. Responses must be typed or completed in ink and submitted on the forms supplied by the Iowa DOT.

Responses must be signed and received prior to the opening date and time indicated on the Solicitation Response page or other specified areas throughout the solicitation document. The Responder's signed Response shall become the official Response to be considered for award.

No email, fax or web link bid Responses will be accepted. Responses must be signed, sealed and delivered in person or by a mail courier that ensures timely delivery.

A. Solicitation

1. **Opening:** The openings of responses are made public and conducted at the Iowa DOT, Ames complex unless otherwise specified. Responses received after the time of the opening will be returned unopened and considered non-compliant.
2. **Communications:** Questions concerning this solicitation should be directed to the purchasing agent listed on the Solicitation Response page. Inquiries can be written, phoned, or faxed. In all cases, written communication will take precedence over verbal communication.
3. **Bid Bond:** If required, the Solicitation Response page will indicate the fixed percent of the bid security based on the amount of the Bidder's bid. A Bid Bond can be supplied in one of the following ways: **(1)** Certified check or credit union certified share draft, cashier's check, or bank draft, drawn on a solvent bank or credit union. Certified checks and certified share drafts shall be drawn and endorsed in the amount indicated. Checks or drafts shall be made payable either to the Iowa Department of Transportation (Iowa DOT) or to the bidder. If payable to the bidder, the check or draft shall be endorsed without qualifications to the Iowa DOT by the bidder or an authorized agent. **(2)** An insurance or surety company may be retained to provide a bond in fulfillment of the Bid Bond requirement. A properly completed and signed copy of the Bid Bond (*Form 131084*) must accompany the bid. **The Iowa DOT's Bid Bond form must be used; no other forms or formats will be accepted.**

4. **Pricing and Discount:** Unit prices shown in the response shall be quoted as the price per unit (e.g., gal., case, each, etc.) as requested in the solicitation. If there is a discrepancy between the unit bid prices, extended price, or total amount of response, the unit prices shall prevail. Unless otherwise indicated, prices shall be firm for the duration of the contract or purchase order. Discounts for early payment are allowed, but not considered in award of the contract.
5. **Acceptance/Rejection:** The Iowa DOT reserves the right to accept or reject any or all responses and to waive irregularities or technicalities, provided such waiver does not substantially change the offer or provide a competitive advantage to any supplier(s) or provider. The Iowa DOT also reserves the right to accept that response which is deemed to be in the best interests of the state. Any unauthorized changes, additions, or conditional response including any ties to another response or any reservations about accepting an award or entering into a contract, may result in rejection of the response. Responses must remain available for award for thirty (30) days from opening date and time.
6. **Results & Disclosure:** Tabulation results will be posted on the Iowa DOT website at www.iowadot.gov/purchasing under the *Bid Award* link referencing the proposal number with an award recommendation indicated. At the conclusion of the selection process, the contents of all received responses will be placed in the public domain and be open to inspection by interested parties, according to state law. Trade secrets or proprietary information that are recognized as such and are protected by law may be withheld if clearly identified as such in the response.
7. **Quality of Goods:** All material shall be new and of first quality. Items which are used, demonstrators, refurbished, obsolete, seconds, or which have been discontinued are unacceptable without prior written approval by the Iowa DOT.
8. **Recycled Content:** The Iowa Code encourages purchase of products and materials with recycled content, including but not limited to paper products, oils, plastic products, compost materials, aggregate, solvents, and rubber products. Recycled items or alternatives must be noted in the Solicitation Response, if known.
9. **Shipping Terms:** Deliveries shall be F.O.B. Destination unless otherwise specified. All deliveries shall be accompanied by a packing slip indicating the Supplier, quantities shipped, and the purchase order number(s). All delivery charges shall be included in the response price and paid by the Supplier. No collect C.O.D. deliveries shall be accepted. When entering into a contract, the Supplier shall notify the freight company that all freight and delivery charges are to be prepaid by the Supplier. Goods delivered to the Iowa DOT Distribution Center at 800 Lincoln Way, Ames, IA shall be received between the hours of 7:00 a.m. and 3:00 p.m. on any day except Saturday, Sunday, or a holiday. For deliveries to other Iowa DOT locations, the Supplier may contact the destination location for available times to deliver as not all Iowa DOT locations have the same business hours. The Iowa DOT will not be liable for any freight claims or unpaid freight bills arising from contract or purchase order issues.

B. Award

The binding agreement (award) may be issued in the form a purchase order or contract or both depending on the requirements and complexity of the agreement.

1. **Method of Award:** Award shall be made to the responsible, responsive Responder whose Quotation, Bid or Proposal meets the requirements of the solicitation and is the most advantageous to the Iowa DOT. An Iowa company or individual will be given preference over an out-of-state company or individual when responses are equal in all aspects and are tied in price. By virtue of statutory authority preference will be given to products and provisions grown and coal produced within the State of Iowa.
2. **Award Protests:** Protests of award recommendations are to be addressed to the Director of Purchasing, and shall be made in accordance with paragraph 761--20.4(6)"e" of the Iowa Administrative Code.
3. **Contracts:** Successful contractor(s) may be sent either a formal Contract, Notification of Award or Purchase Order as confirmation of acceptance and award. Any of these binding agreements shall be for the term stated in the solicitation or on a purchase order and may be renewed for additional period(s) under the same terms and conditions upon mutual agreement as defined. The successful responder may not assign a contract to another party without written authorization from the Iowa DOT Purchasing Section. The Iowa DOT may offer a contract extension to the Contractor when a scheduled target date cannot be met.

4. **Consumer Price Index (CPI-U):** A CPI may be allowed as specified in the terms of the solicitation and at the discretion of the Iowa DOT based on currently posted CPI-U, US City Average, All Items – non seasonally adjusted unless otherwise specified. This applies each of any subsequent renewals, extensions, amendments issued under the contract for the duration of the contract.
5. **Payment Terms:** The Iowa DOT typically pays properly submitted invoices within thirty (30) days of receipt, providing goods and/or services have been successfully delivered, installed or inspected (if required), and accepted. Invoices presented for payment must be only for quantities received by the Iowa DOT and must reference the purchase order number or contract number to be submitted for processing.
6. **Default (Supplier):** Failure of the Supplier to adhere to specified delivery schedules or to promptly replace rejected materials shall render the Supplier liable for all costs in excess of the bid price when alternate procurement is necessary. This shall not be the exclusive remedy and the Iowa DOT reserves the right to pursue other remedies available to it by law or under the terms of the binding agreement.
7. **Default (Contractor):** Failure of a Contractor other than a Supplier to meet any specified project completion deadline shall render the Contractor liable for all costs incurred by the Iowa DOT that were: a) necessary to meet said deadline; or b) necessary to complete said project after said deadline. This shall not be the exclusive remedy and the Iowa DOT reserves the right to pursue other remedies available to it by law or under the terms of the agreement.

C. General

1. **Administrative Rules:** For additional details on the rules governing the actions of the Iowa DOT Purchasing Section, refer to 761 IAC, Chapter 20, Iowa Administrative Code, entitled “Procurement of Equipment, Materials, Supplies and Services”.
2. **Affirmative Action:** The Contractor (and also subcontractor, vendor, service provider or supplier) is prohibited from engaging in discriminatory employment practices forbidden by federal and state law, executive orders and rules of the Iowa Department of Management, pertaining to equal employment opportunity and affirmative action. Contractor may be required to have on file a copy of their affirmative action program, containing goal and time specifications. Contractors doing business with Iowa in excess of \$5,000 annually and employing 50 or more full time employees may be required to file with the Iowa Department of Management a copy of their affirmative action plan. Failure to fulfill these non-discrimination requirements may cause the contract to be canceled and the contractor declared ineligible for future state contracts or subject to other sanctions as provided by law or rule.
3. **Applicable Law:** The contract shall be governed under the laws of the State of Iowa. The contractor shall at all times comply with and observe all federal and state laws, local laws, ordinances, and regulations which are in effect during the period of a contract and which in any manner affect the work or its conduct. Any legal action relating to a contract shall only be commenced in the Story County, Iowa, District Court or the United States District Court for the Southern District of Iowa.
4. **Conflict of Interest:** No state or county official or employee, elective or appointive shall be directly or indirectly interested in any contract issued by the Iowa DOT, see Code of Iowa 314.2.
5. **Debarment and Vendor Suspension:** By submitting a response, the contractor is certifying that it and its principals and/or subcontractors are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by the State of Iowa or any Federal department or agency.
6. **Equal Opportunity:** Responders to the solicitation must be an “Equal Opportunity Employer” as defined in the Civil Rights Act of 1964 and in Iowa Executive Order Number Thirty-four.
7. **Indemnification-Goods:** To the extent the goods are not manufactured in accordance with Iowa DOT’s designs, Supplier shall defend, indemnify and hold harmless Iowa DOT, its assignees, and other users of the goods from and against any claim of infringement of any letters patent, trade names, trademarks, copyright or trade secrets by reason of sale or use of any articles purchased. Iowa DOT shall promptly notify Supplier of any such claim.
8. **Infringement:** Goods shall be delivered free of the rightful claim of any third party by way of infringement. Contractor shall indemnify and save harmless the State of Iowa and the Iowa DOT against all claims for infringement of, and/or royalties claimed under, patents or copyrights on materials and equipment furnished under this bid.

9. **Iowa Open Records Law:** All Solicitation Responses are subject to terms and provisions of Iowa Code Chapter 22 Examination of Public Records (Open Records), specifically 22.7- Confidential Records.
10. **Records Audit:** The contractor agrees that the Auditor of the State of Iowa or any authorized representative of the state, and where federal funds are involved, the Comptroller General of the U.S. Government, shall have access to and the right to examine, audit, excerpt, and transcribe any directly pertinent books, documents, papers, and records of the contractor relating to orders, invoices, or payments of a contract or purchase order.
11. **Targeted Small Businesses:** The Iowa DOT seeks to provide opportunities for women and/or minority small business enterprises. To apply for certification as an Iowa Targeted Small Business, contact the Iowa Department of Inspection and Appeals (515-281-5796). Contractors shall take documented steps to encourage participation from Targeted Small Businesses for the purpose of subcontracting and supplying of goods or services or both.
12. **Taxes:** Prices quoted shall not include state or federal taxes from which the state is exempt. Exemption certificates will be furnished upon request.
13. **Termination:**
 - **Termination Due to Lack of Funds or Change in Law**

The Iowa DOT shall have the right to terminate this Contract without penalty by giving thirty (30) days written notice to the vendor as a result of any of the following:

 - Adequate funds are not appropriated or granted to allow the Iowa DOT to operate as required and to fulfill its obligations under contract.
 - Funds are de-appropriated or not allocated or if funds needed by the Iowa DOT, at the Iowa DOT's sole discretion, are insufficient for any reason.
 - The Iowa DOT's authorization to operate is withdrawn or there is a material alteration in the programs administered by the Iowa DOT.
 - The Iowa DOT's duties are substantially modified.

Following a 30 day written notice, the Iowa DOT may terminate a binding agreement in whole or in part without the payment of any penalty or incurring any further obligation to the Responder. Following termination upon notice, the Responder shall be entitled to compensation upon submission of invoices and proper proof of claim for goods and services under contract up to and including the date of termination.

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Mailing Label

Section 1 Introduction

1.1 Purpose & Overview of the RFP Process

The purpose of this Request for Proposal (RFP) is to solicit responses from responsible Responders to provide the goods and/or services identified on the RFP cover sheet and described further in Section 3 of this RFP to the Iowa Department of Transportation (Iowa DOT). The Iowa DOT intends to award a contract(s) beginning and ending on the dates listed on the Procurement Timetable, and the Iowa DOT may extend the contract(s) for up to the number of annual renewals identified on the Procurement Timetable sheet at the sole discretion of the Iowa DOT. Any contract(s) resulting from the RFP shall not be an exclusive contract.

Responders may be required to submit their responses in hardcopy and (a form of removable media (such as a CD-ROM or flash drive) as indicated on the Procurement Timetable. It is the intention of the Iowa DOT to evaluate Responses from all responsible and timely Responders and award the contract(s) in accordance with Section 5, Evaluation and Selection.

1.2 Project Background

Iowa DOT is seeking a qualified Solution Provider that demonstrates the capabilities, experience, and resources required to provide **the services outlined in section 3 of this RFP**.

1.3 Definitions

The terms used in individual sections of this document are intended to be consistent with those commonly used in the application field in question. When responding, use the terms and acronyms used in this document, and define any terms or conditions that require further clarification.

1.3.1 “Cost Proposal” means the cost of the project as requested on the Schedule of Prices and submitted with the Response under separate cover.

1.3.2 “Contract” or “Resulting Contract” means the contract(s) entered into with the successful Responder(s) as described in section 6.1.

1.3.3 “Responder” means individual, company or entity submitting a response to this RFP.

1.3.4 “Iowa DOT” means the Iowa Department of Transportation identified on the RFP cover sheet as issuer of the RFP. The Iowa DOT will also execute the Resulting Contract.

1.3.5 “Participating Agency” or “Participating Agencies” means the Political Subdivision, either City, State, County, Boards or Commission, identified on the RFP cover sheet as Participating Agencies, and any other governmental agency that decides to utilize the executed contract.

1.3.6 “Procurement Timetable” (*on the page immediately following the RFP cover*) provide timeline, event and date information.

1.3.7 “Purchase Order” means the documentation issued by the State to the successful Responder(s) for a purchase of goods and/or services in accordance with the terms and conditions of the contract. It may include an identification of the items to be purchased, the delivery date and location, the address where the Successful Responder will submit the invoices, and any other requirements deemed necessary by the State. Any preprinted contract terms and conditions included on Responder’s forms or invoices shall be null and void.

1.3.8 “Responsible Responder” means a Responder that has the capability in all respects to perform the requirements of the RFP specifications. In determining whether a Responder is a responsible, responsive Responder, the Iowa DOT may consider various factors including, but not limited to, the Responder’s competence and qualifications to provide the goods or services requested, the Responder’s integrity and reliability, the past performance of the Responder relative to the quality of the goods or services offered by the Responder, the proposed terms of delivery, and the best interest of the Iowa DOT and Participating Agencies.

1.3.9 “Response” means a Responder’s response to the RFP that complies with the material provisions listed in the RFP documents.

1.3.10 “RFP” means this Request for Proposal and any attachments, exhibits, schedules or addenda hereto.

1.3.11 “State” means the Iowa DOT, State of Iowa, and Participating Agencies identified on the title page and all state agencies, boards, and commissions, and any political subdivisions making purchases off of the resulting contract as permitted by this RFP.

1.3.12 “Sub-contractor” means every person furnishing materials, equipment or performing labor as a sublet of any part of the contract.

1.3.13 “Iowa DOT Standard Specifications” means Standard Specifications for Highway and Bridge Construction Series 2015, General Supplemental Specifications for Highway and Bridge Construction (GS-15002) and Standard Road Plans Section TC.

1.4 Acronyms the following list contains acronyms used in the RFP.

1.4.1 “ASCT” means Adaptive Signal Control Technology

1.4.2 “City” means City of Waterloo, IA

1.4.3 “FHWA” means Federal Highway Administration

Section 2 Administrative Information

2.1 Issuing Agent

The Issuing Agent, identified on the cover page is the sole point of contact regarding the RFP from the date of issuance until the notice of intent to award is issued (selection of the successful Responder).

2.2 Restrictions on Communication

The Purchasing Agent will respond only to questions regarding the procurement process. Questions related to the interpretation of this RFP must be submitted in writing to the Purchasing Agent by the deadline found in the Procurement Timetable listed immediately after the cover sheet. Verbal questions related to the interpretation of this RFP will not be accepted. Questions related to the interpretation of this RFP must be submitted as provided in section 2.5. Responders may be disqualified if they contact any state employee other than the Purchasing Agent. Exception: Responders may access the State Targeted Small Business website for issues related to the preference for Targeted Small Businesses. <https://dia.iowa.gov/tsb/>

In NO CASE shall verbal communication override written communications. Only written communications are binding on the State.

The Iowa DOT assumes no responsibility for representations concerning conditions made by its officers or employees prior to the execution of a contract, unless such representations are specifically incorporated into this RFP. Verbal discussions pertaining to modifications or clarifications of this RFP shall not be considered part of the RFP unless confirmed in writing. All such requests for clarification shall be submitted in writing. Any information provided by a Responder verbally shall not be considered part of Responder's Response. Only written communications from the Responder as received by the Iowa DOT shall be accepted.

With the exception of the written Response which must be submitted by Responders in accordance with Sections 4 and 5 herein, communications between the Purchasing Agent and Responders may be conducted by regular prepaid US mail, courier service, e-mail or facsimile transmission.

2.3 Downloading the RFP from the Internet

All correspondence for this RFP will be posted on the Iowa DOT's website at: <http://www.iowadot.gov/purchasing/lettingschedule.htm>

Responders will be required to visit the Iowa DOT's website periodically for any and all addendums or other pertinent information.

2.4 Procurement Timetable

The dates listed in the Procurement Timetable (on the page immediately following the RFP cover) are set forth for informational and planning purposes; however, the Iowa DOT reserves the right to change the dates. If a change is made to any of the deadlines for Responder submission, the Iowa DOT will issue an addendum to the RFP. All times listed are Central time.

2.5 Questions, Requests for Clarification, and Suggested Changes

Responders are invited to submit written questions and requests for clarifications regarding the RFP. Responders may also submit suggestions for changes to the requirements of this RFP. The questions, requests for clarifications, or suggestions must be in writing and received by the Purchasing Agent on or before the deadline stated in the Procurement Timetable. **Oral** questions will not be permitted. If the questions, requests for clarifications, or suggestions pertain to a specific section of the RFP must be referenced.

Written responses to questions, requests for clarifications or suggestions will be posted to the Iowa DOT's website on or before the deadline stated in the Procurement Timetable. The Iowa DOT's written responses will be considered part of the RFP. If the Iowa DOT decides to adopt a suggestion, the Iowa DOT will issue an addendum to the RFP and post on the website under the proposal number.

The Iowa DOT assumes no responsibility for verbal representations made by its officers or employees unless such representations are confirmed in writing and incorporated into the RFP.

Each Responder must inform themselves fully of the conditions relating to the RFP. Failure to do so will not relieve a successful Responder of their obligation to furnish all services required to carry out the provisions of the RFP and final contract. Insofar, as possible, the successful Responder, carrying out the work, must employ such methods or means as will not cause any interruption of, or interference with the work of any other contract holder.

If a Responder discovers any significant ambiguity, error, conflict, discrepancy, omission, or other deficiency in this RFP, the Responder should immediately notify Purchasing Agent in writing of such error and request modification or clarification of the RFP document.

2.6 Addendum to the RFP

The Iowa DOT reserves the right to revise the RFP at any time. The Responder shall acknowledge receipt of an addendum in its Response. If the addendum occurs prior to the closing date for receipt of response, the Iowa DOT may, in its sole discretion, allow Responders to amend their response to the addendum.

2.7 Revisions to a Response

Responders who submit Responses in advance of the deadline may withdraw, modify, or resubmit their Response at any time prior to the deadline. Responders must notify the Purchasing Agent in writing if they wish to withdraw their response. A Responder must honor their prices prior to the end of the one hundred and eighty (180) day period immediately following the notice of intent to award a contract.

2.8 Submission of Responses

The Iowa DOT must receive the Response at the Department of Transportation, Purchasing Section, 800 Lincoln Way, Ames, Iowa 50010 before the deadline stated in the Procurement Timetable. This is a mandatory requirement and will not be waived by the Iowa DOT. Any Response received after this deadline will be rejected and returned unopened to the Responder.

Responders mailing Responses must allow ample mail delivery time to ensure timely receipt of Responses by the Iowa DOT. It is the Responder's responsibility to ensure that the Response is received prior to the deadline. Postmarking by the due date will not substitute for actual receipt of the Response. **Electronic mail and faxed Responses will not be accepted.**

Responders must furnish all information necessary to evaluate the Response. Responses that fail to meet the mandatory requirements of the RFP will be disqualified. Verbal information provided by the Responder shall not be considered part of the Responder's Response to the RFP.

2.9 Opening of Responses

The Iowa DOT will open Responses at the deadline stated in the Procurement Timetable. The Responses will remain confidential until the Evaluation Committee has reviewed and considered all successfully submitted Responses and the Iowa DOT has announced a notice of intent to award a contract. See Iowa Code Section 72.3.

The names of the Responders who responded within the time frame permitted will be supplied to any person who requests such information at the time of the opening date. The announcement of names of Responders who submitted a Response **does not** mean that an individual Response has been deemed technically compliant or that it has been accepted for evaluation.

2.10 Costs of Preparing a Response

The costs of preparation and delivery of the Response are solely the responsibility of the Responder.

No payments shall be made by the State to cover costs incurred by any Responder in the preparation of a Response in submission of this RFP or any other associated costs.

2.11 Reasonable Accommodations

The Iowa DOT will provide reasonable accommodations, including the provision of informational material in an alternative format, for qualified individuals with disabilities upon request. If accommodations are required at time of opening of Responses, contact the Purchasing Agent on the cover page.

2.12 Rejection of Submitted Response

The Iowa DOT reserves the right to reject any or all Responses, in whole and in part, received in response to this RFP at any time prior to the execution of a written contract. Issuance of this RFP in no way constitutes a commitment by the Iowa DOT to award a contract. This RFP is designed to provide Responders with the information necessary to prepare a competitive Response. This RFP process is for the Iowa DOT benefit and is intended to provide the Iowa DOT with competitive information to assist in the selection of a Responder to provide good and services or both as described herein.

It is not intended to be comprehensive and each Responder is responsible for determining all factors necessary for submission of a comprehensive Response.

The Iowa DOT reserves the right to negotiate the terms of the contract, including the award amount with the selected Responder prior to entering into a contract. If contract negotiations cannot be concluded successfully with the highest scoring Responder, the Iowa DOT may negotiate with the next highest scoring Responder.

2.13 Disqualification

The Iowa DOT may reject outright and shall not evaluate Responses for any one of the following reasons:

2.13.1 The Responder fails to deliver the cost proposal in a separate envelope.

2.13.2 The Responder states that a requirement of the RFP cannot be met.

2.13.3 The Responder's Response materially changes a requirement of the RFP or the Response is not compliant with the requirements of the RFP.

2.13.4 The Response limits the rights of the Iowa DOT.

2.13.5 The Responder fails to include information necessary to substantiate that it will be able to meet a service requirement. A response of "will comply" or merely repeating the requirement is not sufficient. Responses must indicate present capability; representations that future developments will satisfy the requirement are not sufficient.

2.13.6 The Responder fails to include a Bid Bond or Bid Security, *if required*. See Solicitation Response and Section 2.33.

2.13.7 The Responder fails to include any signature, certification, authorization, stipulation, disclosure or guarantee requested in Section 4 of this RFP.

2.13.8 The Responder presents the information requested by this RFP in a format inconsistent with the instructions of the RFP or otherwise fails to comply with the requirements of this RFP.

2.13.9 The Responder initiates unauthorized contact regarding the RFP with state employees.

2.13.10 The Responder provides misleading or inaccurate responses.

2.13.11 The Responder fails to attend the mandatory pre-RFP meeting or conference.

2.13.12 The Responder's Response is materially unbalanced.

2.13.13 There is insufficient evidence (including evidence submitted by the Responder and evidence obtained by the Iowa DOT from other sources) to satisfy the Iowa DOT that the Responder is a Responsible Responder.

2.13.14 The Responder alters the language in:
Attachment 1, Certification Letter
Attachment 2, Authorization to Release Information letter.

2.14 Nonmaterial and Material Variances

The Iowa DOT reserves the right to waive or permit cure of nonmaterial variances in a Response if, in the judgment of the Iowa DOT, it is in the Iowa DOT best interest to do so. Nonmaterial variances include minor informalities that do not affect responsiveness; that are merely a matter of form or format; that do not change the relative standing or otherwise prejudice other Responders; that do not change the meaning or scope of the RFP; or that do not reflect a material change in the services. In the event the Iowa DOT waives or permits cure of nonmaterial variances, such waiver or cure will not modify the RFP requirements or excuse the Responder from full compliance with RFP specifications or other contract requirements upon award. The determination of materiality is in the sole discretion of the Iowa DOT.

2.15 Reference Checks

The Iowa DOT reserves the right to contact any reference provided by the Responder to assist in the evaluation of the Response, to verify information contained in the Response and to discuss the Responder's qualifications and the qualifications of any subcontractor identified in the Response.

2.16 Information From Other Sources

The Iowa DOT reserves the right to obtain and consider information from other sources concerning a Responder, such as the Responder's capability and performance under other Responders, the qualifications of any subcontractor identified in the Response, the Responder's financial stability, past or pending litigation, and publicly available information.

2.17 Verification of Response Contents

The content of a Response submitted by a Responder is subject to verification. Misleading or inaccurate responses shall result in disqualification and rejection.

2.18 Criminal History and Background Investigation

The Responder hereby explicitly authorizes the Iowa DOT to conduct criminal history and/or other background investigation(s) of the Responder, its officers, directors, shareholders, partners and managerial and supervisory personnel retained by the Responder for the performance of the contract.

2.19 Clarification Process

The Iowa DOT reserves the right to contact a Responder after the submission of responses for the purpose of clarifying or ensure mutual understanding. This contact may include written questions, interviews, site visits, a review of past performance if the Responder has provided goods or services to the Iowa DOT or any other political subdivision wherever located, or requests for corrective pages in the Responder's response. The Iowa DOT will not consider information received if the information materially alters the content of the RFP or alters the type of goods and services the Responder is offering to the Iowa DOT. An individual authorized to legally bind the Responder shall sign responses to any request for clarification. Responses shall be submitted to the Iowa DOT within the time specified in the Iowa DOT request. Failure to comply with requests for additional information may result in rejection of the Response as non-compliant.

2.20 Disposition of Responses

All Responders' Responses become the property of the Iowa DOT and shall not be returned to the Responder. At the conclusion of the selection process, the contents of all Responses will be in the public domain and be open to inspection by interested parties except for information for which the Responder properly requests confidential treatment or is subject to exceptions provided in Iowa Code Chapter 22 or other applicable law. If RFP is cancelled, Responses shall be destroyed.

2.21 Public Records and Requests for Confidential Treatment

The Iowa DOT may treat all information submitted by a Responder as public information following the conclusion of the selection process unless the Responder properly requests that information be treated as confidential at the time of submitting the Response. The Iowa DOT release of information is governed by Iowa Code chapter 22. Responders are encouraged to familiarize themselves with chapter 22 before submitting a Response. The Iowa DOT will copy and produce public records as required to comply with the public records laws.

Any request for confidential treatment of specific information must be included in the transmittal letter with the Responder's Response. In addition, the Responder must enumerate the specific grounds in Iowa Code Chapter 22 or other applicable law which support treatment of the material as confidential and explain why disclosure is not in the best interest of the public. **Pricing information cannot be considered confidential information.** The request for confidential treatment of information must also include the name, address, and telephone number of the person authorized by the Responder to respond to any inquiries by the Iowa DOT concerning the confidential status of the materials.

Any Response submitted which contains confidential information must be conspicuously marked on the outside as containing confidential information, and each page upon which confidential information appears must be conspicuously marked as containing confidential information. Failure to properly identify specific confidential information shall relieve the Iowa DOT or State personnel from any responsibility if confidential

information is viewed by the public, or a competitor, or is in any way accidentally released. Identification of the entire Response as confidential may be deemed non-responsive and disqualify the Responder.

If the Responder designates any portion of the RFP as confidential, **the Responder must submit one copy of the Response from which the confidential information has been excised. This excised copy is in addition to the number of copies requested in section 4 of this RFP.** The confidential material must be excised in such a way as to allow the public to determine the general nature of the material removed and to retain as much of the Response as possible.

The Iowa DOT will treat the information marked confidential as confidential information to the extent such information is determined confidential under Iowa Code Chapter 22 or other applicable law by a court of competent jurisdiction. In the event the Iowa DOT receives a request for information marked confidential, written notice shall be given to the Responder seven calendar days prior to the release of the information to allow the Responder to seek injunctive relief pursuant to Section 22.8 of the Iowa Code. The Iowa DOT will release the information marked confidential in response to a request for public record records unless a court of competent jurisdiction determines the information is confidential under Iowa Code Chapter 22 or other applicable law.

The Responder's failure to request confidential treatment of material will be deemed by the Iowa DOT as a waiver of any right to confidentiality, which the Responder may have had.

2.22 Copyrights

By submitting a Response, the Responder agrees that the Iowa DOT may copy the Response for purposes of facilitating the evaluation of the Response or to respond to requests for public records. The Responder consents to such copying by submitting a Response and warrants that such copying will not violate the rights of any third party. The Iowa DOT shall have the right to use ideas or adaptations of ideas that are presented in the Response.

2.23 Release of Claims

By submitting a Response, the Responder agrees that it will not bring any claim or cause of action against the Iowa DOT based on any misunderstanding concerning the information provided herein or concerning the Iowa DOT failure, negligent or otherwise, to provide the Responder with pertinent information as intended by this RFP.

2.24 Evaluation of Submitted Responses

The evaluation and selection of an awarded Responder will be based on but not limited to: the information submitted in the written response, references, required demonstrations or presentations; if any, and cost. If further information is requested by the Iowa DOT for clarification, Responders shall respond clearly and completely to all requirements within three (3) days upon request. Failure to respond completely may be the basis for rejecting a response.

All compliant sealed Responses will be evaluated using an evaluation matrix. If a demonstration/presentation is in the Evaluation Matrix (see Section 5.4), the Iowa DOT reserves the right to determine which Responders responses will be "short listed" for further consideration based on the written responses that best meet the requirements of the RFP.

Short-List upon selection from the overall compliant responses, some Responders shall be selected to move to the Demonstration or Presentation portion of the evaluation. They will be required to demonstrate or make a presentation illustrating their proposed solution as described and required in the RFP. It is recommended

Responder's engage key personnel to demonstrate their proposed solution, their authority and reporting relationships within their firm, their expertise and their management style.

The successful demonstration or presentation of the Responder's product(s) and/or service(s) is only one segment of the evaluation criteria and does not solely constitute the overall award.

Selected Responders shall be provided no less than one week's notice for the scheduling of a demonstration or presentation to be held in Ames, Iowa unless otherwise specified. The Iowa DOT may offer a web conferencing method as an alternative if desired.

Detailed notes of demonstrations or presentation may be recorded and supplemental information (such as briefing charts, etc) shall be accepted. Additional written information gathered in this manner shall not constitute replacement of response contents. The Iowa DOT reserves the right to record demonstrations or presentations on audio or videotape as desired.

Any cost(s) incidental for the demonstrations or presentations shall be the sole responsibility of the Responder.

2.25 Notice of Intent to Award and Acceptance Period

Notice of intent to award will be posted on the Iowa DOT's website at www.iowadot.gov/purchasing/bidaward. **It is the Responder's sole responsibility to check daily for the final evaluation results.** Final negotiation and execution of the contract(s) shall be completed no later than thirty (30) days from the date of the Notice of Intent to Award or such other time as designated by the Iowa DOT.

If the successful Responder fails to negotiate and deliver an executed contract by that date, the Iowa DOT in its sole discretion may cancel the award and award the contract to the next highest ranked Responder the Iowa DOT believes will provide the best value to the State.

The award shall be granted to the highest scoring responsive, responsible Responder according to the evaluation matrix in Section 5.

2.26 Confidential Information

Responses containing proprietary information must have the specific information considered proprietary clearly marked. All information included in the Response not indicated as proprietary will be open for inspection. All Responses become property of the Iowa DOT.

2.27 No Contract Rights until Execution

The full execution of a written contract shall constitute the making of a contract for services and no Responder shall acquire any legal or equitable rights relative to the contract services until the contract has been fully executed by the Successful Responder and the Iowa DOT.

2.28 Restrictions on Gifts and Activities

Iowa Code Chapter 68B restricts gifts which may be given or received by state employees and requires certain individuals to disclose information concerning their activities with state government. Responders are responsible to determine the applicability of this Chapter to their activities and to comply with the requirements. In addition, pursuant to Iowa Code section 722.1, it is a felony offense to bribe or attempt to bribe a public official.

The laws of Iowa provide that it is a felony to offer, promise, or give anything of value or benefit to a state employee with the intent to influence that employee's acts, opinion,

judgment or exercise of discretion with respect to that employee's duties. Evidence of violations of this statute will be submitted to the proper prosecuting attorney.

