

**CITY OF PHOENIX, ARIZONA
OFFICE OF THE CITY ENGINEER
DESIGN AND CONSTRUCTION PROCUREMENT**



PROJECT SPECIFICATIONS AND CONTRACT DOCUMENTS

**7TH STREET FIBER TRANSPORTATION ENHANCEMENT
DESIGN-BID-BUILD**

**PROJECT NO. ST89340660
FEDERAL AID NO. PHX-0(361)D
ADOT TRACS NO. T0236 01C**

**PROCUREPHX PRODUCT CATEGORY CODE 912000000
RFx 6000001635**

AGREEMENT _____



TABLE OF CONTENTS

CITY OF PHOENIX PROJECT TITLE: 7th Street Fiber Transportation Enhancement
CITY OF PHOENIX PROJECT NO.: ST89340660
FEDERAL AID NO.: PHX-0(361)D
ADOT TRACS NO.: T023601C



SECTION I – Informative

	<u>Page</u>
(1) Call for Bids	C.F.B. - 1 to 2
(2) Information for Bidders	I.F.B. - 1 to 17
(3) Supplementary Conditions	S.C. - 1 to 22
(4) City of Phoenix Special Provisions	S.P. - 1 to 19
(5) ADOT Special Provisions	32 Pages
(6) City of Phoenix Enterprise Information Technology Special Provisions	37 Pages
(7) Environmental Clearance Letter	E.C.L. – 1
(8) Desert Tortoise / Burrowing Owl / Migratory Birds (any other env docs)	3 Pages
(9) ADOT Categorical Exclusion Checklist	7 Pages
(10) EPRISE LPA Sub-Recipient With Goal	EPRISE – 1 to 29
(11) ADOT Contractor Compliance Agreement Assurances	9 Pages
(12) Equal Employment Opportunity Compliance Report	1 Page
(13) ADOT Good Faith Effort Guide	24 Pages
(14) ADOT / COP Title VI Non-Discrimination Assurances	8 Pages
(15) LPA Prompt Pay and Payment Reporting Provisions	5 Pages
(16) Federal Provisions (FHWA 1273)	F.R. – 1 to 32

SECTION II - Submittals

(1) Bid Proposal	P. - 1 to 4
(2) Proposal Submittal	P.S. – 1
(3) Surety Bond	S.B. – 1
(4) ADOT DBE Assurance	Form 3102C
(5) ADOT Online Bidder's List	1 Page
(6) ADOT DBE Intended Participation Affidavit: Individual	Form 3105C
(7) ADOT DBE Intended Participation Affidavit: Summary for Prime	Form 3106C
(8) Certification with Regard to Equal Opportunity Clause	E.O.C. - 1
(9) List of Major Subcontractors and Suppliers	L.O.S. – 1
(10) List of All Subcontractors and Suppliers	L.O.S. – 2
(11) Bidder's Disclosure Statement	B.D.S. – 1 to 4
(12) Affidavit of Identity	A.O.I. – 1
(13) Buy America Certificate	B.A.C. – 1
(14) Non-Collusion Affidavit	N.C.A. – 1

SECTION III –Drawings

	<u>Pages/Sheets</u>
(1) Plan Sheets	37 Sheets

CALL FOR BIDS

CITY OF PHOENIX 7TH STREET FIBER TRANSPORTATION ENHANCEMENT DESIGN-BID-BUILD

**PROJECT NO. ST89340660
FEDERAL AID NO. PHX-0(361)D
ADOT TRACS NO. T023601C
PROCUREPHX PRODUCT CATEGORY CODE 912000000
RFx 6000001635**

**BIDS WILL BE DUE: TUESDAY, SEPTEMBER 10, 2024, AT 2:00 P.M.
SUBMITTED INTO THE DESIGN AND CONSTRUCTION PROCUREMENT BID BOX
LOCATED ON THE 1ST FLOOR LOBBY OF THE PHOENIX CITY HALL BUILDING,
200 W. WASHINGTON STREET, PHOENIX, ARIZONA, 85003**

**BIDS WILL BE READ: TUESDAY, SEPTEMBER 10, 2024 AT 2:00 P.M.
ON 5TH FLOOR, ROOM 5 WEST
PHOENIX CITY HALL
200 W. WASHINGTON STREET
PHOENIX, AZ 85003-1611
*All times are local Phoenix time**

SCOPE OF WORK

The City of Phoenix is seeking a qualified contractor to provide construction services for the project listed below.

The City of Phoenix is proposing the installation of 3.9 miles of fiber optic infrastructure and associated Intelligent Transportation System (ITS) devices along Deer Valley Road, from 7th Avenue to 7th Street, and along 7th Street, from Deer Valley Road to Paradise Lane. The 7th Street Fiber Transportation Enhancement Project – Phase 1 will extend the City's real-time transportation management capability along key roadway corridors in the City and provide a Layer 3 switch to serve as a fiber node facility in the northern part of the City. This enables more reliable network routing for City ITS devices in the area, consistent with the applications being submitted in September 2019 for funding through the Maricopa Association of Governments System Management and Operations program.

The 7th Street project begins by connecting to the existing City fiber north of the intersection of 7th Avenue and Deer Valley Road. The project will provide infrastructure for the City of Phoenix to connect to the traffic signal at 7th Avenue and Deer Valley Road and travel east along Deer Valley Road using existing conduit to connect to a new pull box halfway between Central Avenue and 7th Street that will create a new connection point along existing City conduit infrastructure. New conduit infrastructure will be installed east from that new pull box to the intersection of 7th Street and Deer Valley Road. New cabinet will be installed near the northwest corner of the 7th Street and Deer Valley Road intersection and provide infrastructure for a fiber connection to the traffic signal in the southwest corner. New conduit and fiber infrastructure will travel south along 7th Street and to cross the State Route 101L (commonly referred to as Loop 101) freeway. The conduit and fiber infrastructure (Cable and pull boxes) will continue south along 7th Street to provide a node connection (pull box #9) to each of the traffic signals along the corridor ending at the traffic signal at the 7th Street and Paradise Lane.

This project will utilize federal funds and is subject to the requirements of 49 Code of Federal Regulations Part 26 and the U.S. Department of Transportation DBE Program.

A Disadvantaged Business Enterprise goal of 4.19 percent has been established for this project.

The City of Phoenix, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252.42 U.S.C. §§ 2000d-4) and the Regulations, hereby notifies all bidders that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.

PRE-BID MEETING

A pre-bid meeting will be held on Tuesday, September 3, 2024, at 10:00 a.m., Phoenix time, at 1034 E. Madison Street, Phoenix, AZ 85034, Gecko Conference Room. At this meeting, staff will discuss the scope of work, general contract issues and respond to questions from the attendees. As City staff will not be available to respond to individual inquiries regarding the project scope outside of this pre-bid meeting, it is strongly recommended that interested firms send a representative to the pre-bid meeting.

REQUEST FOR BID PACKET

On Thursday, August 22, 2024, the bid packet may be downloaded from the City of Phoenix's eProcurement site at:

<https://eprocurement.phoenix.gov/irj/portal>

(OR)

the City of Phoenix's "Solicitations" web page as. The web address is:

<https://solicitations.phoenix.gov>

Firms receiving a copy of the bid packet through any other means are strongly encouraged to download the bid packet from the City webpage.

Firms must be registered in eProcurement <https://www.phoenix.gov/finance/vendorsreg> as a vendor.

GENERAL INFORMATION

The City reserves the right to award the contract to the lowest responsible responsive bidder or all bids will be rejected, as soon as practicable after the date of opening bids.

The City of Phoenix will provide reasonable accommodations for alternate formats of the bid packet by calling Kathleen Kennedy at (602) 534-5789 or calling TTY 711. Requests will only be honored if made within the first week of the advertising period. Please allow a minimum of seven calendar days for production.

Questions pertaining to process or contract issues should be directed to Kathleen Kennedy at (602) 534-5789 or kathleen.kennedy@phoenix.gov.

Jeffrey Barton
City Manager

Eric J. Froberg, PE
City Engineer

Published: Arizona Business Gazette
Date: August 22, 2024
Date: August 29, 2024
Districts: 1,3 and 4

INFORMATION FOR BIDDERS

1. **102 BIDDING REQUIREMENTS AND CONDITIONS**, Add the following to **MAG and COP Supplement to MAG Section 102 BIDDING REQUIREMENTS AND CONDITIONS**:

INFORMATION FOR BIDDERS

A. **QUESTIONS ON PLANS AND SPECIFICATIONS**

Neither the Engineer nor the City of Phoenix shall be held responsible for any oral instructions. Any changes to the plans and specifications will be in the form of an addendum. All Addenda will be posted online within the project folder at the following website:

<https://eprocurement.phoenix.gov/irj/portal>

OR

<https://solicitations.phoenix.gov>

For additional information prior to submitting your bid, contact:

Plans, Technical/Special Provisions, Proposal or Specifications:

NAME: Kathleen Kennedy, Design and Construction Procurement

ADDRESS: 200 W. Washington Street, 5th Floor, Phoenix, AZ 85003-1611

PHONE: (602) 534-5789 E-MAIL: kathleen.kennedy@phoenix.gov.

DBE Utilization contact:

Equal Opportunity Department: (602) 262-6790

All questions regarding the plans and specifications must be received (in writing) at a minimum seven calendar days prior to bid opening. Questions received after that time may not be given any consideration.

B. **REQUEST FOR SUBSTITUTIONS**

Paragraph A, B, and C of MAG Section 106.4 are deleted and the following paragraphs substituted:

1. The Engineer will consider written request(s), by a prime bidder only, for substitution(s) which is/are considered equivalent to the item(s) specified in the Contract documents. The written request will be considered only if it is received at least twelve calendar days prior to the established bid date. Notification of acceptable substitutions will be made by addendum issued no fewer than seven calendar days prior to the established bid date. (A.R.S. 34-104)
2. The prime bidder, at his own expense, shall furnish the necessary data of substitution and validate that the physical, chemical, and operational qualities of each substitute item is such that this item will fulfill the originally specified required function.
3. The substitution, if approved, will be authorized by a written addendum to the Contract documents and will be made available to all bidders. The bid date and the scheduled completion time will not be affected by any circumstances developing from this substitution.
4. The request will be submitted to Design and Construction Procurement, Attention Kathleen Kennedy 5th floor, Phoenix City Hall, 200 W. Washington Street, Phoenix, Arizona 85003-1611 or via email to kathleen.kennedy@phoenix.gov.

C. **BID BOND**

Bidders must submit a properly completed proposal guarantee in the form of certified check, cashier's check, or surety bond on the form provided, for an amount not less than ten percent of the total amount bid included in the proposal as a guarantee that the contractor will enter into a contract to perform the proposal in accordance with the plans and specifications. Surety bonds submitted for this project shall be provided by a company which has been rated "A- or better for the prior four quarters" by the A.M. Best Company. ***A bid will be deemed non-responsive if not accompanied by this guarantee.***

The surety bond shall be executed solely by a surety company or companies holding a certificate of authority to transact surety business in the State of Arizona, issued by the Director of the Department of Insurance pursuant to Title 20, Chapter 2, Article 1. The surety bond shall not be executed by an individual surety or sureties even if the requirements of Section 7-101 are satisfied. The certified check, cashiers check, or surety bond will be returned to the contractors whose proposals are not accepted, and to the successful contractor upon the execution of a satisfactory bond and contract.

When providing a Surety Bond, ***failure to provide an "A- or better for the prior four quarters" bond will result in bid rejection.***

D. **LIST OF MAJOR SUBCONTRACTORS AND SUPPLIERS & LIST OF ALL SUBCONTRACTORS AND SUPPLIERS**

A bid will be deemed non-responsive if not accompanied by a properly completed and signed L.O.S.-1 "List of Major Subcontractors and Suppliers" form.

To assist in eliminating the practice of bid shopping on City construction projects, the Bidder shall list all Major Subcontractors and Suppliers to whom the Bidder intends to contract with that are equal to or greater than 5% of the base bid. The list of Major Subcontractors and Suppliers will be provided on the L.O.S.-1 "List of Major Subcontractors" form. Failure to properly complete and sign this form will result in bid rejection. This form is due with the bid.

If substantial evidence exists that bid shopping occurred on this project, the Bidder will be ineligible to bid on City or City-affiliated construction projects for a period of one year.

The list of All Subcontractors and Suppliers shall be provided on the L.O.S.-2 "List of All Subcontractors and Suppliers" form. This form is due five calendar days after bid opening by 4:00 p.m. All bidders will be required to submit the L.O.S.-1 form. The three lowest bidders will be required to submit the L.O.S.-2 form. If the L.O.S.-2 form is not submitted by the post-bid deadline, the Bidder will still be required to submit the document prior to award. If the Bidder fails to submit the required L.O.S.-2 form by the post-bid deadline, the Bidder's bid bond may be placed in jeopardy because the City may make a claim against the Bidder's bid bond for the cost difference between the lowest responsive and responsible Bidder's bid and the next lowest bid (and any additional costs involved in awarding the contract to the next lowest responsive and responsible bidder).

E. **BID SUBMITTAL**

The properly completed bid documents along with the ten percent bid guarantee shall be submitted in a sealed envelope. The outside of the envelope shall be marked as follows:

Bid of (Firm's Name, Address and Phone Number)
For: 7th Street Fiber Transportation Enhancement Design-Bid-Build

City of Phoenix Project Number: ST89340660
Federal Aid Project Number: PHX-0(361)D
ADOT TRACS Number: T0236 01C

Sealed bids will be submitted to the bid box located on the first floor of the Phoenix City Hall Building, 200 W. Washington Street, Phoenix, Arizona, 85003 prior to the time and date specified for bid opening.

F. **BID WITHDRAWALS**

MAG Section 102-10, Withdrawal or Revision of Proposal, is hereby deleted and the following paragraph is submitted:

“No bidder may withdraw or revise a proposal after it has been deposited with the City except as provided in Phoenix City Code Chapter 2, Section 190.2. Proposals, read or unread, will not be returned to the bidders until after determination of award has been made.

G. **ADDENDA**

Acknowledge all addenda; a bid will be deemed non-responsive if all issued addenda for this project are not acknowledged in writing on Page P. -1.

The City of Phoenix shall not be responsible for any oral responses or instructions made by any employees or officers of the City of Phoenix regarding bidding instructions, plans, drawings, specifications or contract documents. A verbal reply to an inquiry does not constitute a modification of the Invitation for Bid. Any changes to the plans, drawings and specifications will be in the form of an addendum.

It shall be the responsibility of the prospective bidder to determine, prior to the submittal of its bid, if any addenda to the project have been issued by Design and Construction Procurement. All addenda issued shall be acknowledged by the bidder on Page P-1. All addenda (if any) will be available online within each project's folder at the following website:

<https://eprocurement.phoenix.gov/irj/portal>

or

<https://solicitations.phoenix.gov>

The contractors and/or consultants are responsible for ensuring they have all addenda and/or notifications for all projects they are submitting on. Prospective bidders are strongly encouraged to check the Design and Construction Procurement website to ascertain if any addenda have been issued for the project.

H. **BID SUBMITTAL CHECKLIST**

All firms must be registered in the City's Vendor Management System prior to submitting a bid. For new firms – the City will send an email to your firm with a vendor number within two days of submitting the request. The vendor number needs to be included on the cover of the bid proposal package/envelope. Information on how to register with the City is available at:

<https://www.phoenix.gov/finance/vendorsreg>

BID SUBMITTAL CHECKLIST

This checklist is provided to remind bidders of several of the required elements of the bid packages. It is not intended to be a comprehensive list of all of the contract documents. Bidders are encouraged to review all of the Bid Instructions to determine compliance therein.

- Acknowledge all addenda? (Page P.-1)
- Completed all of the Bid Proposal forms? (Pages P-1 to P-2 and P.S.-1)
- Included your Bid Bond (rated A- or better for the prior four quarters) or Guarantee Cashier's Check? (Page S.B.-1)
- Completed ADOT DBE Assurance Form 3102C
- Completed Certification with Regard to Equal Opportunity Clause for Contractor and Subcontractors (E.O.C.-1)
- Completed List of Major Subcontractors and Suppliers form? (Page L.O.S.-1)
- Buy American Certificate? (Page B.A.C.-1)
- No Collusion Affidavit? (Page N.C.A.-1)

PLEASE DO NOT SUBMIT THE ENTIRE SPECIFICATION BOOK WHEN SUBMITTING YOUR BID. INCLUDE ONLY THE REQUIRED BIDDING DOCUMENTS.

POST-BID SUBMITTAL CHECKLIST

The three lowest bidders must submit completed contracts documents listed below, no later than five calendar days after bid opening by 4:00 p.m. The documents must be submitted to Design and Construction Procurement, 5th Floor, or can be sent by email to kathleen.kennedy@phoenix.gov.

- **All Bidders** - ADOT Online Bidder's List confirmation email from ADOT
- **All Bidders** – ADOT DBE Intended Participation Affidavit: Individual Form 3105C
- **All Bidders** – ADOT DBE Intended Participation Affidavit Summary for Prime Form 3106C
- Completed List of All Subcontractors and Suppliers form (L.O.S.-2)
- Bidders Disclosure Statement (Pages B.D.S.-1 to 4)
- Submit Affidavit of Identity (if you are a sole proprietor) (Page A.O.I.-1)

PRIOR TO CONTRACT EXECUTION

- Contractor must provide proof of license required to perform the work.
- Verification of Experience Modification Rate (EMR) – the awarded company will be required to provide an EMR verification letter from the insurance company prior to contract execution.

***ALL DOCUMENTS NOTED AS REQUIRED IN SUBCONTRACTS MUST BE INCLUDED IN**

EVERY SUBCONTRACT THAT IS UPLOADED INTO THE B2G SYSTEM.

I. PERMITS

CITY RESPONSIBILITY – The City will be responsible for City of Phoenix review and permit(s) fees for building and demolition permits. The City will also pay review fees for grading and drainage, water, sewer, and landscaping. The City will also pay for utility design fees for permanent services.

CONTRACTOR RESPONSIBILITY – The Contractor will be responsible for all other permits and review fees not specifically listed above. The Contractor is responsible for the cost of water meters, water and sewer taps, fire lines and taps, and all water bills on the project meters until the project is accepted. Arrangements for construction water are the Contractor's responsibility.

The Contractor may elect to use a City fire hydrant for its source of construction water only if an existing water service connection is unavailable or inadequate. The Contractor will be required to comply with Phoenix City Code Section 37-13A.

The Contractor is specifically reminded of the need to obtain the necessary environmental permits or file the necessary environmental notices. Copies of these permits and notices must be provided to the City's Project Manager prior to starting the permitted activity. In the case of Fire Department permits, a copy of the application for permit will also be provided to the Project Manager. This provision does not constitute an assumption by the City of an obligation of any kind for violation of said permit or notice requirements.

J. DBE PARTICIPATION

See EPRISE LPA Sub-Recipient with Goal and ADOT Contractor Compliance Agreement Assurances sections.

K. BUSINESS AND OPERATION LICENSES, PERMITS AND CERTIFICATIONS REQUIRED

It is the responsibility of the bidder to determine whether it has the appropriate contracting licenses to perform the work. The City will make the award, if any, to the lowest responsive, responsible bidder who has the proper licenses. For all projects except Federal-aid funded projects, the bidder must have the proper licenses at the time the bid is submitted to the City. On Federal-aid funded projects, the bidder is not required to have the licenses at the time of bidding, but it must procure the licenses before award can be made, and no later than 60 days after the date bids are opened. Licensing information is available from the Arizona Registrar of Contractors.

Prior to award of the contract, the successful bidder must provide Design and Construction Procurement its Contractor's License Classification and number, its City of Phoenix Privilege License number and Federal Tax Identification number.

Bidder shall submit the Bidder's Disclosure Statement as set forth in Pages B.D.S. - 1 to B.D.S. - 4 within five calendar days of bid opening by 5:00 p.m. Bidder will be deemed non-responsive and the bid rejected if Bidder fails to submit a substantially completed Bidder's Disclosure Statement as specified above.

L. TAX LIABILITIES; DISCLOSURE OF CONVICTIONS AND BREACH(ES) OF CONTRACT

On or before the award of the contract for this project, the successful bidder shall: (i) file all applicable tax returns and shall make payment for all applicable State of Arizona and Maricopa County Transaction Taxes (ARS Sec. 41-1305) and City of Phoenix Privilege

License Taxes (Phoenix City Code Sec.14-415); (ii) disclose any civil fines, penalties or any criminal convictions, other than for traffic related offenses, for violation of federal, state, county or city laws, rules or regulations including, but not limited to, environmental, OSHA, or labor compliance laws (collectively "Laws") by Bidder, Bidder's directors, managing members, responsible corporate officers or party who will be responsible for overseeing and administering this project (collectively "Bidder"); and (iii) disclose any material breach(s) of an agreement with the City of Phoenix, any termination for cause or any litigation involving the City of Phoenix occurring within the past three calendar years. Unless provided otherwise in this solicitation, the successful bidder shall be deemed non-responsible and the bid rejected for any of the following: (i) Bidder's civil or criminal conviction, other than for traffic related offenses, for a violation of Laws within the past three calendar years; (ii) liability or culpability resulting in payment of fines or penalties in the cumulative total amount of \$100,000 or greater for a violation of "Laws" within the past three calendar years; (iii) material breach of a City of Phoenix agreement, termination for cause or litigation with the City of Phoenix within the past three calendar years; and (iv) Bidder's failure to disclose the information as required by this provision. Further, after award of contract, in addition to any other remedy, Bidder's failure to remit proper taxes to the City of Phoenix may result in the City withholding payment pursuant to Phoenix City Charter Chapter XVIII, Section 14 until all delinquent taxes, interest, and penalties have been paid.

State and Local Transaction Privilege Taxes:

In accordance with applicable state and local law, transaction privilege taxes may be applicable to this transaction. The state and local transaction privilege (sales) tax burden is on the person who is conducting business in Arizona and the City of Phoenix. The legal liability to remit the tax is on the person conducting business in Arizona. Any failure by the Contractor to collect applicable taxes from the City will not relieve the Contractor from its obligation to remit taxes.

It is the responsibility of the prospective bidder to determine any applicable taxes. The City will review the price or offer submitted and will not deduct, add or alter pricing based on taxes.

If you have questions regarding tax liability, seek advice from a tax professional prior to submitting bid. Once your bid is submitted, the Offer is valid for the time specified in this Solicitation, regardless of mistake or omission of tax liability.

If the City finds over payment of a project due to tax consideration that was not due, the Contractor will be liable to the City for that amount, and by contracting with the City agrees to remit any overpayments back to the City for miscalculations on taxes included in a bid price.

For purposes of A.R.S. 42-5075(P), this contract is subject to A.R.S. Title 34.

Tax Indemnification:

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

Tax Responsibility Qualification:

Contractor may be required to establish, to the satisfaction of City, that any and all fees and taxes due to the City or the State of Arizona for any License or Transaction Privilege taxes, Use Taxes or similar excise taxes, are currently paid (except for matters under legal protest).

Contractor agrees to a waiver of the confidentiality provisions contained in the City Finance Code and any similar confidentiality provisions contained in Arizona statutes relative to State Transaction Privilege Taxes or Use Taxes.

Contractor agrees to provide written authorization to the City Finance Department and to the Arizona State Department of Revenue to release tax information relative to Arizona Transaction Privilege Taxes or Arizona Use Taxes in order to assist the Department in evaluating Contractor's qualifications for and compliance with contract for duration of the term of contract.

M. STANDARD SPECIFICATIONS AND DETAILS

Except as otherwise required in these specifications, bid preparation and construction of this project shall be in accordance with all applicable Maricopa Association of Governments' (MAG) Uniform Standard Specifications and Uniform Standard Details, latest edition, the City of Phoenix Supplements to the MAG Uniform Standard Specifications and Details, latest edition, and the Arizona Department of Transportation (ADOT) Standard Specifications for Road and Bridge Construction, latest edition.

N. PRECEDENCE OF CONTRACT DOCUMENTS

In case of a discrepancy or conflict, the precedence of contract documents is as follows:

1. Change Orders or Supplemental Agreements
2. Addenda
3. Contract Specifications/Special Provisions/Technical Provisions
4. The Plans
5. COP Supplement to MAG Standard Specifications and Details, latest edition
6. MAG Standard Specifications and Details, latest edition
7. ADOT Standard Specifications for Roads and Bridges Construction, latest edition

The precedence of any Addenda falls within the category of which it represents.

O. CONFIDENTIALITY OF PLANS & SPECIFICATIONS

Any plans generated for this project must include the following statement in the Title Block on every page: "Per City of Phoenix City Code Chapter 2, Section 2-28, these plans are for official use only and may not be shared with others except as required to fulfill the obligations of Contractor's contract with the City of Phoenix."

P. AUDIT AND RECORDS

Records of the Contractor's direct personnel payroll, bond expenses, and reimbursable expenses pertaining to this Project, and records of accounts between the City and Contractor shall be kept on the basis of generally accepted accounting principles and must be made available to the City and its auditors for up to five years following Final Acceptance of the Project.

The City, its authorized representative, and/or any federal agency, reserves the right to audit the Contractor's records to verify the accuracy and appropriateness of all cost and pricing data, including data used to negotiate the Contract and any change orders.

The City reserves the right to decrease Contract price and/or payments made on this Contract and/or request reimbursement from the Contractor following final contract payment on this Contract if, upon audit of the Contractor's records, the audit discloses the Contractor has provided false, misleading, or inaccurate cost and pricing data.

The Contractor shall include a similar provision in all of its Agreements with subcontractors and suppliers providing services or supplying materials under the Contract Documents to ensure that the City, its authorized representative, and/or the appropriate federal agency has access to the Subcontractor's and Supplier's records to verify the accuracy of all cost and pricing data.

The City reserves the right to decrease the Contract price and/or payments made on this Contract and/or request reimbursement from the Contractor following final contract payment on this Contract if the above provision is not included in the Subcontractor's and Supplier's contracts, and one or more Subcontractors or Suppliers refuse to allow the City to audit their records to verify the accuracy and appropriateness of cost and pricing data.

If, following an audit of this Contract, the audit discloses the Contractor has provided false, misleading or inaccurate cost and pricing data, and the cost discrepancies exceed 1% of the total Contract billings, the Contractor shall be liable for reimbursement of the reasonable, actual cost of the audit.

Q. IMMIGRATION REFORM AND CONTROL ACT

Compliance with Federal Laws Required. Contractor understands and acknowledges the applicability of the Immigration Reform and Control Act of 1986 and the Drug Free Workplace Act to it. Contractor agrees to comply with these Federal Laws in performing under this Agreement and to permit City inspection of its personnel records to verify such compliance.

R. LEGAL WORKER REQUIREMENTS

The City of Phoenix is prohibited by A.R.S. § 41-4401 from awarding a contract to any contractor who fails, or whose subcontractors fail, to comply with A.R.S. § 23-214(A). Therefore, Contractor agrees that:

1. Contractor and each subcontractor it uses warrants their compliance with all federal immigration laws and regulations that relate to their employees and their compliance with § 23-214, subsection A.
2. A breach of a warranty under paragraph 1 shall be deemed a material breach of the contract that is subject to penalties up to and including termination of the contract.
3. The City of Phoenix retains the legal right to inspect the papers of any Contractor or subcontractor employee who works on the contract to ensure that the Contractor or subcontractor is complying with the warranty under paragraph 1.

S. CONTRACTOR AND SUBCONTRACTOR WORKER BACKGROUND SCREENING

Contractor agrees that all Contractor's and subcontractors' workers (collectively "Contract Worker(s)") pursuant to this Agreement will be subject to background and security checks and screening (collectively "Background Screening") at Contractor's sole cost and expense, unless otherwise provided for in the scope of work. Contractor's background screening will comply with all applicable laws, rules and regulations. Contractor further agrees that the background screening is necessary to preserve and protect the public health, safety and welfare. The City requires a completed Contract Worker Badge/Key/Intrusion Detection Responsibilities Agreement for each Contract Worker who requires a badge or key.

Background Screening Risk Level: The City has established two levels of risk: Standard and Maximum risk. The current risk level and background screening required is **N/A**. If the scope of work changes, the City may amend the level of risk, which could require the Contractor to incur additional contract costs to obtain background screens or badges.

Terms of This Section Applicable to all Contractor's Contracts and Subcontracts: Contractor will include Contract Worker background screening in all contracts and subcontracts for services furnished under this agreement.

Materiality of Background Screening Requirements; Indemnity: The background screening requirements are material to City's entry into this agreement and any breach of these provisions will be deemed a material breach of this contract. In addition to the indemnity provisions set forth in this agreement, Contractor will defend, indemnify and hold harmless the City for all claims arising out of this background screening section including, but not limited to, the disqualifications of a Contract Worker by Contractor. The background screening requirements are the minimum requirements for the Agreement. The City in no way warrants that these minimum requirements are sufficient to protect Contractor from any liabilities that may arise out of the Contractor's services under this Agreement or Contractor's failure to comply with this section. Therefore, Contractor and its Contract Workers will take any reasonable, prudent and necessary measures to preserve and protect public health, safety and welfare when providing services under this Agreement.

Continuing Duty; Audit: Contractor's obligations and requirements will continue throughout the entire term of this Agreement. Contractor will maintain all records and documents related to all background screenings and the City reserves the right to audit Contractor's records.

Contractor's Default; Liquidated Damages; Reservation of Remedies for Material Breach: If Contractor is required to access any City facilities without an escort, City badging is required. Contractor's default under this section will include, but is not limited to, the following:

- Contract Worker gains access to a City facility(s) without the proper badge or key;
- Contract Worker uses a badge or key of another to gain access to a City facility;
- Contract Worker commences services under this agreement without the proper badge, key or background screening;
- Contract Worker or Contractor submits false information or negligently submits wrong information to the City to obtain a badge, key or applicable background screening; or
- Contractor fails to collect and timely return Contract Worker's badge or key upon termination of Contract Worker's employment, reassignment of Contract Worker to another City facility or upon the expiration, cancellation or termination of this Agreement.
- Contractor acknowledges and agrees that the access control, badge and key requirements in this section are necessary to preserve and protect the public health, safety and welfare. Accordingly, Contractor agrees to properly cure any default under this section within three business days (excluding weekends and City holidays) from the date notice of default is sent by the City. The parties agree that Contractor's failure to properly cure any default under this section will constitute a breach of this section. In addition to any other remedy available to the City at law or in equity, the Contractor will be liable for and pay to the City the sum of \$1,000.00 for each breach by Contractor in this section. The parties further agree that the sum fixed above is reasonable and approximates the actual or anticipated loss to the City at the time and making of this agreement if Contractor breaches this section. Further, the parties expressly acknowledge and agree to the fixed sum set forth above because of the difficulty of proving the City's actual damages if Contractor breaches this section. The parties further agree that three breaches by Contractor in this section arising out of any default within a consecutive period of three months or three breaches by Contractor in this section arising out of the same default within a period of 12 consecutive months will constitute a material breach of this

agreement by Contractor and the City expressly reserves all of its rights, remedies and interests under this agreement, at law and in equity including, but not limited to, termination of this agreement.

Employee Identification and Access: Contract Workers are forbidden access to designated restricted areas. Access to each building will be as directed by the authorized Phoenix authorized representative. Contract Workers are not authorized access other than during scheduled hours. Access to the building will be directed by the City's authorized representative.

Only authorized Contract Workers are allowed on the premises of the City facilities/buildings. Contract Workers are not to be accompanied in the work area by acquaintances, family members, assistants or any other person unless said person is an authorized Contract Worker.

Unless otherwise provided for in the scope of work:

- Contract Workers must **always** have city issued badges and some form of verifiable company identification (badge, uniform, employee id).
- Contractor will supply a list of the names and titles of all employees requiring access to the buildings. It is the Contractor's responsibility to provide updates and changes of personnel as necessary.

Key Access Procedures: If the Contractor Worker's services require keyed access to enter a City facility(ies), a separate key issue/return form must be completed and submitted by the Contractor for each key issued. Contractor must submit the completed key issue/return form to the appropriate badging office.

Stolen or Lost Badges or Keys: Contractor must immediately report lost or stolen badges or keys to the City's appropriate badging office. If the badge/key was stolen, Contract Worker's must report the theft to their local police department. Prior to issuance of a new badge or key, a new badge application or key issue form must be completed, submittal of a police department report for stolen badges, and applicable payment of the fee(s) listed herein.

Return of Badge or Key: All badges and keys are the property of the City and must be returned to the City at the badging office within one business day (excluding weekends and City holidays) of when the Contract Worker's access to a City facility is no longer required to furnish the services under this agreement. Contractor will collect a Contract Worker's badge and key(s) upon the termination of the Contract Worker's employment; when the Contractor Worker's services are no longer required at a City facility(s); or upon termination, cancellation or expiration of this agreement.

Badge and Key Fees: The following constitute the badge and key fees under this agreement. The City reserves the right to amend these fees upon a 30-day prior written to Contractor.

Replacement Badge Fee:	\$55.00 per badge
Lost/Stolen Badge Fee:	\$55.00 per badge
Replacement Key Fee:	\$55.00 per key
Replacement Locks:	\$55.00 per lock

CONFIDENTIALITY AND DATA SECURITY: All data, regardless of form, including originals, images and reproductions, prepared by, obtained by, or transmitted to Contractor in connection with this Agreement is confidential, proprietary information owned by the City, unless otherwise agreed upon within this Agreement. Except as specifically provided in

this Agreement, the Contractor shall not disclose data generated in the performance of the service to any third person without the prior written consent of the City Manager or his/her designee.

Contractor agrees to abide by all current applicable legal and industry data security and privacy requirements and to notify the City immediately if the scope of work changes or personal identifying information or information subject to Payment Card Industry Standards becomes part of the Agreement.

Contractor agrees to comply with all City information security and technology policies, standards, and procedures when accessing City networks and computerized systems whether onsite or remotely.

A violation of this Section may result in immediate termination of this Agreement without notice. The obligations of Contractor under this Section shall survive the termination of this Agreement.

SECURITY INQUIRIES: Contractor acknowledges that all of the employees that it provides pursuant to this Contract shall, at Contractor's expense, be subject to background and security checks and screening at the request of the City. Contractor shall perform all such security inquiries and shall make the results available to the City for all employees considered for performing work (including supervision and oversight) under this Contract. City may make further security inquiries. Whether or not further security inquiries are made by the City, City may, at its sole, absolute and unfettered discretion, accept or reject any or all the employees proposed by the Contractor for performing work under this Contract. Employees rejected by the City for performing services under this Contract may still be engaged by Contractor for other work not involving the City. An employee rejected for work under this Contract shall not be proposed to perform work under other City contracts or engagements without the City's prior approval.

The City, in its sole discretion, reserves the right, but not the obligation to:

- require an employee/prospective employee of the Contractor to provide fingerprints and execute such other documentation as may be necessary to obtain criminal justice information pursuant to A.R.S. 41-1750 (G) (4);
- act on newly acquired information whether or not such information should have been previously discovered;
- unilaterally change its standards and criteria relative to the acceptability of Contractor's employees and/or prospective employees; and
- object, at any time and for any reason, to an employee of Contractor performing work (including supervision and oversight) under this Agreement. Contractor will bear the costs of all inquiries requested by the City.

T. LAWFUL PRESENCE REQUIREMENT

Pursuant to A.R.S. §§ 1-501 and 1-502, the City of Phoenix is prohibited from awarding a contract to any natural person who cannot establish that such person is lawfully present in the United States. To establish lawful presence, a person must produce qualifying identification and sign a City-provided affidavit affirming that the identification provided is genuine. This requirement will be imposed at the time of contract award. This requirement does not apply to business organizations such as corporations, partnerships or limited liability companies.

U. **LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN (LEED)**

If practical, the contractor shall provide an easily accessible area to serve the construction site that is dedicated to the separation, collection and storage of materials for recycling including (at a minimum) paper, glass, plastics, metals, and designate an area specifically for construction and demolition waste recycling. The contractor must provide documentation that the materials have been taken to a Maricopa County approved recycling facility.

V. **CITY OF PHOENIX EQUAL EMPLOYMENT OPPORTUNITY REQUIREMENT**

1. In order to do business with the City, Contractor must comply with Phoenix City Code, 1969, Chapter 18, Article V, as amended, Equal Employment Opportunity Requirements. Contractor will direct any questions in regard to these requirements to the Equal Opportunity Department, (602) 262-6790.
2. Any Contractor in performing under this contract shall not discriminate against any worker, employee or applicant, or any member of the public, because of race, color, religion, sex, national origin, age, or disability nor otherwise commit an unfair employment practice. The Contractor shall ensure that applicants are employed, and employees are dealt with during employment without regard to their race, color, religion, sex, national origin, age, or disability and will adhere to a policy to pay equal compensation to men and women who perform jobs that require substantially equal skill, effort, and responsibility, and that are performed within the same establishment under similar working conditions. Such action shall include but not be limited to the following: Employment, promotion, demotion or transfer, recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training; including apprenticeship. The Contractor further agrees that this clause will be incorporated in all subcontracts with all labor organizations furnishing skilled, unskilled and union labor, or who may perform any such labor or services in connection with this contract.

If the Contractor employs more than thirty-five employees, the following language shall apply as the last paragraph to the clause above:

The Contractor further agrees not to discriminate against any worker, employee or applicant, or any member of the public, because of sexual orientation or gender identity or expression and shall ensure that applicants are employed, and employees are dealt with during employment without regard to their sexual orientation or gender identity or expression.

3. *Documentation.* Contractor may be required to provide additional documentation to the Equal Opportunity Department affirming that a nondiscriminatory policy is being utilized.
4. *Monitoring.* The Equal Opportunity Department shall monitor the employment policies and practices of suppliers and lessees subject to this article as deemed necessary. The Equal Opportunity Department is authorized to conduct on-site compliance reviews of selected firms, which may include an audit of personnel and payroll records, if necessary.

W. **PROTEST PROCEDURES**

Any bidder who has any objections to the awarding of a contract to any bidder by the City of Phoenix, pursuant to competitive bidding procedures, shall comply with Phoenix City Code Chapter 2, Section 188."

X. **DATA CONFIDENTIALITY**

As used in the Contract, "data" means all information, whether written or verbal, including plans,

photographs, studies, investigations, audits, analyses, samples, reports, calculations, internal memos, meeting minutes, data field notes, work product, proposals, correspondence and any other similar documents or information prepared by, obtained by, or transmitted to the Contractor or its subcontractors in the performance of this Contract.

The parties agree that all data, regardless of form, including originals, images, and reproductions, prepared by, obtained by, or transmitted to the Contractor or its subcontractors in connection with the Contractor's or its subcontractor's performance of this Contract is confidential and proprietary information belonging to the City.

Except as specifically provided in this Contract, the Contractor or its subcontractors shall not divulge data to any third party without prior written consent of the City. The Contractor or its subcontractors shall not use the data for any purposes except to perform the services required under this Contract. These prohibitions shall not apply to the following data provided the Contractor or its subcontractors have first given the required notice to the City:

1. Data which was known to the Contractor or its subcontractors prior to its performance under this Contract unless such data was acquired in connection with work performed for the City;
2. Data which was acquired by the Contractor or its subcontractors in its performance under this Contract and which was disclosed to the Contractor or its subcontractors by a third party, who to the best of the Contractor's or its subcontractor's knowledge and belief, had the legal right to make such disclosure and the Contractor or its subcontractors are not otherwise required to hold such data in confidence; or
3. Data which is required to be disclosed by virtue of law, regulation, or court order, to which the Contractor or its subcontractors are subject.

In the event the Contractor or its subcontractors are required or requested to disclose data to a third party, or any other information to which the Contractor or its subcontractors became privy as a result of any other contract with the City, the Contractor shall first notify the City as set forth in this section of the request or demand for the data. The Contractor or its subcontractors shall give the City sufficient facts so that the City can be given an opportunity to first give its consent or take such action that the City may deem appropriate to protect such data or other information from disclosure.

The Contractor, unless prohibited by law, within ten calendar days after completion of services for a third party on real or personal property owned or leased by the City, the Contractor or its subcontractors shall promptly deliver, as set forth in this section, a copy of all data to the City. All data shall continue to be subject to the confidentiality agreements of this Contract.

The Contractor or its subcontractors assume all liability for maintaining the confidentiality of the data in its possession and agrees to compensate the City if any of the provisions of this section are violated by the Contractor, its employees, agents or subcontractors. Solely for the purposes of seeking injunctive relief, it is agreed that a breach of this section shall be deemed to cause irreparable harm that justifies injunctive relief in court. Contractor agrees that the requirements of this Section shall be incorporated into all subcontracts entered into by Contractor. A violation of this Section may result in immediate termination of this Contract without notice.

Personal Identifying Information-Data Security

Personal identifying information, financial account information, or restricted City information, whether electronic format or hard copy, must be secured and protected at all times. At a minimum, Contractor must encrypt and/or password protects electronic files. This includes data saved to laptop computers, computerized devices or removable storage devices.

When personal identifying information, financial account information, or restricted City information, regardless of its format, is no longer necessary, the information must be redacted or destroyed through appropriate and secure methods that ensure the information cannot be viewed, accessed, or reconstructed.

In the event that data collected or obtained by Contractor or its subcontractors in connection with this Contract is believed to have been compromised, Contractor or its subcontractors shall immediately notify the Project Manager and City Engineer. Contractor agrees to reimburse the City for any costs incurred by the City to investigate potential breaches of this data and, where applicable, the cost of notifying individuals who may be impacted by the breach.

Contractor agrees that the requirements of this Section shall be incorporated into all subcontracts entered into by Contractor. It is further agreed that a violation of this Section shall be deemed to cause irreparable harm that justifies injunctive relief in court. A violation of this Section may result in immediate termination of this Contract without notice.

The obligations of Contractor or its subcontractors under this Section shall survive the termination of this Contract.

Y. PROJECT MANAGEMENT INFORMATION SYSTEM (UNIFIER)

The Street Transportation Department's Programming and Project Delivery (PPD) Project Manager may determine that use of Unifier will be required during this contract. The following information provides a guideline for utilization. Any questions related to the requirements of Unifier should be directed to the PPD Project Manager.

1. The contractor will be required to maintain all project records in electronic format. The City provides an Application Service Provider (ASP) web-based project management database which the contractor will be required to utilize in the fulfillment of the contract requirements. Although this electronic platform does not fulfill this requirement in its entirety, the contractor will be required to utilize this platform as the basis for this work.
2. The contractor can expect to use this ASP to process all primary level tri-partite contract documents related to the design or construction phase of the Project including but not limited to: requests for interpretation/information, potential Change Orders, construction meeting minutes, Submittals, Design Professional's supplemental instructions, and Payment Requests.
3. The contractor will be required to process information into electronic digital form. In order to fulfill this requirement, the contractor shall provide all necessary equipment to perform the functions necessary to generate, convert, store, maintain, connect to web-based ASP and transfer electronic data.
4. The contractor shall provide a computerized networked office platform with broadband internet connectivity. Wired or wireless is acceptable. This platform shall function well in a web-based environment utilizing an internet browser compatible with the City Unifier ASP system.

Unifier training will be provided through the City of Phoenix. Contact information will be provided to the firms under contract, to establish the set up with a log-in and password.

Z. CONTRACTOR AND SUBCONTRACTOR RECORDS

The contractor, subcontractors and all suppliers shall keep and maintain all books, papers, records, files, accounts, reports, bid documents with backup data, including electronic data,

and all other material relating to the contract and project for five years following completion and acceptance of the work.

All the above material shall be made available to the City for auditing, inspection and copying and shall be produced, upon request.

The contractor shall insert the above requirement in each subcontract, purchase order and lease agreement and shall also include in all subcontracts a clause requiring subcontractors to include the above requirement in any lower-tier subcontract, purchase order or lease agreement.

AA. **FEDERAL IMMIGRATION AND NATIONALITY ACT**

The contractor, including all subcontractors, shall comply with all federal, state and local immigration laws and regulations, as set forth in Arizona Executive Order 2005-30, relating to the immigration status of their employees who perform services on the contract during the duration of the contract. The Agency shall retain the right to perform random audits of contractor and subcontractor records or to inspect papers of any employee thereof to ensure compliance.

By submission of a bid, the contractor warrants that the contractor and all proposed subcontractors are and shall remain in compliance with all federal, state and local immigration laws and regulations relating to the immigration status of their employees who perform services on the contract. The Agency may, at its sole discretion, require evidence of compliance from the contractor or subcontractor. Should the Agency request evidence of compliance, the contractor or subcontractor shall have ten working days from receipt of the request to supply adequate information. The City will accept, as evidence of compliance, a showing by the contractor or subcontractor that it has followed the employment verification provisions of the Federal Immigration and Nationality Act as set forth in Sections 274A and 274B of that Act, including implementation of regulations and agreements between the Department of Homeland Security and the Social Security Administration's verification service. The contractor shall include the requirements of the provisions of ADOT Standard Specifications Subsection 107.19 in all its subcontracts.

Failure to comply with the immigration laws or to submit proof of compliance constitutes a material breach of contract. The City will reduce the contractor's compensation by \$10,000 for the initial instance of non-compliance by the contractor or a subcontractor. Should the same contractor or subcontractor commit subsequent violations within a two-year time-period from the initial violation, the contractor's compensation will be reduced by \$50,000 for each violation. The third instance by the same contractor or subcontractor within a two-year period may result, in addition to the \$50,000 reduction in compensation, in removal of the offending contractor or subcontractor, suspension of work in whole or in part or, in the case of a third violation by the contractor, termination of the contract for default. In addition, the City may debar a contractor or subcontractor who has committed three violations within a two-year period for up to one year. For purposes of this paragraph, a violation by a subcontractor does not count as a violation by the contractor.

Any delay resulting from a sanction under this subsection is a non-excusable delay. The contractor is not entitled to any compensation or extension of time for any delays or additional costs resulting from a sanction under this subsection.

BB. **PROJECT STAFFING**

Key Personnel: Before starting work, Contractor must submit detailed résumés of key personnel involved in that work for City's approval (which City will not unreasonably withhold). If Contractor later desires to change key personnel involved in that work, Contractor must

submit detailed résumés of the new personnel for City's approval (which City will not unreasonably withhold).

Qualified Staff: Contractor must maintain an adequate and competent staff of qualified persons—as City may determine in its sole discretion—during performance of this Master Agreement. If City in its sole discretion determines that any of Contractor's staff is objectionable, Contractor must take prompt corrective action or replace that staff with new personnel, subject to City's approval.

Third-Party Employment Brokers: Contractor and Subcontractors will not utilize a third-party labor broker for any construction worker under this Agreement. The Contractor and Subcontractors must be the employers of record for its construction staff under this Agreement.

CC. **NO ISRAEL BOYCOTT**

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

DD. **NO FORCED LABOR OF ETHNIC UYGHURS**

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

EE. **COMPLIANCE WITH LAWS**

Contractor must comply with all existing and subsequently enacted federal, state and local laws, ordinances and codes, all applicable ADA requirements, regulations that are, or become applicable to this Agreement, and be in general conformance with PROWAG guidance. If a subsequently enacted law imposes substantial additional costs on Contractor, a request for an amendment may be submitted pursuant to this Agreement. Contractor is also required to certify its compliance with all applicable laws and Contractor must pass along these requirements to its Subcontractors. If any of Contractor's certifications is found to be false, the City may terminate this Agreement or impose other remedies due to the false certification.

FF. **HEAT MITIGATION**

Per Phoenix City Code G-7241, effective April 25, 2024, any Contractor whose employees and contract workers perform work in an outdoor environment under this contract must keep on file a written heat safety plan. The City may request a copy of this plan and documentation of all heat safety and mitigation efforts currently implemented to prevent heat-related illnesses and injuries in the workplace. The plan must also be posted where it is accessible to employees. At a minimum, the heat safety and mitigation plan and documentation required under this Provision shall include each of the following as it relates to heat safety and mitigation:

1. Availability of sanitized cool drink water free of charge at locations that are accessible to all employees and contract workers.
2. Ability to take regular and necessary breaks as needed and additional breaks for hydration.
3. Access to shaded areas and/or air conditioning.
4. Access to air conditioning in vehicles with enclosed cabs. All such vehicles must contain functioning air conditioning by no later than May 1, 2025.
5. Effective acclimatization practices to promote the physiological adaptations of employees or contract workers newly assigned or reassigned to work in an outside environment.
6. Conduct training and make it available and understandable to all employees and contract workers on heat illness and injury that focuses on the environmental and personal risk factors, prevention, how to recognize and report signs and symptoms of heat illness and injury, how to administer appropriate first aid measures and how to report heat illness and injury to emergency medical personnel.

The Contractor further agrees that this clause will be incorporated in all subcontracts with subconsultants, sublicensees or sublessees who may perform labor or services in connection with this contract. Additionally, the Contractor agrees to require all subcontractors, sublicensees or sublessees to include this clause in all contracts with any third party who is contracted to perform labor or services in connection with this contract. It is the obligation of the Contractor to ensure compliance by its subcontractors.

SUPPLEMENTARY CONDITIONS

1. **103 AWARD AND EXECUTION OF CONTRACT,** Add the following to **Subsection 103.3 AWARD OF CONTRACT:**

Contract award will be made to a responsive and responsible bidder based on the low total base bid or on the low combination of the total base bid and any selected alternate(s), whichever is in the best interest of the City. If unit pricing is required in the proposal, the extensions and additions will be verified to ensure correctness. Award will be based on the revised total if any errors are found. Additionally, the Contractor shall meet the minimum DBE subcontracting goal set for this contract or have been granted a full or partial waiver of the goal. The City expressly reserves the right to cancel this agreement without recourse or prejudice to Contractor until all parties have executed the agreement in full.

Any bidder that currently contracts with the City must be in good standing for its proposal to be considered responsive. For the purpose of this Invitation to Bid, good standing means compliance with all contractual provisions, including payment of financial obligations.

Within 30 days of contract execution and prior to scheduling of a Pre-construction conference meeting, the Contractor may request early procurement of long lead materials. The Contractor's request shall be accompanied by comprehensive justification documents for review; this will include but is not limited to letters from material manufacturers or suppliers, and a project schedule showing the impact and incorporation of long lead items into the project to support the early procurement request. The request shall also outline the expected commencement of construction. The Engineer will evaluate the Contractor's early procurement request and practicable start of construction. Upon review of the request, the Engineer may issue a Notice of Intent or Limited Notice to Proceed based on the agreed upon date in the schedule. After approval of applicable material submittals, the Contractor can then choose to proceed and order long lead item materials. Failure to submit this request after execution of the contract may result in denying requests for additional time for procurement or supply chain concerns. No additional compensation or adjustment in unit prices will be considered as a result of the Contractor's request.

2. **103 AWARD AND EXECUTION OF CONTRACT,** Add the following to **Subsection 103.5, REQUIREMENT OF CONTRACT BONDS:**

1. PERFORMANCE BOND AND LABOR AND MATERIAL BOND

Prior to the execution of a contract, the successful bidder must provide a performance bond and a labor and material bond, each in an amount equal to the full amount of the contract. Each such bond shall be executed by a surety company or companies holding a certificate of authority to transact surety business in the State of Arizona issued by the Director of the Department of Insurance. A copy of the Certificate of Authority shall accompany the bonds. The Certificate shall have been issued or updated within two years prior to the execution of the Contract. The bonds shall be made payable and acceptable to the City of Phoenix. The bonds shall be written or countersigned by an authorized representative of the surety who is either a resident of the State of Arizona or whose principal office is maintained in this state, as required by law, and the bonds shall have attached thereto a certified copy of Power of Attorney of the signing official. If one Power of Attorney is submitted, it shall be for twice the total contract amount. If two Powers of Attorney are submitted, each shall be for the total contract amount. Personal or individual bonds are not acceptable. Failure to comply with these provisions will be cause for rejection of the bidder's proposal.

2. BONDING COMPANIES

All bonds submitted for this project shall be provided by a company which has been rated "A-

or better for the prior four quarters” by the A. M. Best Company. **Failure to provide an "A- or better for the prior four quarters" bond will result in bid rejection.**

3. **103 AWARD AND EXECUTION OF CONTRACT**, Delete **Subsection 103.6, CONTRACTOR'S INSURANCE** in its entirety and substitute the following:

103.6.1 General:

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

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

1. SCOPE AND LIMITS OF INSURANCE

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

1. Commercial General Liability – Occurrence Form

Policy must include bodily injury, property damage, broad form contractual liability and XCU coverage.

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

a. The policy must name the City of Phoenix as an additional insured with respect to liability for bodily injury, property damage and personal and advertising injury with respect to premises, ongoing operations, products and completed operations, and liability assumed under an insured contract arising out of the activities performed by, or on behalf of the Contractor, related to this Contract.

b. Coverage must include XCU coverage.

c. There shall be no endorsement or modification which limits the scope of coverage or the policy limits available to the City of Phoenix as an additional insured.

d. City of Phoenix is an additional insured to the full limits of liability purchased by the Contractor.

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

f. Contractor's policies must be endorsed to provide an extension of the completed operations coverage for a period of nine years.

2. Automobile Liability

Bodily injury and property damage for any owned, hired, and non-owned vehicles used in the performance of this Contract.

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

a. The policy must be endorsed to include The City of Phoenix as an additional insured with respect to liability arising out of the activities performed by, or on behalf of the Contractor, related to this contract.

b. City of Phoenix is an additional insured to the full limits of liability purchased by the Contractor.

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

3. **Worker's Compensation and Employers' Liability**

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

a. Policy must contain a waiver of subrogation against the City of Phoenix.

b. This requirement does not apply when a Contractor or subcontractor is exempt under A.R.S. §23-902(E), **AND** when such Contractor or subcontractor executed the appropriate sole proprietor waiver form.

4. **No Builders' Risk Insurance required.**

2. NOTICE OF CANCELTION

For each insurance policy required by the insurance provisions of this Contract, the Contractor must provide to the City, within five business days of receipt, a notice if a policy is suspended, voided or cancelled for any reason. Such notice must be mailed, emailed or hand delivered to Design and Construction Procurement, 200 W. Washington Street, 5th Floor, by certified mail, return receipt requested.

3. ACCEPTABILITY OF INSURERS

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

4. VERIFICATION OF COVERAGE

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

All certificates and any required endorsements are to be received and approved by the City before work commences. Each insurance policy required by this Contract must be in effect at or prior to commencement of work under this Contract and remain in effect for the duration of

the project. Failure to maintain the insurance policies as required by this Contract or to provide evidence of renewal is a material breach of contract.

All certificates required by this Contract must be sent directly to Design and Construction Procurement via email at **str.title34.procure@phoenix.gov**. **The City project number, contract number and project description must be noted on the certificate of insurance.** The City reserves the right to require complete copies of all insurance policies required by this Contract, at any time. **DO NOT SEND CERTIFICATES OF INSURANCE TO THE CITY'S RISK MANAGEMENT DIVISION.**

5. SUBCONTRACTORS

Contractor's certificates shall include all subcontractors as additional insureds under its policies **OR** Contractor shall be responsible for ensuring and verifying that all subcontractors have valid and collectable insurance. At any time throughout the life of the contract, the City of Phoenix reserves the right to require proof from the Contractor that its subcontractors have insurance coverage. All subcontractors providing services included under this Contract's Scope of Services are subject to the insurance coverages identified above and must include the City of Phoenix as an additional insured. In certain circumstances, the Contractor may, on behalf of its subcontractors, waive a specific type of coverage or limit of liability where appropriate to the type of work being performed under the subcontract. Contractor assumes liability for all subcontractors with respect to this Contract.

6. APPROVAL

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

103.6.2 Defense and Indemnification

To the maximum extent allowed by law, including Title 34 A.R.S., Contractor ("Indemnitor") agrees to defend, indemnify, and hold harmless the City of Phoenix and its officers, officials (elected or appointed), agents and employees (and any jurisdiction or agency issuing permits for any work included in the project, and its officers, agents and employees) ("Indemnitee") from any and all claims, actions, liabilities, damages, losses or expenses, (including but not limited to court costs, attorney fees, expert fees, and costs of claim processing, investigation and litigation) of any nature or kind whatsoever ("Losses") caused or alleged to be caused, in whole or in part, by the wrongful, negligent or willful acts, or errors or omissions of Indemnitor or any of its owners, officers, directors, members, managers, agents, employees, or subcontractors (Indemnitor's Agents") arising out of or in connection with this Contract. This defense and indemnity obligation includes holding Indemnitee harmless for any Losses or other amount arising out of or recovered under any state's workers' compensation law or arising out of the failure of Indemnitor or Indemnitor's Agents to conform to any federal, state or local law, statute, ordinance, rule, regulation, or court decree. Indemnitor's duty to defend Indemnitee accrues immediately at the time a claim is threatened or a claim is made against Indemnitee, whichever is first. Indemnitor's duty to defend exists regardless of whether Indemnitor is ultimately found liable. Indemnitor must indemnify Indemnitee from and against any and all Losses, except where it is proven that those Losses are solely as a result of Indemnitee's own negligent or willful acts or omissions. Indemnitor is responsible for primary loss investigation, defense and judgment costs where this indemnification applies. In consideration of the City's award of this Contract, Indemnitor agrees to waive all rights of subrogation against Indemnitee for losses arising from or related to any work performed by Indemnitor or Indemnitor's Agents for the City of Phoenix under this Contract. The obligations of Indemnitor under this provision survive the termination or expiration of this Contract.

4. **104 SCOPE OF WORK**, Add the following to **Section 104.1 WORK TO BE DONE**:

The following environmental commitment measures are required to be followed. Refer to Environmental Clearance Letter section for additional information and guidance.

The project mitigation measures are not subject to change without written approval from ADOT Environmental Planning. The Contractor shall follow all the requirements of the permits specified herein and comply with the project special provisions, as well as the MAG Uniform Standard Specifications for Public Works, as well as all applicable local environmental requirements.

I. Project Mitigation Measures:

City of Phoenix Responsibilities:

- The attached Migratory Bird Treaty Act flyer will be incorporated into the bid documents and provided to the contractor, subcontractors, and all field personnel at the preconstruction meeting. The City of Phoenix Project Manager will ensure the contractor posts the Migratory Bird Treaty Act flyer at the construction site at all times during construction.
- If trees or shrubs will be impacted between February 1 and August 31 of any calendar year, or if an active bird nest is present within 30 feet of the work area, the City of Phoenix Project Manager will ensure that all work ceases within 30 feet and the Office of the City Engineer Environmental Services Section is immediately notified and allowed time to make appropriate arrangements.

Contractor Responsibilities:

- The contractor shall post the Migratory Bird Treaty Act flyer at the construction site at all times during construction.
- If trees or shrubs would be impacted between February 1 and August 31 of any calendar year, or if an active bird nest is present within 30 feet of the work area, work shall cease within 30 feet. The contractor shall immediately notify the City of Phoenix Project Manager and Office of the City Engineer Environmental Services Section. Reasonable time shall be allowed for a qualified biologist to arrive at the site and determine a compliant course of action.

II. Guidelines:

Migratory Bird Treaty Act Flyer

5. **104 SCOPE OF WORK,** Add the following to **Subsection 104.1.2 MAINTENANCE OF TRAFFIC:**

ADA AND ANSI ACCESS OF PREMISES DURING CONSTRUCTION

Contractor shall maintain existing ADA and ANSI accessibility requirements during construction activities in an occupied building or facility. ADA and ANSI accessibility requirements shall include, but not be limited to, parking, building access, entrances, exits, restrooms, areas of refuge, and emergency exit paths of travel. Contractor shall be responsible for the coordination of all work to minimize disruption to building occupants and facilities.

6. **104 SCOPE OF WORK,** Add the following to **Subsection 104.1.4 CLEANUP AND DUST**

CONTROL:

The Contractor shall use a power pick-up broom as part of the dust control effort. No separate measurement or payment will be made for cleanup or dust control, or for providing a power pick-up broom on the job.

7. **105 CONTROL OF WORK,** Add the following to **Subsection 105.1, AUTHORITY OF THE ENGINEER:**

1. CONTRACT ADMINISTRATION

The definition of "Engineer" shall read as follows:

"Engineer": All references to "Engineer" in these contract bid documents, including the MAG Specifications, shall mean City Engineer.

2. PRECONSTRUCTION CONFERENCE

After completion of the contract documents, to include bonds, insurance and signatures and prior to the commencement of any work on the project, the Street Transportation Department, DCM Division, (telephone 602-495-2050), will schedule a Pre-Construction Conference. This will be held at 1034 East Madison Street, Phoenix, Arizona.

Construction administration will be provided by City of Phoenix, Street Transportation Department, Design and Construction Management (DCM) Division.

The purpose of this conference is to establish a working relationship between the Contractor, utility firms and various City agencies. The agenda will include critical elements of the work schedule, submittal schedule, cost breakdown of major lump sum items, payment application and processing, coordination with the involved utility firms, emergency telephone numbers for all representatives involved in the course of construction and establishment of the notice to proceed date. The Contractor shall also provide copies of all purchase orders and/or contracts with DBE subcontractors and suppliers used to meet the subcontract goal programmed for this project.

Minimum attendance by the Contractor shall be a responsible company/corporate official, who is authorized to execute and sign documents on behalf of the firm, the job superintendent and the Contractor's safety officer.

3. AUTHORIZATION OF THE ENGINEER

The City may, at its discretion and without cause, order the Contractor in writing to stop and suspend work. Immediately after receiving such notice, the Contractor shall discontinue advancing the work specified under this Agreement.

Such suspension shall not exceed one hundred and eighty (180) consecutive days during the duration of the project.

The Contractor may seek an adjustment of the contract price and time, if the cost or time to perform the work has been adversely impacted by any suspension or stoppage of work by the City.

8. **105 CONTROL OF WORK,** Add the following to **Subsection 105.2 PLANS AND SHOP DRAWINGS:**

The Contractor shall submit as many of the required shop drawings and product data submittals at

the Pre-Construction meeting as practical and possible. All shop drawings and product data submittals shall be submitted sufficiently in advance to allow adequate time for City review(s) and approval. The Contractor shall submit early enough to allow enough time for reviews based on the assumption that a submittal may be marked "Revise and Resubmit" or "Rejected", requiring the Contractor to modify the submittal and resubmit for additional review(s) until acceptance.

A separate transmittal shall be used for each specific item type, class of material or equipment for which a submittal is required. Multiple items under one transmittal will only be allowed when the items taken together constitute a complete manufacturer's package, or are so functionally related that the entire package should be reviewed as a whole. The contractor shall submit six (6) hard copies of each shop drawing for review. **Email or FAX submittals will not be accepted.**

The Contractor shall allow up to four (4) weeks for City review for each submittal. Some submittals may be simple and straightforward and may not require the full four (4) weeks, but other more complex submittals may take the full four (4) weeks.

9. **105 CONTROL OF WORK**, Add the following to **Subsection 105.7 COOPERATION BETWEEN CONTRACTORS**

Other Contractors are expected to be working in or near the area of this contract. The Contractor shall conduct his work as specified in MAG Section 105.7.

10. **105 CONTROL OF WORK**, Delete **Subsection 105.8 CONSTRUCTION STAKES, LINES AND GRADES** and substitute the following

Description

The work under this section shall consist of furnishing all materials, personnel and equipment necessary to perform all surveying, staking and verification of the accuracy of all points which have been provided by the Engineer.

Included in this work shall be all calculations required for the satisfactory completion of the project in conformance with the plans and specifications. The work shall be done under the direction of a registered professional surveyor employed by the Contractor.

Measurements of all removals and pay quantity items will be the responsibility of the Engineer.

When utility adjustments are a part of the contract, the Contractor shall perform and be responsible for locating, tying and untying all manholes and valves that are discovered during the course of the contract. The Contractor shall set all survey points, stakes and references necessary for carrying out all such adjustments.

During installation and/or relocation of new water lines, valves, water meters and service connections, fire hydrants, sewer lines, sewer taps, clean outs, manholes, and other similar assets, the contractor will record the final as-built location and provide additional information related to cost, manufacturer and model numbers in a form provided by the Engineer.

The Contractor shall furnish all traffic control, including flagging for survey and staking operations. Traffic control shall be in accordance with the requirements of the City of Phoenix Barricade Manual.

The Contractor will keep field notes in bound field books. These books will be available for inspection by City personnel at all times and shall become the property of the City of Phoenix upon completion of the project.

Construction Staking Requirements

Staking will be performed in accordance with the City of Phoenix's Survey Section Standard Requirements for Staking, As-Builts and Quantity Calculations, plus any special addenda provided by the Engineer. The Contractor will provide to the Engineer in writing, for the Engineer's approval, any special procedures that will be used for construction survey staking completion.

The Engineer will provide control points for establishing an accurate construction centerline and will establish benchmarks adjacent to this line for the proper layout of the work. Control points will be located on monument line and/or construction centerline at the beginning and ending points of the project. Control points will also be located on the appropriate centerline at all point of curve (PC), points of tangent (PT), and angle points. No less than three benchmarks will be provided; one (1) at the beginning of the project, one (1) at the midpoint, and one (1) at the end of the project. Additional benchmarks may be provided at other convenient locations, but no more than one (1) additional benchmark will be provided for each 1,320 feet of the project length. Control points set by the Engineer will be identified in the field to the Contractor.

After the Contractor has verified the accuracy of the control points established by the City, the Contractor shall set all stakes necessary for construction in accordance with the City of Phoenix Survey Section Standard Requirements.

If errors are discovered during the verification process and control points do not agree with the geometrics shown in the plans, the Contractor shall promptly notify the Engineer in writing, and explain the problem in detail. The Engineer will advise the Contractor of any corrective actions which may be necessary.

The Contractor shall exercise care in the preservation of stakes, references, benchmarks and shall reset them when they are damaged, lost, displaced or removed.

Any discrepancies in grade, alignment, locations or dimensions detected by the Contractor shall be brought to the attention of the Engineer by letter. No changes in the project plans will be allowed without the approval of the Engineer.

The Engineer reserves the right to make inspections and random checks of any portion of the staking and layout procedure. If, in the Engineer's opinion, the work is not being performed in the manner that will assure proper control and accuracy, the Engineer will order any or all of the staking and layout work redone at no additional cost.

If any portion of the Contractor's staking and layout work is ordered redone, resulting in additional rechecking by the Engineer, the City shall be reimbursed for all costs for such additional checking. The amount of such costs will be deducted from the Contractor's progress payment.

Inspection of the Contractor's layout by the Engineer and the acceptance of all or any part of it shall not relieve the Contractor of their responsibility to secure the proper dimensions, grades and elevations for the work.

Record Drawings and As-builts

The Contractor shall maintain a record drawing (redlines) set of plans at the job site. These shall be kept legible and current and shall show all changes or work added in a contrasting, reproducible color. Two weeks prior to issuance of substantial completion, the Contractor shall submit, prior to final inspection, corrected redline drawings with all appropriate field changes clearly marked and labeled on the signed and approved plan sets. The Engineer shall be the sole judge as to the acceptability of the record drawing plans, before the information is incorporated into the final and accepted as-built set to be stored with the Central Records office.

Prior to final acceptance, the Contractor will provide a complete as-built set, sealed by a Registered Professional, showing all field modifications and final elevation, stations and offset of the completed improvements. For construction related to sewer, and water facilities, and other utilities, as-built information may be requested at the Engineer prior to completion of as-builts at no additional cost. The as-built plans shall be prepared in accordance with the requirements of this section and other applicable special provisions for this project. Additional As-built requirement can be found on the Streets Transportation Department Website, under the Community Reference Materials.

Measurement

Construction surveying and layout will be measured as a single complete unit of work.

Payment

Payment for construction surveying and layout will be by the lump sum and will be made as follows:

No payment will be made for the resetting of stakes, references, benchmarks and other survey control.

11. 105 CONTROL OF WORK, Add the following to Subsection 105.15 ACCEPTANCE, paragraph (B) Final Acceptance:

1. SUBSTANTIAL COMPLETION

The work may be judged substantially complete when all construction, including all applicable ADA requirements, has been completed with the possible exception of final inspection punch list work. The purpose of granting or acknowledging substantial completion is to stop contract time. This is particularly important to the Contractor if contract time is exhausted or nearly so and/or punch list work is anticipated to extend beyond the allotted time. Granting of substantial completion will eliminate the possibility of incurring liquidated damages or additional liquidated damages beyond the substantial completion date, whichever case may apply.

In the event that the Engineer grants substantial completion, the Contractor shall have thirty (30) days thereafter to complete punch list work, unless additional time is granted--in writing--by the Engineer. In no case shall a Contractor be granted more than thirty (30) days to complete punch list work, unless there are extenuating circumstances such as delay in shipment of a specialized piece of equipment, labor strike, or other circumstances beyond the Contractor's control which would necessitate a further time extension.

2. PENALTY FOR FAILURE TO COMPLETE PUNCH LIST WORK WITHIN SPECIFIED TIME

In the event the Contractor fails to complete the punch list work within thirty (30) days following the contract completion date, or in the case of specialized situations within the additional time allotted by the Engineer, the Contractor may be declared in default, and the Engineer may order the work completed by others.

In the event of default, as described herein, the Engineer shall withhold from the Contractor's final payment, an amount equal to at least twice the estimated cost of the remaining work. The cost of this work completed by others will be deducted from the monies owed to the Contractor as part of the overall project.

Final Release of More Than Ninety (90) Percent of the Contract Funds: Prior to final payment and release of monies retained, the Contractor will be required to sign a claims affidavit

agreeing to hold the City harmless from any and all claims arising out of the contract.

12. 105 CONTROL OF WORK, Add Subsection 105.16 as follows:

TRAFFIC SIGNAL SYSTEM ACCESS

- A City employee shall be present whenever the Contractor is accessing any component of the signal system.
- Two working days' notice is required to schedule City employee time.
- The Contractor shall not be given keys to unlock power panels or traffic signal controller cabinets.
- The Contractor shall not attach any cables or wire inside the traffic controller cabinet without City approval.
- The Contractor is responsible for installing cable per design into existing and proposed conduit system.
- All scheduled signal outages will be arranged and approved by the Engineer or designated person.
- Contractor shall not access or use any power supplies within the traffic controller cabinet.
- Required from Contractor:
 - 3 week construction schedule forecast/overview.
 - Scheduling for traffic control and payment of police as needed.
 - 24 hour contact number for emergencies.
 - Contractor must have an IMSA Level 2 certified technician or electrician on the work site at all times during construction or modification of traffic signal systems.
 - Conformance to all City of Phoenix safety practices and personal protective equipment (PPE) requirements.
 - Provide submittals of all materials and equipment used on project.
 - Report any damaged or malfunctioning traffic signal equipment to the traffic signal shop immediately.

Provided by City:

- Provide inspection of Contractor installations.
- Provide right of way permit coordination.
- System Integration Acceptance.

METHOD OF MEASUREMENT

No separate measurement will be made for the Work described herein, its cost being incidental and to be included within all the project items.

BASIS OF PAYMENT

No separate payment will be made for the Work described herein, its cost being incidental and to be included within all the project items.

13. 105 CONTROL OF WORK, Add Subsection 105.17 as follows:

INVENTORY OF EXISTING INFRASTRUCTURE REQUIREMENTS

The Contractor shall document the condition of the existing conduit, pull box, fiber optic and electrical cable infrastructure in which fiber optic cable is to be installed within the project limits and shall inventory the condition of these items for structural and functional integrity as well as constructability. This inventory consists of the existing ADOT Freeway Management System mainline conduits and pull boxes, and the City of Phoenix traffic signal conduits, ITS conduits, pull

boxes, traffic signal cabinets and traffic signal cabinet equipment in which fiber optic cable is to be installed within the project limits.

Traffic control plans shall be submitted to the Engineer for approval prior to commencing any inventory efforts. The Contractor shall allow a minimum of 14 days for the Engineer to review and approve the traffic control plans for the inventory. The Contractor shall notify the Engineer in writing of the time and place of the inventory. The written notification shall be a minimum of two days prior to beginning the inventory. The Engineer may elect to accompany the Contractor during the inventory.

The Contractor shall prepare a list, including pictures, of the results of the inventory detailing needed repairs or modification, location of the damaged infrastructure and provide the list to the Engineer for review prior to any excavation. Any existing infrastructure that is damaged, requires repairs, or modifications not indicated by the Contractor as a result of the inventory and subsequently brought to the attention of the Engineer shall be repaired by the Contractor and compensated by ADOT or the City of Phoenix, as applicable, at the Contractor's actual cost with no mark up. All required work to repair damage found during the inventory and listed by the Contractor shall be completed prior to beginning any other work on the project. This work will be completed under a line-item force account line-item No: 9240011 set up using funds from the allowance item.

The following items will also be covered under the Allowance item using a force account line-item No: 9240011:

The Contractor shall replace or adjust, as requested by the Engineer and based upon the inventory, extensions, pull boxes, lids or any other work needed to remedy conditions of existing pull boxes or miscellaneous FMS elements within the project limits.

The Contractor shall replace or adjust, as requested by the Engineer and based upon the inventory, all conduit sweeps in pull boxes, conduit orientation and alignment, unusable conduit, or bell ends or fittings within the project limits.

The Contractor shall meet the requirements of Section 732-2 of the ADOT Standard Specifications for conduit and pull boxes, except as modified by these specifications.

Pull box reconditioning shall be completed prior to the start of work on fiber optic cable or conductor installation.

The Contractor shall install new cable mounting hardware at locations shown on the Plans in existing pull boxes.

The cable mounting hardware shall consist of 24" 18-hole rack mounted to each existing Unistrut with two ½"- spring nuts and bolts or mounted to the pull box wall per an Engineer approved method. 5" J-hooks that mount in the 18-hole racks shall be supplied. Shop drawings for the method of installation of the rack and hook system shall be submitted to the Engineer for approval. The installation method of the rack and hook system and details of how the Contractor proposes to use the rack and hook system to support cable slack and fiber optic splice closures shall be included in the shop drawings.

The Contractor shall install new manhole lids and extensions at locations shown on the Plans in existing pull boxes.

The inventory completed by the Contractor shall include locating and documenting damaged areas within existing conduit by utilizing either a fish-tape or fiberglass rod. The Contractor shall provide as-built information to the Department for conduits that are found to be different than indicated on the Plans. The Contractor shall pull a metal-disk or metal-ball mandrel, with a diameter that is

90percent of the conduits' inner diameter (80 percent for HDPE conduit), through all existing empty and Contractor installed conduits.

Prior to identifying conduit as damaged, the Contractor shall verify that the conduit has not become compacted with soil. Where fiber optic cable and copper conductors do not exist, the Contractor may use pressurized air, or other means, to clean the conduit.

Conduit reconditioning shall be completed prior to the start of work on fiber optic cable or conductor installation.

Method of Measurement:

FORCE ACCOUNT WORK (Pull Box and Conduit Reconditioning) will be measured as separate units of work under line-item No: 9240011.

Basis of Payment:

The accepted quantities of FORCE ACCOUNT WORK (Pull Box and Conduit Reconditioning), measured as provided above, will be paid at the contract unit price and in accordance with Section 109.04 (D) Force Account of the Standard Specifications.

14. 106 CONTROL OF MATERIALS: Add the following new paragraphs:

106.17 Construction Materials:

A construction material, when used on a federal-aid construction project shall comply with the requirements of Build America, Buy America (BABA) Act specified in Title IX, Subtitle A, Part 1, Sections 70901 and 70911-70918 (Pub. L. No. 117-58 §§ 70901; §§ 70911-70918) of the Infrastructure Investment and Job Act (IIJA).

A "construction material" that is permanently incorporated on the project shall include an article, material, or supply that is or consists primarily of the following:

1. Non-ferrous metals
2. Plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables)
3. Glass (including optic glass)
4. Lumber
5. Engineered wood; or
6. Drywall

Items manufactured through a combination of either two or more materials listed above, or at least one of the materials listed above and a material not listed shall be considered as a manufactured product, rather than as a construction material.

Build America, Buy America provisions specified for manufactured products in Section 70912(6)(B) of the IIJA, do not apply to federal-aid construction projects per FHWA's existing statutory requirement applicable to manufactured products. A "manufactured product" is considered to be an item that undergoes one or more manufacturing processes before the item can be used on a federal-aid construction project.

Construction materials shall not include cement and cementitious materials; bituminous materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives.

All construction materials shall be produced in the United States. This means, all manufacturing processes to produce the construction materials shall occur in the United States. All manufacturing

processes for construction materials shall mean the final manufacturing process and the immediately preceding manufacturing stage for the construction material.

The contractor shall furnish the Engineer with Certificates of Compliance, conforming to the requirements of Subsection 106.05 of the specifications, which shall state that the construction materials incorporated in the project meet the requirements specified herein. Certificates of Compliance shall also certify that all manufacturing processes to produce construction materials occurred in the United States.

Convict-produced materials are prohibited in accordance with the requirements of 23 CFR 635.417.

15. **107 LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC**, Add the following to **Subsection 107.1, LAWS TO BE OBSERVED, paragraph (C)**:

While every effort has been made to Blue Stake all known utilities, and to research and show on the plans all existing underground utilities based on the best available information, it shall be the Contractor's responsibility to locate and pothole all existing utilities sufficiently in advance of anticipated new underground construction to identify any potential conflicts and allow reasonable time for the Engineer to determine solutions. Any claims for additional compensation or work required due to the Contractor's non-compliance with this provision shall not be considered for payment by the City.

16. **107 LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC**, Add the following new paragraphs to **Subsection 107.1, LAWS TO BE OBSERVED**:

(A) FAIR TREATMENT OF WORKERS

The Contractor shall keep fully informed of all Federal and State laws, County and City ordinances, regulations, codes and all orders and decrees of bodies or tribunals having any jurisdiction or authority, which in any way affect the conduct of the work. He shall at all times observe and comply with all such laws, ordinances, regulations, codes, orders and decrees; this includes, but is not limited to laws and regulations ensuring fair and equal treatment for all employees and against unfair employment practices, including OSHA and the Fair Labor Standards Act (FLSA). The Contractor shall protect and indemnify the Contracting Agency and its representatives against any claim or liability arising from or based on the violation of such, whether by himself or his employees.

(B) DESERT TORTOISE MITIGATION

As stated in the Arizona Interagency Desert Tortoise Team (AIDTT) Management Plan (1996), if a desert tortoise is found in a project area, activities should be modified to avoid injuring or harming it. If activities cannot be modified, tortoises in harm's way should be moved in accordance with Arizona Game and Fish Department's "Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects", revised October 23, 2007 (or the latest revision), included in these contract provisions. Taking, possession, or harassment of a desert tortoise is prohibited by State law, unless specifically authorized by Arizona Game and Fish Department.

(C) BURROWING OWLS MITIGATION – MIGRATORY BIRD TREATY ACT OF 1918

While no burrowing owls have been seen at the project site, small animal burrows likely used by rodents and cottontail rabbits are present. In the event that burrowing owls are found on the site, the project shall comply with the Migratory Bird Treaty Act of 1918 and relocate the birds prior to grading. A contact for relocation of burrowing owls is Bob Fox or Greg Clark of Wild at Heart, 31840 North 45th Street, Cave Creek, AZ 85331, 480-595-5047.

17. **107 LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC**, Add the following to **Subsection 107.2, PERMITS**:

1. **HAUL PERMIT**

On any project, when the quantity of fill or excavation to be hauled exceeds 10,000 C.Y. or when the duration of the haul is for more than twenty (20) working days, the Contractor shall:

- A. Obtain approval of the proposed haul route, number of trucks, etc., by the Street Transportation Department, and then;
- B. Submit the proposed haul route plan to the Planning and Development Department and pay the appropriate plan-review fee (contact Planning and Development Department at 602-534-5933 for current plan review fee, the cost of which shall be considered incidental to the project), and after their approval;
- C. Obtain the written haul permit from the Planning and Development Department.

NOTE: Obtaining the haul permit and the approval by Street Transportation does not release the Contractor from strict compliance with MAG Subsection 108.5, Limitation of Operations.

2. **STORM WATER POLLUTION PREVENTION PLAN AND AZPDES PERMIT**

Any project that disturbs 1 acre or more of the ground surface requires the Contractor to obtain an AZPDES permit and prepare a SWPPP. This project does not require an AZPDES permit and SWPPP.

3. **DUST PERMIT**

Any project that disturbs more than 1/10 acre of soil requires an earthmoving permit from Maricopa County. Information and forms can be found at:

www.maricopa.gov/aq/divisions/permit_engineering/applications/Default.aspx

To facilitate and encourage strict compliance with the Maricopa County Air Pollution Control Regulations pertaining to fugitive dust control, the Contractor shall submit the following documentation to the Engineer at the Pre-Construction meeting prior to conducting any earth moving or dust generating activities under the Contract.

- a. Copy of a valid Maricopa County Earth Moving (Dust Control) Permit applicable to the work or services under the Contract.
- b. Copy of the Dust Control Plan applicable to the work or services under the Contract.
- c. Documentation that all of the Contractor's on-site project managers have received the Comprehensive or Basic dust control training as required by Maricopa County Rule 310 based on project disturbed acres.

For construction sites where 5-acres or more are disturbed, the Contractor shall designate and identify to the City an individual who has completed the dust control training as required for the site Dust Control Coordinator. The Dust Control Coordinator shall be present on-site all times that earth moving or dust generating activities are occurring and until all ground surfaces at the site have been stabilized.

For construction sites less than 1-acre, the Contractor shall designate an individual who has completed Basic Training to be on site at all times that earth moving or dust generating activities are occurring.

The Contractor shall notify the Engineer within twenty-four (24) hours of any inspection, Notice of Violation, or other contact by the Maricopa County Air Quality Department with it or any of its subcontractors regarding the work or services under the Contract. A copy of any written communications, notices or citations issued to Contractor or any of its subcontractors regarding the work or services under the Contract shall likewise be transmitted to the Engineer within twenty-four (24) hours.

The Contractor shall prevent any dust nuisance due to construction operations in accordance with MAG Specifications, Section 104.1.3, Cleanup and Dust Control. The Contractor shall use a power pick-up broom as part of the dust control effort. No separate measurement or payment will be made for cleanup or dust control, or for providing a power pick-up broom on the job.

The Contractor agrees to indemnify and reimburse the City for any fine, penalty, fee or monetary sanction imposed on the City by Maricopa County arising out of, or caused by the performance of work or services under the Contract. The Contractor shall remit payment of the reimbursable sum to the City within thirty (30) days of being presented with a demand for payment from the City.

4. TEMPORARY RESTRICTION AND CLOSURE SYSTEM (TRACS) PERMIT

The Contractor shall obtain a TRACS permit for any construction that restricts access (partial or complete closures) on Major/Collector public streets, or complete closures on Local streets, sidewalks, bike lanes and alleys. The Contractor shall obtain this permit in accordance with the City of Phoenix Traffic Barricade Manual, latest edition. The Contractor shall follow all requirements of the TRACS permit during construction. The Contractor shall obtain this permit before the Notice to Proceed date. Any construction delays caused by non-compliance with the TRACS permit or the City of Phoenix Traffic Barricade Manual requirements shall be the responsibility of the Contractor.

5. DEMINIMUS DISCHARGE PERMIT

As required, if the Contractor anticipates the discharge of any amount of water from the City water or wastewater system during construction, the Contractor shall be responsible for obtaining a DeMinimus Permit from the Arizona Department of Environmental Quality (ADEQ) for any discharge that will reach "waters of the U.S.", either directly or indirectly, and complying with all requirements of that permit. This includes all compliance reporting required by the permit. No separate payment will be made for obtaining or complying with this permit.

6. OTHER PERMITS

The Contractor may be required to obtain other permits from other agencies, such as the Arizona Department of Transportation (ADOT) or the Flood Control District of Maricopa County (FCDMC) before beginning work or restricting traffic in their right-of-way. The Contractor will be required to obtain these permits and comply with their requirements.

- 18. 107 LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC, Revise the title of Subsection 107.4 ARCHAEOLOGICAL REPORTS to 107.4 ARCHAEOLOGICAL MONITORING AND DISCOVERIES, and add the following:**

Archaeological monitoring may be required within the limits of the project during construction. The Contractor must coordinate all ground disturbing work with the archaeologist(s) and provide a current work schedule to facilitate the archaeologist's investigation and monitoring of all ground disturbing work within the area(s) of interest. When archaeological materials are discovered, the

Contractor must stop work immediately within a 10-meter zone of the discovery, secure the area, and immediately notify the on-site archaeologist(s) who must then contact the City Archaeology Office (602-495-0901) or the Street Transportation Environmental Section at 602-534-3747, who will coordinate with the City Archaeology Office. The Contractor must not recommence work in the area of discovery until directed in writing by the City Archaeology Office.

If suspected archaeological materials are discovered during construction without an archaeologist present, the Contractor must stop work immediately within a 10-meter zone of the discovery, secure the area, and immediately notify the City Archaeology Office (602-495-0901). The Contractor must not recommence work in the area of discovery until directed in writing by the City Archaeology Office.

In 1990, the Arizona legislature amended two state laws (Arizona Antiquities Act & State Historic Preservation Act) that protect human burials and associated artifacts on both private and state land. As specified in these laws and rephrased below:

1) A person shall not knowingly excavate in or upon any historic or prehistoric archaeological site, except when acting as a duly authorized agent of an institution or corporation organized for scientific, research or land use planning purposes. [Arizona Revised Statute §41-841(A) - Archaeological Discoveries] Any person, institution or corporation violating any provision of this article is guilty of a class 2 misdemeanor. [A.R.S. §41-846 - Violation]

2) A person who knowingly excavates in violation of A.R.S. §41-841 is guilty of a class 5 felony pursuant to Arizona Criminal Code- Title 13. A second or subsequent violation under this subsection is a class 3 felony. [A.R.S. §13-1507 - Excavating Certain Sites].

A class 5 felony carries potential penalties of up to two years in prison. If a City of Phoenix (City) project may impact historic or pre-historic archaeological resources, the guidelines described above must be adhered to. Therefore, no subsurface disturbance activities related to this without having an archaeological consultant on-site prior to and during this project's ground disturbance activities.

The City of Phoenix Office of the City Engineer is requesting that the Project Archaeological Requirements Acknowledgment Form is completed for all City sponsored or managed projects involving ground subsurface disturbance activities in areas that may include archaeological resources, as determined by the City of Phoenix Archaeology Office (CAO). If archaeological monitoring is required on a project, a City Archaeological Monitoring Acknowledgment form will be provided for your review and signature. The guidelines and the provisions in the Terms and Conditions of the Archaeological Monitoring Form must be followed as prescribed on the form and referenced above in this section. Penalties for non-compliance are detailed on the Archaeological Monitoring Form. Failure to comply with the requirements of this acknowledgment form and the City contract may constitute a breach of contract.

19. **107 LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC, Modify Subsection 107.8, USE OF EXPLOSIVES** as follows:

Replace the words "Uniform Fire Code" with "Phoenix Fire Code".

20. **107 LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC, Add the following to Subsection 107.8, USE OF EXPLOSIVES:**

NO BLASTING will be allowed on this project due to the close proximity of multiple critical utilities as well as many businesses and residences in the area.

21. **107 LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC, Add the following to Subsection 107.11, CONTRACTOR'S RESPONSIBILITY FOR UTILITY PROPERTY AND**

SERVICES:

1. UNDERGROUND FACILITIES

The Contractor will make whatever investigation it deems necessary to verify the location of underground utility facilities. If such facilities are not in the location shown in the drawings, then (regardless of whether this is discovered prior to or during construction) the contractor's remedies, if any, pursuant to Art. 6.3, Chapter 2, Title 40, A.R.S. (A.R.S. 40-360.21 through 40-360.32, "Underground Facilities"), shall be the contractor's sole remedy for extra work, delays and disruption of the job, or any other claim based on the location of utility facilities. Locations of utility facilities shown on drawings furnished by the City are to be regarded as preliminary information only, subject to further investigation by the contractor. The City does not warrant the accuracy of these locations, and the contractor, by entering into this contract, expressly waives and disclaims any claim or action against the City under any theory for damages resulting from location of utility facilities.

The Contractor shall be responsible for obtaining all Blue Stake utility location information from right-of-way to right-of-way along the entire corridor and for performing all requirements as prescribed in A.R.S. 40-360.21 through .29, for all underground facilities, including those that have been installed on the current project, until the project is accepted by the City.

At least two (2) working days prior to commencing any excavation, the Contractor shall call the BLUE STAKE CENTER, between the hours of 7:00 a.m. and 4:30 p.m., Monday through Friday for information relative to the location of buried utilities. The number to be called is as follows:

Maricopa County (602) 263-1100

2. UTILITY-RELATED CONSTRUCTION DELAY DAMAGES CLAIM PROCEDURES

The following procedure is intended to provide a fair and impartial process for the settlement of construction delay claims associated with unknown or improperly located utility facilities.

The Contractor shall immediately notify, in writing, the Project Engineer of any potential utility-related delay claim.

The Contractor shall immediately notify the appropriate liaison of the affected utility verbally, followed by a written notification.

The Contractor shall coordinate an investigation of the situation with the affected utility and the City's Utility Coordinator. After resolution, the Contractor will provide written notification of the settlement of the claim to all affected parties. If the affected utility makes a decision to handle negotiations for a claim, their personnel will be responsible for monitoring the project and all negotiations with the Contractor regarding the claim.

The Contractor shall determine to document requirements of the affected utility for their acceptance of responsibility for the claims. The Contractor shall provide four (4) copies of the required documentation to the utility involved and two (2) copies of this documentation to the Project Engineer. The Contractor shall obtain written confirmation from the utility company involved of their documentation requirements.

22. 108 COMMENCEMENT, PROSECUTION AND PROGRESS Add the following to Subsection 108.2, SUBLETTING OF CONTRACT:

(F) PROMPT PAYMENT

1. Contractor Payment to Subcontractor or Supplier

Contractor shall pay its subcontractors or suppliers within seven (7) calendar days of receipt of each progress payment from the City. The Contractor shall pay for the amount of work performed or materials supplied by each subcontractor or supplier as accepted and approved by the City with each progress payment. In addition, any reduction of retention by the City to the Contractor shall result in a corresponding reduction to subcontractors or suppliers who have performed satisfactory work. Contractor shall pay subcontractors or suppliers the reduced retention within fourteen (14) days of the payment of the reduction of the retention to the Contractor. No Contract between Contractor and its subcontractors and suppliers may materially alter the rights of any subcontractor or supplier to receive prompt payment and retention reduction as provided herein. If the Contractor fails to make payments in accordance with these provisions, the City may take any one or more of the following actions and Contractor agrees that the City may take such actions: (1) to hold the Contractor in default under this agreement; (2) withhold future payments including retention until proper payment has been made to subcontractors or suppliers in accordance with these provisions; (3) reject all future bids from the Contractor for a period not to exceed one year from substantial completion date of this project; or (4) terminate agreement.

2. Alternative Dispute Resolution Between Contractor and Subcontractor or Supplier

If Contractor's payment to a subcontractor or supplier is in dispute, Contractor and subcontractor or supplier agree to submit the dispute to any one of the following dispute resolution processes within fourteen (14) calendar days from the date that any party involved gives written notice to the other party(ies): (1) binding arbitration; (2) a form of alternative dispute resolution (ADR) agreeable to all parties; or (3) a City of Phoenix facilitated mediation. When disputed claim is resolved through ADR or otherwise, the Contractor and subcontractor or supplier agree to implement the resolution within seven (7) calendar days from the resolution date.

3. Inspection and Audit

Contractor, its subcontractors and suppliers shall comply with A.R.S. 35-214 and the City shall have all rights and remedies to inspect and audit the records and files of Contractor, subcontractor or supplier, as afforded the State of Arizona in accordance with the provisions of A.R.S. Section 35-214.

4. Non-Waiver

Should the City fail or delay in exercising or enforcing any right, power, privilege, or remedy under this Section, such failure or delay shall not be deemed a waiver, release, or modification of the requirements of this Section or of any of the terms or provisions thereof.

5. Inclusion of provisions in Subcontracts

Contractor shall include these prompt payment provisions in every subcontract, including procurement of materials and leases of equipment for this Agreement.

6. No Third Party Benefits or Rights

Nothing contained in this Agreement is intended to benefit or confer any rights on any person or entity not a party to this Agreement, and no such person or entity, including but not limited to other Contractors, subcontractors or suppliers, may assert any claim, cause of action, or remedy against the City hereunder.

23. 108 COMMENCEMENT, PROSECUTION AND PROGRESS, Add the following to Subsection 108.4, CONTRACTOR'S CONSTRUCTION SCHEDULE:

No later than one (1) week after the Pre-Construction meeting (or one week after the Notice to Proceed date is firmly established), the Contractor shall submit to the Engineer, two (2) copies of a detailed Critical Path Model (CPM) chart outlining the detailed progress of all major and critical elements of the project by weeks, from beginning of project to end. The chart shall begin at the established Notice to Proceed date and progress on a calendar basis, week by week, to the end of the project.

The Contractor shall submit updated CPM charts as required by the Engineer. This shall typically be on a monthly basis. The required submittals of updated CPM charts may be less frequent than monthly, if approved by the Engineer.

Neither the City nor the Engineer shall accept liability or responsibility for the reasonable or workable nature of the CPM schedules prepared and submitted by the Contractor—that responsibility shall remain with the Contractor.

24. 108 COMMENCEMENT, PROSECUTION AND PROGRESS, Add the following to Subsection 108.5, LIMITATION OF OPERATIONS:

1. WORK HOURS

Regular working hours shall be defined as one 8-1/2 hour shift per day, Monday through Friday, exclusive of City holidays.

Work in excess of regular working hours shall be defined as overtime. For overtime which becomes necessary, the Contractor shall make a written request to the Engineer at least eight (8) calendar days before the desired overtime. The request shall include the duration, dates, times, reason for overtime, and a statement of the consequences if overtime is not approved.

The Contractor shall not schedule any overtime work which requires inspection, survey, or material testing without written permission from the Engineer two (2) working days before the proposed overtime work. The Engineer reserves the right to deny the requested overtime. If an overtime request is denied, the Engineer may extend the contract time at no additional cost to the City, including extended overhead costs.

Unscheduled Overtime

Overtime that is not requested and approved in accordance with the above procedure shall be defined as unscheduled overtime. All costs (including appropriate overhead) shall be paid by the Contractor by deduction from the contract.

Emergency Overtime

An emergency is defined as work required for a situation that is not within the Contractor's control.

With the Engineer's approval, the Contractor will be permitted to work overtime without being responsible for paying the City's costs.

2. NIGHT WORK

Any proposed night work will be done in accordance with all City of Phoenix Ordinances. Night work will only be allowed upon submittal and approval of After-Hours Work in the Right-of-Way application. The Contractor will submit a comprehensive plan at the Preconstruction

Conference that details the steps and methods of noise reduction during night working hours. This plan will address, but not be limited to the following: back-up alarms, equipment noise, scheduling of excessively noisy construction phases, and material delivery times. Spotters, in lieu of back-up alarms, may be required at night.

There will be no separate measurement or payment for work related to this item, the cost being considered incidental to the cost of contract items.

25. **108 COMMENCEMENT, PROSECUTION AND PROGRESS**, Add the following to **Subsection 108.10, FORFEITURE AND DEFAULT OF CONTRACT:**

City's Right to Perform and Terminate for Convenience

If the City provides the Contractor with a written order to provide adequate maintenance of traffic, adequate cleanup, adequate dust control or to correct deficiencies or damage resulting from abnormal weather conditions, and the Contractor fails to comply in a time frame specified, the City may have work accomplished by other sources at the Contractor's expense.

If Contractor persistently fails to (i) provide a sufficient number of skilled workers, (ii) supply the materials required by the Contract Documents, (iii) comply with applicable Legal Requirements, (iv) timely pay, without cause, Sub-consultants and/or Subcontractors, (v) prosecute the Contract Services with promptness and diligence to ensure that the Contract Services are completed by the Contract Time, as such times may be adjusted, or (vi) perform material obligations under the Contract Documents, then the City, in addition to any other rights and remedies provided in the Contract Documents or by law, shall have the rights set forth below.

Upon the occurrence of an event set forth above, City may provide written notice to Contractor that it intends to terminate the Agreement unless the problem cited is cured, or commenced to be cured, within seven (7) days of Contractor's receipt of such notice.

If Contractor fails to cure, or reasonably commence to cure, such problem, then City may give a second written notice to Contractor of its intent to terminate within an additional seven (7) day period.

If Contractor, within such second seven (7) day period, fails to cure, or reasonably commence to cure, such problem, then the City may declare the Agreement terminated for default by providing written notice to Contractor of such declaration.

Upon declaring the Agreement terminated pursuant to the above, City may enter upon the premises and take possession, for the purpose of completing the Work, of all materials, equipment, scaffolds, tools, appliances and other items thereon, which have been purchased or provided for the performance of the Work, all of which Contractor hereby transfers, assigns and sets over to City for such purpose, and to employ any person or persons to complete the Work and provide all of the required labor, services, materials, equipment and other items.

In the event of such termination, Contractor shall not be entitled to receive any further payments under the Contract Documents until the Work shall be finally completed in accordance with the Contract Documents. At such time, the Contractor will only be entitled to be paid for Work performed and accepted by the City prior to its default.

If City's cost and expense of completing the Work exceeds the unpaid balance of the Contract Price, then Contractor shall be obligated to pay the difference to City. Such costs and expense shall include not only the cost of completing the Work, but also losses, damages, costs and expense, including attorneys' fees and expenses, incurred by the City in connection with the re-procurement and defense of claims arising from Contractor's default.

If the City is found to have improperly terminated the Agreement for cause or default, the termination shall be converted to a termination for convenience in accordance with the provisions of this Agreement.

26. 108 COMMENCEMENT, PROSECUTION AND PROGRESS, Add the following to Subsection 108.11, TERMINATION OF CONTRACT:

TERMINATION FOR CONVENIENCE

The Owner for its own convenience has the right for any reason and at any time to terminate the contract and require the Contractor to cease work hereunder. Such termination shall be effective at the time and in the manner specified in the notification to the Contractor of the termination. Such termination shall be without prejudice to any claims which the Owner may have against the Contractor. In the event of a termination for convenience, the Contractor shall be paid only the direct value of its completed work and materials supplied as of the date of termination, and Contractor shall not be entitled to anticipated profit or anticipated overhead or any other claimed damages from the Owner, Architect or the Engineer. If the City is found to have improperly terminated the Agreement for cause or default, the termination shall be converted to a termination for convenience in accordance with the provisions of this Agreement.

CANCELLATION OF CONTRACT FOR CONFLICT OF INTEREST

All parties hereto acknowledge that this agreement is subject to cancellation by the City of Phoenix pursuant to the provisions of Section 38-511, Arizona Revised Statutes.

27. 109 MEASUREMENTS AND PAYMENTS, Add the following to Subsection 109.4.3, DUE TO EXTRA WORK:

ALLOWANCE FOR EXTRA WORK

Contract allowance items are provided for the purpose of encumbering funds to cover the costs of possible change order work. The amount of the allowance item is determined by the Engineer and is not subject to individual bid pricing. All bidders shall incorporate the amount pre-entered in the bid proposal and shall reflect the same in the total amount bid for this project.

This allowance item provides an estimated funding to cover unforeseen changes that may be encountered and corresponding extra work needed to complete the contract per plan. Unforeseen extra work, if any, shall be as approved by the Engineer; for example, extension of unit bid prices, negotiated price or time and material, in accordance with MAG Specification Section 109.4 and 109.5.

It shall be understood that this allowance item is an estimate only and is based on change order history of similar projects. It shall not be utilized without an approved contract change order. It is further understood that authorized extra work, if any, may be less than the allowance item.

28. 109 MEASUREMENTS AND PAYMENTS, Add the following to Subsection 109.4 COMPENSATION FOR ALTERATION OF WORK:

109.4.7 CHANGE ORDERS

Owner reserves the right to decrease adjustments made in any change order if, upon audit of Contractor's records, the audit discloses contractor provided false or inaccurate cost and pricing data in negotiating the change order. In enforcing this provision, the parties shall follow the procedure provided in the Federal Acquisition Regulation (FAR) clause 52.214-27, found in 48 CFR Part 52.

29. 109 MEASUREMENTS AND PAYMENTS Subsection 109.7, PAYMENT FOR BOND ISSUE

AND BUDGET PROJECTS, Delete the first three paragraphs in their entirety and replace with the following **Subsection 109.7, PAYMENT FOR BOND ISSUE AND BUDGET PROJECTS**:

1. PARTIAL PAYMENTS

The contracting agency will make a partial payment to the Contractor on the basis of an approved estimate prepared by the Engineer or the Contractor for work completed and accepted through the preceding month. The notice to proceed date, which is designated for the specific project involved, will be used as the closing date of each partial pay period. Payment will be made no later than fourteen (14) days after the work is certified and approved. City shall review payment requests and make recommendation of approval or denial within seven (7) calendar days.

This Is a federally funded project. Therefore, notwithstanding A.R.S. § 34-221, the City will not withhold retainage from progress payments. Neither the contractor, nor the subcontractor of any tier, may withhold any retainage on progress payments to subcontractors or suppliers of any tier. Withholding of retainage, reducing payments, or sanctions where provided in the contract will be applied to all partial payments.

30. **109 MEASUREMENTS AND PAYMENTS**, Delete Table 109-1 in **Subsection 109.9, DOLLAR VALUE OF MAJOR ITEM**, and substitute the following:

<u>CONTRACT AMOUNT</u>	<u>MAJOR ITEM IS DEFINED AS ANY ITEM EQUAL TO OR GREATER THAN THE FOLLOWING</u>
Up to \$1 million	\$15,000 or 3%, whichever is greater
\$1 million to \$3 million	3% of the original contract amount to a maximum of \$75,000.00
\$3 million to \$5 million	2.5% of the original contract amount to a maximum of \$90,000.00
Over \$5 million	1.5% of the original contract amount to a maximum of \$125,000.00

CONTINGENCY ITEMS

Contingency items which fall under the definition of a major item are subject to negotiation if decreased by more than twenty (20) percent.

Contingency items shall not increase more than twenty (20) percent without being subject to renegotiation, regardless of the percentage of that item relative to the total contract amount.

31. **110 NOTIFICATION OF CHANGED CONDITIONS AND DISPUTE RESOLUTION**, Add the following to **Subsection 110.1 GENERAL**:

SOILS INFORMATION

Even if the geotechnical information is not specifically provided, the Contractor may encounter large cobbles, boulders, caliche, conglomerate, hard rock, perched groundwater, historic or prehistoric cultural resources, or other differing site conditions on this project. **No additional compensation will be made for any differing site condition that may be encountered.**

SPECIAL PROVISIONS

1. **206 STRUCTURE EXCAVATION AND BACKFILL**, Add the following to **Section 206 STRUCTURE EXCAVATION AND BACKFILL**:

Description

The work under this item consists of performing Structural Excavation and furnishing Structural Backfill at the locations and in conformance with the details on the Project Plans, in accordance with these special provisions and as directed by the Engineer. Structural Backfill shall consist of furnishing, placing and compacting backfill around the structure to the level designated. All work under this Section shall conform to SECTION 203 – EARTHWORK of the Arizona Department of Transportation Standard Specifications for Road and Bridge Construction, 2008 Edition, plus all addenda, except as herein noted and on the Project Plans.

Construction Requirements

Section 203-5.03(B)(1) of the ADOT Standard Specifications is modified to add:

Structural Backfill may be comprised wholly or in part of salvaged Portland cement concrete material.

The source of all salvaged materials shall be approved by the Engineer prior to use. Salvaged Portland cement concrete material shall not contain hazardous waste materials. All metal reinforcement materials shall be removed from salvaged concrete prior to its use for structure backfill.

Salvaged Portland cement concrete material to be used in structure backfill shall be derived from crushing.

Structural Backfill containing any salvaged materials shall conform to the gradation requirements specified for structure backfill. If completely comprised of salvaged materials, the structural backfill requirements for pH, resistivity, and plasticity index will not apply. If soil and aggregate materials are blended with salvaged materials, the soil and aggregate portion shall conform to the pH, resistivity, and plasticity index requirements specified for structure backfill.

If soil and aggregate materials are blended with salvaged materials, the Contractor shall submit the relative percentages of salvaged materials and soil and aggregate materials to the Engineer for approval. The relative percentages shall not be adjusted after approval except to maintain a consistent gradation. Any significant change in the proportions must be approved by the Engineer prior to use.

Section 203-5.03(B)(2) of the ADOT Standard Specifications is modified to add:

Salvaged materials shall not be used as slurry unless approved by the Engineer.

Section 203-5.03(B)(4) of the ADOT Standard Specifications is modified to add:

Structural Backfill material consisting wholly or in part of salvaged Portland cement concrete material shall be compacted to at least 95 percent of the maximum density determined in accordance with the requirements of the applicable test methods of the ADOT Materials Testing Manual, as directed and approved by the Engineer.

Measurement and Payment

No direct method of measurement shall be made for Structure Excavation or Structure Backfill. No payment shall be made for Structure Excavation and Structure Backfill. The cost for Structure Excavation and Structure Backfill shall be considered included in the structure being constructed.

2. Add the following new Section, **232 STORM WATER POLLUTION PREVENTION – BEST MANAGEMENT PRACTICES:**

Description

Implementation of "Best Management Practices" (B.M.P.'s) to reduce stormwater pollution shall be undertaken by the Contractor on a multi-tiered, most cost-effective approach. The Contractor shall utilize the lowest-cost acceptable B.M.P. available to address each type of potential stormwater pollution situation encountered on the project. Should this prove ineffective in resolving the stormwater pollution problem, additional, higher-cost B.M.P.'s may need to be employed, upon approval by the City.

Construction Requirements

Typical multi-tiered B.M.P. approaches to construction operations may include:

A. ROADWAY SUBGRADE EXCAVATION:

1. Tier I - The excavated area will create, in effect, a temporary retention area. This may provide adequate control of storm runoff to prevent sediment from leaving the site. Pumping or other methods utilized to drain the excavation shall employ filter fabric or other filtering method to remove sediment before leaving the site or entering the storm drain system.
2. Tier II - Catch basin inlet protection (utilizing filter fabric, gravel, etc.) may be necessary should Tier I controls prove inadequate. Care shall be exercised to ensure that Tier II B.M.P.'s do not result in blockage of drainage and resultant flooding of adjacent properties.

B. OPEN PIPELINE TRENCHES:

1. Tier I - The open trench itself will act as a temporary retention area. The Contractor shall provide a low-cost, readily-installed/removed temporary device on the open end of the pipe to prevent sediment-laden stormwater from entering the pipe. This may consist of a temporary "plug" incorporating filter fabric, a temporary weir, or other device capable of removing sediment before allowing stormwater to enter the pipe. Care must be taken to prevent damming of floodwaters in the excavation that could result in "floating" the pipe.
2. Tier II - If Tier I protection does not prove satisfactory, the Contractor may need to install straw bales, sandbag berms, or temporary diversion dikes around the perimeter of the open excavation to prevent sediment-laden stormwater from entering the open excavation. Due to installation/removal time, such devices need only be installed during periods of likely precipitation and runoff. Earthen dikes are the preferred alternate, due to ease of installation and removal. Care must be taken to assure that runoff is not blocked to the extent that flooding of adjacent properties will result.

C. BACKFILLED PIPELINE TRENCHES:

1. Tier I - As with roadway subgrade excavations, pipeline trenches which have been backfilled

but not yet paved will be several inches lower than adjacent pavement areas, and will therefore act as temporary retention areas.

2. Tier II - If the "retention" provided by the backfilled area does not prevent sediment-laden runoff from leaving the excavated area, perimeter controls such as silt fence, straw bales, sandbag berms, or gravel filter berms may need to be installed around the downstream edge(s) of the backfilled area. As with open trenches, the selection of the appropriate measure, extent of its application, and time period during which it is needed will be dependent upon cost, site conditions, ease of installation/removal, and likelihood of precipitation/runoff. Again, care must be taken to ensure that diversion of stormwater onto adjacent properties does not result from these installations.

Another stormwater control method, which the Contractor may need to consider, is limiting the amount of area disrupted and therefore subject to sediment-laden stormwater runoff at any one time. Should such project phasing prove necessary due to the failure of other B.M.P.'s, the Contractor shall revise his construction activities accordingly, at no additional cost to the City.

Standards for installation of the above B.M.P.'s are provided in the Flood Control District of Maricopa County's "Drainage Design Manual for Maricopa County, Arizona, Volume III, Erosion Control". Installation and operation of B.M.P.'s shall be in accordance with that manual.

There shall be no separate measurement or payment for preparing or developing Storm Water Pollution Prevention Plans, or for preparing NOI's or NOT's or obtaining an AZPDES Permit, all these costs being considered incidental to the cost of the project.

Measurement and Payment

This project includes a pay item "ALLOWANCE FOR STORMWATER POLLUTION PREVENTION BEST MANAGEMENT PRACTICE (BMP'S)". The amount of this allowance is determined by the Engineer, and is not subject to individual bid pricing. All bidders shall incorporate the amount pre-entered in the bid proposal and shall reflect the same in the total amount bid for this project.

Payment for various types of necessary BMP's shall be made from this allowance based on approved invoiced cost of the materials only, plus taxes, and a maximum 15 percent markup for overhead and profit. There will be no separate measurement or payment for the preparation or development of the Storm Water Pollution Prevention Plan; labor or equipment necessary to install, maintain or remove the BMP materials; moving existing BMP materials from one location to another on the same project; or constructing BMP swales or berms, all of these costs being considered incidental to the cost of the project.

3. **331 MICROSURFACING SPECIFICATIONS, Add the following to Subsection 331.7.3 PROTECTION OF EXISTING SURFACES.:**

Cracks shall be cleaned and sealed in accordance with MAG Section 337. No separate measurement shall be made for crack seal. This work will be included in the cost of Crack Seal and Microseal.

4. **331 MICROSURFACING SPECIFICATIONS, Delete the paragraph in Subsection 331.8 PAYMENT, and substitute the following:**

Microseal shall be measured by the square yard applied for CRACK SEAL AND MICROSEAL. The price shall be full compensation for furnishing, mixing and applying all materials; and for all labor, equipment, tools, design tests, and incidentals necessary to complete the job as specified herein.

5. **336 PAVEMENT MATCHING AND SURFACING REPLACEMENT**, Add the following to **Section 336 PAVEMENT MATCHING AND SURFACING REPLACEMENT**:

PERMANENT PAVEMENT REPLACEMENT (ASPHALT CONCRETE)

Description

Unless otherwise specified on the plans, pavement replacement sections shall be as follows:

Residential Street: 5 inches Type C-3/4 (two lifts) on 100% compacted native subgrade; or 2 inches Type D-1/2 on 3 inches Type C-3/4 on 100% compacted native subgrade; whichever best fits specific project needs.

Collector Street: 2 inches Type D-1/2 on 6 inches Type C-3/4 (two lifts) on 100% compacted native subgrade.

Major Arterial Street: 2 inches Type D-1/2 on 7 inches Type C-3/4 (two lifts) on 100% compacted subgrade.)

Measurement and Payment

There will be no separate measurement or payment for the pavement and trench backfill. The cost of the pavement and backfill is considered included in the cost of the conduit.

6. **401 TRAFFIC CONTROL**, Add the following to **Subsection 401.4 TRAFFIC CONTROL MEASURES**:

SEQUENCE OF CONSTRUCTION

The sequence of construction shall conform to the requirements of the Special Traffic Regulations.

The project shall follow a phasing plan approved by the Engineer. All lanes shall be maintained on a paved surface at all times during construction. This may be accomplished by using existing, new, or temporary asphalt pavement. Trenches shall be completely backfilled and either paved with temporary asphalt pavement, or covered with metal plating as necessary to comply with this requirement and the "Special Traffic Regulations".

Night work will **not** be allowed on this project, unless required by the City of Phoenix. If the City of Phoenix requires work to be done at night, it will be done at no additional cost to the City.

The right to direct the sequence of construction is a function vested solely with the Engineer. Prior to commencement of the work, the Contractor shall prepare and submit to the Engineer, a written phasing plan and work schedule for the project. This plan and work schedule shall be submitted to the Engineer at the Preconstruction Conference for review.

When approved, the phasing plan and work schedule shall not be changed without the written consent of the Engineer. Orderly procedure of all work to be performed under this contract shall be the full responsibility of the Contractor. The work schedule shall include the hours per day and the days per week that the Contractor plans to work on the project site.

7. **401 TRAFFIC CONTROL**, add the following to **Subsection 401.5 GENERAL TRAFFIC REGULATION**:

TRAFFIC REGULATIONS

- A. The following shall be considered Arterial streets:

7th Ave, Deer Valley Rd, 7th St, Bell Rd, Union Hills Dr, Greenway Rd.

The following shall be considered Collector streets:

Central Ave, Rose Garden Ln, Utopia Rd, Grover Ave, Paradise Ln.

- B. All traffic and/or traffic control devices on this project shall be provided, maintained and/or controlled as specified in the City of Phoenix Traffic Barricade Manual, latest edition and addendums thereof.
- C. Permission to restrict City streets, sidewalks and alleys (street closure permits) shall be requested as specified in the City of Phoenix Traffic Barricade Manual, latest edition and addendums thereof.
- D. Unless otherwise provided for in the following "Special Traffic Regulations", all traffic on this project shall be regulated as specified in the City of Phoenix Traffic Barricade Manual, latest edition and addendums thereof.
- E. No deviation to the "Special Traffic Regulations will be allowed or implemented unless submitted to the Engineer for review and approval two (2) weeks prior to proposed work.
- F. Only City of Phoenix certified contractors can set, move, or remove temporary traffic control devices (signs, barricades, etc.). This annual certification can be scheduled by calling 602-262-6235.
- G. Civil Sanctions for temporary traffic control violations apply as follows:

Civil Sanction Per Day	Violation Description
\$1,500	Creating an eminent risk of death or injury to the public within the public right-of-way
\$1,000	Restricting the right-of-way without proper certification or a right-of-way temporary use permit
\$1,000	Restricting traffic during peak traffic hours as described in the <u>Traffic Barricade Manual</u> without authorization
\$1,000	Failing to correct or cure a violation, as listed in this schedule, within the time period stated on the warning notice
\$1,000	Restricting traffic at signalized intersections without any work occurring
\$500	Closing a sidewalk improperly or closing a sidewalk without proper certification or closing a sidewalk without a right-of-way temporary use permit
\$500	Violating the restriction limits, times and locations, of the right-of-way temporary use permit

\$500	Missing or improper use of advance warning signs
\$500	Missing or improper use of barricades and channelizing devices
\$250	Leaving advanced warning signs facing traffic after restriction has been removed – per one traffic direction
\$250	Leaving traffic control devices in the right-of-way twenty-four hours after right-of-way temporary use permit expires, unless a request for a permit extension is received by the City prior to the expiration of such permit
\$250	Use of “unacceptable” quality traffic control devices as described in the Traffic Barricade Manual
\$250	Rendering a bus stop inaccessible without relocating it or making other accommodations

H. Parking Meter Fees: To take a parking meter out of service requires a \$35 application fee and \$10 per meter per day.

8. **401 TRAFFIC CONTROL**, Add the following to **Subsection 401.5 GENERAL TRAFFIC REGULATION**:

SPECIAL TRAFFIC REGULATIONS

Any Restrictions and/or Closures will only be approved based on scope of work.

Traffic restrictions are not permitted on Arterial/Collector streets during peak traffic hours (6:00 a.m. to 8:30 a.m. and 4:00 p.m. to 6:30 p.m. weekdays). Outside of these hours the following applies:

Arterial Streets

Minimum number of travel lanes to be open to through traffic:

- a. If more than four lanes exist:.....Two will be open each way;
- b. If four or less lanes exist:One will be open each way
- c. On one-way streets:.....Two lanes open

At signalized intersections, a minimum of four lanes (two each way) plus left-turn lanes will be maintained open from 8:30 a.m. to 4:00 p.m., and from 6:30 p.m. to 6:00 a.m., Monday through Fridays including weekends unless otherwise noted within the approved TRACS permit issued to the contractor.

Collector Streets

A minimum of two travel lanes (one each way) will be open to through traffic.

At signalized intersections, a minimum of two lanes (one each way) plus left-turn lanes will be maintained open from 8:30 a.m. to 4:00 p.m., and from 6:30 p.m. to 6:00 a.m., Monday through Fridays including weekends unless otherwise noted within the approved TRACS permit issued to the contractor.

Pre-construction Field Meeting

Prior to requesting a TRACS Permits, the Contractor must coordinate in advance with the construction inspector to schedule a pre-construction field visit. The following personnel shall attend the meeting: Contractor, contracted barricade company, construction inspector and right-of-way inspector.

Nighttime Regulations

To minimize disruption to traffic, crews may be requested to work at night during off-peak hours. In this case, an after-hours permit will be required to authorize work in residential areas. Permits may be granted for up to 30 days for hours including nights, weekends, and holidays and are issued under Phoenix City Code 23-14 for building and roadway construction by the Planning and Development and Street Transportation departments, respectively. The purpose of the permits is to authorize work yet minimize loud and disturbing noises in residential areas due to construction or maintenance activities.

Variable Message Boards

Variable Message Boards (VMB) shall be provided on this project, 24 hours per day, from up to 10 days prior to any roadway closures and from at least 5 days prior to; maintaining a single thru lane at a signalized intersection, restricting left turn movement or 24-hour lane restrictions. The VMB shall remain in place until all roadway traffic restrictions are removed or approval from the area Right-of-Way Inspector.

Special Sign Requirements

The Contractor shall provide, install and maintain advance notification, public informational and directional access signs (for businesses, churches, hospitals, schools, etc.) that may be required by the Engineer. These signs may include, but are not limited to, portable changeable message signs, radar/speed sensing trailers, and other applicable Intelligent Transportation System type devices. The cost shall be included in the bid item for Traffic Control Devices.

No Parking Signs

When used, temporary NO PARKING signs must be placed 72 hours in advance for notification.

Signs should be spaced 80 feet apart for collector and arterial streets. On local Streets, a minimum of one (1) sign must be placed in front of each affected resident not to exceed 80 feet.

Signs must be clearly marked with "Date" to "Date" and the time period of the no parking.

NO PARKING Signs must be new and not reused, dates and times must be legible.

Contractor must provide Parking enforcement a picture of the placement of the no parking sign with a date and time stamp on the picture.



Police Officer Requirements

Off-duty police officers are required for construction projects as defined in the most recent edition of the City of Phoenix Traffic Barricade Manual and TRACS permit. The Contractor must competitively procure off-duty police with vendors who are Authorized Traffic Coordinators with the City of Phoenix Police Department or Phoenix Police Department off-duty detail.

The following requirements must be included in the procurement:

1. Hourly fees charged
2. Administrative fees (administrative fees to be charged as a part of the hourly rate, not billed separately)
 - a. Pay applications requesting reimbursement for Off Duty Police hours worked will be accompanied with itemized documentation indicating officer name, date worked, hours worked, time of day worked and location.
 - b. For audit purposes, contractor's files will contain documentation from the successful off duty vendor that the above items are accounted for in the vendor's price proposal.

The Contractor shall provide one off-duty police officer, as defined in the City of Phoenix Traffic Barricade Manual, at signalized intersections affected from 6:00 a.m. to 6:30 p.m. weekdays, and during working hours nights and weekends when traffic is restricted (as described in the Traffic Barricade Manual).

When construction activities do not restrict traffic through the intersections, police officer hours may be reduced or suspended at the direction of the ROW Inspector.

Signalized Intersection Requirements

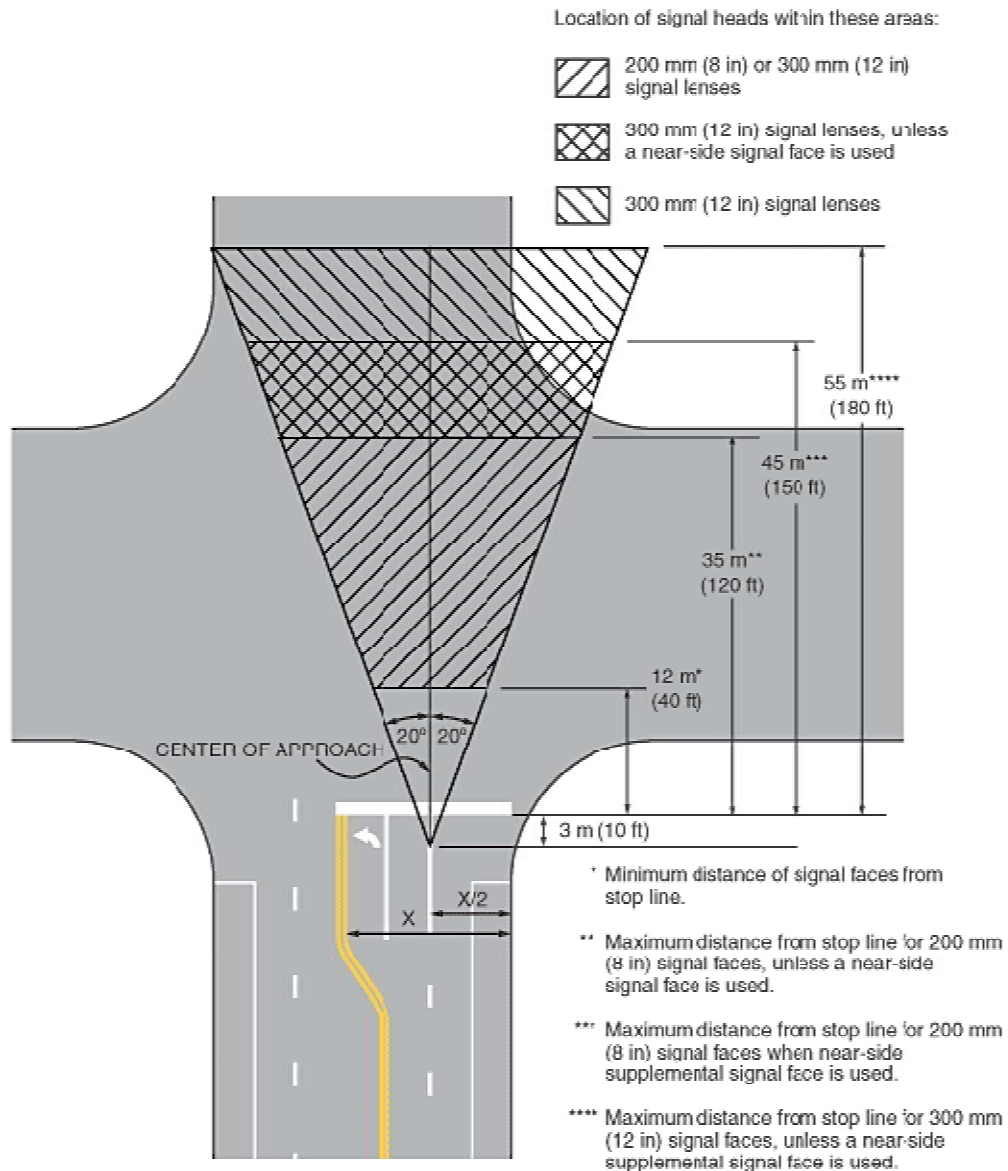
When left turns are prohibited at signalized intersections with left-turn arrow indications or when working in vicinity of a signalized intersection, the contractor will coordinate with the project inspector five days in advance and provide a written schedule indicating days, times and specific locations where left turns will be prohibited or where signals will be interrupted. The project inspector will notify the City Traffic Signal Shop (phxtmc@phoenix.gov) at least 72 hours in advance to make arrangements for arrow indications to be turned off or to coordinated signals being affected by the construction.

The contractor shall maintain the project inspector informed of any schedule changes or when work will be completed. When the work has been completed the inspector will immediately notify Traffic Signal Shop (phxtmc@phoenix.gov) so they can reactivate the left-turn arrow.

Traffic Signal Head Visibility Requirements

The contractor shall maintain a "40-degree Cone-of-Vision" at all intersections, for full view of the intended traffic. If during construction, traffic will be positioned in such a manner that the driver cannot see a minimum of two (2) traffic signal head indications within 20-degrees either side of straight ahead (40-degree Cone-of-Vision), immediately contact the Signal Engineer at 602-262-4693 prior to the start of any work.

Figure 4D-2. Horizontal Location of Signal Faces



Note: This figure illustrates the horizontal location of signal faces.

Local Access Requirements

The Contractor shall maintain local access to all side streets, access roads driveways, alleys, and parking lots at all times and shall notify residents 72 hours in advance of any restrictions which will affect their access. The Contractor shall restore the access as soon as possible. If the primary access cannot be restored in a timely manner, the Contractor shall provide an alternative which shall be pre-determined with the residents prior to imposing any restrictions. Any local street restrictions imposed shall be such that local area traffic circulation is

maintained.

Business Access Requirements

Access shall be maintained to adjacent businesses at all times during their hours of operation. Access may be maintained by such measures as constructing driveways in half sections, or by providing bridging over new concrete. Properties with multiple driveway access will not have more than one driveway access restricted at any given time. While the one driveway is restricted, access to the other adjacent driveways will be maintained and unrestricted. Access to adjacent driveways shall be provided during all non-working hours. Any business restrictions shall be coordinated with the affected business in writing at least fourteen (14) days prior to imposing restrictions.

Pedestrian Access Requirements

The Contractor shall ensure that all sidewalks on this project remain in compliance with all the issues outlined by the American Disabilities Act of 1990. All pedestrian-walking areas, whether paved or unpaved, shall be maintained open and safely or a suitable pedestrian detour route will be provided. Such measures as backfilling or ramping at a 12:1 slope to existing sidewalks, or providing alternate sidewalk areas adjacent to existing sidewalks may be used. Right-of-Way inspector may also request an ADA/Pedestrian plan for any proposed sidewalk restrictions or closures. In high pedestrian use areas, the Engineer may request temporary hard-surface walkways, and/or covered pedestrian walkways to be installed at no additional cost to the City.

Frontage Road Access Requirements

Local access shall be maintained at all times on frontage roads. Frontage roads shall not be used for through traffic, equipment parking, material storage, or spoil stockpile area. Frontage road closures shall follow the same special provisions as described in "Local Access Requirements".

School Access Requirements

The Contractor shall provide clean and safe school zones, crosswalks, and walkways for students attending nearby schools during all hours of school use.

This may require backfilling trenches, temporary pavement, shoring, plating, or pedestrian bridges with handrails across open trenches.

In addition to school zones and crosswalks, the Contractor shall maintain accessibility to all school bus routes during all hours of school use. The Contractor shall notify the school Principal(s) and the school Transportation Director at least fourteen (14) days prior to any restrictions, and shall restore access as soon as possible.

Church Access Requirements

The Contractor shall maintain a high level of access to churches during all hours of church use. The Contractor shall coordinate any access restrictions with the clergy at least fourteen (14) days prior to any restrictions, and shall restore access as soon as possible.

Hospital Access Requirements

The Contractor shall maintain the Emergency entrance to nearby Hospitals by way of a paved lane for emergency vehicles at all times for the duration of the project. The Contractor shall coordinate any access

restrictions with the hospital administrator at least fourteen (14) days prior to any restrictions, and shall restore access as soon as possible.

Fire Station Access Requirements

The Contractor shall maintain emergency vehicle access to and from the fire station at all times. The Contractor shall coordinate with the Fire Station Commander at least seven days prior to any restrictions and shall restore access as soon as possible.

Police Station Access Requirements

The Contractor shall maintain emergency vehicle access to and from nearby police stations at all times. The Contractor shall coordinate with the Police Station Commander at least seven days prior to any restrictions and shall restore access as soon as possible.

City Park Access Requirements

The Contractor shall maintain access to nearby parks during park hours. Any restrictions shall be coordinated with the appropriate Parks District Supervisor at least seven days in advance, and full access shall be restored as soon as possible.

Recreational Trail Crossing

The Contractor shall maintain the trail crossings safely open at all times, and shall maintain all special trail signs required.

Canal Access Road Requirements

Canal access and maintenance roads shall remain open at all times.

Any work that may affect this project shall be coordinated with the appropriate Agency contact at least 14 working days in advance.

Coordination With Other Agency Projects

The Contractor will coordinate and schedule work to minimize disruption or conflicts with the following other Agency projects:

Arizona Department of Transportation (ADOT) Requirements:

The Contractor shall procure all permits and licenses; pay all charges, fees, and taxes for all needs within the Arizona Department of Transportation Right-of-Ways.

Any work that may affect this project will be coordinated with the appropriate Agency contact at least 14 days in advance.

Sanitation Pick-up

The Contractor shall provide sanitation pick-up for affected residents by relocating trash containers, or by providing alternative measures acceptable to the Sanitation Division of the City Public Works Department (602-256-3310).

Special Events

Should there be special events scheduled to take place during the construction of this project, it is the responsibility of the Contractor to coordinate their Construction schedule around the special event. No compensation for delays associated with special events will be considered.

Bus Stops

The Contractor shall maintain all existing bus stop locations on this project in a safe manner, or provide alternate bus stop locations and related directional signage as required by the Inspector. Relocation of bus stops shall be coordinated through the area . Relocation of bus stops shall be coordinated through the City of Phoenix Public Transit Department, contact 602-534-6284 or 602-262-4087.

Flagging of Traffic

No flagging of traffic will be permitted during the peak traffic hours of 6:00 a.m. to 8:30 a.m. and 4:00 p.m. to 6:30 p.m. weekdays. If construction requires, intermittent flagging will be allowed from 8:30 a.m. to 4:00 p.m., if approved by City project inspector, to facilitate access for heavy construction equipment.

Traffic Control Plans

The Contractor shall submit a traffic control plan for approval, showing placement of all traffic control devices, including all conflicting signs to be covered/removed or relocated, or other features that may conflict with the placement of temporary signage. This plan shall be professionally drawn on a reproducible medium, and shall be submitted to the Engineer two (2) weeks prior the contract start time or at the Pre-Construction conference, whichever occurs first.

Holiday Season Requirements

Restrictions near retail shopping areas on Major or Collector streets during the Holiday Season from November 23rd to January 1st will not be approved without pre-approval from the RMP Inspector. Contractor shall plan and coordinate their work schedule around this holiday season requirement.

Temporary Traffic Control Zone and Safety

At the Pre-Construction conference, the Contractor will designate an employee, other than the Project Superintendent, who is knowledgeable in the principles and methods of proper traffic control and safety. This employee will be available on the project site during all periods of construction to coordinate and maintain safe, acceptable and effective temporary barricading whenever construction affects traffic. This person will be authorized to receive and fulfill instructions from the Engineer and will supervise and direct traffic control. Instructions and information given by the Engineer to this person will be considered as having been given to the Contractor.

Failure to maintain temporary traffic control devices in accordance with the City of Phoenix Traffic Barricade Manual, latest edition, the approved Traffic Control Plan, and directives by the Engineer will result in suspension of work and/or civil sanctions until deficiencies are corrected to the satisfaction of the Engineer.

Safety Fencing Requirement for Trenches and Excavations

The Contractor will provide safety construction fencing around all open trenches and excavations during all non-working hours.

The Contractor will provide for the safety and welfare of the general public by adequately fencing all excavations and trenches that are permitted by the Engineer to remain open when construction is not in progress.

Fencing will be securely anchored to approved steel posts located six feet on centers, having a minimum height of six feet, and will consist of wire mesh fabric of sufficient weight and rigidity to adequately span a maximum supporting post separation of six (6) feet.

The fencing, when installed about the periphery of excavations and trenches, will form an effective barrier against intrusion by the general public into areas of construction. Fencing will not create sight distance restrictions or visual obstructions. At all times when construction is not in progress, the Contractor will be responsible for maintaining the fencing in good repair, and upon notification by the Engineer, will take immediate action to rectify any deficiency. Prior to the start of any excavating or trenching required for the execution of the proposed work, the Contractor will submit to the Engineer for approval, detailed plans showing types of materials and methods of fabrication for the protective fencing.

There will be no separate measurement or payment for furnishing, installing, or maintaining protective fencing. The cost will be considered incidental to the cost of the pipe and/or structures.

9. **401 TRAFFIC CONTROL**, Add the following to **Subsection 401.10 PAYMENT:**

ALLOWANCE FOR UNIFORMED, OFF-DUTY LAW ENFORCEMENT OFFICER

This project includes a lump sum "ALLOWANCE FOR UNIFORMED, OFF-DUTY LAW ENFORCEMENT OFFICER. The amount of this allowance is determined by the Engineer, and is not subject to individual bid pricing. All bidders shall incorporate the amount pre-entered in the bid proposal and shall reflect the same in the total amount bid for this project.

Payment for uniformed, off-duty law enforcement officers shall be made from this allowance based on approved invoiced cost plus taxes, and a maximum 10 percent markup for overhead and profit.

TRAFFIC CONTROL

Payment for traffic control will be on a lump sum basis for Traffic Control Devices.

10. Add the following new **Section 402 ADDITIONAL CONSTRUCTION REQUIREMENTS** as follows:

402.1 FIELD DOCUMENTATION

The Contractor shall document existing conditions within the project area prior to construction. Documentation shall be video tape. The video tape shall not be made from a moving vehicle. One copy of the video tape shall be furnished to the City prior to the start of construction. The cost of the video taping shall be considered incidental to the cost of the project. No separate measurement or payment shall be made for this item.

402.2 CONTRACTOR COMMUNICATION INFORMATION

The Contractor shall provide a pager and mobile phone to his on-site Project Superintendent to ensure that the Engineer can reach the Contractor's Superintendent. This pager and mobile phone must be accessible by local land-line telephone service. The Superintendent's pager and mobile phone shall remain in service for the

duration of the project, and these phone numbers shall be included on the Contractor's list of emergency phone numbers submitted at the pre-construction conference.

402.3 TRENCH PLATING

In paved areas where vehicles will be driving over trench plating, the plates shall be set to match flush with existing pavement on all sides. Setting plates on top of the pavement surface and installing temporary asphalt ramps around them will not be allowed.

402.4 TRENCHING IN RIGHT OF WAY

The Contractor shall not be allowed to stockpile trench material or store any equipment other than the mainline track hoe within the right-of-way. The Contractor shall secure temporary 6' chain link fence around the track hoe during non-working hours.

402.5 MAXIMUM OPEN TRENCH

No more than 330 linear feet of open trench shall be allowed. Trenches across driveways shall be plated to maintain access. The cost of these plates shall be considered incidental to the project.

402.9 PUBLIC INFORMATION SERVICES

The City of Phoenix shall provide a public information specialist for the community relations program on this project.

The Contractor shall cooperate with the City's public information specialist firm in the preparation of newsletters, advanced notification for service disruptions, answering questions from the public, etc. He shall also provide schedule update information to the specialist.

The Contractor shall provide representatives as needed for all meetings with the public through out the contract period.

The contractor shall cooperate with the City's PM in the preparation of any Construction Notices. The contractors shall provide and distribute the Construction Notices to the public and businesses located along the corridor at least 72 hours prior to starting any work. The contractor shall provide advanced notification for service disruptions. The contractor shall provide a hotline phone number and Two (2) moveable on post message boards, each 4'x4', to include the project and contractor (hotline) information. The message boards shall remain in place until all roadway traffic restrictions and/or services disruptions are removed.

The City will pay public information service costs associated with approved contract time extensions; however, if the Engineer determines that delays were caused by the Contractor, the additional costs for public information services shall be deducted from the Contractor's final pay request.

The cost of the section items shall be considered incidental to the cost of the project. No separate measurement or payment shall be made for this section.

11. **601 TRENCH EXCAVATION, BACKFILLING AND COMPACTION**, Add the following to **Subsection 601.2.6 Grading and Stockpiling** after the first paragraph:

During excavation, material suitable for backfilling shall be piled in an orderly manner, a sufficient distance back from the edges of trenches, to avoid overloading and to prevent slides or cave-ins. Material unsuitable for

backfilling, or excess material, shall be hauled from the job site and disposed of by the Contractor.

12. **601 TRENCH EXCAVATION, BACKFILLING AND COMPACTION**, Add the following to **Subsection 601.2.7**

Shoring and Sheeting:

The Contractor shall do such trench bracing, sheathing or shoring necessary to perform and protect the excavation as required for safety and conformance to governing laws. The bracing, sheathing or shoring shall not be removed in one operation, but shall be done in successive stages as determined by the Engineer to prevent overloading of the pipe during backfilling operations. The cost of the bracing, sheathing or shoring and the removal of same shall be included in the unit price for the pipe.

13. **601 TRENCH EXCAVATION, BACKFILLING AND COMPACTION**, Add the following to **Subsection 601.2.8**
Open Trench:

Except where otherwise noted in the special provisions, or approved in writing by the Engineer, the maximum length of open trench, where the construction is in any stage of completion (excavation, pipe laying or backfilling), shall not exceed 1,320 feet in the aggregate at any one location.

Any excavated area shall be considered open trench until all ABC for pavement replacement has been placed and compacted. With the approval of the Engineer, pipe laying may be carried on at more than one separate location, the restrictions on open trench applying to each location. Trenches across streets shall be completely backfilled as soon as possible after pipe laying.

Substantial steel plates with adequate trench bracing shall be used to bridge across trenches at street crossings where trench backfill and temporary patches have not been completed during regular work hours. Safe and convenient passage for pedestrians shall be provided. The Engineer may designate a passage to be provided at any point he deems necessary.

14. **601 TRENCH EXCAVATION, BACKFILLING AND COMPACTION**, Add the following new **Subsection 601.2.9 Pavement and Concrete Cutting and Removal:**

601.2.9 Pavement and Concrete Cutting and Removal: Where trenches lie within the Portland cement concrete section of streets, alleys, driveways or sidewalks, etc., such concrete shall be sawcut to neat, vertical, true lines in such a manner that the adjoining surface will not be damaged. The minimum depth of cut shall be 1 ½ inches or ¼ of the thickness, whichever is greater.

Asphalt pavement shall be clean-cut with approved equipment and by approved methods in accordance with the requirements of Section 336.

No ripping or rooting will be permitted outside limits of cuts. Surfacing materials removed shall be hauled from the job site immediately, and will not be permitted in the backfill.

15. **601 TRENCH EXCAVATION, BACKFILLING AND COMPACTION**, Add the following to **Subsection 601.3.3**
Bedding for Storm Sewers Maintained by the City of Phoenix:

All Controlled Low Strength Material (CLSM) shall be provided by a commercial-source. No on-site mixing or addition of cement to aggregate base course slurry in transit mixers will be allowed.

16. **601 TRENCH EXCAVATION, BACKFILLING AND COMPACTION**, Add the following to **Subsection 601.3.4**
Backfill:

BACKFILL TYPE REQUIREMENTS FOR PIPE TRENCHES

Type "B" backfill, as shown on City of Phoenix Detail P1200, shall be used for all mainline pipe installations across major, collector, or other signalized intersections. At a minimum, the extent of the Type "B" backfill shall be from curb-return-to-curb-return through the intersection, unless noted otherwise on the plans or in the special provisions. Type "B" backfill shall also be used for all lateral pipe connections in ALL streets. Type "A-Modified" backfill (suitable native material as specified in City of Phoenix Supplement to MAG Specification Section 601.3.2, except that no piece larger than 3 inches will be allowed), as shown on City of Phoenix Detail P1200, may be used at all other locations, from the top of bedding to the specified pavement subgrade level, unless noted otherwise on the plans or in the special provisions. There is no separate measurement or payment for pipe backfill. The cost is considered included in the bid price for furnishing and installing the pipe. The pavement replacement section shall be as specified on the plans or in the special provisions, and shall be paid for by the square yard or by the ton, whichever is indicated in the special provisions and on the bid proposal.

17. **601 TRENCH EXCAVATION, BACKFILLING AND COMPACTION**, Add the following new **Subsection 601.4.5 Cutting Newly Placed Pavement for Pipe Installation:**

601.4.5 Cutting Newly Placed Pavement for Pipe Installation: In the event temporary or base course pavement must be cut in order to install pipe, the cost of sawcutting, removing and replacing the asphalt shall be considered incidental to the cost of the pipe.

18. **601 TRENCH EXCAVATION, BACKFILLING AND COMPACTION**, Add the following new **Subsection 601.6 PROTECTION OF EXISTING UTILITIES:**

601.6.1 Utilities: Unless otherwise shown on the plans or stated in the specifications, all utilities, underground or overhead, shall be maintained in continuous service throughout the entire contract period. The Contractor shall be responsible and liable for any damages to or interruption of service caused by the construction.

If the Contractor desires to simplify his operation by temporarily or permanently relocating or shutting down any utility or appurtenance, he shall make the necessary arrangements and agreements with the owner and shall be completely responsible for all costs concerned with the relocation or shutdown and reconstruction. All property shall be reconstructed in its original or new location as soon as possible and to a condition at least as good as its previous condition. This cycle of relocation or shutdown and reconstruction shall be subject to inspection and approval by both the Engineer and the owner of the utility.

The Contractor shall be entirely responsible for safeguarding and maintaining all conflicting utilities that are shown on the plans (Sections 107 and 105 apply). This includes overhead wires and cables and their supporting poles whether they are inside or outside of the open trench. If, in the course of work, a conflicting utility line that was not shown on the plans is discovered, the Contracting Agency will either negotiate with the owner for relocation, relocate the utility, change the alignment and grade of the trench or as a last resort, declare the conflict as "extra work" to be accomplished by the Contractor in accordance with Section 104.

601.6.2 Irrigation Ditches, Pipes and Structures: The Contractor shall contact the owners of all irrigation facilities, and make arrangements for necessary construction clearances and/or dry-up periods.

All irrigation ditches, dikes, headgates, pipe, valves, checks, etc., damaged or removed by the Contractor, shall be restored to their original condition or better, by the Contractor at no additional cost to the Contracting Agency.

601.6.3 Building, Foundations and Structures: Where trenches are located adjacent to building, foundations and structures, the Contractor shall take all necessary precaution against damage to them. The Contractor shall be liable for any damage caused by the construction.

Except where authorized in the special provisions or in writing by the Engineer, water settling of backfill material in trenches adjacent to structures will not be permitted.

There will be no separate measurement or payment for this work. The Contractor will include all associated costs in the unit bid price for the pipe installation.

601.6.4 Permanent Pipe Support Options and Encasements: Where 18-inch or larger mainline pipes (or other pipes as directed by the Engineer) cross under existing sanitary sewerlines (vitrified clay pipe 12-inches or smaller), the Contractor shall permanently support the sanitary sewerline per MAG Detail 403-1, 403-2 or 403-3. If the ductile iron pipe replacement option is used (403-3), and the required crossing length is more than one joint of pipe, concrete pipe supports as detailed in MAG Details 403-1 or 403-2 shall be used in addition to the ductile iron pipe. For a single joint of standard 20-foot-long ductile iron pipe replacement, the maximum trench width allowed at the point of the sewer line crossing shall be 9-feet, unless otherwise directed by the Engineer. Mechanical or restrained joints shall be required on all multiple-joint ductile iron pipe crossings.

Where waterlines, reclaimed waterlines or sanitary sewer lines (new or existing) cross over or under each other, pipeline encasements shall be provided as necessary in accordance with MAG Detail 404.

When the ductile iron pipe replacement option is used for the sewer lines, the new pipe shall be properly blocked at each end with one or more bricks resting on undisturbed or 95% compacted soil haunches outside the trench walls to prevent differential settlement.

The interior of all ductile iron pipe used for sewer lines shall be coated per the specification, "LINING FOR DUCTILE IRON PIPE USED FOR SEWER LINES" in these Special Provisions.

Upon completion of a sanitary sewer line support or encasement, including backfilling and compacting, but prior to permanent pavement replacement, the Contractor shall request, through the Engineer, a televising of the line by the City Water Services Department to ensure proper line and grade of the sanitary sewer pipe. If the pipe is out of alignment, it shall be the Contractor's responsibility to remedy the situation at no cost to the City.

If the sanitary sewer line is less than 8-inches in diameter, the Contractor shall provide the necessary equipment and televise the line to determine proper pipe alignment. The Engineer shall be present during the televising, and a video tape of the televising shall be made for the City Water Services Department for confirmation that the pipe is properly aligned. The cost of televising the line and preparing the video tape shall be included in the bid price paid for the pipe support or encasement.

Permanent pipe supports shall be paid for at the unit price bid for each unit installed regardless of type. Encasements shall be paid for at the unit price bid per linear foot installed regardless of type. The unit price bid for either item of work shall be compensation in full for providing complete and satisfactory permanent pipe supports or encasements, including ductile iron pipe and fittings, concrete, reinforcing steel, forming, vibrating, any required earthwork, televising and videotaping, and any other incidental items necessary.

601.6.5 Electronic, Telephonic, Telegraphic, Electrical, Oil and Gas Lines: During trenching operations, underground facilities such as electronic, telephonic, telegraphic, electrical, oil and gas lines shall be supported and protected by the Contractor. Support for plastic pipes shall be continuous along the bottom of

the pipe. Support for metal pipe and electrical conduit may be continuous or nylon webbing may be used for suspension at no greater than ten-foot intervals.

The Contractor shall avoid damaging any pipes, conduits or duct bank facilities during excavation, foundation and bedding placement, and trench backfilling and compaction.

601.6.6 Measurement and Payment:

There will be no measurement or payment for this work. The Contractor will include all associated costs in the unit bid price for the pipe installation.

19. **601 TRENCH EXCAVATION, BACKFILLING AND COMPACTION**, Add the following new **Subsection 601.7 CONTRACTOR CERTIFICATION OF INSTALLATION PROCEDURES**:

601.7 CONTRACTOR CERTIFICATION OF INSTALLATION PROCEDURES

When requested in the Special Provisions or by the Engineer prior to installation, the Contractor shall furnish to the Contracting Agency an affidavit (certification) from the pipe manufacturer (or his designee) stating that the Contractor is familiar with the manufacturer's suggested installation methods and procedures and the installation complies with those procedures and is consistent with MAG requirements.

Also, when required in the Special Provisions or requested by the Engineer, the pipe manufacturer or his designee will review the Contractor's methods and procedures for pipe installation in the field. The Contractor will make any adjustments in the installation as recommended by the manufacturer or his representative. If necessary, the Contractor may be required to reinstall or provide corrections to pipe installed prior to the field review at no cost to the Agency. Once the manufacturer or his representative has reviewed the Contractor's installation methods and the Contractor has adjusted his installation methods as recommended by the same, the manufacturer or his representative shall furnish to the Contracting Agency an affidavit (certification) that the Contractor's installation methods and procedures, at the time of the review, complied with the manufacturer's installation practices. The affidavit must provide the name of the manufacturer's representative witnessing the pipe installation.

ADOT SPECIAL PROVISIONS

1. **SECTION 732 ELECTRICAL UNDERGROUND MATERIAL:** Modify and revise **ADOT Standard Specification 732** as follows:

732 – 1 Description: first paragraph is revised to read:

The work under this section shall consist of furnishing and installing conduit, pull boxes, bonding and grounding systems, fiber optic cable systems, cable tray systems, and equipment racks as shown on the project plans or required by the project Special Provisions. The work shall include excavation, installation of conduit, removal of spoils, backfill, compaction of directional drilling and jack and bore pits, warning tape, pull tape, locator wire, connectors and fittings, locating existing conduit when new is to be intercepted with existing, and restoration of the surface to existing condition, including the replacement of decomposed granite and other landscaping items where appropriate.

732-2.01 Electrical Conductors: of the Standard Specifications is modified to add:

Electrical conductors that are left un-terminated shall be coated by a waterproofing method approved by the Engineer. All conductors shall be labeled. Cable marking tags shall conform to the requirements of Subsection 732- 2.01 (A). The Contractor shall use durable marking tags that have the ability of being moved along the cables during future alterations.

732 – 2.01(B)(3) IMSA Cable: of the Standard Specifications is modified to add:

IMSA No. 19-1, or approved equal, four Conductor No. 6 AWG shall be used for the switches installed by the project. All electrical conductors that are left un-terminated shall be coated by a waterproofing method that is approved by the Engineer.

732-3.01 Installation of Electrical Conduit and Pull Boxes: of the Standard Specifications is modified to add:

New pull box shall be installed in accordance with the details shown on the project plans and ADOT ITS Standard Drawings.

Conduits entering pull boxes shall be installed in accordance with the details shown on the project plans and ADOT ITS Standard Drawings.

Prior to trenching, the Contractor shall verify, with utility record drawing information, the existence of all cathodic protection in all existing utilities and take all possible precautions to maintain existing cathodic protection.

732-3.01 Installation of Electrical Conduit and Pull Boxes: the twentieth paragraph of the Standard

Specifications is revised to read as follows:

Conduit ends shall be capped with conduit end cap fittings or plug fittings until wiring or cabling installations are started. When end caps are removed, PVC ends shall be provided with an approved conduit end bell. End bells shall be installed prior to the installation of the conductors. Approved insulated grounding bushings shall be used on steel conduit ends.

732-4 Method of Measurement: of the Standard Specifications is revised to read as follows:

Conductors and cables will be measured by the linear foot for each type and size as follows:

- (A) From center to center of pull boxes;
- (B) From edge of foundation to center of pull box;
- (C) From edge to edge of foundation;
- (D) From end of conduit to center of pull box; and
- (E) From end to end of conduit when no pull boxes are used.

Conductors and cables will be measured as a complete unit of work. This method of measurement shall be used for power and communications conductors, and fiber optic cables shown in the estimate and required on the project plans.

No measurement or direct payment will be made for conductors and cables in poles and pull boxes, the cost being considered as included in the contract price for the pole and pull box items.

Conduit will be measured by the linear foot for each diameter size as follows:

- (A) From center to center of pull boxes;
- (B) From edge of foundation to center of pull box;
- (C) From edge to edge of foundation;
- (D) From end of conduit to center of pull box or foundation; and
- (E) From end to end of conduit when no pull boxes are used.

No measurement or direct payment will be made for vertical conduits and conduit sweeps, conduit in pull boxes, conduit in foundations, clearing and grubbing, trenching, boring, directional drilling, hand digging, potholing, and concrete encasement, the cost being considered as included in the contract price for the conduit and pull box items.

Pull boxes will be measured as a unit for each pull box.

No measurement or direct payment will be made for the use of pulling equipment. If a new pull box is required to be installed in place of an existing pull box, no measurement or direct payment will be made for removal and disposal of the existing pull box and reconfiguring the conduits entering the pull box as necessary to achieve the minimum bend radius requirements, the cost being considered as included in the contract price for the pull box items.

732-5.03 Conduit: first paragraph of the Standard Specifications is revised to read as follows:

The accepted quantities of conduit, measured as provided above, will be paid for at the contract unit price per linear foot, which price shall be full compensation for the work, complete in place, including materials, labor, excavation, backfill and compaction, boring, directional drilling, pavement replacement, pavement preservation, saw cutting, conduit, conduit caps/plugs, warning tape, pull tape, locator wire, couplings, fittings, condulettes, expansion fittings, flexible steel conduit, sweeps (36 Inch minimum), hangers, core drilling, replacement of landscaping and irrigation systems, and other work required to return the surface to pre-disturbed condition shall be considered incidental and the cost being considered as included in the contract price for the conduit items.

732-5.04 Pull Boxes: first paragraph of the Standard Specifications is revised to read:

The accepted quantities for pull boxes, measured as provided above, will be paid for at the contract unit price each, which price shall be full compensation for the work, complete in place, including any excavating, backfilling, existing pull box removal, reconfiguring the conduits entering the pull box, and any incidentals necessary to complete the work.

SECTION 732 ELECTRICAL UNDERGROUND MATERIAL: of the Standard Specifications is modified to add:

ITEM 7320172	ELECTRICAL CONDUIT (5")(RIGID METAL):
ITEM 7320292	ELECTRICAL CONDUIT (1 - 2"):
ITEM 7320296	ELECTRICAL CONDUIT (2 - 1.25"):
ITEM 7320297	ELECTRICAL CONDUIT (3 - 1.25"):

Description:

The work under this section shall consist of furnishing and installing conduit as shown on the project plans and required by these Special Provisions. The work shall include excavation, installation of conduit, removal and disposal of spoils as required, backfill, compaction of backfill material use for directional drilling and jack and bore pits, warning tape, pull tape, locator wire, connectors and fittings, locating existing conduit when new is to be intercepted with existing, and restoration of the surface to existing condition at no additional cost to the City.

The Contractor shall provide all necessary equipment, labor, and account for the additional construction time required to install the conduit due to the nature of the subgrade material encountered in this area. The Contractor is to determine the installation method (trenching or boring) they see best fit for each area.

Materials:

Polyvinyl Chloride (PVC) conduit and materials shall be in accordance with Section 732-2.02, of the ADOT Standard Specifications.

Unless otherwise shown on the plans, bends, conduit fittings, expansion joints, 36" sweeps and other conduit accessories not specifically mentioned shall be from a material similar to the connecting conduit. Conduit elbows used for fiber optic cable installations (including future installations) shall be a minimum of 36-inches. All other conduit elbows shall be a minimum of 24-inches.

When the Contractor uses High Density Polyethylene (HDPE) conduit for the installation of below ground PVC conduit, the HDPE conduit shall meet the requirements of the Special Provisions for HDPE conduit listed herein, provide original data sheets or a Certification of Compliance letter from the HDPE conduit manufacturer to the Engineer stating that the product meets the requirements within these Special Provisions and obtain the written approval from the Engineer prior to procuring and installing the HDPE conduit.

(A) HDPE Conduit:

The Contractor shall use a HDPE conduit with a Standard Dimensional Ratio (SDR) of SDR 11 or SDR 13.5. The HDPE formulations used by the manufacturer must be specifically for conduit applications in accordance with ASTM F 2160: Solid Wall High Density Polyethylene (HDPE) Conduit Based on Controlled Outside Diameter (OD) and ASTM 3035 Polyethylene (PE) Plastic Pipe (SDR) Based on Controlled Outside Diameter. It shall have a cell classification of PE334470C (for black conduit) and PE334470E (for colored conduit) per ASTM 3350: Standard Specification for Polyethylene Pipe and Fittings Materials.

The polyethylene base resin shall meet the density requirement and melt index properties described herein. The density shall not be less than 0.940 and not more than 0.955 g/cm³ in accordance with ASTM D 1505: Standard Test Method for Density of Plastics by the Density-Gradient Technique. The range for the melt index shall be between 0.05 to 0.5g/10 minutes in accordance with ASTM D 1238: Standard Test Method for

Melt Flow Rates of Thermoplastics by Extrusion Plastometer. The HDPE conduit shall have a minimum Flexural Modulus, MPa (PSI) of 80,000 per ASTM D 790 and a minimum tensile strength at yield (PSI) of 3,000 per ASTM D-638.

Additives to the base resin shall be included to provide heat stabilization, oxidation prevention and ultraviolet (UV) protection. It shall also utilize carbon black in the range of 2-3% for long term protection against UV degradation. The minimum protection period shall be one year from date of manufacture in unprotected, outdoor storage in accordance with ASTM D 1603: Standard Test Method for Carbon Black in Olefin Plastics.

(B) Pull Tape, Locator Wire, and Underground Warning Tape:

Pull tape shall have a minimum tension rating of 2500 lbs. Locator wire shall be 12 AWG solid copper wire for ITS applications and traffic signal applications.

All empty conduits require a pull tape and locator wire to be installed. The pull tape shall terminate at the bell end of the conduit with 6 feet of coiled slack in each pull box and each locator wire shall be bonded together in each pull box at no cost to the City. In order to prevent pull back into conduit from stretching, Contractor shall let cable rest prior to cutting per manufacturer requirements.

Underground warning tape with locator wire shall be installed above any new conduit path per details in plans. Underground warning tape shall have the words "CAUTION BURIED FIBER OPTIC LINE BELOW" imprinted on the tape at reoccurring intervals.

Construction Requirements:

Conduit shall be placed in accordance with the lines, grades, details and dimensions as shown on the plans or as otherwise approved by the Engineer. All PVC conduits shall be installed in accordance with Section 732-3.01 of the ADOT Standard Specifications, unless noted otherwise on the plans.

Conduit depths shall be a minimum of 36 inches, or as shown on the plans.

Conduit that is direct buried (trenched) shall be backfilled with half sack slurry. The slurry compaction around the conduit shall not cause damage to the conduit. The Contractor shall replace any cracked, broken, chipped or damaged conduit as a result of direct bury slurry at no additional cost to the City.

Where the removal of concrete is required for conduit installation, the Contractor shall remove and replace (in kind) the entire concrete slab(s). Where pavement removal is required for conduit installation, the Contractor shall replace (in kind) the entire area disturbed.

The following subgrade materials may be encountered during trenching or directional drill activities:

- Silty Sand with gravel and cobbles
- Sandy Clay with gravel and cobbles
- Highly fractured basalt
- Clayey sand with gravel
- Well graded sand

The Contractor shall be aware that the subgrade materials encountered are not limited to the above materials.

(A) Difficult Subgrade Conditions:

The Contractor shall provide all necessary equipment, labor, and account for the additional construction time required to install the trenched and directional drilled conduit due to the nature of the subgrade material within the project limits.

Conduit shall be installed a minimum trench depth of 36 inches with half sack slurry backfill. In areas where minimum trench depth requirements of 30 inches cannot be met, the conduit shall be encased in a minimum of

three inches of concrete. The conduit shall be supported with masonry block or brick at 10-foot intervals centered under the conduits, during encasement, so that the conduit will be completely encased in concrete.

(B) Plant Material

Alignment of the conduit should try to avoid existing vegetation where possible. Vegetation damaged by construction activities of the Contractor, or its Subcontractors, shall be repaired by the Contractor at no added cost to the City.

All landscape work required as a result of conduit installation shall conform to the requirements of Section 806 of the Standard Specifications. The Contractor shall employ a working foreman qualified and experienced in supervising landscape construction, maintenance, and irrigation systems for the City of Phoenix. Landscape repairs shall be done by a licensed landscape Contractor. All plants cleared shall also be grubbed, regardless of location. Hand digging shall be used in areas where irrigation facilities are present.

All existing plant material that is disturbed during the construction phase shall be replaced with the identical plant species and shall be planted and staked per the original plans to the approval of the Engineer. Replacement plant material shall be 15-gallon container size for all trees and 1-gallon container size for all shrubs. Plantings shall be planted at their original location or at a minimum distance of 3 feet from the centerline of the trench, whichever is greater. The Contractor shall be responsible for replacing landscaping at no cost during the 90-day plant establishment period. The Contractor shall be required to maintain a log (or spreadsheet), open to the City of Phoenix review, detailing when and where vegetation has been planted. As the 90-day plant establishment period ends, the Contractor shall be required to alert the City of Phoenix so the area can be inspected. Failure to alert the City of Phoenix of the end of the 90-day period shall increase the plant establishment period for that area to the actual alert time plus 3 days.

Existing landscaping shall not be left without irrigation-system-supplied water for a period longer than 24 hours. The Contractor shall be responsible for maintaining the healthy condition of all existing plant material and proper function of the water and electrical services affected by construction.

Plant material may be pruned to provide construction access. The pruning shall be performed by trained and experienced landscape personnel. Pruning methods shall be approved by the Engineer prior to pruning being performed.

Irrigation work shall conform to the requirements of Section 808-1 through 808-3 of the Standard Specifications. Restoration of irrigation system shall be considered incidental to conduit installation. A minimum of 50 percent of the irrigation repair crew shall be landscape sprinkler installers.

The irrigation system shall be repaired, flushed, and tested at operating pressure for leaks in the system within 24 hours. The irrigation system shall be repaired with comparable materials, using methods similar to the original installation and approved by the Engineer.

(C) Directional Drilling:

At each directional drilling operation location, the Contractor shall complete all necessary potholing and submit the proposed Directional Drill (DD) profile to the Engineer for review and acceptance prior to beginning any Directional Drill operation. The proposed DD profile shall consist of the following minimum requirements: A plan and profile sheet, at a scale that clearly shows the depths of the bore path needed to avoid conflicts with existing utilities within the area.

The plan and profile sheet shall show the directional drill location and depict typical information such as

station, offsets, elevations, surface landmarks such as edge of pavement, back of curb, retaining walls, drainage structures etc., and all underground utilities etc. with each utilities required clear zone separation requirements shown.