2.29 No Minimum Guaranteed

The Iowa DOT anticipates that the successful Responder will provide services as requested by the Iowa DOT. The Iowa DOT will not guarantee any minimum compensation will be paid to the contractor or any minimum usage of the contractor's services.

2.30 Conflicts Between Terms

The Iowa DOT reserves the right to accept or reject any exception taken by the Responder to the terms and conditions contained in this RFP. Should a Responder take exception to the terms and conditions required by the Iowa DOT, the Responder's exceptions may be rejected and the entire Response declared nonresponsive. The Iowa DOT may elect to negotiate with the Responder regarding contract terms that do not materially alter the substantive requirements of the RFP or the contents of the Responder's Response.

2.31 News Releases

News releases or other materials made available to the media or the public, the Responder's clients or potential clients pertaining to this procurement or any part of the Response or RFP shall not be made without the prior written approval of the Iowa DOT.

2.32 Responders' Conference

If the Procurement Timetable indicates a Responders' conference will be held in conjunction with this RFP, it will be held at the date, time, and location listed on the Procurement Timetable. If attendance at the Responders conference is a mandatory requirement, it will be indicated on the Procurement Timetable. The purpose of the Responders' conference is to discuss with prospective Responders the work to be performed and allow prospective Responders an opportunity to ask questions regarding the RFP. Verbal discussions at the Responders' conference shall not be considered part of the RFP unless confirmed in writing by the Iowa DOT and incorporated into this RFP. The conference may be recorded. Questions asked at the conference that cannot be adequately answered during the conference may be deferred and addressed at a later date. A copy of the questions and answers will be sent to Responders who submit a letter of intent to provide a Response.

2.33 Bonds

2.33.1 Bid Bond (if required)

The Solicitation Response page will indicate the fixed percent of the bid security required based on the amount of the Responder's Response. See also Standard Terms and Conditions Section A-3.

It is the responsibility of the Responder to notify the surety company of the required amount of the bond. The surety is based on the percentage of the Responder's total bid response.

Bid Bonds must be submitted on **Iowa DOT Form No. 131084** or the bid will be rejected.

The Bid Bond from the qualified responsive Responder will be retained until an executed contract is in place and the required Bonds and Insurance Certificates are in the possession of the Iowa DOT after which the bid security will promptly be returned.

2.33.2 Performance and Payment Bond

If the contracted, estimated value is \$25,000 or more, the successful Responder shall furnish a performance bond covering the faithful performance of 100% of the Contract and the payment of all obligations arising thereunder.

One copy of the bond shall be submitted on Iowa Department of Transportation **Form 131070**. All items must be properly filled in, including Responder's signature. A Resident Commission Agent or attorney-in-fact must file a copy of the power of attorney.

2.33.3 Power of Attorney

Attorney-in-fact who signs the Bid Bond and/or Performance Bond must file with each bond a certified and effectively dated copy of the Power of Attorney.

Section 3 Specifications and Mandatory Requirements

3.1 Purpose

The Iowa DOT and the City of Waterloo are seeking qualified Responders that demonstrate the capabilities, experience and resources required to provide equipment and software for an Adaptive Signal Control Technology (ASCT) system for the US 63 corridor from US 218 to Dane Street in Waterloo, IA.

3.2 Project Overview

The City of Waterloo and Iowa DOT plan to deploy an Adaptive Signal Control Technology (ASCT) system for use along the US Highway 63 (US 63) corridor from US 218 to Dane Street. The existing traffic signal system in this corridor is not capable of accommodating incremental, short term or continuous change in traffic demand automatically without any manual adjustment in signal timings. An ASCT system is one way in which some or all the signal timing parameters are modified by the system in response to changes in the traffic conditions, in real time. The purpose of providing ASCT in this area is to provide the following benefits to the traveling public:

- Accommodating peak periods, mini peaks, and near real time changes in volumes.
- Getting back into coordination quickly after coordinated signal operation is disrupted by pedestrian actuations and emergency preemption on the US 63 corridor.
- Reducing delays for the side street traffic on the US 63 corridor.
- Detecting the changes in traffic conditions on the US 63 corridor before and after events at the Young Arena.
- Managing queues at several locations on the US 63 corridor including the Commercial St. to W Mullan Avenue (US 63 WB) WB left turn movement and the Franklin to E Mullan Avenue (US 63WB) WB left turn movement.

The deployment of an ASCT system shall provide adaptive as well as coordination capabilities. A new ASCT system along this corridor will allow the City to proactively manage traffic, enhance operations, increasing mobility and reducing congestion.

3.3 Current Environment

The existing traffic signal system includes 206 traffic signals and a hybrid communications system. The traffic signal system is currently comprised of many components, which include:

- Traffic signal controllers and controller local software
- Cabinets and devices inside the cabinet other than the controller
- Detection devices (inductive loops, embedded magnometers, and cameras)
- Emergency vehicle preemption (EVP) devices
- Communications
 - Media (including twisted pair copper, wireless radio, fiber optic)
 - Hardware (switches, transceivers, etc.)
 - Conduit
- Communication Towers (Radio) and Repeaters
- Closed Loop Traffic System Software

The existing signalized intersections will be replaced as part of the reconstruction of US 63. Iowa DOT has two projects for this corridor:

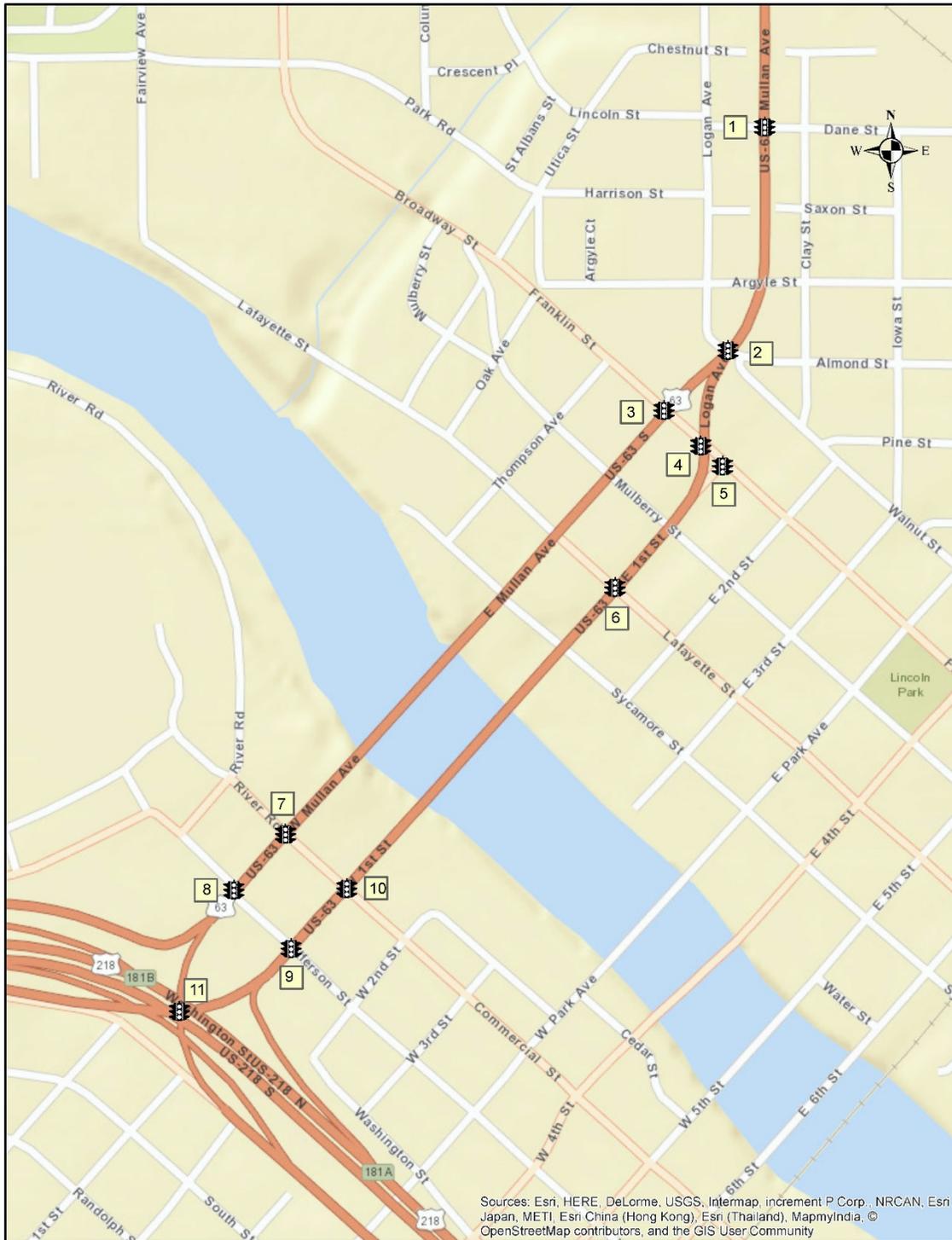
1. NHSX – 063 – 6(87) – 3H - 07_N reconstruction will include the following intersections:
 - US 63 & Dane Street
 - US 63 & Logan Avenue/Almond Street
2. NHSX – 063 – 6(91) – 3H - 07_N includes the following intersections:
 - US 63/E. Mullan Avenue & Franklin Street
 - US 63/E. 1st Street (west) & Franklin Street
 - US 63/E. 1st Street (east) & Franklin Street
 - US 63/E. 1st Street & Lafayette Street
 - US 63/W. Mullan Avenue & W. Commercial Street
 - US 63/W. Mullan Avenue & Jefferson Street
 - US 63/W. 1st Street & Jefferson Street
 - US 63/W. 1st Street & W. Commercial Street
 - Highway 218 Intersection (Mixmaster & WE off-Ramp)

These intersections are in design stage and the preliminary traffic signal plans for these intersections are detailed in Appendix C.

There are several important operational considerations along US 63 that should be considered for any system that will be implemented:

- Young Arena is located at the Eastern side of Commercial Street and W. Mullan Avenue intersection. The proposed system should be able to handle the increased traffic associated with events held at Young Arena, as well as seasonal events (such as special summer events) that area hosted in the downtown area.
- There is preemption in use for emergency services. Waterloo Fire Rescue is located at the NW corner of Franklin Street and E. 3rd Street. The proposed system should be able to support the use of the existing emergency vehicle preemptive (EVP) system.
- There are queueing concerns at the westbound left-turn movements of Commercial Street to W. Mullan Avenue and Franklin Street to E. Mullan Avenue. The proposed system should be able to serve these movements while adequately providing coordination to the mainline.
- There is pedestrian activity along US 63, which can disrupt the signal coordination at times. The proposed system should be able to accommodate the pedestrian demand, while minimizing impacts to progressing traffic along the corridor.

Figure 1 – Planned ASCT Intersections along the US 63 Corridor



3.4 Mandatory Technical Requirements

The system requirements have been evaluated through the FHWA systems engineering process. Table 1 outlines the mandatory FHWA system requirements. Responder shall verify they meet and/or exceed the requirements listed in Table 1 and provide additional information where appropriate. It is acceptable for the Responder to provide their responses in a separate document. The document shall include each Mandatory Requirement number and description and shall not exceed a total of 20 pages with 11 point font. Responders shall propose any and all solutions that meet or exceed the mandatory requirements of this RFP.

Table 1 – Mandatory FHWA System Requirements

FHWA Reference Number	Requirement Statement
2.2.0-4	(Sequence-based only) The ASCT shall calculate offsets to suit the current coordination strategy for the user-specified reference point for each signal controller along a coordinated route within a group.
2.2.0-4.0-1	(Sequence-based only) The ASCT shall apply offsets for the user-specified reference point of each signal controller along a coordinated route.
2.1.1.0-7.0-1	When current measured traffic conditions meet user-specified criteria, the ASCT shall alter the state of the signal controllers, maximizing the throughput of the coordinated route.
2.2.0-5.0-3	(Sequence-based only) The ASCT shall calculate optimum cycle length according to the user-specified coordination strategy.
2.2.0-5	(Sequence-based only) The ASCT shall calculate a cycle length for each cycle based on its optimization objectives (as required elsewhere, e.g., progression, queue management, equitable distribution of green).
2.1.1.0-7	The ASCT shall alter the adaptive operation to achieve required objectives in user-specified conditions. (The required objectives are specified in Needs Statement 4.1.0-1. Responding to this requirement demonstrates how the proposed system allows the user to define the conditions at which the objectives shift and their associated requirements are fulfilled.) (The alteration may be made by adjusting parameters or by directly controlling the state of signal controllers.)
2.2.0-2	(Sequence-based only) The ASCT shall select cycle length based on a time of day schedule.
2.2.0-5.0-1	(Sequence-based only) The ASCT shall limit cycle lengths to user-specified values.
2.2.0-5.0-2	(Sequence-based only) The ASCT shall limit cycle lengths to a user-specified range.

FHWA Reference Number	Requirement Statement
2.2.0-5.0-4.0-1.0-2	(Sequence-based only) The increased limit shall be user-defined.
2.1.1.0-10	The ASCT shall determine the order of phases at a user-specified intersection. (The calculation will be based on the optimization function.)
2.1.1.0-7.0-4	When current measured traffic conditions meet user-defined criteria, the ASCT shall alter the state of signal controllers providing progression on a coordinated route.
2.1.1.0-7.0-3	When current measured traffic conditions meet user-specified criteria, the ASCT shall alter the state of signal controllers providing equitable distribution of green times.
2.2.0-3	(Sequence-based only) The ASCT shall calculate phase lengths for all phases at each signal controller to suit the current coordination strategy.
2.4.0-3	The ASCT shall calculate optimum phase lengths, based on current measured traffic conditions. (The calculation is based on the optimization objectives.)
2.1.1.0-8.0-1	The ASCT shall provide a user-specified maximum value for each phase at each signal controller.
2.1.1.0-8.0-2	The ASCT shall provide a user-specified minimum value for each phase at each signal controller.
2.1.1.0-8	The ASCT shall provide maximum and minimum phase times.
2.4.0-3.0-1	The ASCT shall limit the difference between the length of a given phase and the length of the same phase during its next service to a user-specified value.
2.1.3.0-2	When queues are detected at user-specified locations, the ASCT shall execute user-specified timing plan/operational mode.
2.1.1.0-7.0-2	When current measured traffic conditions meet user-specified criteria, the ASCT shall alter the state of signal controllers, preventing queues from exceeding the storage capacity at user-specified locations.
2.1.3.0-1	The ASCT shall detect the presence of queues at pre-configured locations.
2.1.3.0-3	When queues are detected at user-specified locations, the ASCT shall execute user-specified adaptive operation strategy.
2.1.3.0-4	When queues are detected at user-specified locations, the ASCT shall omit a user-specified phase at a user-specified signal controller.

FHWA Reference Number	Requirement Statement
2.1.3.0-5	The ASCT shall meter traffic into user-specified bottlenecks by storing queues at user-specified locations.
2.1.3.0-6	The ASCT shall store queues at user-specified locations.
2.1.3.0-8	When queues are detected at user-specified locations, the ASCT shall limit the cycle length of the group to a user-specified value.
2.1.1.0-9	The ASCT shall detect repeated phases that do not serve all waiting vehicles. (These phase failures may be inferred, such as by detecting repeated max-out.)
2.1.1.0-9.0-1	The ASCT shall alter operations, to minimize repeated phase failures.
2.2.0-5.0-5	(Sequence-based only) The ASCT shall adjust offsets to minimize the chance of stopping vehicles approaching a signal that have been served by a user-specified phase at an upstream signal.
7.0-6	The ASCT shall provide a minimum of 8 different user-defined phase sequences for each signal.
7.0-6.0-1	Each permissible phase sequence shall be user-assignable to any signal timing plan.
7.0-6.0-2	Each permissible phase sequence shall be executable by a time of day schedule.
7.0-6.0-3	Each permissible phase sequence shall be executable based on measured traffic conditions.
7.0-7	The ASCT shall not prevent a phase/overlap output by time-of-day.
7.0-8	The ASCT shall not prevent a phase/overlap output based on an external input.
7.0-9	The ASCT shall not prevent any phase to be designated as coordinated phases.
2.1.2.0-12	The ASCT shall not alter the order of phases at a user-specified intersection.
2.1.1.0-11	The ASCT shall provide coordination along a route.
2.1.1.0-11.0-1	The ASCT shall coordinate along a user-defined route.
2.1.1.0-11.0-2	The ASCT shall determine the coordinated route based on traffic conditions.
2.1.1.0-11.0-3	The ASCT shall determine the coordinated route based on a user-defined schedule.

FHWA Reference Number	Requirement Statement
2.1.1.0-11.0-4	The ASCT shall store a number of user-defined coordination routes.
2.1.1.0-11.0-4.0-1	The ASCT shall implement a stored coordinated route by operator command.
2.1.1.0-11.0-4.0-2	The ASCT shall implement a stored coordinated route based on traffic conditions.
2.1.1.0-11.0-4.0-3	The ASCT shall implement a stored coordinated route based on a user-defined schedule.
2.1.1.0-12	The ASCT shall not prevent the use of phase timings in the local controller set by agency policy.
1.0-1	The ASCT shall control a minimum of 2 signals concurrently.
1.0-2	The ASCT shall support groups of signals.
1.0-2.0-2	The ASCT shall control a minimum of 4 groups of signals.
1.0-2.0-4	Each group shall operate independently.
1.0-2.0-1	The boundaries surrounding signal controllers that operate in a coordinated fashion shall be defined by the user.
1.0-2.0-3	The size of a group shall range from 1 to 10 signals.
1.0-2.0-5.0-1	The boundaries surrounding signal controllers that operate in a coordinated fashion shall be altered by the system according to a time of day schedule. (For example: this may be achieved by assigning signals to different groups or by combining groups.)
1.0-2.0-5.0-2	The boundaries surrounding signal controllers that operate in a coordinated fashion shall be altered by the system according to traffic conditions. (For example: this may be achieved by assigning signals to different groups or by combining groups.)
1.0-2.0-5	The boundaries surrounding signal controllers that operate in a coordinated fashion shall be altered by the ASCT system according to configured parameters.
1.0-2.0-5.0-3	The boundaries surrounding signal controllers that operate in a coordinated fashion shall be altered by the system when commanded by the user.
5.0-1	The ASCT shall be implemented with a security policy that addresses the following selected elements:
5.0-1.0-1	Local access to the ASCT.
5.0-1.0-2	Remote access to the ASCT.

FHWA Reference Number	Requirement Statement
5.0-1.0-3	System monitoring
5.0-1.0-4	System manual override.
5.0-1.0-5	Development
5.0-1.0-6	Operations
5.0-1.0-7	User login
5.0-1.0-8	User password
5.0-1.0-9	Administration of the system
5.0-1.0-10	Signal controller group access
5.0-1.0-11	Access to classes of equipment
5.0-1.0-13	Output activation
5.0-1.0-14	System parameters
5.0-1.0-15	Report generation
5.0-1.0-16	Configuration
5.0-1.0-17	Security alerts
5.0-1.0-18	Security logging
5.0-1.0-19	Security reporting
5.0-1.0-20	Database
5.0-1.0-21	Signal controller
5.0-3	The ASCT shall comply with the City of Waterloo Management Information System Department's security policies.
2.1.3.0-7	The ASCT shall maintain capacity flow through user-specified bottlenecks.
8.0-3	When a pedestrian phase is called, the ASCT shall accommodate pedestrian crossing times then resume adaptive operation.
8.0-2	When a pedestrian phase is called, the ASCT shall accommodate pedestrian crossing times during adaptive operations.
8.0-7	When specified by the user, the ASCT shall execute pedestrian recall on pedestrian phase adjacent to coordinated phases.
8.0-8	When the pedestrian phases are on recall, the ASCT shall accommodate pedestrian timing during adaptive operation.
8.0-4	The ASCT shall execute user-specified exclusive pedestrian phases during adaptive operation.
2.1.1.0-1	The ASCT shall operate non-adaptively during the presence of a defined condition.

FHWA Reference Number	Requirement Statement
2.1.1.0-5	The ASCT shall operate non-adaptively in accordance with a user-defined time-of-day schedule.
2.1.1.0-3	The ASCT shall operate non-adaptively when a user manually commands the ASCT to cease adaptively controlling a group of signals.
2.1.1.0-4	The ASCT shall operate non-adaptively when a user manually commands the ASCT to cease adaptive operation.
2.6.0-1	The ASCT shall limit the change in consecutive cycle lengths to be less than a user-specified value.
2.6.0-2	The ASCT shall limit the change in phase times between consecutive cycles to be less than a user-specified value. (This does not apply to early gap-out or actuated phase skipping.)
2.6.0-5	The ASCT shall select cycle length from a list of user-defined cycle lengths.
7.0-1	When specified by the user, the ASCT shall serve a vehicle phase more than once for each time the coordinated phase is served.
7.0-2	The ASCT shall provide a minimum of 16 phase overlaps.
2.1.2.0-6	The ASCT shall omit a user-specified phase when the cycle length is below a user-specified value.
2.1.2.0-9	The ASCT shall omit a user-specified phase according to a time of day schedule.
2.1.2.0-7	The ASCT shall omit a user-specified phase based on measured traffic conditions.
2.1.2.0-8	The ASCT shall omit a user-specified phase based on the state of a user-specified external input.
2.1.2.0-5	The ASCT shall prevent skipping a user-specified phase according to a time of day schedule.
2.1.2.0-3	The ASCT shall prevent skipping a user-specified phase when the user-specified phase sequence is operating.
2.1.2.0-4	The ASCT shall prevent skipping a user-specified phase based on the state of a user-specified external input.
7.0-15	<p>The ASCT shall operate adaptively with the following detector logic:</p> <ul style="list-style-type: none"> • Separate Left-turn Lane set-up • Separate Through Lane • Separate Right-turn Lane • Distance from stop bar • Advance Detection by lane

FHWA Reference Number	Requirement Statement
2.1.2.0-10	<p>The ASCT shall assign unused time from a preceding phase that terminates early to a user-specified phase as follows:</p> <ul style="list-style-type: none"> • next phase; • next coordinated phase; • user-specified phase. • next serviceable phase with a call.
2.1.2.0-11	<p>The ASCT shall assign unused time from a preceding phase that is skipped to a user-specified phase as follows:</p> <ul style="list-style-type: none"> • previous phase; • next phase; • next coordinated phase; • user-specified phase. • next serviceable phase with a call.
7.0-12	<p>The ASCT shall not prevent the local signal controller from performing actuated phase control using a user-defined number of extension/passage timers as assigned to user-specified vehicle detector input channels in the local controller.</p>
9.0-1	<p>The ASCT shall set a specific state for each special function output based on the occupancy or pulse activation on a user-specified detector.</p>
7.0-12.0-1	<p>The ASCT shall operate adaptively using user-specified detector channels.</p>
7.0-10	<p>The ASCT shall have the option for a coordinated phase to be released early based on a user-definable point in the phase or cycle. (User select phase or cycle.)</p>
8.0-6	<p>The ASCT shall begin a non-coordinated phase later than its normal starting point within the cycle when all of the following conditions exist:</p> <ul style="list-style-type: none"> • the user enables this feature, • sufficient time in the cycle remains to serve the minimum green times for the phase and the subsequent non-coordinated phases before the beginning of the coordinated phase, • The phase is called after its normal start time, • The associated pedestrian phase is not called
2.1.2.0-1	<p>The ASCT shall not prevent protected/permissive left turn phase operation.</p>
2.1.2.0-2	<p>The ASCT shall not prevent the protected left turn phase to lead or lag the opposing through phase based upon user-specified conditions.</p>
7.0-11	<p>The ASCT shall not prevent the controller from displaying flashing yellow arrow left turn or right turn.</p>

FHWA Reference Number	Requirement Statement
7.0-13	When adaptive operation is used in conjunction with normal coordination, the ASCT shall not prevent a controller serving a cycle length different from the cycles used at adjacent intersections.
8.0-9	The ASCT shall not inhibit negative vehicle and pedestrian phase timing.
5.0-2	The ASCT shall provide monitoring and control access at the following locations:
5.0-2.0-1	625 Glenwood Street, Waterloo, Iowa 50703.
5.0-2.0-5	Local controller cabinets
5.0-2.0-7	Remote locations via internet
5.0-4	The ASCT shall not prevent access to the local signal controller database, monitoring or reporting functions by any installed signal management system.
5.0-4.0-1	The ASCT shall not prevent the access to the Controller Local Software (CLS) at the intersections.
5.0-4.0-1a	The ASCT shall not prevent the monitoring of an ASCT controlled intersection with the ATMS software.
5.0-4.0-1b	The ASCT shall not prevent the printing of standard reports from the ATMS software.
6.0-4	The ASCT shall store results of all signal timing parameter calculations for a minimum of 365 days.
6.0-5	<p>The ASCT shall store the following measured data in the form used as input to the adaptive algorithm for a minimum of 365 days:</p> <ul style="list-style-type: none"> • volume, • occupancy, • queue length, • phase utilization, • arrivals in green, • green band efficiency
6.0-12	<p>The ASCT shall store the following data in 1 minute increments:</p> <ul style="list-style-type: none"> • volume, • occupancy, • queue length
18.0-1	The ASCT shall report measures of current traffic conditions on which it bases signal state alterations.
18.0-3	The ASCT shall maintain a log of all signal state alterations directed by the ASCT.

FHWA Reference Number	Requirement Statement
6.0-12	The ASCT shall store the following data in 1 minute increments: <ul style="list-style-type: none"> • volume, • occupancy, • queue length
6.0-1	The ASCT shall log the following events:
6.0-1.0-5	Time-stamped railroad preemption calls
6.0-1.0-8	Time-stamped start and end of each transition to a new timing plan
18.0-3.0-1	The ASCT log shall include all events directed by the external inputs.
18.0-3.0-2	The ASCT log shall include all external output state changes.
18.0-3.0-3	The ASCT log shall include all actual parameter values that are subject to user-specified values.
18.0-3.0-4	The ASCT shall maintain the records in this ASCT log for a user-specified period.
18.0-3.0-5	The ASCT shall archive the ASCT log in a user-friendly file format/database (.xls etc.).
13.1.0-3	In the event of a detector failure, the ASCT shall issue an alarm to user-specified recipients. (This requirement may be fulfilled by sending the alarm to a designated list of recipients by a designated means, or by using an external maintenance management system.
13.2-2	In the event of communications failure, the ASCT shall issue an alarm to user-specified recipients. (This requirement may be fulfilled by sending the alarm to a designated list of recipients by a designated means, or by using an external maintenance management system.
13.3-2	In the event of adaptive processor failure, the ASCT shall issue an alarm to user-specified recipients. (This requirement may be fulfilled by sending the alarm to a designated list of recipients by a designated means, or by using an external maintenance management system.
13.2-3	The ASCT shall issue an alarm within 5 minutes of detection of a failure.
13.2-3a	The ASCT Operator shall be able to select from a list of alarms /notifications.
13.1.0-4	In the event of a failure, the ASCT shall log details of the failure in a permanent log.
13.1.0-5	The permanent failure log shall be searchable, achievable and exportable.
13.2-4	In the event of a communications failure, the ASCT shall log details of the failure in a permanent log.

FHWA Reference Number	Requirement Statement
11.0-4	The ASCT shall resume adaptive control of signal controllers when preemptions are released.
11.0-5	The ASCT shall execute user-specified actions at non-preempted signal controllers during preemption. (E.g., inhibit a phase, activate a sign, display a message on a DMS).
11.0-6	The ASCT shall operate normally at non-preempted signal controllers when special functions are engaged by a preemption event (examples of such special functions are a phase omit, a phase maximum recall or a fire route.)
11.0-8	The ASCT shall not prevent the local signal controller from operating in normally detected limited-service actuated mode during preemption.
11.0-2	The ASCT shall maintain adaptive operation at non-preempted intersections during emergency vehicle preemption.
13.1.0-1	The ASCT shall take user-specified action in the absence of valid detector data from a user-defined number of vehicle detectors within a group.
13.1.0-1.0-1	The ASCT shall change to time-of-day plan to local controller.
13.1.0-1.0-2	The ASCT shall release control to local operations to operate under its own time-of-day schedule.
13.1.0-2	The ASCT shall use the following alternate data sources for operations in the absence of the real-time data from a detector:
13.1.0-2.0-1	Data from a user-specified alternate detector.
13.1.0-2.0-2	Stored historical data from the failed detector.
13.1.0-2.0-3	The ASCT shall switch to the alternate source in real time without operator intervention.
13.2-1	The ASCT shall execute user-specified actions when communications to one or more signal controllers fails within a group.
13.2-1.0-1	In the event of loss of communication to a user-specified signal controller, the ASCT shall release control of all signal controllers within a user-specified group to local control.
13.2-1.0-2	The ASCT shall switch to the alternate operation in real time without operator intervention.
13.3-1	The ASCT shall execute user-specified actions when adaptive control fails:
13.3-1.0-1a	The ASCT shall release control to the TOD based schedule.

FHWA Reference Number	Requirement Statement
2.1.1.0-2	The ASCT shall operate non-adaptively when adaptive control
2.1.1.0-2.0-1	The ASCT shall operate non-adaptively when a user-specified detector fails.
2.1.1.0-2.0-2	The ASCT shall operate non-adaptively when the number of failed detectors connected to a signal controller exceeds a user-defined value.
2.1.1.0-2.0-3	The ASCT shall operate non-adaptively when the number of failed detectors in a group exceeds a user-defined value.
2.1.1.0-2.0-4	The ASCT shall operate non-adaptively when a user-defined communications link fails.
13.3-4	During adaptive processor failure, the ASCT shall provide all local detector inputs to the local controller.
14.0-2	The ASCT shall fully satisfy all requirements when integrated with detectors of type: loops, video, radar, embedded magnetometer.
14.0-2.0-4	The ASCT shall be compatible with the central ATMS software through NTCIP communication standard to meet the mandatory requirements.
14.0-4	The ASCT shall fully satisfy all requirements when implemented with either fiber optics, twisted-pair copper or wireless communication infrastructure.
14.0-1	<p>The vendor's adaptive software shall be fully operational within the following platform:</p> <ul style="list-style-type: none"> • Windows-PC, Windows - Server
15.0-1	The vendor shall provide the following training.
15.0-1.0-1	The vendor shall provide training on the operations of the adaptive system.
15.0-1.0-2	The vendor shall provide training on troubleshooting the system.
15.0-1.0-3	The vendor shall provide training on preventive maintenance and repair of equipment.
15.0-1.0-4	The vendor shall provide training on system configuration.
15.0-1.0-5	The vendor shall provide training on administration of the system.
15.0-1.0-6	The vendor shall provide training on system calibration.
15.0-1.0-7	The vendor's training delivery shall include: printed course materials and references, electronic copies of presentations and references.

FHWA Reference Number	Requirement Statement
16.0-3	The Vendor shall warrant the system to be free of defects in materials and workmanship for a period of at least 2 years. Warranty is defined as correcting defects in materials and workmanship (subject to other language included in the purchase documents). Defect is defined as any circumstance in which the material does not perform according to its specification.
16.0-2	The Vendor shall provide routine updates to the software and software environment necessary to preserve the fulfillment of requirements for a period of at least 2 years. Preservation of requirements fulfillment especially includes all IT management requirements as previously identified.
17.0-1	The ASCT shall set the state of external input/output states according to a time-of-day schedule.
17.0-2	The ASCT output states shall be settable according to a time-of-day schedule.
9.0-1	The ASCT shall set a specific state for each special function output based on the occupancy on a user-specified detector.
9.0-2	The ASCT shall set a specific state for each special function output based on the current cycle length.
9.0-3	The ASCT shall set a specific state for each special function output based on a time-of-day schedule.
17.0-1a	City of Waterloo shall maintain all necessary parts to maintain the ASCT system.
2.1.3.0-2	When queues are detected at user-specified locations, the ASCT shall execute user-specified timing plan/operational mode.
2.1.3.0-2a	The ASCT shall manage queue length for the Commercial St. to W Mullan Avenue (US 63 SB) WB left turn movement.
2.1.3.0-2b	The ASCT shall manage queue length for the Franklin to E Mullan Avenue (US 63SB) WB left turn movement.
8.0-2	When a pedestrian phase is called, the ASCT shall accommodate pedestrian crossing times during adaptive operations.
8.0-2a	The ASCT shall manage pedestrian crossing of US 63 along the US 63 corridor.
11.0-4	The ASCT shall resume adaptive control of signal controllers when preemptions are released.
11.0-4a	The ASCT shall manage emergency vehicle preemption along the US 63 corridor.

3.5 Desired Requirements

Table 2 outlines the Desired Requirements that would be in addition to the Mandatory Requirements. Responder shall verify they meet and/or exceed the Desired Requirements listed in Table 2 and provide additional information where appropriate. It is acceptable for the Responder to provide their responses in a separate document. The document shall include each Desired Requirement number and description and shall not exceed a total of 10 pages with 11 point font.

Table 2 – Desired Requirements

FHWA Reference Number	Requirement Statement
2.2.0-5.0-4	(Sequence-based only) The ASCT shall limit changes in cycle length to not exceed a user-specified value.
2.1.1.0-8.0-1.0-1	The ASCT shall not provide a phase length longer than the maximum value.
2.1.1.0-8.0-2.0-1	The ASCT shall not provide a phase length shorter than the minimum value.
8.0-5	The ASCT shall execute pedestrian recall on user-defined phases in accordance with a time of day schedule.
2.6.0-3	The ASCT shall limit the changes in the direction of primary coordination to a user-specified frequency.
2.6.0-4	When a large change in traffic demand is detected, the ASCT shall respond more quickly than normal operation, subject to user-specified limits. (2 Cycles)
18.0-2	The ASCT shall report all intermediate calculated values that are affected by calibration parameters.
10.0-4a	The system operator shall export operational data and signal timing parameters to the ATMS.
6.0-1.0-1	Time-stamped vehicle phase calls.
6.0-1.0-2	Time-stamped pedestrian phase calls.
6.0-1.0-3	Time-stamped emergency vehicle preemption calls.
6.0-1.0-6	Time-stamped start and end of each phase
6.0-1.0-7	Time-stamped controller interval changes
6.0-1.0-9	Time-stamped actuations
6.0-8	The ASCT shall calculate and report relative data quality including: <ul style="list-style-type: none"><li data-bbox="532 1587 1159 1619">• The extent data is affected by detector faults<li data-bbox="532 1623 867 1654">• other applicable items

FHWA Reference Number	Requirement Statement
6.0-9	<p>The ASCT shall report comparisons of logged data when requested by the user:</p> <ul style="list-style-type: none"> • day to day, • hour to hour, • hour of day to hour of day, • hour of week to hour of week, • day of week to day of week, • day of year to day of year
6.0-11	<p>The ASCT shall report stored data in a form suitable to provide explanations of system behavior to public and politicians and to troubleshoot the system.</p>
11.0-7	<p>The ASCT shall release user-specified signal controllers to local control when one signal in a group is preempted.</p>
13.3-1.0-1	<p>The ASCT shall release control to the ATMS software</p>
14.0-2.0-1	<p>The ASCT shall utilize existing stopbar and advance detection</p>
14.0-2.0-2	<p>The ASCT shall not modify or disable existing detection functionality</p>

3.6 Maintenance/Support/Training

3.6.1 Maintenance

Maintenance shall include at minimum two years of maintaining all system hardware installed as part of this RFP. Maintenance must be provided within 48 hours of notification of issue from Agency staff. Notification can be provided via phone or email to the specific staff the responder outlines in their Response. If the issue cannot be resolved via phone or email, on-site support must be provided within 48 hours of phone call or email (for a total of four days from when the successful responder was notified of the issue). Responders shall define and explain their maintenance coverage.

3.6.2 Support

The Responder shall provide routine updates to the software and software environment necessary to preserve the fulfillment of requirements for a period of five years. If system updates are provided remotely, each update shall require no more than 30 minutes of the Agency's time for installation. (Additional support requirements are also outlined in Section 3.4, Mandatory Requirements) Responders shall define and explain their support plan.

3.6.3 Training

Training must be provided for up to four City of Waterloo staff members for a total of six, one-day trainings. Iowa DOT staff will also be invited to participate in the training. Training must be provided at the City of Waterloo Traffic Operations Center (TOC) and must be scheduled a minimum of two weeks in advance. Training material must include the daily operation and maintenance of the ASCT system. A summary of the material to be covered must be provided a minimum of one week in advance. (Additional training requirements are also outlined in Section 3.4, Mandatory Requirements). All travel expenses, such as, but not limited to: Travel, lodging, food & beverage shall be included in the training cost. Responders shall define and explain their training.

3.7 Goods and Services

There are certain goods and services associated with implementing a new ASCT System. This includes installing ASCT management software, controller modifications, coordination with electrical contractors, system acceptance, system start-up, fine-tuning, training, support and maintenance.

Traffic signal reconstruction will be completed in association with the Iowa DOT construction projects NHSX – 063-6(87) -- 3H – 07_N (PRN 87) and NHSX - 063 -6(91) - - 3H – 07_N (PRN 91). The Successful Responder shall be required to provide input into the final detection layout for each intersection. The Successful Responder shall not be responsible for the installation of the traffic signal detection or traffic signal cabinet. This work will be completed by the electrical contractor as part of the US 63 reconstruction projects. The existing signals within the City of Waterloo system are currently operated with Peek 3000, Siemens M52, and Econolite ASC/3 controllers. All of these are NEMA standard controllers. If the proposed ASCT system will not operate with one of these controllers, please provide details of the proposed controller and its operational requirements in the RFP response. Information regarding the existing phasing and controller configuration is provided in Appendix A for reference.

3.7.1 Field Control Unit

As part of the traffic signal reconstruction projects PRN 87 and PRN 91, new traffic signal controllers shall be provided, configured and installed by others with base functionality (time of day plans). Once the controllers have the base functionality, the

Successful Responder shall complete the additional intersection work as described in this RFP. The cost of the system shall include a control unit at each intersection. The cost shall include everything that is required in the cabinet to get the system fully functional.

3.7.2 Field Implementation/Signal Timing Development

Field implementation includes all labor required to get the ASCT system to operate in the field. This includes initial ASCT settings, system turn-on, acceptance testing, fine-tuning in each controller. The development of signal timing for all the intersections outlined in this RFP shall be included in the cost. This development cost must also include testing of the timing prior to installation and fine-tuning of the timing in the field after installation.

3.7.3 Central Control Software/Server

The ASCT system shall include the cost for a server to run the ASCT central control software and store 365 days of data (see Section 3, Mandatory Requirements for more details). The Responder shall outline the specifications of the proposed server in their Response.

3.7.4 City TOC Implementation

The Successful Responder shall provide and install all equipment and software required for this system (assume all detection and communication is provided by the agencies). Installation and integration of any equipment required at the City TOC should be included in this cost. As part of the installation and implementation, the Successful Responder shall test the equipment per the Verification and Validation Plan outlined in this RFP (See Section 3.8 and Appendix B).

3.8 Verification Approach

The final verification procedures will be developed and conducted by the Successful Responder with approval from the Iowa DOT in partnership with the City of Waterloo. All verification shall be conducted in the presence of the City of Waterloo staff. Final verification and formal system acceptance will be provided by the City of Waterloo's Project Manager. City will notify Iowa DOT of the final system acceptance date to document the completion of the system deployment and testing. The Project Manager will control the plan and tests, but will also work with the Successful Responder to clarify the verification procedures and acceptance tests.

The Successful Responder will be responsible for providing all materials, equipment and staff to complete the testing. A list of all hardware, software and special equipment utilized in the testing shall be provided prior to testing. The Successful Responder shall produce and maintain a schedule for the City of Waterloo that details all proposed dates and time of all acceptance testing activities. The City of Waterloo Project Manager will review and notify Iowa DOT of the schedule. The City of Waterloo Project Manager will approve the schedule of the acceptance testing activities.

The Successful Responder shall conduct the verification tests with field deployed hardware and software. The verification table indicates where the test should be conducted (see Appendix B). The Successful Responder shall coordinate with the City of Waterloo Project Manager to schedule the testing time periods consistent with the test schedule. The City of Waterloo Project Manager will notify Iowa DOT of the testing time periods.

Acceptance testing will be a critical part of implementation. It includes one-day acceptance test of the field components as described above. It also includes 30-day reliability tests. This testing will take place in the field at selected locations and at the traffic operations center (TOC) for complete end-to-end system verification. If there are

verification tests that result in failure, then the verification could take longer than one day. A 30-day reliability test for each component installed as part of the project will also be documented. The 30-day test is expected to document the verification of daily operation. At the end of the 30-day reliability test, the System may need to be fine-tuned to meet the operation need(s) of the corridor. The Successful Responder will coordinate with the City of Waterloo Project Manager to schedule the fine tuning of the system. City will notify Iowa DOT of this schedule.

Any failure to meet the stated system requirements shall be immediately recorded as a System Variance and the Successful Responder shall prepare a report stating why the system requirement was not met. It is the responsibility of the Successful Responder to complete, track, and resolve each variance to the satisfaction of the Project Manager. The Variance Form shall include a proposed solution to resolve the deficiency and shall be submitted to the Project Manager within seven (7) days of the date the failure is discovered. Upon any failed verification, the City of Waterloo Project Manager will complete a Variance Form and also decide if all testing should stop until correction is made. A failure with a select system requirement such as upload/download data to the controller will likely cause all testing to halt. Other functional requirement failures, that do not directly impact system functions, may not necessitate a halt to system verification.

If the Successful Responder is not able to meet a system requirement that was included in the contract, the Successful Responder shall prepare a report documenting the failure and develop a plan to provide similar performance operation or correction to the failure. Upon completion of all required verification testing, the Successful Responder shall prepare a final Verification Report which will contain all critical information regarding testing conducted including both failures and successes. Resolution of the cause of failures should also be detailed.

3.9 Verification Review and Testing

This section identifies specific verification reviews and acceptance testing for the ASCT deployment. The acceptance test is expected to include multiple reviews and will include one or more of the following elements:

- Review of the Successful Responder provided detection plan by City and DOT
- Shop drawing reviews
- Demonstrations of Software
- Inventories
- Field demonstrations of detection system's data accuracy
- Monitoring queue management at user-specified locations
- Integration with the City of Waterloo emergency vehicle preemption system
- TOC test of communications
- Remote monitoring and control of the ASCT system
- Review training materials

The verification and acceptance testing will be accomplished at approved City of Waterloo locations and at specific field locations within the City. All acceptance test procedures shall conform with the approved acceptance test plans. These tests will be completed and documented by the Successful Responder and supervised by the City of Waterloo Project Manager. Operational documentation of the field components is expected to be completed with a laptop, internet connection and associated cabling. The Successful Responder will need to provide multiple staff in the field and at the TOC to document certain acceptance tests.

A verification test case is a logical grouping of functions and performance criteria that are to be verified together. Each test case should contain the following:

- Name and reference number
- Objective (from requirements)
- List of requirements to be verified or traced
- Data to be recorded or noted during verification, such as expected results
- Statement of requirements met, partially met, or not met.
- Comments on how requirements are met, and proposed action if only partially met or not met.

The following preliminary test cases have been identified:

1. Local Controller Configuration
2. Queue Management
3. Emergency Vehicle Preemption
4. Upload and Download from Central Database
5. Alarms & Notifications
6. Default Settings
7. Remote Access and Operation

Additional and final test case instructions will be developed in conjunction with the Successful Responder after a specific system has been procured, so that all necessary software demonstration procedures are adjusted accordingly.

3.10 Project Manager

The Iowa DOT and/or City of Waterloo shall assign a project manager to oversee the progress of installation and other services through the contract. The Successful Responder shall assign a project manager to work with the Iowa DOT and/or City of Waterloo as needed throughout the contract. The Successful Responder must function as the single point of contact for the Iowa DOT and/or City of Waterloo, regardless of any subcontract arrangements throughout the contract.

3.11 Project Dates

The US 63 ASCT system shall be fully implemented by August 1, 2018 with verification and validation testing being approved and finalized in July, 2018. Responders shall explain how they plan to meet or exceed this implementation date in the submitted Work Plan.

Section 4 Form and Content

4.1 Instructions

The following instructions prescribe the format and content of the Response. They are designed to facilitate a uniform review process. Failure to adhere to the RFP format may result in the rejection of the Response.

It is the request of the Iowa DOT that the following section headings be used in the Responder responses to this RFP and that they be arranged in the order as listed in the RFP. Responders should provide a table of contents and should label divider tabs. Responses must be in sufficient detail to permit an understanding and comprehensive evaluation of the Responder's response.

4.1.1 The Response shall be typewritten on 8.5" x 11" paper (bound securely, double sided is allowed) and sent in a sealed envelope.

4.1.2 The Response shall be divided into two parts: (1) the Technical Response and (2) the Cost Proposal. **The Cost Proposal shall be in a separate sealed envelope.**

Example:

Technical Envelope(s) Contain(s):

Original Technical Response & Copies
Electronic copy of the Technical Response
Public Copy if submitted
Electronic Public Copy on same removable media if submitted

Cost Proposal Envelope Contains:

Original Cost Proposal & Copies
Electronic Copy of the Cost Proposal

The envelopes shall be labeled with the information found on the cover sheet:

***[RFP Title] [RFP Number]
[Issuing Officer's Name]
[Responder's Name and Address]
Iowa Department of Transportation
800 Lincoln Way
Ames, Iowa 50010***

The Iowa DOT shall not be responsible for misdirected packages or premature opening of Responses if a Response is not properly labeled.

4.1.3 One (1) original, one (1) removable media (example: flash drive) each in a sealed envelope, **and** the additional number of copies of the Response defined on the Procurement Timetable in the cover section, shall be timely submitted to the Issuing Agent.

4.1.4 If the Responder designates any information in its Response as confidential pursuant to Section 2.20, the Responder must also submit one (1) copy of the Response from which confidential information has been excised as provided in Section 2.20 marked "**Public Copy**".

4.1.5 Responders may include promotional materials as company information but they shall not take the place of the Response and will not be considered for the award unless they enhance the Response to a specific requirement.

4.1.6 Attachments shall be referenced in the Response.

4.1.7 If a Responder proposes more than one method of meeting these requirements, each shall be labeled and submitted separately. Each will be evaluated separately.

4.2 Technical Response

The following documents shall be included in the Technical Response in the order given below:

4.2.1 Transmittal Letter (Required)

An individual authorized to legally bind the Responder shall sign the transmittal letter. The letter shall include the Responder's mailing address, electronic mail address, fax number, and telephone number.

Any request for confidential treatment of information shall be included in the transmittal letter in accordance with the provisions of Section 2.20. In addition to the specific statutory basis supporting the request, an explanation why disclosure of the information is not in the best interest of the public is required. The transmittal letter shall also contain the name, address, electronic mail address and telephone number of the individual authorized to respond to the Iowa DOT about the confidential nature of the information.

4.2.2 Table of Contents

The Responder should include a table of contents of its Response and submit the check list of submittals per Attachment # 3.

4.2.3 Executive Summary

The Responder shall prepare an executive summary and overview of the goods and/or services it is offering, including all of the following information:

4.2.3.1 Statements that demonstrate that the Responder has read, understands and agrees with the terms and conditions of the RFP including the contract provisions in Section 6.

4.2.3.2 An overview of the Responder's plans for complying with the requirements of this RFP. (Including project management approach).

4.2.3.3 Any other summary information the Responder deems to be pertinent.

4.2.4 Specifications and Technical Requirements

The Responder shall answer whether or not it will comply with each requirement in Section 3 of the RFP. Responders shall explain how it will comply with each requirement in Section 3. **Merely repeating the requirements may be considered non-responsive and may disqualify the Responder.** Responses must identify any deviations from the requirements of this RFP or requirements the Responder cannot satisfy. Any deviations from the requirements of the RFP or any requirement of the RFP that the Responder cannot satisfy may disqualify the Responder.

4.2.5 Company Background Information

Provide the following general background information:

4.2.5.1 Name, address, telephone number, fax number and e-mail address of the Responder including all d/b/a's or assumed names or other operating names of the Responder.

4.2.5.2 Form of business entity, i.e., corporation, partnership, proprietorship, limited liability company.

4.2.5.3 State of incorporation, state of formation, or state of organization.

4.2.5.4 The location(s) (including address and telephone numbers) of the offices and other facilities that relate to the Responder's performance under the terms of the RFP.

4.2.5.5 Local office address and phone number (if any).

4.2.5.6 Number of employees.

4.2.5.7 Type of business.

4.2.5.8 Name, address, e-mail address and telephone number of the Responder's representative to contact regarding all contractual and technical matters concerning the Response.

4.2.5.9 Name, address, e-mail address and telephone number of the Responder's representative to contact regarding scheduling and other arrangements.

4.2.5.10 Name, contact information and qualifications of any sub-Contractors who will be involved with this project.

4.2.5.11 Responder's accounting firm.

4.2.5.12 The Successful Responder will be required to register to do business in Iowa before payments can be made. For contractor registration documents, go to: <http://www.iowadot.gov/purchasing>.

4.2.6 Experience

The Responder must provide the following information regarding its experience:

4.2.6.1 Number of years in business.

4.2.6.2 Number of years' experience with providing the types of goods and/or services sought by the RFP for each system element category described in section 3.3.3.

4.2.6.3 The level of technical experience in providing the types of goods and/or services sought by the RFP.

4.2.6.4 A detailed list of goods and/or services similar in size and scope to those sought by this RFP that the Responder has provided to other businesses or governmental entities within the past three years.

4.2.6.5 References from three (3) previous or current customers or clients knowledgeable of the Responder's performance in providing goods and/or services similar to the goods and/or services described in this RFP and a contact person, e-mail address and telephone number for each reference.

4.2.7 Personnel

The Responder must provide resumes for all key personnel who will be involved in providing the goods and/or services contemplated by this RFP.

The following information must be included in the resumes:

4.2.7.1 Full name.

4.2.7.2 Education.

4.2.7.3 Years of experience and employment history particularly as it relates to the requirements of the RFP.

4.2.8 Financial Information (short list Responders only)

The Responder may be asked to provide the following financial information:

4.2.8.1 Audited financial statements for the last 3 years. Privately held companies may substitute Credit reports.

4.2.8.2 A minimum of three (3) financial references. Privately held companies may substitute: Letters of Reference from the bank.

4.2.9 Terminations, Litigation, Debarment

The Responder must provide the following information for the past five (5) years: (also see Attachment 1)

4.2.9.1 Has the Responder had a contract for goods and/or services terminated for any reason? If so, provide full details regarding the termination.

4.2.9.2 Describe any damages or penalties assessed against or dispute resolution settlements entered into by the Responder under any existing or past contracts for goods and/or services. Provide full details regarding the incident, including the dollar amount of damages, penalties and settlement payments.

4.2.9.3 Describe any order, judgment or decree of any Federal or State authority barring, suspending or otherwise limiting the right of the Responder to engage in any business, practice or activity.

4.2.9.4 A list and summary of all litigation or threatened litigation, administrative or regulatory proceedings, or similar matters to which the Responder or its officers have been a party, if any. The Responder must also state whether it or any owners, officers, or primary partners have ever been convicted of a felony. Failure to disclose these matters may result in rejection of the Response or in termination of any subsequent contract.

4.2.9.5 Any irregularities discovered in any of the accounts maintained by the Responder on behalf of others, describe the circumstances and disposition of resolving the irregularities.

The above disclosures are a continuing requirement of the Responder. The Responder shall provide written notification to the Iowa DOT of any such matter commencing or occurring after submission of a Response, and with respect to the Successful Responder, following execution of the Resulting Contract.

4.2.10 Certification Letter (Attachment 1)

The Responder shall sign and submit with the Response the document included as Attachment 1 (Certification Letter) in which the Responder shall make the certifications included in Attachment 1.

4.2.11 Acceptance of Terms and Conditions

The Responder shall specifically agree that the Response is predicated upon the acceptance of all terms and conditions stated in the RFP. If the Responder objects to any term or condition, the Responder must specifically take exception per the RFP page and section and provide the reason for the objection. Objections or responses that materially alter the RFP may be deemed non-responsive and result in rejection of the Response.

4.2.12 Authorization to Release Information (Attachment 2)

The Responder shall sign and submit with the Response the document included as Attachment #2 (Authorization to Release Information Letter) in which the Responder authorizes the release of information to the Iowa DOT.

4.2.13 Firm Terms

The Responder shall guarantee in writing the availability of the goods and/or services offered and that all Response terms, including price, will remain firm a minimum of 180 days following the deadline for submitting Responses.

4.2.14 Work Plan

The work plan should be the Responder's overall approach to meeting or exceeding the requirements of the RFP. In addition to the detail in Section 3, Responder's work plans should include items such as timeline, additional functionality and any other pertinent information that would assist the evaluators in making the final recommended award.

Any deviations from the requirements of the RFP or any requirement of the RFP that the Responder cannot satisfy may disqualify the Responder.

4.3 Schedule of Prices – Cost Proposal

Responders shall provide a cost proposal for the proposed items listed in the **Schedule of Prices**. If applicable, Responders may submit additional pages to the Schedule of Prices to accurately reflect the overall costs of the goods or services proposed.

The Iowa DOT reserves the right to purchase any or all items on the Schedule of Prices either individually or as bundled throughout the contract period.

The amounts should exclude state and federal taxes except for taxes required to be withheld for employment purposes. The Iowa DOT is a tax exempt entity. **Cost proposals must be submitted in a separate envelope.**

Section 5 Evaluation and Selection

5.1 Introduction

This section describes the evaluation process that will be used to determine which Response provides the greatest benefit to the Iowa DOT based on the evaluation criteria in Section 5.4.

5.2 Evaluation Committee

The Iowa DOT shall conduct a comprehensive, fair, and impartial evaluation of all compliant Responses received. The Iowa DOT will use an evaluation committee to review and evaluate the Responses. The Evaluation Committee shall consist of members with technical knowledge of the desired goods and/or services, users of the solution and other appropriate persons to best evaluate the Responses.

5.3 Overview of Evaluation

All submitted Responses will be first evaluated by the Purchasing Agent to determine if they comply with the mandatory requirements of the RFP. To be deemed a responsible Responder any proposed Response must comply with the mandatory requirements. Failure to meet the mandatory requirements will result in the rejection of the Response. In the event that all Responders do not meet the mandatory requirement, the Iowa DOT reserves the right to continue the evaluation of the Responses and to select the Response most closely meeting the requirements specified in this RFP or may choose to reject all responses and consider the RFP closed.

5.4 Evaluation Criteria

The RFP evaluation criteria below shall be used by the Evaluation Committee for purposes of award. Items are not listed in any particular order of importance. If a demonstration/presentation is included in the evaluation criteria, only those short listed Responders shall be given a point rating and total score to be considered for award.

Evaluation Criteria
Overall content of written Response
<ul style="list-style-type: none">○ Overall Solution○ System Functionality
Business Knowledge
<ul style="list-style-type: none">○ Knowledge of Industry Standards and Applications
Company Experience and References
<ul style="list-style-type: none">○ Experience in the development of Adaptive Traffic Systems○ Project Management○ Project Approach○ References
Maintenance/Support/Training
<ul style="list-style-type: none">○ Strategy in place to provide on-going support○ Training staff available and at reasonable location to responsiveness○ Warranty
Cost – See Schedule of Prices

Weighting of evaluation categories is not available to the Responders prior to the opening of all submitted Responses.

5.5 Recommendation of the Evaluation Committee

The final evaluation will be based on the criteria as listed in Section 5.4.

5.6 Protest of Award

Protest of award shall be made in accordance with the Iowa Administrative Code 761-20.4(6)"e".

Section 6 Contract Terms and Conditions

6.1 Contract Terms and Conditions

The contract(s) that the Iowa DOT expects to award as a result of this RFP will be based upon the Response submitted by the successful Contractor and the RFP. The contract between the Iowa DOT and the successful Contractor shall be a combination of the specifications, terms and conditions of the RFP, including the terms contained in the Iowa DOT's attachment(s), the offer of the Contractor contained in the Response, written clarifications or changes made in accordance with the provisions of the RFP herein and any other terms deemed necessary by the Iowa DOT, except that no objection or amendment by a Contractor to the RFP requirements shall be incorporated by reference into the Contract unless the Iowa DOT has explicitly accepted the Contractor's objection or amendment in writing.

The contract terms contained in Section 6 are not intended to be a complete listing of all contract terms but are provided only to enable contractors to better evaluate the costs associative with the RFP and the potential resulting contract. Contractors should plan on such terms being included in any contract awarded as a result of this RFP. All costs associated with complying with these requirements should be included in the cost proposal or any pricing quoted by the contractor.

By submitting a Response, each Contractor acknowledges its acceptance of the RFP specifications and the contract terms and conditions without change except as otherwise expressly stated in its Response. If a Contractor takes exception to a provision, it must state the reason for the exception and set forth in its Response the specific contract language it proposes to include in place of the provision. Exceptions that materially change the contract terms and conditions or the requirements of the RFP may be deemed non-responsive by the Iowa DOT, in its sole discretion, resulting in possible rejection of the Response. The Iowa DOT reserves the right to either award a contract(s) without further negotiation with the successful Contractor or to negotiate contract terms with the successful Contractor if the best interests of the State would be served.

6.2 Contract Period

The term of the Contract will begin and end on the dates indicated in the RFP Procurement Timetable, unless extended or terminated earlier in accordance with the termination provisions of this Contract. The Iowa DOT shall have the sole option to renew the Contract for up to the number of annual renewals specified on the Procurement Timetable.

6.3 Contractor Qualification Requirement

Prior to execution of a contract with a contractor, the contractor must qualify to do business with the State of Iowa.

6.4 Equipment Delivery Schedule

The Equipment shall be delivered as agreed upon between the Successful Responder and the Iowa DOT.

6.5 Installation and Implementation

Upon award of a Contract, the Iowa DOT shall negotiate an installation and implementation schedule with Successful Responder. Extended installation time periods may be considered when the extension is in the best interest of the Iowa DOT.

6.6 Scope of Work (Services)

The services to be performed pursuant to and as a result of this contract by the contractor are described in Specifications and Mandatory Requirements, Section 3, in the Appendices and are made a part hereof by this reference.

The contractor shall prepare and deliver specifications to the Iowa DOT which will detail the design, technical and functional capabilities, and other attributes related to the project, all as more fully described in Section 3.

Amendments to Scope of Services and Specifications. The parties agree that the Scope of Services and the specifications may be revised, replaced, amended or deleted at any time during the term of this Contract to reflect changes in service or performance standards upon the mutual written consent of the parties.

Industry Standards. Services rendered pursuant to this Contract shall be performed in a professional and workmanlike manner in accordance with the terms of this Contract and with generally acceptable industry standards of performance for similar tasks and projects. In the absence of a detailed specification for the performance of any portion of this Contract, the parties agree that the applicable specification shall be the generally accepted industry standard.

As long as the Iowa DOT notifies the contractor promptly of any services performed in violation of this standard, the contractor will re-perform the services, at no cost to Iowa DOT, such that the services are rendered in the above-specified manner.

Non-Exclusive Rights. This Contract is not exclusive. The Iowa DOT reserves the right to select other contractors to provide services similar or identical to the Scope of Services described in this Contract during the term of this Contract.

6.7 Licenses

The Contractor shall include the cost for all software licenses and annual software maintenance fees required for its work. The Contractor must furnish a written copy of the software Terms and Conditions of software agreement with the submitted Response.

6.8 Labor Regulations

The Contractor shall give all notices and comply with all codes, laws, ordinances, rules and regulations of any public authority having jurisdiction that bears on the performance of its work.

All contractors, before entering into a contract with the Iowa Department of Transportation, must be registered with the Division of Labor in the Workforce Development Department, 515-281-3606 according to chapter 91C, Code 1993.

6.9 Contract Termination

It is imperative that the contractor consistently provides high quality services. Below are procedures that will be utilized in the event that the contract must be terminated due to the contractor's lack of ability to produce required results:

6.9.1 Immediate Termination by the Iowa DOT

The Iowa DOT may terminate this contract in writing for any of the following reasons effective immediately without advance notice:

6.9.1.1 In the event the contractor is required to be certified or licensed as a condition precedent to providing services, the revocation or loss of such license or certification will result in immediate termination of the Contract effective as of the date on which the license or certification is no longer in effect;

6.9.1.2 The Iowa DOT determines that the actions, or failure to act, of the contractor, its agents, employees or subcontractors have caused, or reasonably could cause, a client's life, health or safety to be jeopardized;

6.9.1.3 The contractor fails to comply with confidentiality laws or provisions;

6.9.1.4 The contractor furnished any statement, representation or certification in connection with this Contract or the RFP which is materially false, deceptive, incorrect or incomplete

6.9.2 Termination for Cause

The occurrence of any one or more of the following events shall constitute cause for the Iowa DOT to declare the contractor in default of its obligations under this Contract.

6.9.2.1 The contractor fails to perform to the Iowa DOT's satisfaction, per Section 3 Project Specification requirements.

6.9.2.2 The Iowa DOT determines that satisfactory performance of this Contract is substantially endangered or that a default is likely to occur.

6.9.2.3 The contractor fails to make substantial and timely progress toward performance and deliverables within the contract.

6.9.2.4 The contractor consistently misses deadlines agreed upon with the Iowa DOT project managers.

6.9.2.5 The contractor replaces key personnel with individuals who have less experience, knowledge and skills in the areas of their responsibilities.

6.9.2.6 The contractor staff's knowledge, skills, and experience are unacceptable to the Iowa DOT and do not reflect what the contractor represented the skill sets of their staff that would be assigned to this engagement.

6.9.2.7 The contractor's staff turnover is unacceptably high to Iowa DOT.

6.9.2.8 The contractor fails to effectively manage contractor staff time and/or assignments.

6.9.2.9 The contractor's quality of work is unacceptable to Iowa DOT (i.e. incorrect results, standards are not followed).

6.9.2.10 The contractor's quantity of work is unacceptable to Iowa DOT. The contractor fails to perform additional assignments as requested.

6.9.2.11 The contractor does not respond to critical issues and/or fails to participate in problem resolution when asked. This includes requests for support in the evenings and weekends.

6.9.2.12 The contractor's deliverable(s) cause a major outage to the Iowa DOT's IT infrastructure.

6.9.2.13 The contractor becomes subject to any bankruptcy or insolvency proceeding under federal or state law to the extent allowed by applicable federal or state law including bankruptcy laws; the contractor terminates or suspends its business; or the Iowa DOT reasonably believes that the contractor has become insolvent or unable to pay its obligations as they accrue consistent with applicable federal or state law.

6.9.2.14 The contractor has failed to comply with applicable federal, state and local laws, rules, ordinances, regulations and orders when performing within the scope of this Contract.

6.9.2.15 The contractor has engaged in conduct that has or may expose the Iowa DOT to liability, as determined in the Iowa DOT's sole discretion.

6.9.2.16 The contractor has infringed any patent, trademark, copyright, trade dress or any other intellectual property right.

6.9.3 Notice of Default

If there is a default event caused by the contractor, the Iowa DOT shall provide written notice to the contractor requesting that the breach or noncompliance be remedied within the period of time specified in the Iowa DOT's written notice to the contractor. If the breach or noncompliance is not remedied by the date in the written notice, the Iowa DOT may either:

6.9.3.1 Immediately terminate the contract without additional written notice.

6.9.3.2 Enforce the terms and conditions of the contract and seek any legal or equitable remedies.

6.9.4 Termination Upon Notice

Following 30 days written notice, the Iowa DOT may terminate this Contract in whole or in part without the payment of any penalty or incurring any further obligation to the contractor.

Following termination upon notice, the contractor shall be entitled to compensation, upon submission of invoices and proper proof of claim, for services provided under this Contract to the Iowa DOT up to and including the date of Termination.

6.9.5 Termination Due to Lack of Funds or Change in Law

The Iowa DOT shall have the right to terminate this Contract without penalty by giving thirty (30) days written notice to the contractor as a result of any of the following:

6.9.5.1 Adequate funds are not appropriated or granted to allow the Iowa DOT to operate as required and to fulfill its obligations under this Contract.

6.9.5.2 Funds are de-appropriated or not allocated or if funds needed by the Iowa DOT, at the Iowa DOT's sole discretion, are insufficient for any reason.

6.9.5.3 The Iowa DOT's authorization to operate is withdrawn or there is a material alteration in the programs administered by the Iowa DOT.

6.9.5.4 The Iowa DOT's duties are substantially modified.

6.9.6 Remedies of the Contractor in Event of Termination by the Iowa DOT

In the event of termination of this Contract for any reason by the Iowa DOT, the Iowa DOT shall pay only those amounts, if any, due and owing to the contractor for services actually rendered up to and including the date of termination of the contract and for which the Iowa DOT is obligated to pay pursuant to this Contract. Payment will be made only upon submission of invoices and proper proof of the contractor's claim. This provision in no way limits the remedies available to the Iowa DOT under this Contract in the event of termination. However, the Iowa DOT shall not be liable for any of the following costs:

6.9.6.1 The payment of unemployment compensation to the contractor's employees.

6.9.6.2 The payment of workers' compensation claims, which occur during the contract or extend beyond the date on which the contract terminates.