For all DD conduit installations, the Contractor shall use HDPE conduits along the prescribed bore path from the surface with minimal impact to the surrounding area. The pulling tension for installing the HDPE conduit shall not exceed 75% of the manufacturer's tensile strength rating for each size and configuration of conduit(s) to prevent the conduit(s) from elongation or "necking down" during installation.

The Contractor's DD operations shall utilize the "walkover" locating system or other Engineer approved equivalent for determining the location of the bore head. A Sonde behind the bore head shall register the depth, angle, rotation and directional data. At the surface, a receiver compatible with the Sonde shall be used to gather the data and relay the information to the DD equipment operator. The actual bore path shall be overlaid onto the proposed bore path and shall be submitted to the Engineer as part of the As-Built process.

(D) HDPE:

When joining segments of HDPE conduit, the Contractor shall utilize non-corrosive, sit-tight, water-tight couplings. Heat fusion, electrofusion fittings and mechanical connections shall be permitted if the HDPE conduit and joining device manufactures recommendations are observed and the internal diameter of the HDPE conduit is not reduced. Extrusion welding and hot gas welding to join HDPE conduits is not permitted. Upon completion of joining HDPE conduit sections and setting the pull boxes, the Contractor shall clean the HDPE conduit with compressed air. The Contractor shall demonstrate by pulling a cleaning mandrel or ball mandrel, correctly sized for the conduit, that the conduit was not deformed during installation. If the mandrel passes through the HDPE the Contractor shall install the pull tape and locator wire in accordance with Section 732 of these Special Provisions. If the mandrel encounters a deformity in the HDPE conduit, the Contractor shall replace the entire segment of HDPE between pull boxes with new HDPE at no cost to the City.

(E) Conduit Connections at Existing No. 9 Pull Boxes:

The Contractor shall route conduit into existing pull boxes or at other locations shown on the plans. At locations where a spare duct entrance into the pull box is available, the Contractor shall use the available entrance to install the conduit into the pull box. At locations where a spare duct entrance into the pull box is not available, the Contractor shall core drill a conduit entrance per the plan details and these Special Provisions. Conduits that are installed through the core drilled opening shall have a PVC bell end installed to facilitate the Single Mode Fiber Optic (SMFO) cable installation.

The Contractor shall grout the core drilled areas or capped requirements as noted on the plans, around the conduits, with a smooth concrete finish. Grouting components shall be mixed in strict compliance with the manufacturer's recommendations.

If spalling is observed during the core drilling operation the Contractor shall notify the Engineer for mitigation measures. The extent of the repair area will be marked by the Engineer and will be no less than three inches outside the area of delamination. The Engineer will be the final authority if questions arise in regards to the need for patching or the extent of a required patch.

Concrete within the patch area shall be broken out, to the minimum depth specified by the manufacturer for the patch material being used, with light to medium pneumatic tools until sound clean concrete is exposed. Prior to patching, the exposed faces of the concrete shall be sandblasted free of loose particles, oil, dust, traces of concrete and other contaminants. Prior to the placement of the bonding agent, all sandblasting residue shall be removed with compressed air and high suction vacuums. Sand for sandblasting shall be

sharp and clean and capable of passing a No. 10 sieve and shall leave the exposed concrete face clean and dry.

The surface of the spalled area shall be clean and dry so that the patching material will form a proper bond. The area to be cleaned and patched shall be limited to the area designated by the Engineer. Patching materials shall be confined to the limits of the repair and shall not lap onto the surrounding pull box infrastructure.

The patch shall be finished to the cross-section of the existing pull box. The patch surface shall be struck off flush with the existing pull box surface.

(F) Acceptance:

No more than one week prior to installation of any cable, all new and existing empty conduit runs in which cable is to be installed shall be cleared/cleaned prior to by pulling through a metal-disc mandrel with a diameter of 90% of the PVC conduit diameter, or a ball mandrel with a diameter of 80% of the HDPE conduit diameter. The conduit may be brushed or swabbed or pumped to remove water, if deemed necessary, prior to pulling the mandrel through the conduit.

Pull tape for cable pulling shall be added to all proposed conduit pathways (new or existing) to facilitate the cable installation.

(G) Geospatial Deliverables:

Once the conduit has been installed or partially installed The City of Phoenix will require the contractor to survey the actual location of the conduit path. This data will be used for input into The City of Phoenix Fiber Network GIS System.

The surveyed path will be collected in segments between access points. Each manhole, handhole, vault will be surveyed as individual points and identified with a City of Phoenix number.

All surveys will have a horizontal and vertical accuracy level of +/- one foot. The survey will be provided to The City of Phoenix in Arizona State Plane Central Zone NAD 83/NAVD 88 International Feet.

Deliverables will include:

1. CSV file of all collected points in a Northing, Easting, Elevation, Description format.
2. AutoCAD 2019 3D file of the surveyed conduit path.

Method of Measurement:

Conduit will be measured by the linear foot by each diameter size combination, from center to center of pull boxes, or center of pull box to center of foundation. Each item shall include all elements of installation as described below.

No measurement or direct payment will be made for clearing conduit (new or existing) and installation of pull tape, the cost being considered as included in the contract price for the conduit items.

No measurement or direct payment will be made for vertical conduits, conduit sweeps, conduit in pull boxes, conduit in foundations, clearing and grubbing, removal and disposal of spoils, directional drilling and jack and bore pits, warning tape, couplings, expansion fittings, connectors, half sack slurry, backfilling and compacting, bonding and grounding, grouting, spall repair, pavement patching, irrigation system repair, replacement of any landscape vegetation damaged during installation activities, or other work required to return the surface to pre-

disturbed condition, the cost being considered as included in the contract price for the conduit items.

The Contractor is alerted to the fact that hand digging may be required in the installation of trenches and pull boxes. No measurement or direct payments will be made for hand digging, the cost being considered as included in the contract price for the conduit and pull box items.

No measurement or direct payment will be made for additional equipment, labor, and construction time required to install the conduit due to the nature of the subgrade material encountered or the existing locations of utilities in the area, the cost being considered as included in the contract price for the conduit items.

The work shall include excavation, installation of conduit, removal and disposal of spoils as required, backfill, compaction of backfill material use for directional drilling and jack and bore pits, warning tape, pull tape, locator wire, connectors and fittings, bonding and grounding, locating existing conduit when new is to be intercepted with existing, and restoration of the surface to existing condition at no additional cost to the City.

The HDPE conduit shall be measured and paid at the unit bid price of the PVC conduit(s).

Basis of Payment:

The accepted quantities of conduit, measured as provided above, will be paid for at the contract unit price per linear foot, which price shall be full compensation for the work, complete in place, including materials, labor, excavation, backfill and compaction, boring, directional drilling, pavement replacement, saw cutting, conduit, conduit caps/plugs, warning tape, pull tape, locator wire, couplings, fittings, condulettes, expansion fittings, flexible steel conduit, sweeps (36 Inch minimum), hangers, core drilling, replacement of landscaping and irrigation systems, and other work required to return the surface to pre-disturbed condition shall be considered incidental and the cost being considered as included in the contract price for the conduit items.

Additional equipment, labor, and construction time required to install the trenched or directionally drilled conduit due to the difficult nature of subgrade material encountered is considered included as part of the conduit pay items.

Additional materials, equipment, and labor for concrete encasement of trenched conduit due shallow installation depths is considered included as part of the conduit pay items.

ITEM 7320456 PULL BOX (NO. 8) (PHOENIX):
ITEM 7320460 PULL BOX (NO. 9) (PHOENIX):

Description:

The work under this item shall consist of furnishing and installing pull boxes as shown on the project plans. The work shall include excavation, installation of pull boxes, installation of rack and hook system for No. 9 pull box, backfill, compaction, conduit sweep adjustments, and restoration of the surface to existing condition, including decomposed granite and other landscaping, irrigation systems, concrete surfaces, and roadway surfaces.

Materials:

The pull box, covers, and extensions shall meet structural requirements for AASHTO Specification HS20-44 loads and as shown on the project plans. A certificate of compliance, in accordance with Section 106.05 of the Standard Specifications shall be supplied for structural capabilities and materials used in manufacture. New pull boxes installed to replace existing pull boxes shall be a split No. 9 pull box installed over existing conduit and fiber, as shown in project plans.

Concrete pull boxes are not permitted. Concrete polymer boxes shall be used.

(A) Covers:

The wording on the City of Phoenix No. 8 (No. 8) pull box covers shall read, "CITY COM" in two-inch letters.

The wording on the City of Phoenix No. 9 pull box covers shall read, "CITY COM" in two-inch letters.

The No. 9 pull box cover shall have a square, hinged cover that opens a full 180 degrees. Opening of the cover shall be spring assisted from both the open and closed positions via a torsion bar lift system. The cover shall lock down with at least one stainless steel penta-head bolt that shall be captive to the cover. The cover shall also have provisions for an externally mounted padlock for extra security. The padlock shall mount in a cavity in the pull box cover so no part of the padlock is exposed.

(B) Cable Mounting Hardware:

Each No. 8 pull box shall be supplied with two 36" cable rack rails installed on the side walls of the pull box, with four 7.5" large cable rack hooks, as shown on the plans. Shop drawings for the rack and hook system shall be submitted to the Engineer for approval. The installation method of the rack and hook system and details of how the Contractor proposes to use the rack and hook system to support cable slack shall be included in the shop drawings.

Each No. 9 pull box and split No. 9 pull box shall be supplied with six unistrut embedded in the concrete walls of the pull box, with a 24" 18-hole rack mounted to each unistrut with two ½"-spring nuts and bolts, as shown on the plans. Eight 5" hooks that mount in the 18-hole racks shall be supplied. Shop drawings for the rack and hook system shall be submitted to the Engineer for approval. The installation method of the rack and hook system and details of how the Contractor proposes to use the rack and hook system to support cable slack and fiber optic splice closures shall be included in the shop drawings.

Construction Requirements:

The construction requirements shall be in accordance with Section 732-3 of the ADOT Standard Specifications, per the details shown in the project plans, and as specified herein.

Pull boxes shall be installed flush with adjacent grade, roadway, or sidewalk. Pull boxes shall not be installed in roadways, driveways, parking areas, ditches, or sidewalk ramps unless otherwise noted on the plans or directed by the Engineer.

The Contractor shall be responsible for restoring the surrounding surface conditions back to their original state, including concrete and roadway areas.

Prior to any trenching, the Contractor shall verify, with utility as-builts, the existence of any cathodic protection in all existing utilities and take all possible precautions to maintain existing cathodic protection.

After Blue Staking has been accomplished, the Contractor shall mark the proposed pull box location with white paint prior to excavation. Above ground pull box locations shall be marked with tape. The pull box locations must then be approved by the Engineer before installation begins.

When installing the No. 9 pull box and pull box covers, the Contractor shall only lift the pull box and covers using the lifting hardware installed for that purpose. The cover shall be oriented such that the cover hinge lies along the side of the pull box with no conduit openings farthest from the roadway.

The pull box shall be backfilled with select excavated material and thoroughly compacted to within two inches of original grade. The compaction around the box shall not cause the sides to deflect or any part of the box or cover to crack or become dented. The Contractor shall replace any cracked, broken, chipped or damaged pull boxes or covers at no additional cost to the City.

At locations where the contractor is required to remove and replace an existing pull box, install a new pull box over an existing conduit system, or make conduit sweep adjustments into a pull box, the contractor shall be required to hand dig or chip away the existing concrete encasement to locate the existing conduits and to achieve the required conduit sweeps into the pull box. The contractor shall remove the concrete encasement in such a manner that it will not damage the conduit system and its contents. The contractor shall replace cracked, broken, chipped, or damaged conduit and conduit contents at no additional cost to the City.

Method of Measurement:

New No. 8 and No. 9 pull boxes will be measured as a unit each for a pull box and cover satisfactorily installed.

Pull boxes and pull box covers damaged and replaced during construction shall not be measured.

Basis of Payment:

The accepted quantities of each No. 8 and No. 9 pull box, as measured, above will be paid at the contract unit price, complete in place, including racks and hooks for cable mounting, excavating, backfilling, conduit in pull boxes, grouting and sealing conduits entering through the side walls and area restoration.

ITEM 7320787 SINGLE MODE FIBER OPTIC CABLE (144 FIBERS):
ITEM 7320796 FIBER OPTIC SPLICE CLOSURE (PHOENIX)(7TH ST AND PARADISE LN):

Description:

(A) Single Mode Fiber Optic Cable:

The Contractor shall furnish, install, splice, terminate, and test Single Mode Fiber Optic (SMFO) communications cables in conduits between pull boxes, junction boxes, traffic signal cabinets and buildings as shown on the plans.

(B) Fiber Optic Splice Closure (Phoenix)(7th St and Paradise Ln):

The Contractor shall furnish, install, and test fiber optic splice closures at City of Phoenix locations shown in the project plans.

Materials:

(A) Single Mode Fiber Optic Cable:

The Contractor shall supply SMFO cable that meets the following specifications:

(1) Documentation:

The Contractor shall provide certificates in accordance with Section 106.05 that the cables furnished and installed are in conformance with the appropriate specifications. These certificates shall be in two parts:

The Contractor shall secure a Certificate of Compliance from the cable manufacturer that the cable is in conformance with the Rural Electrification Administration (REA) Bulletin PE-90 (where applicable) and these Special Provisions.

The Contractor shall provide a Certificate of Analysis certifying that the installation of the communications cabling system is in accordance with the cable and splice manufacturer's recommendations and these Special Provisions.

(2) Technical Requirements:

All fiber optic cable shall be SMFO cable that is of loose tube construction, filled with a water-blocking material, and constructed by a certified ISO 9001 or 9002 manufacturer. Fiber optic cable shall be dielectric and comply with the requirements of REA PE-90 except as modified by the following requirements:

Number of fibers:

Minimum Buffer Tube Diameter:

Buffer tubes shall be stranded around a central member using the reverse oscillation or "S-Z", stranding process. Filler rods shall be used in the fiber optic cable to lend symmetry to the cable section.

Central Strength Member: The fiber optic cable shall have a central strength member designed to prevent buckling of the cable.

Cable Core: The fiber optic cable shall utilize a dry water-blocking material to block the migration of moisture in the cable interstices.

Tensile Strength Members: The fiber optic cable shall have tensile strength members designed to minimize cable elongation due to installation forces and temperature variation.

The fiber optic cable shall withstand a 600 lbf tensile load where the change in attenuation does not exceed 0.2 dB during loading and 0.1 dB after loading. The cable shall be rated for an installed tensile service load of 200 lbf, or not to exceed the maximum tensile strength characteristics of the cable being pulled, whichever one is the more stringent requirement shall apply.

Cable Jacket: The fiber optic cable jacket shall be constructed of a high or medium density polyethylene (HDPE/MDPE) jacket that has been applied directly over the tensile strength members and water-blocking material. The jacket shall have at least one ripcord designed for easy sheath removal.

The cable shall be wound on the reel in such a manner as to provide access to both ends of the cable to enable testing to be performed while the cable is on the reel.

Environmental: The cable shall be capable of withstanding the following conditions without damage or decrease in function:

- a) Total immersion in water with natural mineral and salt contents; and
- b) Wasp and hornet spray.

The Contractor is only required to order as many connectors as is necessary to meet the communications requirements shown in the Plans.

Connectors shall not introduce more than 0.5 dB attenuation per connector. Connectors found to exceed 0.5 dB attenuation shall be remade at no additional cost, until this requirement is met.

(B) Fiber Optic Splice Closure (Phoenix)(7th St and Paradise Ln):

Fiber optic splice closures shall be either shell design or cylindrical, butt-end style corrosion resistant, and watertight, and meet the requirements of GR-771-CORE. Underground splice closures shall seal, bond, anchor, and provide efficient routing, storage, organization, and protection for fiber optic cable and splices. The splice closure shall provide an internal configuration and end cap with a minimum of two express ports for entry and exit of backbone cable and a minimum of three additional ports for distribution and branch cables. Splice closures shall be designed to accommodate heat-shrink fusion splice trays in sufficient quantities to perform the required number of splices. At a minimum, the fiber optic splice closure shall accommodate 156 splices and three 12-fiber branch cables. Each splice closure shall be supplied with at least two spare heat shrink fusion splice trays and the hardware to terminate at least two additional branch cables.

Splice closures shall have a reliable dual seal design with both the cable jackets and core tubes sealed with compressed gel block or without the use of water-blocking material. The splice closures shall be capable of being opened and completely resealed without loss of performance.

The splice closure maximum dimensions shall not exceed 25" L x 11" W.

Construction Requirements:

(A) Single Mode Fiber Optic Cable:

The cable shall not be installed in any pull box until the pull box has been approved for cable installation by the Engineer.

Installation of each fiber optic cable shall be continuous and without splices between allowable splice points as identified on the plans. The Contractor shall perform all final length measurements and order cable accordingly.

The backbone cable fibers shall be unconnectorized. The backbone cable fibers shall only be spliced to the following as shown on the plans:

Other backbone cables

Branch cables

Factory pre-terminated color-coded fiber pigtails within a fiber termination panel

Branch cables shall be connectorized with male SC-Type connectors as required.

No more than one week prior to installation of any cable, all new and existing empty conduit runs in which cable is to be installed shall be cleared/cleaned by pulling through a metal-disc mandrel with a diameter of 90% of the PVC conduit diameter, or a ball mandrel with a diameter of 80% of the HDPE conduit diameter.

The conduit may be brushed or swabbed or pumped to remove water, if deemed necessary, prior to pulling the mandrel through the conduit. No measurement or payment shall be made for clearing existing conduit for use by this project, as it is considered included in the cost of contract items.

Where cable is pulled through pull boxes, the Contractor shall ensure that the cable is protected from sharp edges and excessive bends. The Contractor shall not cause the cable to violate the minimum bending radius for which the cable was designed. If the Contractor violates the bending radius, the entire length of cable from the previous splice point shall be removed from the project and a new cable shall be pulled at no cost to the City.

Cables shall be pulled in the conduit with a device designed to provide a firm hold on the exterior covering and the central strength member of the cable. It is preferred that power winches or mechanical advantage devices are used to pull all fiber cable. Pulling the cable by truck, backhoe, or any other non-approved pulling device shall be avoided and will not be accepted by the City. Cable shall not drag on the ground or pavement during installation. The Contractor shall ensure that the tensile load on the cable does not exceed the allowed maximum by using a break-away tension limiter set below the recommended tensile limit of the cable being pulled and/or a system that provides a means of alerting the installer when the pulling tension approaches the limit.

A pull tape and locator wire shall be installed into the conduit along with the SMFO cable. Pull tape installed shall provide a minimum tension rating of 2500 lbs. Locator wire installed shall be 12 AWG solid copper wire. The locator wire shall be connected at each pull box using wire nuts to form a continuous circuit for the length of the installed fiber.

During pulling, the cable shall be lubricated at each No. 9 pull box. The Contractor shall use a prelubrication or continuous lubrication method. The lubricant used shall be compatible with the cable jacket as recommended by the cable manufacturer. Liquid detergent shall not be used. The cost of this lubricant is included in the contract items. Lubricant quantity for each pull shall be as follows:

$$Q = 0.0008 \times D \times L$$

where,

Q is the quantity of lubricant in gallons

D is the diameter of the conduit in inches

L is the length of the pull in feet

The Contractor shall supply documentation identifying either the manufacturer's recommendation or a published standard recommending the maximum pulling tension and speeds and these values shall not be exceeded.

The Contractor shall have this documentation on site during each pull. If the Contractor fails to continuously lubricate the cable, the work shall be stopped until a meeting is held between the Contractor and the Engineer to discuss why the terms of this specification are not being met. No compensation for the work stoppage shall be given.

Where cables are to be installed in conduit with existing cables or wires that shall remain, the Contractor shall not damage the existing cables or wires. The Contractor shall disconnect, remove, reinstall, and reconnect the existing cables and wires as necessary to facilitate the installation of the new cable. The Contractor shall be responsible for any damage to the existing cables or wires caused by this operation. New and existing conductors shall be terminated and labeling reconciled as needed. Two weeks prior to disconnecting any existing cables, the Contractor shall submit a schedule, for approval by the Engineer, with the timeframes of when the existing cables are to be disconnected. No separate payment will be made, as this work shall be considered included in the cost of associated items.

In all locations where fiber enters a No. 9 pull box (existing and new), 50 feet of cable slack for each entry of SMFO cables (i.e., a cable that passes through a No.9 pull box shall have 100 feet of cables slack, 50 feet for

each entry point) and shall be loosely looped using the rack and hook system. Each cable shall be attached to the rack and hook system with industry standard Velcro wraps for each individual cable loops of one cable immediately upon entering the box. Velcro wraps should be tightened so that they prevent cable slippage but do not deform or damage the cable sheath.

In all locations where fiber enters a No. 8 (for Phoenix) pull box (i.e., a cable that passes through a No. 8 pull box shall have 50 feet of cables slack, 25 feet for each entry point) and be loosely looped inside the No. 8 (for Phoenix). Each cable shall be tied with industry standard Velcro wraps for each individual cable loops of one cable immediately upon entering the box. Velcro wraps should be tightened so that they prevent cable slippage but do not deform or damage the cable sheath.

When splice closures are required at No. 9 pull boxes, 50 feet of cable slack for each entry of 144 SMFO cables entering the pull box shall be provided between the splice closure and each point where the cable enters the pull box, allowing the splice closure to be removed up to 50 feet from the pull box in order to perform the splice in an environmentally controlled splice, unless a greater distance is noted on the project plans.

When break-away connector systems are required at pull boxes, 50 feet of cable slack for all cables entering the pull box shall be provided between the break-away connector system and each point where the cable enters the pull box, allowing the break-away connector system to be removed up to 50 feet from the pull box, unless a greater distance is noted on the project plans.

The Contractor shall submit machine-printed permanent identification tags or labels, and the method of attachment, for approval by the Engineer. Cables shall be labeled at all pull boxes where cable is exposed. As a minimum, the labels shall state what fiber cable (SMFO-144), and the To/From direction. A complete labeling record in the form of an as-built cable schedule shall be provided to the Engineer with the final documentation. The cabling record shall include the distance markings on all fiber optic cables at the ingress and egress points of the pull boxes, at the splice closures, entry to cabinets/buildings and at fiber termination points.

After cables are installed, the Contractor shall seal all pathway entrances with an approved, material plug (foam is not allowed) to prevent ingress of water, dust or other foreign materials.

(B) Fiber Optic Splice Closure (Phoenix)(7th St and Paradise Ln):

The Contractor shall install the splice closure in No. 8 pull boxes (for Phoenix) as shown on the plans. The Contractor shall install the splice closure such that the two trunk cable entries are on the same side of the end cap so if other branch fiber cables are installed at a later date, the two existing seals remain undisturbed. Where the Contractor is splicing to existing fiber, the Contractor shall be careful to not disturb any other splices that exist. Splices that are damaged shall be repaired by the Contractor immediately, at no cost to the City.

Splicing of the SMFO cable shall be done only at the pull boxes shown on the project plans. All splices and connectors shall be prepared in accordance with the manufacturer's recommendations. All splices shall be fusion spliced and shall not introduce more than 0.1 dB attenuation per splice. Splices found to exceed 0.1 dB shall be re-spliced at no additional cost, until this requirement is met. Each splice shall be packaged in a protective heat-shrink sleeve and secured in the splice tray. The heat-shrink sleeve shall be approved for use by the fiber optic cable manufacturer and shall protect the fiber from scoring, dirt accumulation, moisture intrusion, and micro-bending.

Testing:

Fiber optic cable shall meet the following test requirements.

(1) Test Plan:

The Contractor shall prepare a fiber cable test plan. The fiber cable test plan shall indicate which cables are to be tested, where testing is to occur, the anticipated dates of testing, the testing methodology and outputs, and the coordination required with City staff to conduct the testing.

The Contractor shall submit the fiber cable test plan to the City within thirty (30) days after the start of the project and shall revise the fiber cable test plan to address City comments on the test plan. No fiber cable testing shall occur until after the City has approved the fiber cable test plan.

(2) Pre-Installation Testing:

The Contractor shall inspect all cable upon delivery and again prior to installation. The Contractor shall test the SMFO cable using an optical time-domain reflectometer (OTDR) per the following OTDR Tests section prior to installation.

(3) Post-Installation System Acceptance Testing:

After installation and splicing of cable the Contractor shall perform the following System Acceptance Tests:

- Power Meter Tests: Install power source feed through connectors at all locations where fibers are to be connectorized to connect to communications equipment. Conduct power meter tests for each fiber to demonstrate splice continuity and attenuation from origin to destination. Demonstrate that the attenuation for each fiber path including connectors, and splices as a whole, complies with the loss budgets required by these Special Provisions. Submit a test result and check-off sheet of each fiber to the Engineer.
- OTDR Tests: Conduct bi-directional tests using an OTDR for each newly installed fiber. Demonstrate that the attenuation for each fiber and splice, individually and as a whole, comply with the loss budgets required by these Special Provisions. Test fibers at 1310 nm and 1550 nm using a launch cable no less than three times the pulse width used to shoot the cable. Submit OTDR trace source files for approval to the Engineer. Clearly annotate each splice and identify the measured loss.

The Contractor shall identify any unacceptable losses greater than 0.5 dB and make corrective actions at no additional cost. Failed splices may be remade and re-tested for compliance. The Contractor shall replace any cable in its entirety that is not compliant with these Special Provisions at no additional cost.

Following completion of all testing, and approval by the City, the Contractor shall compile and submit two copies of organized test notebooks in electronic form. These notebooks shall include a test summary sheet that includes, at a minimum, the power meter test results and the OTDR trace source files of each fiber strand in native format, with accompanying software to read the source files, where necessary.

Method of Measurement:

(A) Single Mode Fiber Optic Cable:

The SMFO cable will be measured by the linear foot for each type of cable furnished and installed. Cable will be measured horizontally along the route from center of pull box to center of pull box, or center of pull box to center of foundation. Conduit brushing, swabbing, or pumped to remove water out of and mandrelling, is considered incidental and included and will not be measured. Activities involved to disconnect, remove,

reinstall, and reconnect the existing cables and wires as necessary to facilitate the installation of the new cable are considered incidental and included and will not be measured.

No measurement will be made of cable that is below ground in vertical conduit stub-ups or for slack cable in pull boxes.

(B) Fiber Optic Splice Closure (Phoenix)(7th St and Paradise Ln):

Fiber optic splice closures will be measured as a unit each for a splice closure furnished, installed and tested, complete in place. The installation shall include the splice closure and all incidental splice trays, closure and accessory kits, cables, connections and hardware.

Basis of Payment:

(A) Single Mode Fiber Optic Cable:

SMFO cables, measured as provided above, will be paid at the contract unit price, which shall be full compensation for providing the various type of cable, complete in place, including splicing and terminating cables, pull tape, lubricant, labels, conduit (including conduit brushing, swabbing, water pumping, and mandrelling), sealing, and testing which are considered incidental and the cost to be included in this item. No payment for fiber optic cable slack and equipment to install the cable, including equipment to limit pull-tension and speed will be made and are considered to be incidental and the cost is to be included in the cost of this item. No payment for activities involved to disconnect, remove, reinstall, and reconnect the existing cables and wires as necessary to facilitate the installation of the new cable will be made and are considered incidental and included and the cost is to be included in the cost of this item.

(B) Fiber Optic Splice Closure (Phoenix)(7th St and Paradise Ln):

The accepted quantities of fiber optic splice closures, measured as provided above, will be paid at the contract unit price each, which shall be full compensation for the work, complete in place, including splicing and terminating cables, lubricant, labels, splice trays, closure cleaning and sealing, pigtails, jumper cables, and testing.

ITEM 7340103 CONTROL CABINET (PHOENIX) (DEER VALLEY RD AND 7TH ST NODE CABINET):

Description:

The work under this shall consist in furnishing and installing Control Cabinet (Phoenix) (Deer Valley Rd and 7th St Node Cabinet) at the location designated on the project plans.

Materials:

Control Cabinet (Phoenix) (Deer Valley Rd and 7th St Node Cabinet) shall be provided with the cabinet accessories required.

The following materials related to the control cabinet assembly shall be installed by the City of Phoenix Deer Valley Drive and 7th Street project (File Number 11761). The contractor shall account for other incidental materials necessary to connect equipment incorporated in, or connected through the foundation, to the cabinet, to form a fully functional system.

- Node Cabinet Foundation

- (2) 1-1/4" HDPE conduit run to existing #8 fiber box
- (1) 2" PVC conduit to traffic signal controller cabinet
- (2) 1-1/4" conduit runs to #9 main junction box
- (2) 1-1/4" HDPE conduit runs to existing #5 junction box
- (1) 2" conduit run to controller cabinet

Construction Requirements:

Cabinet equipment installation and testing personnel shall have at least five years of relevant ITS construction experience. Contractor shall submit resumes for each of the key people describing detailed relevant experience for a minimum of three projects, including project description, date of work, actual work performed by the individual and references for each project.

The contractor shall supply Certificates of Compliance for each ITS cabinet and each accessory within the control cabinet at the time of delivery of the ITS cabinet assembly for the following:

Acceptance testing of each supplied component.
Physical and functional testing of each module.
A minimum of 100-hour burn-in of each module.
A minimum of 24 hours of operation of each cabinet.

Cabinets:

The contractor shall transport cabinets to the project side and install them as shown on the project plans. Installation shall include:

- Grounding the cabinet on the ground system, using bare, solid 8 AWG soft-drawn copper wire;
- Grounding the transformer, if it is on the same foundation as the control cabinet; connecting the cabinet to the power source;
- Completing fiber optic splices and terminations within the cabinet, as required;
- Furnishing and installing necessary mounting hardware.

Field wires and power service cables shall be wired to the cabinets as shown in the ITS Standard Drawings FM-3.05 and FM-3.06 or on the project plans. The contractor shall connect the cabinet and its accessories to the various field devices to be controlled, to form a fully functional system.

Removable caps shall be placed on unused conduits within the cabinet.

Wire and cable terminations shall only be made at recessed-screw barrier type terminal blocks, unless otherwise specifically noted. No in-line or butt splices shall be made other than at terminal blocks.

Control cabinet equipment shall be mounted on the cage mounting rails as shown in the ITS Standard Drawing FM-3.02, unless otherwise specified.

Equipment, housings, metal conduit, and cabinets (exposed metal, non-current carrying parts) shall be grounded and bonded in accordance with Subsection 732-3.03 and NEC Article 250. The cabinet's ground resistance shall be 25 Ohms or less.

Grounding conductors and bonding jumpers shall be connected by exothermic welding, UL listed pressure connectors, UL listed clamps, or other approved UL listed means. Connection devices or fittings that depend solely on soldering shall not be used. Sheet metal screws shall not be used to connect grounding conductors

to enclosures.

On two-door cabinets, the DIN rail shall be attached to the vertical rails service the “back side” of the cabinet. The “front side” of the cabinet is the side from which controller face and keyboard are viewed. On single-door cabinets, the location for mounting the DIN rail shelf will be as specified by the Engineer, to meet specific site equipment space requirements. Hinges for the rear cabinet door shall be located on the left side when facing the rear of the cabinet. Ventilation louvers with filter/shell assembly shall be provided on rear door of cabinet.

The contractor shall furnish and install silicone caulking, or other approved sealant around the base of the cabinet to form a watertight and dust-proof seal.

Cabinet Accessories:

The contractor shall provide and install McCain Inc. Model 332/334 CCTV equipment cabinet, or City approved equivalent.

Method of Measurement:

Control Cabinet (Phoenix) (Deer Valley Rd and 7th St Node Cabinet) will be measured as a unit, for each type of control cabinet furnished and installed. Cabinet accessories not otherwise paid under separate items will not be measured for payment, the cost being considered as included in the cost of the contract items.

Basis of Payment:

The accepted quantity of Control Cabinet (Phoenix) (Deer Valley Rd and 7th St Node Cabinet), measured as provided above, will be paid for at the contract unit price, which price shall be considered as a full compensation for the work, including transportation, conductors, cable, cabinet accessories not paid under separate items, and incidentals to provide an operational cabinet, complete in place.

16. SECTION 737 INCIDENTAL ELECTRICAL WORK: Modify and revise ADOT Standard Specification 737 as follows:

737-3.01 Maintaining Existing Traffic Signals and Lighting Systems: of the Standard

Specifications is modified to add:

Contractor shall report to the Engineer the time of disruption and time of restoring services of existing traffic signal or lighting systems. Services shall be restored before the end of the working shift.

737-4 Method of Measurement: of the Standard Specifications is replaced in its entirety:

Maintaining existing traffic signals and lighting systems, and removing, salvaging, or reinstalling electrical equipment will not be measured and the work will be considered included with the other contract items.

737-5 Basis of Payment: of the Standard Specifications is deleted.

SECTION 737 INCIDENTAL ELECTRICAL WORK: of the Standard Specifications is modified to add:

ITEM 7370422 ELECTRICAL SYSTEM (LAYER 3 NETWORK SWITCH):

Description:

The work under this item includes furnishing and installing an environmentally hardened Layer 3 Ethernet network switch at the node cabinet at Deer Valley Road and 7th Street.

Materials:

The Ethernet network switch used shall be EtherWAN EG97244-4VZ Hardened Managed Layer 3 Ethernet Switch with an included rack mounting kit.

The Ethernet network switch shall be compatible with the current City of Phoenix ITS network management software and current City SFP technical requirements. All materials provided shall be new stock. Refurbished or resold materials shall not be acceptable. All materials shall be currently supported by the manufacturer, in current production and not scheduled for end of life.

SFP transceiver modules must be provided with each switch meeting the following minimum requirements:

FOR 16-1G BASE SFP PORTS – EtherWAN SFP (Model EX-1250TSP-MB5L-A S, Duplex LC), or approved equal: Operating Temperature: -40 to 85°C (-40 to 185°F)

Connector Type: Duplex LC

Distance: 20Km

- Transmitter (Tx) Optical Output Power: -9 to -3dBm
- Receiver Sensitivity: -24dBm

Cable type: 9/125 µm, Single Mode

Wavelength: 1310nm

Regulatory Compliance:

- Compliant with Multi-Sourcing Agreement (MSA) Small Form Factor Pluggable (SFP)
- Eye Safety: Compliant with Class 1 laser safety requirements EN 60825-1
- Environmental: RoHS compliant, lead-free
- EMC: FCC part 15, CENELEC EN 55022

Power Supply Voltage: Single +3.3V

FOR 4-10G BASE SFP PORTS – EtherWAN SFP (Model SFPTIS40M, Duplex LC), or approved equal:

Operating Temperature: -40 to 85°C (-40 to 185°F)

Connector Type: Duplex LC

Distance: 40Km

- Transmitter (Tx) Optical Output Power: 0.5 to +5dBm
- Receiver Sensitivity: -15.5dBm

Cable type: 9/125 µm, Single Mode

Wavelength: 1310nm

Regulatory Compliance:

- Compliant with Multi-Sourcing Agreement (MSA) Small Form Factor Pluggable (SFP)
- Eye Safety: Compliant with Class 1 laser safety requirements EN 60825-1
- Environmental: RoHS compliant, lead-free
- EMC: FCC part 15, CENELEC EN 55022

Power Supply Voltage: Single +3.3V"

Construction Requirements:

The Contractor shall configure the Layer 3 Ethernet network switch with City-provided Internet Protocol (IP) addresses, location identifiers, subnet and gateway information, and mount the Ethernet switches within the 19" rack within equipment room.

Prior to connecting Ethernet switch to the fiber cable plant, the Contractor must use the power meter testing results to confirm the Contractor must not exceed the SFP manufacturer's guidelines for receiving signal input level. The Contractor must provide optical attenuators as necessary prior to connecting the SFPs to the fiber cable plant. The Contractor will be responsible for all damages caused by an excessive input signal level. A violation of the power limit may damage equipment.

The City shall provide the Contractor a list of IP addresses assigned to the Ethernet switch location which shall be used for configuration. The Contractor shall work with City IT staff for install.

The Contractor shall provide a list of each switch MAC address and associated location to the City.

The Contractor shall label the switch with a printed heat resistant label. The label shall consist of the IP address.

The Contractor shall coordinate the exact installation location of the switch, power supply connection, and ground bus bar connections with the Engineer.

Testing:

The Contractor shall prepare a Layer 3 Ethernet network switch test plan to apply to each switch location. The Ethernet network switch test plan shall indicate which switches are to be tested, where testing is to occur, the anticipated dates of testing, how connectivity between the Ethernet switches in the node locations and the City Traffic Management Center located at City Hall will be verified, the testing methodology and outputs, and the coordination required with City staff to conduct the testing.

The Contractor shall submit the Layer 3 Ethernet network switch test plan to the City within thirty (30) days after the start of the project and shall revise the Ethernet network switch test plan to address City comments on the test plan. No Ethernet network switch testing shall occur until after the City has approved the Ethernet network switch test plan.

The System Acceptance Test for the Layer 3 Ethernet network switch shall consist of City staff executing a standard 'ping' test, demonstrating connectivity to the management interface of the Ethernet network switch and each and every device connected as well as viewing and operating devices connected (e.g., CCTV cameras, traffic signal controller).

Method of Measurement:

Measurement will be per each Layer 3 Ethernet switch installed, tested and accepted.

Basis of Payment:

The accepted quantities of Layer 3 Ethernet switches, measured as provided above, will be paid at the contract unit price each, which shall be full compensation for all labor, materials, tools, equipment, testing and incidentals for purchasing, transporting, storing, installing, testing and accepting the switches, complete in place.

ITEM 7370455 MISCELLANEOUS ELECTRICAL (AS-BUILT DRAWINGS):

Description:

The Contractor shall maintain a comprehensive set of documentation as it related to the project work elements. The documentation shall include: (A) current as-built red lines made to the construction plans, and

(B) final as-built redlines and all other documentation materials.

Materials:

(A) Project Documentation:

Concurrent as-built documentation of the work shall be kept current (no longer than 7 calendar days behind actual work period) throughout the duration of the project. A full size set of project plans shall be kept on-site and updated on a weekly basis with a red pencil or red ink to reflect field adjustments, changes, omissions, additions, etc. as they occur on the project. The Engineer will provide the contractor with a full-size set of plan sheets for use in preparing final construction record drawings. This concurrent documentation shall be provided by the Contractor prior to initiation of any System Acceptance Test.

Documentation includes as a minimum:

- Construction red line plans noting the actual as-built condition
- Directional Drill Profiles – Planned - Actual
- Foldout flats/butterfly drawings of each No. 8 and No. 9 pull box utilized in this project
- A complete labeling record in the form of an as-built cable schedule
- GIS coordinates of each #8 pull box, #9 Vault, and all locations that the running line changes direction
- Operator's manuals
- Maintenance procedures, manuals
- Communications and operating protocols
- Factory issued manuals
- Detailed shop drawings
- Certifications
- Warrantees
- Instruction sheets
- Parts lists
- All applicable items found in Appendix A

Documentation shall also include manufacturer's equipment documentation for all Contractor-furnished items. Acceptable factory manuals must contain technical, diagnostic, and maintenance (preventive and troubleshooting) information. Advertising brochures and catalog cuts will not be accepted.

(B) Final Documentation:

(1) Configuration Information:

Prior to the start of the project System Acceptance Tests, the Contractor shall provide all final configuration information for Contractor-installed equipment. The Contractor shall submit one electronic copy of their configuration information in the form of a computer spreadsheet compatible with the City of Phoenix computer system. This electronic information shall be saved to a CD-ROM or DVD. The information shall include all configuration parameters for each device location, make and model number, serial number, date of installation, manufacturer, manufacturer contact information, and warrantee expiration date.

(2) Overall Documentation:

All as-built documentation shall be in accordance with Appendix A, subject to the approval of the Engineer prior to acceptance.

(C) Types of Documentation Required:

The final as-built documentation shall be in accordance with Appendix A and consist of the following documents as a minimum (each of the following documents shall be submitted to the Engineer prior to the completion of the project):

(1) Construction As-Built:

The Contractor shall modify the construction plan sheets to reflect any variations in equipment locations or requirements shown on the plan sheets.

The final document submitted by the Contractor to the City shall be a complete set of plan sheets (excluding schematics, details, assignment tables, structural drawings, etc.). Two sets of electronic media in PDF and City of Phoenix standard AutoCAD format shall be furnished.

(2) Foldout Flats:

The Contractor shall provide foldout flats/butterfly drawings in electronic AutoCAD format, using the electronic AutoCAD foldout flat template provided by the City, of each No. 8 and No. 9 pull box utilized in this project. The foldout flat of each No. 8 and No. 9 pull box utilized in this project shall be in plan view and oriented north and shall show conduit and cable locations and sizes, cable coils, splice closures, break-away connector systems, cable sequentials (in/out), and an as-built stamp.

An electronic photo of each No. 8 and No. 9 pull box utilized in this project shall be provided by the Contractor that contains a date stamp, is taken oriented facing north, is geocoded via GPS to the pull box's location, and whose filename contains the nearest adjacent intersection and a description of the type of pull box (i.e., No. 8 and No. 9).

A manual containing a general description and detailed operating and installation instructions shall be provided for each Contractor-furnished electronic component and software. This manual shall also contain instructions for possible modification to the equipment within the capability of the equipment. Four copies shall be provided for each electronic component and software application.

(3) Operator's Manuals:

A manual containing a general description and detailed operating and installation instructions shall be provided for each Contractor-furnished electronic component and software. This manual shall also contain instructions for possible modification to the equipment within the capability of the equipment. Four

copies shall be provided for each electronic component and software application.

(4) Maintenance Procedures Manuals:

A manual containing detailed preventive and corrective maintenance procedures shall be provided for each Contractor-furnished electronic component. Step-by-step field and bench trouble-shooting procedures shall be included, as shall normative waveforms and test voltages as applicable. A detailed parts list shall be included. For each part, its circuit or pictorial identification shall be shown, as shall all necessary rating information and a manufacturer and associated model or part number. The list shall also include cross-references to part numbers of other manufacturers who make the same replacement part. Four copies shall be provided for each electronic component.

(D) Formats of Documentation:

Except for standard bound manuals, any standard letter size documentation not submitted in electronic format shall be bound in logical groupings in loose-leaf binders of the 3-ring type. Each such bound grouping of documentation shall be permanently and appropriately labeled. No documentation shall be smaller than standard letter size.

All documentation, including that documentation which exceeds standard letter size, shall be furnished on electronic media in PDF and City of Phoenix standard format (e.g., AutoCAD, Word, Excel). All drawings shall be 11" x 17" (unless otherwise approved by the Engineer in each instance).

The Contractor shall furnish all software manuals, flowcharts, printed tables, charts, and program listings in standard letter size three ring binders if it cannot be submitted in electronic format. All software source code shall be furnished in duplicate on CD or DVD ROM compatible with the City's computer system.

Construction Requirements:

Information shall be shown on these record drawing plan sheets in red ink, depicting the constructed materials and locations of conduit, pull boxes, poles, and cabinets that are found to be different than indicated on the plans, based on the Inventory of Existing Traffic Management System (TMS) related to the project's scope of work and throughout the course of the project. The contractor shall exercise care in handling the record drawing plan sheets and shall return them to the Engineer in like condition. The Engineer will be the sole judge in determining whether the record drawings are acceptable.

Work under this bid item includes transfer of all information noted by the Contractor on the on-site record drawing set described above under this bid item, to final construction record drawings that will be submitted (including full-size red-lined original paper submittal and a scanned color copy in PDF format) for approval.

The System Acceptance Tests shall not be complete until the documentation is complete and accepted by the Engineer.

The minimum requirements for construction record drawing acceptance are as follows:

1. All new conduit and existing conduit identified in the existing TMS inventory noting the conduit size and where the conduit run begins and ends.
2. All new conduit and existing pull boxes identified in the existing TMS inventory noting the pull box type, location, and conduit path distance between pull boxes, between pull boxes and poles, and between pull boxes and traffic signal cabinets.
3. On the record drawing plan sheets, provide a unique identifier for each pull box, pole, and cabinet

location shown.

4. Using the unique identifier for each pull box, pole, and cabinet location, provide a communications cable summary table with the following information:

- A unique name for each cable run
- Any abbreviated name that was used on the cable tags for each cable run.
- A unique name for the end device each cable is connected to.
- A unique name for the PoE network switch and its associated port number each cable is connected to.

The cable distance of each communications cable, as determined by the standalone testing of ITEM 7320787 SINGLE MODE FIBER OPTIC CABLE (144 FIBERS), based on both cable markings and cable OTDR tester results, for each communications cable installed.

Method of Measurement:

Record drawings will be measured as a single, lump sum unit of work.

Basis of Payment:

The accepted quantities of record drawings, measured as provided above, will be paid for at the contract lump sum price, which price shall be full compensation for the work, including all related work required for an approved set of record drawings.

ITEM 7370652 FIBER OPTIC EQUIPMENT (TERMINATION PANEL)
ITEM 7370654 FIBER OPTIC EQUIPMENT (FIELD HARDENED ETHERNET SWITCH):

Description:

The work under this item includes furnishing and installing Ethernet field switches in the traffic signal control cabinets shown on the plans.

Materials:

The Hardened Managed Ethernet switch shall be Siemens RuggedCom RS900G-HI-D-2SC10 for City of Phoenix traffic signal cabinets. Configuration options shall be as follows:

8 FAST ETHERNET COPPER PORTS
8 PORT 10/100BASETX + 2 GIGABIT ETHERNET PORTS (1000BASEX) WITH SC TYPE CONNECTORS
SC, DIN RAIL.
RS232 FOR OPERATOR CONSOLE
3-POLE TERMINAL BLOCK, SCREWABLE FOR SIGNALING CONTACT
5-POLE TERMINAL BLOCK, SCREWABLE FOR POWER SUPPLY

The Hardened Managed Ethernet switch shall be the EX78934X-0VB for City of Phoenix traffic signal cabinets. Configuration options shall be as follows:

2 10GB 10KM SFP – SRPTIS10M
16 PORT 10/100TX + 2 GIGABIT PORT 1000LX 20KM WITH SC TYPE CONNECTORS
SC, DIN RAIL
TERMINAL BLOCK (12-48VDC) OR DC JACK POWER CONNECTOR
1 EPOW 54-600 POWER SUPPLY with the following features:

- HARDENED EXTERNAL, 100-240VAC INPUT
- TS2 RATED
- 12VDC OUTPUT
- TERMINAL BLOCK

Prior to construction, the Contractor shall coordinate installation with City traffic signal staff. The Ethernet field switches shall be compatible with the current City of Phoenix ITS network. All materials provided shall be new stock. Refurbished or resold materials shall not be acceptable. All materials shall be currently supported by the manufacturer, in current production and not scheduled for end of life.

Construction Requirements:

Minimum requirements for the Contractor or designated Subcontractor involved in integrating the network and testing the network are:

- Three years of experience in network installation, testing, and troubleshooting
- Two years of experience in the installation of ITS networks using VLANs and Internet Group Management Protocol (IGMP).

Contractor shall meet all applicable codes and standards requirements for all external wiring to the Ethernet field switches.

The Contractor shall be responsible for programming the Ethernet field switch. This includes ensuring that the configuration of each uplink port connecting to neighboring switches is trunked allowing multiple VLANs to pass. The City will provide IP addresses, netmasks, gateways, port assignments, VLAN configuration, NTP server and other required information assigned to each Ethernet field switch location which shall be used for configuration. The Contractor will apply all available firmware upgrades to the Ethernet field switch. The Contractor shall configure the Ethernet field switches with City-provided IP addresses, location identifiers, subnet and gateway information, and mount the Ethernet field switches in the traffic signal control cabinets. The City shall provide the Contractor a list of IP addresses assigned to each Ethernet field switch location which shall be used for configuration.

The Contractor shall provide a list of each Ethernet field switch MAC address and associated location to the City. The Contractor shall configure the networked devices per the approved network configuration parameters.

The Contractor shall label the Ethernet field switch with a printed heat resistant label. The label shall consist of the controller cabinet intersection location and IP address.

The Contractor shall submit permanent identification tags or labels, and the method of attachment, for approval by the Engineer. Each jumper cable shall be labeled at both ends where the cable connects to the electronic device within the cabinet or building. Jumper cables should be looped independently of one another when providing cable slack and Velcro wraps shall be installed for each individual cable loops of one cable. Velcro wraps should be tightened so that they prevent cable slippage but do not deform or damage the cable sheath. Cable strain relief brackets shall be provided to protect the cable and its connector from accidental damage, near the point of connection at each end of the jumper cable. All wires and cables shall be neatly installed (coiled) and secured with Velcro wraps per common practices and standards. The Contractor shall provide a service loop at all connection points. All factory caps and plugs removed from the Ethernet field switch shall be stored safely within the traffic signal cabinet for later use.

Testing:

The Contractor shall prepare an Ethernet field switch test plan for each of the required tests (i.e., standalone, subsystem testing, and/or SAT). The Ethernet field switch test plan shall include pass or fail testing steps for each functional requirement of the Ethernet field switch and network configuration, indicate which switches are to be tested, where testing is to occur, the anticipated dates of testing, how connectivity between the Ethernet switches in the traffic signal control cabinets and the City Traffic Management Centers will be verified, the testing methodology and outputs, and the coordination required with respective City staff to conduct the testing.

The Contractor shall make corrective actions, as necessary and appropriate for any corresponding testing step that failed, and re-test as necessary until successfully passing all the testing steps within the test procedures, prior to proceeding to the next required test (i.e., subsystem testing or SAT).

The Contractor shall replace any installed component, or system of components in its entirety and reconfigure the network, as necessary, as part of the corrective actions for passing the required tests and to be in compliance with the contract documents at no additional cost.

The Contractor shall submit the Ethernet field switch test plan to the City within thirty (30) days after the start of the project and shall revise the Ethernet field switch test plan to address City comments on the test plan. No Ethernet field switch testing shall occur until after the respective City has approved the Ethernet field switch test plan.

The System Acceptance Test for the Ethernet field switch shall consist of respective City staff executing a standard 'ping' test, demonstrating connectivity to the management interface of the Ethernet field switch and each and every device connected as well as viewing and operating devices connected (e.g., CCTV cameras, traffic signal controller).

Ethernet network switches require the following tests:

(A) Stand-Alone Testing:

The Contractor shall confirm the installed Ethernet network switch power cord and ground wire is properly connected and all ports are properly configured.

The Contractor shall confirm the Ethernet surge protection devices and jumper cables between the Ethernet network switch and industrial grade Ethernet cables are installed and properly connected, including the ground wires.

The Contractor shall confirm the latest software/firmware updates have been downloaded and installed.

(B) Subsystem Testing:

The Contractor shall demonstrate proper operation (power and network connection) of each end device connected (CCTV PTZ camera or gigabit radio) and proper operation of the network connection to the TMC workstation and server.

The Contractor shall confirm all ITS LAN devices are configured and integrated per the approved configuration parameters.

For each alternate path provided within the ITS LAN, the Contractor shall create a fault condition and demonstrate that the network automatically re-routes network traffic through the path that doesn't have the fault condition.

The Ethernet network switch and all its connected network devices shall successfully maintain stable performance, and reliable communications for 72 consecutive hours without disruption to the operation of the network and connected devices.

(C) System Acceptance Testing (SAT):

The Ethernet network switch, ITS LAN configuration and all its connected network devices shall successfully maintain stable performance, and reliable communications for 30 consecutive calendar days without disruption to the operation of the network and connected devices.

Method of Measurement:

Measurement will be per each Ethernet field switch furnished, installed, tested and accepted. Ethernet surge protection devices, DIN rails, mounting assemblies, ground wires, power cords, jumper cables, identification tags/labels, Velcro wraps, strain relief brackets, RJ-45 connectors, network configuration, and area restoration necessary to complete the work will not be measured.

Basis of Payment:

The accepted quantities of Ethernet field switches, measured as provided above, will be paid at the contract unit price each, which shall be full compensation for all labor, materials, tools, equipment, testing and incidentals for purchasing, transporting, storing, installing, testing and accepting the switches, complete in place.

ITEM 7370652 FIBER OPTIC EQUIPMENT (TERMINATION PANEL):

Description:

The Contractor shall furnish and install 144-port multiple panel interconnect unit housings in equipment cabinets at the locations shown in the plans.

Materials:

A 144-port multiple panel interconnect unit housing shall contain multiple 12-count connector panels with SC duplex adapters. The housing shall also include a splice holder accommodating up to 144 heat-shrink splices. Top and bottom cable entry grommets shall be provided that allow for midspan access and environmental sealing.

The housing itself shall be made of durable black metal and shall be mounted on the wall of the traffic signal cabinet unless otherwise directed by the Engineer.

Construction Requirements:

The 144-fiber trunk cable shall be fusion spliced to a factory-terminated 3mm SC-connectorized pigtail as required to connect to the interconnect unit housing. All pigtails shall have factory-terminated SC connectors.

No installation of field SC connectors on the pigtails or cables shall occur.

Where splicing is required, the Contractor shall first install a spider type fan-out kit to strengthen and protect each fiber of the cable being connectorized or spliced. A protective PVC jacket that is 3mm in diameter shall be provided that contains a Teflon inner tube into which the fiber is inserted and a dielectric strength member.

The Contractor shall be responsible for coordinating the installation of the housing and its connection to the trunk cable with respective City traffic signal staff. The Contractor shall connect the housing to the Ethernet network switch by providing duplex SMFO patch cords/jumper cables.

Method of Measurement:

Measurement will be by the unit each for a new 144-port multiple panel interconnect unit housing that is acceptably installed.

Basis of Payment:

Accepted quantities of new 144-port multiple panel interconnect unit housings will be paid in accordance with the contract unit price, complete in place, including splicing cables, pigtails, PVC jackets, coiling, jumper cables, and testing.

17. **SECTION 924** **BLANK:** of the Standard Specifications is modified to add:

ITEM 9240011 FORCE ACCOUNT WORK (PULL BOX AND CONDUIT RECONDITIONING):

Description:

The work under this item includes replacing or adjusting, pull boxes, extensions, lids or other work needed to repair existing pull boxes related to the project's scope of work, as requested by the Engineer based on the results of the inventory of existing project conditions or additional work directed by the Engineer.

The Contractor shall replace or adjust, as requested by the Engineer and based upon the inventory, all conduit sweeps in pull boxes, conduit orientation and alignment, unusable conduit, or bell ends or fittings within the project limits.

Materials:

The conduit and pull boxes shall meet the requirements of Section 732-2 of the Standard Specifications and ADOT Standard Drawings, except as modified by these Special Provisions.

Damaged pull boxes and conduits shall to be replaced with equivalent materials.

Construction Requirements:

(A) Pull Box Reconditioning

Pull box reconditioning shall be completed prior to the start of work on other project bid items. Eight 5" hooks that mount in the 18-hole racks shall be supplied under this item (if none are present).

(B) Conduit Reconditioning

The inventory completed by the Contractor shall include locating and documenting damaged areas within existing conduit by utilizing either a fish-tape or fiberglass rod. The Contractor shall provide as-built information to the City for conduits that are found to be different than indicated on the Plans. The Contractor shall pull a metal-disc mandrel with a diameter of 90% of the PVC conduit diameter, or a ball mandrel with a diameter of 80% of the HDPE conduit diameter, through all existing empty and Contractor installed conduits.

Prior to identifying conduit as damaged, the Contractor shall verify that the conduit has not become compacted with soil. Where fiber optic cable and copper conductors do not exist, the Contractor may use pressurized air, or other means, to clean the conduit.

Conduit reconditioning shall be completed prior to the start of work on fiber optic cable or conductor installation. Method of Measurement:

FORCE ACCOUNT WORK (Pull Box and Conduit Reconditioning) will be measured as separate units of work under ITEM 9240011.

Basis of Payment:

The accepted quantities of FORCE ACCOUNT WORK (Pull Box and Conduit Reconditioning), measured as provided above, will be paid at the contract unit price and in accordance with Section 109.04 (D) Force Account of the Standard Specifications.

ITEM 9240119 MISCELLANEOUS WORK (MODIFY EXISTING SPLICE CLOSURE AT DEER VALLEY RD AND 7TH AVE):

Description:

The work under these items includes performing splicing at existing splice closure locations at locations shown on the plans.

Construction Requirements:

At the locations shown in the project plans, the Contractor shall perform the required fusion splicing in existing splice closures.

The Contractor shall be careful to not disturb any other splices that exist. Splices that are damaged shall be repaired by the Contractor immediately, at no cost to the City.

All splices and connectors shall be prepared in accordance with the manufacturer's recommendations. Each splice shall introduce less than 0.1 dB attenuation except where new cable is spliced to existing cable the maximum allowed attenuation is 0.3 dB.

All splicing shall be done in a splice van or enclosure to protect fibers from excess dust.

All connectors for termination shall be factory assembled. No hot melt or mechanical connectors will be accepted.

Each connector shall introduce less than 0.5 dB attenuation. Connectors found to exceed 0.5 dB attenuation shall be re-made at no additional cost, until this requirement is met.

Method of Measurement:

Modifying existing fiber optic splice closures will be measured as a unit for each splice closure unit modified, complete in place, including the splicing of the fibers and termination of fibers within traffic signal cabinets.

Basis of Payment:

The accepted quantities of modified splice closures, measured as provided above, will be paid for at the contract unit price each, which shall be full compensation for the work, complete in place.

No measurement or payment will be made for furnishing fiber terminations, performing fiber splices and terminating fibers, and jumper cables.

ITEM 9240172 MISCELLANEOUS WORK (FIBER OPTIC SHEAR ASSEMBLY WITH 250-FT TAIL):

Description:

(A) Gator Patch Distribution Panel:

The Contractor shall furnish, install, and test gator patch distribution panels at locations shown in the project plans as required for a fully functional and operational communications network. The Contractor shall furnish all Gator Patch Distribution Panels from the same manufacturer. All equipment shall be new and in strict accordance with the requirements as noted for this item.

(B) Break-Away Connector System:

The Contractor shall furnish, install, and test break-away connector systems at traffic signal cabinet locations as shown in the project plans.

Materials:

(A) Gator Patch Distribution Panel:

At a minimum, each Gator Patch Distribution Panel shall meet the following requirements:

Duplex 9/125 single mode fiber with wavelength of 1310/1550 nm
Rugged PVC sheathing
12-Port Termination Panel with 12 factory terminated ST type connectors
Both cable ends will be ruggedized for strain relief

Permanent markings or color identifiers next to the connector ports shall permit visual distinction between which of the twelve fibers within the cable are connected to each port (i.e., fiber No.1 is always the Blue fiber, so BL or the number 1 shall be marked next to the connector port that this fiber is connected to.)

Length shall not exceed 2 meters

(B) Fiber Optic Break-Away Connector System:

The break-away connector system shall be the CSP FiberShear Controlled Shear Point fiber termination device.

Configuration options shall be as follows:

CSP1 with drop cable and 3.0 mm Outdoor Rated breakout equipment interface cable
12-fiber pigtails, each with factory terminated SC type connectors
Concrete Pedestal Mount Configuration (PM)

Drop cable lengths shall be determined by the Contractor in 50-foot increments to pre-order for each break-away connector systems location required on the plans

Construction Requirements:

(A) Gator Patch Distribution Panel:

The 12-fiber cables must be installed with the "Gator Patch" patch on left side of the cabinet in the lower rear corner and should be affixed to the cabinet side rails using slide nuts.

The Contractor shall install the Gator Patch Distribution Panel within the traffic signal cabinet, connecting the Gator Patch Distribution Panel to the Gigabit/Fiber Switch as per the port assignment. The cost of the jumper cables will be incidental to the fiber cable. Cables shall be neatly installed (coiled) and secured with velcro wraps per common practices and standards and all manufacturer recommended installation and minimum bend radius requirements shall be met. The jumper cables shall have factory terminated connectors, with ST on one end and SC on the other, with the strain relief with permanent markings or color identifiers that shall permit visual distinction for SMFO cable as opposed to other fiber types. All factory caps and plugs removed from the Gator Patch Distribution Panel shall be stored safely within the traffic signal cabinet for later use. The Contractor is required to seal the unused connectors from moisture and dust particles. Connectors must introduce less than 0.5 dB attenuation. The distribution panel end of the "Gator Patch" shall not be pulled through conduit at any time.

(B) Break-Away Connector System:

The Contractor shall install the break-away connector system to be anchored directly over the entrance to seal the conduit or the CSP can be anchor mounted adjacent to the conduit hole.

At the pull box locations shown in the project plans, the Contractor shall perform the required backbone cable fusion splicing between the 12-fiber branch cable(s) from the break-away connector system and the trunk cable. All splices shall be prepared in accordance with the manufacturer's recommendations. Each splice shall introduce less than 0.3 dB attenuation.

Testing:

See fiber optic testing requirements as they apply to the fiber cables connected to the gator patch distribution panel and break-away connector system items.

Method of Measurement:

(A) Gator Patch Distribution Panel:

Gator patch distribution panel will be measured as a unit each for a gator patch distribution panel furnished, installed and tested, complete in place.

(B) Break-Away Connector System:

Fiber optic break-away connector system will be measured as a unit each for a break-away connector system furnished, installed and tested, complete in place.

Basis of Payment:

(A) Gator Patch Distribution Panel:

The accepted quantities of gator patch distribution panels, measured as provided above, will be paid at the contract unit price each, which shall be full compensation for the work, complete in place, including terminating cables, lubricant, labels, cleaning and sealing, pigtails, jumper cables, and testing.

(B) Break-Away Connector System:

The accepted quantities of fiber optic break-away connector system, measured as provided above, will be paid

at the contract unit price each, which shall be full compensation for the work, complete in place, including splicing and terminating cables, lubricant, labels, jumper cables, and testing.

ADOT SPECIAL PROVISIONS

SECTION 732 ELECTRICAL UNDERGROUND MATERIAL: Modify and revise **ADOT Standard Specification 732** as follows:

732 – 1 Description: first paragraph is revised to read:

The work under this section shall consist of furnishing and installing conduit, pull boxes, bonding and grounding systems, fiber optic cable systems, cable tray systems, and equipment racks as shown on the project plans or required by the project Special Provisions. The work shall include excavation, installation of conduit, removal of spoils, backfill, compaction of directional drilling and jack and bore pits, warning tape, pull tape, locator wire, connectors and fittings, locating existing conduit when new is to be intercepted with existing, and restoration of the surface to existing condition, including the replacement of decomposed granite and other landscaping items where appropriate.

732-2.01 Electrical Conductors: of the Standard Specifications is modified to add:

Electrical conductors that are left un-terminated shall be coated by a waterproofing method approved by the Engineer. All conductors shall be labeled. Cable marking tags shall conform to the requirements of Subsection 732- 2.01 (A). The Contractor shall use durable marking tags that have the ability of being moved along the cables during future alterations.

732 – 2.01(B)(3) IMSA Cable: of the Standard Specifications is modified to add:

IMSA No. 19-1, or approved equal, four Conductor No. 6 AWG shall be used for the switches installed by the project. All electrical conductors that are left un-terminated shall be coated by a waterproofing method that is approved by the Engineer.

732-3.01 Installation of Electrical Conduit and Pull Boxes: of the Standard Specifications is modified to add:

New pull box shall be installed in accordance with the details shown on the project plans and ADOT ITS Standard Drawings.

Conduits entering pull boxes shall be installed in accordance with the details shown on the project plans and ADOT ITS Standard Drawings.

Prior to trenching, the Contractor shall verify, with utility record drawing information, the existence of all cathodic protection in all existing utilities and take all possible precautions to maintain existing cathodic protection.

732-3.01 Installation of Electrical Conduit and Pull Boxes: the twentieth paragraph of the Standard Specifications is revised to read as follows:

Conduit ends shall be capped with conduit end cap fittings or plug fittings until wiring or cabling installations are started. When end caps are removed, PVC ends shall be provided with an approved conduit end bell. End bells shall be installed prior to the installation of the conductors. Approved insulated grounding bushings shall be used on steel conduit ends.

732-4 Method of Measurement: of the Standard Specifications is revised to read as follows:

Conductors and cables will be measured by the linear foot for each type and size as follows:

- (A) From center to center of pull boxes;
- (B) From edge of foundation to center of pull box;
- (C) From edge to edge of foundation;
- (D) From end of conduit to center of pull box; and
- (E) From end to end of conduit when no pull boxes are used.

Conductors and cables will be measured as a complete unit of work. This method of measurement shall be used for power and communications conductors, and fiber optic cables shown in the estimate and required on the project plans.

No measurement or direct payment will be made for conductors and cables in poles and pull boxes, the cost being considered as included in the contract price for the pole and pull box items.

Conduit will be measured by the linear foot for each diameter size as follows:

- (A) From center to center of pull boxes;
- (B) From edge of foundation to center of pull box;
- (C) From edge to edge of foundation;
- (D) From end of conduit to center of pull box or foundation; and
- (E) From end to end of conduit when no pull boxes are used.

No measurement or direct payment will be made for vertical conduits and conduit sweeps, conduit in pull boxes, conduit in foundations, clearing and grubbing, trenching, boring, directional drilling, hand digging, potholing, and concrete encasement, the cost being considered as included in the contract price for the conduit and pull box items.

Pull boxes will be measured as a unit for each pull box.

No measurement or direct payment will be made for the use of pulling equipment. If a new pull box is required to be installed in place of an existing pull box, no measurement or direct payment will be made for removal and disposal of the existing pull box and reconfiguring the conduits entering the pull box as necessary to achieve the minimum bend radius requirements, the cost being considered as included in the contract price for the pull box items.

732-5.03 Conduit: first paragraph of the Standard Specifications is revised to read as follows:

The accepted quantities of conduit, measured as provided above, will be paid for at the contract unit price per linear foot, which price shall be full compensation for the work, complete in place, including materials, labor, excavation, backfill and compaction, boring, directional drilling, pavement replacement, pavement preservation, saw cutting, conduit, conduit caps/plugs, warning tape, pull tape, locator wire, couplings, fittings, condulettes, expansion fittings, flexible steel conduit, sweeps (36 Inch minimum), hangers, core drilling, replacement of landscaping and irrigation systems, and other work required to return the surface to pre-disturbed condition shall be considered incidental and the cost being considered as included in the contract price for the conduit items.

732-5.04 Pull Boxes: first paragraph of the Standard Specifications is revised to read:

The accepted quantities for pull boxes, measured as provided above, will be paid for at the contract unit price

each, which price shall be full compensation for the work, complete in place, including any excavating, backfilling, existing pull box removal, reconfiguring the conduits entering the pull box, and any incidentals necessary to complete the work.

SECTION 732 ELECTRICAL UNDERGROUND MATERIAL: of the Standard Specifications is modified to add:

ITEM 7320172	ELECTRICAL CONDUIT (5")(RIGID METAL):
ITEM 7320292	ELECTRICAL CONDUIT (1 - 2"):
ITEM 7320296	ELECTRICAL CONDUIT (2 - 1.25"):
ITEM 7320297	ELECTRICAL CONDUIT (3 - 1.25"):

Description:

The work under this section shall consist of furnishing and installing conduit as shown on the project plans and required by these Special Provisions. The work shall include excavation, installation of conduit, removal and disposal of spoils as required, backfill, compaction of backfill material use for directional drilling and jack and bore pits, warning tape, pull tape, locator wire, connectors and fittings, locating existing conduit when new is to be intercepted with existing, and restoration of the surface to existing condition at no additional cost to the City.

The Contractor shall provide all necessary equipment, labor, and account for the additional construction time required to install the conduit due to the nature of the subgrade material encountered in this area. The Contractor is to determine the installation method (trenching or boring) they see best fit for each area.

Materials:

Polyvinyl Chloride (PVC) conduit and materials shall be in accordance with Section 732-2.02, of the ADOT Standard Specifications.

Unless otherwise shown on the plans, bends, conduit fittings, expansion joints, 36" sweeps and other conduit accessories not specifically mentioned shall be from a material similar to the connecting conduit.

Conduit elbows used for fiber optic cable installations (including future installations) shall be a minimum of 36-inches. All other conduit elbows shall be a minimum of 24-inches.

When the Contractor uses High Density Polyethylene (HDPE) conduit for the installation of below ground PVC conduit, the HDPE conduit shall meet the requirements of the Special Provisions for HDPE conduit listed herein, provide original data sheets or a Certification of Compliance letter from the HDPE conduit manufacturer to the Engineer stating that the product meets the requirements within these Special Provisions and obtain the written approval from the Engineer prior to procuring and installing the HDPE conduit.

(A) HDPE Conduit:

The Contractor shall use a HDPE conduit with a Standard Dimensional Ratio (SDR) of SDR 11 or SDR 13.5. The HDPE formulations used by the manufacturer must be specifically for conduit applications in accordance with ASTM F 2160: Solid Wall High Density Polyethylene (HDPE) Conduit Based on Controlled Outside Diameter (OD) and ASTM 3035 Polyethylene (PE) Plastic Pipe (SDR) Based on Controlled Outside Diameter. It shall have a cell classification of PE334470C (for black conduit) and PE334470E (for colored conduit) per ASTM 3350: Standard Specification for Polyethylene Pipe and Fittings Materials.

The polyethylene base resin shall meet the density requirement and melt index properties described herein. The density shall not be less than 0.940 and not more than 0.955 g/CM3 in accordance with ASTM D 1505: Standard Test Method for Density of Plastics by the Density-Gradient Technique. The range for the melt index shall be

between 0.05 to 0.5g/10 minutes in accordance with ASTM D 1238: Standard Test Method for Melt Flow Rates of Thermoplastics by Extrusion Plastometer. The HDPE conduit shall have a minimum Flexural Modulus, MPa (PSI) of 80,000 per ASTM D 790 and a minimum tensile strength at yield (PSI) of 3,000 per ASTM D-638.

Additives to the base resin shall be included to provide heat stabilization, oxidation prevention and ultraviolet (UV) protection. It shall also utilize carbon black in the range of 2-3% for long term protection against UV degradation. The minimum protection period shall be one year from date of manufacture in unprotected, outdoor storage in accordance with ASTM D 1603: Standard Test Method for Carbon Black in Olefin Plastics.

(B) Pull Tape, Locator Wire, and Underground Warning Tape:

Pull tape shall have a minimum tension rating of 2500 lbs. Locator wire shall be 12 AWG solid copper wire for ITS applications and traffic signal applications.

All empty conduits require a pull tape and locator wire to be installed. The pull tape shall terminate at the bell end of the conduit with 6 feet of coiled slack in each pull box and each locator wire shall be bonded together in each pull box at no cost to the City. In order to prevent pull back into conduit from stretching, Contractor shall let cable rest prior to cutting per manufacturer requirements.

Underground warning tape with locator wire shall be installed above any new conduit path per details in plans. Underground warning tape shall have the words "CAUTION BURIED FIBER OPTIC LINE BELOW" imprinted on the tape at reoccurring intervals.

Construction Requirements:

Conduit shall be placed in accordance with the lines, grades, details and dimensions as shown on the plans or as otherwise approved by the Engineer. All PVC conduits shall be installed in accordance with Section 732-3.01 of the ADOT Standard Specifications, unless noted otherwise on the plans.

Conduit depths shall be a minimum of 36 inches, or as shown on the plans.

Conduit that is direct buried (trenched) shall be backfilled with half sack slurry. The slurry compaction around the conduit shall not cause damage to the conduit. The Contractor shall replace any cracked, broken, chipped or damaged conduit as a result of direct bury slurry at no additional cost to the City.

Where the removal of concrete is required for conduit installation, the Contractor shall remove and replace (in kind) the entire concrete slab(s). Where pavement removal is required for conduit installation, the Contractor shall replace (in kind) the entire area disturbed.

The following subgrade materials may be encountered during trenching or directional drill activities:

- Silty Sand with gravel and cobbles
- Sandy Clay with gravel and cobbles
- Highly fractured basalt
- Clayey sand with gravel
- Well graded sand

The Contractor shall be aware that the subgrade materials encountered are not limited to the above materials.

(A) Difficult Subgrade Conditions:

The Contractor shall provide all necessary equipment, labor, and account for the additional construction time

required to install the trenched and directional drilled conduit due to the nature of the subgrade material within the project limits.

Conduit shall be installed a minimum trench depth of 36 inches with half sack slurry backfill. In areas where minimum trench depth requirements of 30 inches cannot be met, the conduit shall be encased in a minimum of three inches of concrete. The conduit shall be supported with masonry block or brick at 10-foot intervals centered under the conduits, during encasement, so that the conduit will be completely encased in concrete.

(B) Plant Material

Alignment of the conduit should try to avoid existing vegetation where possible. Vegetation damaged by construction activities of the Contractor, or its Subcontractors, shall be repaired by the Contractor at no added cost to the City.

All landscape work required as a result of conduit installation shall conform to the requirements of Section 806 of the Standard Specifications. The Contractor shall employ a working foreman qualified and experienced in supervising landscape construction, maintenance, and irrigation systems for the City of Phoenix. Landscape repairs shall be done by a licensed landscape Contractor. All plants cleared shall also be grubbed, regardless of location. Hand digging shall be used in areas where irrigation facilities are present.

All existing plant material that is disturbed during the construction phase shall be replaced with the identical plant species and shall be planted and staked per the original plans to the approval of the Engineer. Replacement plant material shall be 15-gallon container size for all trees and 1-gallon container size for all shrubs. Plantings shall be planted at their original location or at a minimum distance of 3 feet from the centerline of the trench, whichever is greater. The Contractor shall be responsible for replacing landscaping at no cost during the 90-day plant establishment period. The Contractor shall be required to maintain a log (or spreadsheet), open to the City of Phoenix review, detailing when and where vegetation has been planted. As the 90-day plant establishment period ends, the Contractor shall be required to alert the City of Phoenix so the area can be inspected. Failure to alert the City of Phoenix of the end of the 90-day period shall increase the plant establishment period for that area to the actual alert time plus 3 days.

Existing landscaping shall not be left without irrigation-system-supplied water for a period longer than 24 hours. The Contractor shall be responsible for maintaining the healthy condition of all existing plant material and proper function of the water and electrical services affected by construction.

Plant material may be pruned to provide construction access. The pruning shall be performed by trained and experienced landscape personnel. Pruning methods shall be approved by the Engineer prior to pruning being performed.

Irrigation work shall conform to the requirements of Section 808-1 through 808-3 of the Standard Specifications. Restoration of irrigation system shall be considered incidental to conduit installation. A minimum of 50 percent of the irrigation repair crew shall be landscape sprinkler installers.

The irrigation system shall be repaired, flushed, and tested at operating pressure for leaks in the system within 24 hours. The irrigation system shall be repaired with comparable materials, using methods similar to the original installation and approved by the Engineer.

(C) Directional Drilling:

At each directional drilling operation location, the Contractor shall complete all necessary potholing and submit the proposed Directional Drill (DD) profile to the Engineer for review and acceptance prior to beginning any

Directional Drill operation. The proposed DD profile shall consist of the following minimum requirements:

A plan and profile sheet, at a scale that clearly shows the depths of the bore path needed to avoid conflicts with existing utilities within the area.

The plan and profile sheet shall show the directional drill location and depict typical information such as station, offsets, elevations, surface landmarks such as edge of pavement, back of curb, retaining walls, drainage structures etc., and all underground utilities etc. with each utilities required clear zone separation requirements shown.

For all DD conduit installations, the Contractor shall use HDPE conduits along the prescribed bore path from the surface with minimal impact to the surrounding area. The pulling tension for installing the HDPE conduit shall not exceed 75% of the manufacturer's tensile strength rating for each size and configuration of conduit(s) to prevent the conduit(s) from elongation or "necking down" during installation.

The Contractor's DD operations shall utilize the "walkover" locating system or other Engineer approved equivalent for determining the location of the bore head. A Sonde behind the bore head shall register the depth, angle, rotation and directional data. At the surface, a receiver compatible with the Sonde shall be used to gather the data and relay the information to the DD equipment operator. The actual bore path shall be overlayed onto the proposed bore path and shall be submitted to the Engineer as part of the As-Built process.

(D) HDPE:

When joining segments of HDPE conduit, the Contractor shall utilize non-corrosive, sit-tight, water-tight couplings. Heat fusion, electrofusion fittings and mechanical connections shall be permitted if the HDPE conduit and joining device manufactures recommendations are observed and the internal diameter of the HDPE conduit is not reduced. Extrusion welding and hot gas welding to join HDPE conduits is not permitted.

Upon completion of joining HDPE conduit sections and setting the pull boxes, the Contractor shall clean the HDPE conduit with compressed air. The Contractor shall demonstrate by pulling a cleaning mandrel or ball mandrel, correctly sized for the conduit, that the conduit was not deformed during installation. If the mandrel passes through the HDPE the Contractor shall install the pull tape and locator wire in accordance with Section 732 of these Special Provisions. If the mandrel encounters a deformity in the HDPE conduit, the Contractor shall replace the entire segment of HDPE between pull boxes with new HDPE at no cost to the City.

(E) Conduit Connections at Existing No. 9 Pull Boxes:

The Contractor shall route conduit into existing pull boxes or at other locations shown on the plans. At locations where a spare duct entrance into the pull box is available, the Contractor shall use the available entrance to install the conduit into the pull box. At locations where a spare duct entrance into the pull box is not available, the Contractor shall core drill a conduit entrance per the plan details and these Special Provisions. Conduits that are installed through the core drilled opening shall have a PVC bell end installed to facilitate the Single Mode Fiber Optic (SMFO) cable installation.

The Contractor shall grout the core drilled areas or capped requirements as noted on the plans, around the conduits, with a smooth concrete finish. Grouting components shall be mixed in strict compliance with the manufacturer's recommendations.

If spalling is observed during the core drilling operation the Contractor shall notify the Engineer for mitigation measures. The extent of the repair area will be marked by the Engineer and will be no less than three inches outside the area of delamination. The Engineer will be the final authority if questions arise in regards to the need for patching or the extent of a required patch.

Concrete within the patch area shall be broken out, to the minimum depth specified by the manufacturer for the patch material being used, with light to medium pneumatic tools until sound clean concrete is exposed. Prior to patching, the exposed faces of the concrete shall be sandblasted free of loose particles, oil, dust, traces of concrete and other contaminants. Prior to the placement of the bonding agent, all sandblasting residue shall be removed with compressed air and high suction vacuums. Sand for sandblasting shall be sharp and clean and capable of passing a No. 10 sieve and shall leave the exposed concrete face clean and dry.

The surface of the spalled area shall be clean and dry so that the patching material will form a proper bond. The area to be cleaned and patched shall be limited to the area designated by the Engineer. Patching materials shall be confined to the limits of the repair and shall not lap onto the surrounding pull box infrastructure.

The patch shall be finished to the cross-section of the existing pull box. The patch surface shall be struck off flush with the existing pull box surface.

(F) Acceptance:

No more than one week prior to installation of any cable, all new and existing empty conduit runs in which cable is to be installed shall be cleared/cleaned prior to by pulling through a metal-disc mandrel with a diameter of 90% of the PVC conduit diameter, or a ball mandrel with a diameter of 80% of the HDPE conduit diameter. The conduit may be brushed or swabbed or pumped to remove water, if deemed necessary, prior to pulling the mandrel through the conduit.

Pull tape for cable pulling shall be added to all proposed conduit pathways (new or existing) to facilitate the cable installation.

(G) Geospatial Deliverables:

Once the conduit has been installed or partially installed The City of Phoenix will require the contractor to survey the actual location of the conduit path. This data will be used for input into The City of Phoenix Fiber Network GIS System.

The surveyed path will be collected in segments between access points. Each manhole, handhole, vault will be surveyed as individual points and identified with a City of Phoenix number.

All surveys will have a horizontal and vertical accuracy level of +/- one foot. The survey will be provided to The City of Phoenix in Arizona State Plane Central Zone NAD 83/NAVD 88 International Feet.

Deliverables will include:

1. CSV file of all collected points in a Northing, Easting, Elevation, Description format.
2. AutoCAD 2019 3D file of the surveyed conduit path.

Method of Measurement:

Conduit will be measured by the linear foot by each diameter size combination, from center to center of pull boxes, or center of pull box to center of foundation. Each item shall include all elements of installation as described below.

No measurement or direct payment will be made for clearing conduit (new or existing) and installation of pull tape, the cost being considered as included in the contract price for the conduit items.

No measurement or direct payment will be made for vertical conduits, conduit sweeps, conduit in pull boxes,

conduit in foundations, clearing and grubbing, removal and disposal of spoils, directional drilling and jack and bore pits, warning tape, couplings, expansion fittings, connectors, half sack slurry, backfilling and compacting, bonding and grounding, grouting, spall repair, pavement patching, irrigation system repair, replacement of any landscape vegetation damaged during installation activities, or other work required to return the surface to pre-disturbed condition, the cost being considered as included in the contract price for the conduit items.

The Contractor is alerted to the fact that hand digging may be required in the installation of trenches and pull boxes. No measurement or direct payments will be made for hand digging, the cost being considered as included in the contract price for the conduit and pull box items.

No measurement or direct payment will be made for additional equipment, labor, and construction time required to install the conduit due to the nature of the subgrade material encountered or the existing locations of utilities in the area, the cost being considered as included in the contract price for the conduit items.

The work shall include excavation, installation of conduit, removal and disposal of spoils as required, backfill, compaction of backfill material use for directional drilling and jack and bore pits, warning tape, pull tape, locator wire, connectors and fittings, bonding and grounding, locating existing conduit when new is to be intercepted with existing, and restoration of the surface to existing condition at no additional cost to the City.

The HDPE conduit shall be measured and paid at the unit bid price of the PVC conduit(s).

Basis of Payment:

The accepted quantities of conduit, measured as provided above, will be paid for at the contract unit price per linear foot, which price shall be full compensation for the work, complete in place, including materials, labor, excavation, backfill and compaction, boring, directional drilling, pavement replacement, saw cutting, conduit, conduit caps/plugs, warning tape, pull tape, locator wire, couplings, fittings, condulettes, expansion fittings, flexible steel conduit, sweeps (36 Inch minimum), hangers, core drilling, replacement of landscaping and irrigation systems, and other work required to return the surface to pre-disturbed condition shall be considered incidental and the cost being considered as included in the contract price for the conduit items.

Additional equipment, labor, and construction time required to install the trenched or directionally drilled conduit due to the difficult nature of subgrade material encountered is considered included as part of the conduit pay items.

Additional materials, equipment, and labor for concrete encasement of trenched conduit due shallow installation depths is considered included as part of the conduit pay items.

ITEM 7320456	PULL BOX (NO. 8) (PHOENIX):
ITEM 7320460	PULL BOX (NO. 9) (PHOENIX):

Description:

The work under this item shall consist of furnishing and installing pull boxes as shown on the project plans. The work shall include excavation, installation of pull boxes, installation of rack and hook system for No. 9 pull box, backfill, compaction, conduit sweep adjustments, and restoration of the surface to existing condition, including decomposed granite and other landscaping, irrigation systems, concrete surfaces, and roadway surfaces.

Materials:

The pull box, covers, and extensions shall meet structural requirements for AASHTO Specification HS20-44 loads and as shown on the project plans. A certificate of compliance, in accordance with Section 106.05 of the

Standard Specifications shall be supplied for structural capabilities and materials used in manufacture. New pull boxes installed to replace existing pull boxes shall be a split No. 9 pull box installed over existing conduit and fiber, as shown in project plans. Concrete pull boxes are not permitted. Concrete polymer boxes shall be used.

(A) Covers:

The wording on the City of Phoenix No. 8 (No. 8) pull box covers shall read, "CITY COM" in two-inch letters.

The wording on the City of Phoenix No. 9 pull box covers shall read, "CITY COM" in two-inch letters.

The No. 9 pull box cover shall have a square, hinged cover that opens a full 180 degrees. Opening of the cover shall be spring assisted from both the open and closed positions via a torsion bar lift system. The cover shall lock down with at least one stainless steel penta-head bolt that shall be captive to the cover. The cover shall also have provisions for an externally mounted padlock for extra security. The padlock shall mount in a cavity in the pull box cover so no part of the padlock is exposed.

(B) Cable Mounting Hardware:

Each No. 8 pull box shall be supplied with two 36" cable rack rails installed on the side walls of the pull box, with four 7.5" large cable rack hooks, as shown on the plans. Shop drawings for the rack and hook system shall be submitted to the Engineer for approval. The installation method of the rack and hook system and details of how the Contractor proposes to use the rack and hook system to support cable slack shall be included in the shop drawings.

Each No. 9 pull box and split No. 9 pull box shall be supplied with six unistrut embedded in the concrete walls of the pull box, with a 24" 18-hole rack mounted to each unistrut with two ½"-spring nuts and bolts, as shown on the plans. Eight 5" hooks that mount in the 18-hole racks shall be supplied. Shop drawings for the rack and hook system shall be submitted to the Engineer for approval. The installation method of the rack and hook system and details of how the Contractor proposes to use the rack and hook system to support cable slack and fiber optic splice closures shall be included in the shop drawings.

Construction Requirements:

The construction requirements shall be in accordance with Section 732-3 of the ADOT Standard Specifications, per the details shown in the project plans, and as specified herein.

Pull boxes shall be installed flush with adjacent grade, roadway, or sidewalk. Pull boxes shall not be installed in roadways, driveways, parking areas, ditches, or sidewalk ramps unless otherwise noted on the plans or directed by the Engineer.

The Contractor shall be responsible for restoring the surrounding surface conditions back to their original state, including concrete and roadway areas.

Prior to any trenching, the Contractor shall verify, with utility as-builts, the existence of any cathodic protection in all existing utilities and take all possible precautions to maintain existing cathodic protection.

After Blue Staking has been accomplished, the Contractor shall mark the proposed pull box location with white paint prior to excavation. Above ground pull box locations shall be marked with tape. The pull box locations must then be approved by the Engineer before installation begins.

When installing the No. 9 pull box and pull box covers, the Contractor shall only lift the pull box and covers using

the lifting hardware installed for that purpose. The cover shall be oriented such that the cover hinge lies along the side of the pull box with no conduit openings farthest from the roadway.

The pull box shall be backfilled with select excavated material and thoroughly compacted to within two inches of original grade. The compaction around the box shall not cause the sides to deflect or any part of the box or cover to crack or become dented. The Contractor shall replace any cracked, broken, chipped or damaged pull boxes or covers at no additional cost to the City.

At locations where the contractor is required to remove and replace an existing pull box, install a new pull box over an existing conduit system, or make conduit sweep adjustments into a pull box, the contractor shall be required to hand dig or chip away the existing concrete encasement to locate the existing conduits and to achieve the required conduit sweeps into the pull box. The contractor shall remove the concrete encasement in such a manner that it will not damage the conduit system and its contents. The contractor shall replace cracked, broken, chipped, or damaged conduit and conduit contents at no additional cost to the City.

Method of Measurement:

New No. 8 and No. 9 pull boxes will be measured as a unit each for a pull box and cover satisfactorily installed.

Pull boxes and pull box covers damaged and replaced during construction shall not be measured.

Basis of Payment:

The accepted quantities of each No. 8 and No. 9 pull box, as measured, above will be paid at the contract unit price, complete in place, including racks and hooks for cable mounting, excavating, backfilling, conduit in pull boxes, grouting and sealing conduits entering through the side walls and area restoration.

ITEM 7320787 SINGLE MODE FIBER OPTIC CABLE (144 FIBERS):
ITEM 7320796 FIBER OPTIC SPLICE CLOSURE (PHOENIX)(7TH ST AND PARADISE LN):

Description:

(A) Single Mode Fiber Optic Cable:

The Contractor shall furnish, install, splice, terminate, and test Single Mode Fiber Optic (SMFO) communications cables in conduits between pull boxes, junction boxes, traffic signal cabinets and buildings as shown on the plans.

(B) Fiber Optic Splice Closure (Phoenix)(7th St and Paradise Ln):

The Contractor shall furnish, install, and test fiber optic splice closures at City of Phoenix locations shown in the project plans.

Materials:

(A) Single Mode Fiber Optic Cable:

The Contractor shall supply SMFO cable that meets the following specifications:

(1) Documentation:

The Contractor shall provide certificates in accordance with Section 106.05 that the cables furnished and installed are in conformance with the appropriate specifications. These certificates shall be in two parts:

The Contractor shall secure a Certificate of Compliance from the cable manufacturer that the cable is in conformance with the Rural Electrification Administration (REA) Bulletin PE-90 (where applicable) and these Special Provisions.

The Contractor shall provide a Certificate of Analysis certifying that the installation of the communications cabling system is in accordance with the cable and splice manufacturer's recommendations and these Special Provisions.

(2) Technical Requirements:

All fiber optic cable shall be SMFO cable that is of loose tube construction, filled with a water-blocking material, and constructed by a certified ISO 9001 or 9002 manufacturer. Fiber optic cable shall be dielectric and comply with the requirements of REA PE-90 except as modified by the following requirements:

Number of fibers:	144 or as specified in the project plans
Minimum Buffer Tube Diameter:	2.5 mm
Cladding diameter:	$125 \pm 1.0 \mu\text{m}$
Core-to-cladding offset:	$\leq 0.8 \mu\text{m}$
Cladding non-circularity:	$\leq 1.0\%$
Maximum attenuation:	$\leq 0.35 \text{ dB/km}$ at 1310 nm, $\leq 0.25 \text{ dB/km}$ at 1550 nm
Microbend attenuation (1 turn, 1.25" dia.):	$\leq 0.5 \text{ dB}$ at 1550 nm
Microbend attenuation (100 turns, 3' dia.):	$\leq 0.05 \text{ dB}$ at 1310 nm
Mode-field diameter (matched cladding):	$9.3 \pm 0.5 \mu\text{m}$ at 1310 nm; $10.5 \pm 1.0 \mu\text{m}$ at 1550 nm
Maximum chromatic dispersion:	$\leq 3.2 \text{ ps}/(\text{nm} \times \text{km})$ from 1285 nm to 1330 nm and $< 18 \text{ ps}/(\text{nm} \times \text{km})$ at 1550 nm
Fiber polarization mode dispersion:	$\leq 0.5 \text{ ps}/(\text{km})^{1/2}$
Fiber coating:	Dual layered, UV cured acrylate
Coating diameter:	$245 \mu\text{m} \pm 10 \mu\text{m}$
Minimum storage temperature range:	-40°F to 158°F
Minimum operating temperature range:	-40°F to 158°F
Rated life:	Certify a 20-year life expectancy when installed to manufacturer's specifications

Buffer tubes shall be stranded around a central member using the reverse oscillation or "S-Z", stranding process. Filler rods shall be used in the fiber optic cable to lend symmetry to the cable section.

Central Strength Member: The fiber optic cable shall have a central strength member designed to prevent buckling of the cable.

Cable Core: The fiber optic cable shall utilize a dry water-blocking material to block the migration of moisture in the cable interstices.

Tensile Strength Members: The fiber optic cable shall have tensile strength members designed to minimize cable elongation due to installation forces and temperature variation.

The fiber optic cable shall withstand a 600 lbf tensile load where the change in attenuation does not exceed 0.2 dB during loading and 0.1 dB after loading. The cable shall be rated for an installed tensile service load of 200 lbf, or not to exceed the maximum tensile strength characteristics of the cable being pulled, whichever one is the more stringent requirement shall apply.

Cable Jacket: The fiber optic cable jacket shall be constructed of a high or medium density polyethylene (HDPE/MDPE) jacket that has been applied directly over the tensile strength members and water-blocking material. The jacket shall have at least one ripcord designed for easy sheath removal.

The cable shall be wound on the reel in such a manner as to provide access to both ends of the cable to enable testing to be performed while the cable is on the reel.

Environmental: The cable shall be capable of withstanding the following conditions without damage or decrease in function:

- a) Total immersion in water with natural mineral and salt contents; and
- b) Wasp and hornet spray.

The Contractor is only required to order as many connectors as is necessary to meet the communications requirements shown in the Plans.

Connectors shall not introduce more than 0.5 dB attenuation per connector. Connectors found to exceed 0.5 dB attenuation shall be remade at no additional cost, until this requirement is met.

(B) Fiber Optic Splice Closure (Phoenix)(7th St and Paradise Ln):

Fiber optic splice closures shall be either shell design or cylindrical, butt-end style corrosion resistant, and watertight, and meet the requirements of GR-771-CORE. Underground splice closures shall seal, bond, anchor, and provide efficient routing, storage, organization, and protection for fiber optic cable and splices. The splice closure shall provide an internal configuration and end cap with a minimum of two express ports for entry and exit of backbone cable and a minimum of three additional ports for distribution and branch cables.

Splice closures shall be designed to accommodate heat-shrink fusion splice trays in sufficient quantities to perform the required number of splices. At a minimum, the fiber optic splice closure shall accommodate 156 splices and three 12-fiber branch cables. Each splice closure shall be supplied with at least two spare heat shrink fusion splice trays and the hardware to terminate at least two additional branch cables.

Splice closures shall have a reliable dual seal design with both the cable jackets and core tubes sealed with compressed gel block or without the use of water-blocking material. The splice closures shall be capable of being opened and completely resealed without loss of performance.

The splice closure maximum dimensions shall not exceed 25" L x 11" W.

Construction Requirements:

(A) Single Mode Fiber Optic Cable:

The cable shall not be installed in any pull box until the pull box has been approved for cable installation by the Engineer.

Installation of each fiber optic cable shall be continuous and without splices between allowable splice points as identified on the plans. The Contractor shall perform all final length measurements and order cable accordingly.

The backbone cable fibers shall be unconnectorized. The backbone cable fibers shall only be spliced to the following as shown on the plans:

Other backbone cables

Branch cables

Factory pre-terminated color-coded fiber pigtails within a fiber termination panel

Branch cables shall be connectorized with male SC-Type connectors as required.

No more than one week prior to installation of any cable, all new and existing empty conduit runs in which cable is to be installed shall be cleared/cleaned by pulling through a metal-disc mandrel with a diameter of 90% of the PVC conduit diameter, or a ball mandrel with a diameter of 80% of the HDPE conduit diameter.

The conduit may be brushed or swabbed or pumped to remove water, if deemed necessary, prior to pulling the mandrel through the conduit. No measurement or payment shall be made for clearing existing conduit for use by this project, as it is considered included in the cost of contract items.

Where cable is pulled through pull boxes, the Contractor shall ensure that the cable is protected from sharp edges and excessive bends. The Contractor shall not cause the cable to violate the minimum bending radius for which the cable was designed. If the Contractor violates the bending radius, the entire length of cable from the previous splice point shall be removed from the project and a new cable shall be pulled at no cost to the City.

Cables shall be pulled in the conduit with a device designed to provide a firm hold on the exterior covering and the central strength member of the cable. It is preferred that power winches or mechanical advantage devices are used to pull all fiber cable. Pulling the cable by truck, backhoe, or any other non-approved pulling device shall be avoided and will not be accepted by the City. Cable shall not drag on the ground or pavement during installation. The Contractor shall ensure that the tensile load on the cable does not exceed the allowed maximum by using a break-away tension limiter set below the recommended tensile limit of the cable being pulled and/or a system that provides a means of alerting the installer when the pulling tension approaches the limit.

A pull tape and locator wire shall be installed into the conduit along with the SMFO cable. Pull tape installed shall provide a minimum tension rating of 2500 lbs. Locator wire installed shall be 12 AWG solid copper wire. The locator wire shall be connected at each pull box using wire nuts to form a continuous circuit for the length of the installed fiber.

During pulling, the cable shall be lubricated at each No. 9 pull box. The Contractor shall use a prelubrication or continuous lubrication method. The lubricant used shall be compatible with the cable jacket as recommended by the cable manufacturer. Liquid detergent shall not be used. The cost of this lubricant is included in the contract items. Lubricant quantity for each pull shall be as follows:

$$Q = 0.0008 \times D \times L$$

where,

Q is the quantity of lubricant in gallons

D is the diameter of the conduit in inches
L is the length of the pull in feet

The Contractor shall supply documentation identifying either the manufacturer's recommendation or a published standard recommending the maximum pulling tension and speeds and these values shall not be exceeded.

The Contractor shall have this documentation on site during each pull. If the Contractor fails to continuously lubricate the cable, the work shall be stopped until a meeting is held between the Contractor and the Engineer to discuss why the terms of this specification are not being met. No compensation for the work stoppage shall be given.

Where cables are to be installed in conduit with existing cables or wires that shall remain, the Contractor shall not damage the existing cables or wires. The Contractor shall disconnect, remove, reinstall, and reconnect the existing cables and wires as necessary to facilitate the installation of the new cable. The Contractor shall be responsible for any damage to the existing cables or wires caused by this operation. New and existing conductors shall be terminated and labeling reconciled as needed. Two weeks prior to disconnecting any existing cables, the Contractor shall submit a schedule, for approval by the Engineer, with the timeframes of when the existing cables are to be disconnected. No separate payment will be made, as this work shall be considered included in the cost of associated items.

In all locations where fiber enters a No. 9 pull box (existing and new), 50 feet of cable slack for each entry of SMFO cables (i.e., a cable that passes through a No.9 pull box shall have 100 feet of cables slack, 50 feet for each entry point) and shall be loosely looped using the rack and hook system. Each cable shall be attached to the rack and hook system with industry standard Velcro wraps for each individual cable loops of one cable immediately upon entering the box. Velcro wraps should be tightened so that they prevent cable slippage but do not deform or damage the cable sheath.

In all locations where fiber enters a No. 8 (for Phoenix) pull box (i.e., a cable that passes through a No. 8 pull box shall have 50 feet of cables slack, 25 feet for each entry point) and be loosely looped inside the No. 8 (for Phoenix). Each cable shall be tied with industry standard Velcro wraps for each individual cable loops of one cable immediately upon entering the box. Velcro wraps should be tightened so that they prevent cable slippage but do not deform or damage the cable sheath.

When splice closures are required at No. 9 pull boxes, 50 feet of cable slack for each entry of 144 SMFO cables entering the pull box shall be provided between the splice closure and each point where the cable enters the pull box, allowing the splice closure to be removed up to 50 feet from the pull box in order to perform the splice in an environmentally controlled splice, unless a greater distance is noted on the project plans.

When break-away connector systems are required at pull boxes, 50 feet of cable slack for all cables entering the pull box shall be provided between the break-away connector system and each point where the cable enters the pull box, allowing the break-away connector system to be removed up to 50 feet from the pull box, unless a greater distance is noted on the project plans.

The Contractor shall submit machine-printed permanent identification tags or labels, and the method of attachment, for approval by the Engineer. Cables shall be labeled at all pull boxes where cable is exposed. As a minimum, the labels shall state what fiber cable (SMFO-144), and the To/From direction. A complete labeling record in the form of an as-built cable schedule shall be provided to the Engineer with the final documentation. The cabling record shall include the distance markings on all fiber optic cables at the ingress and egress points of the pull boxes, at the splice closures, entry to cabinets/buildings and at fiber termination points.

After cables are installed, the Contractor shall seal all pathway entrances with an approved, material plug (foam is not allowed) to prevent ingress of water, dust or other foreign materials.

(B) Fiber Optic Splice Closure (Phoenix)(7th St and Paradise Ln):

The Contractor shall install the splice closure in No. 8 pull boxes (for Phoenix) as shown on the plans. The Contractor shall install the splice closure such that the two trunk cable entries are on the same side of the end cap so if other branch fiber cables are installed at a later date, the two existing seals remain undisturbed. Where the Contractor is splicing to existing fiber, the Contractor shall be careful to not disturb any other splices that exist. Splices that are damaged shall be repaired by the Contractor immediately, at no cost to the City.

Splicing of the SMFO cable shall be done only at the pull boxes shown on the project plans. All splices and connectors shall be prepared in accordance with the manufacturer's recommendations. All splices shall be fusion spliced and shall not introduce more than 0.1 dB attenuation per splice. Splices found to exceed 0.1 dB shall be re-spliced at no additional cost, until this requirement is met. Each splice shall be packaged in a protective heat-shrink sleeve and secured in the splice tray. The heat-shrink sleeve shall be approved for use by the fiber optic cable manufacturer and shall protect the fiber from scoring, dirt accumulation, moisture intrusion, and micro-bending.

Testing:

Fiber optic cable shall meet the following test requirements.

(1) Test Plan:

The Contractor shall prepare a fiber cable test plan. The fiber cable test plan shall indicate which cables are to be tested, where testing is to occur, the anticipated dates of testing, the testing methodology and outputs, and the coordination required with City staff to conduct the testing.

The Contractor shall submit the fiber cable test plan to the City within thirty (30) days after the start of the project and shall revise the fiber cable test plan to address City comments on the test plan. No fiber cable testing shall occur until after the City has approved the fiber cable test plan.

(2) Pre-Installation Testing:

The Contractor shall inspect all cable upon delivery and again prior to installation. The Contractor shall test the SMFO cable using an optical time-domain reflectometer (OTDR) per the following OTDR Tests section prior to installation.

(3) Post-Installation System Acceptance Testing:

After installation and splicing of cable the Contractor shall perform the following System Acceptance Tests:

- **Power Meter Tests:** Install power source feed through connectors at all locations where fibers are to be connectorized to connect to communications equipment. Conduct power meter tests for each fiber to demonstrate splice continuity and attenuation from origin to destination. Demonstrate that the attenuation for each fiber path including connectors, and splices as a whole, complies with the loss budgets required by these Special Provisions. Submit a test result and check-off sheet of each fiber to the Engineer.
- **OTDR Tests:** Conduct bi-directional tests using an OTDR for each newly installed fiber. Demonstrate that the attenuation for each fiber and splice, individually and as a whole, comply with the loss budgets required by these Special Provisions. Test fibers at 1310 nm and 1550 nm using a launch cable no less

than three times the pulse width used to shoot the cable. Submit OTDR trace source files for approval to the Engineer. Clearly annotate each splice and identify the measured loss.

The Contractor shall identify any unacceptable losses greater than 0.5 dB and make corrective actions at no additional cost. Failed splices may be remade and re-tested for compliance. The Contractor shall replace any cable in its entirety that is not compliant with these Special Provisions at no additional cost.

Following completion of all testing, and approval by the City, the Contractor shall compile and submit two copies of organized test notebooks in electronic form. These notebooks shall include a test summary sheet that includes, at a minimum, the power meter test results and the OTDR trace source files of each fiber strand in native format, with accompanying software to read the source files, where necessary.

Method of Measurement:

(A) Single Mode Fiber Optic Cable:

The SMFO cable will be measured by the linear foot for each type of cable furnished and installed. Cable will be measured horizontally along the route from center of pull box to center of pull box, or center of pull box to center of foundation. Conduit brushing, swabbing, or pumped to remove water out of and mandrelling, is considered incidental and included and will not be measured. Activities involved to disconnect, remove, reinstall, and reconnect the existing cables and wires as necessary to facilitate the installation of the new cable are considered incidental and included and will not be measured.

No measurement will be made of cable that is below ground in vertical conduit stub-ups or for slack cable in pull boxes.

(B) Fiber Optic Splice Closure (Phoenix)(7th St and Paradise Ln):

Fiber optic splice closures will be measured as a unit each for a splice closure furnished, installed and tested, complete in place. The installation shall include the splice closure and all incidental splice trays, closure and accessory kits, cables, connections and hardware.

Basis of Payment:

(A) Single Mode Fiber Optic Cable:

SMFO cables, measured as provided above, will be paid at the contract unit price, which shall be full compensation for providing the various type of cable, complete in place, including splicing and terminating cables, pull tape, lubricant, labels, conduit (including conduit brushing, swabbing, water pumping, and mandrelling), sealing, and testing which are considered incidental and the cost to be included in this item. No payment for fiber optic cable slack and equipment to install the cable, including equipment to limit pull-tension and speed will be made and are considered to be incidental and the cost is to be included in the cost of this item. No payment for activities involved to disconnect, remove, reinstall, and reconnect the existing cables and wires as necessary to facilitate the installation of the new cable will be made and are considered incidental and included and the cost is to be included in the cost of this item.

(B) Fiber Optic Splice Closure (Phoenix)(7th St and Paradise Ln):

The accepted quantities of fiber optic splice closures, measured as provided above, will be paid at the contract unit price each, which shall be full compensation for the work, complete in place, including splicing and terminating cables, lubricant, labels, splice trays, closure cleaning and sealing, pigtails, jumper cables, and

testing.

ITEM 7340103 CONTROL CABINET (PHOENIX) (DEER VALLEY RD AND 7TH ST NODE CABINET):

Description:

The work under this shall consist in furnishing and installing Control Cabinet (Phoenix) (Deer Valley Rd and 7th St Node Cabinet) at the location designated on the project plans.

Materials:

Control Cabinet (Phoenix) (Deer Valley Rd and 7th St Node Cabinet) shall be provided with the cabinet accessories required.

The following materials related to the control cabinet assembly shall be installed by the City of Phoenix Deer Valley Drive and 7th Street project (File Number 11761). The contractor shall account for other incidental materials necessary to connect equipment incorporated in, or connected through the foundation, to the cabinet, to form a fully functional system.

- Node Cabinet Foundation
- (2) 1-1/4" HDPE conduit run to existing #8 fiber box
- (1) 2" PVC conduit to traffic signal controller cabinet
- (2) 1-1/4" conduit runs to #9 main junction box
- (2) 1-1/4" HDPE conduit runs to existing #5 junction box
- (1) 2" conduit run to controller cabinet

Construction Requirements:

Cabinet equipment installation and testing personnel shall have at least five years of relevant ITS construction experience. Contractor shall submit resumes for each of the key people describing detailed relevant experience for a minimum of three projects, including project description, date of work, actual work performed by the individual and references for each project.

The contractor shall supply Certificates of Compliance for each ITS cabinet and each accessory within the control cabinet at the time of delivery of the ITS cabinet assembly for the following:

Acceptance testing of each supplied component.
Physical and functional testing of each module.
A minimum of 100-hour burn-in of each module.
A minimum of 24 hours of operation of each cabinet.

Cabinets:

The contractor shall transport cabinets to the project side and install them as shown on the project plans. Installation shall include:

- Grounding the cabinet on the ground system, using bare, solid 8 AWG soft-drawn copper wire;

- Grounding the transformer, if it is on the same foundation as the control cabinet; connecting the cabinet to the power source;
- Completing fiber optic splices and terminations within the cabinet, as required;
- Furnishing and installing necessary mounting hardware.

Field wires and power service cables shall be wired to the cabinets as shown in the ITS Standard Drawings FM-3.05 and FM-3.06 or on the project plans. The contractor shall connect the cabinet and its accessories to the various field devices to be controlled, to form a fully functional system.

Removable caps shall be placed on unused conduits within the cabinet.

Wire and cable terminations shall only be made at recessed-screw barrier type terminal blocks, unless otherwise specifically noted. No in-line or butt splices shall be made other than at terminal blocks.

Control cabinet equipment shall be mounted on the cage mounting rails as shown in the ITS Standard Drawing FM-3.02, unless otherwise specified.

Equipment, housings, metal conduit, and cabinets (exposed metal, non-current carrying parts) shall be grounded and bonded in accordance with Subsection 732-3.03 and NEC Article 250. The cabinet's ground resistance shall be 25 Ohms or less.

Grounding conductors and bonding jumpers shall be connected by exothermic welding, UL listed pressure connectors, UL listed clamps, or other approved UL listed means. Connection devices or fittings that depend solely on soldering shall not be used. Sheet metal screws shall not be used to connect grounding conductors to enclosures.

On two-door cabinets, the DIN rail shall be attached to the vertical rails service the "back side" of the cabinet. The "front side" of the cabinet is the side from which controller face and keyboard are viewed. On single-door cabinets, the location for mounting the DIN rail shelf will be as specified by the Engineer, to meet specific site equipment space requirements. Hinges for the rear cabinet door shall be located on the left side when facing the rear of the cabinet. Ventilation louvers with filter/shell assembly shall be provided on rear door of cabinet.

The contractor shall furnish and install silicone caulking, or other approved sealant around the base of the cabinet to form a watertight and dust-proof seal.

Cabinet Accessories:

The contractor shall provide and install McCain Inc. Model 332/334 CCTV equipment cabinet, or City approved equivalent.

Method of Measurement:

Control Cabinet (Phoenix) (Deer Valley Rd and 7th St Node Cabinet) will be measured as a unit, for each type of control cabinet furnished and installed. Cabinet accessories not otherwise paid under separate items will not be measured for payment, the cost being considered as included in the cost of the contract items.

Basis of Payment:

The accepted quantity of Control Cabinet (Phoenix) (Deer Valley Rd and 7th St Node Cabinet), measured as

provided above, will be paid for at the contract unit price, which price shall be considered as a full compensation for the work, including transportation, conductors, cable, cabinet accessories not paid under separate items, and incidentals to provide an operational cabinet, complete in place.

SECTION 737 INCIDENTAL ELECTRICAL WORK: Modify and revise **ADOT Standard Specification 737** as follows:

737-3.01 Maintaining Existing Traffic Signals and Lighting Systems: of the Standard

Specifications is modified to add:

Contractor shall report to the Engineer the time of disruption and time of restoring services of existing traffic signal or lighting systems. Services shall be restored before the end of the working shift.

737-4 Method of Measurement: of the Standard Specifications is replaced in its entirety:

Maintaining existing traffic signals and lighting systems, and removing, salvaging, or reinstalling electrical equipment will not be measured and the work will be considered included with the other contract items.

737-5 Basis of Payment: of the Standard Specifications is deleted.

SECTION 737 INCIDENTAL ELECTRICAL WORK: of the Standard Specifications is modified to add:

ITEM 7370422 ELECTRICAL SYSTEM (LAYER 3 NETWORK SWITCH):

Description:

The work under this item includes furnishing and installing an environmentally hardened Layer 3 Ethernet network switch at the node cabinet at Deer Valley Road and 7th Street.

Materials:

The Ethernet network switch used shall be EtherWAN EG97244-4VZ Hardened Managed Layer 3 Ethernet Switch with an included rack mounting kit.

The Ethernet network switch shall be compatible with the current City of Phoenix ITS network management software and current City SFP technical requirements. All materials provided shall be new stock. Refurbished or resold materials shall not be acceptable. All materials shall be currently supported by the manufacturer, in current production and not scheduled for end of life.

SFP transceiver modules must be provided with each switch meeting the following minimum requirements:

FOR 16-1G BASE SFP PORTS – EtherWAN SFP (Model EX-1250TSP-MB5L-A S, Duplex LC), or approved equal: Operating Temperature: -40 to 85°C (-40 to 185°F)

Connector Type: Duplex LC

Distance: 20Km

- Transmitter (Tx) Optical Output Power: -9 to -3dBm
- Receiver Sensitivity: -24dBm

Cable type: 9/125 µm, Single Mode
Wavelength: 1310nm

Regulatory Compliance:

- Compliant with Multi-Sourcing Agreement (MSA) Small Form Factor Pluggable (SFP)
- Eye Safety: Compliant with Class 1 laser safety requirements EN 60825-1
- Environmental: RoHS compliant, lead-free
- EMC: FCC part 15, CENELEC EN 55022

Power Supply Voltage: Single +3.3V

FOR 4-10G BASE SFP PORTS – EtherWAN SFP (Model SFPTIS40M, Duplex LC), or approved equal:

Operating Temperature: -40 to 85°C (-40 to 185°F)
Connector Type: Duplex LC
Distance: 40Km

- Transmitter (Tx) Optical Output Power: 0.5 to +5dBm
- Receiver Sensitivity: -15.5dBm

Cable type: 9/125 µm, Single Mode
Wavelength: 1310nm

Regulatory Compliance:

- Compliant with Multi-Sourcing Agreement (MSA) Small Form Factor Pluggable (SFP)
- Eye Safety: Compliant with Class 1 laser safety requirements EN 60825-1
- Environmental: RoHS compliant, lead-free
- EMC: FCC part 15, CENELEC EN 55022

Power Supply Voltage: Single +3.3V"

Construction Requirements:

The Contractor shall configure the Layer 3 Ethernet network switch with City-provided Internet Protocol (IP) addresses, location identifiers, subnet and gateway information, and mount the Ethernet switches within the 19" rack within equipment room.

Prior to connecting Ethernet switch to the fiber cable plant, the Contractor must use the power meter testing results to confirm the Contractor must not exceed the SFP manufacturer's guidelines for receiving signal input level. The Contractor must provide optical attenuators as necessary prior to connecting the SFPs to the fiber cable plant. The Contractor will be responsible for all damages caused by an excessive input signal level. A violation of the power limit may damage equipment.

The City shall provide the Contractor a list of IP addresses assigned to the Ethernet switch location which shall be used for configuration. The Contractor shall work with City IT staff for install.

The Contractor shall provide a list of each switch MAC address and associated location to the City.

The Contractor shall label the switch with a printed heat resistant label. The label shall consist of the IP address.

The Contractor shall coordinate the exact installation location of the switch, power supply connection, and ground bus bar connections with the Engineer.

Testing:

The Contractor shall prepare a Layer 3 Ethernet network switch test plan to apply to each switch location. The Ethernet network switch test plan shall indicate which switches are to be tested, where testing is to occur, the anticipated dates of testing, how connectivity between the Ethernet switches in the node locations and the City Traffic Management Center located at City Hall will be verified, the testing methodology and outputs, and the coordination required with City staff to conduct the testing.

The Contractor shall submit the Layer 3 Ethernet network switch test plan to the City within thirty (30) days after the start of the project and shall revise the Ethernet network switch test plan to address City comments on the test plan. No Ethernet network switch testing shall occur until after the City has approved the Ethernet network switch test plan.

The System Acceptance Test for the Layer 3 Ethernet network switch shall consist of City staff executing a standard 'ping' test, demonstrating connectivity to the management interface of the Ethernet network switch and each and every device connected as well as viewing and operating devices connected (e.g., CCTV cameras, traffic signal controller).

Method of Measurement:

Measurement will be per each Layer 3 Ethernet switch installed, tested and accepted.

Basis of Payment:

The accepted quantities of Layer 3 Ethernet switches, measured as provided above, will be paid at the contract unit price each, which shall be full compensation for all labor, materials, tools, equipment, testing and incidentals for purchasing, transporting, storing, installing, testing and accepting the switches, complete in place.

ITEM 7370455 MISCELLANEOUS ELECTRICAL (AS-BUILT DRAWINGS):

Description:

The Contractor shall maintain a comprehensive set of documentation as it related to the project work elements. The documentation shall include: (A) current as-built red lines made to the construction plans, and (B) final as-built redlines and all other documentation materials.

Materials:

(A) Project Documentation:

Concurrent as-built documentation of the work shall be kept current (no longer than 7 calendar days behind actual work period) throughout the duration of the project. A full size set of project plans shall be kept on-site

and updated on a weekly basis with a red pencil or red ink to reflect field adjustments, changes, omissions, additions, etc. as they occur on the project. The Engineer will provide the contractor with a full-size set of plan sheets for use in preparing final construction record drawings. This concurrent documentation shall be provided by the Contractor prior to initiation of any System Acceptance Test.

Documentation includes as a minimum:

- Construction red line plans noting the actual as-built condition
- Directional Drill Profiles – Planned - Actual
- Foldout flats/butterfly drawings of each No. 8 and No. 9 pull box utilized in this project
- A complete labeling record in the form of an as-built cable schedule
- Operator's manuals
- Maintenance procedures, manuals
- Communications and operating protocols
- Factory issued manuals
- Detailed shop drawings
- Certifications
- Warranties
- Instruction sheets
- Parts lists
- All applicable items found in Appendix A

Documentation shall also include manufacturer's equipment documentation for all Contractor-furnished items. Acceptable factory manuals must contain technical, diagnostic, and maintenance (preventive and troubleshooting) information. Advertising brochures and catalog cuts will not be accepted.

(B) Final Documentation:

(1) Configuration Information:

Prior to the start of the project System Acceptance Tests, the Contractor shall provide all final configuration information for Contractor-installed equipment. The Contractor shall submit one electronic copy of their configuration information in the form of a computer spreadsheet compatible with the City of Phoenix computer system. This electronic information shall be saved to a CD-ROM or DVD. The information shall include all configuration parameters for each device location, make and model number, serial number, date of installation, manufacturer, manufacturer contact information, and warranty expiration date.

(2) Overall Documentation:

All as-built documentation shall be in accordance with Appendix A, subject to the approval of the Engineer prior to acceptance.

(C) Types of Documentation Required:

The final as-built documentation shall be in accordance with Appendix A and consist of the following documents as a minimum (each of the following documents shall be submitted to the Engineer prior to the completion of the project):

(1) Construction As-Built:

The Contractor shall modify the construction plan sheets to reflect any variations in equipment locations or requirements shown on the plan sheets.

The final document submitted by the Contractor to the City shall be a complete set of plan sheets (excluding schematics, details, assignment tables, structural drawings, etc.). Two sets of electronic media in PDF and City of Phoenix standard AutoCAD format shall be furnished.

(2) Foldout Flats:

The Contractor shall provide foldout flats/butterfly drawings in electronic AutoCAD format, using the electronic AutoCAD foldout flat template provided by the City, of each No. 8 and No. 9 pull box utilized in this project. The foldout flat of each No. 8 and No. 9 pull box utilized in this project shall be in plan view and oriented north and shall show conduit and cable locations and sizes, cable coils, splice closures, break-away connector systems, cable sequentials (in/out), and an as-built stamp.

An electronic photo of each No. 8 and No. 9 pull box utilized in this project shall be provided by the Contractor that contains a date stamp, is taken oriented facing north, is geocoded via GPS to the pull box's location, and whose filename contains the nearest adjacent intersection and a description of the type of pull box (i.e., No. 8 and No. 9).

A manual containing a general description and detailed operating and installation instructions shall be provided for each Contractor-furnished electronic component and software. This manual shall also contain instructions for possible modification to the equipment within the capability of the equipment. Four copies shall be provided for each electronic component and software application.

(3) Operator's Manuals:

A manual containing a general description and detailed operating and installation instructions shall be provided for each Contractor-furnished electronic component and software. This manual shall also contain instructions for possible modification to the equipment within the capability of the equipment. Four copies shall be provided for each electronic component and software application.

(4) Maintenance Procedures Manuals:

A manual containing detailed preventive and corrective maintenance procedures shall be provided for each Contractor-furnished electronic component. Step-by-step field and bench trouble-shooting procedures shall be included, as shall normative waveforms and test voltages as applicable. A detailed parts list shall be included. For each part, its circuit or pictorial identification shall be shown, as shall all necessary rating information and a manufacturer and associated model or part number. The list shall also include cross-references to part numbers of other manufacturers who make the same replacement part. Four copies shall be provided for each electronic component.

(D) Formats of Documentation:

Except for standard bound manuals, any standard letter size documentation not submitted in electronic format

shall be bound in logical groupings in loose-leaf binders of the 3-ring type. Each such bound grouping of documentation shall be permanently and appropriately labeled. No documentation shall be smaller than standard letter size.

All documentation, including that documentation which exceeds standard letter size, shall be furnished on electronic media in PDF and City of Phoenix standard format (e.g., AutoCAD, Word, Excel). All drawings shall be 11" x 17" (unless otherwise approved by the Engineer in each instance).

The Contractor shall furnish all software manuals, flowcharts, printed tables, charts, and program listings in standard letter size three ring binders if it cannot be submitted in electronic format. All software source code shall be furnished in duplicate on CD or DVD ROM compatible with the City's computer system.

Construction Requirements:

Information shall be shown on these record drawing plan sheets in red ink, depicting the constructed materials and locations of conduit, pull boxes, poles, and cabinets that are found to be different than indicated on the plans, based on the Inventory of Existing Traffic Management System (TMS) related to the project's scope of work and throughout the course of the project. The contractor shall exercise care in handling the record drawing plan sheets and shall return them to the Engineer in like condition. The Engineer will be the sole judge in determining whether the record drawings are acceptable.

Work under this bid item includes transfer of all information noted by the Contractor on the on-site record drawing set described above under this bid item, to final construction record drawings that will be submitted (including full-size red-lined original paper submittal and a scanned color copy in PDF format) for approval.

The System Acceptance Tests shall not be complete until the documentation is complete and accepted by the Engineer.

The minimum requirements for construction record drawing acceptance are as follows:

1. All new conduit and existing conduit identified in the existing TMS inventory noting the conduit size and where the conduit run begins and ends.
2. All new conduit and existing pull boxes identified in the existing TMS inventory noting the pull box type, location, and conduit path distance between pull boxes, between pull boxes and poles, and between pull boxes and traffic signal cabinets.
3. On the record drawing plan sheets, provide a unique identifier for each pull box, pole, and cabinet location shown.
4. Using the unique identifier for each pull box, pole, and cabinet location, provide a communications cable summary table with the following information:
 - A unique name for each cable run
 - Any abbreviated name that was used on the cable tags for each cable run.
 - A unique name for the end device each cable is connected to.
 - A unique name for the PoE network switch and its associated port number each cable is connected to.
 - The cable distance of each communications cable, as determined by the standalone testing of ITEM 7320787 SINGLE MODE FIBER OPTIC CABLE (144 FIBERS), based on both cable

markings and cable OTDR tester results, for each communications cable installed.

Method of Measurement:

Record drawings will be measured as a single, lump sum unit of work.

Basis of Payment:

The accepted quantities of record drawings, measured as provided above, will be paid for at the contract lump sum price, which price shall be full compensation for the work, including all related work required for an approved set of record drawings.

ITEM 7370652 FIBER OPTIC EQUIPMENT (TERMINATION PANEL)
ITEM 7370654 FIBER OPTIC EQUIPMENT (FIELD HARDENED ETHERNET SWITCH):

Description:

The work under this item includes furnishing and installing Ethernet field switches in the traffic signal control cabinets shown on the plans.

Materials:

The Hardened Managed Ethernet switch shall be Siemens RuggedCom RS900G-HI-D-2SC10 for City of Phoenix traffic signal cabinets. Configuration options shall be as follows:

8 FAST ETHERNET COPPER PORTS
8 PORT 10/100BASETX + 2 GIGABIT ETHERNET PORTS (1000BASEX) WITH SC TYPE CONNECTORS
SC, DIN RAIL,
RS232 FOR OPERATOR CONSOLE
3-POLE TERMINAL BLOCK, SCREWABLE FOR SIGNALING CONTACT
5-POLE TERMINAL BLOCK, SCREWABLE FOR POWER SUPPLY

The Hardened Managed Ethernet switch shall be the EX78934X-0VB for City of Phoenix traffic signal cabinets. Configuration options shall be as follows:

2 10GB 10KM SFP – SRPTIS10M
16 PORT 10/100TX + 2 GIGABIT PORT 1000LX 20KM WITH SC TYPE CONNECTORS
SC, DIN RAIL
TERMINAL BLOCK (12-48VDC) OR DC JACK POWER CONNECTOR
1 EPOW 54-600 POWER SUPPLY with the following features:

- HARDENED EXTERNAL, 100-240VAC INPUT
- TS2 RATED
- 12VDC OUTPUT
- TERMINAL BLOCK

Prior to construction, the Contractor shall coordinate installation with City traffic signal staff. The Ethernet field switches shall be compatible with the current City of Phoenix ITS network. All materials provided shall be new stock. Refurbished or resold materials shall not be acceptable. All materials shall be currently supported by the

manufacturer, in current production and not scheduled for end of life.

Construction Requirements:

Minimum requirements for the Contractor or designated Subcontractor involved in integrating the network and testing the network are:

- Three years of experience in network installation, testing, and troubleshooting
- Two years of experience in the installation of ITS networks using VLANs and Internet Group Management Protocol (IGMP).

Contractor shall meet all applicable codes and standards requirements for all external wiring to the Ethernet field switches.

The Contractor shall be responsible for programming the Ethernet field switch. This includes ensuring that the configuration of each uplink port connecting to neighboring switches is trunked allowing multiple VLANs to pass. The City will provide IP addresses, netmasks, gateways, port assignments, VLAN configuration, NTP server and other required information assigned to each Ethernet field switch location which shall be used for configuration. The Contractor will apply all available firmware upgrades to the Ethernet field switch. The Contractor shall configure the Ethernet field switches with City-provided IP addresses, location identifiers, subnet and gateway information, and mount the Ethernet field switches in the traffic signal control cabinets. The City shall provide the Contractor a list of IP addresses assigned to each Ethernet field switch location which shall be used for configuration.

The Contractor shall provide a list of each Ethernet field switch MAC address and associated location to the City. The Contractor shall configure the networked devices per the approved network configuration parameters.

The Contractor shall label the Ethernet field switch with a printed heat resistant label. The label shall consist of the controller cabinet intersection location and IP address.

The Contractor shall submit permanent identification tags or labels, and the method of attachment, for approval by the Engineer. Each jumper cable shall be labeled at both ends where the cable connects to the electronic device within the cabinet or building. Jumper cables should be looped independently of one another when providing cable slack and Velcro wraps shall be installed for each individual cable loops of one cable. Velcro wraps should be tightened so that they prevent cable slippage but do not deform or damage the cable sheath. Cable strain relief brackets shall be provided to protect the cable and its connector from accidental damage, near the point of connection at each end of the jumper cable. All wires and cables shall be neatly installed (coiled) and secured with Velcro wraps per common practices and standards. The Contractor shall provide a service loop at all connection points. All factory caps and plugs removed from the Ethernet field switch shall be stored safely within the traffic signal cabinet for later use.

Testing:

The Contractor shall prepare an Ethernet field switch test plan for each of the required tests (i.e., standalone, subsystem testing, and/or SAT). The Ethernet field switch test plan shall include pass or fail testing steps for each functional requirement of the Ethernet field switch and network configuration, indicate which switches are to be tested, where testing is to occur, the anticipated dates of testing, how connectivity between the Ethernet switches in the traffic signal control cabinets and the City Traffic Management Centers will be verified, the testing methodology and outputs, and the coordination required with respective City staff to conduct the testing.

The Contractor shall make corrective actions, as necessary and appropriate for any corresponding testing step that failed, and re-test as necessary until successfully passing all the testing steps within the test procedures,

prior to proceeding to the next required test (i.e., subsystem testing or SAT).

The Contractor shall replace any installed component, or system of components in its entirety and reconfigure the network, as necessary, as part of the corrective actions for passing the required tests and to be in compliance with the contract documents at no additional cost.

The Contractor shall submit the Ethernet field switch test plan to the City within thirty (30) days after the start of the project and shall revise the Ethernet field switch test plan to address City comments on the test plan. No Ethernet field switch testing shall occur until after the respective City has approved the Ethernet field switch test plan.

The System Acceptance Test for the Ethernet field switch shall consist of respective City staff executing a standard 'ping' test, demonstrating connectivity to the management interface of the Ethernet field switch and each and every device connected as well as viewing and operating devices connected (e.g., CCTV cameras, traffic signal controller).

Ethernet network switches require the following tests:

(A) Stand-Alone Testing:

The Contractor shall confirm the installed Ethernet network switch power cord and ground wire is properly connected and all ports are properly configured.

The Contractor shall confirm the Ethernet surge protection devices and jumper cables between the Ethernet network switch and industrial grade Ethernet cables are installed and properly connected, including the ground wires.

The Contractor shall confirm the latest software/firmware updates have been downloaded and installed.

(B) Subsystem Testing:

The Contractor shall demonstrate proper operation (power and network connection) of each end device connected (CCTV PTZ camera or gigabit radio) and proper operation of the network connection to the TMC workstation and server.

The Contractor shall confirm all ITS LAN devices are configured and integrated per the approved configuration parameters.

For each alternate path provided within the ITS LAN, the Contractor shall create a fault condition and demonstrate that the network automatically re-routes network traffic through the path that doesn't have the fault condition.

The Ethernet network switch and all its connected network devices shall successfully maintain stable performance, and reliable communications for 72 consecutive hours without disruption to the operation of the network and connected devices.

(C) System Acceptance Testing (SAT):

The Ethernet network switch, ITS LAN configuration and all its connected network devices shall successfully maintain stable performance, and reliable communications for 30 consecutive calendar days without disruption to the operation of the network and connected devices.

Method of Measurement:

Measurement will be per each Ethernet field switch furnished, installed, tested and accepted. Ethernet surge protection devices, DIN rails, mounting assemblies, ground wires, power cords, jumper cables, identification tags/labels, Velcro wraps, strain relief brackets, RJ-45 connectors, network configuration, and area restoration necessary to complete the work will not be measured.

Basis of Payment:

The accepted quantities of Ethernet field switches, measured as provided above, will be paid at the contract unit price each, which shall be full compensation for all labor, materials, tools, equipment, testing and incidentals for purchasing, transporting, storing, installing, testing and accepting the switches, complete in place.

ITEM 7370652 FIBER OPTIC EQUIPMENT (TERMINATION PANEL):

Description:

The Contractor shall furnish and install 144-port multiple panel interconnect unit housings in equipment cabinets at the locations shown in the plans.

Materials:

A 144-port multiple panel interconnect unit housing shall contain multiple 12-count connector panels with SC duplex adapters. The housing shall also include a splice holder accommodating up to 144 heat-shrink splices. Top and bottom cable entry grommets shall be provided that allow for midspan access and environmental sealing.

The housing itself shall be made of durable black metal and shall be mounted on the wall of the traffic signal cabinet unless otherwise directed by the Engineer.

Construction Requirements:

The 144-fiber trunk cable shall be fusion spliced to a factory-terminated 3mm SC-connectorized pigtail as required to connect to the interconnect unit housing. All pigtails shall have factory-terminated SC connectors.

No installation of field SC connectors on the pigtails or cables shall occur.

Where splicing is required, the Contractor shall first install a spider type fan-out kit to strengthen and protect each fiber of the cable being connectorized or spliced. A protective PVC jacket that is 3mm in diameter shall be provided that contains a Teflon inner tube into which the fiber is inserted and a dielectric strength member. The Contractor shall be responsible for coordinating the installation of the housing and its connection to the trunk cable with respective City traffic signal staff. The Contractor shall connect the housing to the Ethernet network switch by providing duplex SMFO patch cords/jumper cables.

Method of Measurement:

Measurement will be by the unit each for a new 144-port multiple panel interconnect unit housing that is acceptably installed.

Basis of Payment:

Accepted quantities of new 144-port multiple panel interconnect unit housings will be paid in accordance with

the contract unit price, complete in place, including splicing cables, pigtails, PVC jackets, coiling, jumper cables, and testing.

SECTION 924 **BLANK:** of the Standard Specifications is modified to add:

ITEM 9240011 FORCE ACCOUNT WORK (PULL BOX AND CONDUIT RECONDITIONING):

Description:

The work under this item includes replacing or adjusting, pull boxes, extensions, lids or other work needed to repair existing pull boxes related to the project's scope of work, as requested by the Engineer based on the results of the inventory of existing project conditions or additional work directed by the Engineer.

The Contractor shall replace or adjust, as requested by the Engineer and based upon the inventory, all conduit sweeps in pull boxes, conduit orientation and alignment, unusable conduit, or bell ends or fittings within the project limits.

Materials:

The conduit and pull boxes shall meet the requirements of Section 732-2 of the Standard Specifications and ADOT Standard Drawings, except as modified by these Special Provisions.

Damaged pull boxes and conduits shall to be replaced with equivalent materials.

Construction Requirements:

(A) Pull Box Reconditioning

Pull box reconditioning shall be completed prior to the start of work on other project bid items. Eight 5" hooks that mount in the 18-hole racks shall be supplied under this item (if none are present).

(B) Conduit Reconditioning

The inventory completed by the Contractor shall include locating and documenting damaged areas within existing conduit by utilizing either a fish-tape or fiberglass rod. The Contractor shall provide as-built information to the City for conduits that are found to be different than indicated on the Plans. The Contractor shall pull a metal-disc mandrel with a diameter of 90% of the PVC conduit diameter, or a ball mandrel with a diameter of 80% of the HDPE conduit diameter, through all existing empty and Contractor installed conduits.

Prior to identifying conduit as damaged, the Contractor shall verify that the conduit has not become compacted with soil. Where fiber optic cable and copper conductors do not exist, the Contractor may use pressurized air, or other means, to clean the conduit.

Conduit reconditioning shall be completed prior to the start of work on fiber optic cable or conductor installation.

Method of Measurement:

FORCE ACCOUNT WORK (Pull Box and Conduit Reconditioning) will be measured as separate units of work under ITEM 9240011.

Basis of Payment:

The accepted quantities of FORCE ACCOUNT WORK (Pull Box and Conduit Reconditioning), measured as provided above, will be paid at the contract unit price and in accordance with Section 109.04 (D) Force Account

of the Standard Specifications.

ITEM 9240119 MISCELLANEOUS WORK (MODIFY EXISTING SPLICE CLOSURE AT DEER VALLEY RD AND 7TH AVE):

Description:

The work under these items includes performing splicing at existing splice closure locations at locations shown on the plans.

Construction Requirements:

At the locations shown in the project plans, the Contractor shall perform the required fusion splicing in existing splice closures.

The Contractor shall be careful to not disturb any other splices that exist. Splices that are damaged shall be repaired by the Contractor immediately, at no cost to the City.

All splices and connectors shall be prepared in accordance with the manufacturer's recommendations. Each splice shall introduce less than 0.1 dB attenuation except where new cable is spliced to existing cable the maximum allowed attenuation is 0.3 dB.

All splicing shall be done in a splice van or enclosure to protect fibers from excess dust.

All connectors for termination shall be factory assembled. No hot melt or mechanical connectors will be accepted.

Each connector shall introduce less than 0.5 dB attenuation. Connectors found to exceed 0.5 dB attenuation shall be re- made at no additional cost, until this requirement is met.

Method of Measurement:

Modifying existing fiber optic splice closures will be measured as a unit for each splice closure unit modified, complete in place, including the splicing of the fibers and termination of fibers within traffic signal cabinets.

Basis of Payment:

The accepted quantities of modified splice closures, measured as provided above, will be paid for at the contract unit price each, which shall be full compensation for the work, complete in place.

No measurement or payment will be made for furnishing fiber terminations, performing fiber splices and terminating fibers, and jumper cables.

ITEM 9240172 MISCELLANEOUS WORK (FIBER OPTIC SHEAR ASSEMBLY WITH 250-FT TAIL):

Description:

(A) Gator Patch Distribution Panel:

The Contractor shall furnish, install, and test gator patch distribution panels at locations shown in the project plans as required for a fully functional and operational communications network. The Contractor shall furnish all Gator Patch Distribution Panels from the same manufacturer. All equipment shall be new and in strict accordance with the requirements as noted for this item.

(B) Break-Away Connector System:

The Contractor shall furnish, install, and test break-away connector systems at traffic signal cabinet locations as shown in the project plans.

Materials:

(A) Gator Patch Distribution Panel:

At a minimum, each Gator Patch Distribution Panel shall meet the following requirements:

Duplex 9/125 single mode fiber with wavelength of 1310/1550 nm
Rugged PVC sheathing
12-Port Termination Panel with 12 factory terminated ST type connectors
Both cable ends will be ruggedized for strain relief

Permanent markings or color identifiers next to the connector ports shall permit visual distinction between which of the twelve fibers within the cable are connected to each port (i.e., fiber No.1 is always the Blue fiber, so BL or the number 1 shall be marked next to the connector port that this fiber is connected to.)

Length shall not exceed 2 meters

(B) Fiber Optic Break-Away Connector System:

The break-away connector system shall be the CSP FiberShear Controlled Shear Point fiber termination device.

Configuration options shall be as follows:

CSP1 with drop cable and 3.0 mm Outdoor Rated breakout equipment interface cable
12-fiber pigtails, each with factory terminated SC type connectors
Concrete Pedestal Mount Configuration (PM)

Drop cable lengths shall be determined by the Contractor in 50-foot increments to pre-order for each break-away connector systems location required on the plans

Construction Requirements:

(A) Gator Patch Distribution Panel:

The 12-fiber cables must be installed with the "Gator Patch" patch on left side of the cabinet in the lower rear corner and should be affixed to the cabinet side rails using slide nuts.

The Contractor shall install the Gator Patch Distribution Panel within the traffic signal cabinet, connecting the Gator Patch Distribution Panel to the Gigabit/Fiber Switch as per the port assignment provided by the City of Tempe representative. The cost of the jumper cables will be incidental to the fiber cable. Cables shall be neatly installed (coiled) and secured with velcro wraps per common practices and standards and all manufacturer recommended installation and minimum bend radius requirements shall be met. The jumper cables shall have factory terminated connectors, with ST on one end and SC on the other, with the strain relief with permanent markings or color identifiers that shall permit visual distinction for SMFO cable as opposed to other fiber types. All factory caps and plugs removed from the Gator Patch Distribution Panel shall be stored safely within the traffic signal cabinet for later use. The Contractor is required to seal the unused connectors from moisture and dust particles. Connectors must introduce less than 0.5 dB attenuation. The distribution panel end of the "Gator

Patch” shall not be pulled through conduit at any time.

(B) Break-Away Connector System:

The Contractor shall install the break-away connector system to be anchored directly over the entrance to seal the conduit or the CSP can be anchor mounted adjacent to the conduit hole.

At the pull box locations shown in the project plans, the Contractor shall perform the required backbone cable fusion splicing between the 12-fiber branch cable(s) from the break-away connector system and the trunk cable. All splices shall be prepared in accordance with the manufacturer's recommendations. Each splice shall introduce less than 0.3 dB attenuation.

Testing:

See fiber optic testing requirements as they apply to the fiber cables connected to the gator patch distribution panel and break-away connector system items.

Method of Measurement:

(A) Gator Patch Distribution Panel:

Gator patch distribution panel will be measured as a unit each for a gator patch distribution panel furnished, installed and tested, complete in place.

(B) Break-Away Connector System:

Fiber optic break-away connector system will be measured as a unit each for a break-away connector system furnished, installed and tested, complete in place.

Basis of Payment:

(A) Gator Patch Distribution Panel:

The accepted quantities of gator patch distribution panels, measured as provided above, will be paid at the contract unit price each, which shall be full compensation for the work, complete in place, including terminating cables, lubricant, labels, cleaning and sealing, pigtails, jumper cables, and testing.

(B) Break-Away Connector System:

The accepted quantities of fiber optic break-away connector system, measured as provided above, will be paid at the contract unit price each, which shall be full compensation for the work, complete in place, including splicing and terminating cables, lubricant, labels, jumper cables, and testing.



City of Phoenix

ENTERPRISE INFORMATION TECHNOLOGY STANDARD

Domain: <i>INF Architecture Series</i>			Number: <i>200.215</i>	Standard Title: <i>Telecommunications Cabling Systems</i>			
Authorizing AR			AR 1.73				
Regulatory Standards			Refer to Section V. Related Policies, Standards, and Procedures				
Original Approval			11/01/2001				
Number	Version	Pages	Effective Date	Last Review	Next Review	Approved by	Distribution
200.215	4.0	49	09/22/2023	09/22/2023	09/22/2024	T. Magrini	

I. PURPOSE AND APPLICABILITY

This standard establishes the requirements for deploying and managing the physical layer inside and Outside the Plant of the City's telecommunications infrastructure. The goal is to ensure the City's telecommunications infrastructure meets customer needs, industry safety standards, technical and performance specifications, and warranty requirements.

Approval authority of a telecommunications infrastructure design, inspection, and acceptance rests solely with Information Technology Services (ITS). ITS will design telecommunications solutions that are technically appropriate to meet a department's present operational and business needs and those of the foreseeable future. The department must develop the design for specific facilities or functional area staff in partnership with ITS as part of the normal facilities design, review, and approval process.

NOTE: ITS is responsible for ensuring that all materials' installation shall be completed in a good and workmanlike manner and with the highest standards of the telecommunications industry. All work and materials must be in full accord with the requirements of the Arizona administrative code, the state fire marshal, the division of industrial safety, the National Electric Code, and other applicable city and state laws or regulations. Nothing in the specifications shall be construed to permit work not conforming to these codes and orders.

NOTE: Certain sections of this document will indicate requirements specific to the City's Aviation facilities.

II. BACKGROUND

A structured cabling system is the complete collective configuration of cabling and associated hardware at a given site installed to provide a comprehensive telecommunications infrastructure. This infrastructure is intended to serve a wide range of usage (i.e., telephone service, wired and wireless computer networks, Closed Circuit Television (CCTV), building automation, telecommunications rooms, etc.) and is not device dependent.

Domain: <i>INF Architecture</i>	Number: <i>200.215</i>	Standard Title: <i>Telecommunications Cabling Systems</i>
---	----------------------------------	---

This standard assumes the user is familiar with Telecommunications Distribution Systems, with the cable and hardware used in them, and with the installation of cabling in many different environments, including, but not limited to, LANs, MANs, and WANs as defined by the City. It is not intended as a training manual in telecommunication distribution systems or to replace existing industry standards.

III. DEFINITIONS

Authority Having Jurisdiction (AHJ) includes the fire marshal, building inspector, or any other local, state, or federal inspector having jurisdiction over a City facility.

Access Control and Monitoring Systems (ACAMS) monitors and controls the hardware used to secure the facilities at Sky Harbor Airport.

American National Standards Institute (ANSI) coordinates the U.S. voluntary consensus standards system, providing a neutral forum for developing policies on standards issues and serving as a watchdog for standards development and conformity assessment programs and processes.

American Standard for Testing and Materials (ASTM) is an international standards organization that develops and publishes voluntary consensus technical standards for various materials, products, systems, and services.

American Wire Gauge (AWG) is used since 1857 predominantly in North America for the diameters of round, solid, nonferrous, electrically conducting wire.

Backbone Segment incorporates all hardware and components associated with connecting MTR's, TR's within a building, or connectivity between buildings.

Baggage Handling System (BHS) is a conveyor system installed in airports that transports checked luggage from ticket counters to areas where the bags can be loaded onto airplanes. A BHS also transports checked baggage from airplanes to baggage claims or to an area where the bag can be loaded onto another airplane.

Building Administered Outlet is a device not typically controlled directly by a local user. Examples include closed-circuit cameras, wireless access points, and building automation systems.

Building Industry Consulting Service International (BICSI) provides information, education, and knowledge assessment for individuals and companies in the Information and Communications Technology industry.

Cable Television (Community Access Television) (CATV) receives television broadcasts by the antenna and relays them by cable to paying subscribers.

Computer Aided Dispatch (CAD) is used for emergency dispatch of fire crews. Also known as the Fire Station Alerting System.

Carrier-Owned Distributed Antenna System (DAS) is a network of antennas that sends and receives cellular signals on a carrier's licensed frequencies, thereby improving end-user voice and data connectivity.

Closed Circuit Television (CCTV) is a TV system in which signals are not publicly distributed but are monitored, primarily for surveillance and security purposes.

Domain: <i>INF Architecture</i>	Number: <i>200.215</i>	Standard Title: <i>Telecommunications Cabling Systems</i>
---	----------------------------------	---

Communications Plenum Cable (CMP) is a cable jacketed with a fire-retardant plastic jacket of either a low-smoke polyvinyl chloride (PVC) or a fluorinated ethylene polymer.

Common Use Passenger Processing System (CUPPS) enables airports, airlines, and their handling agents to access respective IT applications. From a user's perspective, Common Use Passenger Processing (CUPPS) operation is simple. After the workstation has been switched on, the user login screen is presented. The user enters a User ID and a password. These are validated and authenticated; if successful, an application 'menu' is displayed. The content of the menu varies according to the user and their access rights.

Common Use Self-Service (CUSS) is an airport kiosk dedicated to a specific airline or shared as common use by multiple airlines. The kiosk can be used for several self-service processes, including booking, changing a reservation, check-in, and bag tag printing.

Common Use Terminal Equipment (CUTE) is an IT solution that enables multiple airlines to use existing airport infrastructures to control passenger and flight processing through their servers. CUTE is comprised of both CUSS and CUPPS equipment.

Electro Magnetic Interference (EMI) is a disturbance generated by an external source that affects an electrical circuit by electromagnetic induction, electrostatic coupling, or conduction.

Electrical Metallic Tubing (EMT) encompasses an unthreaded listed steel raceway of the circular cross-section. Also commonly called a thin-wall.

Equipment Room (ER) is an environmentally controlled centralized space for telecommunications equipment that usually houses a primary or intermediate cross-connect.

Electronic Visual Informational Displays (EVID) are dynamics signage used to show flight information, gate information, and many other types of information at the airport.

EZ Path is a fire-rated pathway incorporating self-sealing intumescent pads that automatically adjust to the installed cable fill without user manipulation or maintenance.

Horizontal Segment are associated with connectivity from the MTR or TR to the work area.

House Fiber (HF) is a fiber optic cable installed within a building. It is also referred to as an intra-building fiber cable.

Insulation Displacement Connector (IDC) is an electrical connector designed to be connected to the conductor(s) of an insulated cable by a connection process that forces a selectively sharpened blade or blades through the insulation, bypassing the need to strip the jacket.

International Electrotechnical Commission (IEC) is an international standard-setting body that develops, maintains, and promotes standards in Information Technology and Information and Communications Technology.

Intermediate Metal Conduit (IMC) is a threaded steel tubing heavier than EMT but lighter than a rigid metallic conduit.

International Standards Organization (ISO) comprises representatives from various national standards organizations promoting worldwide proprietary, industrial, and commercial standards.

Local Area Network (LAN) is a network within a City facility or campus.

Domain: <i>INF Architecture</i>	Number: <i>200.215</i>	Standard Title: <i>Telecommunications Cabling Systems</i>
---	----------------------------------	---

Main Telecommunications Room (MTR) is communications services' main inter-building termination point. The MTR is the room that houses the telecommunications equipment that meets the entire building's voice, data, and other low-voltage needs. This equipment may include the phone system, service provider, LAN/MAN/WAN, and video distribution equipment. It contains cross-connect facilities for terminating cables and connecting the horizontal and backbone segments and telecommunications equipment. The MTR may also support other building information systems such as CATV, alarms, security, audio, and other telecommunications systems. An MTR can be co-located with a TR and/or a Building Entrance Facility and/or Equipment Room. MTR, ER, and EF specifications are identical for all three rooms.

Metropolitan Area Network (MAN) interconnects multiple City facilities, not within a campus, via City-owned fiber optic cable.

National Electrical Code (NEC) is a regionally adoptable standard for the safe installation of electrical wiring and equipment in the United States. It is part of the National Fire Codes series published by the National Fire Protection Association (NFPA), a private trade association.

National Fire Protection Association (NFPA) is a United States trade association, albeit with some international members, that creates and maintains private, copyrighted standards and codes for usage and adoption by local governments.

A **Passenger Boarding Bridge (PBB)** is an enclosed, movable connector that most commonly extends from an airport terminal gate to an airplane and, in some instances, from a port to a boat or ship, allowing passengers to board and disembark without going outside and being exposed to harsh weather.

Pedestrian Emergency Duress Systems (PEDS) are call boxes placed in public areas where patrons may need assistance. These calling units typically have a blue light that alerts responders to the location of the emergency.

Public Address System (PAS) sends prerecorded messages throughout the Airport. This is utilized to make announcements as well as fire alarm evacuation. Airlines have access to the page of the gate hold areas.

Remote Copper (RC) is a fiber optic cable that originates inside a building but terminates outside a building. It is also referred to as an inter-building fiber cable.

Registered Communications Distribution Designer (RCDD) is a BICSI certification for an individual who has demonstrated knowledge in the design, integration, and implementation of telecommunications and data communications/technology systems and related infrastructures.

Remote Fiber (RF) copper cable that originates inside a building but terminates outside a building. It is also referred to as an inter-building copper cable.

Radio Frequency Interference (RFI) is electromagnetic radiation emitted by electrical circuits carrying rapidly changing signals as a byproduct of their regular operation, which causes unwanted calls (interference or noise) to be induced in other courses.

ANSI accredits Telecommunications Industry Association (TIA) to develop voluntary, consensus-based industry standards for various Information and Communication Technologies products, and currently represents nearly 400 companies.

Domain: <i>INF Architecture</i>	Number: <i>200.215</i>	Standard Title: <i>Telecommunications Cabling Systems</i>
---	----------------------------------	---

Telecommunications Ground Bar (TGB) is a predrilled copper busbar with standard NEMA bolt-hole sizing. It centrally connects systems and equipment served by a telecommunications room.

Telecommunications Main Ground Busbar (TMGB) is the dedicated extension of the building grounding electrode system for the telecommunications infrastructure. All telecommunications grounding busbars and associated equipment are bonded to the TMGB.

Telecommunications Room (TR) is dedicated to distributing horizontal cables on the floor it is located. A TR may also be used for intermediate and primary cross-connects. It serves as the connection point between the work area and the MTR. The TR houses equipment for the voice, data, and other low-voltage needs of one floor of a building. The TR may also support other building information systems such as CATV, alarms, security, audio/Video, 800 MHz radio, wireless, and low-voltage telecommunications systems. An MTR and TR may be co-located within the same room. Additional space, racks, and electrical and cable management are required to support the MTR.

Telecommunications Service Request (TSR) is a form in SAP used by departments to formally request services from ITS Unified Communications Section.

Underwriters Laboratories (UL) is a global independent safety science company with more than a century of expertise in innovating safety solutions, from the public adoption of electricity to breakthroughs in sustainability, renewable energy, and nanotechnology.

Unshielded Twisted Pair (UTP) is the most used copper cable. The twisted pair is the copper wire that connects the work area to the TR. To reduce crosstalk or electromagnetic induction between pairs of wires, two insulated copper wires are twisted around each other without a shield.

User Administered Outlet that serves devices typically controlled directly by a user. These outlets are usually installed in cubicles and within hard-wall offices. Examples include telephones, computers, and printers.

Wide Area Network (WAN) that interconnects multiple City facilities via service providers.

IV. STANDARD

1.0 Information Technology Services (ITS) Responsibilities

- 1.1 ITS is responsible for all City inside and outside plant voice and data communications system facilities, network connectivity, and the associated backbone cabling per Administrative Regulation (A.R.) 1.73. These responsibilities include reviewing all project plans developed by others, including those mentioned in Table 1.

Project Plan	Description
Schematic	These are the initial planning documents and design drawings that assist departments in the early stage of the project. The Schematic Design documents shall consist of a system narrative, including MTR/TR information and campus connection points. The schematic design documents should also include drawings comprising titles, single-line diagrams and site plans. These plans may be part of the overall site and or electrical plan. ITS shall be provided Schematic Design documents for review at each stage of the schematic design

Domain: <i>INF Architecture</i>	Number: <i>200.215</i>	Standard Title: <i>Telecommunications Cabling Systems</i>
---	----------------------------------	---

Project Plan	Description
	process and be provided a minimum of ten workdays from the date documents are received by ITS for review and return of comments.
Design Development	As the architectural design progresses, overlays are developed to show the various structures and systems planned for the building. Design Development documents shall consist of outline specifications. Drawings should include a title sheet, single line diagram site plan, enlarged floor plans of the proposed MTR/TR, and details. ITS shall be provided Design Development documents for review at each stage of the design development process and be provided a minimum of 15 workdays from the date documents are received by ITS for review and return of comments.
Construction Documents	These documents depict the final design before bid submittal is undertaken. The Construction Documents shall consist of a completed cabling specification and drawing set. ITS shall be provided Construction Documents for review at each stage of the construction document process and be provided a minimum of fifteen workdays from the date documents are received by ITS for review and return of comments.
Working Copy	The bid copy
Final Documentation and Drawings	These drawings and documents represent the project as finally constructed and delivered.

Table 1

2.0 The Telecommunications System Design and Install Process

This standard provides a minimum configuration that ITS uses when planning new construction, remodeling, and/or any existing facility's ADDS, MOVES, OR CHANGES. ITS shall be consulted during the early planning phase of all projects.

2.1 The Telecommunications Distribution System design process is broken down into eight segments, as shown in Table 2:

Segment	Description
Functional Requirements	The physical elements required to support telecommunications needs within a specific environment.
Horizontal Segment	Workstation outlets, cabling to the Telecommunications Rooms (TR), and all associated pathways.
Inside Plant Backbone Segment	Backbone cable and the sleeves, slots, and conduits enable the cable to pass from floor to floor: Main Telecommunication Room (MTR) to the TR.
Outside Plant Backbone Segment	The cabling and infrastructure that interconnects buildings on a campus or buildings within a metro area to form a Metropolitan Area Network (MAN).
Main Telecommunication Room (MTR),	The room houses common system equipment and hardware for terminating the campus and backbone cables. The Equipment Room (ER) provides space and maintains a suitable operating

Domain: <i>INF Architecture</i>	Number: <i>200.215</i>	Standard Title: <i>Telecommunications Cabling Systems</i>
---	----------------------------------	---

Segment	Description
Equipment Room (ER), and Entrance Facility (EF)	environment for large telecommunications and/or computer equipment. The Entrance Facility (EF) is the space or room where outside telecommunications utilities enter the building. This space is usually used as the demarcation point for telecommunications terminations for the building. These rooms may all be contained within the same space.
The Telecommunication Room (TR)	The hardware (i.e., patch panels, punch-down blocks, and racks) for terminating the cabling from the workstation outlets, electronic equipment, and Backbone cables.
Special Systems	Any cabling system used for devices outside traditional voice and data networks. Examples are Cable Television (CATV), Closed Circuit Television (CCTV), Fire Alarms, Access Control, and paging.
Infrastructure Documentation	A set of guidelines for documentation related to all cabling system projects (i.e., floor plans, splice details, jack numbers, etc.)

Table 2

3.0 Functional Requirements

- 3.1 Functional requirements generally refer to the physical elements required to support telecommunications needs within a specific environment. ITS shall determine the telecommunications infrastructure required. The expected life cycle for telecommunications infrastructure is a minimum of 15 years.

4.0 The Horizontal Segment

- 4.1 General design considerations for the Horizontal Segment include the following:
- 4.1.1 All 4 pair unshielded twisted pair (UTP) or fiber optic cables shall be installed using a star topology from the TR on each floor to every work area outlet. ITS shall approve all cable routes before installation.
 - 4.1.2 All horizontal cables serving the floor areas shall originate from an MTR or TR.
 - 4.1.3 The horizontal cables shall be installed in cable trays, hard walls, surface mount raceways, conduits, and modular furniture poles. Pathways will be constructed from J-hooks and wire basket trays.
 - 4.1.4 Wire basket tray is the preferred cable pathway. Cable pathways shall be designed to avoid sources of Electro Magnetic Interference (EMI) and Radio Frequency Interference (RFI) (i.e., fluorescent lighting fixtures, air handling motors, and power distribution panels).
 - 4.1.5 Horizontal cables shall not be installed parallel to electrical conduits. Electrical conduits shall not be used as a method of support. Every cable, individual or many groups, shall be self-supported. Wherever possible, cable shall be grouped in pathways. Cable bundle quantities shall conform to NEC. Bundle sizes shall not exceed 36 cables. Velcro straps shall be used for cable management. Plastic cable ties shall not be used.
 - 4.1.6 All material in plenum spaces shall be plenum rated.
 - 4.1.7 In hard wall offices, cables are to be routed within walls. A vertical surface mount raceway shall be used if the cable cannot be installed within the wall.

Domain: <i>INF Architecture</i>	Number: <i>200.215</i>	Standard Title: <i>Telecommunications Cabling Systems</i>
---	----------------------------------	---

- 4.1.8 At modular furniture workstations (cubicles), route horizontal cables within modular furniture poles and chases to non-metallic faceplates. A non-metallic gray or black liquid tight flexible conduit with a corresponding wall adapter will protect the cable from the wall to the cubicle chase.
- 4.1.9 Horizontal cables for building administered outlets may be directly connected to devices using an eight-pin conductor modular plug (RJ45).
- 4.1.10 Horizontal cables for user-administered outlets shall not be connected directly to telecommunications equipment. Suitable connecting hardware (i.e., patch panels, patch cables, jack modules, and punch-down blocks) shall be used to connect to complete a channel link as defined in TIA 568. These outlets are typically installed at or below 72" above the finished floor (AFF).
- 4.1.11 The installation for all horizontal cables shall adhere to the specifications identified in the current Telecommunication Industry Association (TIA) 568 Commercial Building Wiring Standards and Building Industry Consulting Service International (BICSI) standards. Care shall be taken with installation not to over-pull, kink, and/or over-bend the cable. Care shall also be taken to ensure that nicks, abrasions, burning, and cable scuffing are prevented during the installation. Cables found to be damaged shall be replaced at the contractor's expense, regardless of whether the cable passes Category 6/6A testing standards.
- 4.1.12 Care is required to manage the horizontal cable as it enters telecommunications rooms. All cables shall be neatly organized, routed, and secured with Velcro straps to the cable support systems and management hardware in an aesthetically pleasing manner. Cable shall have the appearance of being combed, with no tangles. Cable overlap shall be kept to a minimum.
- 4.1.13 All Category 6/6A cables shall be tested per Standard 6/6A permanent link performance level standards. Complete testing shall be done on all horizontal cabling and backbone cabling between the MTR, TR, and workstations.
- 4.1.14 Category 6/6A termination methods shall be followed for termination at patch panels and work area outlets. Specific care shall be taken to maintain pair twists up to the point of termination within 1/2'.
- 4.1.15 Horizontal UTP cable shall never be spliced.
- 4.1.16 All conductive cabling and associated components shall comply with the current version of The National Fire Protection Association (NFPA) 75, National Electrical Code (NEC). Furthermore, all fiber optic cabling shall comply with Article 770 of the NEC.
- 4.1.17 Complete testing shall be done on all horizontal cabling and backbone cabling between the MTR/TR, Building entrance, and workstations.
- 4.2 The Configuration of Outlets (two configurations):
 - 4.2.1 The **Single Drop** design consists of one (1) 8-pin conductor (8p8c) jacks or modular plug terminated on one (1) Category 6/6A plenum or OSP UTP cable. The cable shall be terminated on rack-mounted patch panels in the TR. Single drops will be terminated as the following available number on the patch panel and labeled as the A cable. The next port on the patch panel shall be left empty to accommodate a future B cable.
 - 4.2.2 The **Dual Drop** design consists of two (2) 8p8c jacks terminated on two (2) Category 6/6A plenum UTP cables. Two (2) cables shall be terminated on a rack-mounted patch

Domain: <i>INF Architecture</i>	Number: <i>200.215</i>	Standard Title: <i>Telecommunications Cabling Systems</i>
---	----------------------------------	---

panel in the TR. Dual drops will be terminated as the following available number on the patch panel is labeled cable A and B.

NOTE: If additional cables are required, dual drops can be added to the same faceplate. A new jack number may only be composed of A and B cables. Therefore, C and D cables are not permissible.

4.3 Cable Types and Lengths

4.3.1 Two types of cables shall be used in the horizontal segment:

4.3.1.1 UTP cable will be 4-pair, 24 AWG, solid conductor cabling that meets current ANSI/TIA/EIA 568-B cabling specifications for Category 6/6A/6A cable, to include any/all Amendments and Bulletins. It must meet specified specifications and performance requirements.

4.3.1.2 Fiber optic cable will be single-mode or 50-micron laser-optimized multi-mode, graded index, and loose or tight-buffered cable.

4.3.1.3 Approved manufacturers for copper and fiber include Berk-Tek copper/fiber, Superior Essex copper, Corning fiber, Prysmian fiber, or approved equal.

4.3.1.4 All cables to the designated work area shall be installed per current TIA 568 building standards. All cables shall be terminated on Category 6/6A angled patch panels within the TR and on Category 6/6A rated 8p8c modular jacks or connectors at the work area.

4.3.1.5 The maximum lengths of horizontal distribution cables, including the service loop from the work area to the TR, shall not exceed 295 feet.

4.3.1.6 Patch cables and cross-connect jumpers in the TR will not exceed 20 feet.

4.3.2 Horizontal cabling shall conform with Underwriters Laboratories Incorporated (UL) Listed Type Communications Plenum Cable (CMP) or Outside Plant (OSP) as defined in the National Electrical Code. The cable sheath will be marked with the UL listing.

4.3.3 All patch cables and cross-connects that attach directly to active equipment shall meet the same or better performance requirements as the installed cabling system.

4.3.4 Care shall be taken to maintain minimum bending radii and to avoid kinking when dressing excess cable at termination locations.

4.3.5 Cable service slack of 8 feet shall be provided at both ends of cable runs to accommodate future cabling system changes when possible.

4.3.6 Service slack placed during the installation of 4-pair horizontal cables shall be coiled neatly above the ceiling in a figure-eight configuration.

4.3.7 Service slack placed during the installation of fiber optic cables should be coiled neatly above the ceiling in an extensive loop configuration that will meet the manufacturer's minimum bend radius requirements.