6.9.6.3 Any costs incurred by the Successful Responder in its performance of the contract, including, but not limited to, startup costs, overhead or other costs associated with the performance of the contract.

6.9.6.4 Any taxes that may be owed by the contractor in connection with the performance of this Contract, including, but not limited to, sales taxes, excise taxes, use taxes, income taxes or property taxes.

6.9.7 Successful Responder Termination Duties

The contractor, upon receipt of notice of termination or upon request of the Iowa DOT, shall:

6.9.7.1 Cease work under this Contract and take all necessary and appropriate steps to limit disbursements and minimize costs, and furnish a report within thirty (30) days of the date of notice of termination, describing the status of all work under the contract, including, without limitation, results accomplished, conclusions resulting therein, any other matters the Iowa DOT may require.

6.9.7.2 Immediately cease using and return to the Iowa DOT any personal property or materials provided by the Iowa DOT to the contractor.

6.9.7.3 Comply with the Iowa DOT's instructions for the timely Transfer of any active files and work product produced by the contractor under this Contract.

6.9.7.4 Cooperate in good faith with the Iowa DOT, its employees, agents and contractors during the transition period between the notification of termination and the substitution of any replacement contractor.

6.9.7.5 Issue credit to the Iowa DOT for any payments made by the Iowa DOT for services that were inappropriately billed for services that were not rendered by the contractor.

6.9.7.6 Immediately deliver to the Iowa DOT any and all Deliverables for which the Iowa DOT has made payment (in whole or part) that are in the possession or under the control of the Contractor or its agents or subcontractors in whatever stage of development and form of recordation such property is expressed or embodied as that time.

6.9.8 Unacceptable Deliverables

The contractor shall be required to perform the work for each deliverable in accordance with the terms, conditions, and representations of this Contract.

6.10 Contractor's Insurance Requirements

The resulting Contract will require the successful Contractor to maintain insurance coverage(s) of the type and in the amounts set forth below.

- It shall be the Contractor's responsibility to have liability insurance covering all of the project operations incident to contract completion and the Contractor(s) must have on file with the Contracting Authority a current "Certificate of Insurance" prior to award of contract. The certificate shall identify the insurance company firm name and address, contractor firm name, policy period, type of policy, limits of coverage, and scope of work covered (single contract or statewide). This requirement shall apply with equal force, whether the work is performed by persons employed directly by the Contractor(s) including a subcontractor, persons employed by a subcontractor(s), or by an independent contractor(s).

- In addition to the above, the Contracting Authority shall be included as an insured party, or a separate owner's protective policy shall be filed showing the Contracting Authority as an insured party.

- The liability insurance shall be written by an insurance company (or companies) qualified to do business in Iowa. For independent contractors engaged solely in the transportation of materials, the minimum coverage provided by such insurance shall be not less than that required by Chapter 325A, Code of Iowa, for such truck operators or contract carriers as defined therein. For all other contractors, subcontractors, independent contractors, and the Contracting Authority, the minimum coverage by such insurance shall be as follows:

- *Commercial General Liability* including Contractual Liability;
- Contingent Liability; Explosion, Collapse and Underground Drainage;
- Damage; Occurrence Basis Bodily Injury; Broad Form Personal Injury; Broad Form Property Damage.

Bodily Injury

The contractor will purchase and maintain throughout the term of this contract the following minimum limits and coverage:

• Each person	\$750,000
• Each accident/occurrence	\$750,000
• Workers Compensation	\$750,000
• Statutory Limits	\$750,000
• Employer's liability	\$750,000
• Pollution Liability	\$750,000
• Occupation Disease	\$750,000

Operations

- Property Damage \$250,000 each occurrence

The Contractor(s) shall require all subcontractor(s) meet the above insurance requirements.

The Certificate of Insurance must include the following;

- Iowa Department of Transportation must be listed as an additional insured
- Proposal Number
- Proposal Description
- Response Date and Contract Period

6.11 Force Majeure

Neither Contractor nor the Iowa DOT shall be liable to the other for any delay or failure of performance of this Contract; and no delay or failure of performance shall constitute a default or give rise to any liability for damages if, and only to the extent that, such delay or failure is caused by a "force majeure". As used in this Contract, "force majeure" includes acts of God, war, civil disturbance and any other causes which are beyond the control and anticipation of the party effected and which, by the exercise of reasonable diligence, the party was unable to anticipate or prevent.

Failure to perform by a subcontractor or an agent of the Contractor shall not be considered a "force majeure" unless the subcontractor or supplier is prevented from timely performance by a "force majeure" as defined in this Contract. "Force majeure" does not include: financial difficulties of the Contractor or any parent, subsidiary, affiliated or associated company of Contractor; claims or court orders which restrict Contractor's ability to deliver the goods or services contemplated by this Contract.

If a "force majeure" delays or prevents Contractor's performance, the Contractor shall immediately commence to use its best efforts to directly provide alternate, and to the extent possible, comparable performance. Comparability of performance and the

possibility of comparable performance shall be reasonably determined solely by the Iowa DOT.

During any such period, the Contractor shall continue to be responsible for all costs and expenses related to alternative performance.

This Section shall not be construed as relieving the Contractor of its responsibility for any obligation which is being performed by a subcontractor or supplier of services unless the subcontractor or supplier is prevented from timely performance by a "force majeure" as described here.

6.12 Indemnification by Contractor

The Contractor agrees to defend, indemnify and hold the Iowa DOT, and the State of Iowa, its employees, agents, board members, appointed officials and elected officials, harmless from any and all demands, debts liabilities, damages, loss, claims, suits or actions, settlements, judgments, costs and expenses, including the reasonable value of time expended by the Attorney General's Office, and the costs and expenses and attorney fees of other counsel required to defend the Iowa DOT or the State of Iowa related to or arising from: Any violation or breach of this Contract including without limitation any of the Contractor's representations or warranties; or Any acts or omissions, including, without limitation, negligent acts or omissions or willful misconduct of Contractor, its officers, employees, agents, board members, contractors, subcontractors, or counsel employed by Contractor in the performance of this Contract, or any other reason in connection with the goods and services provided under this Contract; or Claims for any violation of any intellectual property right including but not limited to infringement of patents, trademarks, trade dress, trade secrets, or copyrights arising from the any of the goods or service performed in accordance with this Contract; or The Contractor's performance or attempted performance of this Contract; or *Any failure by the Contractor to comply with all local, State and Federal laws and regulations*; or Any failure by the Contractor to make all reports, payments and withholdings required by Federal and State law with respect to social security, employee income and other taxes, fees or costs required by the Contractor to conduct business in the State of Iowa.

The Contractor's duty to indemnify as set forth in this section shall survive the expiration or termination of this Contract and shall apply to all acts taken in the performance of this Contract regardless of the date any potential claim is made or discovered by the STATE.

6.13 Indemnification by Iowa DOT

The State shall, only to the extent consistent with Article VII, Section 1 of the Iowa Constitution and Iowa Code Chapter 669, indemnify and hold harmless the Contractor from and against any and all costs, expenses, loses, claims, damages and liabilities arising directly out of the negligence or wrongful acts or omissions of any employee of the Iowa DOT while acting within the scope of the employee's office of employment in connection with the performance of this Contract.

At the option of the Iowa DOT, the Contractor shall be represented by the Attorney General of the State or special counsel retained by the Iowa DOT or the Attorney General of the State with respect to any litigation brought by or against the Contractor or such persons with respect to any claims, damages, judgments, liabilities or causes of action to which such persons may be subject and to which they are entitled to be indemnified hereunder.

Indemnification under this Section shall survive the termination of this Contract and shall include reasonable fees and expenses of counsel and expenses of litigation. If the Iowa DOT shall have made any indemnity payments pursuant to this Section and the person to or on behalf of whom such payments are made thereafter shall collect any of such

amounts from others, such person shall promptly repay such amounts to the Iowa DOT, without interest.

6.14 Payment

The payment of maintenance and support shall be administered upon the City of Waterloo and Iowa DOT signing the contract for the ASCT system. The payment of the training shall be administered upon completion of training. The payment of the central control software/server shall be administered upon delivery of the software and hardware. After commissioning of the ASCT system on US Highway 63 (US 63) is successfully completed and accepted by a Traffic Engineer licensed in the State of Iowa in accordance with the Verification and Validation Plan (See Appendix B), the field equipment, implementation and signal timing costs shall be paid with a 5% retainage fee that will be held through a 90 day test period.

During the 90 day test period, downtime due to mechanical, electrical and/or other malfunctions must not exceed 5 days. If malfunctions are detected on more than 5 separate days, the Engineer may extend the 90 day test period by the number of days on which the malfunctions were detected. If the Iowa DOT determines that a major failure has occurred during the 90 day test period, the Iowa DOT can require the ASCT Vendor to travel to the ASCT system to address the issues, at the expense of the ASCT Vendor. Upon successful ending of the 90 day test period, the remaining 5% payment may be released.

6.15 Travel Expenses

Travel expenses shall be included in training. Please see Section 3.6.3.

6.16 Care of Property

The contractor shall be responsible for the proper custody and care of any the State-owned tangible personal property furnished for the contractor's use in connection with the performance of the contract, and the contractor will reimburse the Iowa DOT for such property's loss or damage caused by the contractor, normal wear and tear excepted.

6.17 Contractor Conduct

The contractor shall adhere to State and other written established work rules. The Iowa DOT Workplace Environment Policies and Procedures will be provided to the contractor. These rules consist of commonly accepted, professional business conduct.

6.18 Public Contract Termination

The Provisions of Iowa Law as contained in Chapter 573A of the Code of Iowa, an Act to provide for termination of contracts for the construction of public improvements when construction or work thereon is stopped because of national emergency shall apply to and be a part of this Contract, and shall be binding upon all parties hereto including sub-contractors and sureties upon any bond given or filed in connection herewith.

Legislative Changes. The Contractor expressly acknowledges that the contracted Deliverables are subject to legislative change by either the federal or state government. Should either legislative body enact measures which alter the project, the Contractor shall not hold the Agency liable in any manner for the resulting changes. The Agency shall use best efforts to provide thirty (30) days' written notice to the Contractor of any legislative change. During the thirty (30) – day period, the parties shall meet and make a good faith effort to agree upon changes to the Contract to address the legislative change. Nothing in this Subsection shall affect or impair the Agency's right to terminate the Contract pursuant to the termination provisions.

Repayment Obligation. In the event that any State and/or federal funds are deferred and/or disallowed as a result of any audits or expended in violation of the laws applicable to the expenditure of such funds, the Contractor shall be liable to the Agency

for the full amount of any claim disallowed and for all related penalties incurred. The requirements of this paragraph shall apply to the Contractor as well as any subcontractors.

6.19 Confidential Information

6.19.1 The Contractor's employees, agents and subcontractors may have access to confidential information maintained by the Iowa DOT to the extent necessary to carry out its responsibilities under the Contract.

The Contractor shall presume that all information received pursuant to this Contract is confidential unless otherwise designated by the Iowa DOT. The Contractor shall provide to the Iowa DOT a written description of its policies and procedures to safeguard confidential information. Policies of confidentiality shall address, as appropriate, information conveyed in verbal, written, and electronic formats. The Contractor must designate one individual who shall remain the responsible authority in charge of all data collected, used, or disseminated by the Contractor in connection with the performance of the Contract. The Contractor shall provide adequate supervision and training to its agents, employees and subcontractors to ensure compliance with the terms of this Contract. The private or confidential information shall remain the property of the Iowa DOT at all times.

6.19.2 No confidential information collected, maintained, or used in the course of performance of the Contract shall be disseminated by Contractor except as authorized by law and only with the prior written consent of the Iowa DOT, either during the period of the Contract or thereafter. Any data supplied by the Iowa DOT to the Contractor or created by the Contractor in the course of the performance of this Contract shall be considered the property of the Iowa DOT. The Contractor must return any and all data collected, maintained, created or used in the course of the performance of the Contract in whatever form it is maintained promptly at the request of the Iowa DOT. The Contractor may be held civilly or criminally liable for improper disclosure of confidential information.

6.19.3 In the event that a subpoena or other legal process is served upon the Contractor for records containing confidential information, the Contractor shall promptly notify the Iowa DOT and cooperate with the Iowa DOT in any lawful effort to protect the confidential information.

6.19.4 The Contractor shall immediately report to the Iowa DOT any unauthorized disclosure of confidential information.

6.19.5 The Contractor's obligations under this section shall survive termination or expiration of this Contract.

6.20 Contractor Warranties

Construction of Warranties Expressed in this Contract with Warranties Implied by Law. All warranties made by the Contractor in all provisions of this Contract and the Response by the Contractor, whether or not this Contract specifically denominates the Contractor's promise as a warranty or whether the warranty is created only by the Contractor's affirmation or promise, or is created by a description of the materials and services to be provided, or by provision of samples to the Iowa DOT shall not be construed as limiting or negating any warranty provided by law, including without limitation, warranties which arise through course of dealing or usage of trade. The warranties expressed in this Contract are intended to modify the warranties implied by law only to the extent that they expand the warranties applicable to the goods and services provided by the Contractor.

The Contractor warrants that all the concepts, materials produced, the work product and the information, data, designs, processes, inventions, techniques, devices, and other such intellectual property furnished, used, or relied upon by the Contractor or the Iowa DOT will not infringe any copyright, patent, trademark, trade dress, or other intellectual property right of the Contractor or others. Any intellectual property provided to the Iowa DOT pursuant to the terms of this Contract, shall be wholly original with the Contractor or the Contractor has secured all applicable interests, rights, licenses, permits, or other intellectual property rights in such concepts, materials and work.

The Contractor represents and warrants that the concepts, materials and the Iowa DOT's use of same and the exercise by the Iowa DOT of the rights granted by this Contract shall not infringe upon any other work, other than material provided by the Iowa DOT to the Contractor to be used as a basis for such materials, or violate the rights of publicity or privacy of, or constitute a libel or slander against, any person, firm or corporation and that the concepts, materials and works will not infringe upon the copyright, trademark, trade name, literary, dramatic, statutory, common law or any other rights of any person, firm or corporation or other entity.

The Contractor warrants that all of the services to be performed hereunder will be rendered using sound, professional practices and in a competent and professional manner by knowledgeable, trained and qualified personnel. The Contractor warrants that the deliverables under this Contract will operate in conformance with the terms and conditions of this Contract.

The Contractor warrants that it has full authority to enter into this Contract and that it has not granted and will not grant any right or interest to any person or entity, which might derogate, encumber, or interfere with the rights granted to the Iowa DOT.

The Contractor warrants that all obligations owed to third parties with respect to the activities contemplated to be undertaken by the Contractor pursuant to this Contract are or will be fully satisfied by the Contractor so that the Iowa DOT will not have any obligations with respect thereto.

The Contractor warrants that it is the owner of or otherwise has the right to use and distribute the software, the materials owned by the Contractor and any other materials, and methodologies used in connection with providing the services contemplated by this Contract.

The Contractor warrants that any software used in connection with the Internet Service shall not contain any Trojan horses, worms, viruses or other disabling devices.

The Contractor expressly warrants to the standards in the industry all aspects of the goods and services provided by it or used by the Contractor and the Iowa DOT in performance of this Contract.

Contractor warrants that during the term of this Contract and any extension or renewal term, the Contractor shall continually use and integrate the most current and up-to-date technology commercially available into the Internet Service and any components necessary for the Internet Service to function subject to the prior written approval of the Iowa DOT.

Attachment # 1 – Certification Letter
Alterations to this document are prohibited (see Section 2.13.14)

Note: Effective Date follows signature of last page

Ms. Renee R. Shirley, Director of Purchasing
Iowa Department of Transportation
Office of Finance
Purchasing Section
800 Lincoln Way
Ames, Iowa 50010

Re: PROPOSAL CERTIFICATIONS

Dear Ms. Shirley:

I certify that the contents of the Response submitted on behalf of authorized Vendor/Contractor Company name designated in response to Iowa Department of Transportation's Request for Proposal (RFP) designated on the cover page and specified following the signature line of this document are true and accurate. I also certify I have not knowingly made any false statements in its Response as the representative for the Vendor/Contractor.

Certification of Independence

I certify that I am a representative of the Contractor expressly authorized to make the following certifications on behalf of the Contractor. By submitting a Response to the RFP, I certify on behalf of the Contractor the following:

1. The Response has been developed independently, without consultation communication or agreement with any employee or consultant to the Iowa DOT or any Participating Agency, or with any person serving as a member of the evaluation committee.
2. The Response has been developed independently, without consultation, communication or agreement with any other contractor or parties for the purpose of restricting competition.
3. Unless otherwise required by law, the information found in the Response has not been and will not be knowingly disclosed directly or indirectly prior to the Iowa DOT's issuance of the Notice of Intent to Award the contract.
4. No attempt has been made or will be made by the Contractor to induce any other Contractor to submit or not to submit a Response for the purpose of restricting competition.
5. No relationship exists or will exist during the contract period between the Contractor and the Iowa DOT or any Participating Agencies that interferes with fair competition or constitutes a conflict of interest.

Certification Regarding Debarment

6. I certify that, to the best of my knowledge, neither Contractor nor any of its principals: (a) are presently or have been debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by a Federal Agency or State Agency; (b) have within a three year period preceding this Response been convicted of, or had a civil judgment rendered against them for commission of fraud, a criminal offense in connection with obtaining, attempting to obtain, performing a public (federal, state, or local) transaction or contract under a public transaction, violation of antitrust statutes commission of embezzlement, theft, forgery, falsification or destruction of records, making false statements, or receiving stolen property; (c) are presently indicted for, or criminally or civilly charged by a government entity (federal, state, or local) with the commission of any of the offenses enumerated in (b) of this certification; and (d) have not within a three year period preceding this RFP had one or more public transactions (federal, state, or local) terminated for cause. This certification is a material representation of fact

upon which the Iowa DOT has relied upon when this transaction was entered into. If it is later determined that the Contractor knowingly rendered an erroneous certification, in addition to other remedies available, the Iowa DOT may pursue available remedies including suspension, debarment, or termination of the contract.

Certification Regarding Registration, Collection, and Remission of Sales and Use Tax

7. Pursuant to Iowa Code Sections 423.2(10) and 423.5(8) (2009) a retailer in Iowa or a retailer maintaining a business in Iowa that enters into a contract with a state agency must register, collect, and remit Iowa sales tax and Iowa use tax levied under Iowa Code chapter 423 on all sales of tangible personal property and enumerated services. Contractors are required to certify their compliance with sales tax registration, collection, and remission requirements and provides potential consequences if the certification is false or fraudulent.

By submitting a Response to the RFP, the Contractor certifies the following: (check the applicable box)

Contractor is registered with the Iowa Department of Revenue, collects, and remits Iowa sales and use taxes as required by Iowa Code chapter 432; or

Contractor is not a “retailer” or a “retailer maintaining a place of business in this state” as those terms are defined in Iowa Code subsections 423.1(42) and (43).

Contractor also acknowledges that the Iowa Department of Transportation may declare the Contractor’s Response or resulting contract void if the above certification is false. The Contractor also understands that fraudulent certification may result in the Iowa Department of Transportation or its representative filing for damages for breach of contract in addition to other remedies available to Iowa Department of Transportation.

Sincerely,

[Signature of authorized representative]

[Print Name and Title]

[Printed Name of Contractor Organization]

[Date]

Request for Proposal Number: _____

Attachment #2 – Authorization to Release Information Letter

Alterations to this document are prohibited (see Section 2.13.14)

Note: Effective Date follows signature of last page

Ms. Renee R. Shirley, Director of Purchasing
Iowa Department of Transportation
Office of Finance
Purchasing Section
800 Lincoln Way
Ames, Iowa 50010

Re: AUTHORIZATION TO RELEASE INFORMATION

Dear Ms. Shirley:

I certify that I am an authorized representative of the Vendor/Contractor and hereby authorize the Iowa Department of Transportation or a member of the Evaluation Committee to obtain information regarding its performance on other contracts, agreements or other business arrangements, its business reputation, and any other matter pertinent to evaluation and the selection of a successful Contractor in response to Request for Proposal Number (RFP) designated on the cover page and specified following the signature line of this document.

The Contractor acknowledges that it may not agree with the information and opinions given by such person or entity in response to a reference request. The Contractor acknowledges that the information and opinions given by such person or entity may hurt its chances to receive contract awards from the State or may otherwise hurt its reputation or operations. The Contractor is willing to take that risk. The Contractor hereby releases, acquits and forever discharges the State of Iowa, the Iowa DOT, Participating Agencies, their officers, directors, employees and agents from any and all liability whatsoever, including all claims, demands and causes of action of every nature and kind affecting the undersigned that it may have or ever claim to have relating to information, data, opinions, and references obtained by the Iowa DOT or the Evaluation Committee in the evaluation and selection of a successful Contractor in response to the RFP.

The Contractor authorizes representatives of the Iowa DOT or the Evaluation Committee to contact any and all of the persons, entities, and references which are, directly or indirectly, listed, submitted, or referenced in the Contractor's Response to the RFP.

The Contractor further authorizes any and all persons, entities to provide information, data, and opinions with regard to its performance under any contract, agreement, or other business arrangement, its ability to perform, business reputation, and any other matter pertinent to the evaluation of the Contractor's Response. The Contractor hereby releases, acquits and forever discharges any such person or entity and their officers, directors, employees and agents from any and all liability whatsoever, including all claims, demands and causes of action of every nature and kind affecting the Contractor that it may have or ever claim to have relating to information, data, opinions, and references supplied to the Iowa DOT or the Evaluation Committee in the evaluation and selection of a successful contractor in response to the RFP.

A photocopy or facsimile of this signed Authorization is as valid as an original.

Sincerely,

[Signature of authorized representative]

[Print Name and Title]

[Printed Name of Contractor Organization]

[Date]

Request for Proposal Number: _____

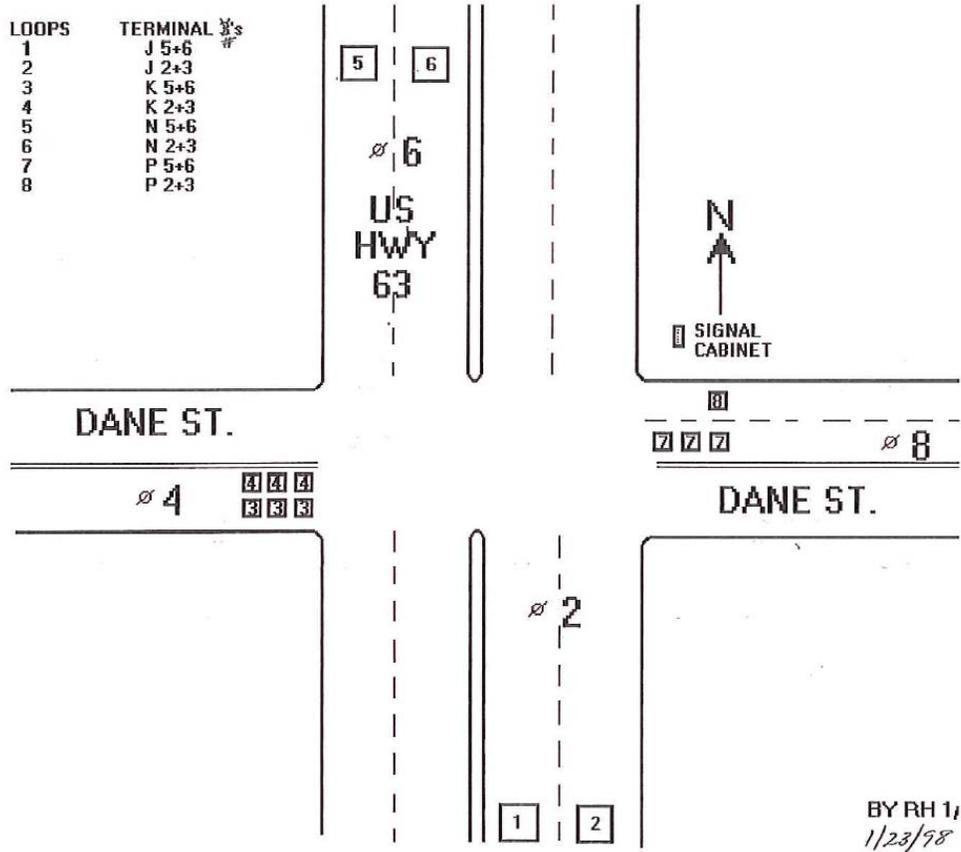
Attachment # 3 Requirements Check List

Section	RFP REFERENCE	PAGE NUMBER IN RESPONDER'S RESPONSE
Cover	Response Sheet	
4.3	Schedule of Prices -Cost Proposal	<i>In separate sealed envelope</i>
2.3/2.6	Vendor signed Addenda <i>if issued</i> . Posted on internet website: http://www.iowadot.gov/purchasing	
3	Mandatory/Desired Requirements	
4.1.3	One (1) Original hard copy (marked), and 1 Removable Media and the number of copies as specified (Procurement Timetable)	
4.1.4	One (1) Public Copy with Confidential Information Excised – If Applicable	
4.2.1	Transmittal Letter	
4.2.5	Company Background Information	
4.2.5.10	Sub-Contractors	
4.2.6	Experience – Including 3 References	
4.2.7	Personnel	
4.2.9	Termination, Litigation, Debarment	
4.2.10	Certification Letter (Attachment 1)	
4.2.11	Acceptance of Terms and Conditions	
4.2.12	Authorization to Release Information (Attachment 2)	
4.2.14	Work Plan	

This page is supplied as a checklist and is not intended to be used as an all-inclusive Response requirement.

Appendix A
Existing Signal Phasing and Controller Configuration

1. US 63 and Dane Street



Lane Configuration

- One (1) through eastbound approach lane.
- Two (2) westbound approach lanes: two (2) through.
- Two (2) northbound approach lanes: two (2) through.
- Two (2) southbound approach lanes: two (2) through.

Operations

- Existing eight (8) phase operation.
- Permitted left turn movements on all approaches.
- Pedestrian signal heads on all four (4) legs.
- Pedestrian pushbuttons to cross both US 63 and Dane St.

Detection

- Stop bar loops eastbound lanes.
- Stop bar loops in westbound lanes.
- Advance detection in northbound lanes.
- Advance detection in southbound lanes.

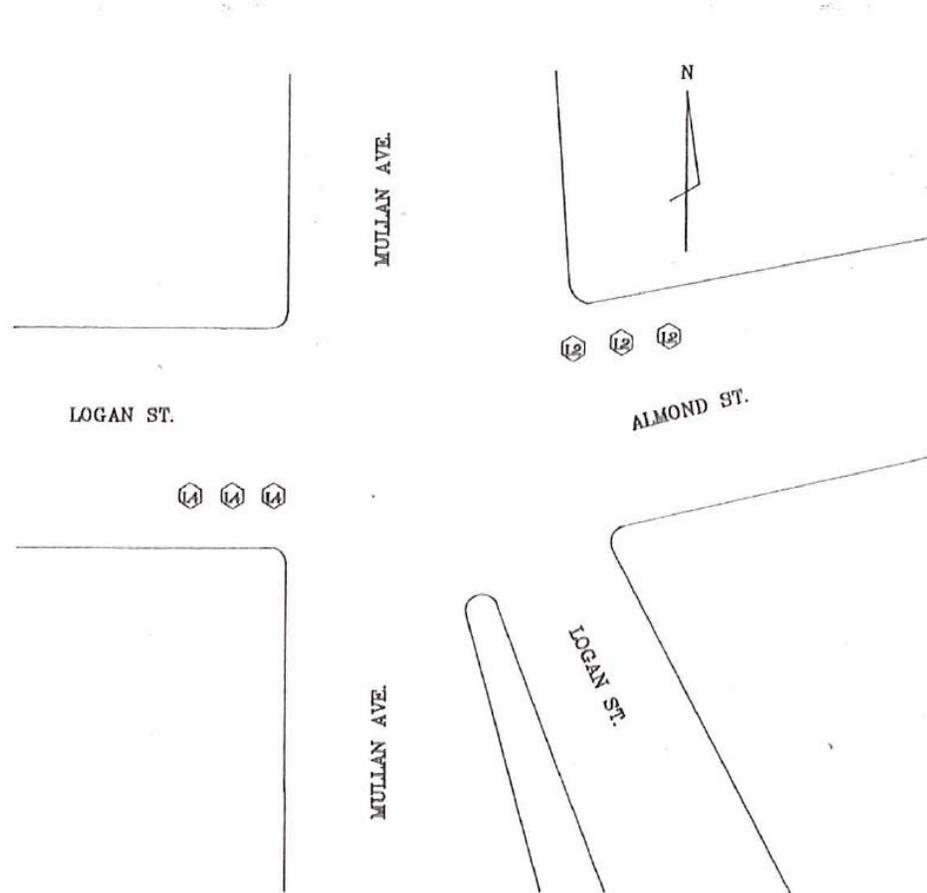
Emergency Vehicle Preemption (EVP)

- Intersection is equipped with EVP Systems

Constraints

- Limited vehicle detection present
 - ASCT System vendor shall provide recommended detection zone configuration to meet the systems needs as well as additional detection that may be required.
- As the intersection is equipped with EVP systems, the ASCT System shall be able to accept and accommodate preemption calls from this system.

2. US 63 & Logan Avenue/Almond Street



Lane Configuration

- One (1) eastbound approach lane.
- One (1) westbound approach lane.
- Two (2) northbound approach lanes.
- Two (2) southbound approach lanes.

Operations

- Existing two (2) phase operation.
- Permitted left turn movements in all four directions.
- Pedestrian signal heads on north and south leg.
- Pedestrian pushbuttons to cross US 63, No pedestrian push button to cross Almond St. and Logan Avenue.

Detection

- Video detection in the eastbound lanes.
- Hexagonal small area detection loops are in the westbound lanes.
- Hexagonal small area detection loops are in the northbound lanes.

Emergency Vehicle Preemption (EVP)

- Intersection is equipped with EVP Systems
 - North and South directions.

Constraints

- ASCT System vendor shall provide recommended detection zone configuration to meet the systems needs as well as additional detection that may be required.
- Intersection is equipped with EVP System, the ASCT System shall be able to accept and accommodate preemption calls from this system.

E Mullan Ave./ Franklin St. Lane Configuration

- Four (4) westbound approach lanes: three (3) through and one (1) left.
- Three (3) northbound lanes: two (2) through and one (1) left.
- Two (2) southbound approach lanes: two (2) through.

Franklin St. /E 1st St.(west) Lane Configuration

- Two (2) eastbound approach lanes: two (2) through.
- Two (2) northbound approach lanes: two (2) through.
- Two (2) southbound approach lanes: two (2) through.

Franklin St. / E 1st St. (east) Lane Configuration

- Two (2) eastbound approach lanes: one (1) left and one (1) right.
- Two (2) northbound approach lanes: two (2) through.
- Two (2) southbound approach lanes: two (2) through.

Operations

- Existing three (3) single and two (2) overlap phase operation.
- Overlap phase A, consisting of phase 1 and phase 3, starts from north of E. 1st St.(W).
- Overlap phase B, consisting of phase 1 and phase 2, starts from south of E. Mullan Avenue.
- Queue forms for the Franklin to E. Mullan Avenue WB left turn movement.
- Pedestrian crossing and signal heads on all the legs at E. Mullan Ave./Franklin St. intersection.
- Pedestrian pushbuttons to cross E. Mullan Avenue at E. Mullan Ave./Franklin St. intersection. No pedestrian push button to cross Franklin St.
- Pedestrian crossing and signal heads on the east and west legs at E. 1st St. (W)/Franklin St. intersection.

Detection

E Mullan Ave./ Franklin St. Detection

- Advance detection in all four (4) approach lanes of the E. Mullan Ave.
- Advance detection in the two (2) southbound lanes of Franklin St.
- No detection in northbound through lanes.

Franklin St. /E 1st St.(west) Detection

- Advance detection in the two (2) approach lanes of the E. 1st St. (west).
- Stopbar detection in northbound through lanes.
- Stopbar detection in southbound through lanes.

Franklin St. / E 1st St. (east) Detection

- Stopbar detection in northbound through lanes.
- Stop bar detection in southbound through lanes.
- Stopbar detection in eastbound through lanes.
- Stop bar detection in westbound through lanes.