4.4 Termination of Hardware Requirements at the Outlet

4.4.1 Each UTP plenum or OSP Category 6/6A cable will terminate all four pairs at the outlet with an 8-pin, 8-conductor universal T568 modular jack or plug. Modular plugs shall be used for facility-administered outlets (i.e., CCTV, card access, Wi-Fi). All jacks, plugs, and patch panels will be terminated in a T568-B configuration.

4.4.2 Faceplates for any designated outlets shall be from the same manufacturer with coinciding part numbers for the jacks being used.

Domain: <i>INF Architecture</i>	Number: <i>200.215</i>	Standard Title: <i>Telecommunications Cabling Systems</i>
---	----------------------------------	---

- 4.4.3 Faceplates shall be a single-gang 2-position configuration for hard walls and furniture applications.

See [Section 7](#) for special systems-specific termination hardware requirements.

- 4.4.4 Closed-Circuit Television (CCTV Cameras) outdoor locations shall also use a four-square ceiling box with a minimum depth of 3-1/2". A four-pair plenum cable inside the box shall terminate on a single-position Ortronics surface mount box. A maximum 8' whip should be secured to a ceiling tile grid bracket. The ceiling tile grid bracket shall contain a four-square ceiling box with an industry-standard mud ring to mount the end device.
- 4.4.5 CCTV wall locations, where aesthetics is not a concern, shall also use a surface mount four square boxes with a minimum depth of 3-1/2". Inside the box, four plenum cables shall terminate on a single-position Ortronics surface mount box. A maximum 8' whip shall be secured within or to the wall. Refer to manufacturer specifications for camera mounting instructions.
- 4.4.6 Building Management System (BMS) locations shall use a surface mount of four-square boxes with a minimum depth of 3-1/2" where a single position Ortronics surface mount box shall be mounted. BMS contractor shall provide a pathway and patch cord from the surface mount box to the ethernet port on the device.
- 4.4.7 Power Over Ethernet (POE) Lock locations shall use a recessed four-square box with a minimum depth of 3-1/2" where a single position Ortronics surface mount box shall be mounted. The lock hardware contractor shall provide a pathway and patch cord from the surface mount box to the ethernet port on the device.

4.5 Workstation Identification

- 4.5.1 ITS assigns the workstation identification labeling scheme and is crucial to the structured cabling system.
- 4.5.2 Workstation identification shall be labeled with computer-generated labels or by an ITS-approved label maker. No workstation identification numbers will be handwritten. All labels shall be black lettering on white tape.
- 4.5.3 Workstation identification numbers will be completed at the beginning of Construction Document preparation. The installation contractor shall develop a hard copy of the workstation identification numbers.
- 4.5.4 The workstation identification number will be placed on the faceplate and panel at the entry of a cubical area. Hard wall offices will have a label placed approximately 60" above the finished floor on the hinged side of the door frame.
- 4.5.5 All cables shall be labeled with a computer-generated label within 4" of the Jack and within 2" to 4" from the Patch Panel. Cable 1 will be labeled with an (A); Cable 2 will be labeled with a (B) (Example: PCH-01NC001A PCH-01NC001B).

4.6 Structures for Supporting the Horizontal Cabling

- 4.6.1 Special attention shall be given when designing and installing the type and layout of structures to support the horizontal cabling. The design and installation shall accommodate all foreseeable cabling changes for future capacity and applications.

Domain: <i>INF Architecture</i>	Number: <i>200.215</i>	Standard Title: <i>Telecommunications Cabling Systems</i>
---	----------------------------------	---

- 4.6.2 The City of Phoenix requires that the spaces above the ceiling grid and under a raised floor shall be used to route the horizontal cabling.
- 4.6.3 Hard walls and power poles shall be used in the work area for vertical pathways.
- 4.6.4 Freestanding relay racks, Heavy Duty 19" x 84", drilled on both sides per TIA with universal thread standards, properly anchored will be used. Wall mount racks can only be used with ITS written approval.
- 4.6.5 When cable tray is not feasible to install, cable supports (J-Hooks) or pipe (EMT or IMC if required) shall be used. J-Hooks shall be installed by means that are structurally independent of the suspended ceiling, its framework, or supports. These cable supports shall be spaced no more than 5 feet apart.

AVIATION-SPECIFIC REQUIREMENT FOR SECTION 4.6.5

J-Hooks shall not be used within Aviation facilities. A cable tray shall be utilized for the main pathway with extensions to wall outlets in a minimum ¾" conduit.

- 4.6.6 If cable tray is not feasible, then conduit shall be utilized for the entire pathway.
- 4.6.7 Cable trays shall be wire basket trays. They shall be at least 18 inches wide and 2 inches deep. Smaller buildings and secondary tray sections serving fewer than 50 work areas may utilize a 12-inch-wide tray.
- 4.6.8 A wire basket tray shall be used for TR cable management and rack support. Velcro cable ties shall be used to create a neat and practical installation. Bundle sizes shall conform to NEC.
- 4.6.9 Cable trays shall be secured on 5-foot centers using standard trapeze or angled wall bracket support.
- 4.6.10 It is important that the path for the cable tray is free and clear of obstructions, such as HVAC ducts, large pipes, and structural beams within the building. Specified Technologies, Inc. EZ Path fire-rated pathways or approved equivalent shall be used to penetrate fire-rated walls.
- 4.6.11 Cable trays shall be grounded and bonded as required by the manufacturer and NEC.
- 4.6.12 Cable trays will not be placed within 5 inches of any overhead light fixture and 12 inches of any electrical ballast.
- 4.6.13 Cable trays shall not be installed parallel to the building lighting system.
- 4.6.14 A minimum clearance of 8 inches above the cable tray shall always be maintained. All bends and joints in the cable trays shall be fully accessible.
- 4.6.15 A minimum size ¾ inch EMT conduit shall be used from hard wall workstation outlets and stubbed into the nearest accessible ceiling space. Furniture feed cables will be installed in a power pole or down a wall with the appropriate conduit size. Conduit shall not exceed the industry standard 40% fill ratio. Calculations shall be based on manufacturers' specifications.
- 4.6.16 All firewalls requiring penetration for low voltage cabling pathways shall be fire-stopped by the NEC NFPA-75 and all local and statutory codes. Use of STI EZ Path products or approved equivalent is required. If EZ Path cannot be used, sleeves with connectors and plastic bushings on both ends and be adequately anchored to walls (e.g., anchored Unistrut with strut clamps) shall be used. Every fire stop location shall be a UL-listed solution labeled accordingly at each penetration.
- 4.6.17 Conduit will be installed with a pull string with a minimum test rating of 200 pounds.

Domain: <i>INF Architecture</i>	Number: <i>200.215</i>	Standard Title: <i>Telecommunications Cabling Systems</i>
---	----------------------------------	---

- 4.6.18 The ends of all conduits will be reamed and have connectors to eliminate sharp edges that can damage cables during installation.
- 4.6.19 Conduit runs shall be designed and installed to:
- 4.6.19.1 Follow the most direct route possible with no more than two 90-degree bends between pull points.
 - 4.6.19.2 Contain no continuous sections longer than 100 feet. Pull points shall be used for runs that exceed 100 feet in length. Pull box sizes shall be specified to meet the bend radius requirements for the cable.
- 4.6.20 Conduit shall be bonded to the ground on one or both ends.
- 4.6.21 Conduit shall not be installed through areas where flammable materials may be stored, over, or adjacent to boilers, incinerators, hot water lines, or steam lines.
- 4.6.22 The radius of a conduit bend shall be at least 6 to 10 times the diameter of the conduit, depending on its size. Choose the bend radii for the conduit using the cable manufacturer's specifications for installation.
- 4.6.23 A 4"x4"x2 1/2" back box with a single gang plaster ring shall be used at each work area for cable installations.
- 4.6.24 A metal/plastic single gang box eliminator will be required for existing installations.
- 4.6.25 For additional information on conduit bend radius requirements and recommendations, see ANSI/NFPA 75 and TIA 569 specifications.
- 4.6.26 Cable tray shall not be used in an exposed outdoor environment.
- 4.6.27 Cable tray shall only be used for low voltage cabling. Dividers are to be used to separate cable types and systems, as shown in Table 3.

AVIATION-SPECIFIC REQUIREMENT FOR SECTION 4.6

Conduit shall be factory anodized in color as stated below. Where the conduit system is painted, all junction boxes shall be required to be painted to match the system color. On junction boxes that are larger than 16 inches square, only the cover of the box needs to be painted.

Conduit Type	Color
Power – Normal System	None (Galvanized)
Emergency Power – All Systems	Orange
Communications/Data	Yellow
HVAC Controls/BMS	White
Fire Alarm/Life Safety	Red
Public Address System (PAS)	Blue
PAS used for Fire Alarm	Blue with Double Red Stripe
Access Control and Monitoring	Green

Table 3

5.0 The Inside Plant Backbone Segment

5.1 General Design Considerations for the Inside Plant Backbone Segment:

- 5.1.1 The Inside Plant Backbone Segment provides copper and optical fiber connectivity to the TR between the MTR, EF, and the MTR.
- 5.1.2 The Inside Plant Backbone Segment comprises the backbone cable and the supporting infrastructure within a building.

Domain: INF Architecture	Number: 200.215	Standard Title: Telecommunications Cabling Systems
------------------------------------	---------------------------	--

- 5.1.3 All copper backbone cables shall be terminated on a 110-type termination block in the MTR and TR for all new construction. A 66-style punch-down block will be accepted for installations on existing termination blocks.
- 5.1.4 All punch-down blocks shall be wall-mounted on a minimum of 4ft x 8ft x ¾ in. A/C rated fire-retardant-treated plywood with stamp clearly visible on all applicable MTR and TR walls. Non-fire-retardant treated plywood may be used if plywood is painted with 2 coats of fire-retardant paint. The stamp on any painted fire-retardant-treated plywood shall remain visible.

AVIATION-SPECIFIC REQUIREMENT FOR SECTION 5.1.4

Fire-retardant treated plywood painted with 2 coats of fire-retardant paint shall be used. The stamp on any painted fire-retardant-treated plywood shall remain visible.

- 5.1.5 Inside plant copper backbone cables shall consist of 24 AWG, category 3 or better, multi-pair cables, riser, or plenum rated as applicable.
- 5.1.6 All single-mode backbone fiber shall be terminated using SC connectors. All multimode backbone fiber shall be terminated using LC connectors.

AVIATION-SPECIFIC REQUIREMENT FOR SECTION 5.1.7

Multimode fiber shall not be used within Aviation facilities.

- 5.1.7 Multi-pair copper, multimode fiber (OM3/OM4), and single-mode fiber (OS1/OS2) is acceptable for backbone cabling.

5.2 The Size of the Copper Backbone Cable

- 5.2.1 The backbone cable's size depends on the number of service provider circuits (i.e., DSL, 1FB, etc.) being supported by the TR on that floor.
- 5.2.2 The most commonly available cable sizes are 25, 50, and 100 pairs.
- 5.2.3 The minimum number of copper cable pairs required for each type of outlet is project specific and will be determined by ITS during the design phase.

5.3 The Size of the Fiber Optic Backbone Cable

- 5.3.1 The size of the fiber optic cable from the MTR to the TR will be no less than a 12-strand multimode or single-mode. ITS shall determine the fiber type during the design phase.

AVIATION-SPECIFIC REQUIREMENT FOR SECTION 5.3

Each fiber cable routed to each TR shall be comprised of (2) 72 strands of single-mode fiber in diverse pathways.

5.4 Structures to Support Vertically Aligned TR

- 5.4.1 TR's that are vertically aligned shall be connected with EZ Path or approved equivalent.
- 5.4.2 Floor penetrations shall be positioned a minimum of 4 inches away from the near wall on which the backbone cables can be supported.
- 5.4.3 Penetrations shall not be placed directly above or below the termination fields.
- 5.4.4 All floor penetrations installed shall conform to the NFPA, NEC, and local fire codes.

Domain: <i>INF Architecture</i>	Number: <i>200.215</i>	Standard Title: <i>Telecommunications Cabling Systems</i>
---	----------------------------------	---

- 5.4.5 Penetrations shall always be properly fire-stopped using a UL-listed solution in accordance with all applicable building codes.
- 5.4.6 If sleeves are used, they shall have connectors on both ends and be properly anchored to walls (e.g., anchored Unistrut with strut clamps).
- 5.4.7 STI EZ Path or approved equivalent sleeves shall be used whenever possible. If conduit sleeves are required, they shall be 4 inches in diameter unless a structural engineer requires a smaller size or obstructions are present and equipped with pull strings. Sleeves shall not exceed 40% of the conduit fill ratio.
- 5.5 Structures to Support Horizontally Offset TR
 - 5.5.1 ITS recommends stacking all TRs within a building; ITS also understands that there are times when this is not possible.
 - 5.5.2 TRs that are not vertically aligned shall be connected with cable trays and/or conduits.
 - 5.5.3 ITS shall determine the number of conduits required. Conduit capacity shall not exceed a 40% fill ratio.
 - 5.5.4 Pull boxes are required in sections of conduit 100 feet or more in length or containing more than two 90° bends. Pull boxes shall not be used in lieu of a bend.
 - 5.5.5 Cable trays and conduit that are used to support horizontal cabling may be used to support backbone cables provided the following conditions are met:
 - 5.5.5.1 The cable trays' carrying capacity can accommodate the backbone cables.
 - 5.5.5.2 The backbone cables shall be UL Listed Type CMP if they are installed in air-handling plenums without conduit.
 - 5.5.5.3 The backbone cables conform to NEC and comply with the State of Arizona and other AHJ fire codes as interpreted by the State Fire Marshal's department.
 - 5.5.5.4 Conduit shall be used to route the backbone cables between the TR wherever feasible.
 - 5.5.5.5 Conduit shall be grounded and bonded at each end.
 - 5.5.5.6 Conduit shall be installed with a mule tape with footage markers and connectors at both ends to protect the cable from damage.
 - 5.5.6 Cable trays and conduits that enter the TR shall be placed near the corner and as close as possible to the wall where the backboard is mounted to allow for proper cable racking and to minimize the cable route inside the TR.
 - 5.5.7 Cable trays and conduits in the ceiling shall protrude into the TR 4 inches and a minimum of 7 ½ feet above the finished floor.
 - 5.5.8 All backbone cables are to be labeled based on a cable number assigned by ITS.
 - 5.5.9 Performance tests are required for acceptance of newly installed cables. All field testing shall comply with the latest version of the TIA 568 Commercial Building Telecommunications Wiring Technical Service Bulletin specification.

AVIATION-SPECIFIC REQUIREMENT FOR SECTION 5.5

A cable tray shall not be used for backbone cabling; it is to be installed in a dedicated conduit.

6.0 The Outside Plant Backbone Segment

6.1 General Design Considerations

Domain: <i>INF Architecture</i>	Number: <i>200.215</i>	Standard Title: <i>Telecommunications Cabling Systems</i>
---	----------------------------------	---

- 6.1.1 The Outside Plant Backbone Segment comprises the cables and structures needed to interconnect building-to-building and building-to-metro area distribution frames (MADFs). It includes underground conduits, cables, splice boxes, manholes, pull boxes, outside terminals, and support structures.
 - 6.1.2 ITS shall be consulted during a project's early utilities planning phase to provide technical requirements for the Outside Plant Backbone Segment.
 - 6.1.3 ITS shall be responsible for the review and approval of all cable routes from building to building, cable distribution methods, underground cable requirements, types of cable used in the segment, splice cases, manhole and pull box requirements, and electrical protection and bonding/grounding requirements.
 - 6.1.4 All Outside Plant Backbone Segments shall be designed and installed according to BICSI Telecommunications Distribution Methods Manual (TDMM), BICSI Customer-Owned Outside Plant manual, and TIA-758 Specifications for Outside Plant Construction.
- 6.2 Cable Distribution
- 6.2.1 ITS shall review and approve the cable distribution method along a proposed cable route. All Outside Plant cabling shall be placed in conduits. Neither direct buried nor aerial cable are approved distribution methods.

AVIATION-SPECIFIC REQUIREMENT FOR SECTION 6.2

The use of FAA duct banks for underground routing may be an option through the Airport's Joint Use Agreement with the FAA. Aviation will work with FAA on all OSP designs when utilizing joint vaults for Outside Plant Cable Distribution.

- 6.3 Conduit Requirements
- 6.3.1 Underground cabling in conduit cable projects shall be installed based on engineering drawings approved by ITS.
 - 6.3.2 All submitted drawings and documentation shall include the following:
 - 6.3.2.1 Submittals and/or details of a typical trench cross section showing cable and duct locations in the trench, clearances from final grade, backfill materials and depths, pavement cutting information, and compacting requirements for both paved and unpaved areas.
 - 6.3.2.2 Construction notes applicable to the work being performed.
 - 6.3.2.3 Scale drawings showing location ties to existing structures, cable, conduit, utility boxes, and any conflicting substructures and profile drawings of congested areas where vertical and horizontal separation from other utilities is critical during cutting and placing operations.
 - 6.3.2.4 Legends explaining symbols of all relevant structures and work operations.
 - 6.3.2.5 Cable type and counts, and directions of feed.
 - 6.3.2.6 Conduit types, dimensions, and wall-to-wall measurements when used with pull boxes or manholes.
 - 6.3.3 All areas around the conduit entrances shall be free of any construction, storage, or mechanical apparatus.
 - 6.3.4 Conduit stubs entering the building shall extend beyond the perimeter landscaping. All conduit ends adjacent to the building shall be flagged for easy identification.

Domain: <i>INF Architecture</i>	Number: <i>200.215</i>	Standard Title: <i>Telecommunications Cabling Systems</i>
---	----------------------------------	---

- 6.3.5 All unused entrance conduits shall be capped and installed with a minimum 1250-pound detectable mule tape. A tracer wire installed outside the conduit is also acceptable.
- 6.3.6 Conduit entering from a below grade point shall extend 4 inches above the finished floor.
- 6.3.7 All cables entering a building shall conform to the grounding and bonding requirements listed in NEC Articles 250 and 800.
- 6.3.8 All utilities shall be identified and located before digging, including all subsurface facilities such as power, gas, water, traffic, and outdoor lighting.
- 6.3.9 Orange warning tape containing metallic tracings shall be placed a minimum of 18 inches above the buried conduits to minimize any chance of an accidental dig-up.
- 6.3.10 The minimum depth of a trench shall allow 36 inches of cover from the top of the conduit to the final grade point. See NEC 300 for conditions about other depths. Thirty-six (36) inches of half-sack slurry is recommended. For trench detail information, see [Figure #1](#).
 - 6.3.10.1 The following minimum vertical or horizontal separations shall be maintained between telecommunications and other facilities sharing a common trench.
 - 6.3.10.2 Power or other foreign conduits: 3 inches of concrete, 4 inches of masonry, or 12 inches of well-tamped earth.
 - 6.3.10.3 Pipes such as gas, oil, and water: 6 inches when crossing, 12 inches when parallel.
 - 6.3.10.4 Railways: 3 feet below the top of rails.
- 6.3.11 Conduit shall be encased in concrete when the following conditions exist:
 - 6.3.11.1 Minimum conduit depth cannot be attained.
 - 6.3.11.2 Conduit shall pass under roads, driveways, railroad tracks, or when bend points are subject to movement.
 - 6.3.11.3 Conduit contains high-priority/mission-critical services as determined by ITS.

AVIATION-SPECIFIC REQUIREMENT FOR SECTION 6.3.11

Refer to Aviation Underground Standard for more information on encasing the conduit in concrete.

- 6.3.12 Reinforcing bars and/or crutches within the concrete shall be used at any location subject to potentially extreme stress.
- 6.3.13 The conduit shall be sealed inside the building to prevent rodents, water, or gases from entering the building.
- 6.3.14 All bends shall be extended, sweeping bends with a radius not less than 6 times the internal diameter of a conduit 2 inches or smaller or 10 times the inner diameter of a conduit larger than 2 inches.
- 6.3.15 Underground conduit shall be PVC Schedule 40, corrosion-resistant plastic.
- 6.3.16 There shall be no more than two 90-degree bends or 600 feet between pulling points on all underground cables without prior ITS approval.
- 6.3.17 Conduit bends that extend above ground shall be metallic.
- 6.3.18 All metallic conduits shall be reamed, bushed, and capped.
- 6.3.19 Metal conduits through foundation floors and/or walls shall extend to undisturbed earth to prevent shearing.

Domain: <i>INF Architecture</i>	Number: <i>200.215</i>	Standard Title: <i>Telecommunications Cabling Systems</i>
---	----------------------------------	---

- 6.3.20 All open conduits shall be provided with a continuous run of 2500-pound detectable mule tape.
- 6.3.21 The minimum number of conduits for any cable installation shall be two 4-inch conduits with a continuous 2500-pound detectable mule tape.
- 6.3.22 All fiber or copper conduits shall continuously run 2500-pound detectable mule tape.
- 6.3.23 The contractor shall schedule an inspection with a minimum of 48-hour advance notice with ITS after conduit and manholes are installed but before slurry and dirt backfill.
- 6.3.24 All underground conduits shall be mandrel and free of debris before acceptance. The contractor shall notify ITS with a minimum of 48-hour advance notice before the mandrel start date.
- 6.4 Cable Requirements
 - 6.4.1 Two cable types are approved for use in the Outside Plant Backbone Segment: multi-pair copper cable and fiber optic cable.
 - 6.4.2 All underground copper cable requires an armored sheath to resist rodent and penetration-type damage.
 - 6.4.3 All cables shall be marked with the cable length, cable code, date, and manufacturer's location.
 - 6.4.4 Outdoor optical fibers shall be contained in loose buffer tubes containing 12 fibers. The fibers shall not adhere to the inside of the buffer tube. Each thread shall be distinguishable using color coding by EIA- 598-, Optical Fiber Cable Color Coding.
 - 6.4.5 The cable shall contain at least one ripcord under the inner sheath and the steel armor for armored cable.
 - 6.4.6 All cable jackets or sheaths shall be free from holes, splits, and blisters.
 - 6.4.7 The cable jacket shall contain no metal elements and shall be of a consistent thickness.
 - 6.4.8 The actual length of the cable shall be within -0/+1% of the length markings.
 - 6.4.9 The cable jacket of a cable containing two different fiber types (hybrid construction) shall be marked to indicate the quantity of each fiber type, the identity of each fiber type, and the fiber sequence.
 - 6.4.10 The manufacturer's maximum pulling tensions shall not be exceeded during cable installation.
 - 6.4.11 ITS-approved manufacturers include Corning, Berk-Tek, Essex, AFL, Prysmian, or approved equivalent.
 - 6.4.12 ITS approved fiber types are OM3 and OM4 laser optimized, and single-mode fiber.
 - 6.4.13 All single-mode backbone fiber shall be terminated using SC connectors. All multimode backbone fiber shall be terminated using LC connectors.
- 6.5 Manhole and Handhole Requirements
 - 6.5.1 A standard minimum manhole size shall be 4 feet wide, 4 feet long, and 4 feet deep. See [Figure #2](#) for more information.
 - 6.5.2 A standard hand hole size shall be 28 inches wide, 38 inches long, and 38 inches deep. See [Figure #8](#) for more information.
 - 6.5.3 Manholes shall be used when a pull point is needed within any right of way, when a splice is needed, or when a conduit over 3 inches in diameter is installed. Hand holes shall be used in landscape areas where conduits 3 inches or less in diameter are installed. ITS will make the final determination on which type of pull point is required.

Domain: <i>INF Architecture</i>	Number: <i>200.215</i>	Standard Title: <i>Telecommunications Cabling Systems</i>
---	----------------------------------	---

- 6.5.4 The required traffic rating for each manhole and handhole shall be appropriate for each location. For detailed information regarding traffic-rated lid specifications, cable racking, and manholes, see [Figure #2](#).

AVIATION-SPECIFIC REQUIREMENT FOR 6.5.4

Aircraft-rated lids shall be used as required. See [Figure #4](#) for more information.

7.0 The Main Telecommunications Room (MTR), Equipment Room (ER), and Entrance Facility (EF)

7.1 Design Requirements

- 7.1.1 Rooms shall adhere to requirements defined in the NEC, NFPA 75, and other applicable codes.
- 7.1.2 Minimum ceiling height shall be 8 feet, 6 inches.
- 7.1.3 The doors shall be at least 3 feet wide and 6 feet, 8 inches tall. The doors must be lockable.
- 7.1.4 The floor shall be sealed concrete or static dissipative tile to minimize dust and static electricity.
- 7.1.5 Environmental requirements
- 7.1.5.1 Rooms shall contain continuous and dedicated environmental control (24 hours per day, 365 days per year). The heating, ventilation, and air conditioning system shall maintain the room temperature between 64° F and 75° F. The relative humidity shall be sustained between 30% and 55%.
- 7.1.5.2 Ensure that the air handling system for the equipment rooms can provide positive airflow and cooling, even when the central building systems are shut down. These units should be located outside of the room.
- 7.1.5.3 Provide split system air conditioning units that follow the sequence of operation indicated on the Contract Drawings for each equipment room space.

AVIATION-SPECIFIC REQUIREMENTS FOR 7.1.5.3

- Provide redundant split system air conditioning units that follow the sequence of operation indicated on the Contract Drawings for each equipment room space.
- Air handlers are to be thermostatically controlled.
- Provide heating, ventilation, and air conditioning sensors and control equipment that are monitored by a monitoring system.

- 7.1.6 The room should not have a drop tile or other false ceiling. An open ceiling is preferred.
- 7.1.7 The lighting shall provide a minimum of 50-foot candles when measured 3 feet above the finished floor.
- 7.1.8 All light fixtures shall be mounted at least 8 feet, 6 inches above the finished floor.
- 7.1.9 All controls and light switches shall be located inside the room.
- 7.1.10 All walls shall be lined with 3/4-inch fire-treated plywood with a stamp clearly visible. 3/4-inch A/C Grade non-treated plywood can be used if painted with two coats of white fire-retardant paint. The plywood shall be securely fastened to the wall-framing members.

Domain: <i>INF Architecture</i>	Number: <i>200.215</i>	Standard Title: <i>Telecommunications Cabling Systems</i>
---	----------------------------------	---

AVIATION-SPECIFIC REQUIREMENT FOR SECTION 7.1.10

Fire-retardant treated plywood painted with 2 coats of fire-retardant paint shall be used. The stamp on any painted fire-retardant treated plywood shall remain visible.

- 7.1.11 The room shall have an electrical ground pursuant to NEC Article 250 and TIA-607.
- 7.1.12 Acoustic noise levels in the room shall be maintained to a minimum by locating noise-generating equipment outside the MTR.
- 7.1.13 A pre-action "dry" pipe sprinkler system is required.
- 7.1.14 All water pipes transiting the room shall be removed or contained for existing structures. All piping shall be designed not to enter the room for new construction.
- 7.1.15 The rooms shall not be used as a pass-through for other building systems. All piping shall be designed not to enter the room and be routed to the room's exterior.
- 7.1.16 The rooms shall be protected from contaminants and pollutants that could affect the operation and material integrity of the installed communications equipment.
- 7.1.17 If contaminants are present in concentrations greater than indicated in TIA-569-B, provide vapor barriers, positive room pressure, or absolute filters.

AVIATION-SPECIFIC REQUIREMENTS FOR SECTION 7.1

- In the MTR, doors shall be on ACAMS and a card reader shall be provided on both the inside and outside of the room as the badge swipe process will need to be performed for both ingress and egress. Provision for emergency exiting of the room shall be made available. In the event of a power outage, the Aviation Department would require that the door be designed to a no-lock status.
- In the TR, doors shall be on ACAMS and a card reader shall be provided outside of the room as the badge swipe process will need to be performed for ingress.
- Door signage must be consistent with Aviation Department practices.
- The MTR shall have one CCTV camera located on the inside and one on the outside of the room. Both shall be located to clearly monitor the door.
- The TR shall have one CCTV camera located on the outside of the room.
- The MTR shall be on separate fire protection loops and a gaseous fire protection system such as FM-200 or FE-25 shall be used. Consult with Facilities and Services on the use of gaseous systems.

7.2 Room Size

- 7.2.1 The size of the room depends on the size and variety of the equipment to be installed and the size of the area that the room will serve. The room shall provide enough space for all planned equipment and cables, including any environmental control equipment, power distribution units/conditioners, and uninterrupted power supply systems that will be installed in the room.

Domain: <i>INF Architecture</i>	Number: <i>200.215</i>	Standard Title: <i>Telecommunications Cabling Systems</i>
---	----------------------------------	---

- 7.2.2 The room shall be sized according to the equipment's needs and not by the square footage of the floor or building. The minimum size of the MTR should be 10 feet X 12 feet.

AVIATION-SPECIFIC REQUIREMENTS FOR SECTION 7.2.2

The minimum size of the MTR shall be 15 feet X 20 feet.

Additional floor space shall be required for applications such as video cabling and equipment, fire alarm panels, and/or building monitoring equipment.

- 7.2.2.1 The minimum TR sizes shown are based on providing telecommunications service to one individual work area of 100 square feet as specified in the BICSI Telecommunications Distribution Methods Manual (TDMM). See Table 4 for more information.

AVIATION-SPECIFIC REQUIREMENT FOR SECTION 7.2.2.1

The minimum size of the TR shall be 10 feet X 12 feet.

Telecommunications Distribution Methods Manual	
5,000 square feet or less	10 feet x 8 feet
5,000 to 8,000 square feet	10 feet x 10 feet
8,000 to 10,000 square feet	10 feet x 12 feet

Table 4

- 7.2.3 Additional floor space in the TR shall be required for applications such as video cabling and equipment, paging equipment, DAS, fire alarm panels, and/or building monitoring equipment.
- 7.2.4 Devices must be located within 250 feet of the TR, allowing 30 feet within the TR to route cables and service slack at the end device. This includes all building-mounted devices as well as Passenger Boarding Bridge devices.

7.3 Room Locations

- 7.3.1 The MTR shall be located on the first floor and as close as possible to a building entrance so that it is accessible for the delivery of large equipment.
- 7.3.2 The rooms shall not be located within or immediately adjacent to any space that may be subject to water or steam infiltration, humidity from nearby water or steam, heat, and any other corrosive atmospheric or environmental conditions such as toilets, drop sinks, or water heaters.
- 7.3.3 The rooms shall not be located near electrical power supply transformers, motors, generators, transmitters, radar transmitters, induction heating devices, and other potential sources of electromagnetic interference.
- 7.3.4 The rooms shall not share space in or be located near electrical closets, boiler rooms, washrooms, janitorial closets, or storage rooms.
- 7.3.5 There shall be one MTR per facility. Additional EFs or ERs may be required.
- 7.3.6 The TR is the main focal point for communications services serving a specific floor and shall be designed as an integral part of the overall building.

Domain: <i>INF Architecture</i>	Number: <i>200.215</i>	Standard Title: <i>Telecommunications Cabling Systems</i>
---	----------------------------------	---

- 7.3.7 The TR shall be located as close as possible to the center of, and on the same floor as, the workstation area it serves to minimize the horizontal cable lengths.
- 7.3.8 Access to the rooms shall be directly from hallways, not conference rooms, offices, electrical spaces, or mechanical spaces.
- 7.3.9 All water pipes transiting the room shall be removed or contained for existing structures. All piping shall be designed not to enter the room for new construction.
- 7.3.10 TRs shall be stacked vertically in a multi-story building.
- 7.3.11 When secure and controlled access to a TR cannot be guaranteed, free-standing or wall-mounted lockable cabinets will be used.
- 7.3.12 Free-standing or wall-mounted lockable cabinets shall be used in joint-use facilities or facilities not owned by the City of Phoenix where non-City staff can access a TR.
- 7.3.13 Where conduit for other systems (i.e., fire alarm, HVAC, lighting) must enter the room, it must travel as high as possible within the room, at the top of the wall.
- 7.4 Termination Hardware Requirements
 - 7.4.1 Relay racks shall be freestanding, properly anchored relay racks, heavy duty 19" x 84", drilled on both sides per TIA universal thread standards, rack unit markings. Each relay rack shall have an attached 6-inch-wide vertical management trough with a bi-directional opening cover.
 - 7.4.2 Cabinets are used instead of equipment racks based on security or other necessary factors.
 - 7.4.3 The space for voice and data cable terminations shall be on one continuous wall or rack.
 - 7.4.4 A clear space of at least 8 inches above and below the connecting hardware shall be provided for cabling handling.
 - 7.4.5 There shall be additional backboard space for routing cables, patch cables, and/or cross-connects.
 - 7.4.6 Termination hardware shall be wall-mounted, or rack-mounted in either equipment racks or enclosed data cabinets.
 - 7.4.7 The horizontal data cabling shall be terminated on 110-type independent insulation displacement connectors (IDC) placed in patch panels for data cabling.
 - 7.4.8 All UTP data cables shall be terminated on 48 fixed port angled high-density Category 6/5A patch panels mounted on wall racks, in a free-standing equipment rack, or an enclosed data cabinet. Cables shall be terminated in the T568-B configuration.
 - 7.4.9 For smaller installations, smaller port density patch panels can be used if ITS approves.
 - 7.4.10 Patch panels shall be labeled with a typed or computer-generated label above the 8p8c module.
 - 7.4.11 The approved manufacturer for all data patch panels is Ortronics or an ITS-approved equivalent.
 - 7.4.12 110-type Wiring Blocks for all voice cabling will be used if a separate voice cable is needed.
 - 7.4.13 The connecting block shall support the appropriate Category 6/5A applications and use cross-connect wire or patch cables.
 - 7.4.14 The blocks shall be made of flame-retardant thermoplastic, with the base consisting of horizontal index strips to terminate up to 25 pairs of conductors.

Domain: <i>INF Architecture</i>	Number: <i>200.215</i>	Standard Title: <i>Telecommunications Cabling Systems</i>
---	----------------------------------	---

- 7.4.15 The block shall be available in 50-, 100-, and 300-pair sizes and have detachable standoff legs.
- 7.4.16 The blocks shall have termination strips on the base to be notched and divided into 4- or 5-pair increments.
- 7.4.17 The block shall have clear label holders with the appropriate inserts available. The insert labels provided with the blocks shall contain vertical lines spaced based on circuit size (1-, 3-, 4- or 5-pair) and shall not interfere with running, tracing, or removing cross-connect wire/patch cables.
- 7.4.18 All blocks and patch panels will have bases available in 19-inch panels and high-density frame configurations for rack or wall mounting with cable management hardware.
- 7.4.19 All blocks and patch panels will have connecting blocks used for either the termination of cross-connect (jumper) wire or patch cables.
- 7.4.20 All bases and blocks shall be UL Listed 1863, TIA-568, ISO/IEC 11801, and Category 6/6A compliant and meet TIA Category 6/6A electrical performance.
- 7.4.21 Fiber optic cables will be terminated on connector panels in a fiber distribution panel.
- 7.4.22 All terminated fibers shall be properly dressed and mounted in rack-mount fiber panels. All fiber panel bulkhead spaces shall contain either connector panels or blank panels.
- 7.4.23 The connector panels shall contain multimode and/or single-mode connector coupling compatible with the SC and LC connectors.
- 7.4.24 All fiber optic cables shall have fusion spliced using factory-polished connectors. Field-terminated connectors are not acceptable.
- 7.4.25 The fiber housing unit shall be configured with fiber patch cable troughs to manage cable.
- 7.4.26 Cross-connect fields, patch panels, and active equipment in the TR shall be placed to allow all cross-connections and interconnections via jumpers, patch cables, and equipment cables.
Lengths will not exceed channel specifications:
- 20 feet per patch cables or jumpers in the horizontal cross-connect.
 - 33 feet total for patch cables, jumpers, and/or line cables connected to the outlet.
- 7.4.27 Total channel length should not exceed 328 feet.
- 7.5 MTR Cabling Support Structures
- 7.5.1 Structures to support the cabling in the MTR are the same as the TR.
- 7.5.2 Basket trays, equipment racks, data equipment cabinets, and wire management troughs shall be used in the room to keep the cabling and equipment organized.
- 7.5.3 The basket tray shall route bulk telecommunications cables within the room.
- 7.5.4 The basket tray shall be at least 12 inches wide and placed under a raised floor or 7 feet above a finished floor to coincide with the top of the equipment racks and cabinets.

AVIATION-SPECIFIC REQUIREMENT FOR SECTION 7.5.4

The basket tray shall be at least 18 inches wide.

- 7.5.5 Basket tray shall provide proper clearance from HVAC ducting or other obstacles.

Domain: <i>INF Architecture</i>	Number: <i>200.215</i>	Standard Title: <i>Telecommunications Cabling Systems</i>
---	----------------------------------	---

- 7.5.6 All basket trays shall be bonded and earthed.
- 7.5.7 A separate basket tray shall be used for power pathways to equipment racks.
- 7.5.8 A three-foot working clearance shall be maintained in the front and back of each equipment rack. This clearance shall be measured from the outermost surface of the equipment and connecting hardware rather than from the equipment rack since some of these devices may extend beyond the equipment rack.
- 7.6 Cable pathway entrance
 - 7.6.1 Sleeves, slots, EZ Paths, and conduits are used to route the cables entering and exiting the room.
 - 7.6.2 Sleeves shall have a minimum 2-hour UL listed fire rating and shall be fire-stopped correctly by applicable building codes. All conduits will be fire-stopped by fire codes as interpreted by the State Fire Marshall Authority Having Jurisdiction (AHJ).
 - 7.6.3 A label stating the UL-listed system shall be attached to the wall near each fire penetration.
 - 7.6.4 The conduit shall be metallic, 4 inches in diameter.
 - 7.6.5 The conduit shall be grounded and equipped with a pull string, and conduit ends will be bushed to protect the cable.
 - 7.6.6 EZ Path or approved equivalent shall be used over standard sleeve penetrations through fire-rated walls unless the firewall is required to be sealed for additional fire suppression requirements.
 - 7.6.7 Horizontal sleeves must be sized appropriately to allow for future growth.
 - 7.6.8 Vertical sleeves penetrating through the slab shall be a minimum of 4" above and below the finished floor to allow for conduit connectors and bushings.

AVIATION-SPECIFIC REQUIREMENTS FOR SECTION 7.6

- Connection to the MTR and TR shall be via two 4'x4'x12" pull boxes which are located on adjacent walls from each other. Each pullbox will have 2-4" conduits extending into the MTR. All connectivity to the MTR will be via the pullbox with 1" conduits where the cabling will be extended into the MTR using the existing 2-4" conduits.
- Vertical sleeves and slots shall be positioned 6 inches from their center to the wall on which the cables are to be supported. An Arizona state approved Professional Engineer shall approve all structural changes and floor penetrations. Contractor shall acquire approval from the Aviation Technology and Design and Construction Services to position slots and sleeves beyond 6 inches from the wall.
- From the MTR to each TR, a minimum of three 4" pipes are required. This creates a star topology among the MTR to the TR Rooms.
- TRs shall also be connected in a ring topology with a minimum of two 4" pipes.

- 7.7 Electrical Requirements
 - 7.7.1 The rooms shall be equipped with a minimum of two dedicated 120V AC 20 ampere-rated electrical outlets mounted in the bottom of the vertical cable management section on separate branch circuits. The requirement for one of the two dedicated 120V 20-amp circuits is only for powering a stand-alone PDU that serves network equipment. This circuit shall have a NEMA L5-20R twist lock. The other circuit shall be a quad 3-prong receptacle. Outlets will be located between active equipment racks

Domain: <i>INF Architecture</i>	Number: <i>200.215</i>	Standard Title: <i>Telecommunications Cabling Systems</i>
---	----------------------------------	---

within the cable management system 12" AFF. For rooms equipped with a whole-room high-capacity UPS, an L5-20R 20 Amp circuit is required at the bottom of the vertical cable management for all networking equipment. Power for subsidiary systems is to be determined by vendor specifications.

- 7.7.2 The number of dedicated and courtesy power outlets shall be determined and approved by the ITS during design.
- 7.7.3 A minimum of one convenience 120V 20 amperes dedicated quad outlet shall be installed at a designated location 18" AFF for power tools, wet/dry vacuums, laptops, etc.

AVIATION-SPECIFIC REQUIREMENT FOR SECTION 7.7.3

Separate duplex 120V AC convenience outlets (for tools, test sets, etc.) shall also be installed at 18 inches above the finished floor under the electrical subpanel.

7.7.4 Grounding Requirements

- 7.7.4.1 Provide an electrical ground on a 4-inch or larger busbar as defined by Article 250-71(b) in NFPA 70, the National Electrical Code (NEC), for the communications room near, but not behind, the riser sleeves between floors.
- 7.7.4.2 Connect the grounding bar to a main building ground electrode, complying with the requirements specified in ANSI/J-STD-607-A.
- 7.7.4.3 The hole pattern on the Grounding Bar shall accommodate two-hole lugs per the recommendation of BICSI NECA/BICSI 607-2011 and TIA-607-B standards. Insulators electrically isolate Grounding Bars from the wall or other mounting surfaces, thereby controlling the current path.
- 7.7.4.4 Each TR shall be provided with an electrical ground on a system and building-sized busbar as defined by NEC Article 250.
- 7.7.4.5 Busbars shall be mounted 6 feet 6 inches above the finished floor if a basket tray is included in the design. If the basket tray is not part of the design, busbars shall be located near, but not behind, the backbone sleeves between floors. The Telecommunications Ground Busbar (TGB) shall be sized to accommodate all racking and systems grounding lugs. The TGB shall be required to achieve a maximum resistance reading of 5 ohms. The TGB should be at least 6 mm thick by 50 mm wide.
- 7.7.4.6 This grounding bar shall be connected to a main building ground electrode and common to all TRs.

AVIATION-SPECIFIC REQUIREMENTS FOR SECTION 7.7

- The MTR shall be equipped with two (2) separate 200-ampere, 208 volt/120 V, 3 phase, 4-wire electrical panels with service via standby power from the engine-generator distribution network. Each panel should be fed from a separate source using a diverse path. Panels are referred to as Panel A and Panel B in design documents.
- The TR shall have a single 200-ampere, 208 volt/120 V, 3-phase, 4-wire electrical panels with service via standby power from the engine-generator distribution network.

Domain: <i>INF Architecture</i>	Number: <i>200.215</i>	Standard Title: <i>Telecommunications Cabling Systems</i>
---	----------------------------------	---

7.7.4.7 All grounding systems shall be provided in the TR and MTR, including, but not limited to, cable bonding, cabinet, and relay rack ground kits with #6 THHN wire, ground busses, and ground clamps.

8.0 Special Systems

8.1 Any special system owned and operated by the City of Phoenix connected to any City-owned network or telecom service provider via UTP or fiber optic cable shall be governed by this standard as required under A.R. 1.73. This includes CCTV, building automation, card access systems, etc.

8.2 Special circuits (i.e., data circuits, T1s, or POTS) shall be cross-connected to designated blocks on the horizontal side.

8.3 CATV

8.3.1 A broadband coaxial cable, UTP, or fiber optic cable system shall be installed. Care shall be taken to ensure the correct cable is used when a coaxial system is installed. Cable Distance, RG-6 Quad Shield <=250 feet, RG-11 <=400 feet.

8.3.2 ITS shall determine the method of serving City facilities for CATV. Strategies may include but are not limited to an entrance cable from Cox, other service providers, or City-owned video distribution equipment.

8.3.3 All services, cabling, and equipment shall be ordered through ITS.

8.4 Carrier-Owned Distributed Antenna System (DAS)

8.4.1 The Real Estate Department shall approve carrier DAS before installation.

8.4.2 All in-building pathways shall be furnished and installed by the carrier.

8.4.3 Use of all underground conduit infrastructure from the property line into the MTR shall be reviewed and approved by ITS before installation.

8.4.4 A pre-construction conference is required for all projects. The carrier shall notify ITS 10 days in advance.

8.4.5 ITS shall coordinate and approve Design and placement of equipment within the COP-owned communications room.

8.4.6 Final inspection and acceptance shall be completed by the ITS radio shop.

8.5 700 MHz Public Life Safety Radio System

8.5.1 Coordinate with ITS to use the basket tray to house the conductors for monitoring dry contacts.

8.5.2 Coordinate with ITS to use the outside of the basket tray to support the heliax coax cables that connect antennas to the amplifiers.

8.5.3 ITS shall coordinate and approve the design and placement of equipment within the COP-owned communications room.

8.6 Fire Alarm System

8.6.1 Fire Alarm Control Panels (FACP) shall be cabled with a Dual Drop as required by the Public Works Department or Aviation Facilities for network monitoring.

Domain: <i>INF Architecture</i>	Number: <i>200.215</i>	Standard Title: <i>Telecommunications Cabling Systems</i>
---	----------------------------------	---

8.6.2 ITS shall design and coordinate FACP communications to downtown Central Monitoring Systems. Methods include traditional analog telephone service or other wireless technologies.

AVIATION-SPECIFIC REQUIREMENTS FOR SECTION 8.6

- The Aviation Fire Alarm System communicates on a discreet City of Phoenix network that maintains a UL Listing. For specifications on the current FACP communication cabling requirements, coordinate with Facilities, ITS, and Fire Alarm System Design team.
- Coordination between the contractor and Aviation Technology shall be performed for fiber optic cross-connectivity within the Aviation TRs.

8.7 Closed Circuit Television (CCTV)

- 8.7.1 A single building-administered outlet shall be installed for each camera.
- 8.7.2 The category cable shall be specified by ITS and installed by ITS per A.R. 1.73. The UTP cable may consist of plenum category 6, OSP category 6, Game Changer, or approved equivalent.
- 8.7.3 Coordination between the contractor and the ITS shall be required for all required connectivity within the TRs.

8.8 Building Management Systems (BMS)

- 8.8.1 Coordination between the contractor and ITS shall be required for all connectivity within the TRs.
- 8.8.2 Each device will receive a dual drop if a connection to the enterprise network is required.

8.9 Fuel Force

- 8.9.1 Coordination between the contractor and ITS shall be required for all connectivity within the TRs.
- 8.9.2 Each device will receive a dual drop if a connection to the enterprise network is required.

8.10 Heating, Ventilation and Air Conditioning (HVAC)

- 8.10.1 Coordination between the contractor and ITS shall be required for all connectivity within the TRs.
- 8.10.2 If a connection to the enterprise network is required, each device will receive a dual drop.

8.11 Lighting Control

- 8.11.1 Coordination between the contractor and ITS shall be required for all connectivity within the TRs.
- 8.11.2 Each device will receive a dual drop if a connection to the enterprise network is required.

8.12 Electric Power Meter (EPM)

Domain: <i>INF Architecture</i>	Number: <i>200.215</i>	Standard Title: <i>Telecommunications Cabling Systems</i>
---	----------------------------------	---

- 8.12.1 Coordination between the contractor and ITS shall be required for all connectivity within the TRs.
- 8.12.2 If a connection to the enterprise network is required, each device will receive a dual drop.
- 8.13 Parking Revenue Control Systems
 - 8.13.1 Coordination between the contractor and ITS shall be required for all connectivity within the TRs.
 - 8.13.2 If a connection to the enterprise network is required, each device will receive a dual user-administered outlet.
 - 8.13.3 ITS shall be responsible for designing and installing any horizontal or backbone cabling needed for service provider circuit extensions or connectivity to other City facilities.
- 8.14 Elevator Monitoring
 - 8.14.1 Coordination between the contractor and ITS shall be required for all connectivity within the TRs for all elevator communications.
 - 8.14.2 If a connection to the enterprise network is required, each device will receive a dual drop.
 - 8.14.3 All dial tones for call boxes shall be provided by ITS.
- 8.15 Water Services Process Control Network
 - 8.15.1 All fiber optic infrastructure projects related to WSD PCN on campus at water plants shall be reviewed and approved by ITS during the design phase.
 - 8.15.2 ITS shall review and approve all product submittals.
 - 8.15.3 ITS shall conduct periodic quality control inspections during the installation phase of each project.
 - 8.15.4 ITS shall conduct final inspections for acceptance at project completion.
- 8.16 Outdoor Marquee's and Roadway Digital Messaging Boards
 - 8.16.1 Coordination between the contractor and ITS shall be required for all connectivity within the MTRs, TRs, and outdoor cabinets.
 - 8.16.2 If a connection to the enterprise network is required, each device will receive a dual user-administered outlet.
 - 8.16.3 ITS shall be responsible for designing and installing any horizontal or backbone cabling needed for service provider circuit extensions or connectivity to other City facilities.
- 8.17 Access Control System
 - 8.17.1 Coordination between the contractor and ITS shall be required for all connectivity within the TRs.
 - 8.17.2 Each device will receive a dual drop installed by ITS.
- 8.18 Paging System
 - 8.18.1 ITS shall be included in design review and installation quality control inspections during installation.
 - 8.18.2 Systems are typically installed by others.
 - 8.18.3 Dial tone and telephone system integration shall be provided by ITS.

Domain: <i>INF Architecture</i>	Number: <i>200.215</i>	Standard Title: <i>Telecommunications Cabling Systems</i>
---	----------------------------------	---

8.19 Emergency Phones

- 8.19.1 Coordination between the contractor and ITS shall be required for all connectivity within the TRs.
- 8.19.2 Each device will receive a dual drop installed by ITS.
- 8.19.3 Devices are owned and maintained by the Department. ITS provides all cabling and dial tone.

8.20 Street Transportation Intelligent Transportation Systems Network

- 8.20.1 ITS shall review and approve All fiber optic infrastructure projects related to the Intelligent Transportation Systems Network during the design phase.
- 8.20.2 ITS shall review and approve all product submittals.
- 8.20.3 ITS shall review and approve all Requests for Information during construction.
- 8.20.4 ITS shall conduct periodic quality control inspections during the construction phase of each project.
- 8.20.5 ITS shall conduct final inspections for acceptance at project completion.
- 8.20.6 All traffic cabinet fiber optic termination hardware shall be breakaway connectors using SC or LC as specified by ITS.

8.21 Fire Station Alerting System (CAD)

- 8.21.1 ITS shall be responsible for furnishing and installing all UTP cabling for this system. When installation is needed on an active system, Fire Technical Services staff shall be notified to provide approval and escort as required. All UTP cabling for this system shall have a white jacket.
- 8.21.2 All speaker cabling for this system shall have a gray jacket.
- 8.21.3 Fire Technical Services is responsible for designing, owning, and maintaining all components and hardware.
- 8.21.4 For further details on specifications for the system, refer to Phoenix Fire Standard 17200 Fire Station Dispatch Infrastructure.

8.22 Future Systems

- 8.22.1 All future systems shall not utilize the enterprise network for connectivity unless ITS approves.
- 8.22.2 Any category cables used as conductors for signaling/communications outside the structured cabling system installed and managed by the City of Phoenix shall use a cable color other than BLUE. Blue category cable is reserved for use by the City of Phoenix. These cables shall not terminate in the TR or MTR. For more information, refer to Table 5.

AVIATION-SPECIFIC REQUIREMENTS FOR SECTION 8.22

- Access Control (ACAMS)/Power Over Ethernet (POE) Locks.
- TR space allocation must be coordinated with ITS.
- Basket tray can be shared with ACAMS wiring so long as a divider is used for separation.
- Coordination between the contractor and Aviation Technology shall be required for all required connectivity within the TRs.
- Refer to the responsibility matrix below for details on POE lock installation.

Domain: <i>INF Architecture</i>	Number: <i>200.215</i>	Standard Title: <i>Telecommunications Cabling Systems</i>
---	----------------------------------	---

Action Item	Responsible Party
Provide Conduit to Cable Demarcation box above the door	Contractor
Provide Conduit for Door Frame	Contractor
Provide EPT	Contractor
Providing Frame Harness Cable	Contractor
Providing Door Harness Cable	Contractor
Installing Cable Harnesses	Contractor
Provide category cable to box above door	AVN Tech
Installing Cable Connectors on Door Harness	Contractor
Installing E-Lock in the Door	Contractor
Commissioning E Lock	Contractor (via Honeywell)

Table 5

8.23 Passenger Emergency Duress System (PEDS)

8.23.1 Coordination between the contractor and Aviation Technology shall be required for all connectivity within the TRs.

8.24 Public Address System (PAS)

8.24.1 Paging cabinet to allow space for 48 port patch cable that is used for tie cables to the City of Phoenix cabling rack.

8.24.2 Speaker cabling for the PAS system can utilize the City of Phoenix basket tray within the MTR and TR so long as a minimum of 12 inches of separation is maintained between other system cabling.

8.24.3 Cables will be neatly bundled within the basket tray.

8.24.4 Coordination between the contractor and Aviation Technology shall be required for all required connectivity within the TRs

8.24.5 When the PAS System is used to meet the Fire Life Safety code, the conduit shall meet all survivability requirements.

8.25 Audio Frequency Induction Loop

8.25.1 Hearing Loop cabling for the PAS system can utilize the City of Phoenix basket tray within the MTR and TR so long as a minimum of 12 inches of separation is maintained between other system cabling.

8.25.2 Cables will be neatly bundled within the basket tray.

8.25.3 Coordination between the contractor and Aviation Technology shall be required for all connectivity within the TRs.

8.26 Common Use Passenger Processing System (CUPPS)

8.26.1 Coordination between the contractor and Aviation Technology shall be required for all connectivity within the TRs.

8.27 Electronic Video Information Display Systems (EVIDS)

8.27.1 Coordination between the contractor and Aviation Technology shall be required for all connectivity within the TRs.

Domain: <i>INF Architecture</i>	Number: <i>200.215</i>	Standard Title: <i>Telecommunications Cabling Systems</i>
---	----------------------------------	---

8.28 Passenger Boarding Bridges (PBBs)

- 8.28.1 ITS must approve specifications before installation.
- 8.28.2 Traveler cables must be UL-listed.
- 8.28.3 Preinstalled category cables shall be terminated, and test results shall be submitted before system commissioning.

8.29 Baggage Handling Systems (BHS)

- 8.29.1 Coordination between the contractor and Aviation Technology shall be required for all connectivity within the TRs.

8.30 Emergency Fuel Shut Off (EFSO)

- 8.30.1 Coordination between the contractor and Aviation Technology shall be required for all connectivity within the TRs.

9.0 Infrastructure Documentation

This section aims to define a set of guidelines for collecting documentation related to all cabling system projects within the City of Phoenix. These policies set the minimum requirements for all documentation received by contractors, architects, or any design professional involved in installing telecommunications infrastructure. Following these guidelines will ensure that all documentation associated with cabling system projects will fit the criteria for entry into the City of Phoenix cable management system, including spatial and non-spatial elements. These guidelines will also ensure that future cabling projects utilize existing and accurate documentation to design and place new infrastructure. The City of Phoenix reserves the right to revise these guidelines if industry standards or business/operations require change.

The final acceptance of documentation for all projects is at the discretion of the communications engineer, project coordinators, or City personnel responsible for managing cabling system projects. Any alternatives or recommendations relating to a specific cabling project should be presented to City personnel and will be considered on an individual basis. Accepting any documentation that deviates from these guidelines will be considered an exception and shall not set a precedence for future submittals. ITS is responsible for supervising and finalizing all documentation related to all cabling system projects.

9.1 Inside Plant Documentation

- 9.1.1 ITS will review and sign off on as-builts for workstation locations and the labeling scheme. The contractor is responsible for acquiring the most current floorplans and/or site plans to label workstation locations. As-builts should include the entire floor/building involved. As-builts containing only a portion of the floorplan/building and not the entire footprint will not be accepted.
- 9.1.2 ITS will develop labeling schemes for the telecom rooms, intra-building backbone, patch panels, fiber distribution panels, or telecommunications termination blocks.
- 9.1.3 ITS will create or acquire location codes for all buildings related to cabling projects and provide them to the contractor for inclusion into the labeling scheme.
- 9.1.4 The contractor shall create as-builts for workstation location and cable numbering using the approved labeling scheme. All efforts will be made by City personnel to acquire electronic as-builts, but it is the contractor's responsibility to acquire these

Domain: <i>INF Architecture</i>	Number: <i>200.215</i>	Standard Title: <i>Telecommunications Cabling Systems</i>
---	----------------------------------	---

documents to label workstation locations. As-builts shall include the entire floor/building involved. As-builts containing only a portion of the floorplan/building and not the entire footprint will not be accepted.

- 9.1.5 Contractor shall comply with TR and MTR labeling scheme, including telecom room directional acronym. The contractor will supply a placard in each MTR and TR that currently does not have one. The placard should include the SAP location code, floor, and directional acronym. See [Figure #9](#) for more information.
- 9.1.6 Contractor shall comply with the intra-building backbone labeling scheme. The City of Phoenix defines the intra-building backbone as house copper cable (HC) or house fiber cable (HF). All newly placed cables should have approved cable tags attached. See [Figure #10](#) for more information.
- 9.1.7 Contractor shall comply with the labeling scheme for all patch panels, fiber distribution panels, or telecommunications termination blocks. All three types of hardware should be labeled with the appropriate HC or HF labeling scheme accepted by City personnel.
- 9.1.8 Contractors shall utilize SAP location codes on all buildings related to cabling projects. The contractor will provide location codes for inclusion into the labeling scheme. The contractor shall correct any documentation and labeling discrepancies as required by ITS.

9.2 Outside Plant Documentation

- 9.2.1 As-builts must be completed by the contractor in AutoCAD Version 2018 or newer, as well as Adobe PDF. Identification of all newly placed or modified infrastructure is required. A minimum surveying level shall be completed if as-builts are not geo-referenced (to scale or matched to a known coordinate system). The acceptable surveying level includes wheeled measurements of all conduit segments and offset dimensions from a known location (street centerline, building, etc.). Exceptions to this standard will be considered if no known location exists. All requests for an exception to the standard should be submitted to City personnel.
- 9.2.2 Documentation is required for all contents of conduit systems. This includes but is not limited to copper cable, fiber optic cable, coaxial cable, inner duct, flexible inner duct (MaxCell), and detectable tracer wire. Included in this standard is the documentation of all newly placed cables. A reasonable number of specifications is expected (make, manufacturer, size, diameter, serial number, etc.). Verify with ITS for any additional required specifications.
- 9.2.3 Contractor shall comply with inter-building backbone labeling scheme. The City of Phoenix defines inter-building backbone as remote copper cable (RC) or fiber cable (RF). All newly placed cables should have approved cable tags attached. A cable tag label should be placed in every manhole, hand hole, pull box, or pull point. See [Figure #11](#) for more information.
- 9.2.4 Contractor shall comply with the labeling scheme for all patch panels, fiber distribution panels, or telecommunications termination blocks. All three types of hardware should be labeled with the appropriate RC or RF labeling scheme.
- 9.2.5 Contractor is responsible for the creation or modification of manhole fold flats. Fold flats are required for any manhole that has new or modified infrastructure added. ITS is responsible for providing the contractor with any existing fold flat for manholes in the project area. See [Figure #6](#) for more information.

Domain: <i>INF Architecture</i>	Number: <i>200.215</i>	Standard Title: <i>Telecommunications Cabling Systems</i>
---	----------------------------------	---

- 9.2.6 Contractor is responsible for creation of splice details. Any newly placed of existing copper cable or fiber optic cable that is spliced shall be documented. See [Figure #8](#) for more information.
- 9.2.7 These detailed drawings are required for any structure that is part of the project scope of work. Maintenance Hole and Hand Hole AutoCAD drawings shall include the following layout tabs: cover sheet, butterfly, photo, and (if applicable) splice detail. Each AutoCAD drawing file shall depict ONLY one communication space structure.
- 9.2.8 The project cover sheet layout shall be the first layout tab of the AutoCAD detailed drawing file. See [Figure #5](#) for more information.
 - 9.2.8.1 Project information must include the project name, address and location, City of Phoenix-ITS work order number, and date.
 - 9.2.8.2 Contractor information must include company information using the provided text field in the upper right-hand corner of the layout.
 - 9.2.8.3 The Vicinity map accurately represents the project area with a leader line.
 - 9.2.8.4 The sheet index provides an enumerated list of all project sheets with their corresponding file names and a brief description (i.e., "MH/HH & Photo").
 - 9.2.8.5 The Project area map provides a scaled base map (i.e., parcels, street centerlines, street names, curbs, or other surveyed data) of the complete project work area. The contractor shall indicate all conduit pathway lines and communication space within the scope of work with their respective annotation. The contractor shall label the location of each communication space with the asset identification number corresponding to the detailed drawing file.
 - 9.2.8.6 All base map data provided to and from City of Phoenix ITS shall be georeferenced in the NAD 1983 Arizona State Plane (HARN) international feet coordinate system. The contracting company shall not move, scale, or otherwise modify the base map drawings such that the integrity of the data is preserved.
- 9.2.9 The fold flat layout shall be the second layout tab of the AutoCAD detailed drawing file. See [Figure #6](#) for more information.
 - 9.2.9.1 The butterfly layout is intended to represent the infrastructure exactly as it appears in the field including conduit placement, new and existing cables, innerduct/sub duct, splice cases, etc. Label each wall of the butterfly drawing with the most appropriate compass point (i.e., North, South, East, or West).
 - 9.2.9.2 Every conduit in or out of the communication space shall be represented on the corresponding face of the butterfly drawing. Label empty conduits with an "E" in the center of the conduit symbol. All infrastructure conduits shall be annotated with an individualized summary of their contents. All conduit leader annotation shall begin with the conduit length and name of the destination structure. i.e., "517 feet to MH-105", "844 feet to Fire Station 62", and "12 feet to traffic cabinet NW corner". All conduits may or may not lead toward the same destination. Annotate all exceptions individually by the annotation convention. This conduit length annotation requirement may only apply to projects that contain the installation of new conduits or new

Domain: <i>INF Architecture</i>	Number: <i>200.215</i>	Standard Title: <i>Telecommunications Cabling Systems</i>
---	----------------------------------	---

cable within conduit. Acceptable methods of gathering this information may include the use of sequential cable footage markings or calibrated mule tape. Verify with ITS.

- 9.2.9.3 The details section provides specific detailed information regarding the associated object. Each individual cable or inner duct, splice closure, etc., shall have a detailed summary leader in the layout section with a corresponding description in the details section. If the object is a cable, it shall be completed with cable count, cable manufacturer, cable type, cable footage readings, cable coil length, and cable install date. Every cable detail record shall have two sequence footage entries. Indicate the cable sequence number where the cable enters/exits the communication space at a conduit or where the cable enters/exits a splice closure.
 - 9.2.9.4 If the object is an innerduct/sub duct, it shall be completed with quantity, size, and description. If any attribute is unknown, do not leave the detail field blank. Fill out the field detail with either "Unknown" or "UNK". For splice closures, include the manufacturer name and model number.
 - 9.2.9.5 An example of a fiber object would be: "144 ST Corning SM; East Wall: 2768', West Wall: UNK (Unreadable), Coil: UNK; Installed 5/14/2022."
 - 9.2.9.6 The title block - CITY OF PHOENIX-ITS area shall not be modified.
 - 9.2.9.7 The title block location map area shall illustrate the immediate area surrounding the communication space drawing or the area surrounding the pathway detail drawing. This area shall be a viewport to the base map in model space.
 - 9.2.9.8 The title block location information area shall be completed with project detail information relative to the respective infrastructure.
 - 9.2.9.9 The first line attribute is the specific infrastructure identification and shall include the manhole, handhole, or pull box description (i.e., MH-1901, HH-1001, or PB-0501).
 - 9.2.9.10 The second line attribute is the address or intersection of the infrastructure (i.e., 1901 S. 24th Street or SW corner of 5th Street & Adams Street).
 - 9.2.9.11 The Third line attribute shall reflect the spatial coordinates of the infrastructure in the NAD 1983 Arizona State Plane (HARN) coordinate system or WGS 1984 coordinates (decimal degrees).
 - 9.2.9.12 The Fourth line attribute (photo sheet only) is the photo x-references being used and shall be completed as: i.e., MH-1901-001, MH-1901-002, MH-1901-003, MH-1901-004, MH-1901-005.
 - 9.2.9.13 The fifth line attribute (Splice case detail only) is the detail number designated on the fold flat sheet and shall include the description.
- 9.2.10 Photo layout shall be the third layout tab of the AutoCAD detailed drawing file. See [Figure #7](#) for more information.
- 9.2.10.1 Photos shall be externally referenced using relative pathing such that the photo is visible within the drawing regardless of the location of the AutoCAD drawing file.

Domain: <i>INF Architecture</i>	Number: <i>200.215</i>	Standard Title: <i>Telecommunications Cabling Systems</i>
---	----------------------------------	---

- 9.2.10.2 Place all photos, logos, and any other externally referenced drawings in an accompanying folder named "Xref."
- 9.2.10.3 Photos shall be clear and free of distortion and be taken with a minimum 5.0 mega pixel digital camera at minimum resolution of 1600x1200.
- 9.2.10.4 Photos shall be taken facing the structure's north wall such that the photograph's orientation matches the butterfly drawing's orientation.
- 9.2.10.5 Photos shall have a visible date stamp that is accurate and generated by the digital camera when the photo was taken.
- 9.2.10.6 If the maintenance hole is more significant than a no. 9 (4'x4'), there shall be (4) photos taken (1) of each wall without a fisheye lens. (1) Additional photos shall be taken from the street level looking down at the open communication space, facing north with no obstructions. This total number of photos equals (5) per manhole. The photos shall be placed on the layout representative to the butterfly layout depiction, i.e., the photo facing north should be placed on the north side of the photo layout, and the photo facing south should be placed on the south side of the photo layout, etc. The photo taken from the street level shall be placed in the middle, with all photos scaled to be the same.
- 9.2.10.7 If the communication space is less than 4'x4', only (1) photo shall be taken from street level looking down at the open communication space, facing north with no obstructions. All walls and conduits shall be visible in the photo.
- 9.2.10.8 The splice detail layout (if applicable) shall be the fourth layout tab of the AutoCAD detailed drawing file. See [Figure #5](#) for more information.
- 9.2.11 The splice detail layout is intended to graphically depict detailed information regarding the splicing and connectivity of all fiber cables within a specific splice closure. Attention to detail is critical. See [Figure #8](#) for more information.
 - 9.2.11.1 Only one splice closure shall be depicted in any given splice detail layout tab. If the communication space contains multiple splice closures, each will have its unique splice detail layout tab. If the scope of work includes multiple splice closures at multiple locations, each site shall have an individual and separate drawing file depicting the infrastructure at that location.
 - 9.2.11.2 All cables entering the splice closure shall have a cable identification tag. The cable identification tag annotation text shall reference the corresponding detail ID letter on the butterfly layout tab as well as the destination location of the cable. The cable label fields on the identification tag shall be filled in with the cable manufacturer, the cable strand count, and the installation date. All buffer tubes and strands from all cables entering the splice closure shall be accounted for in the splice detail diagram (i.e., spliced through or dark).
- 9.2.12 The pathway detail drawing file shall be a separate AutoCAD drawing file. Pathway detail drawings are intended to depict the location of underground conduit pathways and communication spaces. Documentation for underground conduit pathways must reflect the "real world" location of the infrastructure. A high degree of spatial accuracy is vital, and all drawings must be to scale and in units

Domain: <i>INF Architecture</i>	Number: <i>200.215</i>	Standard Title: <i>Telecommunications Cabling Systems</i>
---	----------------------------------	---

of feet. The AutoCAD drawing file shall include the following layout tabs: cover sheet and pathway. See [Figure #12](#) for more information.

9.2.12.1 Line work drawn upon aerial imagery in Google Earth is not an acceptable form of documentation for right of way conduit pathways. "Not to scale" or representational drawings are also not acceptable forms of documentation for right of way conduit pathways. Line work drawn upon aerial imagery may be acceptable for smaller campus environments where the work is not being performed in the City of Phoenix right of way.

9.2.13 ITS will review and sign off as-builts. If as-builts are not geo-referenced, the contractor will complete a minimum level of surveying. The acceptable level of surveying includes wheeled measurements of all segments of conduit, offset dimensions from a known location (e.g., street centerline, building).

10.0 Quality Assurance

This section addresses requirements for Quality Assurance for all aspects of the Standard. Contractor Qualifications:

- 10.1 Only City-approved vendors shall be used to perform any installation or services.
- 10.2 Shall be certified to install and warrant the Ortronics Structured Cabling System or approved equivalent.
- 10.3 Shall be certified as listed in the Corning Network of Preferred Installers to install and warrant the Cabling System or approved equivalent.
- 10.4 Shall have a BICSI RCDD (Registered Cabling Distribution Designer) under current employment and available for consultation on all projects. Demonstrate knowledge and compliance with all BICSI, TIA, UL, and NEC standards and codes.
- 10.5 The contractor shall have the required number of certified installers as mandated by the manufacturer as having completed the necessary training to complete the installation. Resumes of the certified members on the team shall be provided along with documentation of completed training courses.

11.0 Systems Warranty

This section addresses the requirements for obtaining the required warranty coverage for all City of Phoenix projects upon installation completion.

11.1 The cabling installation shall be installed such that it qualifies for the manufacturer's System Installation warranty. A Structured Cabling System means a System properly constructed with ITS-approved products in accordance with referenced standards, meeting specified link/channel performance and topological (distance and connection) limits. This includes all Manufacturers' products that are installed in conjunction with approved solutions. Performance guarantees apply only to installed channels utilizing appropriate patch cords manufactured from partner cable manufacturers' cordage. Any warranty repairs, replacements, moves, additions, or changes shall be warranted for the balance of this warranty period.

11.2 Warranty shall commence on the date of installation registration, which shall coincide with installation completion.

11.3 The Warranty shall ensure that the installation:

- 11.3.1 Will be free from Bit errors caused by the structured cabling system components.

Domain: <i>INF Architecture</i>	Number: <i>200.215</i>	Standard Title: <i>Telecommunications Cabling Systems</i>
---	----------------------------------	---

- 11.3.2 Will meet or exceed applicable ratified TIA and ISO/IEC transmission performance standards in force at the time of installation for a Structured Cabling Link/Channel.
- 11.3.3 Will support any current or future application which is designed for transmission over a Structured Cabling System as defined by the above-referenced standards and the Data Sheet in effect at the time of installation.
- 11.3.4 Will conform to the transmission performance specifications of the Data Sheet in effect at the time of installation.
- 11.3.5 Will be free from defects in material and workmanship on the products installed.
- 11.4 Warranty Conditions for this warranty to be valid:
 - 11.4.1 The System components that have never been used.
 - 11.4.2 The System shall have been installed by a Certified Integrator/Installer authorized by the Manufacturer in accordance with the Manufacturer's installation specifications, the requirements of the above-mentioned technical standards, and the terms and conditions specified in the manufacturer's Certified Integrator/Installer Program agreement.
 - 11.4.3 All installation records shall be updated to reflect any maintenance, movements, additions, or changes, etc. Manufacturer will not be responsible for moves, additions or changes performed by parties other than a Certified Integrator/Installer.

V. RELATED POLICIES, STANDARDS, AND PROCEDURES

TIA-568: Commercial Building Telecommunications Cabling Standard
 TIA-569: Commercial Building Standard for Telecommunications Pathways and Spaces
 TIA-606: The Administration Standard for the Telecommunications Infrastructure of Commercial Building
 TIA-607: Commercial Building Bonding and Grounding (Earthing) Requirements for Telecommunications
 TIA-758: Customer Owned Outside Plant Telecommunications Infrastructure Standard
 TIA-527: Optical Power Loss Measurements of Installed Single-mode Fiber Cable Plant – OFSTP-7
 TIA-526-14-A: Optical Power Loss Measurements of Installed Multimode Fiber Cable Plant-OFSTP-14A
 TIA-598: Optical Fiber Cable Color Coding (January 2005)
 TIA-942: Telecommunications Infrastructure Standard for Data Centers
 BICSI-TDMM, Building Industries Consulting Services International, Telecommunications Distribution Methods Manual
 Fire stopping Systems - American Society for Testing and Materials (ASTM) E814, Underwriters Laboratories Inc. (UL) 1479
 National Electrical Code
 National Fire Protection Association 75 and 76
 City of Phoenix Codes, Ordinances, Standards, and Interpretations
 Phoenix Fire Standard 17200 Fire Station Dispatch Infrastructure
[A.R. 1.73, Control of Communications Services and Systems](#)
[b1.3 IT Waiver Standard](#)

Domain: <i>INF Architecture</i>	Number: <i>200.215</i>	Standard Title: <i>Telecommunications Cabling Systems</i>
---	----------------------------------	---

VI. QUESTIONS

Questions regarding this policy should be directed the DCIO of Enterprise Telecommunications Services.

This Policy has been approved.

By: Assistant Chief Information Officer, Business Operations


Tom Magrini

September 22, 2023
Date

VII. REVISION HISTORY

Version	Date	Detail of Changes
4.0	8/29/2023	Updated verbiage and formatting.
3.0	2/2/2023	BICSI updates, Aviation Supplement incorporated, Fire Technical Services section.
2.0	12/28/2016	BICSI updates.
1.0	11/1/2001	Original Approved Standard

0000 MA PHX T0236 01C
PHX-0(361)D
7th Street Fiber Transportation Enhancement

ENVIRONMENTAL COMMITMENTS

The following shall be included in the project special provisions:

- I.
- “The project mitigation measures are not subject to change without written approval from ADOT Environmental Planning. The Contractor shall follow all the requirements of the permits specified herein and comply with the project special provisions as well as the MAG Uniform Standard Specifications for Public Works, as well as all applicable local environmental requirements.”**

The following contractor’s mitigation measures, permits and guidelines (as applicable) shall be included in the project special provisions:

II. Project Mitigation Measures:

City of Phoenix Responsibilities:

- The attached Migratory Bird Treaty Act flyer will be incorporated into the bid documents and provided to the contractor, subcontractors, and all field personnel at the preconstruction meeting. The City of Phoenix Project Manager will ensure the contractor posts the Migratory Bird Treaty Act flyer at the construction site at all times during construction.
- If trees or shrubs will be impacted between February 1 and August 31 of any calendar year, or if an active bird nest is present within 30 feet of the work area, the City of Phoenix Project Manager will ensure that all work ceases within 30 feet and the Office of the City Engineer Environmental Services Section is immediately notified and allowed time to make appropriate arrangements.

Contractor Responsibilities:

- The contractor shall post the Migratory Bird Treaty Act flyer at the construction site at all times during construction.
- If trees or shrubs would be impacted between February 1 and August 31 of any calendar year, or if an active bird nest is present within 30 feet of the work area, work shall cease within 30 feet. The contractor shall immediately notify the City of Phoenix Project Manager and Office of the City Engineer Environmental Services Section. Reasonable time shall be allowed for a qualified biologist to arrive at the site and determine a compliant course of action.

III. Guidelines:

Migratory Bird Treaty Act Flyer

0000 MA PHX T0236 01C
PHX-0(361)D
7th Street Fiber Transportation Enhancement

ENVIRONMENTAL COMMITMENTS

The following shall be included in the project special provisions:

- I.
- “The project mitigation measures are not subject to change without written approval from ADOT Environmental Planning. The Contractor shall follow all the requirements of the permits specified herein and comply with the project special provisions as well as the MAG Uniform Standard Specifications for Public Works, as well as all applicable local environmental requirements.”**

The following contractor’s mitigation measures, permits and guidelines (as applicable) shall be included in the project special provisions:

II. Project Mitigation Measures:

City of Phoenix Responsibilities:

- The attached Migratory Bird Treaty Act flyer will be incorporated into the bid documents and provided to the contractor, subcontractors, and all field personnel at the preconstruction meeting. The City of Phoenix Project Manager will ensure the contractor posts the Migratory Bird Treaty Act flyer at the construction site at all times during construction.
- If trees or shrubs will be impacted between February 1 and August 31 of any calendar year, or if an active bird nest is present within 30 feet of the work area, the City of Phoenix Project Manager will ensure that all work ceases within 30 feet and the Office of the City Engineer Environmental Services Section is immediately notified and allowed time to make appropriate arrangements.

Contractor Responsibilities:

- The contractor shall post the Migratory Bird Treaty Act flyer at the construction site at all times during construction.
- If trees or shrubs would be impacted between February 1 and August 31 of any calendar year, or if an active bird nest is present within 30 feet of the work area, work shall cease within 30 feet. The contractor shall immediately notify the City of Phoenix Project Manager and Office of the City Engineer Environmental Services Section. Reasonable time shall be allowed for a qualified biologist to arrive at the site and determine a compliant course of action.

III. Guidelines:

Migratory Bird Treaty Act Flyer



Credit: DesertUSA.com/animals/cliff-swallow.html



City of Phoenix
OFFICE OF ENVIRONMENTAL PROGRAMS

Migratory Bird Treaty Act

(Applies to many birds in Phoenix)

The purpose of this flyer is to provide City of Phoenix employees with basic knowledge to reduce the risk of impacting species protected by the Migratory Bird Treaty Act.

Migratory Bird Treaty Act (MBTA)

Under the Migratory Bird Treaty Act of 1918, as amended, listed birds and their parts (including eggs, feathers, and nests) are fully protected. They are also protected under Arizona State Law, Title 17-101, Title 17-235, and Title 17-236. The MBTA states that it is illegal to:

- Pursue, hunt, take, capture, kill, possess, sell, purchase, barter, import, export, or transport any migratory bird, or any part, nest, or egg of any such bird.
 - 'Take' is defined as to "pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect."

More information regarding the MBTA can be found at:

- <http://www.fws.gov/birds/policies-and-regulations/laws-legislations/migratory-bird-treaty-act.php>
- <https://www.fws.gov/laws/lawsdigest/migtrea.html>

Where/When are they active?

- The nests of birds protected by the MBTA can be found in many places, including trees, shrubs, cacti, cattails, on the ground, in holes in the ground and on man-made structures including culverts, bridges, buildings, etc.
- The breeding cycle of most birds in Phoenix occurs between February 1 and August 31, although there are a few species that may nest outside that period. Some birds may be present year-round and others migrate, often during the late summer/early autumn period.

How to avoid impacting birds protected by the MBTA:

- If your project might impact active bird nests/burrows, work with the contact below during the design process to make appropriate arrangements before the project activity begins. Necessary actions may include active nest surveys, seasonal restrictions, or obtaining a project-specific relocation permit from the U.S. Fish and Wildlife Service.
- When actively working, be aware of your surroundings. If you see a nest that appears active (chirping, aggressive or distracting adult bird behavior, eggs present, etc.) **STOP WORK** within 30 feet of the nest and call the contact below.

Questions? Work may impact birds protected by the MBTA? Contact the City of Phoenix Office of Environmental Programs, Environmental Programs Coordinator, Tricia Balluff at (602) 534-1775 or tricia.balluff@phoenix.gov



Credit: AGFD



City of Phoenix
STREET TRANSPORTATION DEPARTMENT

Sonoran Desert Tortoise

(*Gopherus morafkai*)

The purpose of this flyer is to provide City of Phoenix employees and contractors working on City projects with basic knowledge to reduce the risk of impacting Sonoran Desert tortoise.

Legal Status:

The Sonoran Desert tortoise is a Tier 1A Species of Greatest Conservation Need in the State of Arizona, as defined by the Arizona Game and Fish Department (AGFD) and is a Candidate Species under the Endangered Species Act.

Species Description:

- Length: 8-15 inches
- Bottom shell yellowish and not hinged
- Hind limbs stocky and elephantine
- High-domed, brownish shell with a pattern and prominent growth lines
- Flattened forelimbs for digging, covered with conical scales

Where are they found?

- Rocky, steep slopes and lower mountain slopes
- Native desert scrubland
- Between 904 and 4,198 feet in elevation
- Washes and valley bottoms may be used in dispersal

Where are they active?

- Sonoran Desert tortoise spend the bulk of time in burrows, which provide protection from heat and cold
- Emerge from burrows on rocky slopes, desert scrub or grassland to feed, bask and breed, mostly during the monsoon season

How to avoid impacting Sonoran Desert tortoise:

- Scan ahead as you work
- ***If Sonoran Desert tortoise observed, STOP WORK, call the contact below and allow the tortoise to leave under its own power***
- Do NOT pick up or handle the Sonoran Desert tortoise unless the tortoise is in imminent danger. Improper handling can result in tortoise death. If a tortoise must be moved, strictly adhere to the following AGFD guidelines (rev. 9/22/2014): <https://s3.amazonaws.com/azgfd-portal-wordpress/Portallimages/files/wildlife/2014%20Tortoise%20handling%20guidelines.pdf>.
- When working in Sonoran Desert tortoise habitat, check for tortoises under parked vehicles before driving

Questions? Concerns? Think your project will impact Sonoran Desert tortoise? Contact the City of Phoenix Street Transportation Department, Environmental Services:

Andrea Love 602-495-6718 or via e-mail at <andrea.love@phoenix.gov>

Greta Halle 602-534-6030 or via e-mail at <greta.halle@phoenix.gov>

Sources: US Fish & Wildlife Service-Arizona Ecological Services Field Office, Sonoran Desert Tortoise, Document Library-Document by Species
<http://www.fws.gov/southwest/es/arizona/Documents/Redbook/Sonoran%20Tortoise%20RB.pdf>

Updated September 10, 2020



City of Phoenix
STREET TRANSPORTATION DEPARTMENT

Western Burrowing Owl

(*Athene cunicularia*)

The purpose of this flyer is to provide City of Phoenix employees and contractors working on City projects with basic knowledge to reduce the risk of impacting western burrowing owls.

Legal Status:

The western burrowing owl is protected under the Migratory Bird Treaty Act of 1918, as amended. All migratory birds and their parts (including eggs, feathers, and nests) are fully protected. They are also protected under Arizona State Law, Title 17-101, Title 17-235, and Title 17-236.

Species Description:

- Small, ground-dwelling owl (mass of approx. 5 oz.)
- Length: 7.6-9.9 inches, with long legs
- Wingspan: approx. 23 inches
- Round head, lacks ear tufts
- Distinct oval facial ruff, framed by a broad, puffy white eyebrow
- Bright yellow iris

Where are they found?

- Dry, open, short grass, treeless plains
- Human dominated landscapes such as:
 - Golf courses, airports
 - Agricultural fields, vacant lots
- Depends on other animals to construct burrows

Identifying an active burrow

- Western burrowing owls use burrows constructed by ground squirrels, badgers, coyotes, tortoises, etc., or may use pipes, culverts, and ditches.
- They may “decorate” the entrance to a burrow with cow, horse, or dog manure, feathers, vegetation, and trash items
- An active burrow may (not always) have owl excrement (“whitewash”) and/or pellets near the entrance

How to avoid impacting western burrowing owls:

- Scan ahead as you work
- ***If western burrowing owls or potentially active burrows observed, STOP WORK and MOVE at least 100 feet away from the owl or occupied burrow before resuming work***
 - Do not harass or “shoo” the owl away
- If the project cannot avoid or stay outside 100 feet of the owl or active burrow, call contact listed below

Questions? Need to work within 100 feet of a western burrowing owl or active burrow? Contact a City of Phoenix Street Transportation Department Environmental Quality Specialist:

Andrea Love 602-495-6718 or via e-mail at <andrea.love@phoenix.gov>

Greta Halle 602-534-6030 or via e-mail at <greta.halle@phoenix.gov>

Sources: Arizona Department of Transportation Environmental Planning Group Western Burrowing Owl Awareness Flyer
Arizona Game and Fish Department Animal Abstract: Western Burrowing Owl. Heritage Data Management System

Updated November 18, 2019



Credit: DesertUSA.com/animals/cliff-swallow.html



City of Phoenix
STREET TRANSPORTATION DEPARTMENT

Migratory Bird Treaty Act

(Applies to many birds in Phoenix)

The purpose of this flyer is to provide City of Phoenix employees and contractors with basic knowledge to reduce the risk of impacting species protected by the Migratory Bird Treaty Act.

Migratory Bird Treaty Act (MBTA)

Under the Migratory Bird Treaty Act of 1918, as amended, listed birds and their parts (including eggs, feathers, and nests) are fully protected. They are also protected under Arizona State Law, Title 17-101, Title 17-235, and Title 17-236. The MBTA states that it is illegal to:

- Pursue, hunt, take, capture, kill, possess, sell, purchase, barter, import, export, or transport any migratory bird, or any part, nest, or egg of any such bird.
 - 'Take' is defined as to "pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect."

More information regarding the MBTA can be found at:

- <http://www.fws.gov/birds/policies-and-regulations/laws-legislations/migratory-bird-treaty-act.php>
- <https://www.fws.gov/laws/lawsdigest/migtrea.html>

Where/When are they active?

- The nests of birds protected by the MBTA can be found in many places, including trees, shrubs, cacti, cattails, on the ground, in holes in the ground and on man-made structures including culverts, bridges, buildings, etc.
- The breeding cycle of most birds in Phoenix occurs between February 1 and August 31, although there are a few species that may nest outside that period. Some birds may be present year-round and others migrate, often during the late summer/early autumn period.

How to avoid impacting birds protected by the MBTA:

- If your project might impact active bird nests/burrows, work with one of the contacts below during the design process to make appropriate arrangements before the project activity begins. Necessary actions may include active nest surveys, seasonal restrictions, or obtaining a project-specific relocation permit from the U.S. Fish and Wildlife Service.
- When actively working, be aware of your surroundings. If you see a nest that appears active (chirping, aggressive or distracting adult bird behavior, eggs present, etc.) **STOP WORK** within 30 feet of the area and call one of the contacts below.

Questions? Work may impact birds protected by the MBTA? Contact a City of Phoenix Street Transportation Department Environmental Quality Specialist:

Andrea Love 602-495-6718 or via e-mail at <andrea.love@phoenix.gov>

Greta Halle 602-534-6030 or via e-mail at <greta.halle@phoenix.gov>

Updated November 18, 2019



Arizona Department of Transportation
Categorical Exclusion (CE) Checklist
for Actions Approved Under
23 CFR 771.117(c) & (d)

Project Information:

Project Name: 7th Street Fiber Transportation Enhancement

ADOT Project Number: 0000 MA PHX T0236 01C

Federal-Aid Number: PHX-0(361)D

Estimated Project Construction Cost: \$1,692,428

Planning Requirements:

☒ **STIP/Line Item**

☐ **ADOT Sub-program**

CE Start Date: 2/9/2023

Construction Project Administration

ADOT ☐ CA Agency ☒

Categorical Exclusion Approval for FMIS

2A - (c) Listed ☒

2B - (d) Listed ☐

2C - (d) Unlisted ☐

Re-evaluation:



This project has been re-evaluated pursuant to 23 CFR 771.129 due to a change in the project scope, location, or termini or because of the need to evaluate new impacts not previously considered, or because five years have passed since the date of the CE Approval. The information on this form reflects all updates to the project information.

Location and Limits:

This project is located along Deer Valley Road from 7th Avenue to 7th Street and along 7th Street from Deer Valley Road to Paradise Lane in the City of Phoenix, Maricopa County, Arizona. This project would occur within the City of Phoenix owned right-of-way (ROW) and ADOT owned ROW.

Purpose and Description (scope of work):

The purpose of this project is to extend the City of Phoenix (City) real-time transportation management capability along key roadway corridors in the City and enable more reliable network routing for City Intelligent Transportation Systems (ITS) devices in the area to improve travel time for motorists.

The scope of work for this project includes:

- Install fiber through existing conduit along Deer Valley Road between 7th Avenue and Central Avenue
- Install a new pull box between Central Avenue and 7th Street
- Directional boring and/or trenching to install ITS conduit/cables between the new pull box between Central Avenue and 7th Street to the intersection of 7th Street and Deer Valley Road
- Install a fiber optic cabinet near the northwest corner of 7th Street and Deer Valley Road
- Install new conduit and fiber infrastructure and connections to traffic signals along 7th Street to Paradise Lane
- Install conduit by attaching and/or directional boring to cross the bridge crossing 7th St over Cave Creek Wash, and 7th St bridge over Greenway Parkway Channel
- Directional boring and install new conduit underneath asphalt and concrete pavements, as needed
- Replace pull boxes and install new pull boxes, as needed

Purpose and Description (scope of work):

No new ROW, permanent easements or temporary construction easements (TCEs) would be required.

Type of CE - Choose one from (c) or (d) or Appendix A drop-down lists:

(c) - list: (c)(23)(i) Federally-funded projects that receive less than \$6,546,000 of Federal funds

(d) - list:

Note: If the project qualifies for a (c)(1) or a (c)(9) immediate emergency repair CE then no technical review is required and the CE is complete. Proceed to **NEPA Certification** and **Determination and Categorical Exclusion Approval**.

Environmental Review Section

Each category below will be reviewed and a determination from a drop-down menu will be selected for each. The checkbox will indicate review has been completed and the appropriate documentation placed in the Project File as applicable.

Air Quality – Clean Air Act

Transportation conformity is not applicable

Noise – 23 CFR 772

This project is not a Type I project as defined in 23 CFR 772.5

Biological Resources – Endangered Species Act

Project Determination: No Effect under Section 7 of the Endangered Species Act

Cultural Resources – Section 106

Section 106 Determination: No Adverse Effect

Section 4(f)

No Section 4(f) use

Section 404 – Clean Water Act

There are no potential impacts to Waters of the US

Section 401 – Clean Water Act

There are no potential impacts to Waters of the US

Hazardous Materials

A Preliminary Initial Site Assessment (PISA) has been completed and documented in the project file

Environmental Justice

This project has no residential or non-residential displacements, no impactful access changes and/or impactful detours and no potential Environmental Justice impacts

Public Involvement

Public involvement for the project has been conducted, as applicable, consistent with the ADOT Public Involvement Plan.

Other Considerations

Other potential environmental impacts such as Prime and Unique Farmlands, Sole Source Aquifers, Section 6(f) property, visual resources, etc. have been considered for this project and additional documentation as applicable is contained in the Project File.

Briefly cite **if** there are other applicable considerations and reference the appropriate file documentation. If no other considerations apply cite "n/a"

n/a

Complete this section only for CEs determined under 23 CFR 771.117(c)(26), (c)(27) and (c)(28) for evaluation of the constraints under 23 CFR 771.117(e):*If the answer to all questions 1 through 11 below is **No** then the project can be approved as a (c)(26), (c)(27) or (c)(28) CE.**If the answer to any question 1 through 11 for a project listed under (c)(26), (c)(27) or (c)(28) is **Yes** then the project exceeds the constraints listed under 23 CFR 771.117(e) and must be processed under (d)(13). Additional information regarding any constraint exceeded is included below.***Constraints:****Yes****No**

- | | | |
|--|-----------------------|-----------------------|
| 1. Does the project involve the permanent acquisition of more than a minor amount of right-of-way? | <input type="radio"/> | <input type="radio"/> |
| 2. Does the project involve any residential or non-residential displacements? | <input type="radio"/> | <input type="radio"/> |
| 3. Does the project require a bridge permit from the U.S. Coast Guard? | <input type="radio"/> | <input type="radio"/> |
| 4. Does the project require an Individual Permit under Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act? | <input type="radio"/> | <input type="radio"/> |
| 5. Does the project have a finding of "Adverse Effect" on historic properties protected by Section 106 of the NHPA by FHWA? | <input type="radio"/> | <input type="radio"/> |

Complete this section only for CEs determined under 23 CFR 771.117(c)(26), (c)(27) and (c)(28) for evaluation of the constraints under 23 CFR 771.117(e):

*If the answer to all questions 1 through 11 below is **No** then the project can be approved as a (c)(26), (c)(27) or (c)(28) CE.*

*If the answer to any question 1 through 11 for a project listed under (c)(26), (c)(27) or (c)(28) is **Yes** then the project exceeds the constraints listed under 23 CFR 771.117(e) and must be processed under (d)(13). Additional information regarding any constraint exceeded is included below.*

Constraints:	Yes	No
6. Does the project involve the use of a resource protected under Section 4(f) except for actions resulting in de minimis impacts?	<input type="radio"/>	<input type="radio"/>
7. Does the project have a finding of “may affect, likely to adversely affect” threatened or endangered species or critical habitat under the Endangered Species Act?	<input type="radio"/>	<input type="radio"/>
8. Does the project involve construction of temporary access, or the closure of an existing road, bridge, or ramp, that would result in major traffic disruptions?	<input type="radio"/>	<input type="radio"/>
9. Does the project involve a change in access control on a controlled access highway?	<input type="radio"/>	<input type="radio"/>
10. Does the project involve a floodplain encroachment for other than functionally dependent uses (e.g. bridges, wetlands) or actions that facilitate open space use (e.g. recreational trails, bicycle and pedestrian paths)?	<input type="radio"/>	<input type="radio"/>
11. Does the project involve construction activities in, across, or adjacent to a river component designated or proposed for inclusion in the National System of Wild and Scenic Rivers?	<input type="radio"/>	<input type="radio"/>



23 CFR 771.117(e) – Constraints Exceeded (If any “Yes” on Checklist)

--

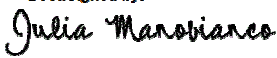
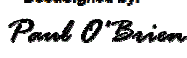
Certification and Determination by ADOT

<input checked="" type="checkbox"/>	The State has determined that this project has no significant impact(s) on the environment and that there are no unusual circumstances as described in 23 CFR 771.117(b). As such, the project is categorically excluded from the requirements to prepare an environmental assessment or environmental impact statement under NEPA. The action complies with NEPA requirements relating to connected actions and segmentation [23 CFR 771.111(f)]. The State has been assigned, and hereby certifies that it has carried out, the responsibility to make this determination pursuant to 23 U.S.C. 326 and a Memorandum of Understanding dated January 4, 2021, executed between FHWA and the State.
<input type="checkbox"/>	The State has determined that this project has no significant impact(s) on the environment and that there are no unusual circumstances as described in 23 CFR 771.117(b). As such, the project is categorically excluded from the requirements to prepare an environmental assessment or environmental impact statement under NEPA. The action complies with NEPA requirements relating to connected actions and segmentation [23 CFR 771.111(f)]. The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by ADOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated April 16, 2019 and executed by FHWA and ADOT.

Environmental Commitments

	Environmental commitments are included with this project and will be incorporated into the project plans, specifications and estimates as required.
	Environmental Permits Issues and Commitments (EPIC) sheet to be included.

Categorical Exclusion Approval

<p>DocuSigned by:  53C95E2F4FC5403...</p> <p>8/25/2023</p> <p>Prepared By: Julia Manobianco Environmental Planner</p> <p>Date:</p>	<p>DocuSigned by:  C44E3DEFE42B423...</p> <p>8/29/2023</p> <p>Approved By: Paul O'Brien, PE Administrator, Environmental Planning</p> <p>Date:</p>
--	--

CONSTRUCTION CONTRACTS DBE PROVISIONS

** FOR USE ON LPA FEDERAL AID PROJECTS WITH GOALS. **
* NOTE: REFER TO EDITING INSTRUCTIONS IN SECTIONS 12.0 AND 17.0 *

(LPA EPRISE, 07/01/2017)

DISADVANTAGED BUSINESS ENTERPRISES:

1.0 Policy:

The Arizona Department of Transportation (hereinafter the Department) has established a Disadvantaged Business Enterprise (DBE) program in accordance with the regulations of the U.S. Department of Transportation (USDOT), 49 CFR Part 26. The Department has received Federal financial assistance from the U.S. Department of Transportation and as a condition of receiving this assistance, the Department has signed an assurance that it will comply with 49 CFR Part 26.

It is the policy of the Department to ensure that DBEs, as defined in Part 26, have an equal opportunity to receive and participate in USDOT-assisted contracts. It is also the policy of the Department:

1. To ensure nondiscrimination in the award and administration of USDOT-assisted contracts;
2. To create a level playing field on which DBEs can compete fairly for USDOT-assisted contracts;
3. To ensure that the DBE program is narrowly tailored in accordance with applicable law;
4. To ensure that only firms that fully meet 49 CFR Part 26 eligibility standards are counted as DBEs;
5. To help remove barriers to the participation of DBEs in USDOT-assisted contracts;
6. To assist in the development of firms that can compete successfully in the market place outside the DBE program and;
7. To promote the use of DBEs in all types of federally-assisted contracts and procurement activities.

It is also the policy of the Department to facilitate and encourage participation of Small Business Concerns (SBCs), as defined herein in USDOT-assisted contracts. The Department encourages contractors to take reasonable steps to eliminate obstacles to SBCs' participation and to utilize SBCs in performing contracts.

Local Public Agencies (LPA) and or Subrecipients of Federal financial assistance have adopted ADOT's DBE Program Plan, adhere to the Department's DBE policy and will administer and manage the contracts from advertising, consultant selection, negotiation, contract execution, processing payment reports and contract modifications, audits, DBE compliance (e.g., reporting and monitoring) through contract closeout.

2.0 Assurances of Non-Discrimination:

The contractor, subrecipient, or subcontractor shall not discriminate on the basis of race, color, national origin or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of USDOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the LPA/Subrecipient, with the Department's concurrence, deems appropriate, which may include, but not limited to:

- (1) Withholding monthly progress payments;
- (2) Assessing sanctions;
- (3) Liquidated damages; and/or
- (4) Disqualifying the contractor from future bidding as non-responsible.

The contractor, subrecipient, or subcontractor shall ensure that all subcontract agreements contain this non-discrimination assurance.

3.0 Definitions:

- (A) Commercially Useful Function (CUF):** Commercially Useful Function is defined fully in 49 CFR 26.55 which definition is incorporated herein by reference.
- (B) Committed DBE:** A DBE that was identified by the contractor, typically on a DBE Affidavit, to meet an assigned DBE goal as a condition of contract award and performance, and includes any substitute DBE that has subsequently been committed work to meet the assigned contract goal.
- (C) Disadvantaged Business Enterprise (DBE):** a for-profit small business concern which meets both of the following requirements:
- (1) Is at least 51 percent owned by one or more socially and economically disadvantaged individuals or, in the case of any publicly owned business, at least 51 percent of the stock is owned by one or more such individuals; and,
 - (2) Whose management and daily business operations are controlled by one or more of the socially and economically disadvantaged individuals who own it.
- (D) Joint Check:** a two-party check between a subcontractor, DBE and/or non-DBE, a prime contractor and the regular dealer of material supplies.
- (E) Joint Venture:** an association of a DBE firm and one or more other firms to carry out a single, for-profit business enterprise, for which parties combine their property, capital, efforts, skills and knowledge, and in which the DBE is responsible for a distinct, clearly defined portion of the work of the contract and whose share in the capital contribution,

control, management, risks, and profits of the joint venture are commensurate with its ownership interest.

(F) NAICS Code: The North American Industry Classification System (NAICS) is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the US business economy.

(G) Non-DBE: any firm that is not a DBE.

(H) Race Conscious: a measure or program is one that is focused specifically on assisting only DBEs, including women-owned DBEs.

(I) Race Neutral: a measure or program is one that is, or can be, used to assist all small businesses. For the purposes of this part, race neutral includes gender-neutrality.

(J) Small Business Concern: a business that meets all of the following conditions:

- (1) Operates as a for-profit business;
- (2) Operates a place of business primarily within the U.S., or makes a significant contribution to the U.S. economy through payment of taxes or use of American products, materials, or labor;
- (3) Is independently owned and operated;
- (4) Is not dominant in its field on a national basis; and
- (5) Does not have annual gross receipts that exceed the Small Business Administration size standards average annual income criteria for its primary North American Industry Classification System (NAICS) code.

(K) Socially and Economically Disadvantaged Individuals: any individual who is a citizen (or lawfully admitted permanent resident) of the United States and who is:

- (1) Any individual who is found to be a socially and economically disadvantaged individual on a case-by-case basis.
- (2) Any individual in the following groups, members of which are rebuttably presumed to be socially and economically disadvantaged:
 - (i) "Black Americans," which includes persons having origins in any of the Black racial groups of Africa;
 - (ii) "Hispanic Americans," which includes persons of Mexican, Puerto Rican, Cuban, Dominican, Central or South American, or other Spanish or Portuguese culture or origin, regardless of race;

- (iii) "Native Americans," which includes persons who are enrolled members of a federally or State recognized Indian tribe, Alaskan Natives or Native Hawaiians;
- (iv) "Asian-Pacific Americans," which includes persons whose origins are from Japan, China, Taiwan, Korea, Burma (Myanmar), Vietnam, Laos, Cambodia (Kampuchea), Thailand, Malaysia, Indonesia, the Philippines, Brunei, Samoa, Guam, the U.S. Trust Territories of the Pacific Islands (Republic of Palau), the Republic of the Northern Marianas Islands, Macao, Fiji, Tonga, Kiribati, Tuvalu, Nauru, Federated States of Micronesia, or Hong Kong;
- (v) "Subcontinent Asian Americans," which includes persons whose origins are from India, Pakistan, Bangladesh, Bhutan, the Maldives Islands, Nepal or Sri Lanka;
- (vi) Women;
- (vii) Any additional groups whose members are designated as socially and economically disadvantaged by the Small Business Administration (SBA), at such time as the SBA designation becomes effective.

4.0 Working with DBEs:

The Department works with DBEs and assists them in their efforts to participate in the highway construction program. All bidders should contact the Department's Business Engagement and Compliance Office (BECO) by phone, through email, or at the address shown below, for assistance in their efforts to use DBEs in the highway construction program of the Department. BECO contact information is as follows:

Arizona Department of Transportation
Business Engagement and Compliance Office
1801 W. Jefferson Street, Room 101, Mail Drop 154A
Phoenix, AZ 85007
Phone (602) 712-7761
FAX (602) 712-8429
Email: contractorcompliance@azdot.gov
Website: www.azdot.gov/bec

4.01 Mentor-Protégé Program:

ADOT has established a Mentor-Protégé program as an initiative to encourage and develop disadvantaged businesses in the highway construction industry. The program encourages prime contractors to provide certain types of assistance to certified DBE subcontractors. ADOT encourages contractors and certified DBE subcontractors to engage in a Mentor-Protégé agreement under certain conditions. Such an agreement must be mutually beneficial to both

parties and to ADOT in fulfilling the requirements of 49 CFR Part 23. For guidance regarding this program, refer to the Mentor-Protégé Program Guidelines available on the BECO website.

The Mentor-Protégé program is intended to increase legitimate DBE activities. But the program does not diminish the DBE rules or regulations, and participants may not circumvent these rules.

5.0 Applicability:

ADOT has established an overall annual goal for DBE participation on Federal-aid contracts. ADOT intends for the goal to be met with a combination of race conscious and race neutral efforts. Race conscious participation occurs where the contractor uses a percentage of DBEs, as defined herein, to meet the contract-specified goal. Race neutral efforts are those that are, or can be, used to assist all small businesses or increase opportunities for all small businesses. The regulation, 49 CFR 26, describes race neutral participation as when a DBE wins a prime contract through customary competitive procurement procedures or is awarded a subcontract on a prime contract that does not carry a DBE contract goal.

The contractor shall meet the goal specified herein with DBEs, or establish that it was unable to meet the goal despite making good faith efforts to do so. Prime contractors are encouraged to obtain DBE participation above and beyond any goals that may be set for this project.

The DBE provisions are applicable to all bidders including DBE bidders.

6.0 Certification and Registration:

6.01 DBE Certification:

Certification as a DBE shall be predicated on:

- (1) The completion and execution of an application for certification as a "Disadvantaged Business Enterprise".
- (2) The submission of documents pertaining to the firm(s) as stated in the application(s), including but not limited to a statement of social disadvantage and a personal financial statement.
- (3) The submission of any additional information which the Department may require to determine the firm's eligibility to participate in the DBE program.
- (4) The information obtained during the on-site visits to the offices of the firm and to active job-sites.

Applications for certification may be filed online with the Department or one of its Unified Certification Program (UCP) partner agencies at any time through the Arizona Unified Transportation Registration and Certification System (AZ UTRACS) website at <http://www.azutracs.com>.

DBE firms and firms seeking DBE certification shall cooperate fully with requests for information relevant to the certification process. Failure or refusal to provide such information is a ground for denial or removal of certification.

ADOT is a member of the AZ Unified Certification Program (AZUCP). Only DBE firms that are certified by the AZUCP are eligible for credit on ADOT projects. A list of DBE firms certified by AZUCP is available on the internet at <http://www.azutracs.com/>. The list will indicate contact information and specialty for each DBE firm, and may be sorted in a variety of ways. However, ADOT does not guarantee the accuracy and/or completeness of this information, nor does ADOT represent that any licenses or registrations are appropriate for the work to be done.

The Department's certification of a DBE is not a representation of qualifications and/or abilities; only that the firm has met the criteria for DBE certification as outlined in 49 CFR Part 26. The contractor bears all risks of ensuring that DBE firms selected by the contractor are able to perform the work.

6.02 SBC Registration:

To comply with 49 CFR Part 26.39, ADOT's DBE Program incorporates contracting requirements to facilitate participation by Small Business Concerns (SBCs) in federally assisted contracts. SBCs are for-profit businesses authorized to do business in Arizona that meet the Small Business Administration (SBA) size standards for average annual revenue criteria for its primary North American Industry Classification System (NAICS) code.

While the SBC component of the DBE program does not require utilization goals on projects, the Department and the LPA/Subrecipient encourages contractors to utilize small businesses that are registered in AZ UTRACS on their contracts, in addition to DBEs meeting the certification requirement. The contractor may use the AZ UTRACS website to search for certified DBEs and registered SBCs that can be used on the contract. However, SBCs that are not DBEs will not be counted toward the DBE contract goal.

SBCs can register online at the AZ UTRACS website. The registration of SBCs is not a representation of qualifications and/or abilities. The contractor bears all risks of ensuring that SBC firms selected by the contractor are able to perform the work.

7.0 DBE Financial Institutions:

ADOT thoroughly investigates the full extent of services offered by financial institutions owned and controlled by socially and economically disadvantaged individuals in its service area and makes reasonable efforts to use these institutions. ADOT encourages prime contractors to use such institutions on USDOT assisted contracts. However, use of DBE financial institutions will not be counted toward the DBE contract goal.

ADOT and the LPA/Subrecipient encourages prime contractors to research the Federal Reserve Board website at www.federalreserve.gov to identify minority-owned banks in Arizona derived

from the Consolidated Reports of Condition and Income filed quarterly by banks (FFIEC 031 and 041) and from other information on the Board's National Information Center database.

8.0 Time is of the Essence:

TIME IS OF THE ESSENCE IN RESPECT TO THE DBE PROVISIONS.

9.0 Computation of Time:

In computing any period of time described in this DBE special provision, such as calendar days, the day from which the period begins to run is not counted, and when the last day of the period is a Saturday, Sunday, or Federal or State holiday, the period extends to the next day that is not a Saturday, Sunday, or Federal or State holiday. In circumstances where the LPA/Subrecipient Procurement Office is closed for all or part of the last day, the period extends to the next day on which the LPA/Subrecipient Procurement Office is open.

10.0 Contractor and Subcontractor Requirements:

10.01 General:

The contractor shall establish a DBE program that will ensure nondiscrimination in the award and administration of contracts and subcontracts.

Agreements between the bidder and a DBE in which the DBE promises not to provide subcontracting quotations to other bidders are prohibited.

10.02 DBE Liaison:

The contractor shall designate a DBE Liaison responsible for the administration of the contractor's DBE program. The name of the designated DBE Liaison shall be included in the DBE Intended Participation Affidavit Summary.

11.0 Bidders/Proposers List and AZ UTRACS Registration Requirement:

Under Title 49 CFR of the Code of Federal Regulations, Part 26.11, DOTs are required to collect certain information from all contractors and subcontractors who seek to work on federally-assisted contracts in order to set overall and contract DBE goals. ADOT collects this information through a Bidders/Proposers List when firms register their companies on the Arizona Unified Transportation Registration and Certification System (AZ UTRACS) web portal at <http://www.azutracs.com/> a centralized database for companies that seek to do business with ADOT and the LPA/Subrecipient. This information will be maintained as confidential to the extent allowed by federal and state law.

Prime contractors and all subcontractors, including DBEs, must be registered in AZ UTRACS. Bidders may verify that their firm and each subcontractors is registered using the AZ UTRACS website.

Bidders may obtain additional information at the AZ UTRACS website or by contacting the LPA/Subrecipient.

Bidders shall create the Bidders/Proposers List in the AZ UTRACS by selecting all subcontractors, service providers, manufacturers and suppliers that expressed interest or submitted bids, proposals or quotes for this contract. The Bidders/Proposers List form must be complete and must include the names for all subcontractors, service providers, manufacturers and suppliers regardless of the bidders' intentions to use those firms on the project.

All bidders must complete the Bidders/Proposers List online at AZ UTRACS whether they are the apparent low bidder or not. A confirmation email will be generated by the system. The bidders shall submit to the LPA/Subrecipient a copy of the email confirmation no later than 4:00 p.m. on the fifth calendar day following the bid opening. Faxed copies are acceptable.

FAILURE TO SUBMIT THE REQUIRED BIDDERS/PROPOSERS LIST TO THE LPA/SUBRECIPIENT PROCUREMENT OFFICE BY THE STATED TIME AND IN THE MANNER HEREIN SPECIFIED SHALL BE CAUSE FOR THE BIDDER BEING DEEMED INELIGIBLE FOR AWARD OF THE CONTRACT.

12.0 DBE Goals:

The minimum goal for participation by DBEs on this project is as follows:

_____ Percent

The percentage of DBE participation shall be based on the total construction bid.

13.0 Submission with Bids:

All bidders are required to certify in their bid proposal on the "Disadvantaged Business Enterprise Goal Assurance" certificate either:

- (1) The bidder has met the established DBE goal and arrangements with certified DBEs have been made prior to the submission of the bid, or
- (2) The bidder has been unable to meet the established DBE goal prior to the submission of the bid and has made good faith efforts to do so.

For the purpose of this section, 'arrangements' means, at a minimum, agreement between the bidder and the certified DBE, either written or oral, on unit prices and scope of work.

This certificate may not be revised or corrected after submission of the bid. If the bidder certifies that it has met the goal, the bidder cannot change its position after submission of the bid and submit documentation of a good faith effort. If the bidder certifies that it has been unable to meet the goal and has made a good faith effort, the bidder cannot change its

position after submission of the bid and claim to have met or be able to meet the established goal.

Bids submitted with altered, incomplete or unsigned certificates will be considered non-responsive. Bids submitted with certifications on forms other than those furnished by the LPA/Subrecipient Procurement Office will be considered non-responsive.

Certifications on forms other than those furnished by the LPA/Subrecipient will be considered non-responsive.

14.0 Bidder Meeting DBE Goal:

14.01 General:

To be considered responsible and eligible for award of a contract, a bidder who has indicated in its bid that it met the DBE goal must submit the information described in this Subsection no later than five calendar days after bid opening.

If the bid of the apparent low bidder is rejected for any reason, the next low bidder may become the apparent low bidder only if it had submitted the information described in this Subsection or Subsection 15.01, as appropriate, no later than five calendar days after bid opening.

In order to be awarded this contract, a bidder must establish either (1) that it has met the DBE participation goal of the contract or (2) that it has made adequate good faith efforts (GFE) to meet the DBE goal. This requirement is in addition to all other pre-award requirements.

If the apparent low bidder indicates in the bid that it has met the DBE goal, the bidder shall submit a DBE Intended Participation Affidavit for each individual DBE, and the Intended Participation Affidavit Summary as follows:

- (1) The DBE Intended Participation Affidavit for each individual DBE and the Intended Participation Affidavit Summary must be received by LPA/Subrecipient Procurement Office no later than 4:00 P.M. on the fifth calendar day following the bid opening. Copies of these forms are available from LPA/Subrecipient. The affidavits and Summary shall indicate that the bidder has met DBE goal if this was indicated on the submittal with the bid.
- (2) The Intended Participation Affidavit Summary and the DBE Intended Participation Affidavit for each individual DBE must be accurate and complete in every detail and must be signed by an officer of the contractor(s). Percentages and dollar amounts must be accurate. Percentages shall be listed to two decimal places. The DBE Intended Participation Affidavit Summary must be submitted listing all the DBEs intended to be used and the creditable amounts.

- (3) A separate DBE Intended Participation Affidavit must be submitted for each DBE used to meet the goal of the project. The bidder shall indicate each DBE's name,—a description of the work the DBE will perform, bid item number, proposed subcontract amount, and the NAICS code applicable to the kind of work the firm would perform on the contract. A list of certified DBEs with their respective NAICS codes can be located on the DBE Directory at AZ UTRACS website. All partial items must be explained. If not, the DBE will be considered to be responsible for the entire item. The intended DBE must complete and sign the form to confirm its participation in the contract.
- (4) The affidavits and summary may be submitted electronically through email to the LPA/Subrecipient Procurement Office.
- (5) A bidder must determine DBE credit in accordance with DBE Subsection 18 (Crediting DBE Participation Toward Meeting Goals). The affidavit will be reviewed, and approved or rejected by the LPA/Subrecipient Procurement Office, with BECO concurrence.
- (6) Only those DBE firms certified by the Arizona Unified Certification Program (AZUCP) as of the deadline for bid submittal will be considered for DBE credit. It shall be the bidder's responsibility to ascertain the certification status of designated DBEs.
- (7) All DBE commitment amounts must be finalized between the DBE subcontractor and the bidder prior to the deadline for affidavit submittal. Bidders shall not inflate DBE awards in order to meet contract goals.
- (8) The bidder bears the risk of late submission or late delivery by the postal service or a delivery service. Affidavits and Summary received by the LPA/Subrecipient Procurement Office after 4:00 P.M. on the fifth calendar day following the bid opening will not be accepted.
- (9) Reduction of DBE commitments after affidavit submittal and prior to execution of the contract without good cause will result in the bid being rejected or LPA/Subrecipient rescinding any award. Scheduling conflicts are not necessarily evidence of good cause as this should have been considered during pre-bid negotiations. The contractor is responsible for ensuring the DBE is available to meet the requirements of the contract.

14.02 Failure to Comply:

If the apparent low bidder fails to submit the required information by the stated time and in the manner herein specified, or if the submitted information reveals a failure to meet the requirements of the specifications, the apparent low bidder shall be ineligible to receive award of the contract and the bid will be rejected.

15.0 Documented Good Faith Effort:

15.01 General:

To be considered responsible and eligible for award of a contract a bidder, who has indicated in its bid that it was unable to meet the DBE goal but made good faith efforts must submit the information described in this Subsection no later than five calendar days after bid opening.

If the bid of the apparent low bidder is rejected for any reason, the next low bidder may become the apparent low bidder only if it had submitted the information described in this Subsection or Subsection 14.01, as appropriate, no later than five calendar days after bid opening.

Failure to demonstrate good faith efforts to the satisfaction of the LPA/Subrecipient with concurrence of BECO will result in the rejection of the bid. In the event that the low bid is rejected, the Department will consider award of the contract to the next responsible and responsive bidder. To be considered responsive, the bidder must have submitted the information described in either Subsection 14 or 15 of this DBE special provision, no later than five calendar days after bid opening.

The bidder's good faith effort documentation must be submitted to and received by the LPA/Subrecipient Procurement Office by 4:00 P.M. on the fifth calendar day after the bids are opened. Good faith effort documentation may be submitted electronically through email to the LPA/Subrecipient Procurement Office. Good faith effort documentation submitted after the time specified will not be accepted.

The bidder bears the risk of late submission or late delivery by the postal service or a delivery service.

The documentation of good faith efforts must include copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor was selected over a DBE for work on the contract. A generalized assertion that the contractor received multiple quotes is not sufficient unless copies of those quotes are provided.

Bidders are encouraged to review Appendix A of 49 CFR Part 26.

Useful information related to encouraging DBE participation and documented good faith efforts can be found in the "Good Faith Effort Guide" and other documents made available on the internet at BECO's website. The information provided in the "Good Faith Effort Guide" does not replace the specifications; bidders must comply with the requirements of this specification.

In order to be awarded a contract on the basis of good faith efforts, a bidder must show that it took all necessary and reasonable steps to achieve the DBE goal which, by their scope, intensity, and appropriateness to the objective, could reasonably be expected to obtain sufficient DBE participation, even if they were not fully successful. The quality, quantity, and intensity of the different kinds of efforts the bidder made will be evaluated. The efforts employed by the bidder should be those that one could reasonably expect a bidder to make if the bidder were actively and aggressively trying to obtain DBE participation sufficient to meet the DBE goal. Mere pro forma efforts are not sufficient good faith efforts to meet the DBE contract requirements.

The bidder shall, as a minimum, seek DBEs in the same geographic area in which it generally seeks subcontractors for a given project. If the bidder cannot meet the goals using DBEs from this geographic area, the bidder, as part of its effort to meet the goals, shall expand its search to a reasonably wider geographic area.

The following is a list of types of efforts a bidder must address when submitting good faith effort documentation:

- (1) Contacting the LPA/Subrecipient and BECO prior to the submission of bids, either by e-mail, or by telephone, to inform of the firm's difficulty in meeting the DBE goals on a given project, and requesting assistance. The bidder must document its contact with LPA/Subrecipient and BECO, and indicate the type of contact, the date and time of the contact, the name of the person(s) contacted, and any details related to the communication. The contact must be made in sufficient time before bid submission to allow the LPA/Subrecipient and BECO to provide effective assistance. The bidder will not be considered to have made good faith efforts if the bidder failed to contact LPA/Subrecipient and BECO.
- (2) Conducting market research to identify small business contractors and suppliers, and soliciting, through all reasonable and available means the interest of all certified DBEs who have the capability to perform the work of the contract. This may include attendance at pre-bid meetings and business matchmaking meetings and events, advertising and/or providing written notices, posting of "Notices of Sources Sought" and/or "Requests for Proposals" at reasonable locations, including the contractor's website, written notices or emails to all DBEs listed in the Department's directory of transportation firms that specialize in areas of work desired (as noted in the DBE directory) and which are located in the area or surrounding areas of the project. The bidder should solicit this interest as early in the acquisition process as practicable to allow DBEs to respond to the solicitation and submit a timely offer for the subcontract. The bidder should determine with certainty if the DBEs are interested by taking appropriate steps to follow-up initial solicitations.
- (3) Selecting portions of the work to be performed by DBEs in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units (for example smaller tasks or quantities) to facilitate DBE participation, even when the prime contractor might otherwise prefer to perform these work items with its own forces. This may include, where possible, establishing flexible time frames for performance and delivery schedules in a manner that encourages and facilitates DBE participation.
- (4) Providing interested DBEs with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist DBEs in responding to solicitations.

- (5) Negotiating in good faith with interested DBEs. It is the bidder's responsibility to make a portion of the work available to the DBE subcontractors and suppliers, and to select those portions of work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBEs that were considered; a description of the information provided from the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBEs to perform work.

Mailings to DBEs requesting bids are not alone sufficient to constitute good faith effort.

A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBEs is not in itself sufficient reason for a bidder's failure to meet the DBE goal, as long as such costs are reasonable. Also, the ability or desire of a prime contractor to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. However, prime contractors are not required to accept higher quotes from DBEs if the price difference is excessive or unreasonable. Documentation, such as copies of all other bids or quotes, must be submitted.

- (6) Not rejecting DBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The contractor's standing within its industry, membership in specific groups, organizations or associations and political or social affiliations (for example, union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the contractor's efforts to meet the project goal.
- (7) Making efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or contractor.
- (8) Making efforts to assist interested DBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.
- (9) Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, state, and Federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBEs.

Another practice considered an insufficient good faith effort is the rejection of the DBE because its quotation for the work was not the lowest received. The contractor must submit copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor was selected over a DBE for work on the contract. A generalized assertion that the contractor has received multiple quotes is not sufficient unless copies of those quotes are provided. The Department may contact rejected DBEs as part of its investigation.

However, nothing in this paragraph shall be construed to require the bidder or prime contractor to accept unreasonable quotes in order to satisfy contract goals.

In determining whether a bidder has made good faith efforts, the LPA/Subrecipient will review the documented efforts of the contractor and will review the performance of other bidders in meeting the contract goal.

A promise to use DBEs after contract award is not considered to be responsive to the contract solicitation or to constitute good faith efforts.

The LPA/Subrecipient will evaluate the submittal and make a determination, with BECO concurrence, on whether in fact good faith efforts have been demonstrated consistent with the specifications and the Federal regulations, 49 CFR 26, Appendix A.

15.02 Failure to Comply:

If the apparent low bidder fails to submit the required information by the stated time and in the manner herein specified, or if the submitted information reveals a failure to meet the requirements of the specifications, the apparent low bidder shall be ineligible to receive award of the contract and the bid will be rejected.

15.03 Appeal and Protest of Good Faith Effort Determination:

Any interested party may appeal the determination of LPA/Subrecipient to the State Engineer. That appeal must be in writing and personally delivered or sent by certified mail, return receipt requested, to the State Engineer. The protest must be received by the State Engineer no later than seven calendar days after the decision of the LPA/Subrecipient. Copies of the protest shall be sent by the protestant to the LPA/Subrecipient and every bidder, at the same time the protest is submitted to the State Engineer. Any bidder whose bid is rejected for failure to meet the goal or make GFE will be given the opportunity to meet in person with the State Engineer, at the bidder's written request included in the protest, to discuss the issue of whether it met the goal or made adequate good faith efforts to do so.

Any interested party may submit a response to the appeal no later than seven calendar days after the appeal. Responses from interested parties must also be in writing and personally delivered or sent by certified mail, return receipt requested, to the State Engineer. Any interested party submitting such response shall also provide a copy of its response to the LPA/Subrecipient and every bidder, at the same time the protest is submitted to the State Engineer. The State Engineer shall promptly consider any appeals under this subsection and shall notify the LPA/Subrecipient and all bidders in writing of the State Engineer's findings and decision.

In accordance with 49 CFR 26.53(d)(5), the result of the State Engineer's decision is not subject to administrative appeal to the USDOT.

16.0 Rejection of Low Bid:

If, for any reason, the bid of the apparent low bidder is rejected, a new apparent low bidder will be identified. The LPA/Subrecipient Procurement Office will notify the new apparent low bidder.

A bidder may become the apparent low bidder only if it had submitted the information described in Subsection 14.01 or 15.01, as appropriate, no later than five calendar days after bid opening.

17.0 Payment Reporting:

The contractor shall report on a monthly basis indicating the amounts paid to all subcontractors, of all tiers, working on the project. Reporting shall be in accordance with Prompt Pay and Payment Reporting requirements section ____ of the contract specifications.

18.0 Crediting DBE Participation Toward Meeting Goals:

18.01 General Requirements:

To count toward meeting a goal, the DBE firm must be certified as of the deadline for submission of bids in each NAICS code applicable to the kind of work the firm will perform on the contract. NAICS for each DBE can be found on the AZ UTRACS under the Firm Directory. General descriptions of all NAICS codes can be found at www.naics.com.

Credit towards the contractor's DBE goal is given only after the DBE has been paid for the work performed.

The entire amount of a contract that is performed by the DBE's own forces, including the cost of supplies and materials purchased by the DBE for the work on the contract and equipment leased by the DBE will be credited toward DBE participation. Supplies and equipment the DBE subcontractor purchases or leases from the prime contractor or its affiliate will not be credited toward DBE participation. Work included in a force account item cannot be listed on the DBE Intended Participation Affidavit.

The contractor bears the responsibility to determine whether the DBE possesses the proper contractor's license(s) to perform the work and, if DBE credit is requested, that the DBE subcontractor is certified for the requested type of work.

If a DBE cannot complete its work due to failure to obtain or maintain its licensing, the contractor bears the responsibility to notify the LPA/Subrecipient immediately after the contractor becomes aware of the situation, and request approval to replace the DBE with another DBE. The

contractor shall follow the DBE termination/substitution requirements described in Subsection 24.0 of these DBE provisions.

The Department's certification is not a representation of a DBE's qualifications and/or abilities. The contractor bears all risks that the DBE may not be able to perform its work for any reason.

A DBE may participate as a prime contractor, subcontractor, joint venture partner with either a prime contractor or a subcontractor, or as a vendor of materials or supplies. A DBE joint venture partner shall be responsible for a clearly defined portion of the work to be performed, in addition to meeting the requirements for ownership and control.

The dollar amount of work to be accomplished by DBEs, including partial amount of a lump sum or other similar item, shall be on the basis of subcontract, purchase order, hourly rate, rate per ton, etc., as agreed to between parties.

With the exception of bond premiums, all work must be attributed to specific bid items. Where work applies to several items, the DBE contracting arrangement must specify unit price and amount attributable to each bid item. DBE credit for any individual item of work performed by the DBE shall be the lesser of the amount to be paid to the DBE or the prime contractor's bid price. If the amount bid by the DBE on any item exceeds the prime contractor's bid amount, the prime contractor may not obtain credit by attributing the excess to other items.

Where more than one DBE is engaged to perform parts of an item (for example, supply and installation), the total amount payable to the DBEs will not be considered in excess of the prime contractor's bid amount for that item.

Bond premiums may be stated separately, so long as the arrangement between the prime contractor and the DBE provides for separate payment not to exceed the price charged by the bonding company.

DBE credit may be obtained only for specific work done for the project, supply of equipment specifically for physical work on the project, or supply of materials to be incorporated in the work. DBE credit will not be allowed for costs such as overhead items, capital expenditures (for example, purchase of equipment), and office items.

If a DBE performs part of an item (for example, installation of materials purchased by a Non-DBE), the DBE credit shall not exceed the lesser of (1) the DBE's contract or (2) the prime contractor's bid for the item, less a reasonable deduction for the portion performed by the Non-DBE.

When a DBE performs as a partner in a joint venture, only that portion of the total dollar value of the contract which is clearly and distinctly performed by the DBE's own forces can be credited toward the DBE goal.

The contractor may credit second-tier subcontracts issued to DBEs by non-DBE subcontractors. Any second-tier subcontract to a DBE used to meet the goal must meet the requirements of a first-tier DBE subcontract.

A prime contractor may credit the entire amount of that portion of a construction contract that is performed by the DBE's own forces. The cost of supplies and materials obtained by the DBE for the work of the contract can be included so long as that cost is reasonable. Leased equipment may also be included. No credit is permitted for supplies purchased or equipment leased from the prime contractor or its affiliate(s).

When a DBE subcontracts a part of the work of its contract to another firm, the value of the subcontract may be credited towards the DBE goal only if the DBE's subcontractor is itself a DBE and performs the work with its own forces. Work that a DBE subcontracts to a non-DBE firm does not count toward a DBE goal.

A prime contractor may credit the entire amount of fees or commissions charged by a DBE firm for providing a bona fide service, such as professional, technical, consultant, or managerial services, or for providing bonds or insurance specifically required for the performance of a USDOT-assisted contract, provided the fees are reasonable and not excessive as compared with fees customarily allowed for similar services.

18.02 DBE Prime Contractor:

When a certified DBE firm bids on a contract that contains a DBE goal, the DBE firm is responsible for meeting the DBE goal on the contract or making good faith efforts to meet the goal, just like any other bidder. In most cases, a DBE bidder on a contract will meet the DBE goal by virtue of the work it performs on the contract with its own forces. However, all the work that is performed by the DBE bidder or any other DBE subcontractors and DBE suppliers will count toward the DBE goal. The DBE bidder shall list itself along with any DBE subcontractors and suppliers, on the DBE Intended Participation Affidavit and Summary in order to receive credit toward the DBE goal.

18.03 Effect of Loss of DBE Eligibility:

If a DBE is deemed ineligible (decertified) or suspended in accordance with 49 CFR 26.87 and 26.88, the DBE may not be considered to meet a contract goal on a new contract, but may be considered to meet the contract goal under a subcontract that was executed before the DBE suspension or decertification is effective.

When a committed DBE firm or a DBE prime contractor loses its DBE eligibility and a subcontract or contract has not been executed before a decertification notice is issued to the DBE firm by its certifying agency, the ineligible firm does not count toward the contract goal. The contractor must meet the contract goal with an eligible DBE firm or firms or demonstrate good faith effort. When a subcontract is executed with the DBE firm before the Department notified the firm of its ineligibility, the contractor may continue to use the firm on the contract and may continue to receive credit toward the DBE goal for the firm's work.

18.04 Notifying the Contractor of DBE Certification Status:

Each DBE contract of any tier shall require any DBE subcontractor or supplier that is either decertified or certified during the term of the contract to immediately notify the contractor and all parties to the DBE contract in writing, with the date of decertification or certification. The contractor shall require that this provision be incorporated in any contract of any tier in which a DBE is a participant.

18.05 Police Officers:

DBE credit will not be permitted for procuring DPS officers. For projects on which officers from other agencies are supplied, DBE credit will be given only for the broker fees charged, and will not include amounts paid to the officers. The broker fees must be reasonable.

18.06 Commercially Useful Function:

A prime contractor can credit expenditures to a DBE subcontractor toward DBE goals only if the DBE performs a Commercially Useful Function (CUF).

A DBE performs a CUF when it is responsible for execution of the work of a contract and carries out its responsibilities by actually performing, managing, and supervising the work involved. To perform a commercially useful function, the DBE must also be responsible, with respect to materials and supplies on the contract, for negotiating price, determining quality and quantity, ordering the material, and installing (where applicable) and paying for the material itself that it uses on the project. To determine whether a DBE is performing a commercially useful function, the LPA/Subrecipient will evaluate the amount of work subcontracted, industry practices, whether the amount the firm is to be paid under the contract is commensurate with the work it is actually performing and the DBE credit claimed for its performance of the work, and other relevant factors.

A DBE will not be considered to perform a commercially useful function if its role is limited to that of an extra participant in a transaction, contract, or project through which funds are passed in order to obtain the appearance of DBE participation. In determining whether a DBE is such an extra participant, the LPA/Subrecipient will examine similar transactions, particularly those in which DBEs do not participate.

If a DBE does not perform or exercise responsibility for at least 30 percent of the total cost of its contract with its own work force, or if the DBE subcontracts a greater portion of the work of a contract than would be expected on the basis of normal industry practice for the type of work involved, the LPA/Subrecipient will presume that the DBE is not performing a commercially useful function.

When a DBE is presumed not to be performing a commercially useful function as provided above, the DBE may present evidence to rebut this presumption. The LPA/Subrecipient will

determine if the firm is performing a CUF given the type of work involved and normal industry practices.

The LPA/Subrecipient will notify the contractor, in writing, if it determines that the contractor's DBE subcontractor is not performing a CUF. The contractor will be notified within seven calendar days of the LPA/Subrecipient's decision.

Decisions on CUF may be appealed to the ADOT BECO. The appeal must be in writing and personally delivered or sent by certified mail, return receipt requested, to the ADOT BECO. The appeal must be received by the ADOT BECO no later than seven calendar days after the decision of LPA/Subrecipient. LPA/Subrecipient decision remains in effect unless and until ADOT BECO reverses or modifies LPA/Subrecipient decision. ADOT BECO will promptly consider any appeals under this subsection and notify the contractor of the ADOT BECO findings and decisions. Decisions on CUF matters are not administratively appealable to USDOT.

The LPA/Subrecipient will conduct project site visits on the contract to confirm that DBEs are performing a CUF. The contractor shall cooperate during the site visits and the LPA/Subrecipient staff will make every effort not to disrupt work on the project.

18.07 Trucking:

LPA/Subrecipient will use the following factors in determining whether a DBE trucking company is performing a commercially useful function. The DBE must be responsible for the management and supervision of the entire trucking operation for which it is responsible on a particular contract, and there cannot be a contrived arrangement for the purpose of meeting DBE goals.

The DBE must itself own and operate at least one fully licensed, insured, and operational truck used on the contract on every day that credit is to be given for trucking.

The contractor will receive credit for the total value of transportation services provided by the DBE using trucks it owns, insures and operates, and using drivers it employs.

The DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. The DBE who leases trucks from another DBE receives credit for the total value of the transportation services.

The DBE may also lease trucks from a non-DBE firm, including an owner-operator. The DBE who leases trucks with drivers from a non-DBE is entitled to credit for the total value of the transportation services provided by non-DBE leased trucks with drivers not to exceed the value of transportation services on the contract provided by DBE-owned trucks or leased trucks with DBE employee drivers. Additional participation by non-DBE owned trucks with drivers receives credit only for the fee or commission paid to the DBE as a result of the lease agreement.

Example: DBE Firm X uses two of its own trucks on a contract. It leases two trucks from DBE Firm Y and six trucks from non-DBE firm Z. DBE credit would be awarded for the total value of transportation services provided by Firm X and Firm Y, and may also be awarded for the total value of transportation services provided by four of the six trucks provided by Firm Z. In all, full credit would be allowed for the participation of eight trucks. DBE credit could be awarded only for the fees or commissions pertaining to the remaining trucks Firm X receives as a result of the lease with Firm Z.

The DBE may lease trucks without drivers from a non-DBE truck leasing company. If the DBE leases trucks from a non-DBE leasing company and uses its own employees as drivers, it is entitled to credit for the total value of these hauling services.

Example: DBE Firm X uses two of its own trucks on a contract. It leases three additional trucks from non-DBE Firm Z. Firm X uses its own employees to drive the trucks leased from Firm Z. DBE credit would be awarded for the total value of the transportation services provided by all five trucks.

For purposes of this section, a lease must indicate that the DBE has exclusive use of and control over the truck. This does not preclude the leased truck from working for others during the term of the lease with the consent of the DBE, so long as the lease gives the DBE absolute priority for use of the leased truck. Leased trucks must display the name and identification number of the DBE. Credit will be allowed only for those lease costs related to the time each truck is devoted to the project.

DBE credit for supplying paving grade asphalt and other asphalt products will only be permitted for standard industry hauling costs, and only if the DBE is owner or lessee of the equipment and trucks. Leases for trucks must be long term (extending for a fixed time period and not related to time for contract performance) and must include all attendant responsibilities such as insurance, titling, hazardous waste requirements, and payment of drivers.

18.08 Materials and Supplies:

LPA/Subrecipient will credit expenditures with DBEs for material and supplies towards the DBE goal as follows. If the materials or supplies are obtained from a DBE manufacturer, 100 percent of the cost of the materials or supplies is credited. A manufacturer is defined as a firm that operates or maintains a factory or establishment that produces, on the premises, the materials, supplies, articles, or equipment required under the contract, and of the general character described by the specifications.

If the materials or supplies are purchased from a DBE regular dealer, 60 percent of the cost of the materials or supplies is credited. A DBE regular dealer is defined as a firm that owns, operates, or maintains a store or warehouse or other establishment in which the materials, supplies, articles, or equipment of the general character described by the specifications and required under the contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business. To be a regular dealer, the firm must be an established,

regular business that engages, as its principal business and under its own name, in the purchase and sale or lease of the products in question. A firm may be a DBE regular dealer in such bulk items as petroleum products, steel, cement, stone or asphalt without owning, operating, or maintaining a place of business, as provided above, if the person both owns and operates distribution equipment for the products. Any supplementing of regular dealers' own distribution equipment shall be by a long-term lease agreement, and not on an ad-hoc or contract-by-contract basis. Packagers, brokers, manufacturers' representatives, or other persons who arrange or expedite transactions are not regular dealers within the meaning of this paragraph and the paragraph above.

With respect to materials or supplies purchased from a DBE which is neither a manufacturer nor a regular dealer, the LPA/Subrecipient will credit the entire amount of the fees or commissions charged by the DBE for assistance in the procurement of the materials and supplies, or fees or transportation charges for the delivery of materials or supplies required on a job site, toward DBE goals, provided the fees are determined to be reasonable and not excessive as compared with fees customarily allowed for similar services. The cost of the materials and supplies themselves may not be counted toward the DBE goal.

The LPA/Subrecipient will credit expenditures with DBEs for material and supplies (e.g. whether a firm is acting as a regular dealer or a transaction expeditor) towards the DBE goal on a contract-by-contract basis. The fact that a DBE firm qualifies under a classification (manufacturer, regular dealer or supplier) for one contract does not mean it will qualify for the same classification on another contract. The bidder shall be responsible for verifying whether a DBE qualifies as a DBE manufacturer, regular dealer or supplier. The bidder may contact the LPA/Subrecipient for assistance in this determination.

19.0 Effect of Contract Changes:

If for any reason it becomes apparent that the DBE goal will not be met then the contractor shall: (1) immediately notify the LPA/Subrecipient of the potential or actual decrease in DBE compensation, and (2) make good faith efforts to obtain DBE participation to meet or exceed the DBE contract goal. Good faith efforts required under the provisions of this section may vary, depending on the time available, the nature of the change, who initiated the change, and other factors as determined by LPA/Subrecipient.

LPA/Subrecipient will approve or deny the contractor's good faith efforts with BECO concurrence.

The contractor is not required to take work committed to another subcontractor and assign it to a DBE subcontractor in order to meet the committed DBE percentage.

If the resulting change increases the scope or quantity of work being done by a DBE subcontractor, the DBE shall be given the opportunity to complete the additional work and receive additional compensation beyond their original subcontract amount.

20.0 DBE Participation Above the Goal (Race Neutral Participation):

Additional DBE participation above the DBE participation required to meet the contract DBE goal is an important aspect of the Department's DBE program. The contractor is strongly encouraged to use additional DBEs above the DBE goal requirement in the contract to assist the Department in meeting its overall DBE goal and help the Department to meet the maximum feasible portion of its DBE goals through race neutral participation as outlined in 49 CFR Part 26.

There are fewer administrative requirements on the part of the contractor when using race neutral DBEs (DBEs not listed on the DBE Intended Participation Affidavit Summary). For example, if a DBE is not listed on the DBE Intended Participation Affidavit Summary, the DBE does not have to submit an Affidavit, and the subcontract approval process follows the same process of any other subcontract. The contractor does not have to replace the race neutral DBE with another DBE subcontractor if the race neutral DBE fails to perform. Therefore these DBEs are treated as any other subcontractor on the project.

21.0 Required Provisions for DBE Subcontracts:

All subcontracts of any tier, all supply contracts, and any other contracts in which a DBE is a party shall include, as a physical attachment, DBE Subcontract Compliance Assurances available from the LPA/Subrecipient.

Contractors executing agreements with subcontractors, DBE or non-DBE, that materially modify federal regulation and state statutes such as, prompt payment and retention requirements, through subcontract terms and conditions will be found in breach of contract which may result in termination of the contract, or any other such remedy as the LPA/Subrecipient and ADOT deem appropriate as outlined in DBE Subsection 2.0.

LPA/Subrecipient reserves the right to conduct random reviews of DBE and non-DBE subcontract documentation to ensure compliance with federal requirements.

The contractor shall ensure that all subcontracts or agreements with DBEs to supply labor or materials require that the subcontract and all lower tier subcontracts be performed in accordance with 49 CFR Part 26.

The Contractor shall provide electronic copies of signed subcontract agreements for all DBE Subcontracts listed on the DBE Intended Participation Affidavit Summary by uploading them within 15 calendar days of an approved contract to the LPA DBE System.

22.0 Contract Performance:

Contract items of work designated by the contractor to be awarded to DBEs shall be performed by the designated DBE or a LPA/Subrecipient, with BECO concurrence, approved DBE substitute. DBE contract work items shall not be performed by the contractor, or a non-DBE subcontractor without prior approval by the LPA/Subrecipient, with BECO concurrence. The DBE must perform a commercially useful function; that is, the DBE must manage, perform, and supervise a distinct element of work.

The contractor is required to use DBEs identified to meet the contract goal, so the prime contractor is responsible for ensuring that the DBEs are available to meet scheduling, work and other requirements on the contract.

LPA/Subrecipient will conduct reviews to ensure compliance with DBE requirements. The reviews may include, among other activities, interview of DBEs and their employees and the contractor and its employees. The contractor shall cooperate in the review and make its employees available. The contractor shall inform the LPA/Subrecipient in advance when each DBE will be working on the project to help facilitate reviews.

LPA/Subrecipient reserves the right to inspect all records of the contractor and all records of the DBEs and non-DBE subcontractors concerning this contract. The contractor must make all documents related to all contracts available to the LPA/Subrecipient upon request.

The contractor shall provide to the LPA/Subrecipient, at the pre-construction conference, copies of all completed, approved, and signed subcontracts, purchase orders, invoices, etc., with all committed DBEs. These documents shall include the AZ UTRACS Registration number for the subcontractor or materials supplier.

Use of every DBE listed on the DBE Intended Participation Affidavit Summary is a condition of this contract. The contractor shall utilize the specific DBEs listed to perform the work and supply the materials for which each is listed on the Intended Participation Affidavit Summary unless the contractor obtains written consent from the LPA/Subrecipient with BECO concurrence. The contractor shall not be entitled to any payment for work or material that is not performed or supplied by the listed DBE, unless the contractor obtains written consent from the LPA/Subrecipient with BECO concurrence.

23.0 Joint Checks:

23.01 Requirements:

A DBE subcontractor and a material supplier (or equipment supplier) may request permission for the use of joint checks for payments from the prime contractor to the DBE subcontractor and the supplier. Joint checks may be issued only if all the conditions in this subsection are met.

1. The DBE subcontractor must be independent from the prime contractor and the supplier, and must perform a commercially useful function. The DBE subcontractor must be responsible for negotiating the price of the material, determining quality and quantity, ordering the materials, installing (where applicable), and paying for the material. The DBE subcontractor may not be utilized as an extra participant in a transaction, contract, or project in order to obtain the appearance of DBE participation.
2. The use of joint checks will be allowed only if the prime contractor, DBE subcontractor, and material supplier establish that the use of joint checks in similar transactions is a

commonly recognized business practice in the industry, particularly with respect to similar transactions in which DBE's do not participate.

3. A material or supply contract may not bear an excessive ratio relative to the DBE subcontractor's normal capacity.
4. There may not be any exclusive arrangement between one prime and one DBE in the use of joint checks that may bring into question whether the DBE is independent of the prime contractor.
5. Any arrangement for joint checks must be in writing, and for a specific term (for example, one year, or a specified number of months) that does not exceed a reasonable time to establish a suitable credit line with the supplier.
6. The prime contractor may act solely as the payer of the joint check, and may not have responsibility for establishing the terms of the agreement between the DBE subcontractor and the supplier.
7. The DBE must be responsible for receiving the check from the prime contractor and delivering the check to the supplier.
8. The prime contractor cannot require the DBE subcontractor to use a specific supplier, and the prime contractor may not participate in the negotiation of unit prices between the DBE subcontractor and the supplier.

23.02 Procedure and Compliance:

1. BECO must approve the agreement for the use of joint checks in writing before any joint checks are issued. The prime contractor shall submit a DBE joint check request form, available from the BECO website, along with the joint check agreement, to LPA/Subrecipient and BECO through email within seven calendar days from the time the subcontract is executed.
2. After obtaining authorization from BECO for the use of joint checks, the prime contractor, the DBE, and the supplier must retain documentation to allow for efficient monitoring of the agreement by the LPA/Subrecipient.
3. Copies of canceled checks must be submitted, with the payment information for the period in which the joint check was issued, electronically through email to LPA/Subrecipient Procurement Office and made available for review at the time of the onsite CUF review. The prime contractor, DBE, and supplier each have an independent duty to report to the LPA/Subrecipient in the case of any change from the approved joint check arrangement.

4. Any failure to comply will be considered by the LPA/Subrecipient, with ADOT concurrence to be a material breach of this contract and will subject the prime contractor, DBE, and supplier to contract remedies and, in the case of serious violations, a potential for termination of the contract, or other remedies which may prevent future participation by the offending party.

24.0 DBE Termination/Substitution:

24.01 General Requirements:

The contractor shall make all reasonable efforts to avoid terminating or substituting a DBE listed on the DBE Intended Participation Affidavit Summary. At a minimum, the contractor shall negotiate in good faith, give timely notices and/or extend deadlines to the extent that it will not jeopardize the contract with the LPA/Subrecipient. Reasonable methods to resolve performance disputes must be applied and documentation provided to LPA/Subrecipient before attempting to substitute or terminate a DBE.

24.02 Contractor Notice of Termination/Substitution:

All terminations, substitutions, and reductions in scope of work to be performed by DBEs listed on the DBE Intended Participation Affidavit Summary must be approved in writing by the LPA/Subrecipient, with BECO concurrence. The contractor shall contact the LPA/Subrecipient within 24 hours from the first sign of any reason for potential DBE termination/substitution.

The contractor shall not terminate a DBE subcontractor listed on the DBE Intended Participation Affidavit or complete the work contracted to the DBE with its own forces or with a non-DBE firm without the LPA/Subrecipient written consent and BECO concurrence. Before submitting a formal request to the LPA/Subrecipient for DBE termination/substitution, the contractor shall give written notice to the DBE subcontractor with a copy to the LPA/Subrecipient of its intent to terminate or substitute the DBE identifying the reason for the action. The notice shall include the deadline for the DBE to submit a written response advising the contractor, LPA/Subrecipient of its position which shall be a minimum of five calendar days after the notice is given. Before making a determination for approval regarding the contractor's termination and substitution request, the LPA/Subrecipient, with BECO concurrence, will consider both the contractor's request and the DBE firm's response.

24.03 Contractor Request for Termination/Substitution:

The contractor shall formally request the termination or substitution of a DBE listed on the DBE Intended Participation Affidavit Summary by submitting the DBE Termination/Substitution Request form with supporting documentation to the LPA/Subrecipient; form is available from the LPA/Subrecipient. The submission shall include the following information:

- 1) The date the contractor determined the DBE to be unwilling, unable, or ineligible to perform.

- 2) A brief statement of facts describing the situation and citing specific actions or inaction by the DBE firm giving rise to contractor's assertion that the DBE firm is unwilling, unable, or ineligible to perform.
- 3) A brief statement of the good faith efforts undertaken by the contractor to enable the DBE firm to perform.
- 4) The total dollar amount currently paid for work performed by the DBE firm.
- 5) The total dollar amount remaining to be paid to the DBE firm for work completed, but for which the DBE firm has not received payment, and over which the contractor and the DBE firm have no dispute.
- 6) The projected date that the contractor requires a substitution or replacement DBE to commence work, if consent is granted to the request.
- 7) The DBE's response to the notice of intent to terminate. If there is no response from the DBE within the time allowed in the notice of intent to terminate, the contractor shall state that no response was received.

Written consent for terminating any DBE listed on the DBE Intended Participation Affidavit Summary will be granted only where the contractor can demonstrate good cause showing that the DBE is unable, unwilling, or ineligible to perform. Such written consent to terminate any DBE shall concurrently constitute written consent to substitute or replace the terminated DBE. Termination or substitution of a DBE listed on the DBE Intended Participation Affidavit Summary will not be allowed based solely on a contractor's ability to negotiate a more advantageous contract with another subcontractor. Prior to making a determination for approval regarding the contractor's termination and substitution request, the LPA/Subrecipient, with BECO concurrence, will consider both the contractor's request and the DBE firm's response.

24.04 Good Cause:

The LPA/Subrecipient, with BECO concurrence, will make the determination of good cause by providing written consent to the contractor after evaluating the contractor's good cause to terminate or substitute a DBE firm. Good cause for this purpose includes the following in relation to the listed DBE subcontractor:

1. Fails or refuses to execute a written contract.
2. Fails or refuses to perform the work of its subcontract in a way consistent with normal industry practice standards. However, good cause does not exist if the failure or refusal of the DBE subcontractor to perform its work on the subcontract results from the bad faith or discriminatory action of the prime contractor.
3. Fails or refuses to meet the prime contractor's reasonable, nondiscriminatory bond/insurance requirements.
4. Becomes bankrupt, insolvent, or exhibits credit unworthiness.
5. Is ineligible to work on public works projects because of suspension and debarment proceedings pursuant to federal or state law.
6. Is not a responsible contractor.
7. Voluntarily withdraws from the project and provides written notice of its withdrawal to the Department.

8. Is ineligible to receive DBE credit for the type of work required.
9. A DBE owner dies or becomes disabled with the result that the firm is unable to complete its work on the contract.
10. Other documented good cause that the BECO determines compels the termination or substitution of the DBE subcontractor.

24.05 DBE Termination/Substitution Good Faith Effort:

If the LPA/Subrecipient approves the termination of a DBE, the contractor shall make good faith efforts to find another DBE subcontractor to substitute for the original DBE. The good faith efforts as identified in DBE Subsection 15.0 shall be directed at finding another DBE to perform at least the same amount of work under the contract as the DBE that was terminated, to the extent needed to meet the contract goal. If a replacement DBE is not identified for the original DBE's work, the good faith efforts shall be documented and provided, upon request, to the LPA/Subrecipient within seven calendar days from the date of the request.

A prime contractor's inability to find a replacement DBE at the original price is not alone sufficient to support a finding that good faith efforts have been made to replace the original DBE. The fact that the contractor has the ability and/or desire to perform the contract work with its own forces does not relieve the contractor of the obligation to make good faith efforts to find the replacement DBE, and it is not a sound basis for rejecting a prospective replacement DBE's reasonable quote.

The termination of a DBE firm shall not relieve the contractor of its obligations under this Special Provision, and the unpaid portion of the terminated DBE firm's subcontract will not be counted toward the DBE goal.

If the LPA/Subrecipient has eliminated items of work subcontracted to a committed DBE, the prime contractor shall still make good faith efforts to replace the DBE with another DBE to the extent necessary to meet the goal. The LPA/Subrecipient will review the quality, thoroughness, and intensity of those efforts and give consideration to when the change was made, the nature of the change, and other factors as determined by the LPA/Subrecipient.

When a DBE substitution has been approved by the LPA/Subrecipient and concurred by BECO, the contractor shall submit an amended DBE Intended Participation Affidavit and Intended Participation Affidavit Summary to LPA/Subrecipient Procurement Office for approval with the substitute DBE's name, description of work, NAICS code, AZ UTRACS registration number, and dollar value of work. Approval from LPA/Subrecipient with BECO concurrence must be obtained prior to the substituted DBE beginning work.

24.06 Sanctions:

Failure by the contractor to carry out the requirements of these DBE Termination/Substitution specifications is a material breach of contract and will result in such remedies as the LPA/Subrecipient deems appropriate, with ADOT concurrence, which will include, but are not limited to the assessment of liquidated damages. The LPA/Subrecipient will deduct from monies due or becoming due to the contractor, the dollar amount of the wrongfully

substituted/replaced DBE subcontract plus 25 percent of the amount remaining to be paid to the DBE as liquidated damages. These liquidated damages shall be in addition to all other retention or liquidated damages provided for elsewhere in the contract.

25.0 Certification of Final DBE Payments:

The contractor's achievement of the goal is measured by actual payments made to the DBE. The contractor shall submit the "Certification of Final DBE Payments" form for each DBE firm working on the contract. This form shall be signed by the contractor and the relevant DBE, and submitted to the LPA/Subrecipient no later than 30 days after the DBE completes its work.

The LPA/Subrecipient and ADOT will use this certification and other information available to determine applicable DBE credit allowed to date by the contractor and the extent to which the DBE firms were fully paid for that work. By the act of filing the forms, the contractor acknowledges that the information is supplied in order to justify the payment of state and federal funds to the contractor.

The contractor will not be released from the obligations of the contract until the "Certification of Final DBE Payments" forms are received and deemed acceptable by the LPA/Subrecipient.

26.0 Sanctions for Not Meeting Contract DBE Goal:

If the LPA/Subrecipient determines, with BECO concurrence, that the contractor has, without justification, not met the established DBE goal the LPA/Subrecipient will, at its discretion, deduct up to two times the amount of the unattained portion of established DBE goal from monies due or becoming due the contractor as liquidated damages, based on the circumstances of the noncompliance.

The LPA/Subrecipient, with BECO concurrence, will determine whether liquidated damages will be assessed and the amount of the liquidated damages. The LPA/Subrecipient will consider whether there have been other violations on this or other contracts, whether the failure was due to circumstances beyond the control of the contractor, whether the contractor has made good faith efforts to meet the goal, and other appropriate circumstances.

The contractor may, within 15 calendar days of receipt of the decision of the LPA/Subrecipient escalate the decision to the State Engineer. If the contractor does not escalate the decision of the LPA/Subrecipient, in writing, within 15 calendar days of receipt of the decision, the contractor will be deemed to have accepted the decision and there will be no further remedy for the contractor.

In addition to any other sanctions, willful failure of the contractor, DBE or other subcontractor to comply with this contract or with the Federal DBE regulations may result in disqualification from further contracting, subcontracting, or other participation in the Department's and LPA/Subrecipient's projects.

27.0 False, Fraudulent, or Dishonest Conduct:

In addition to any other remedies or actions, the Department will bring to the attention of the US Department of Transportation any appearance of false, fraudulent, or dishonest conduct in connection with the DBE program, so that USDOT can take steps such as referral to the Department of Justice for criminal prosecution, referral to the USDOT Inspector General for possible initiation of suspension and debarment proceedings against the offending parties or application of "Program Fraud and Civil Penalties" rules provided in 49 CFR Part 31.



CONSTRUCTION CONTRACTS
LPA DBE SUBCONTRACT COMPLIANCE ASSURANCES
(07/01/2016)

LPA/SUBRECIPIENT FEDERAL AID CONTRACT WITH OR WITHOUT DBE GOAL

1. Assurances of Non-Discrimination:

(LPA EPRISE 2.0)

The contractor, subrecipient, or subcontractor shall not discriminate on the basis of race, color, national origin or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of USDOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the LPA/Subrecipient, with the Department's concurrence, deems appropriate, which may include, but not limited to:

- (1) Withholding monthly progress payments;
- (2) Assessing sanctions;
- (3) Liquidated damages; and/or
- (4) Disqualifying the contractor from future bidding as non-responsible.

The contractor, subrecipient, or subcontractor shall ensure that all subcontract agreements contain this non-discrimination assurance.

2. Time is of the Essence:

(LPA EPRISE 8.0)

TIME IS OF THE ESSENCE IN RESPECT TO THE DBE PROVISIONS.

3. Computation of Time:

(LPA EPRISE 9.0)

In computing any period of time described in this DBE special provision, such as calendar days, the day from which the period begins to run is not counted, and when the last day of the period is a Saturday, Sunday, or Federal or State holiday, the period extends to the next day that is not a Saturday, Sunday, or Federal or State holiday. In circumstances where the LPA/Subrecipient Procurement Office is closed for all or part of the last day, the period extends to the next day on which the LPA/Subrecipient Procurement Office is open.

4. Crediting DBE Participation Toward Meeting Goals:

(LPA EPRISE 18.0)

General Requirements:

To count toward meeting a goal, the DBE firm must be certified as of the deadline for submission of bids in each NAICS code applicable to the kind of work the firm will perform on the contract. NAICS for each DBE can be found on the AZ UTRACS under the Firm Directory. General descriptions of all NAICS codes can be found at www.naics.com.

Credit towards the contractor's DBE goal is given only after the DBE has been paid for the work performed.

The entire amount of a contract that is performed by the DBE's own forces, including the cost of supplies and materials purchased by the DBE for the work on the contract and equipment leased by the DBE will be credited toward DBE participation. Supplies and equipment the DBE subcontractor purchases or leases from the prime contractor or its affiliate will not be credited toward DBE participation. Work included in a force account item cannot be listed on the DBE Intended Participation Affidavit.

The contractor bears the responsibility to determine whether the DBE possesses the proper contractor's license(s) to perform the work and, if DBE credit is requested, that the DBE subcontractor is certified for the requested type of work.

If a DBE cannot complete its work due to failure to obtain or maintain its licensing, the contractor bears the responsibility to notify the LPA/Subrecipient immediately after the contractor becomes aware of the situation, and request approval to replace the DBE with another DBE. The contractor shall follow the DBE termination/substitution requirements described in Subsection 24.0 of these DBE provisions.

The Department's certification is not a representation of a DBE's qualifications and/or abilities. The contractor bears all risks that the DBE may not be able to perform its work for any reason.

A DBE may participate as a prime contractor, subcontractor, joint venture partner with either a prime contractor or a subcontractor, or as a vendor of materials or supplies. A DBE joint venture partner shall be responsible for a clearly defined portion of the work to be performed, in addition to meeting the requirements for ownership and control.

The dollar amount of work to be accomplished by DBEs, including partial amount of a lump sum or other similar item, shall be on the basis of subcontract, purchase order, hourly rate, rate per ton, etc., as agreed to between parties.



CONSTRUCTION CONTRACTS
LPA DBE SUBCONTRACT COMPLIANCE ASSURANCES
(07/01/2016)

With the exception of bond premiums, all work must be attributed to specific bid items. Where work applies to several items, the DBE contracting arrangement must specify unit price and amount attributable to each bid item. DBE credit for any individual item of work performed by the DBE shall be the lesser of the amount to be paid to the DBE or the prime contractor's bid price. If the amount bid by the DBE on any item exceeds the prime contractor's bid amount, the prime contractor may not obtain credit by attributing the excess to other items.

Where more than one DBE is engaged to perform parts of an item (for example, supply and installation), the total amount payable to the DBEs will not be considered in excess of the prime contractor's bid amount for that item.

Bond premiums may be stated separately, so long as the arrangement between the prime contractor and the DBE provides for separate payment not to exceed the price charged by the bonding company.

DBE credit may be obtained only for specific work done for the project, supply of equipment specifically for physical work on the project, or supply of materials to be incorporated in the work. DBE credit will not be allowed for costs such as overhead items, capital expenditures (for example, purchase of equipment), and office items.

If a DBE performs part of an item (for example, installation of materials purchased by a Non-DBE), the DBE credit shall not exceed the lesser of (1) the DBE's contract or (2) the prime contractor's bid for the item, less a reasonable deduction for the portion performed by the Non-DBE.

When a DBE performs as a partner in a joint venture, only that portion of the total dollar value of the contract which is clearly and distinctly performed by the DBE's own forces can be credited toward the DBE goal.

The contractor may credit second-tier subcontracts issued to DBEs by non-DBE subcontractors. Any second-tier subcontract to a DBE used to meet the goal must meet the requirements of a first-tier DBE subcontract.

A prime contractor may credit the entire amount of that portion of a construction contract that is performed by the DBE's own forces. The cost of supplies and materials obtained by the DBE for the work of the contract can be included so long as that cost is reasonable. Leased equipment may also be included. No credit is permitted for supplies purchased or equipment leased from the prime contractor or its affiliate(s).

When a DBE subcontracts a part of the work of its contract to another firm, the value of the subcontract may be credited towards the DBE goal only if the DBE's subcontractor is itself a DBE and performs the work with its own forces. Work that a DBE subcontracts to a non-DBE firm does not count toward a DBE goal.

A prime contractor may credit the entire amount of fees or commissions charged by a DBE firm for providing a bona fide service, such as professional, technical, consultant, or managerial services, or for providing bonds or insurance specifically required for the performance of a USDOT-assisted contract, provided the fees are reasonable and not excessive as compared with fees customarily allowed for similar services.

DBE Prime Contractor:

When a certified DBE firm bids on a contract that contains a DBE goal, the DBE firm is responsible for meeting the DBE goal on the contract or making good faith efforts to meet the goal, just like any other bidder. In most cases, a DBE bidder on a contract will meet the DBE goal by virtue of the work it performs on the contract with its own forces. However, all the work that is performed by the DBE bidder or any other DBE subcontractors and DBE suppliers will count toward the DBE goal. The DBE bidder shall list itself along with any DBE subcontractors and suppliers, on the DBE Intended Participation Affidavit and Summary in order to receive credit toward the DBE goal.

Effect of Loss of DBE Eligibility:

If a DBE is deemed ineligible (decertified) or suspended in accordance with 49 CFR 26.87 and 26.88, the DBE may not be considered to meet a contract goal on a new contract, but may be considered to meet the contract goal under a subcontract that was executed before the DBE suspension or decertification is effective.

When a committed DBE firm or a DBE prime contractor loses its DBE eligibility and a subcontract or contract has not been executed before a decertification notice is issued to the DBE firm by its certifying agency, the ineligible firm does not count toward the contract goal. The contractor must meet the contract goal with an eligible DBE firm or firms or demonstrate good faith effort. When a subcontract is executed with the DBE firm before the Department notified the firm of its ineligibility, the contractor may continue to use the firm on the contract and may continue to receive credit toward the DBE goal for the firm's work.



CONSTRUCTION CONTRACTS LPA DBE SUBCONTRACT COMPLIANCE ASSURANCES (07/01/2016)

Notifying the Contractor of DBE Certification Status:

Each DBE contract of any tier shall require any DBE subcontractor or supplier that is either decertified or certified during the term of the contract to immediately notify the contractor and all parties to the DBE contract in writing, with the date of decertification or certification. The contractor shall require that this provision be incorporated in any contract of any tier in which a DBE is a participant.

Police Officers:

DBE credit will not be permitted for procuring DPS officers. For projects on which officers from other agencies are supplied, DBE credit will be given only for the broker fees charged, and will not include amounts paid to the officers. The broker fees must be reasonable.