Emergency Vehicle Preemption (EVP)

- Intersection is equipped with EVP System on E. Mullan Ave at E. Mullan Ave./Franklin St.
 - Westbound direction

- The Franklin St. /E 1st St. (west) intersection is equipped with EVP System
 - Northbound and eastbound direction.

Constraints

- ASCT System vendor shall provide recommended detection zone configuration to meet the systems needs as well as additional detection that may be required.
- Intersections are equipped with EVP Systems, the ASCT System shall be able to accept and accommodate preemption calls from this system.

4. US 63 / E. 1st Street and Lafayette Street



Lane Configuration

- Three (3) eastbound one-way through lanes.
- Two (2) northbound through lanes.
- One (1) southbound through lane.

Operations

- Existing two (2) phase operation.
- Permitted left turn movements from southbound Lafayette St. and from E. 1st St.
- Pedestrian signal heads on all four (4) legs.

Detection

- No detection in any of the approach lanes.

Emergency Vehicle Preemption (EVP)

- Intersection is not equipped with EVP System.

Constraints

- No vehicle detection
 - ASCT System vendor shall provide recommended detection zone configuration to meet the systems needs as well as additional detection that may be required.

5. US 63/W. Mullan Avenue & W. Commercial Street



Lane Configuration

- Four (4) westbound one-way through lanes.
- Three (3) northbound approach lanes: two (2) through and one (1) left.
- One (1) southbound through lane.

Operations

- Existing eight (8) phase operation.
- Protected left turn movement from northbound Commercial St. to W. Mullan Avenue.
- Pedestrian signal heads on all four (4) legs.
- No pedestrian pushbutton.
- Queue forms for the Commercial St. to W. Mullan Avenue WB left turn movement.

Detection

- No detection in any of the approach lanes.

Emergency Vehicle Preemption (EVP)

- Intersection is equipped with an EVP System
 - Westbound direction.

Constraints

- ASCT System vendor shall provide recommended detection zone configuration to meet the systems needs as well as additional detection that may be required.
- Intersection is equipped with an EVP System, the ASCT System shall be able to accept and accommodate preemption calls from this system.

6. US 63/W. Mullan Avenue and Jefferson Street



Lane Configuration

- Four (4) westbound through lanes.
- Two (2) northbound approach lanes: one left (1) and one (1) through.
- One (1) southbound through lane.

Operations

- Existing eight (8) phase operation.
- Protected left turn movement from NB Jefferson St. to WB W. Mullan Avenue.
- Pedestrian signal heads on all legs.

Detection

- No detection in any of the approach lanes.

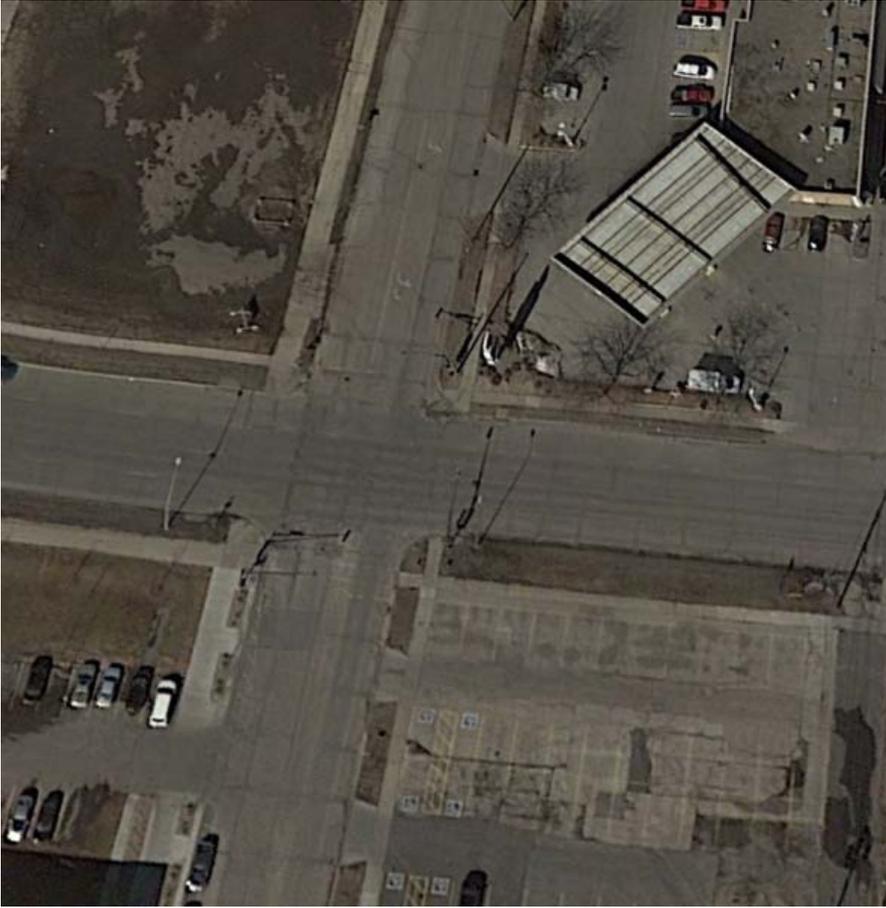
Emergency Vehicle Preemption (EVP)

- Intersection is equipped with an EVP System
 - Westbound direction.

Constraints

- ASCT System vendor shall provide recommended detection zone configuration to meet the systems needs as well as additional detection that may be required.
- Intersection is equipped with an EVP System, the ASCT System shall be able to accept and accommodate preemption calls from this system.

7. US 63/W. 1st Street and Jefferson Street



Lane Configuration

- Four (4) eastbound through lanes.
- One (1) northbound through lane.
- Three (3) southbound approach lanes: one (1) left and two (2) through.

Operations

- Existing eight (8) phase operation.
- Pedestrian signal heads on all legs.
- Protected left turn movement from SB Jefferson St. to EB W. 1st Street.

Detection

- No detection in any of the approach lanes.

Emergency Vehicle Preemption (EVP)

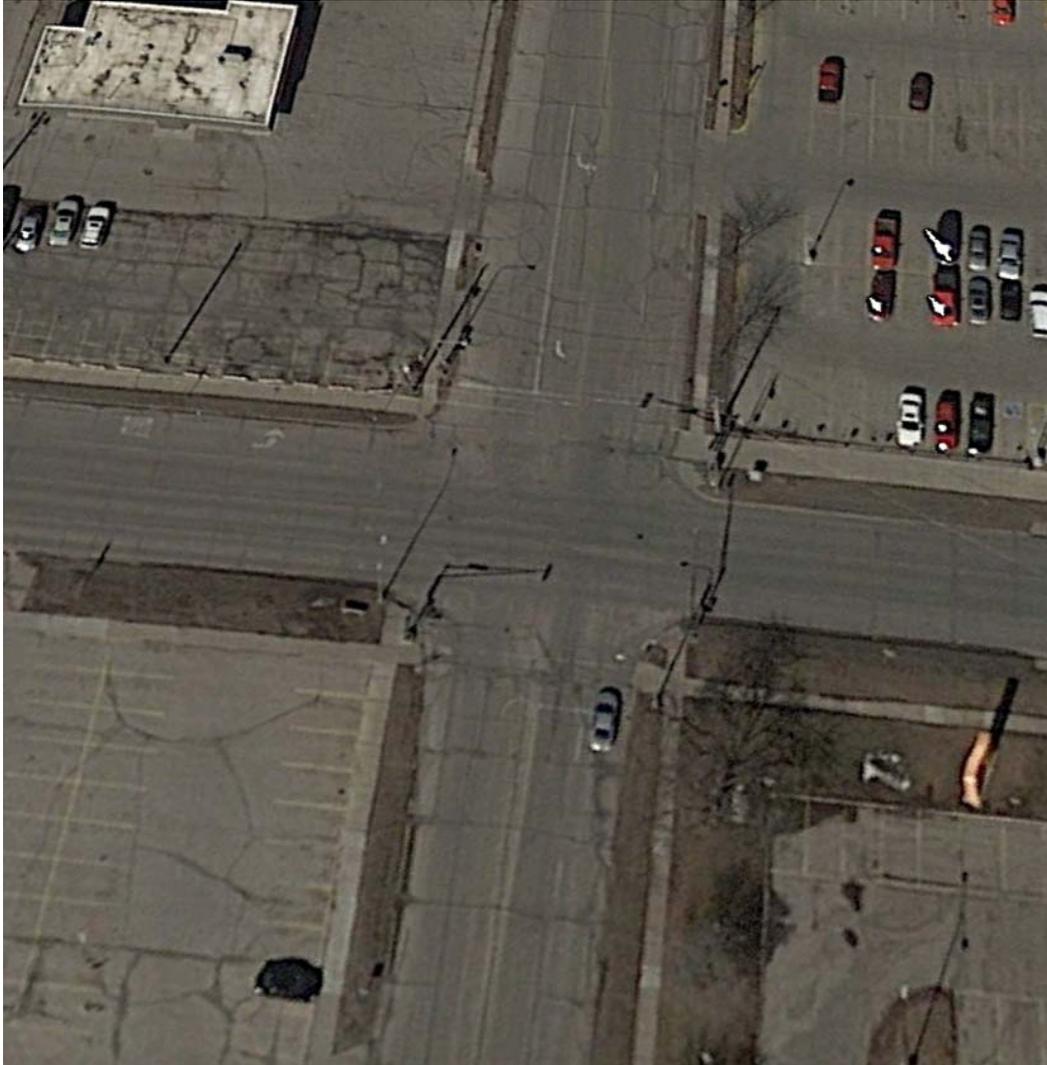
- Intersection is equipped with an EVP System
 - Eastbound direction.

Constraints

- ASCT System vendor shall provide recommended detection zone configuration to meet the systems needs as well as additional detection that may be required.

- Intersection is equipped with an EVP System, the ASCT System shall be able to accept and accommodate preemption calls from this system

8. US 63/ W. 1st Street and W. Commercial Street



Lane Configuration

- Four (4) eastbound approach lanes: one (1) left and three (3) through.
- Two northbound through approach lanes.
- Two southbound approach lanes: one (1) left and one (1) through.

Operations

- Existing two (2) phase operation.
- Pedestrian signal heads on all legs.
- Permitted left turn movement from SB Commercial St. to EB W. 1st Street.

Detection

- No detection in any of the approach lanes.

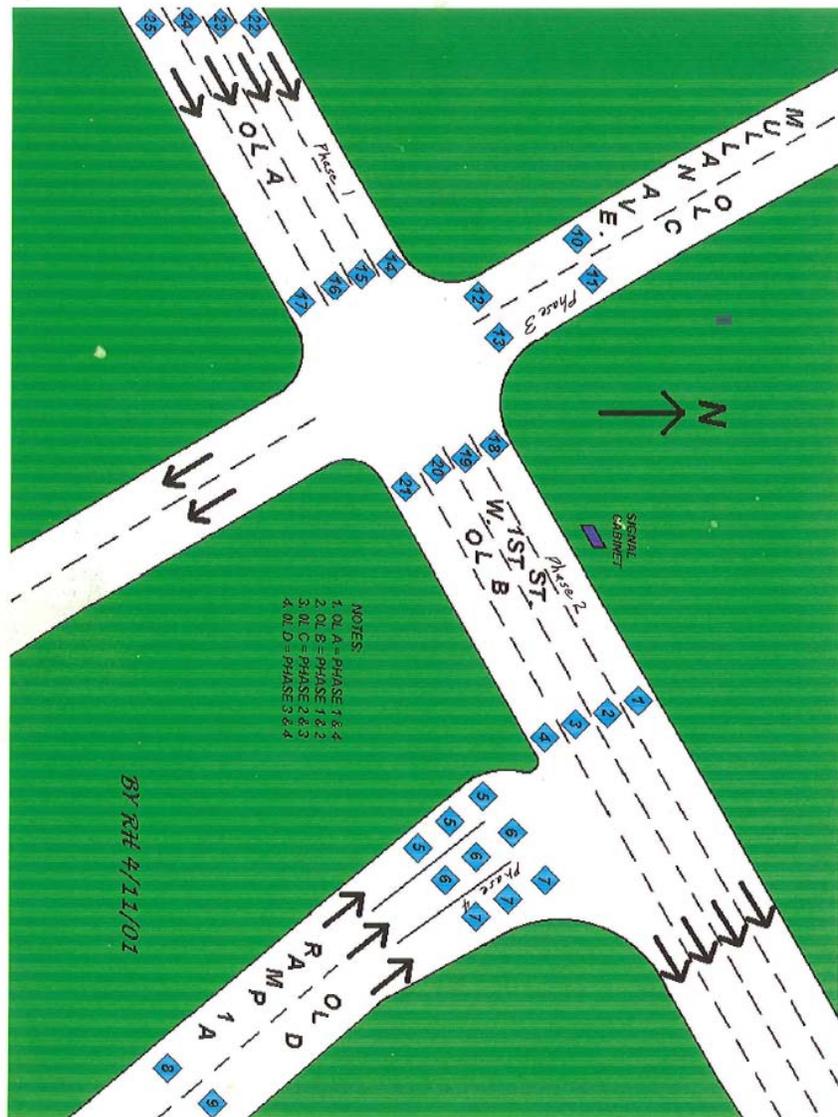
Emergency Vehicle Preemption (EVP)

- Intersection is equipped with EVP System
 - Eastbound direction.

Constraints

- ASCT System vendor shall provide recommended detection zone configuration to meet the systems needs as well as additional detection that may be required.
- Intersection is equipped with an EVP System, the ASCT System shall be able to accept and accommodate preemption calls from this system

9. Highway 218 Intersection (Mixmaster and WB off-ramp)



Traffic Signal controls US 218 intersection (Mixmaster and WB off-ramp) which is the intersection of W. 1st. St, W. Mullan Avenue & University Avenue (WB off-ramp). The controller also controls the traffic signal of the W. 1st St., University Avenue and old ramp 1A. This project includes the US 218 intersection (Mixmaster and WB off-ramp).

Lane Configuration

- Four (4) eastbound approach lanes: four (4) through.
- Two (2) southbound approach lanes: two (2) through.

Operations

- Four (4) existing single and four (4) overlap phases to control the signals at these two (2) intersections.
- Pedestrian signal heads on the east (W. 1st St.) and south leg (W. Mullan Ave).
- Pedestrian pushbuttons to cross W. 1st St. (east leg) and W. Mullan Ave (south leg).

Detection

- Stop-bar detection on the eastbound through lanes.
- Stop-bar and advance detection on southbound through lanes.

Emergency Vehicle Preemption (EVP)

- Intersection is equipped with EVP System
 - Eastbound direction

Constraints

- Vehicle detection is limited.
 - ASCT System vendor shall provide recommended detection zone configuration to meet the systems needs as well as additional detection that may be required.
- Intersection is equipped with an EVP System, the ASCT System shall be able to accept and accommodate preemption calls from this system.

City of Waterloo
Appendix B - Requirements with Verification Methods

Con Ops Reference Number	ConOps Statement: US Highway 63 (US 218 to Dane St.), US Highway 218 (San Marnan to W 9th St.) and San Marnan Drive (Hammond Avenue to US 218)	Requirements Reference Number	Requirement Statement	Mandatory vs Secondary		Verification Method Number	Verification Method
4.1	4.1 Adaptive Strategies						
4.1.0-1.0-1	· Maximize the throughput on coordinated routes	2.2.0-4	(Sequence-based only) The ASCT shall calculate offsets to suit the current coordination strategy for the user-specified reference point for each signal controller along a coordinated route within a group.	M			Demonstration of Software
		2.2.0-4.0-1	(Sequence-based only) The ASCT shall apply offsets for the user-specified reference point of each signal controller along a coordinated route.	M			Demonstration of Software
		2.1.1.0-7.0-1	When current measured traffic conditions meet user-specified criteria, the ASCT shall alter the state of the signal controllers, maximizing the throughput of the coordinated route.	M			Demonstration of Software
		2.2.0-5.0-3	(Sequence-based only) The ASCT shall calculate optimum cycle length according to the user-specified coordination strategy.	M			Demonstration of Software
		2.2.0-5	(Sequence-based only) The ASCT shall calculate a cycle length for each cycle based on its optimization objectives (as required elsewhere, e.g., progression, queue management, equitable distribution of green).	M			Demonstration of Software
		2.1.1.0-7	The ASCT shall alter the adaptive operation to achieve required objectives in user-specified conditions. (The required objectives are specified in Needs Statement 4.1.0-1. Responding to this requirement demonstrates how the proposed system allows the user to define the conditions at which the objectives shift and their associated requirements are fulfilled.) (The alteration may be made by adjusting parameters or by directly controlling the state of signal controllers.)	M			Demonstration of Software
		2.2.0-2	(Sequence-based only) The ASCT shall select cycle length based on a time of day schedule.	M			Demonstration of Software
		2.2.0-5.0-1	(Sequence-based only) The ASCT shall limit cycle lengths to user-specified values.	M			Demonstration of Software
		2.2.0-5.0-2	(Sequence-based only) The ASCT shall limit cycle lengths to a user-specified range.	M			Demonstration of Software
		2.2.0-5.0-4	(Sequence-based only) The ASCT shall limit changes in cycle length to not exceed a user-specified value.		S		Demonstration of Software
		2.2.0-5.0-4.0-1.0-2	(Sequence-based only) The increased limit shall be user-defined.	M			Demonstration of Software
2.1.1.0-10	The ASCT shall determine the order of phases at a user-specified intersection. (The calculation will be based on the optimization function.)	M			Demonstration of Software		
4.1.0-1.0-2	· Provide smooth flow along coordinated routes	2.1.1.0-7.0-4	When current measured traffic conditions meet user-defined criteria, the ASCT shall alter the state of signal controllers providing progression on a coordinated route.	M			Demonstration of Software
4.1.0-1.0-3	· Distribute phase times in an equitable fashion	2.1.1.0-7.0-3	When current measured traffic conditions meet user-specified criteria, the ASCT shall alter the state of signal controllers providing equitable distribution of green times.	M			Demonstration of Software
		2.2.0-3	(Sequence-based only) The ASCT shall calculate phase lengths for all phases at each signal controller to suit the current coordination strategy .	M			Demonstration of Software
		2.4.0-3	The ASCT shall calculate optimum phase lengths, based on current measured traffic conditions. (The calculation is based on the optimization objectives.)	M			Demonstration of Software
		2.1.1.0-8.0-1	The ASCT shall provide a user-specified maximum value for each phase at each signal controller.	M			Demonstration of Software
		2.1.1.0-8.0-1.0-1	The ASCT shall not provide a phase length longer that the maximum value.		S		Demonstration of Software
		2.1.1.0-8.0-2	The ASCT shall provide a user-specified minimum value for each phase at each signal controller.	M			Demonstration of Software

		2.1.1.0-8.0-2.0-1	The ASCT shall not provide a phase length shorter than the minimum value.		S		Demonstration of Software
		2.1.1.0-8	The ASCT shall provide maximum and minimum phase times.	M			Demonstration of Software
		2.4.0-3.0-1	The ASCT shall limit the difference between the length of a given phase and the length of the same phase during its next service to a user-specified value.	M			Demonstration of Software
4.1.0-1.0-4	Manage the lengths of queues	2.1.3.0-2	When queues are detected at user-specified locations, the ASCT shall execute user-specified timing plan/operational mode.	M			Queue Management
		2.1.1.0-7.0-2	When current measured traffic conditions meet user-specified criteria, the ASCT shall alter the state of signal controllers, preventing queues from exceeding the storage capacity at user-specified locations.	M			Queue Management
		2.1.3.0-1	The ASCT shall detect the presence of queues at pre-configured locations.	M			Queue Management
		2.1.3.0-3	When queues are detected at user-specified locations, the ASCT shall execute user-specified adaptive operation strategy.	M			Queue Management
		2.1.3.0-4	When queues are detected at user-specified locations, the ASCT shall omit a user-specified phase at a user-specified signal controller.	M			Queue Management
		2.1.3.0-5	The ASCT shall meter traffic into user-specified bottlenecks by storing queues at user-specified locations.	M			Queue Management
		2.1.3.0-6	The ASCT shall store queues at user-specified locations.	M			Queue Management
4.1.0-1.0-5	Manage the locations of queues within the network		Series of repeated requirements.				
		2.1.3.0-8	When queues are detected at user-specified locations, the ASCT shall limit the cycle length of the group to a user-specified value.	M			Queue Management
4.1.0-3	The system operator needs to change the operational strategy (for example, from smooth flow to maximizing throughput or managing queues) based on changing traffic conditions.		Series of repeated requirements.				
4.1.0-4	The system operator needs to detect repeated phase failures and control signal timing to prevent phase failures building up queues. The operator in this case is trying to prevent a routine queue from forming where it will block another movement in the cycle unnecessarily. For example, the operator may need to prevent a queue resulting from the trailing end of the through green from blocking the storage needed by an entering side-street left turn in the subsequent phase. An overall queue management strategy, particularly when congestion is		Series of repeated requirements.				
		2.1.1.0-9	The ASCT shall detect repeated phases that do not serve all waiting vehicles. (These phase failures may be inferred, such as by detecting repeated max-out.)	M			Demonstration of Software
		2.1.1.0-9.0-1	The ASCT shall alter operations, to minimize repeated phase failures.	M			Demonstration of Software
4.1.0-5	The system operator needs to minimize the chance that a queue forms at a specified location.	2.2.0-5.0-5	(Sequence-based only) The ASCT shall adjust offsets to minimize the chance of stopping vehicles approaching a signal that have been served by a user-specified phase at an upstream signal.	M			Demonstration of Software
4.1.0-6	The system operator needs to modify the sequence of phases to support the various operational strategies.	7.0-6	The ASCT shall provide a minimum of 8 different user-defined phase sequences for each signal.	M			Demonstration of Software
		7.0-6.0-1	Each permissible phase sequence shall be user-assignable to any signal timing plan.	M			Demonstration of Software
		7.0-6.0-2	Each permissible phase sequence shall be executable by a time of day schedule.	M			Demonstration of Software
		7.0-6.0-3	Each permissible phase sequence shall be executable based on measured traffic conditions.	M			Demonstration of Software
		7.0-7	The ASCT shall not prevent a phase/overlap output by time-of-day.	M			Demonstration of Software
		7.0-8	The ASCT shall not prevent a phase/overlap output based on an external input.	M			Demonstration of Software
		7.0-9	The ASCT shall not prevent any phase to be designated as coordinated phases.	M			Demonstration of Software

4.1.0-7	The system operator needs fixed the sequence of phases at any specified location. For example, the operator may need fixed the phase order at the San Marnan Drive and US 218 diamond interchange.	2.1.2.0-12	The ASCT shall not alter the order of phases at a user-specified intersection.	M			Demonstration of Software
4.1.0-8	The system operator needs to designate the coordinated route based on traffic conditions and the selected operational strategy.	2.1.1.0-11	The ASCT shall provide coordination along a route.	M			Demonstration of Software
		2.1.1.0-11.0-1	The ASCT shall coordinate along a user-defined route.	M			Demonstration of Software
		2.1.1.0-11.0-2	The ASCT shall determine the coordinated route based on traffic conditions.	M			Demonstration of Software
		2.1.1.0-11.0-3	The ASCT shall determine the coordinated route based on a user-defined schedule.	M			Demonstration of Software
		2.1.1.0-11.0-4	The ASCT shall store a number of user-defined coordination routes.	M			Demonstration of Software
		2.1.1.0-11.0-4.0-1	The ASCT shall implement a stored coordinated route by operator command.	M			Demonstration of Software
		2.1.1.0-11.0-4.0-2	The ASCT shall implement a stored coordinated route based on traffic conditions.	M			Demonstration of Software
2.1.1.0-11.0-4.0-3	The ASCT shall implement a stored coordinated route based on a user-defined schedule.	M			Demonstration of Software		
4.1.0-9	The system operator needs to set signal timing parameters (such as minimum green, maximum green and extension time) to comply with the City of Waterloo policies.	2.1.1.0-12	The ASCT shall not prevent the use of phase timings in the local controller set by agency policy.	M			Demonstration of Software
4.2	4.2 Network characteristics						
4.2.0-1	The system operator needs to eventually adaptively control up to 100 signals from the Traffic Operations Center (TOC).	1.0-1	The ASCT shall control a minimum of 2 signals concurrently.	M			Demonstration of Software
4.2.0-2	The system operator needs to be able to adaptively control up to four (4) independent groups of signals.	1.0-2	The ASCT shall support groups of signals.	M			Demonstration of Software
		1.0-2.0-2	The ASCT shall control a minimum of 4 groups of signals.	M			Demonstration of Software
		1.0-2.0-4	Each group shall operate independently.	M			Demonstration of Software
		1.0-2.0-1	The boundaries surrounding signal controllers that operate in a coordinated fashion shall be defined by the user.	M			Demonstration of Software
4.2.0-3	The system operator needs to vary the number of signals in an adaptively controlled group to accommodate the prevailing traffic conditions.		Series of repeated requirements.				
		1.0-2.0-3	The size of a group shall range from 1 to 10 signals.	M			Demonstration of Software
		1.0-2.0-5.0-1	The boundaries surrounding signal controllers that operate in a coordinated fashion shall be altered by the system according to a time of day schedule. (For example: this may be achieved by assigning signals to different groups or by combining groups.)	M			Demonstration of Software
		1.0-2.0-5.0-2	The boundaries surrounding signal controllers that operate in a coordinated fashion shall be altered by the system according to traffic conditions. (For example: this may be achieved by assigning signals to different groups or by combining groups.)	M			Demonstration of Software
		1.0-2.0-5	The boundaries surrounding signal controllers that operate in a coordinated fashion shall be altered by the ASCT system according to configured parameters.	M			Demonstration of Software
		1.0-2.0-5.0-3	The boundaries surrounding signal controllers that operate in a coordinated fashion shall be altered by the system when commanded by the user.	M			Demonstration of Software
4.3	4.3 Security						
4.3.0-1	The system operator needs to have a security management and administrative system that allows access and operational privileges to be assigned, monitored and controlled by an administrator, and conform to the agency's access and network infrastructure security policies, which can be obtained from the City of Waterloo Management Information Systems Department.	5.0-1	The ASCT shall be implemented with a security policy that addresses the following selected elements:				
		5.0-1.0-1	· Local access to the ASCT.	M			Demonstration of Software
		5.0-1.0-2	· Remote access to the ASCT.	M			Demonstration of Software
		5.0-1.0-3	· System monitoring.	M			Demonstration of Software
		5.0-1.0-4	· System manual override.	M			Demonstration of Software
		5.0-1.0-5	· Development	M			Demonstration of Software
		5.0-1.0-6	· Operations	M			Demonstration of Software

		5.0-1.0-7	· User login	M			Demonstration of Software
		5.0-1.0-8	· User password	M			Demonstration of Software
		5.0-1.0-9	· Administration of the system	M			Demonstration of Software
		5.0-1.0-10	· Signal controller group access	M			Demonstration of Software
		5.0-1.0-11	· Access to classes of equipment	M			Demonstration of Software
		5.0-1.0-13	· Output activation	M			Demonstration of Software
		5.0-1.0-14	· System parameters	M			Demonstration of Software
		5.0-1.0-15	· Report generation	M			Demonstration of Software
		5.0-1.0-16	· Configuration	M			Demonstration of Software
		5.0-1.0-17	· Security alerts	M			Demonstration of Software
		5.0-1.0-18	· Security logging	M			Demonstration of Software
		5.0-1.0-19	· Security reporting	M			Demonstration of Software
		5.0-1.0-20	· Database	M			Demonstration of Software
		5.0-1.0-21	· Signal controller	M			Demonstration of Software
		5.0-3	The ASCT shall comply with the City of Waterloo Management Information System Department's security policies.	M			Demonstration of Software
4.4	4.4 Queuing interactions						
4.4.0-1	The system operator needs to detect queues from outside the system and modify the ASCT operation to accommodate the queuing.		Series of repeated requirements.				Queue Management
4.4.0-2	The system operator needs to detect queues within the system's boundaries and modify the ASCT operation to accommodate the queuing.		Series of repeated requirements.				Queue Management
4.4.0-3	The system operator needs to detect queues propagating outside its boundaries from within the ASCT boundaries, and modify its operation to accommodate the queuing.		Series of repeated requirements.				Queue Management
4.4.0-4	The system operator needs to store queues in locations where they can be accommodated without adversely		Series of repeated requirements.				Queue Management
4.4.0-5	The system operator needs to prevent queues forming at user-specified locations.	2.1.3.0-7	The ASCT shall maintain capacity flow through user-specified bottlenecks.	M			Demonstration of Software
4.5	4.5 Pedestrians						
4.5.0-1	The system operator needs to accommodate infrequent pedestrian operation and then adaptively recover. (This is appropriate for rare pedestrian calls.)	8.0-3	When a pedestrian phase is called, the ASCT shall accommodate pedestrian crossing times then resume adaptive operation.	M			Demonstration of Software
4.5.0-2	The system operator needs to accommodate infrequent pedestrian operation while maintaining adaptive operation. (This is appropriate for pedestrian calls that are common but not so frequent that they drive the operational needs.)	8.0-2	When a pedestrian phase is called, the ASCT shall accommodate pedestrian crossing times during adaptive operations.	M			Demonstration of Software
4.5.0-3	The system operator needs to incorporate frequent pedestrian operation into routine adaptive operation. (This is appropriate when pedestrians are frequent enough that they must be assumed to be present every cycle or nearly every cycle.)		Repeated requirement.				Demonstration of Software
		8.0-5	The ASCT shall execute pedestrian recall on user-defined phases in accordance with a time of day schedule.		S		Demonstration of Software
		8.0-7	When specified by the user, the ASCT shall execute pedestrian recall on pedestrian phase adjacent to coordinated phases.	M			Demonstration of Software
		8.0-8	When the pedestrian phases are on recall, the ASCT shall accommodate pedestrian timing during adaptive operation.	M			Demonstration of Software

4.5.0-5	The system operator needs to accommodate exclusive pedestrian phases.	8.0-4	The ASCT shall execute user-specified exclusive pedestrian phases during adaptive operation.	M			Demonstration of Software
4.6	4.6 Non-adaptive situations						
4.6.0-1	The system operator needs to detect traffic conditions during which adaptive control is not the preferred operation, and implement some pre-defined operation while that condition is present.	2.1.1.0-1	The ASCT shall operate non-adaptively during the presence of a defined condition.	M			Demonstration of Software
4.6.0-2	The system operator needs to schedule pre-determined operation by time of day.	2.1.1.0-5	The ASCT shall operate non-adaptively in accordance with a user-defined time-of-day schedule.	M			Demonstration of Software
4.6.0-3	The system operator needs to over-ride adaptive operation.	2.1.1.0-3	The ASCT shall operate non-adaptively when a user manually commands the ASCT to cease adaptively controlling a group of signals.	M			Demonstration of Software
		2.1.1.0-4	The ASCT shall operate non-adaptively when a user manually commands the ASCT to cease adaptive operation.	M			Demonstration of Software
4.7	4.7 System responsiveness						
4.7.0-1	The system operator needs to modify the ASCT operation to closely follow changes in traffic conditions.	2.6.0-1	The ASCT shall limit the change in consecutive cycle lengths to be less than a user-specified value.	M			Demonstration of Software
		2.6.0-2	The ASCT shall limit the change in phase times between consecutive cycles to be less than a user-specified value. (This does not apply to early gap-out or actuated phase skipping.)	M			Demonstration of Software
		2.6.0-3	The ASCT shall limit the changes in the direction of primary coordination to a user-specified frequency.		S		Demonstration of Software
4.7.0-2	The system operator needs to constrain the selection of cycle lengths to those that provide acceptable operations, such as when traditional non-adaptive progression solutions are desired.		Repeated requirement.				
		2.6.0-5	The ASCT shall select cycle length from a list of user-defined cycle lengths.	M			Demonstration of Software
4.7.0-3	The system operator needs to respond quickly to sudden large shifts in traffic conditions.	2.6.0-4	When a large change in traffic demand is detected, the ASCT shall respond more quickly than normal operation, subject to user-specified limits. (2 Cycles)		S		Demonstration of Software
4.8	4.8 Complex coordination and controller features						
4.8.0-1	The system operator needs to implement the following advanced controller features while maintaining adaptive operation:		Series of repeated requirements.				
4.8.0-1.0-1	· Service a phase more than once per cycle	7.0-1	When specified by the user, the ASCT shall serve a vehicle phase more than once for each time the coordinated phase is served.	M			Demonstration of Software
4.8.0-1.0-2	· Operate at least 16 overlap phases	7.0-2	The ASCT shall provide a minimum of 16 phase overlaps.	M			Demonstration of Software
4.8.0-1.0-4	· Permit different phase sequences under different traffic conditions		Series of repeated requirements.				
4.8.0-1.0-5	· Allow one or more phases to be omitted (disabled) under certain traffic conditions or signal states.	2.1.2.0-6	The ASCT shall omit a user-specified phase when the cycle length is below a user-specified value.	M			Demonstration of Software
		2.1.2.0-9	The ASCT shall omit a user-specified phase according to a time of day schedule.	M			Demonstration of Software
		2.1.2.0-7	The ASCT shall omit a user-specified phase based on measured traffic conditions.	M			Demonstration of Software
		2.1.2.0-8	The ASCT shall omit a user-specified phase based on the state of a user-specified external input.	M			Demonstration of Software
4.8.0-1.0-6	· Prevent one or more phases being skipped under certain traffic conditions or signal states.	2.1.2.0-5	The ASCT shall prevent skipping a user-specified phase according to a time of day schedule.	M			Demonstration of Software
		2.1.2.0-3	The ASCT shall prevent skipping a user-specified phase when the user-specified phase sequence is operating.	M			Demonstration of Software
		2.1.2.0-4	The ASCT shall prevent skipping a user-specified phase based on the state of a user-specified external input.	M			Demonstration of Software