Commercially Useful Function:

A prime contractor can credit expenditures to a DBE subcontractor toward DBE goals only if the DBE performs a Commercially Useful Function (CUF).

A DBE performs a CUF when it is responsible for execution of the work of a contract and carries out its responsibilities by actually performing, managing, and supervising the work involved. To perform a commercially useful function, the DBE must also be responsible, with respect to materials and supplies on the contract, for negotiating price, determining quality and quantity, ordering the material, and installing (where applicable) and paying for the material itself that it uses on the project. To determine whether a DBE is performing a commercially useful function, the LPA/Subrecipient will evaluate the amount of work subcontracted, industry practices, whether the amount the firm is to be paid under the contract is commensurate with the work it is actually performing and the DBE credit claimed for its performance of the work, and other relevant factors.

A DBE will not be considered to perform a commercially useful function if its role is limited to that of an extra participant in a transaction, contract, or project through which funds are passed in order to obtain the appearance of DBE participation. In determining whether a DBE is such an extra participant, the LPA/Subrecipient will examine similar transactions, particularly those in which DBEs do not participate.

If a DBE does not perform or exercise responsibility for at least 30 percent of the total cost of its contract with its own work force, or if the DBE subcontracts a greater portion of the work of a contract than would be expected on the basis of normal industry practice for the type of work involved, the LPA/Subrecipient will presume that the DBE is not performing a commercially useful function.

When a DBE is presumed not to be performing a commercially useful function as provided above, the DBE may present evidence to rebut this presumption. The LPA/Subrecipient will determine if the firm is performing a CUF given the type of work involved and normal industry practices.

The LPA/Subrecipient will notify the contractor, in writing, if it determines that the contractor's DBE subcontractor is not performing a CUF. The contractor will be notified within seven calendar days of the LPA/Subrecipient's decision.

Decisions on CUF may be appealed to the ADOT BECO. The appeal must be in writing and personally delivered or sent by certified mail, return receipt requested, to the ADOT BECO. The appeal must be received by the ADOT BECO no later than seven calendar days after the decision of LPA/Subrecipient. LPA/Subrecipient decision remains in effect unless and until ADOT BECO reverses or modifies LPA/Subrecipient decision. ADOT BECO will promptly consider any appeals under this subsection and notify the contractor of the ADOT BECO findings and decisions. Decisions on CUF matters are not administratively appealable to USDOT.

The LPA/Subrecipient will conduct project site visits on the contract to confirm that DBEs are performing a CUF. The contractor shall cooperate during the site visits and the LPA/Subrecipient staff will make every effort not to disrupt work on the project.

Trucking:

LPA/Subrecipient will use the following factors in determining whether a DBE trucking company is performing a commercially useful function. The DBE must be responsible for the management and supervision of the entire trucking operation for which it is responsible on a particular contract, and there cannot be a contrived arrangement for the purpose of meeting DBE goals.



CONSTRUCTION CONTRACTS
LPA DBE SUBCONTRACT COMPLIANCE ASSURANCES
(07/01/2016)

The DBE must itself own and operate at least one fully licensed, insured, and operational truck used on the contract on every day that credit is to be given for trucking.

The contractor will receive credit for the total value of transportation services provided by the DBE using trucks it owns, insures and operates, and using drivers it employs.

The DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. The DBE who leases trucks from another DBE receives credit for the total value of the transportation services.

The DBE may also lease trucks from a non-DBE firm, including an owner-operator. The DBE who leases trucks with drivers from a non-DBE is entitled to credit for the total value of the transportation services provided by non-DBE leased trucks with drivers not to exceed the value of transportation services on the contract provided by DBE-owned trucks or leased trucks with DBE employee drivers. Additional participation by non-DBE owned trucks with drivers receives credit only for the fee or commission paid to the DBE as a result of the lease agreement.

Example: DBE Firm X uses two of its own trucks on a contract. It leases two trucks from DBE Firm Y and six trucks from non-DBE firm Z. DBE credit would be awarded for the total value of transportation services provided by Firm X and Firm Y, and may also be awarded for the total value of transportation services provided by four of the six trucks provided by Firm Z. In all, full credit would be allowed for the participation of eight trucks. DBE credit could be awarded only for the fees or commissions pertaining to the remaining trucks Firm X receives as a result of the lease with Firm Z.

The DBE may lease trucks without drivers from a non-DBE truck leasing company. If the DBE leases trucks from a non-DBE leasing company and uses its own employees as drivers, it is entitled to credit for the total value of these hauling services.

Example: DBE Firm X uses two of its own trucks on a contract. It leases three additional trucks from non-DBE Firm Z. Firm X uses its own employees to drive the trucks leased from Firm Z. DBE credit would be awarded for the total value of the transportation services provided by all five trucks.

For purposes of this section, a lease must indicate that the DBE has exclusive use of and control over the truck. This does not preclude the leased truck from working for others during the term of the lease with the consent of the DBE, so long as the lease gives the DBE absolute priority for use of the leased truck. Leased trucks must display the name and identification number of the DBE. Credit will be allowed only for those lease costs related to the time each truck is devoted to the project.

DBE credit for supplying paving grade asphalt and other asphalt products will only be permitted for standard industry hauling costs, and only if the DBE is owner or lessee of the equipment and trucks. Leases for trucks must be long term (extending for a fixed time period and not related to time for contract performance) and must include all attendant responsibilities such as insurance, titling, hazardous waste requirements, and payment of drivers.

Materials and Supplies:

LPA/Subrecipient will credit expenditures with DBEs for material and supplies towards the DBE goal as follows. If the materials or supplies are obtained from a DBE manufacturer, 100 percent of the cost of the materials or supplies is credited.

A manufacturer is defined as a firm that operates or maintains a factory or establishment that produces, on the premises, the materials, supplies, articles, or equipment required under the contract, and of the general character described by the specifications.

If the materials or supplies are purchased from a DBE regular dealer, 60 percent of the cost of the materials or supplies is credited. A DBE regular dealer is defined as a firm that owns, operates, or maintains a store or warehouse or other establishment in which the materials, supplies, articles, or equipment of the general character described by the specifications and required under the contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business. To be a regular dealer, the firm must be an established, regular business that engages, as its principal business and under its own name, in the purchase and sale or lease of the products in question. A firm may be a DBE regular dealer in such bulk items as petroleum products, steel, cement, stone or asphalt without owning, operating, or maintaining a place of business, as provided above, if the person both owns and operates distribution equipment for the products. Any supplementing of regular dealers' own distribution equipment shall be by a long-term lease agreement, and not on an ad-hoc or contract-by-contract basis. Packagers, brokers, manufacturers' representatives, or other persons who arrange or expedite transactions are not regular dealers within the meaning of this paragraph and the paragraph above.



CONSTRUCTION CONTRACTS
LPA DBE SUBCONTRACT COMPLIANCE ASSURANCES
(07/01/2016)

With respect to materials or supplies purchased from a DBE which is neither a manufacturer nor a regular dealer, the LPA/Subrecipient will credit the entire amount of the fees or commissions charged by the DBE for assistance in the procurement of the materials and supplies, or fees or transportation charges for the delivery of materials or supplies required on a job site, toward DBE goals, provided the fees are determined to be reasonable and not excessive as compared with fees customarily allowed for similar services. The cost of the materials and supplies themselves may not be counted toward the DBE goal.

The LPA/Subrecipient will credit expenditures with DBEs for material and supplies (e.g. whether a firm is acting as a regular dealer or a transaction expeditor) towards the DBE goal on a contract-by-contract basis. The fact that a DBE firm qualifies under a classification (manufacturer, regular dealer or supplier) for one contract does not mean it will qualify for the same classification on another contract. The bidder shall be responsible for verifying whether a DBE qualifies as a DBE manufacturer, regular dealer or supplier. The bidder may contact the LPA/Subrecipient for assistance in this determination.

5. Effect of Contract Changes: (LPA EPRISE 19.0)

If for any reason it becomes apparent that the DBE goal will not be met then the contractor shall: (1) immediately notify the LPA/Subrecipient of the potential or actual decrease in DBE compensation, and (2) make good faith efforts to obtain DBE participation to meet or exceed the DBE contract goal. Good faith efforts required under the provisions of this section may vary, depending on the time available, the nature of the change, who initiated the change, and other factors as determined by LPA/Subrecipient.

LPA/Subrecipient will approve or deny the contractor's good faith efforts with BECO concurrence.

The contractor is not required to take work committed to another subcontractor and assign it to a DBE subcontractor in order to meet the committed DBE percentage.

If the resulting change increases the scope or quantity of work being done by a DBE subcontractor, the DBE shall be given the opportunity to complete the additional work and receive additional compensation beyond their original subcontract amount.

6. DBE Participation Above the Goal (Race Neutral Participation): (LPA EPRISE 20.0)

Additional DBE participation above the DBE participation required to meet the contract DBE goal is an important aspect of the Department's DBE program. The contractor is strongly encouraged to use additional DBEs above the DBE goal requirement in the contract to assist the Department in meeting its overall DBE goal and help the Department to meet the maximum feasible portion of its DBE goals through race neutral participation as outlined in 49 CFR Part 26.

There are fewer administrative requirements on the part of the contractor when using race neutral DBEs (DBEs not listed on the DBE Intended Participation Affidavit Summary). For example, if a DBE is not listed on the DBE Intended Participation Affidavit Summary, the DBE does not have to submit an Affidavit, and the subcontract approval process follows the same process of any other subcontract. The contractor does not have to replace the race neutral DBE with another DBE subcontractor if the race neutral DBE fails to perform. Therefore these DBEs are treated as any other subcontractor on the project.

7. Required Provisions for DBE Subcontracts: (LPA EPRISE 21.0)

All subcontracts of any tier, all supply contracts, and any other contracts in which a DBE is a party shall include, as a physical attachment, DBE Subcontract Compliance Assurances available from the LPA/Subrecipient.

Contractors executing agreements with subcontractors, DBE or non-DBE, that materially modify federal regulation and state statutes such as, prompt payment and retention requirements, through subcontract terms and conditions will be found in breach of contract which may result in termination of the contract, or any other such remedy as the LPA/Subrecipient and ADOT deem appropriate as outlined in DBE Subsection 2.0.

LPA/Subrecipient reserves the right to conduct random reviews of DBE and non-DBE subcontract documentation to ensure compliance with federal requirements.

The contractor shall ensure that all subcontracts or agreements with DBEs to supply labor or materials require that the subcontract and all lower tier subcontracts be performed in accordance with 49 CFR Part 26.



CONSTRUCTION CONTRACTS
LPA DBE SUBCONTRACT COMPLIANCE ASSURANCES
(07/01/2016)

The Contractor shall provide electronic copies of signed subcontract agreements for all DBE Subcontracts listed on the DBE Intended Participation Affidavit Summary by uploading them within 15 calendar days of an approved contract to the LPA DBE System.

8. Contract Performance: (LPA EPRISE 22.0)

Contract items of work designated by the contractor to be awarded to DBEs shall be performed by the designated DBE or a LPA/Subrecipient, with BECO concurrence, approved DBE substitute. DBE contract work items shall not be performed by the contractor, or a non-DBE subcontractor without prior approval by the LPA/Subrecipient, with BECO concurrence. The DBE must perform a commercially useful function; that is, the DBE must manage, perform, and supervise a distinct element of work.

The contractor is required to use DBEs identified to meet the contract goal, so the prime contractor is responsible for ensuring that the DBEs are available to meet scheduling, work and other requirements on the contract.

LPA/Subrecipient will conduct reviews to ensure compliance with DBE requirements. The reviews may include, among other activities, interview of DBEs and their employees and the contractor and its employees. The contractor shall cooperate in the review and make its employees available. The contractor shall inform the LPA/Subrecipient in advance when each DBE will be working on the project to help facilitate reviews.

LPA/Subrecipient reserves the right to inspect all records of the contractor and all records of the DBEs and non-DBE subcontractors concerning this contract. The contractor must make all documents related to all contracts available to the LPA/Subrecipient upon request.

The contractor shall provide to the LPA/Subrecipient, at the pre-construction conference, copies of all completed, approved, and signed subcontracts, purchase orders, invoices, etc., with all committed DBEs. These documents shall include the AZ UTRACS Registration number for the subcontractor or materials supplier.

Use of every DBE listed on the DBE Intended Participation Affidavit Summary is a condition of this contract. The contractor shall utilize the specific DBEs listed to perform the work and supply the materials for which each is listed on the Intended Participation Affidavit Summary unless the contractor obtains written consent from the LPA/Subrecipient with BECO concurrence. The contractor shall not be entitled to any payment for work or material that is not performed or supplied by the listed DBE, unless the contractor obtains written consent from the LPA/Subrecipient with BECO concurrence.

9. Joint Checks: (LPA EPRISE 23.0)

Requirements:

A DBE subcontractor and a material supplier (or equipment supplier) may request permission for the use of joint checks for payments from the prime contractor to the DBE subcontractor and the supplier. Joint checks may be issued only if all the conditions in this subsection are met.

1. The DBE subcontractor must be independent from the prime contractor and the supplier, and must perform a commercially useful function. The DBE subcontractor must be responsible for negotiating the price of the material, determining quality and quantity, ordering the materials, installing (where applicable), and paying for the material. The DBE subcontractor may not be utilized as an extra participant in a transaction, contract, or project in order to obtain the appearance of DBE participation.
2. The use of joint checks will be allowed only if the prime contractor, DBE subcontractor, and material supplier establish that the use of joint checks in similar transactions is a commonly recognized business practice in the industry, particularly with respect to similar transactions in which DBE's do not participate.
3. A material or supply contract may not bear an excessive ratio relative to the DBE subcontractor's normal capacity.
4. There may not be any exclusive arrangement between one prime and one DBE in the use of joint checks that may bring into question whether the DBE is independent of the prime contractor.
5. Any arrangement for joint checks must be in writing, and for a specific term (for example, one year, or a specified number of months) that does not exceed a reasonable time to establish a suitable credit line with the supplier.
6. The prime contractor may act solely as the payer of the joint check, and may not have responsibility for establishing the terms of the agreement between the DBE subcontractor and the supplier.
7. The DBE must be responsible for receiving the check from the prime contractor and delivering the check to the supplier.



CONSTRUCTION CONTRACTS
LPA DBE SUBCONTRACT COMPLIANCE ASSURANCES
(07/01/2016)

8. The prime contractor cannot require the DBE subcontractor to use a specific supplier, and the prime contractor may not participate in the negotiation of unit prices between the DBE subcontractor and the supplier.

Procedure and Compliance:

1. BECO must approve the agreement for the use of joint checks in writing before any joint checks are issued. The prime contractor shall submit a DBE joint check request form, available from the BECO website, along with the joint check agreement, to LPA/Subrecipient and BECO through email within seven calendar days from the time the subcontract is executed.
2. After obtaining authorization from BECO for the use of joint checks, the prime contractor, the DBE, and the supplier must retain documentation to allow for efficient monitoring of the agreement by the LPA/Subrecipient.
3. Copies of canceled checks must be submitted, with the payment information for the period in which the joint check was issued, electronically through email to LPA/Subrecipient Procurement Office and made available for review at the time of the onsite CUF review. The prime contractor, DBE, and supplier each have an independent duty to report to the LPA/Subrecipient in the case of any change from the approved joint check arrangement.
4. Any failure to comply will be considered by the LPA/Subrecipient, with ADOT concurrence to be a material breach of this contract and will subject the prime contractor, DBE, and supplier to contract remedies and, in the case of serious violations, a potential for termination of the contract, or other remedies which may prevent future participation by the offending party.

10. DBE Termination/Substitution:

(LPA EPRISE 24.0)

General Requirements:

The contractor shall make all reasonable efforts to avoid terminating or substituting a DBE listed on the DBE Intended Participation Affidavit Summary. At a minimum, the contractor shall negotiate in good faith, give timely notices and/or extend deadlines to the extent that it will not jeopardize the contract with the LPA/Subrecipient. Reasonable methods to resolve performance disputes must be applied and documentation provided to LPA/Subrecipient before attempting to substitute or terminate a DBE.

Contractor Notice of Termination/Substitution:

All terminations, substitutions, and reductions in scope of work to be performed by DBEs listed on the DBE Intended Participation Affidavit Summary must be approved in writing by the LPA/Subrecipient, with BECO concurrence. The contractor shall contact the LPA/Subrecipient within 24 hours from the first sign of any reason for potential DBE termination/substitution.

The contractor shall not terminate a DBE subcontractor listed on the DBE Intended Participation Affidavit or complete the work contracted to the DBE with its own forces or with a non-DBE firm without the LPA/Subrecipient written consent and BECO concurrence. Before submitting a formal request to the LPA/Subrecipient for DBE termination/substitution, the contractor shall give written notice to the DBE subcontractor with a copy to the LPA/Subrecipient of its intent to terminate or substitute the DBE identifying the reason for the action. The notice shall include the deadline for the DBE to submit a written response advising the contractor, LPA/Subrecipient of its position which shall be a minimum of five calendar days after the notice is given. Before making a determination for approval regarding the contractor's termination and substitution request, the LPA/Subrecipient, with BECO concurrence, will consider both the contractor's request and the DBE firm's response.

Contractor Request for Termination/Substitution:

The contractor shall formally request the termination or substitution of a DBE listed on the DBE Intended Participation Affidavit Summary by submitting the DBE Termination/Substitution Request form with supporting documentation to the LPA/Subrecipient; form is available from the LPA/Subrecipient. The submission shall include the following information:

1. The date the contractor determined the DBE to be unwilling, unable, or ineligible to perform.
2. A brief statement of facts describing the situation and citing specific actions or inaction by the DBE firm giving rise to contractor's assertion that the DBE firm is unwilling, unable, or ineligible to perform.
3. A brief statement of the good faith efforts undertaken by the contractor to enable the DBE firm to perform.
4. The total dollar amount currently paid for work performed by the DBE firm.

CONSTRUCTION CONTRACTS
LPA DBE SUBCONTRACT COMPLIANCE ASSURANCES
(07/01/2016)

5. The total dollar amount remaining to be paid to the DBE firm for work completed, but for which the DBE firm has not received payment, and over which the contractor and the DBE firm have no dispute.
6. The projected date that the contractor requires a substitution or replacement DBE to commence work, if consent is granted to the request.
7. The DBE's response to the notice of intent to terminate. If there is no response from the DBE within the time allowed in the notice of intent to terminate, the contractor shall state that no response was received.

Written consent for terminating any DBE listed on the DBE Intended Participation Affidavit Summary will be granted only where the contractor can demonstrate good cause showing that the DBE is unable, unwilling, or ineligible to perform. Such written consent to terminate any DBE shall concurrently constitute written consent to substitute or replace the terminated DBE. Termination or substitution of a DBE listed on the DBE Intended Participation Affidavit Summary will not be allowed based solely on a contractor's ability to negotiate a more advantageous contract with another subcontractor. Prior to making a determination for approval regarding the contractor's termination and substitution request, the LPA/Subrecipient, with BECO concurrence, will consider both the contractor's request and the DBE firm's response.

Good Cause:

The LPA/Subrecipient, with BECO concurrence, will make the determination of good cause by providing written consent to the contractor after evaluating the contractor's good cause to terminate or substitute a DBE firm. Good cause for this purpose includes the following in relation to the listed DBE subcontractor:

1. Fails or refuses to execute a written contract.
2. Fails or refuses to perform the work of its subcontract in a way consistent with normal industry practice standards. However, good cause does not exist if the failure or refusal of the DBE subcontractor to perform its work on the subcontract results from the bad faith or discriminatory action of the prime contractor.
3. Fails or refuses to meet the prime contractor's reasonable, nondiscriminatory bond/insurance requirements.
4. Becomes bankrupt, insolvent, or exhibits credit unworthiness.
5. Is ineligible to work on public works projects because of suspension and debarment proceedings pursuant to federal or state law.
6. Is not a responsible contractor.
7. Voluntarily withdraws from the project and provides written notice of its withdrawal to the Department.
8. Is ineligible to receive DBE credit for the type of work required.
9. A DBE owner dies or becomes disabled with the result that the firm is unable to complete its work on the contract.
10. Other documented good cause that the BECO determines compels the termination or substitution of the DBE subcontractor.

DBE Termination/Substitution Good Faith Effort:

If the LPA/Subrecipient approves the termination of a DBE, the contractor shall make good faith efforts to find another DBE subcontractor to substitute for the original DBE. The good faith efforts as identified in DBE Subsection 15.0 shall be directed at finding another DBE to perform at least the same amount of work under the contract as the DBE that was terminated, to the extent needed to meet the contract goal. If a replacement DBE is not identified for the original DBE's work, the good faith efforts shall be documented and provided, upon request, to the LPA/Subrecipient within seven calendar days from the date of the request.

A prime contractor's inability to find a replacement DBE at the original price is not alone sufficient to support a finding that good faith efforts have been made to replace the original DBE. The fact that the contractor has the ability and/or desire to perform the contract work with its own forces does not relieve the contractor of the obligation to make good faith efforts to find the replacement DBE, and it is not a sound basis for rejecting a prospective replacement DBE's reasonable quote.

The termination of a DBE firm shall not relieve the contractor of its obligations under this Special Provision, and the unpaid portion of the terminated DBE firm's subcontract will not be counted toward the DBE goal.

If the LPA/Subrecipient has eliminated items of work subcontracted to a committed DBE, the prime contractor shall still make good faith efforts to replace the DBE with another DBE to the extent necessary to meet the goal. The LPA/Subrecipient will review the quality, thoroughness, and intensity of those efforts and give consideration to when the change was made, the nature of the change, and other factors as determined by the LPA/Subrecipient.



CONSTRUCTION CONTRACTS
LPA DBE SUBCONTRACT COMPLIANCE ASSURANCES
(07/01/2016)

When a DBE substitution has been approved by the LPA/Subrecipient and concurred by BECO, the contractor shall submit an amended DBE Intended Participation Affidavit and Intended Participation Affidavit Summary to LPA/Subrecipient Procurement Office for approval with the substitute DBE's name, description of work, NAICS code, AZ UTRACS registration number, and dollar value of work. Approval from LPA/Subrecipient with BECO concurrence must be obtained prior to the substituted DBE beginning work.

Sanctions:

Failure by the contractor to carry out the requirements of these DBE Termination/Substitution specifications is a material breach of contract and will result in such remedies as the LPA/Subrecipient deems appropriate, with ADOT concurrence, which will include, but are not limited to the assessment of liquidated damages. The LPA/Subrecipient will deduct from monies due or becoming due to the contractor, the dollar amount of the wrongfully substituted/replaced DBE subcontract plus 25 percent of the amount remaining to be paid to the DBE as liquidated damages. These liquidated damages shall be in addition to all other retention or liquidated damages provided for elsewhere in the contract.

11. Certification of Final DBE Payments: (LPA EPRISE 25.0)

The contractor's achievement of the goal is measured by actual payments made to the DBE. The contractor shall submit the "Certification of Final DBE Payments" form for each DBE firm working on the contract. This form shall be signed by the contractor and the relevant DBE, and submitted to the LPA/Subrecipient no later than 30 days after the DBE completes its work.

The LPA/Subrecipient and ADOT will use this certification and other information available to determine applicable DBE credit allowed to date by the contractor and the extent to which the DBE firms were fully paid for that work. By the act of filing the forms, the contractor acknowledges that the information is supplied in order to justify the payment of state and federal funds to the contractor.

The contractor will not be released from the obligations of the contract until the "Certification of Final DBE Payments" forms are received and deemed acceptable by the LPA/Subrecipient.

12. Sanctions for Not Meeting Contract DBE Goal: (LPA EPRISE 26.0)

If the LPA/Subrecipient determines, with BECO concurrence, that the contractor has, without justification, not met the established DBE goal the LPA/Subrecipient will, at its discretion, deduct up to two times the amount of the unattained portion of established DBE goal from monies due or becoming due the contractor as liquidated damages, based on the circumstances of the noncompliance.

The LPA/Subrecipient, with BECO concurrence, will determine whether liquidated damages will be assessed and the amount of the liquidated damages. The LPA/Subrecipient will consider whether there have been other violations on this or other contracts, whether the failure was due to circumstances beyond the control of the contractor, whether the contractor has made good faith efforts to meet the goal, and other appropriate circumstances.

The contractor may, within 15 calendar days of receipt of the decision of the LPA/Subrecipient escalate the decision to the State Engineer. If the contractor does not escalate the decision of the LPA/Subrecipient, in writing, within 15 calendar days of receipt of the decision, the contractor will be deemed to have accepted the decision and there will be no further remedy for the contractor.

In addition to any other sanctions, willful failure of the contractor, DBE or other subcontractor to comply with this contract or with the Federal DBE regulations may result in disqualification from further contracting, subcontracting, or other participation in the Department's and LPA/Subrecipient's projects.

27.0 False, Fraudulent, or Dishonest Conduct: (LPA EPRISE 27.0)

In addition to any other remedies or actions, the Department will bring to the attention of the US Department of Transportation any appearance of false, fraudulent, or dishonest conduct in connection with the DBE program, so that USDOT can take steps such as referral to the Department of Justice for criminal prosecution, referral to the USDOT Inspector General for possible initiation of suspension and debarment proceedings against the offending parties or application of "Program Fraud and Civil Penalties" rules provided in 49 CFR Part 31.

EQUAL EMPLOYMENT OPPORTUNITY
COMPLIANCE REPORTS

(Project, Training and Annual)

Federal-Aid Projects

February 1, 1977; Revised July 1, 1978; Revised November 3, 1980

Revised April 15, 1981; Revised September 7, 1983

Revised October 15, 1998; Revised August, 1, 2005;

Revised March 1, 2015, Revised August 24, 2016

ANNUAL REPORT:

For each contract in the amount of \$10,000 or more, and for each subcontract, regardless of tier not including material suppliers, in the amount of \$10,000 or more, the contractor and each subcontractor regardless of tier shall submit an annual Equal Employment Opportunity (EEO) Report containing all the information required on Form FHWA-1391.

The staffing figures to be reported should represent the project workforce on board in all or any part of the last payroll period preceding the end of July.

The report shall be submitted no later than August 15 to the agency (contract owner) compliance officer.

ARIZONA DEPARTMENT OF TRANSPORTATION

BUSINESS ENGAGEMENT AND COMPLIANCE OFFICE

Disadvantaged Business Enterprises (DBE) Good Faith Efforts (GFE) Guide For Construction Projects

For use in bidding federally funded Arizona Department of Transportation (ADOT) projects subject to the Disadvantaged Business Enterprises (DBE) Program.

The purpose of the GFE Guide is to help Bidders understand the type of documentation that is required if the Bidder has indicated on the *DBE Assurance Form* that the goal will not be met. GFE documentation must be submitted within seven (7) calendar days following the bid opening. Failure to submit good faith effort documentation within the required time period will render the bid non-responsive.

For questions about this guide or any components of the DBE Good Faith Effort, please contact the ADOT Business Engagement and Compliance Office (BECO) at (602) 712-7761 or ContractorCompliance@azdot.gov.

DISADVANTAGED BUSINESS ENTERPRISES GFE GUIDE

TABLE OF CONTENTS

SECTION 1.0 PURPOSE	3
1.01 CRITICAL INITIAL GFE REQUIREMENTS	3
1.02 GFE DOCUMENTATION REVIEW	3
SECTION 2.0 GOOD FAITH EFFORT SUBMITTAL	4
2.01 GFE SUBMISSION	4
2.02 GFE LETTER	4
SECTION 3.0 DBE GOAL NOTICE	5
SECTION 4.0 DBE ASSURANCE CERTIFICATE	6
4.01 EXHIBIT A	6
SECTION 5.0 GOOD FAITH EFFORTS	
5.01 CONTACT BECO IF UNABLE TO MEET DBE GOAL	7
5.02 SOLICITING THROUGH ALL REASONABLE AND AVAILABLE MEANS	8
5.03 SELECTING PORTIONS OF WORK	10
5.04 PROVIDE INTERESTED DBES WITH PROJECT INFORMATION	11
5.05 NEGOTIATE IN GOOD FAITH WITH INTERESTED DBES	12
5.06 HAVING SOUND REASON FOR REJECTING DBES	15
5.07 ASSISTING INTERESTED DBES – BONDING, CREDIT, INSURANCE	16
5.08 ASSISTING INTERESTED DBES – EQUIPMENT, SUPPLIES, MATERIALS, RELATED SERVICES	17
5.09 MINORITY/WOMEN COMMUNITY ORGANIZATIONS	18
SECTION 6.0 APPENDIX A TO PART 26 – GUIDANCE CONCERNING GFES	22

SECTION 1.0 PURPOSE

This guide contains suggested information and forms bidders can use to help prepare good faith effort documentation. Good faith efforts must be performed well in advance of bid opening.

1.01 CRITICAL INITIAL GFE REQUIREMENTS

1. **CONTACT BECO FOR ASSISTANCE** - As soon as the bidder is aware it is unable to meet the goal, the bidder must contact BECO for assistance. Any solicitations made to interested DBEs must be done no less than ten (10) calendar days prior to bid opening.
2. **DO NOT CHANGE POSITION AFTER BID PROPOSAL** – If the bidder certifies that it has been unable to meet the goal and has made a good faith effort, the bidder cannot change its position after submission of the bid and claim to have met the established goal.

As specified in *Section 13.0 Submission with Bids* of the Disadvantaged Business Enterprises (DBE), Contract Special Provisions (EPRISE, 07/01/16), all Bidders shall submit information to demonstrate that good faith efforts to meet the DBE goal has been made if their *Disadvantaged Business Enterprise Assurances* certificate (Section 4.01 Exhibit A) indicates that the DBE goal will not be met.

1.02 GFE DOCUMENTATION REVIEW

All Bidders are encouraged to consider this GFE Guide. Reviews of GFE documentation will focus on items identified in Section 5.0 of this guide. The items in Section 5.0 are not intended to be an exclusive or exhaustive checklist. Other factors or types of efforts documented shall be relevant in appropriate cases.

SECTION 2.0 GOOD FAITH EFFORT SUBMITTAL

2.01 GFE SUBMISSION

The bidder may submit its documentation one of three ways:

1. Hard copy to: Business Engagement & Compliance Office
1801 W. Jefferson St. Ste. 101 (MD 154A)
Phoenix, AZ 85007
2. Fax to: (602) 712-8429
3. Email to: contractorcompliance@azdot.gov – Please be sure that all emails reach its destination by 4:00 PM of the final submission day (usually 5 days after bid opening).
Emailed documentation received after 4:00 PM will not be included in the GFE review.

2.02 GFE LETTER

The letter should include the following information:

- Project Name
- Project TRACS Number
- Federal Project Number
- Name of person submitting documentation
- Phone Number
- Signature
- Company Name
- Street Address
- City, State, Zip Code
- Telephone number
- Fax number
- Email address
- Contact Person
- Contact Person's Telephone Number

The letter should include an overview of good faith efforts and any necessary explanations of the documentation submitted.

SECTION 3.0 DBE GOAL NOTICE

3.01 NOTICE TO BIDDERS

The DBE goal is project-specific and is listed in the “Notice to Bidders.”

In the Notice to Bidders:

THIS IS A FEDERAL AID CONTRACT. THE DISADVANTAGED BUSINESS ENTERPRISE (DBE) CONTRACT GOAL IS [X.XX %]. YOU MUST MEET THIS DBE GOAL AND/OR PROVIDE ADEQUATE GOOD FAITH EFFORT DOCUMENTATION AS OUTLINED IN THESE SPECIAL PROVISIONS. TO COMPLY WITH ADOT’S DBE PROGRAM GOOD FAITH EFFORT, THE BIDDER MUST TAKE CERTAIN ACTIONS A MINIMUM OF FIFTEEN (15) DAYS PRIOR TO BID OPENING.

All Good Faith Effort documentation must be received by BECO no later than 4:00 P.M. on the seventh calendar day following the bid opening.

Failure to submit good faith effort documentation within the required time period will render the bid nonresponsive. Refer for specific bid requirements to the Disadvantaged Business Enterprises (DBE), Contract Special Provisions (EPRISE, 07/01/16)

For Good Faith Effort assistance, please contact BECO at (602) 712-7761 or email ContractorCompliance@azdot.gov.

SECTION 4.0 DBE ASSURANCE CERTIFICATE

4.01 EXHIBIT A

This form is included in the electronic bid documents and shall be completed and submitted as part of the bid submittal. The form is used to identify if a Bidder can or cannot meet the DBE goal required on the contract. Bids submitted with altered, incomplete or unsigned form will be considered nonresponsive.

DISADVANTAGED BUSINESS ENTERPRISE ASSURANCE	
<p>The undersigned, fully cognizant of the requirements and of the goal established, hereby certifies that in the preparation of this bid for federal aid project</p>	
Project No: _____	<div style="border: 1px solid black; padding: 10px; display: inline-block;">Exhibit A</div>
Project Name: _____	
(CHECK ONE)	
<p>_____ The established goal for DBE participation will be met and agreements have been made with certified DBEs, or</p>	
<p>_____ The bidder has been unable to meet the goal prior to the submission of the bid and has made good faith efforts to do so.</p>	
<p>THIS AFFIDAVIT MAY NOT BE REVISED OR CORRECTED AFTER SUBMISSION OF THE BID.</p>	
<p>In accordance with the Special Provisions, the bidder shall specify its DBE participation on the "DBE Intended Participation Affidavit", or provide documentation of its good faith efforts, by 4:00 p.m. on the fifth working day following the bid opening. The apparent low bidder shall obtain the required affidavit from the Business Engagement & Compliance Office, 1135 N. 22nd Avenue (second floor), Phoenix, AZ, 85009, following the opening of bids.</p>	
_____ Print Name of Firm	
_____ Print Name of Authorized Officer of Firm	
_____ Signature of Authorized Officer of Firm	
_____ Title	

SECTION 5.0 GOOD FAITH EFFORTS

GFE documentation, identified herein, to be provided by Bidders as part of Good Faith Effort will assist ADOT and its Subrecipients/Subgrantees/Local Public Agencies (LPAs) in determining whether the Bidder has performed its due diligence, took all necessary and reasonable steps to secure DBE participation for the contract pursuant to DBE Contract Special Provisions (EPRISE 07/01/16), *Section 15.0 Documented Good Faith Effort* and Appendix A to Part 26. BECO will review the GFE documentation and will recommend to the State Engineer whether the Bidder has made satisfactory good faith efforts to secure sufficient DBE participation to meet the contract goal. The Business Engagement and Compliance Office will make the final determination of Bidder's meeting (or not meeting) the GFE requirements.

The burden of proof rests with the Bidder.

The following sections are a restatement of the Good Faith Efforts outlined in *Section 15.0 Documented Good Faith Effort* of the DBE Special Provisions (EPRISE 07/01/16). Additional guidance over what is outlined in the provisions is provided herein, along with documentation examples.

The types of actions Bidders take and the documentation necessary to establish good faith efforts to meet the DBE goal can include, but not limited, to the following activities (Sections 5.01, 5.02, etc.).

5.01 CONTACT BECO IF UNABLE TO MEET DBE GOAL

Purpose: To communicate with BECO prior to the submission of bids, either by e-mail, telephone, or any other communication avenue to inform BECO of the firm's difficulty in meeting the DBE goals on a given project, and request assistance.

Action: Contact BECO at the first indication of not being able to locate DBEs for a specific project. The bidder must document its contact with BECO, indicate the type of contact, the date and time of the contact, the name of the person(s) contacted, and any details related to the communication. The contact must be made in sufficient time before bid submission to allow BECO to provide effective assistance.

The bidder will not be considered to have made good faith efforts if the bidder failed to contact BECO.

Document and retain all communications (e.g., phone, fax, email, mail) conducted with BECO staff.

SECTION 5.01		CONTACT BECO		EXAMPLE
Occurrence	Date	BECO Staff Name or Email	Bidder's Contact Name	Comment
1.				
2.				
3.				

5.02 SOLICIT THROUGH ALL REASONABLE AND AVAILABLE MEANS

Purpose: To identify all reasonable and available activities the Bidder performed to solicit the interest of all certified DBEs who have the capacity and ability to perform work on the project.

Action: Identify and list all activities the Bidder engaged in to solicit DBEs using all reasonable and available means.

Bidder's GFE Documentation:

- 1) Provide a list of activities performed to solicit DBEs.
- 2) Identify and **provide documentation**:
 - a. Activity undertaken, such as:
 - ☐ advertising – copies or print screens of online project advertisement (See *Section 5.03 Selecting Portions of Work* for example of an advertisement),
 - ☐ pre-bid meeting sign-in sheets,
 - ☐ business matchmaking meetings or events – proof of attendance,
 - ☐ written notice(s) sent – letters, fax or emails to DBEs,
 - ☐ any other market research conducted to identify and solicit DBE contractors and suppliers
 - b. Date action was taken;
 - c. Name of DBEs that showed interest;
 - d. Date of Bidder's follow-up with the interested DBEs

SECTION 5.02	SOLICITING	EXAMPLES
--------------	------------	----------

Bidder Activity (Advertising, Pre-bid meeting, business event, written notice, etc.)	Date	Name of DBE(s) Interested	Date Bidder Follow-up

Example of Written Notice with Fax Transmittal

HP LaserJet 3100
Printer/Fax/Copier/Scanner

SEND CONFIRMATION REPORT for
ABC Construction Company
623-321-7655
January – 29 – 13 2:34 PM

Job	Start Time	Usage	Phone Number or ID	TYPE	Pages	Mode	Status
542	1/29 2:34pm	0'35"	19257484577	Send	1/1	EC144	Complete

ABC Construction Company
123 Main Street
Anytown, CA 98765
925-321-7655 Fax: 925-321-7655

abccconstruction@aol.com

INVITATION TO BID

January 29, 2013

The Electric Shop
1210 Cedar Avenue
Pleasanton, CA 94588

Telephone: 925-748-1327
Fax: 925-748-4577

ABC Construction Company is seeking quotes from qualified MBE/WBE/SBE/OBE/LBE/DVBE businesses and invites your bid/quote on the following listed project/contract:

Project: El Sobrante Area Overlays/Pavement Replacement, El Sobrante, CA
Approx. Value: \$2,415,218
No. of Working Days: 60
Owner: Contra Costa County Bids Due: 2-10-13 @ 2 pm

Seeking all trades including but not limited to: earthwork, asphalt, concrete, rebar, fencing, electrical, fire protect, lath/plaster/drywall, structural steel, mechanical, sheet metal, insulation and other related trades.

We are an equal opportunity employer and intend to seriously negotiate with qualified DBEs for project participation. For assistance in obtaining bonds, lines of credit, and/or insurance please contact Roger Smith. Plans, specifications and requirements for the project are available for review at our office or at the Contra Costa County Public Works Dept. 255 Glacier Drive, Martinez, CA, 94553 and are available online at www.cccounty.us/pwprojects. Please contact us at the above listed number for further information regarding bidding on this project.

Please fax your response to: Rodger Smith at 925-321-7655

We will be bidding Yes _____ No _____

Sincerely,

Rodger Smith
ABC Construction Company

5.03 SELECTING PORTIONS OF WORK

Purpose: To ensure work items are broke out into economically feasible units to facilitate DBE participation, even when the prime contractor might otherwise prefer to perform these work items with its own forces.

Action: Identify economically feasible work units to be performed by DBEs

Bidder's GFE Documentation

- 1) Identify documentation of the following:
 - a. Activity undertaken, such as:
 - ☐ List of work items needed to be performed,
 - ☐ Breaking large work tasks into partial work items (smaller tasks or quantities),
 - ☐ Flexible time frames for performance and delivery schedules

SECTION 5.03	SELECTING PORTIONS OF WORK	EXAMPLE
--------------	----------------------------	---------

Posted in Arizona Builder Exchange website on January 15, 2014

ABC Construction Company is requesting sub-bids from qualified DBE subcontractors, suppliers, manufacturers & truckers for: ADOT Phoenix, AZ

Project: Broadway Area Infrastructure Program Phase 3.A
Project#: 0662-GR4141-02
Engineer Est.: \$450,000
No. Working Days: 30
Bid Due Date: 2/10/14 at 2 pm

For the following (but not limited to) work items:

- traffic control,
- construction area signs,
- trucking,
- hazardous materials removal,
- grinding,
- striping,
- electrical,
- asphalt, concrete,

If you are interested in bidding on this work or know someone who is, please contact Steve @ 623-321-7654, Fax: 623-321-7655 or email steve@Mail.com

Plans, Specs, and Requirements for the project are available for review at our office in Anytown or at the ADOT, Phoenix AZ and are available at: <http://www.azdot.gov/projects/Projects>.

For assistance in obtaining bonds, lines of credit, and/or insurance for this project, please contact Steve at the noted phone number.

ABC Construction Company
123 Main Street Anytown, AZ 85009

Contact: Steve
Phone: 925-321-7654
Fax: 925-321-7655
steve@Mail.com

5.04 PROVIDE INTERESTED DBES WITH PROJECT INFORMATION

Purpose: To provide interested DBEs with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist DBEs in responding to solicitations.

Action: Provide DBEs access to plans, specifications and other contract requirements in a timely manner prior to bid solicitation

Bidder's GFE Documentation:

- 1) Identify in writing and provide documentation of the following:
 - ☐ What types of project information did DBEs have access to prior to bid?
 - ☐ How were DBEs informed of the availability of project information?
 - ☐ When were they notified they had access to project information?
 - ☐ Provide copies of advertisements that may explain the above information,
(See *Section 5.03 Selecting Portions of Work* for an advertisement example that informs firms of where project plans are located)
 - ☐ Provide screen shots of steps in accessing project information online –screenshots must identify project numbers and/or descriptions

5.05 NEGOTIATE IN GOOD FAITH WITH INTERESTED DBES

Purpose: To ensure that negotiations with interested DBEs were made in good faith by providing evidence as to why additional agreements could not be reached for DBEs to perform work. It is the bidder's responsibility to make a portion of the work available to the DBE subcontractors and suppliers, and to select those portions of work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation.

Action: Provide evidence that good faith negotiations took place with interested DBEs.

Pro forma mailings to DBEs requesting bids are not alone sufficient to constitute good faith efforts.

A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBEs is not in itself sufficient reason for a bidder's failure to meet the DBE goal, as long as such costs are reasonable. Also, the ability or desire of a prime contractor to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. However, prime contractors are not required to accept higher quotes from DBEs if the price difference is excessive or unreasonable.

Another practice considered an insufficient good faith effort is the rejection of the DBE because its quotation for the work was not the lowest received. The bidder must submit copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor was selected over a DBE for work on the contract. The Department will review whether DBE prices were substantially higher and contact the DBEs listed on a contractor's solicitation to inquire as to whether they were contacted by the prime contractor. However, nothing in this paragraph shall be construed to require the bidder or prime contractor to accept unreasonable quotes in order to satisfy contract goals.

Bidder's GFE Documentation:

- 1) Identify DBEs that were considered for negotiations and include the following information:
 - a. Name of each business;
 - b. Telephone number of each business;
 - c. Contact person name negotiated with;
 - d. A description from the plans and specifications of work selected for subcontracting
- 2) Provide documentation of the following:
 - ☐ **ALL** Quotes from DBEs
 - ☐ **ALL** Quotes from non-DBEs that were considered alongside DBE firms

SECTION 5.05	NEGOTIATE IN GOOD FAITH	EXAMPLE
---------------------	--------------------------------	----------------

NEGOTIATIONS LOG EXAMPLE

ABC Construction Company
Contact List
Discovery House Facility

Negotiations Made By
Rodger Smith

Only List DBEs

Name of Business	Address	Telephone Number	Contact Person	Task Description	Quotes Rec'd?	Considered for project?
Arrow Landscape	567 James St. Anytown, AZ	602-727-4915	Andrew Lang	Erosion Control & Seeding	Yes	No
Bear Valley Contractors	25 Teal St. Anytown, AZ	520-282-3404	Todd Lewinsky	Sidewalk, Curb & Gutter	No	No
B&C Fence Company	456 Apple Dr. Anytown, AZ	480-578-5026	Dorthy Smith	Fencing	Yes	Yes
Delta Cement Co.	10 Banks Ave. Anytown, AZ	623-297-5666	Bob Valentine	Material Supplier	Yes	No
Ebarra Landscape Services, Inc.	345 Ortiz Rd. Anytown, AZ	623-451-2105	Troy Torres	Erosion Control & Seeding	No	No
Flores Grading & Paving	789 Zion Dr. Anytown, AZ	602-383-2928	Ken Overton	Sidewalk, Curb & Gutter	Yes	Yes
Gateway Electric, Inc.	1001 Bakers Anytown, AZ	602-222-2873	Christina Lee	Traffic Signals	No	No
Hertz Air Conditioning Co., Inc.	219 Hightower Anytown, AZ	480-522-8727	Ellen Young	HVAC	No	No
Itachi Landscape	160 Crane St. Anytown, AZ	602-647-8955	Dan Kovaski	Erosion Control & Seeding	Yes	No
Jett Construction, Inc.	456 Anchor Rd. Anytown, AZ	602-364-8081	Rita Holt	Sidewalk, Curb & Gutter	Yes	No

QUOTE EXAMPLE

ABC Construction Company

925-321-7654

Owned By U.S. Perma, Inc.

925-321-7655 Fax

State License No. 439330 – Since 1962

Ceramic

Mosaic

Quarry

Marble

Granite

Pavers

Thin Brick

Date: February 4, 2013

Quote: 06190311

City: Martinez

QUOTE

Reference: DISCOVERY HOUSE FACILITY

Attention: Estimating

Base Bid: \$40,938.00

Addendum's: 1 only

Inclusions

Ceramic tile lobby and restrooms. Mortar floor at restrooms, cement backer board at walls and lobby floor (included at \$6,435.00). Waterproof membrane at restrooms floors.

Exclusions

Demo & Prep

This is a price quote confirmation for the aforementioned project as set forth in the inclusions section of this form. This quote is in accordance with plans, drawings, and specifications as presented to us, or as specified by your company. Shop drawings are not included unless specified above. All labor, materials, taxes, freight, equipment, etc., necessary to attain a complete product are included unless otherwise stated. This bid shall be valid for a period of sixty (60) days.

Thank you,

John Smith

123 Main Street

Anytown, CA 94553

5.06 HAVING SOUND REASON FOR REJECTING DBES

Purpose: To not reject DBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities.

Action: The DBE contractor's standing within its industry, membership in specific groups, organizations or associations and political or social affiliations (for example, union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the contractor's efforts to meet the project goal.

Bidder's GFE Documentation:

- 1) Demonstrate that DBEs were rejected for sound reasons based on a thorough investigation of their capabilities;
- 2) Provide documentation of the following examples:
 - ☐ Past performance
 - ☐ Relevant business experience & stability
 - ☐ Safety record
 - ☐ Business ethic & moral integrity
 - ☐ Technical capacity
 - ☐ Other factors

5.07 ASSISTING INTERESTED DBES - BONDING, CREDIT, INSURANCE

Purpose: To assist interested DBEs in obtaining bonds, lines of credit, and insurance as required by ADOT/Subrecipient/LPA/Grantee or Bidder.

Action: Assist interested DBEs in such areas as obtaining bonding, lines of credit, or insurance and providing any technical assistance or information related to the plans, specification, and requirements of the project, excluding supplies and equipment the DBE subcontractor purchases or leases from the prime contractor or its affiliate.

Bidder's GFE Documentation:

- 1) If assistance was given, list each certified DBE to which such assistance was provided and include the following information:
 - a. Name of the DBE;
 - b. Date assistance was provided;
 - c. DBE contact person;
 - d. Telephone number of contact person with DBE; and
 - e. Explanation of assistance provided to the DBE (e.g., obtaining bonding, lines of credit, or insurance).

SECTION 5.07	BONDING, CREDIT, INSURANCE	EXAMPLE
--------------	----------------------------	---------

BONDS, LINES OF CREDIT AND INSURANCE

DBE firm:	Date:
Contact person:	Telephone #:
Assistance offered:	

DBE firm:	Date:
Contact person:	Telephone #:
Assistance offered:	

5.08 ASSISTING INTERESTED DBES – EQUIPMENT, SUPPLIES, MATERIALS, RELATED SERVICES

Purpose: To assist interested DBEs in obtaining necessary equipment, supplies, materials, or related assistance and services.

Action: Assist interested DBEs in such areas as obtaining equipment, supplies, materials, or related assistance or services related to the plans, specification, and requirements of the project, excluding supplies and equipment the DBE subcontractor purchases or leases from the prime contractor or its affiliate.

Bidder's GFE Documentation:

- 1) If assistance was given, list each certified DBE to which such assistance was provided and include the following information:
 - a. Name of the DBE;
 - b. Date assistance was provided;
 - c. DBE contact person;
 - d. Telephone number of contact person with DBE; and
 - e. Explanation of assistance provided to the DBE (e.g., obtaining equipment, supplies, materials, or related assistance or services).

SECTION 5.08	EQUIPMENT, SUPPLIES, MATERIALS, RELATED SERVICES	EXAMPLE
--------------	--	---------

EQUIPMENT, SUPPLIES, MATERIALS, RELATED ASSISTANCE OR SERVICES

DBE firm:	Date:
Contact person:	Telephone #:
Assistance offered:	

DBE firm:	Date:
Contact person:	Telephone #:
Assistance offered:	

5.09 MINORITY/WOMEN COMMUNITY ORGANIZATIONS

Purpose: To effectively use the services of available minority/women community organizations; minority/women contractors' groups; local, state, and Federal minority/women business assistance offices; other organizations as allowed for providing assistance in the recruitment and placement of DBEs.

Action:

- 1) Contact minority/women community organizations, DBE-related agencies recruitment/placement organizations, or other groups, for assistance in contacting, recruiting, and using DBE subcontractors, suppliers, manufacturers, and truckers. Contact should occur in a manner that allows interested DBEs to respond within **ten (10) calendar days** prior to bid opening.

Here are some example organizations that are available for assistance with DBE recruitment. This is not a complete list and bidders are expected to contact additional organizations to assist in finding DBEs.

Ricardo Carlo, President

Associated Minority Contractors of America

2630 S. 20th Place

Phoenix, AZ 85034

Office: (602) 495-0026 Fax: (602) 252-3749

Cell: (623) 521-8195

&

3941 E. 29th Street, Suite 605

Tucson, AZ 85711

Toll Free: (877) 619-0026

Email: amca@qwestoffice.net

Web: www.amcaaz.com

Kaaren-Lyn Morton, Business Consultant

Minority Business Development Agency

Business Center

255 E. Osborn Road, Suite 202

Phoenix, AZ 85012-2358

Office: (602) 248-0007, Ext. 216 Fax: (602) 279-8900

Cell: (480) 343-2799

Email: kaaren@phoenixmbdcenter.com

Web: www.phoenixmbdcenter.com

Operated by the Arizona Hispanic Chamber of Commerce Foundation

Business Engagement & Compliance Office

Arizona Department of Transportation

1801 W. Jefferson St. Ste. 101 (MD 154A)

Phoenix, AZ 85007

Office: (602) 712-7761 Fax: (602) 712-8429

Email: DBESupportiveServices@azdot.gov

The Arizona Unified Transportation Registration and Certification System (AZ UTRACS) online database (<http://www.azutracs.com/>) contains an inventory of DBEs. The database can be queried to provide a list of certified DBEs in specialty areas or discipline-specific.

2) Written requests for assistance must contain:

- a. Areas of work to be subcontracted;
- b. Bidder Name and contact person's name;
- c. Contact person's telephone number;
- d. Description of availability of plans, specifications, and other requirements for the project; and
- e. Bidder's policy concerning assistance to subcontractors (including suppliers, manufacturers, and truckers) in obtaining bonds, lines of credit, insurance, equipment, supplies, materials, related assistance and services.

Bidder's GFE Documentation:

- 1) Submit a copy of each request for assistance in recruiting DBEs.
- 2) Faxed copies must also include the fax transmittal confirmation slip showing the date and time of transmission.
- 3) Mailed letters must include copies of the metered envelopes or certified mail receipts.
- 4) Provide telephone number of each agency.
- 5) Provide contact person with the agency.
- 6) Provide response received from the agency (i.e., lists, Internet page, letters, emails, etc.).
- 7) Furnish any additional data to support demonstration of good faith efforts to contact, recruit, and utilize DBEs on this project.

SECTION 5.09	MINORITY/WOMEN COMMUNITY ORGANIZATIONS	EXAMPLE
--------------	--	---------

DBE QUOTE SOLICITATION REQUEST

(Enter: COMPANY NAME) is soliciting quotes from certified DBEs for the: (Enter: PROJECT LOCATION)
(Example: Payson Winslow Highway SR 87 Limestone Wash Bridge)

Bidding Date: (Example: NOVEMBER 8, 2013)

Project No: (Example: STP-BR-087-C(203)T)

Tracs No: (Example: 000 YU YYU SS86101C)

Bids due Contractor: (Example: NOVEMBER 4, 2013)

DBEs interested in bidding this project should contact:

(Example: John Doe at 602 777 0000 or via email estimator@live.com)

(Enter: COMPANY NAME) is interested in subcontracting the following categories of work:

(Enter bid items for bid below)

- Concrete
- Seeding
- Paving
- Trucking
- Excavation
- Survey
- Traffic Control
- Guardrail
- Permanent Signs
- Excavation
- Lead Abatement
- Pavement Marking

***Please include any additional information that would assist efforts in DBE participation and a web-friendly company logo and Point of Contact.**

Bids documents can be found at: (Enter: COMPANY WEBSITE)

For questions regarding the ADOT DBE Supportive Services Program please contact us at
DBEsupportiveservices@azdot.gov.

CONTACT LOG

Agency Name	Telephone Number	Contact Person	Agency Response	Services Rendered

SECTION 6.0 APPENDIX A TO PART 26 – GUIDANCE CONCERNING GFEs

The following appendix from 49 CFR Part 26 is a guide to assist agencies in determining what a good faith effort is.

APPENDIX A TO PART 26 — GUIDANCE CONCERNING GOOD FAITH EFFORTS

Note: “YOU” means the Agency (ADOT) in the following section of this requirement.

- I. When, as a recipient, you establish a contract goal on a DOT-assisted contract for procuring construction, equipment, services, or any other purpose, a bidder must, in order to be responsible and/or responsive, make sufficient good faith efforts to meet the goal. The bidder can meet this requirement in either of two ways. First, the bidder can meet the goal, documenting commitments for participation by DBE firms sufficient for this purpose. Second, even if it doesn't meet the goal, the bidder can document adequate good faith efforts. This means that the bidder must show that it took all necessary and reasonable steps to achieve a DBE goal or other requirement of this part which, by their scope, intensity, and appropriateness to the objective, could reasonably be expected to obtain sufficient DBE participation, even if they were not fully successful.
- II. In any situation in which you have established a contract goal, Part 26 requires you to use the good faith efforts mechanism of this part. As a recipient, you have the responsibility to make a fair and reasonable judgment whether a bidder that did not meet the goal made adequate good faith efforts. It is important for you to consider the quality, quantity, and intensity of the different kinds of efforts that the bidder has made, based on the regulations and the guidance in this Appendix.

The efforts employed by the bidder should be those that one could reasonably expect a bidder to take if the bidder were actively and aggressively trying to obtain DBE participation sufficient to meet the DBE contract goal. Mere pro forma efforts are not good faith efforts to meet the DBE contract requirements. We emphasize, however, that your determination concerning the sufficiency of the firm's good faith efforts is a judgment call. Determinations should not be made using quantitative formulas.

- III. The Department also strongly cautions you against requiring that a bidder meet a contract goal (i.e., obtain a specified amount of DBE participation) in order to be awarded a contract, even though the bidder makes an adequate good faith efforts showing. This rule specifically prohibits you from ignoring bona fide good faith efforts.
- IV. The following is a list of types of actions which you should consider as part of the bidder's good faith efforts to obtain DBE participation. It is not intended to be a mandatory checklist, nor is it intended to be exclusive or exhaustive. Other factors or types of efforts may be relevant in appropriate cases.
 - A. (1) Conducting market research to identify small business contractors and suppliers and soliciting through all reasonable and available means the interest of all certified DBEs that have the capability to perform the work of the contract. This may include attendance at pre-bid and business matchmaking meetings and events, advertising and/or written notices, posting of Notices of Sources Sought and/or Requests for Proposals, written notices or emails to all DBEs listed in the State's directory of transportation firms that specialize in the areas of work desired (as noted in the DBE directory) and which are located in the area or surrounding areas of the project.
 - (2) The bidder should solicit this interest as early in the acquisition process as practicable to allow the DBEs to respond to the solicitation and submit a timely offer for the subcontract. The bidder should

determine with certainty if the DBEs are interested by taking appropriate steps to follow up initial solicitations.

- B. Selecting portions of the work to be performed by DBEs in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units (for example, smaller tasks or quantities) to facilitate DBE participation, even when the prime contractor might otherwise prefer to perform these work items with its own forces. This may include, where possible, establishing flexible timeframes for performance and delivery schedules in a manner that encourages and facilitates DBE participation.
- C. Providing interested DBEs with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation with their offer for the subcontract.
- D. (1) Negotiating in good faith with interested DBEs. It is the bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBEs that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional Agreements could not be reached for DBEs to perform the work.

(2) A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBEs is not in itself sufficient reason for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable. Also, the ability or desire of a prime contractor to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Prime contractors are not, however, required to accept higher quotes from DBEs if the price difference is excessive or unreasonable.

- E. (1) Not rejecting DBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The contractor's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union status) are not legitimate causes for the rejection or non-solicitation of bids in the contractor's efforts to meet the project goal. Another practice considered an insufficient good faith effort is the rejection of the DBE because its quotation for the work was not the lowest received. However, nothing in this paragraph shall be construed to require the bidder or prime contractor to accept unreasonable quotes in order to satisfy contract goals.

(2) A prime contractor's inability to find a replacement DBE at the original price is not alone sufficient to support a finding that good faith efforts have been made to replace the original DBE. The fact that the contractor has the ability and/or desire to perform the contract work with its own forces does not relieve the contractor of the obligation to make good faith efforts to find a replacement DBE, and it is not a sound basis for rejecting a prospective replacement DBE's reasonable quote.

- F. Making efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or contractor.
- G. Making efforts to assist interested DBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.

- H. Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, State, and Federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBEs.
- V. In determining whether a bidder has made good faith efforts, it is essential to scrutinize its documented efforts. At a minimum, you must review the performance of other bidders in meeting the contract goal. For example, when the apparent successful bidder fails to meet the contract goal, but others meet it, you may reasonably raise the question of whether, with additional efforts, the apparent successful bidder could have met the goal. If the apparent successful bidder fails to meet the goal, but meets or exceeds the average DBE participation obtained by other bidders, you may view this, in conjunction with other factors, as evidence of the apparent successful bidder having made good faith efforts. As provided in §26.53(b)(2)(vi), you must also require the contractor to submit copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor was selected over a DBE for work on the contract to review whether DBE prices were substantially higher; and contact the DBEs listed on a contractor's solicitation to inquire as to whether they were contacted by the prime. Pro forma mailings to DBEs requesting bids are not alone sufficient to satisfy good faith efforts under the rule.
- VI. A promise to use DBEs after contract award is not considered to be responsive to the contract solicitation or to constitute good faith efforts.

Note: Contacting BECO (602 712-7761) for assistance in identifying certified DBEs that can perform work on a contract is also considered a strong factor in making good faith efforts.

City of Phoenix
Title VI/Non-Discrimination Assurances
DOT Order No. 1050.2A

The *City of Phoenix* (herein referred to as the "Recipient"), HEREBY AGREES THAT, as a condition to receiving any Federal financial assistance from the U.S. Department of Transportation (DOT), through *Federal Highway Administration* and *Arizona Department of Transportation*, is subject to and will comply with the following:

Statutory/Regulatory Authorities

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d *et seq.*, 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin);
- 49 C.F.R. Part 21 (entitled *Non-discrimination In Federally-Assisted Programs Of The Department Of Transportation—Effectuation Of Title VI Of The Civil Rights Act Of 1964*);
- 28 C.F.R. section 50.3 (U.S. Department of Justice Guidelines for Enforcement of Title VI of the Civil Rights Act of 1964)

The preceding statutory and regulatory cites hereinafter are referred to as the "Acts" and "Regulations," respectively.

General Assurances

In accordance with the Acts, the Regulations, and other pertinent directives, circulars, policy, memoranda, and/or guidance, the Recipient hereby gives assurance that it will promptly take any measures necessary to ensure that:

"No person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity," for which the Recipient receives Federal financial assistance from DOT, including the Federal Highway Administration.

The Civil Rights Restoration Act of 1987 clarified the original intent of Congress, with respect to Title VI and other Non-discrimination requirements (The Age Discrimination Act of 1975, and Section 504 of the Rehabilitation Act of 1973), by restoring the broad, institutional-wide scope and coverage of these non-discrimination statutes and requirements to include all programs and activities of the Recipient, so long as any portion of the program is Federally assisted.

Specific Assurances

More specifically, and without limiting the above general Assurance, the Recipient agrees with and gives the following Assurances with respect to its *Federal Aid Highway Program*.

1. The Recipient agrees that each "activity," "facility," or "program," as defined in §§ 21.23 (b) and 21.23 (e) of 49 C.F.R. § 21 will be (with regard to an "activity") facilitated, or will be (with regard

to a "facility") operated, or will be (with regard to a "program") conducted in compliance with all requirements imposed by, or pursuant to the Acts and the Regulations.

2. The Recipient will insert the following notification in all solicitations for bids, Requests For Proposals for work, or material subject to the Acts and the Regulations made in connection with all *Federal Aid Highway Program* and, in adapted form, in all proposals for negotiated agreements regardless of funding source:

*"The **City of Phoenix**, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award."*

3. The Recipient will insert the clauses of Appendix A and E of this Assurance in every contract or agreement subject to the Acts and the Regulations.

4. The Recipient will insert the clauses of Appendix B of this Assurance, as a covenant running with the land, in any deed from the United States effecting or recording a transfer of real property, structures, use, or improvements thereon or interest therein to a Recipient.

5. That where the Recipient receives Federal financial assistance to construct a facility, or part of a facility, the Assurance will extend to the entire facility and facilities operated in connection therewith.

6. That where the Recipient receives Federal financial assistance in the form, or for the acquisition of real property or an interest in real property, the Assurance will extend to rights to space on, over, or under such property.

7. That the Recipient will include the clauses set forth in Appendix C and Appendix D of this Assurance, as a covenant running with the land, in any future deeds, leases, licenses, permits, or similar instruments entered into by the Recipient with other parties:

- a. for the subsequent transfer of real property acquired or improved under the applicable activity, project, or program; and
- b. for the construction or use of, or access to, space on, over, or under real property acquired or improved under the applicable activity, project, or program.

8. That this Assurance obligates the Recipient for the period during which Federal financial assistance is extended to the program, except where the Federal financial assistance is to provide, or is in the form of, personal property, or real property, or interest therein, or structures or improvements thereon, in which case the Assurance obligates the Recipient, or any transferee for the longer of the following periods:

- a. the period during which the property is used for a purpose for which the Federal financial assistance is extended, or for another purpose involving the provision of similar services or benefits; or
- b. the period during which the Recipient retains ownership or possession of the property.

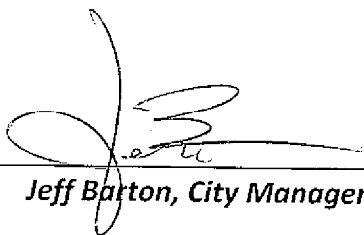
9. The Recipient will provide for such methods of administration for the program as are found by the Secretary of Transportation or the official to whom he/she delegates specific authority to give reasonable guarantee that it, other recipients, sub-recipients, sub-grantees, contractors, subcontractors, consultants, transferees, successors in interest, and other participants of Federal financial assistance under such program will comply with all requirements imposed or pursuant to the Acts, the Regulations, and this Assurance.

10. The Recipient agrees that the United States has a right to seek judicial enforcement with regard to any matter arising under the Acts, the Regulations, and this Assurance.

By signing this ASSURANCE, the **City of Phoenix** also agrees to comply (and require any sub-recipients, sub-grantees, contractors, successors, transferees, and/or assignees to comply) with all applicable provisions governing *Federal Highway Administration* or *Arizona Department of Transportation* access to records, accounts, documents, information, facilities, and staff. You also recognize that you must comply with any program or compliance reviews, and/or complaint investigations conducted by the *Federal Highway Administration* or *Arizona Department of Transportation*. You must keep records, reports, and submit the material for review upon request to *Federal Highway Administration*, *Arizona Department of Transportation*, or its designee in a timely, complete, and accurate way. Additionally, you must comply with all other reporting, data collection, and evaluation requirements, as prescribed by law or detailed in program guidance.

The **City of Phoenix** gives this ASSURANCE in consideration of and for obtaining any Federal grants, loans, contracts, agreements, property, and/or discounts, or other Federal-aid and Federal financial assistance extended after the date hereof to the recipients by the U.S. Department of Transportation under the *Federal Highway Administration* and *Arizona Department of Transportation*. This ASSURANCE is binding on Arizona, other recipients, sub-recipients, sub-grantees, contractors, subcontractors and their subcontractors', transferees, successors in interest, and any other participants in the *Federal Aid Highway Program*. The person(s) signing below is authorized to sign this ASSURANCE on behalf of the Recipient.

by



Jeff Barton, City Manager

DATED

6/4/24

APPENDIX A

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

1. **Compliance with Regulations:** The contractor (hereinafter includes consultants) will comply with the Acts and the Regulations relative to Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation, *Federal Highway Administration or the Arizona Department of Transportation*, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.
2. **Non-discrimination:** The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.
3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment:** In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this contract and the Acts and the Regulations relative to Non-discrimination on the grounds of race, color, or national origin.
4. **Information and Reports:** The contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient, the *Federal Highway Administration or Arizona Department of Transportation* to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the contractor will so certify to the Recipient, the *Federal Highway Administration, or Arizona Department of Transportation*, as appropriate, and will set forth what efforts it has made to obtain the information.
5. **Sanctions for Noncompliance:** In the event of a contractor's noncompliance with the Non-discrimination provisions of this contract, the Recipient will impose such contract sanctions as it or the *Federal Highway Administration or Arizona Department of Transportation*, may determine to be appropriate, including, but not limited to:
 - a. withholding payments to the contractor under the contract until the contractor complies; and/or
 - b. cancelling, terminating, or suspending a contract, in whole or in part.
6. **Incorporation of Provisions:** The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as the Recipient, the *Federal Highway Administration, or Arizona Department of Transportation* may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

A

APPENDIX B

CLAUSES FOR DEEDS TRANSFERRING UNITED STATES PROPERTY

The following clauses will be included in deeds effecting or recording the transfer of real property, structures, or improvements thereon, or granting interest therein from the United States pursuant to the provisions of Assurance 4:

NOW, THEREFORE, the U.S. Department of Transportation as authorized by law and upon the condition that the **City of Phoenix** will accept title to the lands and maintain the project constructed thereon in accordance with *Title 23*, United States Code the Regulations for the Administration of *Federal Aid for Highways*, and the policies and procedures prescribed by the *Arizona Department of Transportation, Federal Highway Administration* of the U.S. Department of Transportation in accordance and in compliance with all requirements imposed by Title 49, Code of Federal Regulations, U.S. Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation pertaining to and effectuating the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252; 42 U.S.C. § 2000d to 2000d-4), does hereby remise, release, quitclaim and convey unto the **City of Phoenix** all the right, title and interest of the U.S. Department of Transportation in and to said lands described in Exhibit A attached hereto and made a part hereof.

(HABENDUM CLAUSE)

TO HAVE AND TO HOLD said lands and interests therein unto **City of Phoenix** and its successors forever, subject, however, to the covenants, conditions, restrictions and reservations herein contained as follows, which will remain in effect for the period during which the real property or structures are used for a purpose for which Federal financial assistance is extended or for another purpose involving the provision of similar services or benefits and will be binding on the **City of Phoenix**, its successors and assigns.

The **City of Phoenix**, in consideration of the conveyance of said lands and interests in lands, does hereby covenant and agree as a covenant running with the land for itself, its successors and assigns, that (1) no person will on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination with regard to any facility located wholly or in part on, over, or under such lands hereby conveyed [,] [and]* (2) that the **City of Phoenix** will use the lands and interests in lands and interests in lands so conveyed, in compliance with all requirements imposed by or pursuant to Title 49, Code of Federal Regulations, U.S. Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation, Effectuation of Title VI of the Civil Rights Act of 1964, and as said Regulations and Acts may be amended[, and (3) that in the event of breach of any of the above-mentioned non-discrimination conditions, the Department will have a right to enter or re-enter said lands and facilities on said land, and that above described land and facilities will thereon revert to and vest in and become the absolute property of the U.S. Department of Transportation and its assigns as such interest existed prior to this instruction].*

(*Reverter clause and related language to be used only when it is determined that such a clause is necessary in order to make clear the purpose of Title VI.)

APPENDIX C

CLAUSES FOR TRANSFER OF REAL PROPERTY ACQUIRED OR IMPROVED UNDER THE ACTIVITY, FACILITY, OR PROGRAM

The following clauses will be included in deeds, licenses, leases, permits, or similar instruments entered into by the **City of Phoenix** pursuant to the provisions of Assurance 7(a):

A. The (grantee, lessee, permittee, etc. as appropriate) for himself/herself, his/her heirs, personal representatives, successors in interest, and assigns, as a part of the consideration hereof, does hereby covenant and agree [in the case of deeds and leases add "as a covenant running with the land"] that:

1. In the event facilities are constructed, maintained, or otherwise operated on the property described in this (deed, license, lease, permit, etc.) for a purpose for which a U.S. Department of Transportation activity, facility, or program is extended or for another purpose involving the provision of similar services or benefits, the (grantee, licensee, lessee, permittee, etc.) will maintain and operate such facilities and services in compliance with all requirements imposed by the Acts and Regulations (as may be amended) such that no person on the grounds of race, color, or national origin, will be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination in the use of said facilities.

B. With respect to licenses, leases, permits, etc., in the event of breach of any of the above Non-discrimination covenants, ***the City of Phoenix*** will have the right to terminate the (lease, license, permit, etc.) and to enter, re-enter, and repossess said lands and facilities thereon, and hold the same as if the (lease, license, permit, etc.) had never been made or issued.*

C. With respect to a deed, in the event of breach of any of the above Non-discrimination covenants, the **City of Phoenix** will have the right to enter or re-enter the lands and facilities thereon, and the above described lands and facilities will there upon revert to and vest in and become the absolute property of the ***City of Phoenix*** and its assigns*.

(*Reverter clause and related language to be used only when it is determined that such a clause is necessary to make clear the purpose of Title VI.)

APPENDIX D

CLAUSES FOR CONSTRUCTION/USE/ACCESS TO REAL PROPERTY ACQUIRED UNDER THE ACTIVITY, FACILITY OR PROGRAM

The following clauses will be included in deeds, licenses, permits, or similar instruments/agreements entered into by the **City of Phoenix** pursuant to the provisions of Assurance 7(b):

A. The (grantee, licensee, permittee, etc., as appropriate) for himself/herself, his/her heirs, personal representatives, successors in interest, and assigns, as a part of the consideration hereof, does hereby covenant and agree (in the case of deeds and leases add, "as a covenant running with the land") that (1) no person on the ground of race, color, or national origin, will be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination in the use of said facilities, (2) that in the construction of any improvements on, over, or under such land, and the furnishing of services thereon, no person on the ground of race, color, or national origin, will be excluded from participation in, denied the benefits of, or otherwise be subjected to discrimination, (3) that the (grantee, licensee, lessee, permittee, etc.) will use the premises in compliance with all other requirements imposed by or pursuant to the Acts and Regulations, as amended, set forth in this Assurance.

B. With respect to (licenses, leases, permits, etc.), in the event of breach of any of the above Non-discrimination covenants, the **City of Phoenix** will have the right to terminate the (license, permit, etc., as appropriate) and to enter or re-enter or re-enter and repossess said land and the facilities thereon, and hold the same as if said (license, permit, etc., as appropriate) had never been made or issued.*

C. With respect to deeds, in the event of breach of any of the above Non-discrimination covenants, the **City of Phoenix** will there upon revert to and vest in and become the absolute property of the **City of Phoenix** and its assigns.*

(*Reverter clause and related language to be used only when it is determined that such a clause is necessary to make clear the purpose of Title VI.)

APPENDIX E

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

Pertinent Non-Discrimination Authorities:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d *et seq.*, 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21.
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 *et seq.*), (prohibits discrimination on the basis of sex);
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 *et seq.*), as amended, (prohibits discrimination on the basis of disability); and 49 CFR Part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 *et seq.*), (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131-12189) as implemented by Department of Transportation regulations at 49 C.F.R. parts 37 and 38;
- The Federal Aviation Administration's Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 *et seq.*).

CONSTRUCTION AND PROFESSIONAL SERVICES/DESIGN CONTRACTS PROMPT PAY AND PAYMENT REPORTING PROVISIONS

**** FOR USE ON LPA FEDERAL AID PROJECTS ****

(09/20/2016)

MEASUREMENTS AND PAYMENT:

Partial Payments:

If satisfactory progress is being made, the contractor will receive a payment based on the amount of work completed. Progress payments may be made by the LPA/ Subrecipient Procurement Office to the contractor on the basis of an approved estimate of the work performed during a preceding period of time. The progress payments shall be paid on or before 14 days after the estimate of the work is approved. The estimate of the work shall be deemed received by the LPA/Subrecipient Procurement Office on submission to the person designated by the LPA/Subrecipient Procurement Office for the submission, review or approval of the estimate of the work. The LPA/Subrecipient Procurement Office by mutual agreement may make progress payments on contracts of less than 90 days and shall make monthly progress payments on all other contracts. Payment to the contractor on the basis of a duly certified and approved estimate of the work performed during the preceding calendar month under the contract may include payment for material and equipment.

An estimate of the work submitted shall be deemed approved and certified for payment after seven days from the date of submission unless before that time the LPA/Subrecipient Procurement Office or Designee prepares and issues a specific written finding setting forth those items in detail in the estimate of the work that are not approved for payment under the contract. The contractor shall work with the LPA/Subrecipient or the LPA/Subrecipient Designee to finalize monthly estimate. The progress payments shall be paid on or before 14 days after the estimate of the work is certified and approved in accordance with Arizona Revised Statutes Section 34-221.

The contractor shall pay to the contractor's subcontractors or material suppliers and each subcontractor shall pay to the subcontractor's subcontractor or material supplier, within seven days of receipt of each progress payment the respective amounts allowed the contractor or subcontractor on account of the work performed by the subcontractors, to the extent of each subcontractor's interest, except that no contract for construction services may materially alter the rights of any contractor, subcontractor or material supplier to receive prompt and timely payment.

A subcontractor may notify the LPA/Subrecipient Procurement Office in writing requesting that the subcontractor be notified by the Subrecipient Procurement Office in writing within five days from payment of each progress payment made to the contractor.

Subcontractor Payments:

(1) Retention:

If the prime contract does not provide for retention, the contractor and each subcontractor of any tier shall not withhold retention on any subcontract. If the prime contract provides for retention, the prime contractor and each subcontractor of any tier shall not retain a higher percentage than the LPA/Subrecipient may retain under the prime contract.

(2) No Set-offs Arising from Other Contracts:

If a subcontractor is performing work on multiple contracts for the same contractor or subcontractor of any tier, the contractor or subcontractor of any tier shall not withhold or reduce payment from its subcontractors on the contract because of disputes or claims on another contract.

(3) Partial Payment:

The contractor and each subcontractor of any tier shall make prompt partial payments to its subcontractors within seven days of receipt of payment from the LPA/Subrecipient Procurement Office. Notwithstanding any provision of Arizona Revised Statutes Section 34-221, the parties may not agree otherwise.

(4) Final Payment:

The contractor and each subcontractor of any tier shall make prompt final payment to each of its subcontractors. The contractor and each subcontractor of any tier shall pay all monies, including retention, due to its subcontractor within seven days of receipt of payment. Notwithstanding any provision of Arizona Revised Statutes Section 34-221, the parties may not agree otherwise.

(5) Payment Reporting:

For the purposes of this subsection "Reportable Contracts" means any subcontract, of any tier, DBE or non-DBE, by which work shall be performed on behalf of the contractor and any contract of any tier with a DBE material supplier.

The requirements of this subsection apply to all Reportable Contracts.

Payment Reporting for all Reportable Contracts shall be done through the LPA DBE System which can be accessed at AZ UTRACS on the Arizona Transportation Business Portal at www.azutracs.com. No later than fifteen calendar days after the preconstruction conference, the contractor shall log into the system and enter or verify the name, contact information, and subcontract amounts for Reportable Contracts on the project. As Reportable Contracts are approved over the course of the contract, the contractor shall enter the subcontractor information in the LPA DBE System. Reportable contracts information shall be entered into

the system no later than five calendar days after approval by the LPA/Subrecipient Procurement Office.

The contractor shall report on a monthly basis indicating the amounts actually paid and the dates of each payment under any Reportable Contract on the project. The contractor shall provide information for payments made on all Reportable Contracts during the previous month by the last day of the current month. In the event that no payments were made during a given month, the contractor shall identify that by entering a dollar value of zero. If the contractor does not pay the full amount of any invoice from a subcontractor, the contractor shall note that and provide the reasons in the comment section of the Monthly Payment Audit of the LPA DBE System.

In addition, the contractor shall require that all participants in any Reportable Contract electronically verify receipt of payment on the contract within 15 days of receipt of electronic payment notification and the contractor shall actively monitor the system to ensure that the verifications are input. The contractor shall proactively work to resolve any payment discrepancies in the system between payment amounts it reports and payment confirmation amounts reported by others.

The contractor shall ensure that all Reportable Contract payment activity is in the LPA DBE System. This includes all lower-tier Reportable Contracts.

The contractor shall maintain records for each payment explaining the amount requested by the subcontractor, and the amount actually paid pursuant to the request, which may include but are not limited to, estimates, invoices, pay requests, copies of checks or wire transfers, and lien waivers in support of the monthly payments in the system.

The contractor shall ensure that a copy of this Subsection is included in every Reportable Contract of every tier.

(a) Sanctions for Inadequate Reporting:

For each Reportable Contract on which the contractor fails to submit timely and complete payment information the LPA/Subrecipient Procurement Office will retain \$1,000.00 as liquidated damages, from the monies due to the contractor. Liquidated damages will be deducted each month for each Reportable Contract on which the contractor fails to submit payment information until the contractor provides the required information as described herein. After 90 consecutive days of non-reporting, the liquidated damages will increase to \$2,000.00 for each subsequent month, for each Reportable Contract on which the contractor fails to report until the information is provided. These liquidated damages shall be in addition to all other retention or liquidated damages provided for elsewhere in the contract.

(6) Completion of Work:

A subcontractor's work is satisfactorily completed when all the tasks called for in the subcontract have been accomplished, documented, and accepted by the LPA/Subrecipient Procurement Office.

(7) Disputes:

If there is a discrepancy between what is reported by the contractor in the LPA DBE System and what the subcontractor indicates, an alert email will automatically be sent to the contractor. The email will be sent to the email address provided by the contractor in the LPA DBE System. It is the contractor's responsibility to ensure that the email address in the system is kept current.

The contractor shall provide a verifiable explanation of the discrepancy in the LPA DBE System as early as practicable but in no case later than seven days after the date of the alert email.

The LPA/Subrecipient will determine whether the contractor has acted in good faith concerning any such explanations. The LPA/Subrecipient and ADOT BECO reserves the right to request and receive documents from the contractor and all subcontractors of any tier, in order to determine whether prompt payment requirements are met.

The contractor shall implement and use the dispute resolution process outlined in the subcontract or by following the LPA/Subrecipient escalation process, to resolve payment disputes.