4.8.0-1.0-7	· Allow detector logic at an intersection to be varied depending on local signal states	7.0-15	The ASCT shall operate adaptively with the following detector logic: · Separate Left-turn Lane set-up · Separate Through Lane · Separate Right-turn Lane · Distance from stop bar · Advance Detection by lane	M			Demonstration of Software
4.8.0-1.0-9	· Allow any phase to be designated as the coordinated phase		Repeated requirement.				
4.8.0-1.0-10	· Allow the operator to specify which phase receives unused time from a preceding phase	2.1.2.0-10	The ASCT shall assign unused time from a preceding phase that terminates early to a user-specified phase as follows: · next phase; · next coordinated phase; · user-specified phase. · Next servicable phase with a call.	M			Demonstration of Software
		2.1.2.0-11	The ASCT shall assign unused time from a preceding phase that is skipped to a user-specified phase as follows: · next phase; · next coordinated phase; · user-specified phase. · Next servicable phase with a call.	M			Demonstration of Software
4.8.0-1.0-11	· Allow the controller to respond independently to individual lanes of an approach. This may be implemented in the signal controller using extension/passage timers or extension features of detectors, which may be assignable to each vehicle detector input channel. This may allow the adaptive operation to be based on data from a specific detector, or by excluding specific detectors.	7.0-12	The ASCT shall not prevent the local signal controller from performing actuated phase control using a user-defined number of extension/passage timers as assigned to user-specified vehicle detector input channels in the local controller.	M			Demonstration of Software
		9.0-1	The ASCT shall set a specific state for each special function output based on the occupancy or pulse activation on a user-specified detector.	M			Demonstration of Software
		7.0-12.0-1	The ASCT shall operate adaptively using user-specified detector channels.	M			Demonstration of Software
4.8.0-1.0-12	· Allow the coordinated phase to terminate early under prescribed traffic conditions	7.0-10	The ASCT shall have the option for a coordinated phase to be released early based on a user-definable point in the phase or cycle. (User select phase or cycle.)	M			Demonstration of Software
4.8.0-1.0-13	· Allow flexible timing of non-coordinated phases (such as late start of a phase) while maintaining coordination	8.0-6	The ASCT shall begin a non-coordinated phase later than its normal starting point within the cycle when all of the following conditions exist: - the user enables this feature, - Sufficient time in the cycle remains to serve the minimum green times for the phase and the subsequent non-coordinated phases before the beginning of the coordinated phase, - The phase is called after its normal start time, - The associated pedestrian phase is not called	M			Demonstration of Software
4.8.0-1.0-14	· Protected/permissive phasing and alternate left turn phase sequences.	2.1.2.0-1	The ASCT shall not prevent protected/permissive left turn phase operation.	M			Review Product Specifications
		2.1.2.0-2	The ASCT shall not prevent the protected left turn phase to lead or lag the opposing through phase based upon user-specified conditions.	M			Review Product Specifications
4.8.0-1.0-15	· Use flashing yellow arrow to control permissive left turns and right turns. (FUTURE)	7.0-11	The ASCT shall not prevent the controller from displaying flashing yellow arrow left turn or right turn.	M			Demonstration of Software
4.8.0-1.0-16	· Service side streets and pedestrian phases at minor locations more often than at adjacent signals when this can be done without compromising the quality of the coordination. (E.g., double-cycle mid-block pedestrian crossing signals.)	7.0-13	When adaptive operation is used in conjunction with normal coordination, the ASCT shall not prevent a controller serving a cycle length different from the cycles used at adjacent intersections.	M			Demonstration of Software
4.8.0-1.0-17	· Use negative pedestrian phasing to prevent an overlap conflicting with a pedestrian walk/don't walk.	8.0-9	The ASCT shall not inhibit negative vehicle and pedestrian phase timing.	M			Demonstration of Software
4.09	4.9 Monitoring and control						

4.9.0-1	The system operator needs to monitor and control all required features of adaptive operation from the following locations:	5.0-2	The ASCT shall provide monitoring and control access at the following locations:				Demonstration of Software
4.9.0-1.0-1	· City of Waterloo TOC	5.0-2.0-1	· 625 Glenwood Street, Waterloo, Iowa 50703.	M			Demonstration of Software
4.9.0-1.0-5	· Local controller cabinets	5.0-2.0-5	· Local controller cabinets	M			Demonstration of Software
4.9.0-1.0-7	· Remote locations via internet	5.0-2.0-7	· Remote locations via internet	M			Demonstration of Software
4.9.0-2	The operator needs access to the database management, monitoring and reporting features and functions of the signal controllers and any related signal management system from the access points defined for those system components.	5.0-4	The ASCT shall not prevent access to the local signal controller database, monitoring or reporting functions by any installed signal management system.	M			Demonstration of Software
		5.0-4.0-1	The ASCT shall not prevent the access to the Controller Local Software (CLS) at the intersections.	M			Demonstration of Software
		5.0-4.0-1a	The ASCT shall not prevent the monitoring of an ASCT controlled intersection with the ATMS software.	M			Demonstration of Software
		5.0-4.0-1b	The ASCT shall not prevent the printing of standard reports from the ATMS software.	M			Demonstration of Software
4.10	4.10 Performance reporting						
4.10.0-2	The system operator needs to store and report data used to calculate signal timing and have the data available for subsequent analysis.	6.0-4	The ASCT shall store results of all signal timing parameter calculations for a minimum of 365 days.	M			Demonstration of Software
		6.0-5	The ASCT shall store the following measured data in the form used as input to the adaptive algorithm for a minimum of 365 days: - volume, - occupancy, - queue length, - spot speed, - phase utilization, - arrivals in green, - green band efficiency	M			Demonstration of Software
		6.0-12	The ASCT shall store the following data in 1 minute increments: - volume, - occupancy, - queue length	M			Demonstration of Software
		18.0-1	The ASCT shall report measures of current traffic conditions on which it bases signal state alterations.	M			Demonstration of Software
		18.0-2	The ASCT shall report all intermediate calculated values that are affected by calibration parameters.		S		Demonstration of Software
		18.0-3	The ASCT shall maintain a log of all signal state alterations directed by the ASCT.	M			Demonstration of Software
4.10.0-3	The system operator needs to store and report data that can be used to measure traffic performance under adaptive control. Some of these measures of effectiveness may include: - route travel time - route average speed - link travel time/average speed - route travel delay - route traffic volume - green bandwidth on the route -		Series of repeated requirements.				
		6.0-12	The ASCT shall store the following data in 1 minute increments: - volume, - occupancy, - queue length	M			Demonstration of Software
4.10.0-4	The system operator needs to be able to store all operational data and signal timing parameters calculated by the Adaptive System and export selected data to the:						
4.10.0-4a	ATMS software	10.0-4a	The system operator shall export operational data and signal timing parameters to the ATMS.		S		Demonstration of Software

4.10.0-6	The system operator needs to be able to report the exact state of signal timing and input data for a specified period, to allow historical analysis of the system operation.	6.0-1	The ASCT shall log the following events:				Demonstration of Software
		6.0-1.0-1	Time-stamped vehicle phase calls		S		Demonstration of Software
		6.0-1.0-2	Time-stamped pedestrian phase calls		S		Demonstration of Software
		6.0-1.0-3	Time-stamped emergency vehicle preemption calls		S		Demonstration of Software
		6.0-1.0-5	Time-stamped railroad preemption calls	M			Demonstration of Software
		6.0-1.0-6	Time-stamped start and end of each phase		S		Demonstration of Software
		6.0-1.0-7	Time-stamped controller interval changes		S		Demonstration of Software
		6.0-1.0-8	Time-stamped start and end of each transition to a new timing plan	M			Demonstration of Software
		6.0-1.0-9	Time-stamped actuations		S		Demonstration of Software
4.10.0-7	Have the ability to generate historic and real-time reports that effectively support operation, maintenance and reporting of system performance and traffic conditions.		Series of repeated requirements.				
		6.0-8	The ASCT shall calculate and report relative data quality including: - The extent data is affected by detector faults, - other applicable items		S		Demonstration of Software
		6.0-9	The ASCT shall report comparisons of logged data when requested by the user: - day to day, - hour to hour, - hour of day to hour of day, - hour of week to hour of week, - day of week to day of week, - day of year to day of year		S		Demonstration of Software
		6.0-11	The ASCT shall report stored data in a form suitable to provide explanations of system behavior to public and politicians and to troubleshoot the system.		S		Demonstration of Software
		18.0-3.0-1	The ASCT log shall include all events directed by the external inputs.	M			Demonstration of Software
		18.0-3.0-2	The ASCT log shall include all external output state changes.	M			Demonstration of Software
		18.0-3.0-3	The ASCT log shall include all actual parameter values that are subject to user-specified values.	M			Demonstration of Software
		18.0-3.0-4	The ASCT shall maintain the records in this ASCT log for a user-specified period.	M			Demonstration of Software
		18.0-3.0-5	The ASCT shall archive the ASCT log in a user-friendly file format/database. (.xls etc.)	M			Demonstration of Software
4.11	4.11 Failure notification						
4.11.0-1	The system operator needs to immediately notify maintenance and operations staff of alarms and alerts.	13.1.0-3	In the event of a detector failure, the ASCT shall issue an alarm to user-specified recipients. (This requirement may be fulfilled by sending the alarm to a designated list of recipients by a designated means, or by using an external maintenance management system.	M			Demonstration of Software
		13.2-2	In the event of communications failure, the ASCT shall issue an alarm to user-specified recipients. (This requirement may be fulfilled by sending the alarm to a designated list of recipients by a designated means, or by using an external maintenance management system.	M			Demonstration of Software
		13.3-2	In the event of adaptive processor failure, the ASCT shall issue an alarm to user-specified recipients. (This requirement may be fulfilled by sending the alarm to a designated list of recipients by a designated means, or by using an external maintenance management system.	M			Demonstration of Software
		13.2-3	The ASCT shall issue an alarm within 5 minutes of detection of a failure.	M			Demonstration of Software
		13.2-3a	The ASCT Operator shall be able to select from a list of alarms /notifications.	M			Demonstration of Software
		4.11.0-3	The system operator needs to maintain a complete log of alarms and failure events.	13.1.0-4	In the event of a failure, the ASCT shall log details of the failure in a permanent log.	M	
		13.1.0-5	The permanent failure log shall be searchable, archivable and exportable.	M			Demonstration of Software
		13.2-4	In the event of a communications failure, the ASCT shall log details of the failure in a permanent log.	M			Demonstration of Software
4.12	4.12 Preemption and priority						

4.12.0-1	The system operator needs to accommodate railroad preemption along US 218 corridor.	11.0-4	The ASCT shall resume adaptive control of signal controllers when preemptions are released.	M			Demonstration of Software
		11.0-5	The ASCT shall execute user-specified actions at non-preempted signal controllers during preemption. (E.g., inhibit a phase, activate a sign, display a message on a DMS).	M			Demonstration of Software
		11.0-6	The ASCT shall operate normally at non-preempted signal controllers when special functions are engaged by a preemption event. (Examples of such special functions are a phase omit, a phase maximum recall or a fire route.)	M			Demonstration of Software
		11.0-7	The ASCT shall release user-specified signal controllers to local control when one signal in a group is preempted.		S		Demonstration of Software
		11.0-8	The ASCT shall not prevent the local signal controller from operating in normally detected limited-service actuated mode during preemption.	M			Demonstration of Software
		11.0-2	The ASCT shall maintain adaptive operation at non-preempted intersections during emergency vehicle preemption.	M			Demonstration of Software
4.12.0-2	The system operator needs to accommodate emergency vehicle preemption along the US 63 corridor.		Series of repeated requirements.				
4.13	4.13 Failure and fallback						
4.13.0-1	The system operator needs to fall back to TOD operation, as specified by the operator, without causing disruption to traffic flow, in the event of equipment, communications and software failure.	13.1.0-1	The ASCT shall take user-specified action in the absence of valid detector data from a user-defined number of vehicle detectors within a group.	M			Demonstration of Software
		13.1.0-1.0-1	The ASCT shall change to time-of-day plan to local controller.	M			Demonstration of Software
		13.1.0-1.0-2	The ASCT shall release control to local operations to operate under its own time-of-day schedule.	M			Demonstration of Software
		13.1.0-2	The ASCT shall use the following alternate data sources for operations in the absence of the real-time data from a detector:				
		13.1.0-2.0-1	· Data from a user-specified alternate detector.	M			Demonstration of Software
		13.1.0-2.0-2	· Stored historical data from the failed detector.	M			Demonstration of Software
		13.1.0-2.0-3	The ASCT shall switch to the alternate source in real time without operator intervention.	M			Demonstration of Software
		13.2-1	The ASCT shall execute user-specified actions when communications to one or more signal controllers fails within a group.	M			Demonstration of Software
		13.2-1.0-1	In the event of loss of communication to a user-specified signal controller, the ASCT shall release control of all signal controllers within a user-specified group to local control.	M			Demonstration of Software
		13.2-1.0-2	The ASCT shall switch to the alternate operation in real time without operator intervention.	M			Demonstration of Software
		13.3-1	The ASCT shall execute user-specified actions when adaptive control fails:	M			Demonstration of Software
		13.3-1.0-1	The ASCT shall release control to the ATMS software.		S		Demonstration of Software
		13.3-1.0-1a	The ASCT shall release control to the TOD based schedule.	M			Demonstration of Software
		2.1.1.0-2	The ASCT shall operate non-adaptively when adaptive control equipment fails.	M			Demonstration of Software
		2.1.1.0-2.0-1	The ASCT shall operate non-adaptively when a user-specified detector fails.	M			Demonstration of Software
		2.1.1.0-2.0-2	The ASCT shall operate non-adaptively when the number of failed detectors connected to a signal controller exceeds a user-defined value.	M			Demonstration of Software
		2.1.1.0-2.0-3	The ASCT shall operate non-adaptively when the number of failed detectors in a group exceeds a user-defined value.	M			Demonstration of Software
		2.1.1.0-2.0-4	The ASCT shall operate non-adaptively when a user-defined communications link fails.	M			Demonstration of Software
13.3-4	During adaptive processor failure, the ASCT shall provide all local detector inputs to the local controller.	M			Demonstration of Software		
4.14	4.14 Constraints						
4.14.0-1	The system operator is constrained to use the following equipment:						
4.14.0-1.0-2	· Detector type – loop, video, radar and embedded magnetometer	14.0-2	The ASCT shall fully satisfy all requirements when integrated with detectors of type: loops, video, radar, embedded magnetometer .	M			Demonstration of Software
		14.0-2.0-1	The ASCT shall utilize existing stopbar and advance detection.		S		Demonstration of Software

		14.0-2.0-2	The ASCT shall not modify or disable existing detection functionality.		S		Demonstration of Software
		14.0-2.0-4	The ASCT shall be compatible with the central ATMS software through NTCIP communication standard to meet the mandatory requirements.	M			Demonstration of Software
4.14.0-1.0-3	· Communication system – fiber optics, twisted pair copper and wireless	14.0-4	The ASCT shall fully satisfy all requirements when implemented with either fiber optics, twisted- pair copper or wireless communication infrasturcture.	M			Shop Drawing Reviews
4.14.0-2	The system operator needs to use equipment and software acceptable under current City of Waterloo Management Information Systems' IT policies and procedures.	14.0-1	The vendor's adaptive software shall be fully operational within the following platform: - Windows-PC, Windows-Server	M			Review Product Specifications
4.15	4.15 Training and support						
4.15.0-1	City of Waterloo needs all staff involved in operation and maintenance to receive appropriate training.	15.0-1	The vendor shall provide the following training.				
		15.0-1.0-1	The vendor shall provide training on the operations of the adaptive system.	M			Review Product Specifications, Review
		15.0-1.0-2	The vendor shall provide training on troubleshooting the system.	M			Review Product Specifications, Review
		15.0-1.0-3	The vendor shall provide training on preventive maintenance and repair of equipment.	M			Review Product Specifications, Review
		15.0-1.0-4	The vendor shall provide training on system configuration.	M			Review Product Specifications, Review
		15.0-1.0-5	The vendor shall provide training on administration of the system.	M			Review Product Specifications, Review
		15.0-1.0-6	The vendor shall provide training on system calibration.	M			Review Product Specifications, Review
		15.0-1.0-7	The vendor's training delivery shall include: printed course materials and references, electronic copies of presentations and references.	M			Review Product Specifications, Review
4.15.0-3	City of Waterloo needs the system to fulfill all requirements for the life of the system. The agency therefore needs the system to remain free of defects in materials and workmanship that result in requirements no longer being fulfilled.	16.0-3	The Vendor shall warrant the system to be free of defects in materials and workmanship for a period of at least 2 years. Warranty is defined as correcting defects in materials and workmanship (subject to other language included in the purchase documents). Defect is defined as any circumstance in which the material does not perform according to its specification.	M			Shop Drawing Reviews
4.15.0-4	City of Waterloo needs the system to fulfill all requirements for the life of the system. The agency therefore needs support to keep software and software environment updated as necessary to prevent requirements no longer being fulfilled.	16.0-2	The Vendor shall provide routine updates to the software and software environment necessary to preserve the fulfillment of requirements for a period of at least 2 years. Preservation of requirements fulfillment especially includes all IT management requirements as previously identified.	M			Shop Drawing Reviews
4.16	4.16 External interfaces						
4.16.0-1	The system operator needs to be able to turn on signs that control traffic or provide driver information when specific traffic conditions occur, when needed to support the adaptive operation, when congestion is detected at critical locations or according to a time-of-day schedule.	17.0-1	The ASCT shall set the state of external input/output states according to a time-of-day schedule.	M			Demonstration of Software
		17.0-2	The ASCT output states shall be settable according to a time-of-day schedule	M			Demonstration of Software
		9.0-1	The ASCT shall set a specific state for each special function output based on the occupancy on a user-specified detector.	M			Demonstration of Software
		9.0-2	The ASCT shall set a specific state for each special function output based on the current cycle length.	M			Demonstration of Software
		9.0-3	The ASCT shall set a specific state for each special function output based on a time-of-day schedule.	M			Demonstration of Software
4.17	4.17 Maintenance						
4.17.0-1	City of Waterloo needs all applicable equipment to be readily accessible.	17.0-1a	City of Waterloo shall maintain all necessary parts to maintain the ASCT system.	M			Review Parts and Equipment Inventory

Con Ops Reference Number	ConOps Statement: US Highway 63 (US 218 to Dane St.)	Requirements Reference Number	Requirement Statement	Mandatory vs Secondary		Verification Method Number	Verification Method
4.1	4.1 Adaptive Strategies						
4.1.0-1.0-4	Manage the lengths of queues	2.1.3.0-2	When queues are detected at user-specified locations, the ASCT shall execute user-specified timing plan/operational mode.	M			Queue Management
		2.1.3.0-2a	The ASCT shall manage queue length for the Commercial St. to W Mullan Avenue (US 63 SB) WB left turn movement.	M			Queue Management
		2.1.3.0-2b	The ASCT shall manage queue length for the Franklin to E Mullan Avenue (US 63SB) WB left turn movement.	M			Queue Management
4.5.0-3	The system operator needs to incorporate frequent pedestrian operation into routine adaptive operation on the US 63 corridor.	8.0-2	When a pedestrian phase is called, the ASCT shall accommodate pedestrian crossing times during adaptive operations.	M			Demonstration of Software
		8.0-2a	The ASCT shall manage pedestrian crossing of US 63 along the US 63 corridor.	M			Demonstration of Software
4.12	4.12 Preemption and Priority						
4.12.0-2	The system operator needs to accommodate emergency vehicle preemption along the US 63 corridor.	11.0-4	The ASCT shall resume adaptive control of signal controllers when preemptions are released.	M			Demonstration of Software
		11.0-4a	The ASCT shall manage emergency vehicle preemption along the US 63 corridor.	M			Demonstration of Software

SIGNAL LEGEND

EXISTING	PROPOSED	
		CABINET AND CONTROLLER
		POWER SOURCE
		METER
1E	①	TRAFFIC SIGNAL POLE, FOOTING SYMBOL, AND IDENTIFYING NUMBER
3E	③	PEDESTAL POLE, FOOTING SYMBOL, AND IDENTIFYING NUMBER
3E	③	TEMPORARY SIGNAL POLE AND IDENTIFYING NUMBER
		UTILITY POLE
81	⑧1	TRAFFIC SIGNAL HEAD WITH BACKPLATE SYMBOL AND IDENTIFYING NUMBER
23	②3	TRAFFIC SIGNAL HEAD SYMBOL AND IDENTIFYING NUMBER
25	②5	PEDESTRIAN HEAD SYMBOL AND IDENTIFYING NUMBER
201	②01	PEDESTRIAN PUSHBUTTON IDENTIFYING NUMBER
C	③	MAST ARM MOUNTED SIGN SYMBOL AND IDENTIFYING NUMBER
		VIDEO DETECTION CAMERA
		DOMESTYLE PAN/TILT/ZOOM CCTV CAMERA
		EMERGENCY VEHICLE PREEMPTION
		LUMINAIRE
4	④	24" HANDHOLE SYMBOL AND IDENTIFYING NUMBER - TYPE 1
1	①	"TUB" HANDHOLE SYMBOL AND IDENTIFYING NUMBER - TYPE 2 OR 3
		TRENCHED SIGNAL CONDUIT
		PUSHED SIGNAL CONDUIT
		SIGNAL INTERCONNECT CONDUIT
S	③	PRELIMINARY STOP BAR VEHICLE DETECTION
A	③	PRELIMINARY ADVANCED VEHICLE DETECTION

Appendix C

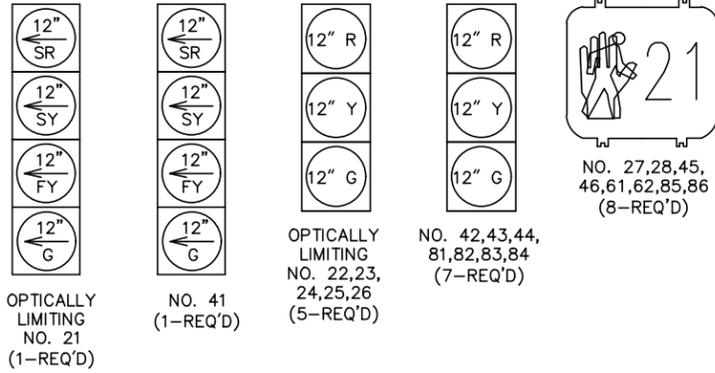
Preliminary Traffic Signal Plans
US 63 Waterloo

ABBREVIATIONS

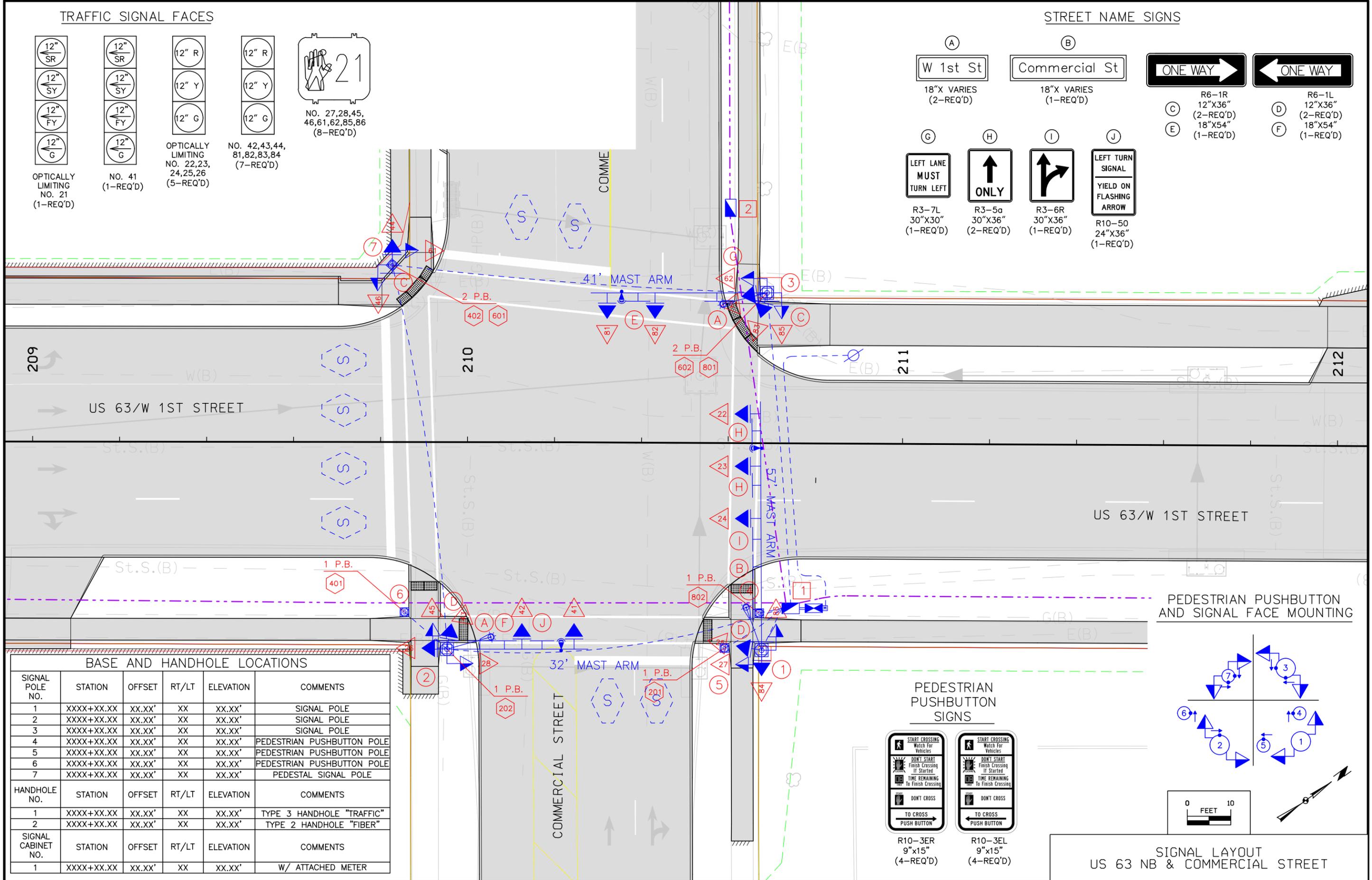
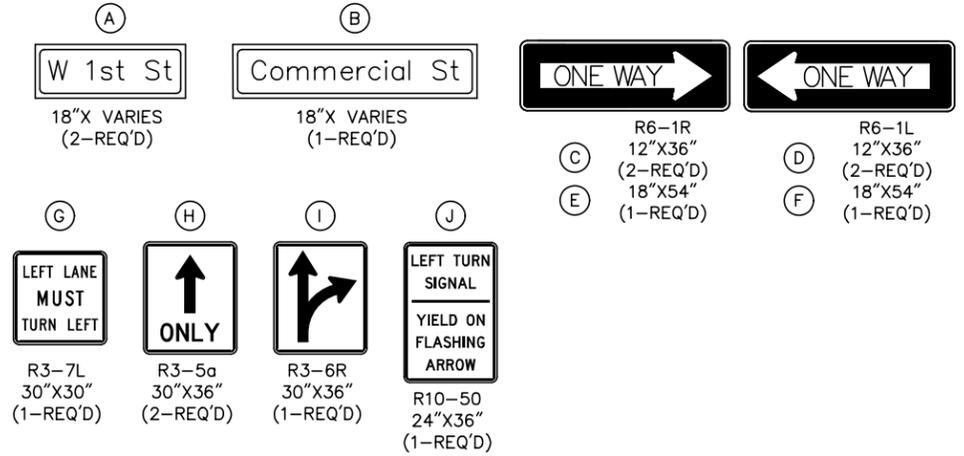
SIG	SIGNAL HEAD CABLE
PED HD	PEDESTRIAN HEAD CABLE
PED PB	PEDESTRIAN PUSHBUTTON CABLE
CNTRL	CONTROLLER
LUM	LUMINAIRE
N	NEUTRAL
LN1	POWER - LINE 1
LN2	POWER - LINE 2
GR	GROUND WIRE 1c #6
TR	TRACER WIRE 1c #10
PR	PULL ROPE
Y1	FUSED WYE CONNECTOR FOR STREET LIGHTING
Y2	NON-FUSED WYE CONNECTOR FOR STREET LIGHTING
Y3	NON-FUSED WYE CONNECTOR FOR STREET LIGHTING
L1	FUSED IN-LINE CONNECTOR FOR STREET LIGHTING
L2	NON-FUSED IN-LINE CONNECTOR FOR STREET LIGHTING
DET	SHIELDED LOOP DETECTOR LEAD-IN
LOOP	DETECTOR LOOP WIRE IN TUBING
HH	HANDHOLE
EVP	EMERGENCY VEHICLE PREEMPT DETECTOR CABLE
FY	FLASHING YELLOW
SY	STEADY YELLOW
FO	FIBER OPTIC CABLE
SM	SINGLE MODE

LEGEND AND ABBREVIATIONS

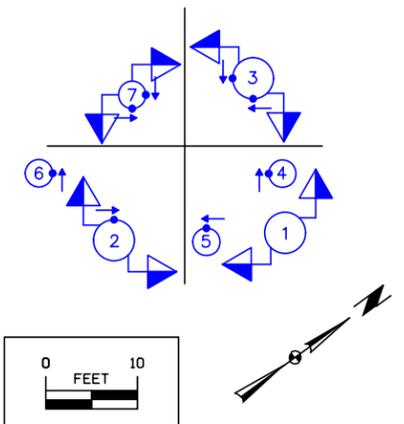
TRAFFIC SIGNAL FACES



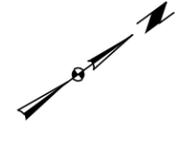
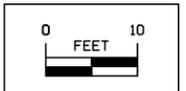
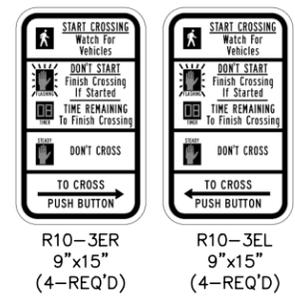
STREET NAME SIGNS



PEDESTRIAN PUSHBUTTON AND SIGNAL FACE MOUNTING



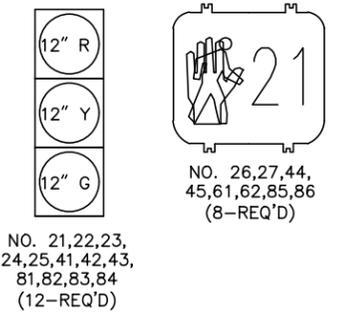
PEDESTRIAN PUSHBUTTON SIGNS



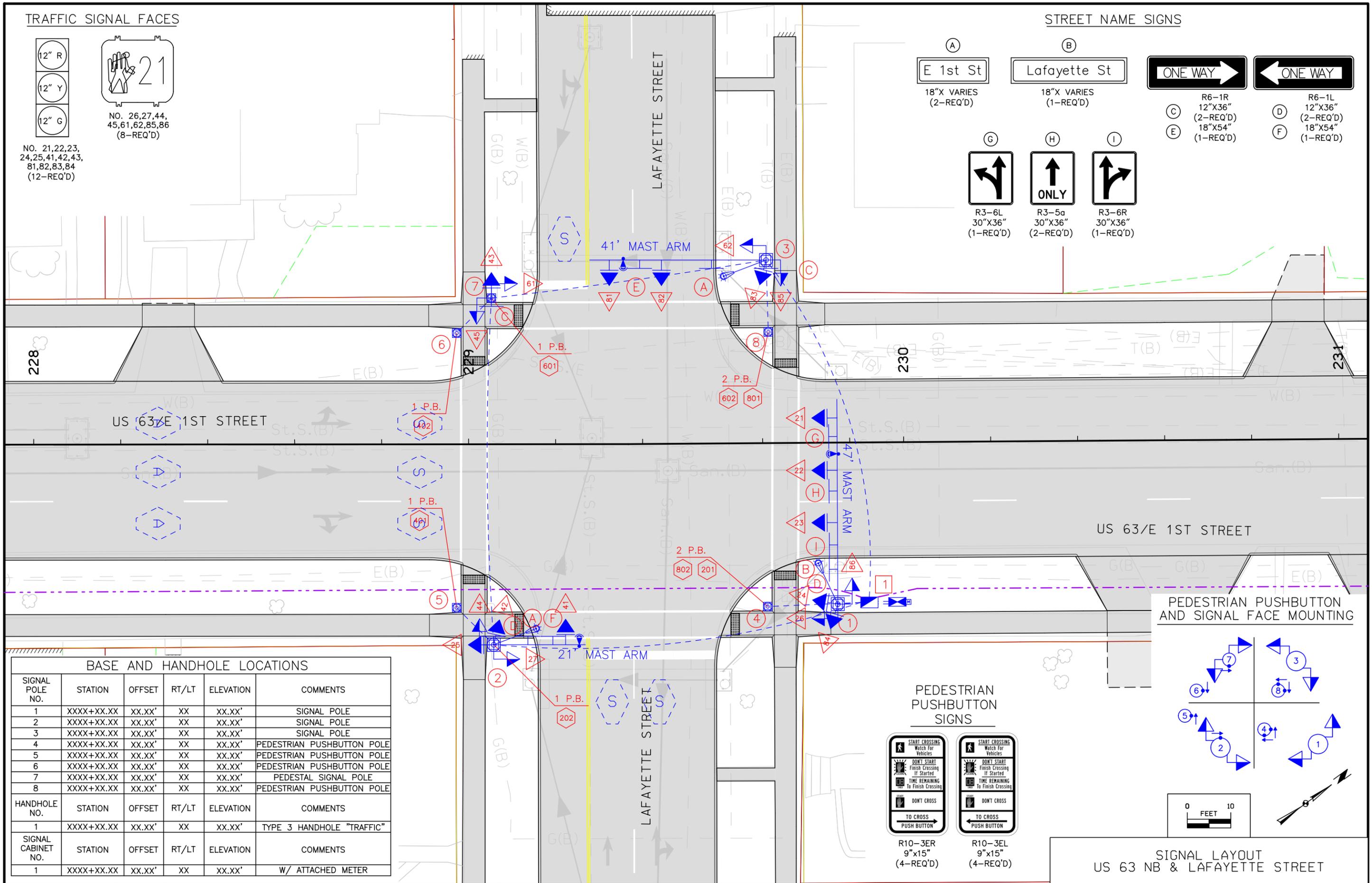
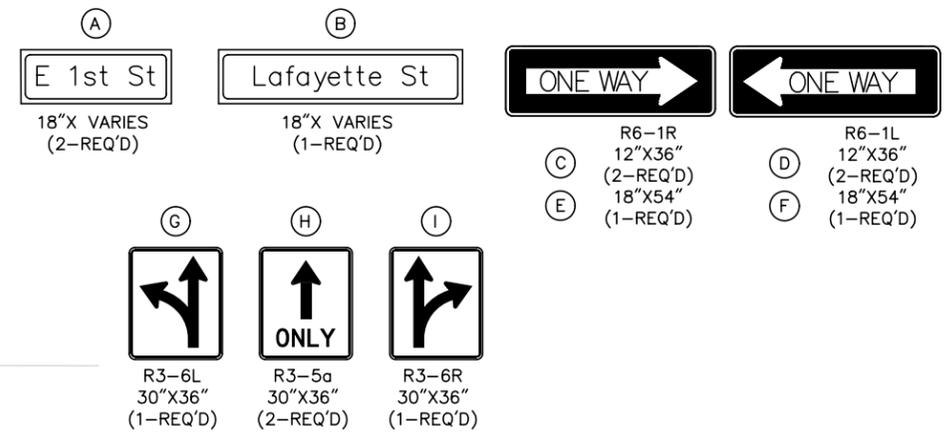
SIGNAL LAYOUT
US 63 NB & COMMERCIAL STREET

BASE AND HANDHOLE LOCATIONS					
SIGNAL POLE NO.	STATION	OFFSET	RT/LT	ELEVATION	COMMENTS
1	XXXX+XX.XX	XX.XX'	XX	XX.XX'	SIGNAL POLE
2	XXXX+XX.XX	XX.XX'	XX	XX.XX'	SIGNAL POLE
3	XXXX+XX.XX	XX.XX'	XX	XX.XX'	SIGNAL POLE
4	XXXX+XX.XX	XX.XX'	XX	XX.XX'	PEDESTRIAN PUSHBUTTON POLE
5	XXXX+XX.XX	XX.XX'	XX	XX.XX'	PEDESTRIAN PUSHBUTTON POLE
6	XXXX+XX.XX	XX.XX'	XX	XX.XX'	PEDESTRIAN PUSHBUTTON POLE
7	XXXX+XX.XX	XX.XX'	XX	XX.XX'	PEDESTAL SIGNAL POLE
HANDHOLE NO.	STATION	OFFSET	RT/LT	ELEVATION	COMMENTS
1	XXXX+XX.XX	XX.XX'	XX	XX.XX'	TYPE 3 HANDHOLE "TRAFFIC"
2	XXXX+XX.XX	XX.XX'	XX	XX.XX'	TYPE 2 HANDHOLE "FIBER"
SIGNAL CABINET NO.	STATION	OFFSET	RT/LT	ELEVATION	COMMENTS
1	XXXX+XX.XX	XX.XX'	XX	XX.XX'	W/ ATTACHED METER

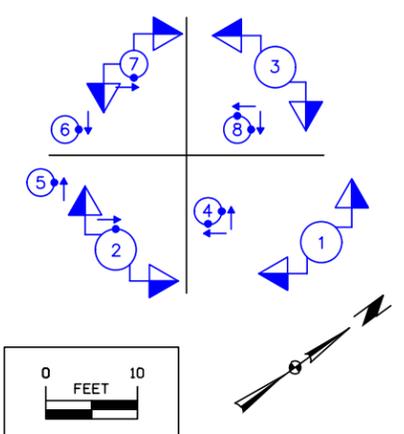
TRAFFIC SIGNAL FACES



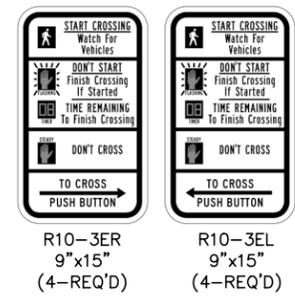
STREET NAME SIGNS



PEDESTRIAN PUSHBUTTON AND SIGNAL FACE MOUNTING



PEDESTRIAN PUSHBUTTON SIGNS

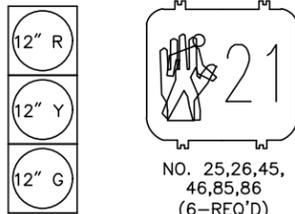


BASE AND HANDHOLE LOCATIONS

SIGNAL POLE NO.	STATION	OFFSET	RT/LT	ELEVATION	COMMENTS
1	XXXX+XX.XX	XX.XX'	XX	XX.XX'	SIGNAL POLE
2	XXXX+XX.XX	XX.XX'	XX	XX.XX'	SIGNAL POLE
3	XXXX+XX.XX	XX.XX'	XX	XX.XX'	SIGNAL POLE
4	XXXX+XX.XX	XX.XX'	XX	XX.XX'	PEDESTRIAN PUSHBUTTON POLE
5	XXXX+XX.XX	XX.XX'	XX	XX.XX'	PEDESTRIAN PUSHBUTTON POLE
6	XXXX+XX.XX	XX.XX'	XX	XX.XX'	PEDESTRIAN PUSHBUTTON POLE
7	XXXX+XX.XX	XX.XX'	XX	XX.XX'	PEDESTAL SIGNAL POLE
8	XXXX+XX.XX	XX.XX'	XX	XX.XX'	PEDESTRIAN PUSHBUTTON POLE
HANDHOLE NO.	STATION	OFFSET	RT/LT	ELEVATION	COMMENTS
1	XXXX+XX.XX	XX.XX'	XX	XX.XX'	TYPE 3 HANDHOLE "TRAFFIC"
SIGNAL CABINET NO.	STATION	OFFSET	RT/LT	ELEVATION	COMMENTS
1	XXXX+XX.XX	XX.XX'	XX	XX.XX'	W/ ATTACHED METER

SIGNAL LAYOUT US 63 NB & LAFAYETTE STREET

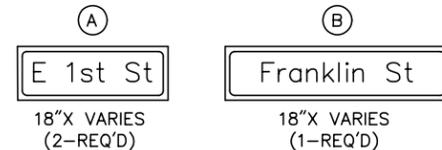
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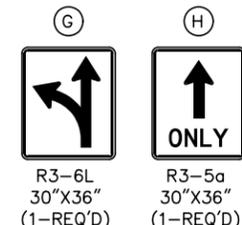
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24,41,42,43,44,
81,82,83,84
(12-REQ'D)

NO. 25,26,45,
46,85,86
(6-REQ'D)

STREET NAME SIGNS

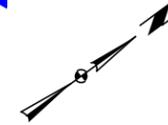
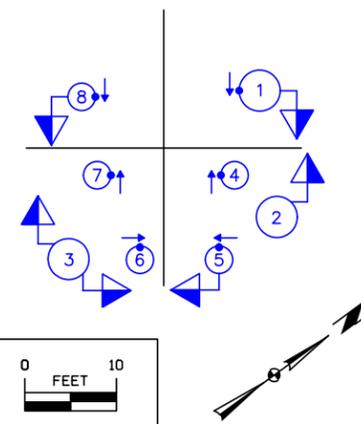


R6-1R 12"x36" (2-REQ'D)
R6-1L 12"x36" (2-REQ'D)
C 18"x54" (1-REQ'D)
D 18"x54" (1-REQ'D)
E 18"x54" (1-REQ'D)
F 18"x54" (1-REQ'D)

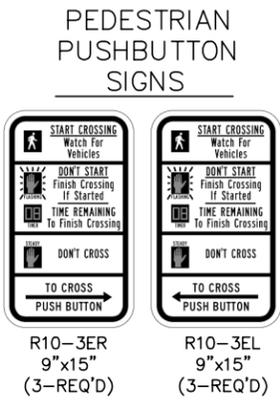
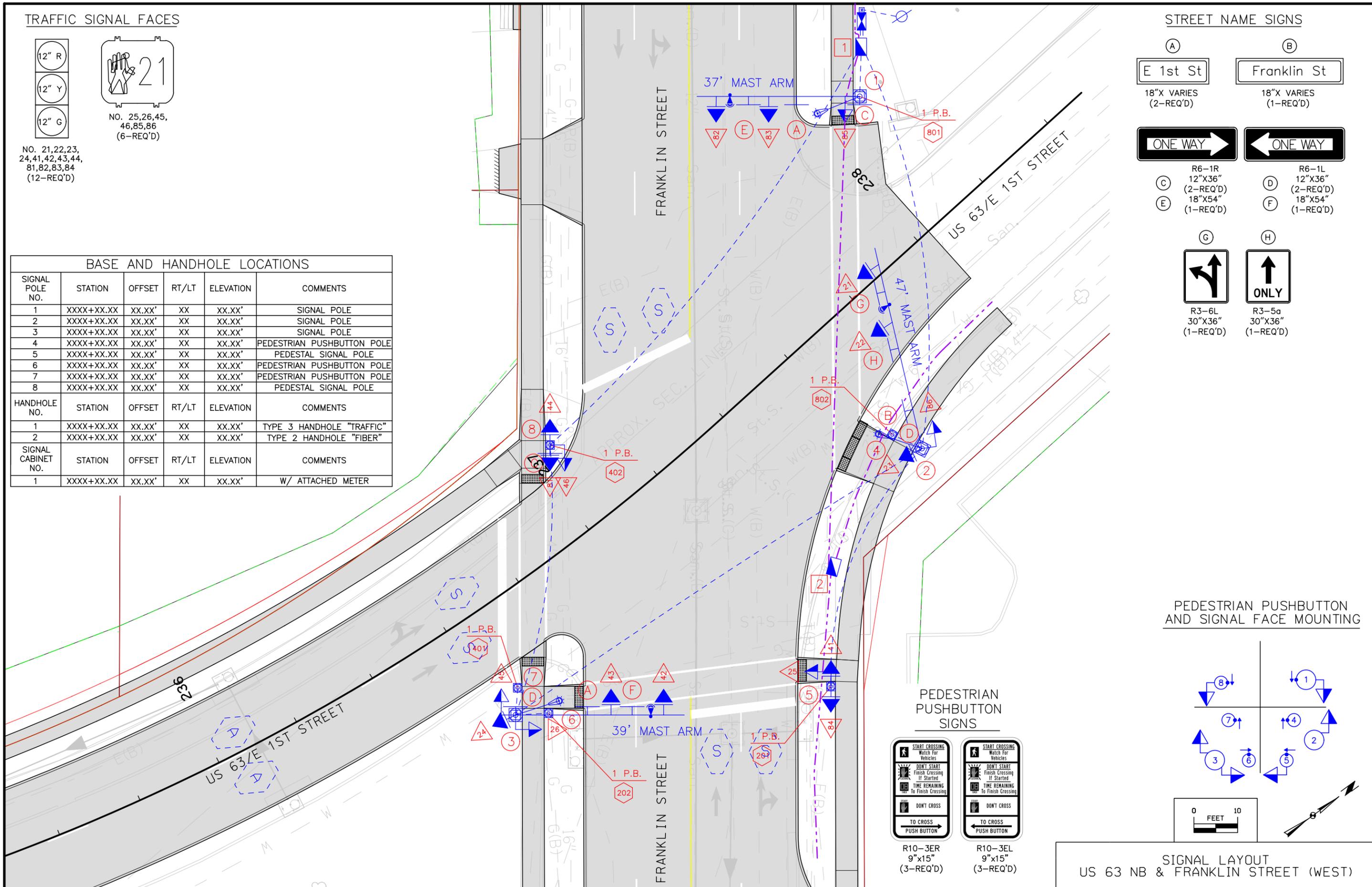


R3-6L 30"x36" (1-REQ'D)
R3-5a 30"x36" (1-REQ'D)

PEDESTRIAN PUSHBUTTON AND SIGNAL FACE MOUNTING



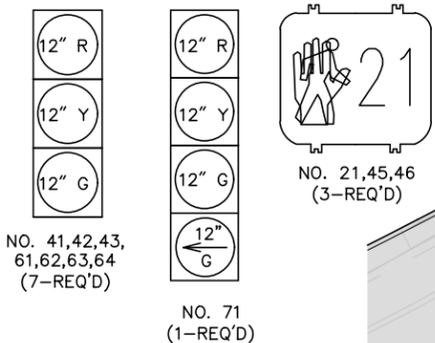
BASE AND HANDHOLE LOCATIONS					
SIGNAL POLE NO.	STATION	OFFSET	RT/LT	ELEVATION	COMMENTS
1	XXXX+XX.XX	XX.XX'	XX	XX.XX'	SIGNAL POLE
2	XXXX+XX.XX	XX.XX'	XX	XX.XX'	SIGNAL POLE
3	XXXX+XX.XX	XX.XX'	XX	XX.XX'	SIGNAL POLE
4	XXXX+XX.XX	XX.XX'	XX	XX.XX'	PEDESTRIAN PUSHBUTTON POLE
5	XXXX+XX.XX	XX.XX'	XX	XX.XX'	PEDESTAL SIGNAL POLE
6	XXXX+XX.XX	XX.XX'	XX	XX.XX'	PEDESTRIAN PUSHBUTTON POLE
7	XXXX+XX.XX	XX.XX'	XX	XX.XX'	PEDESTRIAN PUSHBUTTON POLE
8	XXXX+XX.XX	XX.XX'	XX	XX.XX'	PEDESTAL SIGNAL POLE
HANDHOLE NO.	STATION	OFFSET	RT/LT	ELEVATION	COMMENTS
1	XXXX+XX.XX	XX.XX'	XX	XX.XX'	TYPE 3 HANDHOLE "TRAFFIC"
2	XXXX+XX.XX	XX.XX'	XX	XX.XX'	TYPE 2 HANDHOLE "FIBER"
SIGNAL CABINET NO.	STATION	OFFSET	RT/LT	ELEVATION	COMMENTS
1	XXXX+XX.XX	XX.XX'	XX	XX.XX'	W/ ATTACHED METER



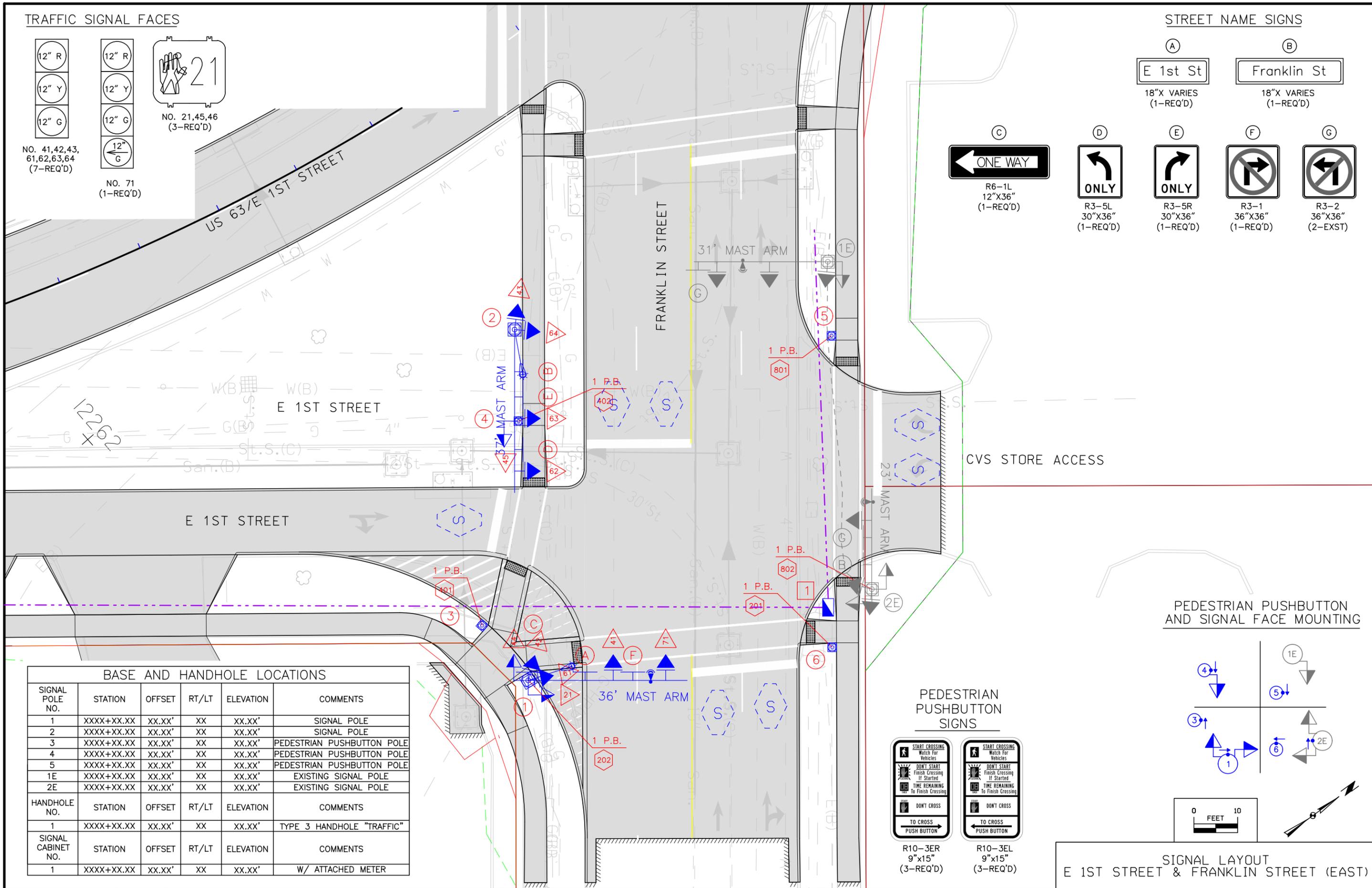
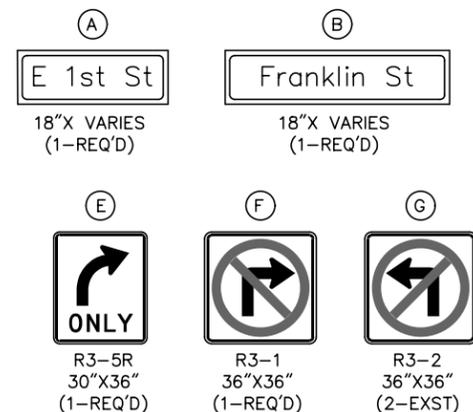
R10-3ER 9"x15" (3-REQ'D)
R10-3EL 9"x15" (3-REQ'D)

SIGNAL LAYOUT
US 63 NB & FRANKLIN STREET (WEST)

TRAFFIC SIGNAL FACES



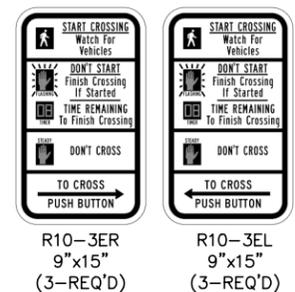
STREET NAME SIGNS



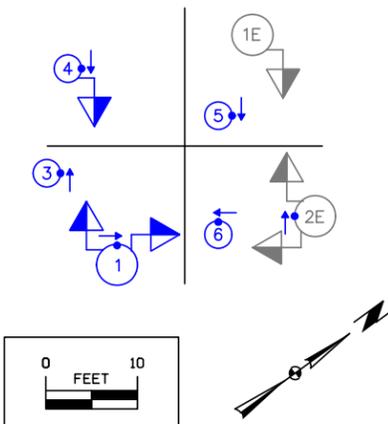
BASE AND HANDHOLE LOCATIONS

SIGNAL POLE NO.	STATION	OFFSET	RT/LT	ELEVATION	COMMENTS
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2	XXXX+XX.XX	XX.XX'	XX	XX.XX'	SIGNAL POLE
3	XXXX+XX.XX	XX.XX'	XX	XX.XX'	PEDESTRIAN PUSHBUTTON POLE
4	XXXX+XX.XX	XX.XX'	XX	XX.XX'	PEDESTRIAN PUSHBUTTON POLE
5	XXXX+XX.XX	XX.XX'	XX	XX.XX'	PEDESTRIAN PUSHBUTTON POLE
1E	XXXX+XX.XX	XX.XX'	XX	XX.XX'	EXISTING SIGNAL POLE
2E	XXXX+XX.XX	XX.XX'	XX	XX.XX'	EXISTING SIGNAL POLE
HANDHOLE NO.	STATION	OFFSET	RT/LT	ELEVATION	COMMENTS
1	XXXX+XX.XX	XX.XX'	XX	XX.XX'	TYPE 3 HANDHOLE "TRAFFIC"
SIGNAL CABINET NO.	STATION	OFFSET	RT/LT	ELEVATION	COMMENTS
1	XXXX+XX.XX	XX.XX'	XX	XX.XX'	W/ ATTACHED METER

PEDESTRIAN PUSHBUTTON SIGNS

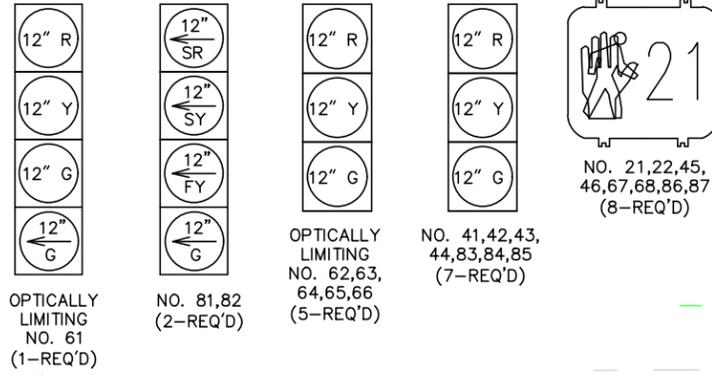


PEDESTRIAN PUSHBUTTON AND SIGNAL FACE MOUNTING

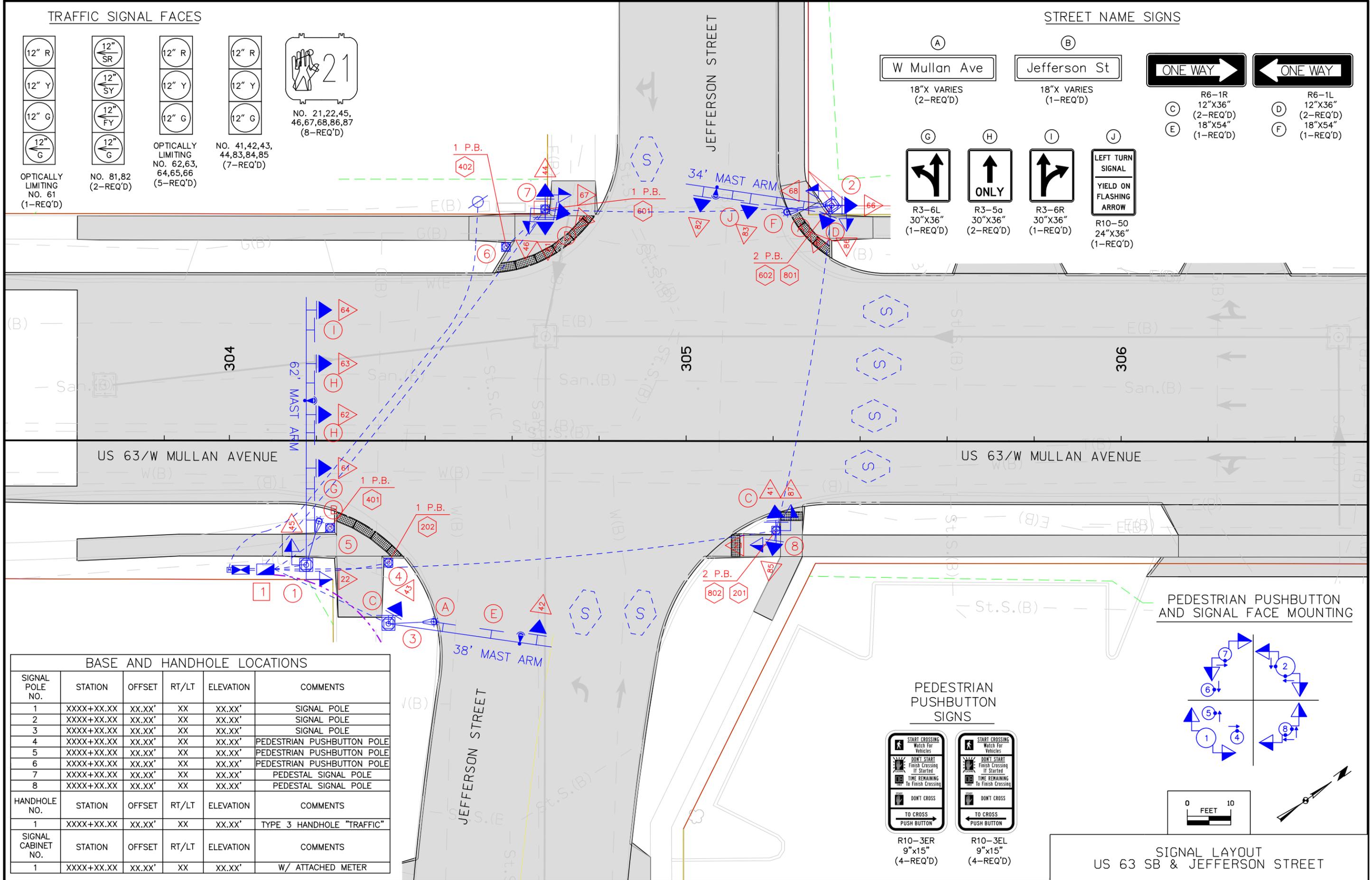
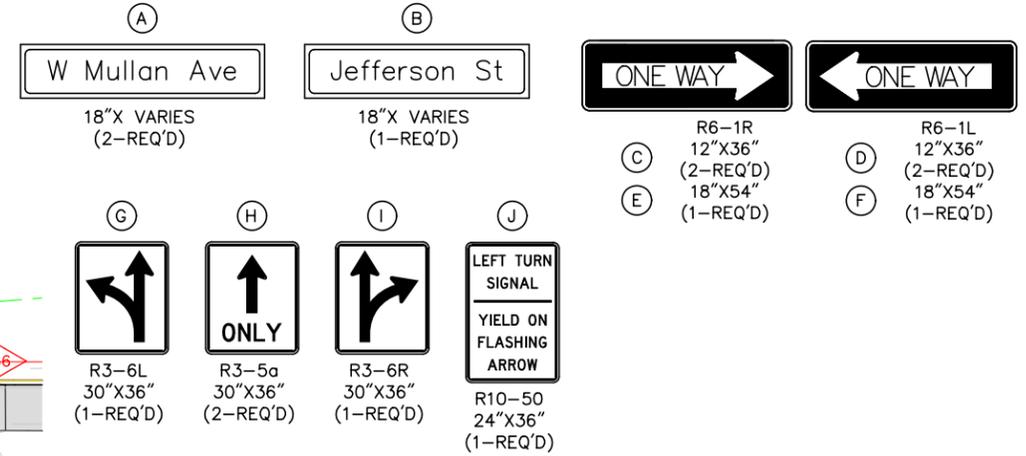


SIGNAL LAYOUT E 1ST STREET & FRANKLIN STREET (EAST)

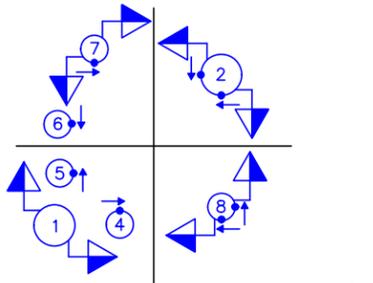
TRAFFIC SIGNAL FACES



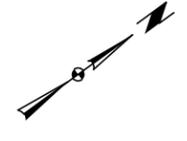
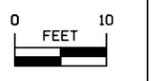
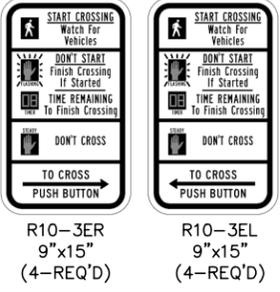
STREET NAME SIGNS



PEDESTRIAN PUSHBUTTON AND SIGNAL FACE MOUNTING



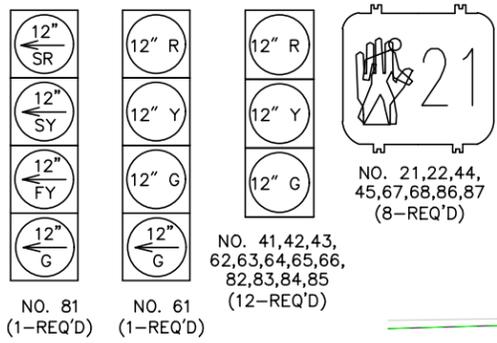
PEDESTRIAN PUSHBUTTON SIGNS



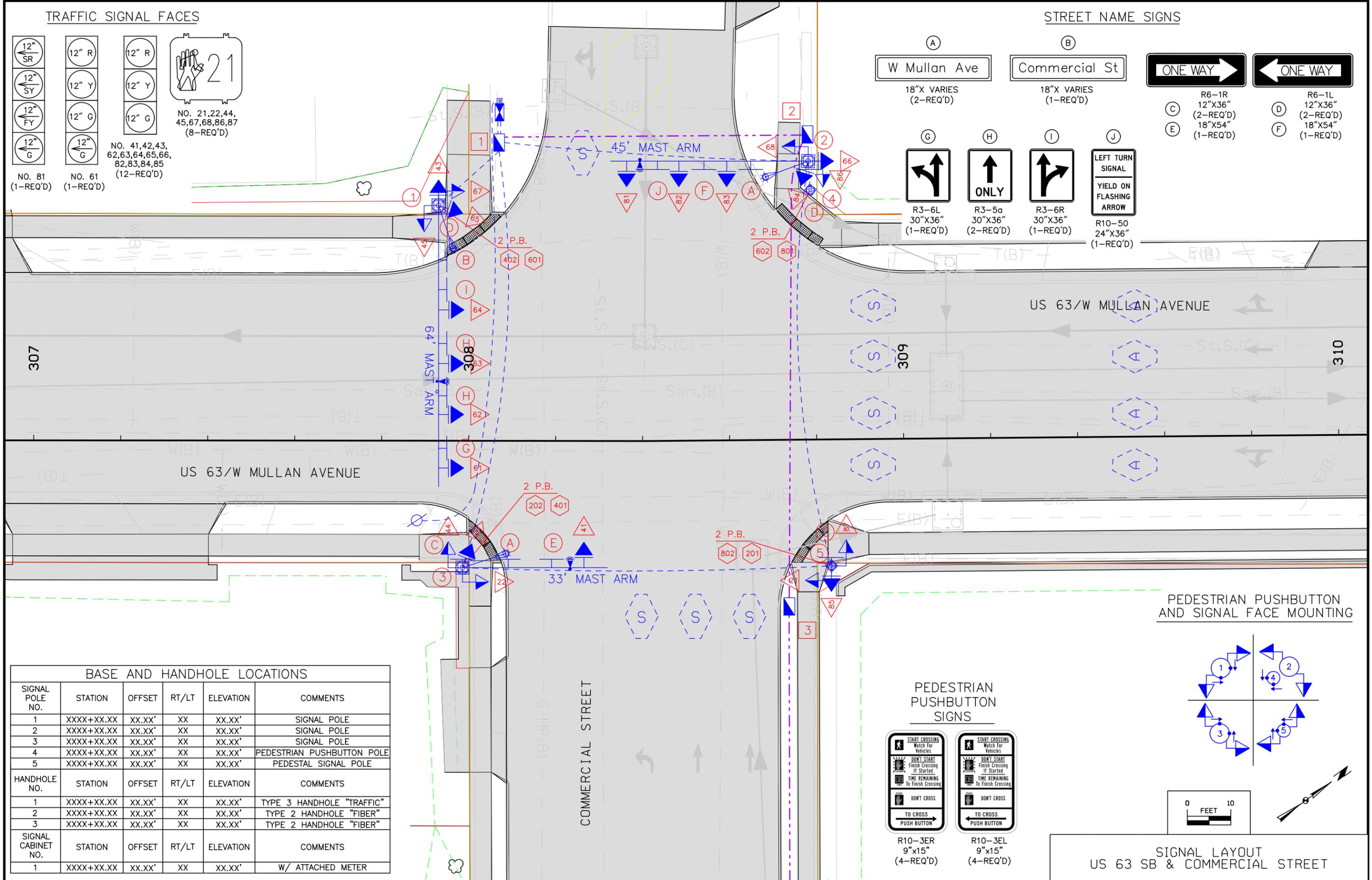
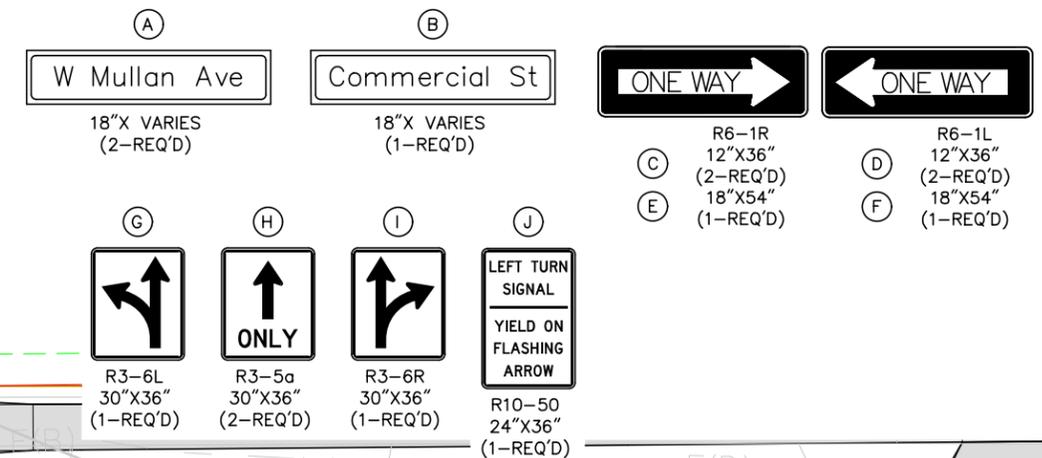
SIGNAL LAYOUT
US 63 SB & JEFFERSON STREET

BASE AND HANDHOLE LOCATIONS					
SIGNAL POLE NO.	STATION	OFFSET	RT/LT	ELEVATION	COMMENTS
1	XXXX+XX.XX	XX.XX'	XX	XX.XX'	SIGNAL POLE
2	XXXX+XX.XX	XX.XX'	XX	XX.XX'	SIGNAL POLE
3	XXXX+XX.XX	XX.XX'	XX	XX.XX'	SIGNAL POLE
4	XXXX+XX.XX	XX.XX'	XX	XX.XX'	PEDESTRIAN PUSHBUTTON POLE
5	XXXX+XX.XX	XX.XX'	XX	XX.XX'	PEDESTRIAN PUSHBUTTON POLE
6	XXXX+XX.XX	XX.XX'	XX	XX.XX'	PEDESTRIAN PUSHBUTTON POLE
7	XXXX+XX.XX	XX.XX'	XX	XX.XX'	PEDESTAL SIGNAL POLE
8	XXXX+XX.XX	XX.XX'	XX	XX.XX'	PEDESTAL SIGNAL POLE
HANDHOLE NO.	STATION	OFFSET	RT/LT	ELEVATION	COMMENTS
1	XXXX+XX.XX	XX.XX'	XX	XX.XX'	TYPE 3 HANDHOLE "TRAFFIC"
SIGNAL CABINET NO.	STATION	OFFSET	RT/LT	ELEVATION	COMMENTS
1	XXXX+XX.XX	XX.XX'	XX	XX.XX'	W/ ATTACHED METER

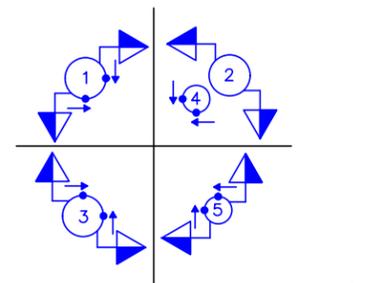
TRAFFIC SIGNAL FACES



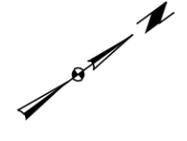
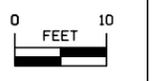
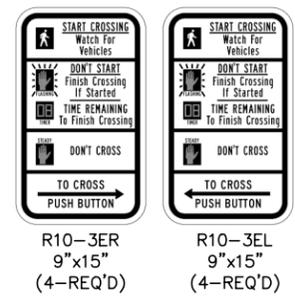
STREET NAME SIGNS



PEDESTRIAN PUSHBUTTON AND SIGNAL FACE MOUNTING



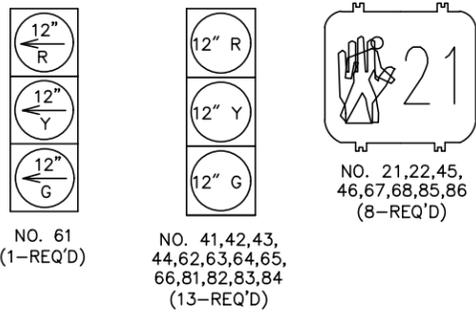
PEDESTRIAN PUSHBUTTON SIGNS



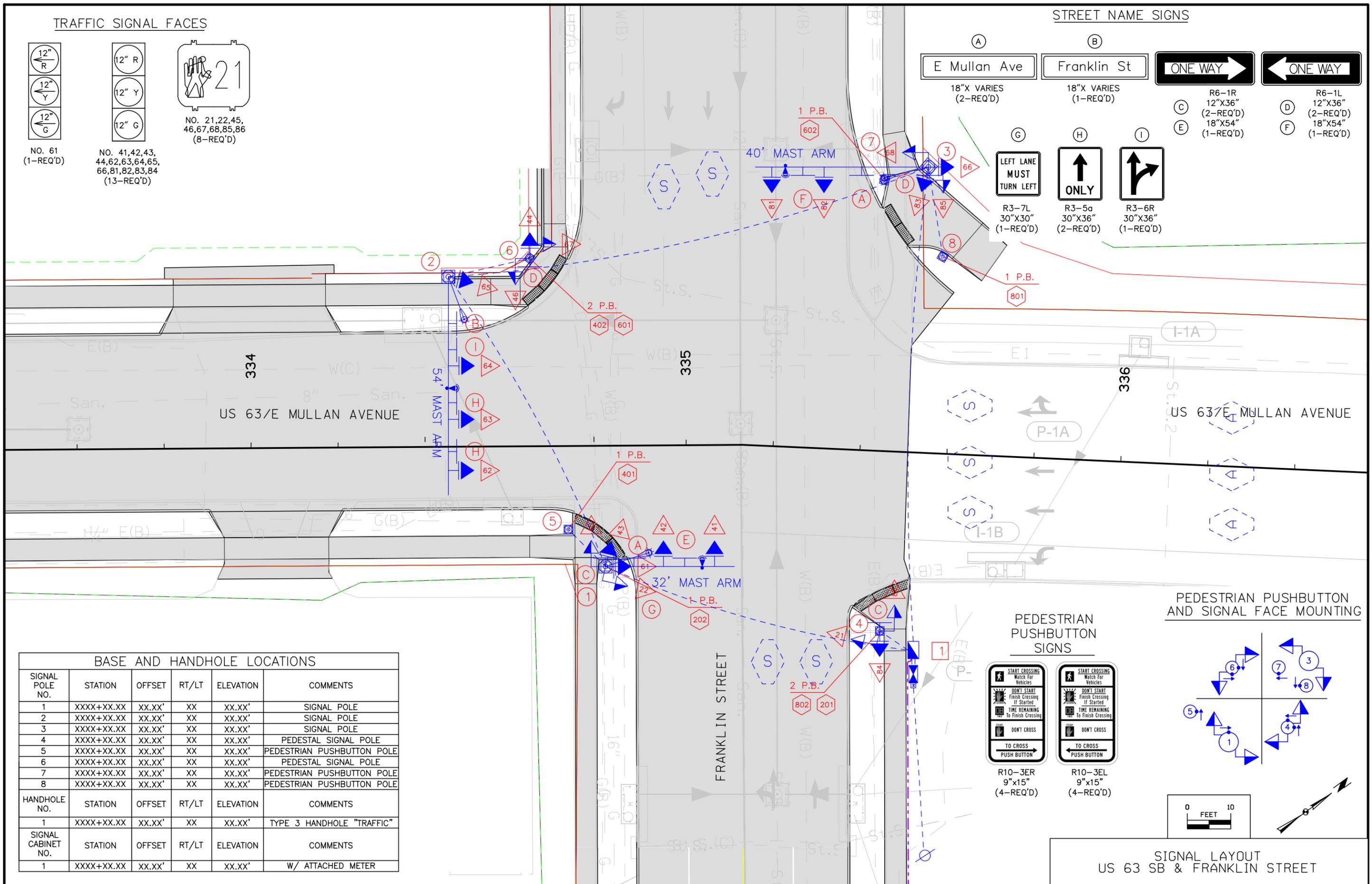
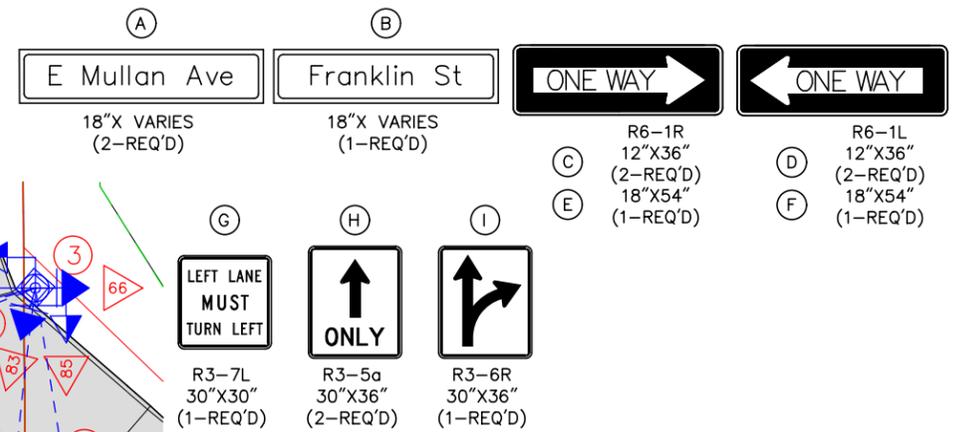
SIGNAL LAYOUT
US 63 SB & COMMERCIAL STREET

BASE AND HANDHOLE LOCATIONS					
SIGNAL POLE NO.	STATION	OFFSET	RT/LT	ELEVATION	COMMENTS
1	XXXX+XX.XX	XX.XX'	XX	XX.XX'	SIGNAL POLE
2	XXXX+XX.XX	XX.XX'	XX	XX.XX'	SIGNAL POLE
3	XXXX+XX.XX	XX.XX'	XX	XX.XX'	SIGNAL POLE
4	XXXX+XX.XX	XX.XX'	XX	XX.XX'	PEDESTRIAN PUSHBUTTON POLE
5	XXXX+XX.XX	XX.XX'	XX	XX.XX'	PEDESTAL SIGNAL POLE
HANDHOLE NO.	STATION	OFFSET	RT/LT	ELEVATION	COMMENTS
1	XXXX+XX.XX	XX.XX'	XX	XX.XX'	TYPE 3 HANDHOLE "TRAFFIC"
2	XXXX+XX.XX	XX.XX'	XX	XX.XX'	TYPE 2 HANDHOLE "FIBER"
3	XXXX+XX.XX	XX.XX'	XX	XX.XX'	TYPE 2 HANDHOLE "FIBER"
SIGNAL CABINET NO.	STATION	OFFSET	RT/LT	ELEVATION	COMMENTS
1	XXXX+XX.XX	XX.XX'	XX	XX.XX'	W/ ATTACHED METER

TRAFFIC SIGNAL FACES



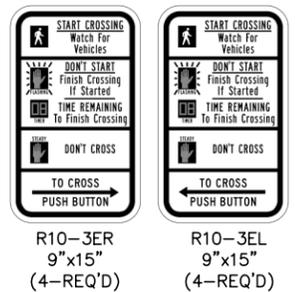
STREET NAME SIGNS



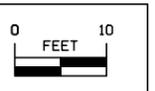
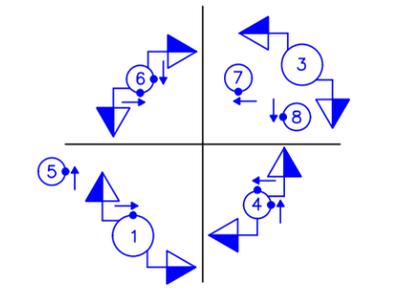
BASE AND HANDHOLE LOCATIONS

SIGNAL POLE NO.	STATION	OFFSET	RT/LT	ELEVATION	COMMENTS
1	XXXX+XX.XX	XX.XX'	XX	XX.XX'	SIGNAL POLE
2	XXXX+XX.XX	XX.XX'	XX	XX.XX'	SIGNAL POLE
3	XXXX+XX.XX	XX.XX'	XX	XX.XX'	SIGNAL POLE
4	XXXX+XX.XX	XX.XX'	XX	XX.XX'	PEDESTAL SIGNAL POLE
5	XXXX+XX.XX	XX.XX'	XX	XX.XX'	PEDESTRIAN PUSHBUTTON POLE
6	XXXX+XX.XX	XX.XX'	XX	XX.XX'	PEDESTAL SIGNAL POLE
7	XXXX+XX.XX	XX.XX'	XX	XX.XX'	PEDESTRIAN PUSHBUTTON POLE
8	XXXX+XX.XX	XX.XX'	XX	XX.XX'	PEDESTRIAN PUSHBUTTON POLE
HANDHOLE NO.	STATION	OFFSET	RT/LT	ELEVATION	COMMENTS
1	XXXX+XX.XX	XX.XX'	XX	XX.XX'	TYPE 3 HANDHOLE "TRAFFIC"
SIGNAL CABINET NO.	STATION	OFFSET	RT/LT	ELEVATION	COMMENTS
1	XXXX+XX.XX	XX.XX'	XX	XX.XX'	W/ ATTACHED METER

PEDESTRIAN PUSHBUTTON SIGNS

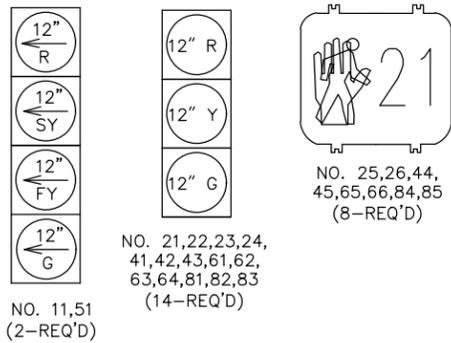


PEDESTRIAN PUSHBUTTON AND SIGNAL FACE MOUNTING

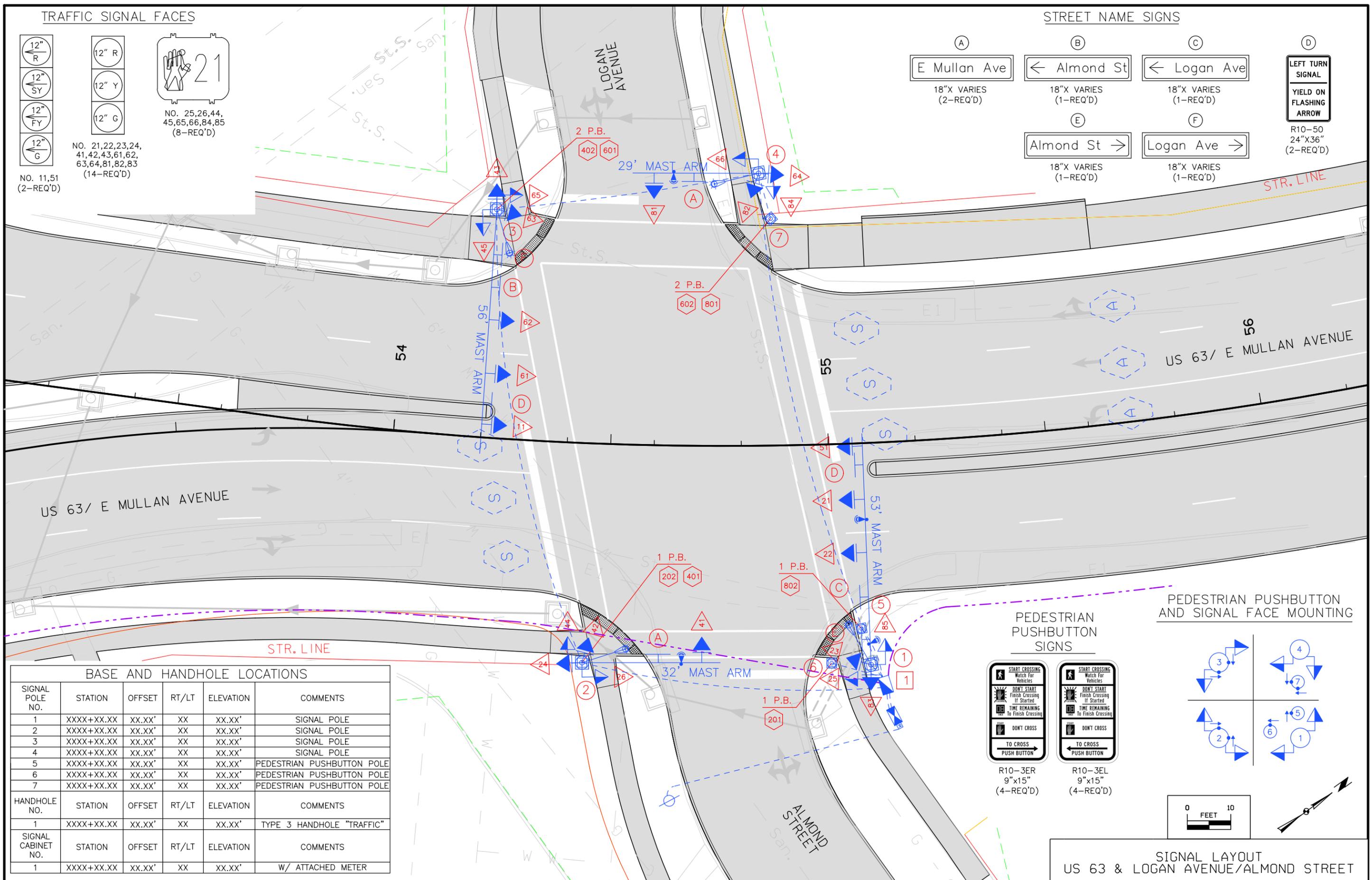
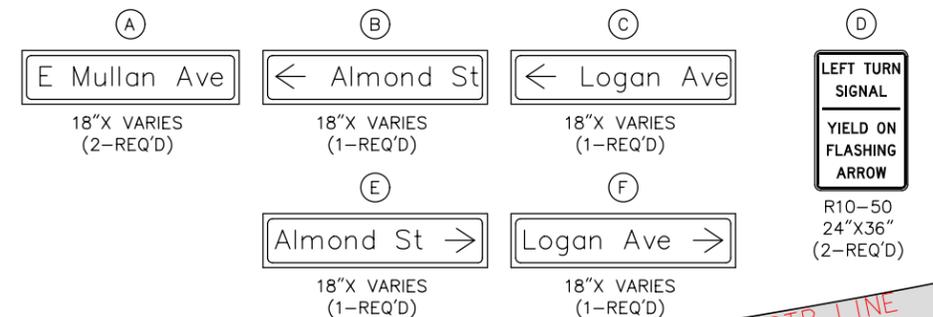


SIGNAL LAYOUT US 63 SB & FRANKLIN STREET

TRAFFIC SIGNAL FACES



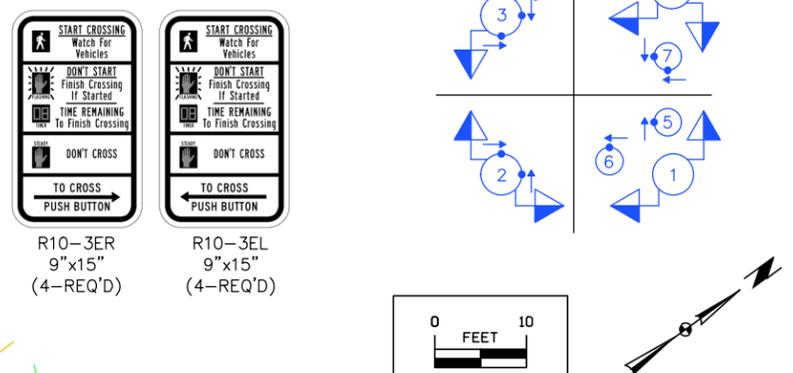
STREET NAME SIGNS



BASE AND HANDHOLE LOCATIONS

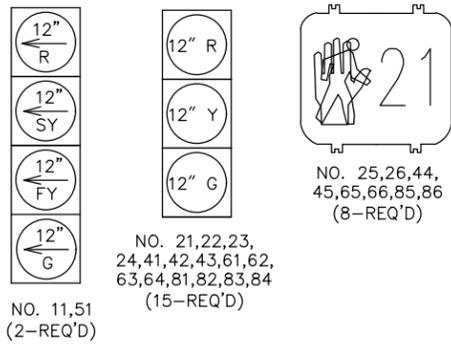
SIGNAL POLE NO.	STATION	OFFSET	RT/LT	ELEVATION	COMMENTS
1	XXXX+XX.XX	XX.XX'	XX	XX.XX'	SIGNAL POLE
2	XXXX+XX.XX	XX.XX'	XX	XX.XX'	SIGNAL POLE
3	XXXX+XX.XX	XX.XX'	XX	XX.XX'	SIGNAL POLE
4	XXXX+XX.XX	XX.XX'	XX	XX.XX'	SIGNAL POLE
5	XXXX+XX.XX	XX.XX'	XX	XX.XX'	PEDESTRIAN PUSHBUTTON POLE
6	XXXX+XX.XX	XX.XX'	XX	XX.XX'	PEDESTRIAN PUSHBUTTON POLE
7	XXXX+XX.XX	XX.XX'	XX	XX.XX'	PEDESTRIAN PUSHBUTTON POLE
HANDHOLE NO.	STATION	OFFSET	RT/LT	ELEVATION	COMMENTS
1	XXXX+XX.XX	XX.XX'	XX	XX.XX'	TYPE 3 HANDHOLE "TRAFFIC"
SIGNAL CABINET NO.	STATION	OFFSET	RT/LT	ELEVATION	COMMENTS
1	XXXX+XX.XX	XX.XX'	XX	XX.XX'	W/ ATTACHED METER

PEDESTRIAN PUSHBUTTON AND SIGNAL FACE MOUNTING

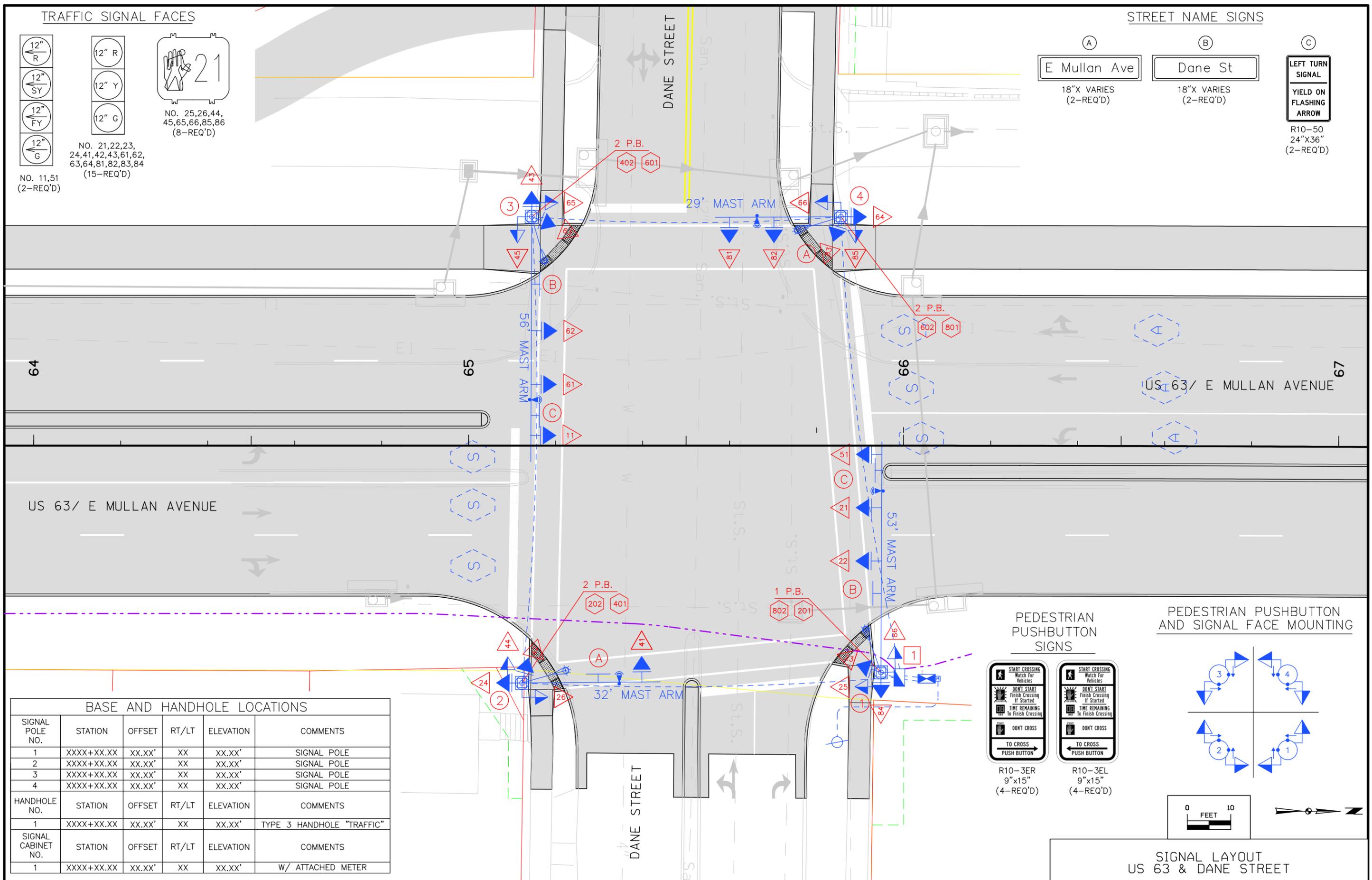
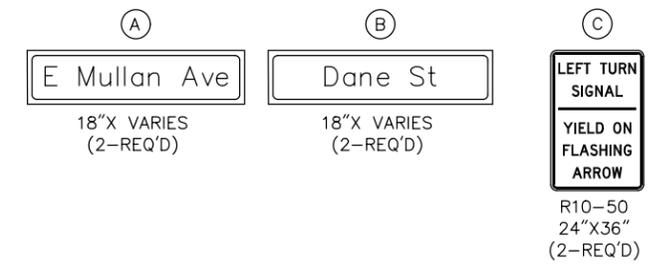


SIGNAL LAYOUT US 63 & LOGAN AVENUE/ALMOND STREET

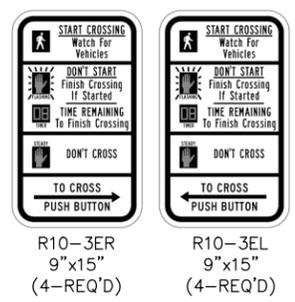
TRAFFIC SIGNAL FACES



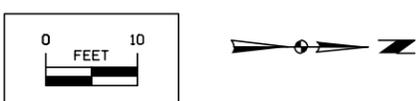
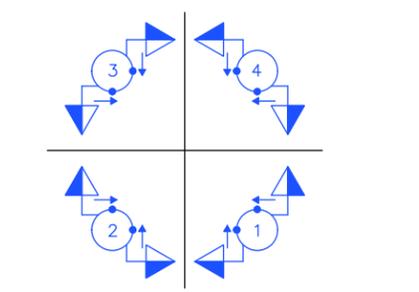
STREET NAME SIGNS



PEDESTRIAN PUSHBUTTON SIGNS



PEDESTRIAN PUSHBUTTON AND SIGNAL FACE MOUNTING



BASE AND HANDHOLE LOCATIONS

SIGNAL POLE NO.	STATION	OFFSET	RT/LT	ELEVATION	COMMENTS
1	XXXX+XX.XX	XX.XX'	XX	XX.XX'	SIGNAL POLE
2	XXXX+XX.XX	XX.XX'	XX	XX.XX'	SIGNAL POLE
3	XXXX+XX.XX	XX.XX'	XX	XX.XX'	SIGNAL POLE
4	XXXX+XX.XX	XX.XX'	XX	XX.XX'	SIGNAL POLE
HANDHOLE NO.	STATION	OFFSET	RT/LT	ELEVATION	COMMENTS
1	XXXX+XX.XX	XX.XX'	XX	XX.XX'	TYPE 3 HANDHOLE "TRAFFIC"
SIGNAL CABINET NO.	STATION	OFFSET	RT/LT	ELEVATION	COMMENTS
1	XXXX+XX.XX	XX.XX'	XX	XX.XX'	W/ ATTACHED METER

SIGNAL LAYOUT
US 63 & DANE STREET

Bidder _____

SEALED BID

LETTING DATE: August 31, 2016

PROPOSAL NO: 16950

PROPOSAL DESCRIPTION: Adaptive Signal Control Technology for
Waterloo

**Iowa Department of Transportation
PURCHASING - SEALED BID PROPOSAL
800 Lincoln Way
Ames, IA 50010**