(8) Non-compliance:

Failure to make prompt partial payment, or prompt final payment including any retention, within the time frames established above, will result in remedies, as the LPA/Subrecipient Procurement Office deems appropriate, which may include but are not limited to:

- (a) Liquidated Damages: These liquidated damages shall be in addition to all other retention or liquidated damages provided for elsewhere in the contract.
 - (i) The LPA/Subrecipient Procurement Office will withhold two times the disputed dollar amount not paid to each subcontractor.
 - (ii) If full payment is made within 30 days of the LPA/Subrecipient Procurement Office's payment to the contractor, the amount withheld by the LPA/Subrecipient Procurement Office will be released.
 - (iii) If full payment is made after 30 days of the LPA/Subrecipient Procurement Office's payment to the contractor, the LPA/Subrecipient Procurement Office will release 75 percent of the funds withheld. The LPA/Subrecipient Procurement Office will retain 25 percent of the monies withheld as liquidated damages.
- (b) Additional Remedies. If the contractor fails to make prompt payment for three consecutive months, or any four months over the course of one

project, or if the contractor fails to make prompt payment on two or more projects within 24 months, the LPA/Subrecipient Procurement Office may, in addition, invoke the following remedies:

- (i) Withhold monthly progress payments until the issue is resolved and full payment has been made to all subcontractors, subject to the liquidated damages described in paragraph (a) above,
- (ii) Terminate the contract for default,
- (iii) Disqualify the contractor from future bidding, temporarily or permanently, depending on the number and severity of violations, if applicable.

In determining whether liquidated damages will be assessed, the extent of the liquidated damages, or additional remedies assessed, the LPA/Subrecipient will consider whether there have been other violations on this or other federal-aid contracts, whether the failure to make prompt payment was due to circumstances beyond the contractor's control, and other circumstances. The contractor may, within 15 calendar days of receipt of the decision of the LPA/Subrecipient, escalate the decision according to the contract's escalation process.

FEDERAL REQUIREMENTS

SPECIFICATIONS:

All work shall also be performed in accordance with the following additional documents:

Required Contract Provisions for Federal-Aid Construction Contracts (Form FHWA 1273 Revised May 1, 2012)

Standard Federal Equal Employment Opportunity Construction Contract Specifications (Executive Order 11246), July 1, 1978, Revised November 3, 1980 and Revised April 15, 1981,

Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity (Executive Order 11246), July 1, 1978, Revised November 3, 1980 and Revised April 15, 1981,

Equal Employment Opportunity Compliance Reports, Federal-Aid Projects, February 1, 1977, Revised July 1, 1978, Revised November 3, 1980, Revised April 15, 1981, Revised September 7, 1983, Revised October 15, 1998, and Revised January 1, 2005,

Federal-Aid Proposal (Notices to Prospective Federal-Aid Construction Contractors), September 29, 1975 Wage Determination Decision

Cargo Preference Act of 1954

REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

- I. General
- II. Nondiscrimination
- III. Non-segregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion
- XI. Certification Regarding Use of Contract Funds for Lobbying
- XII. Use of United States-Flag Vessels:

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under title 23, United States Code, as required in 23 CFR 633.102(b) (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services). 23 CFR 633.102(e).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider. 23 CFR 633.102(e).

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services) in accordance with 23 CFR 633.102. The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in solicitation-for-bids or request-for-proposals documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract). 23 CFR 633.102(b).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work

performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract. 23 CFR 633.102(d).

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. 23 U.S.C. 114(b). The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors. 23 U.S.C. 101(a).

II. NONDISCRIMINATION (23 CFR 230.107(a); 23 CFR Part 230, Subpart A, Appendix A; EO 11246)

The provisions of this section related to 23 CFR Part 230, Subpart A, Appendix A are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR Part 60, 29 CFR Parts 1625-1627, 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR Part 60, and 29 CFR Parts 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR Part 230, Subpart A, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal Employment Opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (see 28 CFR Part 35, 29 CFR Part 1630, 29 CFR Parts 1625-1627, 41 CFR Part 60 and 49 CFR Part 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140, shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR Part 35 and 29 CFR Part 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract, 23 CFR 230.409 (g)(4) & (5).

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, sexual orientation, gender identity, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action or are substantially involved in such action, will be made fully cognizant of and will implement the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer or other knowledgeable company official.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to ensure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action

within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs (i.e., apprenticeship and on-the-job training programs for the geographical area of contract performance). In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. 23 CFR 230.409. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide

sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established thereunder. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors, suppliers, and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurances Required:

a. The requirements of 49 CFR Part 26 and the State DOT's FHWA-approved Disadvantaged Business Enterprise (DBE) program are incorporated by reference.

b. The contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:

- (1) Withholding monthly progress payments;
- (2) Assessing sanctions;
- (3) Liquidated damages; and/or
- (4) Disqualifying the contractor from future bidding as non-responsible.

c. The Title VI and nondiscrimination provisions of U.S. DOT Order 1050.2A at Appendixes A and E are incorporated by reference. 49 CFR Part 21.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women.

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on [Form FHWA-1391](#). The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of more than \$10,000. 41 CFR 60-1.5.

As prescribed by 41 CFR 60-1.8, the contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, sexual orientation, gender identity, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location under the contractor's control where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size), in accordance with 29 CFR 5.5. The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. 23 U.S.C. 113. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. 23 U.S.C. 101. Where applicable law requires that projects be treated as a project on a Federal-aid highway, the provisions of this subpart will apply regardless of the location of the project. Examples include: Surface Transportation Block Grant Program projects funded under 23 U.S.C. 133 [excluding recreational trails projects], the Nationally Significant Freight and Highway

Projects funded under 23 U.S.C. 117, and National Highway Freight Program projects funded under 23 U.S.C. 167.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages (29 CFR 5.5)

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b.(1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program. Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding (29 CFR 5.5)

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics,

including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records (29 CFR 5.5)

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b.(1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency.

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or

subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under 29 CFR 5.5(a)(3)(ii), the appropriate information is being maintained under 29 CFR 5.5(a)(3)(i), and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under 18 U.S.C. 1001 and 31 U.S.C. 231.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees (29 CFR 5.5)

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State

Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the

corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. **Equal employment opportunity.** The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. **Apprentices and Trainees (programs of the U.S. DOT).**

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. 23 CFR 230.111(e)(2). The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract as provided in 29 CFR 5.5.

6. Subcontracts. The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract as provided in 29 CFR 5.5.

9. Disputes concerning labor standards. As provided in 29 CFR 5.5, disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor

set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility (29 CFR 5.5)

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

Pursuant to 29 CFR 5.5(b), the following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek. 29 CFR 5.5.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph 1 of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph 1 of this section, in the sum currently provided in 29 CFR 5.5(b)(2)* for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph 1 of this section. 29 CFR 5.5.

* \$27 as of January 23, 2019 (See 84 FR 213-01, 218) as may be adjusted annually by the Department of Labor; pursuant to the Federal Civil Penalties Inflation Adjustment Act of 1990).

3. Withholding for unpaid wages and liquidated damages.

The FHWA or the contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph 2 of this section. 29 CFR 5.5.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs 1 through 4 of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs 1 through 4 of this section. 29 CFR 5.5.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System pursuant to 23 CFR 635.116.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term "perform work with its own organization" in paragraph 1 of Section VI refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions: (based on longstanding interpretation)

- (1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
- (2) the prime contractor remains responsible for the quality of the work of the leased employees;
- (3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
- (4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or

equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract. 23 CFR 635.102.

2. Pursuant to 23 CFR 635.116(a), the contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. Pursuant to 23 CFR 635.116(c), the contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract. (based on long-standing interpretation of 23 CFR 635.116).

5. The 30-percent self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements. 23 CFR 635.116(d).

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR Part 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract. 23 CFR 635.108.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR Part 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704). 29 CFR 1926.10.

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance

with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR Part 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 11, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT (42 U.S.C. 7606; 2 CFR 200.88; EO 11738)

This provision is applicable to all Federal-aid construction contracts in excess of \$150,000 and to all related subcontracts. 48 CFR 2.101; 2 CFR 200.326.

By submission of this bid/proposal or the execution of this contract or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, subcontractor, supplier, or vendor agrees to comply with all applicable standards, orders

or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251-1387). Violations must be reported to the Federal Highway Administration and the Regional Office of the Environmental Protection Agency. 2 CFR Part 200, Appendix II.

The contractor agrees to include or cause to be included the requirements of this Section in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements. 2 CFR 200.326.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost \$25,000 or more – as defined in 2 CFR Parts 180 and 1200. 2 CFR 180.220 and 1200.220.

1. Instructions for Certification – First Tier Participants:

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction. 2 CFR 180.320.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default. 2 CFR 180.325.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances. 2 CFR 180.345 and 180.350.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900-180.1020, and 1200. "First Tier Covered Transactions" refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant

who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction. 2 CFR 180.330.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold. 2 CFR 180.220 and 180.300.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. 2 CFR 180.300; 180.320, and 180.325. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. 2 CFR 180.335. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (<https://www.sam.gov/>). 2 CFR 180.300, 180.320, and 180.325.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default. 2 CFR 180.325.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.335;.

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property, 2 CFR 180.800;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification, 2 CFR 180.700 and 180.800; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default. 2 CFR 180.335(d).

(5) Are not a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(6) Are not a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability (USDOT Order 4200.6 implementing appropriations act requirements).

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal. 2 CFR 180.335 and 180.340.

3. Instructions for Certification - Lower Tier Participants:

(Applicable to all subcontracts, purchase orders, and other lower tier transactions requiring prior FHWA approval or estimated to cost \$25,000 or more - 2 CFR Parts 180 and 1200). 2 CFR 180.220 and 1200.220.

a. By signing and submitting this proposal, the prospective lower tier participant is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances. 2 CFR 180.365.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900 – 180.1020, and 1200. You may contact the person to which this proposal is

submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contractor). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated. 2 CFR 1200.220 and 1200.332.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold. 2 CFR 180.220 and 1200.220.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (<https://www.sam.gov/>), which is compiled by the General Services Administration. 2 CFR 180.300, 180.320, 180.330, and 180.335.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment. 2 CFR 180.325.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals:

(a) is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.355;

(b) is a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(c) is a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability. (USDOT Order 4200.6 implementing appropriations act requirements)

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000. 49 CFR Part 20, App. A.

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier

subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

XII. USE OF UNITED STATES-FLAG VESSELS:

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, or any other covered transaction. 46 CFR Part 381.

This requirement applies to material or equipment that is acquired for a specific Federal-aid highway project. 46 CFR 381.7. It is not applicable to goods or materials that come into inventories independent of an FHWA funded-contract.

When oceanic shipments (or shipments across the Great Lakes) are necessary for materials or equipment acquired for a specific Federal-aid construction project, the bidder, proposer, contractor, subcontractor, or vendor agrees:

1. To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels. 46 CFR 381.7.

2. To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b)(1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Office of Cargo and Commercial Sealift (MAR-620), Maritime Administration, Washington, DC 20590. (MARAD requires copies of the ocean carrier's (master) bills of lading, certified onboard, dated, with rates and charges. These bills of lading may contain business sensitive information and therefore may be submitted directly to MARAD by the Ocean Transportation Intermediary on behalf of the contractor). 46 CFR 381.7.

**ATTACHMENT A - EMPLOYMENT AND MATERIALS
PREFERENCE FOR APPALACHIAN DEVELOPMENT
HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS
ROAD CONTRACTS (23 CFR 633, Subpart B, Appendix B)**

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

REQUIRED CONTRACT PROVISIONS:

BIDDING REQUIREMENTS AND CONDITIONS:

Suspension from Bidding:

The City may suspend any person and any subsidiary or affiliate of any person from further bidding to the City and from being a subcontractor to a contractor or supplier or otherwise participating in the work:

- (A) If that person or any officer, director, employee or agent of that person is convicted, in this State, of any other jurisdiction, of a crime involving any of the following elements or actions:
 - (1) Entering into any contract, combination, conspiracy or other unlawful act in restraint of trade or commerce,
 - (2) Knowingly and willfully falsifying, concealing, or covering up a material fact by trick, scheme, or device,
 - (3) Making false, fictitious, or fraudulent statements or representations,
 - (4) Making or using a false writing or document knowing it to contain a false, fictitious, or fraudulent statement or entry.
 - (5) Misrepresentation or false statement on any application for bonding:
 - (6) Misrepresentation or false statement on any application for prequalification; or
- (B) If the City makes a finding of any of the above or finds that the contractor is not a Responsible Bidder or a Responsible Contractor.

Under this Subsection, a person means any individual, partnership, joint venture, corporation, association or other entity formed for the purpose of doing business as a contractor, subcontractor or supplier.

The signature of the bid proposal by a submitter constitutes the submitter's certification, under penalty of perjury under the laws of the United States, that the submitter, or any person associated therewith in the capacity of owner, partner, director, officer, principal investor, project director, manager, auditor, or any position involving the administration of federal funds, has not been, or is not currently, under suspension, debarment, voluntary exclusion or been determined ineligible by any federal agency within the past three years. Signature of the bid proposal also certifies, under penalty of perjury under the laws of the United States, that the submitter does not have a proposed debarment pending. In addition, signature of the bid proposal certifies that the submitter has not been indicted, convicted, or had a civil judgment rendered against (it) by a court of competent jurisdiction in any matter involving fraud or official misconduct within the past three years.

Any exceptions to the above paragraph shall be noted and fully described on a separate sheet and attached to the bid proposal.

Non-Collusion Certification:

Bidders making their submittal shall complete the "AFFIDAVIT BY CONTRACTOR CERTIFYING THAT THERE WAS NO COLLUSION IN BIDDING OF CONTRACT" form included within these project specifications. This form shall be executed by or on behalf of the person, firm, association of corporation submitting the bid, in the following form:

The bidder certifies that, pursuant to Subsection 112(c) of Title 23, United States Code, and Title 44, Chapter 10, Article 1 and Title 34, Chapter 2, Article 4 of the Arizona Revised Statutes, neither it nor anyone associated with the company, firm, corporation, or individual has, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of full competitive bidding in connection with the above referenced project.

SCOPE OF WORK:

Intent of Contract:

(A) COVENANT OF GOOD FAITH AND FAIR DEALING

This contract imposes an obligation of good faith and fair dealing in its performance and enforcement.

The Contractor and the City, with a positive commitment to honesty and integrity, agree to the following mutual duties:

- (1) Each will function within the laws and statutes applicable to their duties and responsibilities.
- (2) Each will assist in the other's performance.
- (3) Each will avoid hindering the other's performance.
- (4) Each will proceed to fulfill its obligations diligently.
- (5) Each will cooperate in the common endeavor of the contract.

(B) VOLUNTARY PARTNERING

The City of Phoenix Street Transportation Department intends to encourage the foundation of a cohesive partnership with the Contractor and its principal subcontractors and suppliers. This partnership will be structured to draw on the strengths of each organization to identify and achieve reciprocal goals. The objectives are effective and efficient contract performance and completion within budget, on schedule, and in accordance with plans and Specifications.

This partnership will be bilateral in makeup, and participation will be totally voluntary.

To implement this partner initiative prior to starting work, the Contractor's management personnel and the City's Engineering Supervisor will initiate a partnering development session. Persons required to be in attendance will be the City's Engineering Supervisor and key project personnel; the prime Contractor's on-site project manager and key project personnel; and principal subcontractor and supplier representatives.

Follow-up workshops may be held periodically throughout the duration of the contract as agreed by the Contractor and the City.

The establishment of a partnership charter on a project will not change the legal relationship of the parties to the contract, nor relieve either party from any of the terms of the contract.

(C) VALUE ENGINEERING PROPOSALS

Value Engineering proposals may be submitted to the Engineer for modifying the plans, specifications, or other requirements of the contract for the sole purpose of reducing the total cost of construction without impairing in any manner the essential functions or characteristics of the project, including but not limited to service life, economy of operations, ease of maintenance, desired appearance, or design and safety standards.

After execution of the contract, a value engineering proposal may be recommended by the Contractor. A proposal may include modifications to the plans or specifications, construction phasing or procedures, or other contract requirements.

The Engineer reserves the right to make alterations to the contract, in accordance with MAG Specification Section 104.2.1. The Engineer will notify the Contractor in writing of any alterations to the contract. Such alterations shall not be eligible for inclusion in any value engineering initiatives or joint proposals.

A savings resulting solely from the elimination or reduction in quantity of a bid item will not be considered as a value engineering

proposal. A savings resulting from the elimination or reduction in quantity of a bid item specified as part of a value engineering proposal will be considered.

The Contractor shall identify a value engineering proposal as such, and it shall contain, at a minimum, the following:

- (A) A description of both the existing contract requirements for performing the work and the proposed changes.
- (B) All engineering drawings and computations necessary for a thorough and expeditious evaluation.
- (C) An itemization of the existing contract requirements that must be changed if the proposal is adopted, and a recommendation as to the manner in which the change should be made.
- (D) A detailed estimate of the cost of performing the work under the existing contract and under the proposed changes, including the cost of implementing the changes.
- (E) The contract items affected by the proposed changes and any variations in quantities resulting from the changes, and any new items not listed in the bid schedule.
- (F) An objective estimate of any effects the proposal will have on collateral costs to the City, costs of related items, and costs of maintenance and operation.
- (G) A statement as to the effect that the proposal will have on the time for the completion of the project.
- (H) A statement in which the Engineer and Contractor jointly establish an acceptable period of time for evaluation of the proposal, and execution of a supplemental agreement. Any delays or extensions must be jointly approved by the Engineer and Contractor, or such proposal shall be considered rejected.
- (I) A statement as to any contract time extension or time related costs which will be requested by the Contractor as a condition for implementing the proposed changes.

The City will not be liable for any delay in executing a supplemental agreement, nor for any failure to accept a value engineering proposal.

The Engineer will notify the Contractor in writing regarding acceptance or rejection of a proposal. The City's decision will be final.

If the value engineering proposal is accepted in whole or in part, the necessary contract modifications and contract price adjustments will be made by the execution of a supplemental agreement which will specifically state that it is executed pursuant to the provisions of this subsection. The City will be the sole judge of the acceptability of a proposal, and of the estimated net savings in construction costs from the adoption of all or any part of the proposal.

The Contractor shall not perform any work described in the value engineering proposal until a supplemental agreement incorporating the proposal has been executed, or until the Contractor has been given written approval by the Engineer. If the supplemental agreement has not been executed, or the Contractor has not been given written approval on or before the date jointly determined above in paragraph (H), the proposal shall be deemed rejected.

The executed supplemental agreement shall incorporate the changes in the plans, specifications, or other requirements of the contract which are necessary to permit the proposal, or such part of it which has been accepted, to be put into effect, and shall include any conditions upon which the City's approval thereof is based. The executed supplemental agreement shall also extend the time for the completion of the contract if, the extension was requested by the Contractor as a condition for implementing the proposal, and such an extension has been deemed warranted by the City.

The executed supplemental agreement shall also establish the estimated net savings in the cost of performing the work attributable to the value engineering proposal. In determining the net savings, the Engineer reserves the right to disregard the contract bid prices if, in the Engineer's judgement, such prices do not represent a fair measure of the value of the work to be

performed or deleted. The executed supplemental agreement shall provide that the Contractor be paid 50 percent of the estimated net savings amount. Administrative or construction engineering costs by the City will not be included in the determination of the estimated net savings. Changes in overhead costs by the Contractor resulting from the proposal, including related time reductions or extensions, shall not be allowed.

The amount specified to be paid to the Contractor in the executed supplemental agreement shall constitute full compensation to the Contractor for the value engineering proposal and the performance of the work thereof pursuant to the said supplemental agreement.

Upon acceptance of a value engineering proposal, any restrictions imposed by the Contractor on its use or on disclosure of the information shall become void, and the City thereafter shall have the right to use all or any part of the proposal without obligation or compensation of any kind to the Contractor.

ALTERATION OF WORK:

Suspensions of Work Ordered by the Engineer:

If the performance of all or any portion of the work is suspended or delayed by the engineer in writing for an unreasonable period of time (not originally anticipated, customary, or inherent to the construction industry) and the contractor believes that additional compensation and/or contract time is due as a result of such suspension or delay, the contractor shall submit to the engineer in writing a request for adjustment within seven calendar days of receipt of the notice to resume work. The request shall set forth the reasons and support for such adjustment.

Upon receipt, the engineer will evaluate the contractor's request. If the engineer agrees that the cost and/or time required for the performance of the contract has increased as a result of such suspension and the suspension was caused by conditions beyond the control of and not the fault of the contractor, its suppliers, or subcontractors at any approved tier, and not caused by weather, the engineer will make an adjustment (excluding profit) and modify the contract in writing accordingly. The contractor will be notified of the engineer's determination whether or not an adjustment of the contract is warranted.

No contract adjustment will be allowed unless the contractor has submitted the request for adjustment within the time prescribed.

No contract adjustment will be allowed under this clause to the extent that performance would have been suspended or delayed by any other cause, or for which an adjustment is provided or excluded under any other term or condition of this contract.

CONTROL OF WORK:

Claims:

(A) Notice of Claim:

It is the purpose of this subsection that claims for additional compensation and any difference between the parties arising under and by virtue of the contract be brought to the attention of the Engineer at the earliest possible time and at the first responsible level to increase the possibility for such matters to be resolved or for appropriate action to be taken promptly. This section shall be construed to apply to all claims including, but not limited to, claims based on contract clauses as well as claims based on breach of contract or tort.

In the event any basis for additional compensation or time extension is perceived by the Contractor to have occurred, the Contractor shall give the Engineer immediate oral or written notice of such basis for additional compensation or time extension for the earliest possible decision, instruction, notice or action duly taken by the Engineer.

Should the Contractor disagree with any decision, order, instruction, notice, act or omission of the Engineer, the Contractor may submit a Notice of Claim to the Engineer. The Notice of Claim shall be submitted in writing within three working days after the Contractor has learned of the Engineer's action regarding the occurrence or event and before the Contractor begins the work on which he/she based the claim. For projects on which the voluntary partnering process is followed, and the Contractor elects to file

a claim, the Notice of Claim shall be submitted within three working days after the completion of the issue resolution process.

The Notice of Claim shall indicate, insofar as possible, the basis and the nature of the claim. If notification is not given, the Contractor hereby agrees to waive any claim for additional compensation. Within a 10-day period from the submission of the Notice of Claim, the Contractor shall submit in writing a projection of the Contractor's additional costs resulting from the alleged incident. Such costs shall include both present and future costs resulting from the alleged incident.

At the time the Contractor gives written notice of his/her claim, the Contractor shall immediately begin to keep and maintain complete and specific records to the extent possible, including but not limited to, cost records concerning details of the perceived claim.

The Contractor shall give the Engineer access to any such records and, when so requested, shall furnish the Engineer copies of claim documentation.

Unless otherwise agreed to in writing, the Contractor shall continue with and carry on the work and progress during the pendency of any claim, dispute, decision or determination by the Engineer, and any mediation or arbitration proceedings, and the City will continue to make progress payments to the Contractor in accordance with the contract documents.

(B) Submission of Claims:

As promptly as possible following the submission of a Notice of Claim in accordance with Subsection (A) of this section, but in no event later than 30 calendar days after all of the Contractor's costs have been incurred, the Contractor shall submit his/her claim to the Engineer concerning the matter so noticed.

The claim shall set forth clearly and in detail, for each item of additional compensation or extension of time requested, the reasons for the claim, references to applicable provisions of the specifications, the nature and the specific cost ascribed to each element of the claim or for each period of time involved, the basis used in ascribing each such element of cost or for each such period of time, and all other pertinent factual data.

The Contractor shall, insofar as it is possible to do so, promptly furnish any clarification and additional information or data deemed necessary and requested in writing by the Engineer.

(C) Decision on Claims:

The Engineer will make a written decision in relation to any claim presented by the Contractor within the following time frames:

- (1) For an adjustment in compensation, or other contractual dispute between the parties where the amount in controversy is \$200,000.00 or less, 30 calendar days from receipt of the Contractor's claim;
- (2) For an adjustment in compensation or other contractual dispute between the parties where the amount in controversy is more than \$200,000.00, 60 calendar days from receipt of the Contractor's claim.

Unless the Contractor and the Engineer otherwise stipulate in writing to a later time, if the Engineer does not make a decision or determination within the time frames prescribed in this subsection, the claim shall be deemed denied and the Contractor may proceed with the legal remedy prescribed herein.

The decision of the Engineer in relation to the Contractor's claim shall be final unless the Contractor commences arbitration or litigation as follows:

- (1) Where the amount in controversy is \$200,000.00 or less, the Contractor's sole legal remedy shall be arbitration.
- (2) Where the amount in controversy is more than \$200,000.00, the Contractor shall initiate litigation within twelve months after the cause of action accrues as prescribed in Section 12-821 of the Arizona Revised Statutes.

(D) Mediation:

If the Contractor is not satisfied with the decision of the Engineer, and prior to filing for arbitration or litigation, the Contractor may request a non-binding mediation by filing a request for mediation in writing with the Engineer. The Engineer will then arrange for a mutually agreeable mediator. Such request for mediation shall be made within 30 calendar days from actual receipt of the Engineer's decision as provided for in this section.

In connection with the mediation, each party shall bear its own costs, and any fees and expenses assessed by the mediator shall be borne equally by the parties.

(E) Arbitration of Claims and Disputes:

- (1) If the Contractor elects to invoke his/her right to arbitration, the Contractor shall file a Demand for Arbitration in writing with the American Arbitration Association, United States Arbitration and Mediation of Arizona, or any equivalent arbitration service, and serve a copy thereof upon the Engineer. Such Demand for Arbitration shall be made by claimant within 30 calendar days measured from actual receipt of the Engineer's decision unless a mediation process is already underway, in which case the Demand for Arbitration shall be made within 30 days of the termination of the mediation process. The scope of the arbitration proceeding shall be restricted and limited to the matters presented to the Engineer upon which the decision or determination was made and shall include no other matters. All arbitration of claims shall be conducted in Phoenix, Arizona in accordance with the rules of the arbitration service hearing the dispute.
- (2) The decision or award of the arbitrator shall be supported by substantial evidence and, in writing, contain the basis for the decision or award and findings of fact. The decision or award by the arbitrator when made shall be final and non-appealable except as provided in Section 12-1512, Arizona Revised Statutes. Both the Contractor and the Engineer shall be bound by the Arbitration Award for all purposes and judgment may be entered upon it in accordance with applicable law in the Superior Court of Arizona in and for the County of Maricopa.
- (3) For the purposes of this section, a claim for adjustment in compensation shall mean an aggregate of operative facts that give rise to the rights that the Contractor seeks to enforce. That is to say, a claim under this section is defined as the event, transaction or set of facts that give rise to a claim for compensation, costs or expenses or damages which do not exceed \$200,000.00 in amount.

In making a determination whether the amount in controversy is \$200,000.00 or less, the parties shall not consider, quantify or take into account any requested extensions of contract time, or the release or remission of liquidated damages previously assessed.

- (4) Any contractor having a claim, adjustment or dispute for an amount in excess of \$200,000.00 may waive or abandon the dollar amount of any such claim in excess of \$200,000.00 so as to bring the claim, adjustment or dispute within the scope and coverage of this section, provided that the amount allowed to any such contractor by the arbitration award shall not exceed \$200,000.00. Various damages claimed by the Contractor for a single claim may not be divided into separate proceedings to create claims within the \$200,000.00 limit.
- (5) The claim shall be submitted to a single arbitrator who shall be selected by the parties from a list of arbitrators furnished by the arbitration service. Each party shall alternately strike names from the list until only one name remains. The person whose name thus remains on the list of arbitrators is their first choice but if that person is not available to serve, the two persons whose names were last stricken are acceptable, with the one whose name was last stricken being the first alternate.
- (6) Unless agreed to otherwise, the parties shall select the arbitrator within ten calendar days after each has received a copy of the list of arbitrators.
- (7) Each party to the arbitration shall bear its own costs and any other cost and fees assessed shall be divided equally between the parties to the arbitration.

CONTROL OF MATERIAL:

(A) Source of Supply and Quality Requirements:

Whenever water is required on a project, as part of either a process or a product, it shall be free of contaminants which, in the judgment of the Engineer, constitute a health hazard to those individuals employed on the project and to the general public.

Untreated effluent shall not be utilized in any aspect of the work.

(B) Certificates:

1. General:

The Contractor shall submit to the Engineer an original or copy of either a Certificate of Compliance or a Certificate of Analysis, as required, prior to the use of any materials or manufactured assemblies for which these specifications or the special provisions require that such a certificate be furnished.

The Engineer may permit the use of certain materials or manufactured assemblies prior to, or without, sampling and testing if accompanied by a Certificate of Compliance or Certificate of Analysis, as herein specified. Materials or manufactured assemblies for which a certificate is furnished may be sampled and tested at any time, and, if found not in conformity with the requirements of the plans and the specifications, will be subject to rejection, whether in place or not.

Certificates shall comply with the requirements specified herein.

2. Certificate of Compliance:

A Certificate of Compliance shall be submitted on the manufacturer's or suppliers' official letterhead, and contain the following information:

- (1) The name, address and phone number of the manufacturer or supplier of the material.
- (2) A description of the material supplied.
- (3) Quantity of material represented by the certificate.
- (4) Means of material identification, such as label, lot number, or marking.
- (5) Statement that the material complies in all respects with the requirements of the cited specifications. Certificates shall state compliance to the specific cited specification, such as AASHTO M-194, ASTM A-588; or specific table or section of the MAG Uniform Standard Specifications, City of Phoenix Supplement to MAG, or Special Provisions. Certificates may cite all, if applicable.
- (6) A statement that the individual identified in item seven below has the legal authority to bind the manufacturer or the supplier of the material.
- (7) The name, title, and signature the responsible individual. The date of the signature shall also be given.

Each of the first six items specified above shall be completed prior to the signing as defined in item seven. No certificate will be accepted that has been altered, added to, or changed in any way after the authorized signature has been affixed to the original certificate. However, notations of a clarifying nature, such as project number, contractor, or quantity shipped are acceptable, provided the basic requirements of the certificate are not affected.

A copy or facsimile reproduction (FAX) will be acceptable; however, the original certificate shall be made available upon request.

3. Certificate of Analysis:

A Certificate of Analysis shall include all the information required in a Certificate of Compliance and, in addition, shall include the results of all tests required by the specifications.

(C) Domestic Materials:

Buy America

Steel and iron materials and products used on all projects shall comply with the current "Buy America" requirements of 23 CFR 635.410.

All manufacturing processes to produce all steel and iron products used on this project shall occur in the United States. Raw materials used in manufacturing the steel and iron products may be foreign or domestic. Steel or iron not meeting these requirements may be used in products on this project provided that the invoiced cost to the Contractor for such steel products incorporated into the work does not exceed either one-tenth of one percent of the total (final) contract cost or \$2,500, whichever is greater.

Any process which involves the application of a coating to iron or steel shall occur in the United States. These processes include epoxy coating, galvanizing, painting, or any other coating which protects or enhances the value of covered material.

The requirements specified herein shall only apply to steel and iron products permanently incorporated into the project. "Buy America" provisions do not apply to temporary steel items, such as sheet piling, temporary bridges, steel scaffolding and falsework, or to materials which remain in place at the contractor's convenience.

Certificates of Compliance, conforming to the requirements of these Specifications, will accompany each shipment of material that includes steel or iron products and will be submitted to the Engineer prior to its use. The Certificates of Compliance must state that the steel or iron products utilized on the project meets the requirements specified herein and shall also certify that all manufacturing processes to produce steel or iron products, and any application of a coating to iron or steel, occurred in the United States.

Convict-produced materials may not be used unless the materials were produced prior to July 1, 1991 at a prison facility specifically producing convict-made materials for Federal-aid construction projects.

(D) Procurement of Recovered Materials:

Contractor and subcontractors agree to comply with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, and the regulatory provisions of 40 C.F.R. Part 247. In the performance of this Contract and to the extent practicable, the Contractor and subcontractors are to use of products containing the highest percentage of recovered materials for items designated by the Environmental Protection Agency (EPA) under 40 C.F.R. Part 247 whenever:

1. The Contract requires procurement of \$10,000 or more of a designated item during the fiscal year or,
2. The Contractor has procured \$10,000 or more of a designated item using federal funding during the previous fiscal year.

Contractor and Subcontractors will be responsible for reviewing EPA's website, including the Comprehensive Procurement Guidelines for Construction Products, for the most updated information under 40 C.F.R Part 247. Section 6002(c) establishes exceptions to the preference for recovery of EPA-designated products if the Contractor can demonstrate the item is:

1. Not reasonably available within a timeframe providing for compliance with the Contract performance schedule;
2. Fails to meet reasonable contract performance requirements; or
3. Is only available at an unreasonable price.

LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC:

(A) Sanitary, Health, and Safety Provisions:

Occupational Safety and Health Standards shall apply at all times. The Contractor shall have, in accordance with OSHA requirements, Material Safety Data Sheets (MSDS) available for all applicable materials stored or utilized on the project. Should the Contractor fail to follow OSHA regulations, the Engineer may suspend the work by written notice until compliance has been achieved. Any such failure to comply with OSHA regulations shall constitute waiver of any right to claim for such suspended work. If regulations are in conflict, the more strict regulation will apply.

(B) Public Convenience and Safety:

The Contractor shall abide by all OSHA 29 CFR Part 1926 and 29 CFR Part 1910 Regulations, as well as all applicable standards of the Environmental Protection Agency (EPA), the Arizona Department of Environmental Quality (ADEQ), and the Mine Safety and Health Administration (MSHA). The Contractor shall maintain a copy of the specified OSHA Standards on the construction site at all times.

The Contractor shall submit a Safety Plan at the preconstruction conference. The Safety Plan shall specify the procedures the Contractor will implement to satisfy OSHA and any state occupational safety guidelines related to the worker as well as the public in the construction of excavations, structures and confined air spaces along with all other activities involved in the project. The Engineer will review the Safety Plan within 10 working days and identify any additional elements of the project to be included. The Contractor shall then modify the Safety Plan, if necessary, for re- submittal to the Engineer within 5 working days. The Contractor shall not commence work until the Safety Plan has been approved, unless authorized by the Engineer.

The safety plan shall include a list of emergency procedures, phone numbers, and methods of communication for medical facilities, Police, Fire Department, and other emergency services which may become necessary. The Contractor shall be responsible for providing First Aid treatment and medical supplies on the project site, in accordance with OSHA 29 CFR Part 1910, and for producing and maintaining records of any injury-related incidents. The Safety Plan shall include the requirement that all workers must wear OSHA approved hard hats, reflective safety vests or other approved high visibility warning garments, work shoes, and, when appropriate, safety glasses while in construction areas. The Engineer and Project Superintendent shall each ensure that their visitors comply with the above requirements as appropriate.

The Contractor shall designate a competent person as Safety Supervisor to be responsible for implementation of the Safety Plan throughout the contract period. The competent person shall be capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees, and have authority to take prompt corrective measures to eliminate them. The Safety Supervisor shall also conduct safety meetings, oversee and maintain safe job-site conditions, and ensure that emergency procedures, phone numbers, and all applicable OSHA notification posters are conspicuously placed in all work areas.

The Safety Supervisor shall maintain records demonstrating that all workers have sufficient experience to operate their equipment, and have been instructed in the proper operation of the equipment. The Safety Supervisor shall furnish evidence that crane operators have been instructed in accordance with the requirements of OSHA 29 CFR Part 1926.550 Subpart N, and 1926.955 Subpart V.

(C) Damage by Storm, Flood, or Earthquake:

Damage by Storm, Flood, or Earthquake: Attention is directed to MAG Section 107.10, "Contractor's Responsibility for Work". In the event damage to the work is caused by a storm, flood, or earthquake which constitutes an "Occurrence," as hereinafter defined, the provisions of this Section shall be applicable and the Contractor may apply in writing to the Engineer for the City to pay or participate in the cost of repairing damage to the work from such cause or, in lieu thereof, and at the sole discretion of the Department/City, terminate the contract and relieve the Contractor of further obligation to perform the work, subject to the following:

1. Occurrence:

"Occurrence" shall include tornadoes; earthquakes in excess of a magnitude of 3.5 on the Richter Scale; and storms and floods for which the Governor has proclaimed a state of emergency, when the damaged work is located within the territorial limits to which such proclamation is applicable; or which were a catastrophic, unusual, sudden, and unforeseeable manifestation of the forces of nature, the effect of which could not have been prevented or minimized by reasonable human foresight and effort.

2. Application by Contractor:

The Contractor shall immediately begin performing emergency work necessary to provide for the safety and passage of public traffic, and such other emergency work necessary to mitigate damages to the facilities. The Contractor's written request for the City to pay or to participate in the cost of rebuilding, repairing, restoring or otherwise remedying the damage to the work caused by the occurrence shall be submitted to the Engineer. The repair work may begin prior to authorization by the Engineer, but the Contractor shall keep accurate costs of all such work performed.

3. Repair Work:

Repair of damaged work under the provisions of this subsection shall be pursuant to a supplemental agreement issued hereunder and specifying the repair work to be performed on the damaged facility. Such repair work shall consist of restoring the in-place construction (for the purposes of this subsection erected falsework and formwork shall be considered in-place construction) to the same state of completion to which such work had advanced prior to the Occurrence. Emergency work which the Engineer determines would have been part of the repair work if it had not previously been performed, will be considered to be part of said repair work. The City reserves the right to make changes in the plans and specifications applicable to the portions of the work to be repaired, and if such changes will increase the cost of repairing the damage over the Engineer's estimate of the cost of repair without the changes, the Contractor will be paid for such increased costs in accordance with Subsection 4 below.

Nothing in this section shall be construed to relieve the Contractor of full responsibility for the risk or injury, loss or damage to materials not yet incorporated in the work and to materials, tools, and equipment (except erected falsework and formwork) used to perform the work, nor to relieve the Contractor of his liability. The City will be responsible for any portion of the work accepted by the Engineer in accordance with MAG Section 105.15, and the Supplementary Conditions section, "MAG SUBSECTION 105.15(B) FINAL ACCEPTANCE" contained herein.

4. Determination of Costs:

Unless otherwise agreed between the Engineer and the Contractor, the cost of the work performed pursuant to this Section will be determined in accordance with an approved contract change order. The cost of emergency work, which the Engineer determines would have been part of the repair work if it had not previously been performed will be determined in the same manner as the authorized repair work. The cost of superintendence and other documented direct project costs associated with recovering the site, including idled equipment, remobilization costs and project office overhead shall be included in the cost of emergency and repair work. No payment shall be made for home office overhead.

5. Payment for Repair Work:

The City will pay the cost of the repair work as determined in Subsection 4.

6. Termination of Contract:

If the City elects to terminate the contract, the termination and the determination of the total compensation payable to the Contractor shall be governed by the provisions of MAG Section 108.11- Termination of Contract.

PROVIDE ON-THE-JOB TRAINING:

The Contractor shall provide on-the-job training aimed at developing full journeymen in the type of trade or job classification

involved.

The number of trainees to be trained under this project shall be at least 0, and the required number of training hours shall be 0; however, the Contractor shall make every possible effort to provide additional trainees with training and shall see that all trainees are afforded every opportunity to participate in as much training as is practically possible to provide. Due to turnover and attrition of trainees in any single trainee slot, it is expected that continuous trainee replacements may be necessary during the contract work period.

In the event that a Contractor subcontracts a portion of the contract work, he shall determine how many, if any, of the trainees are to be trained by the subcontractor, provided, however, that the Contractor shall retain the primary responsibility for meeting the training requirements imposed by this special provision. The Contractor shall also insure that this training special provision is made applicable to such subcontract. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training.

The number of trainees shall be distributed among the work classifications on the basis of the Contractor's needs and the availability of journeymen in the various classifications within a reasonable area of recruitment. Prior to commencing construction, the Contractor shall submit to the City for approval, the number of trainees to be trained in each selected classification and training program to be used. Furthermore, the Contractor shall specify the starting time for training in each of the classifications. The Contractor will be credited for each trainee employed by him on the contract work who is currently enrolled or becomes enrolled in an approved program and will be reimbursed for such trainees as provided hereinafter.

Training and upgrading of minorities and women toward journeyman status is a primary objective of this Training Special Provision. Accordingly, the Contractor shall make every effort to enroll minority trainees and women (e.g., by conducting systematic and direct recruitment through public and private sources likely to yield minority and women trainees) to the extent that such persons are available within a reasonable area of recruitment. The Contractor will be responsible for demonstrating the steps that he has taken in pursuance thereof, prior to a determination as to whether the Contractor is in compliance with this Training Special Provision. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

No employee shall be employed as a trainee in any classification in which he has successfully completed a training course leading to journeyman status or in which he has been employed as a journeyman. The Contractor shall satisfy this requirement by including appropriate questions in the employee application or by other suitable means. Regardless of the method used, the Contractor's records shall document the findings in each case.

The minimum length and type of training for each classification will be as established in the training program selected by the Contractor and approved by the City and the Federal Highway Administration. The City and the Federal Highway Administration will approve a program if it is reasonably calculated to meet the equal employment opportunity obligations of the Contractor and to qualify the average trainee for journeyman status in the classification concerned by the end of the training period. Furthermore, Apprenticeship programs registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau and training programs approved but not necessarily sponsored by the U.S. Department of Labor, Bureau of Apprenticeship and Training will also be considered acceptable provided they are being administered in a manner consistent with the equal employment obligations of Federal-aid highway construction contracts. Specifically, union apprenticeship programs, Associated Builders and Contractor's apprenticeship program and Associated General Contractor's Arizona Training program may be used. Additionally, in-house training programs are approved on a case-by-case basis. Approval or acceptance of a training program shall be obtained from the City prior to commencing work on the classification covered by the program. It is the intention of these provisions that training is to be provided in the construction crafts rather than clerk-typists or secretarial-type positions. Training is permissible in lower level management positions such as office engineers, estimators, timekeepers, etc., where the training is oriented toward construction applications. Training in the laborer classification may be permitted provided that significant and meaningful training is provided and approved by the Federal Highway Administration. Some off site training is permissible as long as the training is an integral part of an approved training program and does not comprise a significant part of the overall training.

Except as otherwise noted below, the Contractor will be reimbursed 80 cents per hour of training given an employee on this contract in accordance with an approved training program. As approved by the Engineer, reimbursement will be made for training

persons in excess of the number specified herein. This reimbursement will be made even though the Contractor receives additional training program funds from other sources, provided such other source does not specifically prohibit the Contractor from receiving other reimbursement. Reimbursement for off-site training indicated above may only be made to the Contractor where he contributes to the cost of the training, provides the instruction to the trainee or pays the trainee's wages during the off site training period.

No payment will be made to the Contractor if either the failure to provide the required training, or the failure to hire the trainee as a journeyman, is caused by the Contractor and evidences a lack of good faith on the part of the Contractor in meeting the requirements of this Training Special Provision. It is normally expected that a trainee will begin his training on the project as soon as feasible after start of work utilizing the skill involved and remain on the project as long as training opportunities exist in his work classification or until he has completed his training program. However, when such training opportunities are suspended or interrupted under the contract which the trainee was designated, the Contractor may continue training under other contracts regardless of their funding, except that no reimbursement for such training shall be made on non-federal aid contracts, under this training special provision. It is not required that all trainees be on board for the entire length of the contract. A Contractor will have fulfilled his responsibilities under this Training Special Provision if he has provided acceptable training to the number of trainees specified. The number trained shall be determined on the basis of the total number enrolled on the contract for a significant period.

Trainees will be paid at least 60 percent of the appropriate minimum journeyman's rate specified in the contract for the first half of the training period, 75 percent for the third quarter of the training period, and 90 percent of the last quarter of the training period, unless apprentices or trainees in an approved existing program are enrolled as trainees on this project. In that case, the appropriate rates approved by the Departments of Labor or Transportation in connection with the existing program will apply to all trainees being trained for the same classification who are covered by this Training Special Provision.

The Contractor shall furnish the trainee a copy of the program he will follow in providing the training. The Contractor shall provide each trainee with a certification showing the type and length of training satisfactorily completed.

The Contractor shall provide for the maintenance of records and furnish periodic reports documenting his performance under this Training Special Provision.

The Contractor shall submit a weekly training report to the Engineer. The report shall be prepared on forms obtained from the City of Phoenix Equal Opportunity Department, Business Relations Division, 200 W. Washington Street, 15th Floor, Phoenix, AZ 85003.

At the preconstruction conference, the Contractor shall submit a schedule which will indicate each trainee's name, social security number, sex, race/ethnicity, the program in which the trainee is enrolled, the approximate number of hours each trainee will be trained in each phase of the work, the crafts to which the trainees belong and the estimated period of time that they will be employed as trainees. A supplemental schedule shall be submitted to the Engineer when a revision in the original schedule is necessary. At the time each trainee is scheduled to begin work, the Contractor shall submit to the Engineer each trainee's name, social security number, sex, and race/ethnicity. The Contractor must also submit proof that the trainee is enrolled in an approved training program.

At the conclusion of the project or at the end of each calendar year for multi-year projects, the Contractor must submit to the City of Phoenix Equal Opportunity Department (via the Engineer), the same information described hereinbefore for each trainee that worked on the project. Additionally, the Contractor must indicate if the trainee graduated from the program, was terminated due to cause, or was transferred to another project to continue his/her training.

If, at the preconstruction conference, the Contractor does not provide a schedule containing the specified information, the Engineer will notify the Contractor of the infraction. Failure to provide the schedule within 15 calendar days from the date of notification shall be considered as willful non-compliance. The Engineer will cause to be withheld from the Contractor's monthly payments additional retainage in the amounts specified below. The amount withheld from the monthly payment shall be held until an acceptable schedule or supplemental schedule has been submitted.

The Engineer will monitor the use of trainees based on the Contractor's schedule, supplemental schedules, and weekly training report. If the use of trainees is not in conformance with the schedule or supplemental information, the Engineer will cause to be

withheld from the Contractor's monthly payments additional retainage in the amounts specified below. Conformance with the schedule will be considered acceptable when the cumulative number of trainee hours earned to date under the bid item, PROVIDE ON THE JOB TRAINING is at least 90 percent of that shown on the schedule, for the work performed to date.

ADDITIONAL RETAINAGE

First and Second monthly payments following infraction: \$1,000.00 each month

Third monthly payment and thereafter: \$5,000.00 each month

The amount withheld from the monthly payment shall be held until an acceptable schedule or supplemental schedule has been submitted and until conformance with the schedule has been determined.

If, at the completion of the contract, the City is holding additional retainage in accordance with this specification, the retainage will become the property of the City, not as penalty but as liquidated damages.

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION:

The Contractor shall complete the "Information Furnished Pursuant to the **NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246)**" form (copy included in this Federal Requirement section of these Special Provisions), and submit it to the Engineer at the pre-construction meeting. This form will be filed with the U.S. Department of Labor by the City of Phoenix.

NOTICE OF REQUIREMENT FOR CARGO ACT OF 1954:

The Federal Highway Administration (FHWA) in partnership with the Federal Maritime Administration has mandated the implementation of 46 CFR 381 making the requirements of the Cargo Preference Act (CPA) applicable to the Federal Aid Highway Program.

The requirements apply to items transported by ocean vessel.

The requirements of 46 CFR 381 apply to materials or equipment acquired for a specific federal-aid highway project. In general, the requirements are not applicable to goods or materials that come from inventories independent of FHWA-funded contracts.

Information related to the CPA is presented in "Cargo Preference Requirements – Questions and Answers" available from the FHWA at <https://www.fhwa.dot.gov/construction/cgit/cargo/ga.cfm>.

The Contractor shall comply with the requirements of the Cargo Preference Act 46 CFR 381.7(a)-(b). By executing a construction contract for this project, the Contractor agrees:

1. To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels.
2. To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in the paragraph above to both the Engineer and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.
3. To insert the substance of the provisions of this clause in all subcontracts issued pursuant to this contract.

**INFORMATION FURNISHED PURSUANT TO THE NOTICE OF
REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE
EQUAL EMPLOYMENT OPPORTUNITY
(EXECUTIVE ORDER 11246)
Set Forth in Paragraph 3 in Federal Register,
Vol. 43, No. 68**

CITY OF PHOENIX PROJECT NO:
FEDERAL AID NO.:
ADOT TRACS NO.:
PROJECT DESCRIPTION:
LOCATION:

Contractor Identification Number (as used on U.S. Treasury Department Form 941): Name _____

and Address of Contractor:

Telephone Number:

Amount of Contract:

Estimated Starting Date:

Estimated Completion Date:

Geographical Area:

State of Arizona

(County)

(City)

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY
CONSTRUCTION CONTRACT SPECIFICATIONS
EXECUTIVE ORDER 11246, July 1, 1978 (Revised November 3, 1980)

1. As used in these specifications:

a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;

b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;

c. "Employer Identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.

d. "Minority" includes:

(i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);

(ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);

(iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and

(iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetable.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7 a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications. Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the non-working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully and shall implement affirmative action steps at least as extensive as the following:

a. Ensure and maintain a working environment free of harassment, intimidation and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken

with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason hereof, along with whatever additional actions the Contractor may have taken.

d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

e. Develop on-the-job training opportunities and/or participate in training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.

f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year, and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions, including specific review of these items with onsite supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed and disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written to minority, female and

community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's workforce.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligation under these specifications are being carried out.

n. Ensure that all facilities and company activities are non-segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisors; adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these Specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation

which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

10. The Contractor shall not use the goals and timetables of affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form;

however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

**NOTICE OF REQUIREMENTS FOR AFFIRMATIVE ACTION
TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY
(EXECUTIVE ORDER 11246)**

JULY 1, 1978 (Revised November 3, 1980)

(Revised April 15, 1981)

1. The bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Specifications" set forth herein.
2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate work force in each trade on all construction work in the covered area, are as follows:

	<u>Minority</u>	<u>Female</u>
Tucson and balance of Pima County Cochise, Graham, Greenlee and Santa Cruz Counties	24.1	6.9
Phoenix and balance of Maricopa County	27.0	6.9
Apache, Coconino, Gila, Mohave, Navajo, Pinal, Yavapai and Yuma Counties	15.8	6.9
	19.6	6.9

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in all areas where he has Federal or federally assisted work.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3 (a), and its effort to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

FEDERAL-AID PROPOSAL NOTICES

NOTICES TO PROSPECTIVE FEDERAL-AID CONSTRUCTION CONTRACTORS

1. CERTIFICATION OF NONSEGREGATED FACILITIES

a. A certification of Nonsegregated Facilities, as required by the May 9, 1967, Order of the Secretary of Labor (32 F.R. 7439, May 19, 1967) on Elimination of Segregated Facilities (is included in the proposal and must be submitted prior to the award of a Federal-aid highway construction contract exceeding \$10,000 which is not exempt from the provisions of the Equal Opportunity clause).

b. Bidders are cautioned as follows: By signing this bid, the bidder will be deemed to have signed and agreed to the provisions of the "Certification of Nonsegregated Facilities" in this proposal. This certification provides that the bidder does not maintain or provide for his employee facilities which are segregated on a basis of race, creed, color, or national origin, whether such facilities are segregated by directive or on a de facto basis. The certification also provides that the bidder will not maintain such segregated facilities.

c. Bidders receiving Federal-aid highway construction contract awards exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity clause, will be required to provide for the forwarding of the following notice to prospective subcontractors for construction contracts and material suppliers where the subcontracts or materials supply agreements exceed \$10,000 and are not exempt from the provisions of the Equal Opportunity clause.

2. NOTICE TO PROSPECTIVE SUBCONTRACTORS AND MATERIAL SUPPLIERS OF REQUIREMENT FOR CERTIFICATION OF NONSEGREGATED FACILITIES

a. A Certification of Nonsegregated Facilities as required by the May 9, 1967, Order of the Secretary of Labor (32 F.R. 7439, May 19, 1967) on Elimination of Segregated Facilities, which is included in the proposal, or attached hereto, must be submitted by each subcontractor and material supplier prior to the award of the subcontract or consummation of a material supply agreement if such subcontract or agreement exceeds \$10,000 and is not exempt from the provisions of the Equal Opportunity clauses.

b.

Subcontractors and material suppliers are cautioned as follows: By signing the subcontract or entering into a material supply agreement, the subcontractor or material supplier will be deemed to have signed and agreed to the provisions of the "Certification of Nonsegregated Facilities" in the subcontract or material supply agreement. This certification provides that the subcontractor or material supplier does not maintain or provide for his employees facilities which are segregated on the basis of race, creed, color, or national origin, whether such facilities are segregated by directive or on a de facto basis. The certification also provides that the subcontractor or material supplier will not maintain such segregated facilities.

c.

Subcontractors or material suppliers receiving subcontract awards or material supply agreements exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity clause will be required to provide for the forwarding of this notice to prospective subcontractors for construction contracts and materials suppliers where the subcontracts or material supply agreements exceed \$10,000 and are not exempt from the provisions of the Equal Opportunity clause.

3. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

By signing this bid, the bidder will be deemed to have stipulated as follows:

a. That any facility to be utilized in the performance of this contract, unless such contract, unless such contract is exempt under the Clean Air Act, as amended (42 U.S.C. 1957 et seq., as amended by Pub. L. 91-604), and under the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq., as amended by Pub. L. 92-500), Executive Order 11738, and regulations in implementation thereof (40 CFR, Part 15), is not listed on the U.S. Environmental Protection 40 CFR 15.20.

b. That the State highway department shall be promptly notified prior to contract award of the receipt by the bidder of any communication from the Director, Office of Federal Activities, EPA, indicating that a facility to be utilized for the contract is under consideration to be listed on the EPA List of Violating Facilities.

BID PROPOSAL
CITY OF PHOENIX, ARIZONA
OFFICE OF THE CITY ENGINEER
7TH STREET FIBER TRANSPORTATION ENHANCEMENT
DESIGN-BID-BUILD
PROJECT NO.: ST89340660
FEDERAL AID PROJECT NO: PHX-0(361)D
ADOT TRACS NO: T0236 01C

BOND ISSUE OR BUDGET PROJECT

PROPOSAL to the City Engineer of the City of Phoenix.

In compliance with the Advertisement for Bids, by the City Engineer, the undersigned bidder:

(Print or Type Contractor Name and Vendor Number)

Having examined the contract documents, site of work and being familiar with the conditions to be met, hereby submits the following proposal for furnishing the material, equipment, labor and everything necessary for the completion of the work listed and agrees to execute the contract documents and furnish the required bonds and certificates of insurance for the completion of said work, at the locations and for the prices set forth on the inside pages of this form.

Understands that construction of this project shall be in accordance with all applicable Maricopa Association of Governments' (MAG) Uniform Standard Specifications and Uniform Standard Details, latest edition, and the City of Phoenix Supplements to the MAG Uniform Standard Specifications and Details, latest edition, except as otherwise required by the project plans and specifications.

No proposal may be withdrawn for a period of 50 days after opening without consent of the Contracting Agency through the body or agent duly authorized to accept or reject the proposal except in the case of federally assisted projects.

Understands that his proposal shall be submitted with a proposal guarantee of cash, certified check, cashier's check or surety bond for an amount not less than ten (10) percent of the amount bid, as referenced in the Call for Bids.

Agrees that upon receipt of Notice of Award, from the City of Phoenix, he will execute the contract documents within 10 calendar days.

Work shall be completed within 300 calendar days, beginning with the day following the starting date specified in the Notice to Proceed. The time allowed for completion of the work includes lead time for obtaining the necessary materials and/or equipment and approvals.

The bidder shall acknowledge all addenda in writing. By writing the addendum number(s) below, the bidder agrees that this proposal is computed with consideration of the specification book(s) plus any addenda.

ADDENDUM NO.

DATE

ADDENDUM NO.

DATE

City of Phoenix
BID PROPOSAL

7th Street Fiber Transportation Enhancement

Project No: ST889340660

Federal Aid No: PHX-0(361)D ADOT TRACS No: T023601C

Item No.	Description	Unit	Quantity	Unit Price	Total
1 M1058000	Construction Surveying and Layout	Lump Sum	1.00	\$30,000.00	\$30,000.00
2 M3370103	Crack Seal and Microseal	Sq. Yd.	44,122.00		
3 M4012000	Traffic Control Devices	Lump Sum	1.00		
4 M4013000	Allowance for Uniformed, Off-duty Law Enforcement Officer	Job	1.00	\$40,000.00	\$40,000.00
5 M5200150	Steel Bollards Per Plans	Each	2.00		
6 7320172	Electrical Conduit (5") (Rigid Metal)	LF	410.00		
7 7320292	Electrical Conduit (1-2")	LF	35.00		
8 7320296	Electrical Conduit (2-1.25")	LF	18,869.00		
9 7320297	Electrical Conduit (3-1.25")	LF	884.00		
10 7320456	Pull box (No. 8) (Phoenix)	EA	17.00		

City of Phoenix
BID PROPOSAL

7th Street Fiber Transportation Enhancement

Project No: ST89340660

Federal Aid No: PHX-0(361)D

ADOT TRACS No: T023601C

Item No.	Description	Unit	Quantity	Unit Price	Total
11 7320460	Pull box (No. 9) (Phoenix)	EA	7.00		
12 7320787	Single Mode Fiber Optic Cable (144 Fibers)	LF	27,102.00		
13 7320796	Fiber Optic Splice Closure (Phoenix) (7 th St and Paradise Ln)	EA.	1.00		
14 7340103	Control Cabinet (Phoenix) (Deer Valley Rd and 7 th St Node Cabinet)	EA	1.00		
15 7370422	Electrical System (Layer 3 Network Switch)	EA	1.00		
16 7370455	Miscellaneous Electrical (As-Built Drawings)	Lump Sum	1.00		
17 7370652	Fiber Optic Equipment (Termination Panel)	EA	1.00		
18 7370654	Fiber Optic Equipment (Field Hardened Ethernet Switch)	EA	1.00		
19 9240011	Force Account Work (Pull Box and Conduit Reconditioning)	Lump Sum	1.00		
20 9240119	Miscellaneous Work (Modify Existing Splice Closure at Deer Valley Rd and 7 th Ave)	EA	1.00		

City of Phoenix
BID PROPOSAL

7th Street Fiber Transportation Enhancement

Project No: ST89340660

Federal Aid No: PHX-0(361)D

ADOT TRACS No: T023601C

Item No.	Description	Unit	Quantity	Unit Price	Total
21 9240172	Miscellaneous Work (Fiber Optic Shear Assembly with 250-Ft Tail)	EA	1.00		
22 E6992000	Allowance for Stormwater Pollution Prevention Best Management Practices (BMP's)	Job	1.00	\$10,000.00	\$10,000.00
23 M1042007	Allowance for Extra Work (Construction Contingencies)	Job	1.00	\$102,355.00	102,355.00

Project No.: ST87400405 -

7th Street Fiber Transportation Enhancement

TOTAL FOR BID ITEMS 1 THRU 23

\$ _____

_____ and _____/100 Dollars
Total Dollars in Words

PROPOSAL SUBMITTAL

**Project Title: 7TH STREET FIBER TRANSPORTATION ENHANCEMENT
DESIGN-BID-BUILD
Project No.: ST89340660
Federal Aid Project No.: PHX-0(361)D
ADOT TRACS NO.: T0236 01C**

THIS PROPOSAL IS SUBMITTED BY _____

a corporation organized under the laws of the State of _____

a partnership consisting of _____

a joint venture consisting of _____

or individual trading as _____

of the City of _____

FIRM _____

ADDRESS _____

CITY _____ STATE _____ ZIP CODE _____

PHONE _____ VENDOR NO. _____

BY _____

Officer and Title (signature)

Officer and Title (print or type)

Date

WITNESS: If Contractor is an individual
(signature)

ATTEST: If Contractor is Corporation or Partnership
(signature and title)

SURETY BOND

**City of Phoenix Project No.: : ST89340660
Federal Aid Project No.: PHX-0(361)D
ADOT TRACS NO: T0236 01C**

That we, _____, as Principal, (hereinafter called the Principal) and the _____, a corporation duly organized under the laws of the State of _____, as Surety, (hereinafter called the Surety) are held and firmly bound unto the City of Phoenix as Obligee, in the sum of ten (10) percent of the total amount of the bid of Principal, submitted by him to the City of Phoenix for the work described below, for the payment of which sum, well and truly to be made, the said Principal and the said Surety, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents and in conformance with A.R.S. #34-201.

WHEREAS, the said Principal is herewith submitting its proposal for 7TH Street Fiber Transportation Enhancement Design-Bid-Build.

NOW, THEREFORE, if the City of Phoenix shall accept the proposal of the Principal and the Principal shall enter into a contract with the City of Phoenix in accordance with the terms of such proposal and give such Bonds and Certificates of Insurance as specified in the Standard Specifications with good and sufficient Surety for the faithful performance of such contract and for the prompt payment of labor and material furnished in the prosecution thereof, or in the event of the failure of the Principal to enter into such contract and give such Bonds and Certificates of Insurance, if the Principal shall pay to the City of Phoenix the difference not to exceed the penalty of the bond between the amount specified in the proposal and such larger amount for which the Obligee may in good faith contract with another party to perform the work covered by the proposal, then this obligation shall be null and void, otherwise to remain in full force and effect.

Signed and sealed this _____ day of _____ A.D., 2024

Principal

Title

Mailing Address

Surety

WITNESS:

A.M. BEST RATING:

**DISADVANTAGED BUSINESS ENTERPRISE (DBE)
GOAL ASSURANCE**

The undersigned, fully cognizant of the requirements and of the goal established, hereby certifies that in the preparation of this bid for federal aid project:

ADOT TRACS No: _____

Agency Project No: _____

Project Name: _____

(CHECK ONE)

☐ The bidder has met the established DBE goal and arrangements with certified DBEs have been made prior to the submission of the bid.

OR

☐ The bidder has been unable to meet the established DBE goal prior to the submission of the bid and has made good faith efforts to do so.

THIS CERTIFICATE MAY NOT BE REVISED OR CORRECTED AFTER SUBMISSION OF THE BID.

If the bidder certifies that it has met the goal, the bidder cannot change its decision after submission of the bid and submit documentation of a good faith effort. If the bidder certifies that it has been unable to meet the goal and has made a good faith effort, the bidder cannot change its position after the submission of the bid and claim to have met or be able to meet the established goal.

In accordance with the DBE Special Provisions, the bidder shall specify its DBE participation on the "DBE Intended Participation Affidavit", or provide documentation of its good faith efforts, by 4:00 p.m. on the fifth calendar day following the bid opening. The bidder shall obtain the required affidavit from the _____

Insert Agency Name
_____.

Print Name of Firm

Print Name of Authorized Officer of Firm

Signature of Authorized Officer of Firm

Title

Date

On-Line Bidders List - All bidders complete an On-Line Bidders List at <https://utracs.azdot.gov/> and submit the corresponding Bidders List Email Confirmation Notice to the Agency by 4:00 pm on the 5th calendar day after bids are opened.

CONSTRUCTION

DISADVANTAGED BUSINESS ENTERPRISE (DBE)

Intended Participation Affidavit

Refer to Instructions on
Page 2

Prime Contractor: _____ Project Name: _____

TRACS No(s): _____ Project/Contract No.: _____

DBE Firm: _____ AZ UTRACS Registration No.: _____

Select: ☐ Subcontractor ☐ Trucker ☐ Broker (Fees/Commission) ☐ Supplier (60% DBE Credit) ☐ Manufacturer

1. The undersigned is prepared to perform the following scope(s) of work on the above referenced project.

UNIT PRICE OR LUMP SUM BID						
NAICS Code(s)	Bid Item No.	Partial Yes/No	Description / Scope of Work	Quantity	Unit Price	Total
						\$ 0.00
						\$ 0.00
						\$ 0.00
						\$ 0.00
2. (Trucking) If there is any Trucking in the work listed above, complete the following: Minimum Contract Amount:						\$0.00

DBE firm owns total # _____ Trucks	Project Use	# of Trucks	Dollar Amount
	DBE owned trucks	0	\$ 0.00
	DBE leased trucks	0	\$ 0.00
	non-DBE leased w/DBE driver	0	\$ 0.00
	non-DBE leased w/o DBE driver	0	\$ 0.00

3. (Brokerage) The undersigned affirms that the amount of fees and commissions for work quoted above are as follows:

Total Min Contract Amount \$ 0.00 Fees/Commissions \$ 0.00 & 0%

4. The undersigned will sublet and/or award \$ 0.00 of work bid to a non-DBE firm.

5. The undersigned will sublet and/or award \$ 0.00 of work to another certified DBE firm.

Confirmation of Participation

By signature below, the undersigned agrees to enter into a formal agreement/subcontract for the work cited herein should the prime contractor receive award of this contract from the Purchaser.

I, _____ confirm that _____
(Authorized DBE firm officer, print name and title) (Name of DBE firm)

will be participating in the above project.

The DBE firm will be performing the scope as describe above for: \$ 0.00
(Total DBE Credit Dollar Value)

(Authorized DBE firm officer, Signature) (Date)

CONSTRUCTION
DISADVANTAGED BUSINESS ENTERPRISE (DBE)
Intended Participation Affidavit

INSTRUCTIONS

1. Do not submit *Instructions* page.
2. Contractors are encouraged to fill out the form based on information from prior arrangements made with the DBE Contractor, Subcontractor, Lower Tier Subcontractor, Supplier or Broker
3. The form must be signed by an authorized officer or principal of the DBE firm and submitted to the contractor.
4. The form must be submitted **by 4:00 p.m.** on or before the **fifth calendar day** after the bids are opened.
5. The DBE firm must be certified and licensed within the work category to be performed.
6. The form must be filled out **entirely**. Leave no blank spaces, use N/A or enter "0" if section does not apply.
7. NAICS Code: Enter up to three NAICS codes applicable to the description/scope of work (attach copy of quote(s) as necessary).
8. For additional description/scope of work fill out additional form(s) as necessary (attach copy of quote(s) as necessary).
9. A separate form must be submitted for each proposed DBE firm.
10. All partial items must be noted. If not, the DBE will be considered to be responsible for the entire item.
11. Completed form(s) must be scanned and emailed to _____

Definitions:

1. Unit Price or Hourly Rate Bid or Lump Sum Bid
 - *NAICS Code*: Identify the North American Industry Classification System code that the firm is certified as a DBE to perform (Refer to AZUTRACS at <https://utracs.azdot.gov/> & NAICS at <https://www.naics.com/>)
 - *Bid Item No.*: Identify the work item number that correlates to the work being performed
 - *Description / Scope of Work*: Identify work to be performed
 - *Total*: Identify the total dollar value for the work to be performed - ***Note*** - *The Total for any Bid Item on Affidavits cannot exceed the Prime Contractors Bid Tab Total for the same Bid Item*
2. Trucking
 - Identify total number of trucks owned by DBE and the total dollar value of work
 - Identify total number of DBE trucks used on this project and the total dollar value of work
 - Identify total number of DBE leased trucks used on this project and the total dollar value of work
 - Identify total number of non-DBE leased trucks with DBE drivers used on this project and the total dollar value of work
 - Identify total number of non-DBE leased trucks without DBE drivers used on this project and the total dollar value of work
3. Brokerage
 - Identify total dollar value of brokered work
 - Identify the fees or commission value that pertain to the total brokerage amount
4. Identify the total dollar amount to be subcontracted to a non-DBE firm
5. Identify the total dollar amount to be subcontracted to a DBE firm



CONSTRUCTION
DISADVANTAGED BUSINESS ENTERPRISE (DBE)
Intended Participation Affidavit – Summary

Prime Contractor: _____ Project Name: _____
TRACS No(s).: _____ Project/Contract No.: _____
AZUTRACS No.: _____ Required DBE Goal: _____
DBE Liaison Name: _____ Contact Phone Number: _____

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
Name of DBE Firm	Scope of Work	Minimum Contract Amount	Adjustments	Total DBE Credit Dollar Value
				\$ 0.00
				\$ 0.00
				\$ 0.00
				\$ 0.00
				\$ 0.00
				\$ 0.00
				\$ 0.00
				\$ 0.00
				\$ 0.00
				\$ 0.00
				\$ 0.00
				\$ 0.00
				\$ 0.00
				\$ 0.00
				\$ 0.00
Total DBE Credit Dollar Value				\$ 0.00
(F) Contract Bid Amount				\$ 0.00
Total % of DBE Commitment				0.00%

By signature below, the undersigned agrees that formal agreements/subcontracts with the listed DBE firms will occur for the work cited herein should this contract be awarded.

(Name)

(Title)

(Signature)

(Date)



CONSTRUCTION
DISADVANTAGED BUSINESS ENTERPRISE (DBE)
Intended Participation Affidavit – Summary
INSTRUCTIONS

1. Do not submit *Instruction* page.
2. Identify first-tier DBE firms and any lower-tier DBE firms if used by non-DBE subcontractors for total DBE utilization.
3. When completing the calculations table, enter the Contract Bid Amount (F) first so pop-up warning message does not appear.
4. Submit corresponding *DBE Intended Participation Affidavit* form for each DBE firm identified on this form.
5. Completed documentation can be scanned and emailed to _____

Definitions:

AZ UTRACS Registration No.: can be found conducting a search on the AZ UTRACS website: <https://utracs.azdot.gov/Search>.

DBE Liaison Name: the designated employee who shall be responsible for the administration of the prime's DBE program
Contract Bid Amount: Total dollar amount bidder proposes at time of bid (Total Bid Amount)

Prime Name: name of contractor

TRACS No.: number identifier for contracts, projects, solicitations, and purchase orders

A – DBE firm's name

B – Services provided by the DBE firm – must coincide with the NAICS Code the DBE is certified in

C – This amount should be the same as the "Minimum Contract Amount" on form 105C for each DBE firm listed

D – Adjustments

- Any deductions from DBE's total contract amount due to subletting of work to non-DBE firms
- DBE credit less than 100%
 - Suppliers receive 60% credit
 - Brokers receive credit for broker fees only (not full contract or P.O. value)
- Enter "0" if there are no adjustments

E – Total contract amount less any adjustments (*C* minus *D*)

F – Enter total bid amount on project

**CERTIFICATION WITH REGARD TO THE PERFORMANCE OF
PREVIOUS CONTRACTS OR SUBCONTRACTS SUBJECT TO THE
EQUAL OPPORTUNITY CLAUSE AND THE FILING OF REQUIRED REPORTS
APRIL 1969**

The bidder _____, proposed subcontractor _____, hereby certifies that he has _____, has not _____, participated in a previous contract or subcontract subject to the equal opportunity clause, as required by Executive Orders 10925, 11114, or 11246, and that he has _____, has not _____, filed with the Joint Reporting committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

(Company)

By: _____

(Title)

Date: _____

Note: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7b (1),) and must be submitted by bidders and proposed subcontractors only in connection with contracts and subcontracts which are subject to the equal opportunity clause. Contracts and subcontracts which are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5 (Generally only contracts or subcontracts of \$10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by the Executive Orders or their implementing regulations.

Information concerning Standard Form 100 (EEO-1) is available from:

Joint Reporting Committee P.O.
Box 19100
Washington, D.C. 20036-9100

Proposed prime contractors and subcontractors who have participated in a previous contract or subcontract subject to the Executive Orders and have not filed the required reports should note that 41 CFR 60-1.7(b)(1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.

R7/03

CITY OF PHOENIX

LIST OF MAJOR SUBCONTRACTORS AND SUPPLIERS

PROJECT NO.: ST89340660 PROJECT TITLE: 7TH STREET FIBER TRANSPORTATION ENHANCEMENT DESIGN-BID-BUILD

DESCRIPTION OF WORK OR MATERIALS (CONTRACTOR TO ENTER TRADE/SUPPLIER AREAS)	SELF- PERFORMED BY PRIME CONTRACTOR	SUBCONTRACTOR/ SUPPLIER COMPANY NAME (IF NOT SELF- PERFORMED)	CONTACT PERSON	PHONE NUMBER	DOLLAR VALUE OF WORK OR MATERIALS IN BID
	<input type="checkbox"/> YES <input type="checkbox"/> NO				
	<input type="checkbox"/> YES <input type="checkbox"/> NO				
	<input type="checkbox"/> YES <input type="checkbox"/> NO				
	<input type="checkbox"/> YES <input type="checkbox"/> NO				
	<input type="checkbox"/> YES <input type="checkbox"/> NO				
	<input type="checkbox"/> YES <input type="checkbox"/> NO				
	<input type="checkbox"/> YES <input type="checkbox"/> NO				

I hereby certify by signing below that the above listed companies will be utilized to perform work on this project for an **equal to or greater than 5% of the base bid**. These companies will not be removed or replaced without prior written approval by the City of Phoenix Project Manager. The City requires that ALL vendors providing work equal to or greater than 5% of the base bid are listed or you will be disqualified. If you are self-performing work, you must still list any suppliers for materials or list any subcontractors with whom you will directly contract.

COMPANY NAME _____ SIGNATURE _____

NAME & TITLE _____ PHONE NUMBER _____ DATE _____

EMAIL ADDRESS _____

CITY OF PHOENIX

LIST OF ALL SUBCONTRACTORS AND SUPPLIERS

PROJECT NO.: ST89340660 PROJECT TITLE: 7TH STREET FIBER TRANSPORTATION ENHANCEMENT DESIGN-BID-BUILD

DESCRIPTION OF WORK OR MATERIALS (CONTRACTOR TO ENTER TRADE/SUPPLIER AREAS)	SELF- PERFORMED BY PRIME CONTRACTOR	SUBCONTRACTOR/ SUPPLIER COMPANY NAME (IF NOT SELF- PERFORMED)	CONTACT PERSON	PHONE NUMBER	DOLLAR VALUE OF WORK OR MATERIALS IN BID
	<input type="checkbox"/> YES <input type="checkbox"/> NO				
	<input type="checkbox"/> YES <input type="checkbox"/> NO				
	<input type="checkbox"/> YES <input type="checkbox"/> NO				
	<input type="checkbox"/> YES <input type="checkbox"/> NO				
	<input type="checkbox"/> YES <input type="checkbox"/> NO				
	<input type="checkbox"/> YES <input type="checkbox"/> NO				

I hereby certify by signing below that the above listed companies will be utilized to perform work on this project. These companies will not be removed or replaced on the project without prior written approval by the City of Phoenix Project Manager. The City requires that ALL vendors providing work are listed or you will be disqualified. If you are self-performing work, you must still list any suppliers for materials or list any subcontractors with whom you will directly contract.

COMPANY NAME _____ SIGNATURE _____

NAME & TITLE _____ PHONE NUMBER _____ DATE _____

EMAIL ADDRESS _____

BIDDER'S DISCLOSURE STATEMENT

Authorized Contact for this Disclosure Statement

Name: _____

Title: _____

E-mail: _____

Phone number: _____

List any EIN, DBA, trade name, or other identity used in the last five years, the state or country where filed, and the status (active or inactive): (if applicable): _____

Business Characteristics

Business entity type – Please check appropriate box and provide additional information:

- | | |
|--|------------------------------------|
| <input type="checkbox"/> Corporation | Date of incorporation: _____ |
| <input type="checkbox"/> Limited Liability Company | Date organized: _____ |
| <input type="checkbox"/> Limited Liability Partnership | Date of registration: _____ |
| <input type="checkbox"/> Limited Partnership | Date established: _____ |
| <input type="checkbox"/> General Partnership | Date established: _____ |
| <input type="checkbox"/> Sole Proprietor | How many years in business?: _____ |
| <input type="checkbox"/> Other (explain) | Date established: _____ |

Was the business entity formed in the State of Arizona? Yes _____ No _____

If no, indicate jurisdiction where Business Entity was formed: _____

Business License Number and Classification: _____

Business Transaction Privilege License Number: _____

Special Use or other zoning permits required for Bidder's operation and performance of the services under this Agreement: _____

Is the Business Entity currently registered to do business in Arizona with the Arizona Corporation Commission? Yes _____ No _____ Not required _____ (if sole proprietor or general partnership)

Does the Business Entity have a City of Phoenix business privilege license? Yes _____ No _____ If "no" explain and provide detail such as "not required" or "application in progress" or other reason.

Is the Business Entity publicly traded? Yes _____ No _____

Is the responding Business Entity a Joint Venture? Note: If the Submitting Business entity is a Joint Venture, also submit a questionnaire for each Business Entity comprising the Joint Venture. Yes _____ No _____

Is the Business Entity's Principal Place of Business/Executive office in Phoenix? If "no" does the Business Entity maintain an office in Phoenix? Yes _____ No _____

Provide the address and phone number for the Phoenix office. _____

Is the business certified by Phoenix as a Small Business Enterprise? Yes _____ No _____

Identify Business Entity Officials and principal Owners:

Name(s) _____ Title _____ Percentage ownership _____%(Enter 0% if not applicable).

Name(s) _____ Title _____ Percentage ownership _____%(Enter 0% if not applicable).

Name(s) _____ Title _____ Percentage ownership _____%(Enter 0% if not applicable).

Name(s) _____ Title _____ Percentage ownership _____%(Enter 0% if not applicable).

Affiliates and Joint Venture Relationships

Does the Business entity have any Affiliates? Yes _____ No _____ Attach additional pages if necessary.

Affiliate name: _____

Affiliate EIN (if available): _____.

Affiliate's primary Business Activity: _____

Explain relationship with Affiliate and indicate percent ownership, if applicable. _____

Are there any Business Entity Officials or Principal Owners that the Business Entity has in common with this Affiliate? _____

Individual's name: _____

Position/Title with Affiliate: _____

Has the Business Entity participated in any joint Ventures within the past three years? Yes _____ No _____
(Attach additional pages if necessary)

Joint Venture Name: _____

Joint venture EIN (if applicable): _____

Identify parties to the Joint Venture: _____

Contract History

Has the Business Entity held any contracts with the city of Phoenix in the last three (3) years? Yes _____ No _____ If "yes" attach a list.

Integrity – Contract Bidding

Within the past three (3) years, has the Business Entity or any Affiliate been suspended or debarred from any government contracting process or been disqualified on any government procurement? Yes _____ No _____

Been subject to a denial or revocation of a government prequalification? Yes _____ No _____

Been denied a contract award or had a bid rejected based upon a finding of a non-responsibility by a government entity? Yes _____ No _____

Agreed to a voluntary exclusion from bidding/contracting with a government entity? Yes _____ No _____

Initiated a request to withdraw a bid submitted to a government entity or made any claim of an error on a bid submitted to a government entity? Yes _____ No _____

Initiated a request to withdraw a bid submitted to a government entity or made any claim of an error on a bid submitted to a government entity? Yes _____ No _____

For each "Yes" answer above, provide an explanation of the issues.

Integrity – Contract Award

Within the past three (3) years has the Business Entity or any Affiliate been suspended, cancelled, or terminated for cause on any government contract? Yes _____ No _____

Been subject to an administrative proceeding or civil action seeking specific performance or restitution in connection with any government contract? Yes _____ No _____

For each "yes" answer, provide an explanation. (Attach explanation on a separate sheet of paper).

Certifications/Licenses

Within the past three (3) years, has the Business Entity or Affiliate had a revocation, suspension, or disbarment of any business or professional permit and/or license? Yes _____ No _____

If "yes" provide an explanation of the issue(s), the Business Entity involved, the relationship to the submitting Business Entity, relevant dates, the government entity involved, and any remedial or corrective action(s) taken and the current status of the issues.

Legal Proceedings

Within the past three (3) years, has the Business Entity of any Affiliate:

Been the subject of an investigation, whether open or closed, by any government entity for a civil or criminal violation? Yes _____ No _____

Been the subject of an indictment, grant of immunity, judgment or conviction, (including entering into a plea bargain for conduct constituting a crime)? Yes _____ No _____

Received any OSHA citation and Notification of Penalty containing a violation classified as serious or willful? Yes _____ No _____

Had a government entity find a willful prevailing wage or supplemental payment violation? Yes _____ No _____

Been involved in litigation as either a plaintiff or a defendant involving a copyright or patent infringement violation or an anti-trust violation? Yes _____ No _____

Other than previously disclosed, for the past three (3) years:

(i) Been subject to the imposition of a fine or penalty in excess of \$1000 imposed by any government as a result of the issuance of citation, summons or notice of violation, or pursuant to any administrative, regulatory, or judicial determination ; Yes _____ No _____

(ii) Been charged or convicted of a criminal offense pursuant to any administrative and/or regulatory action taken by any government entity? Yes _____ No _____

If "yes" provide an explanation of the issue(s), the Business Entity involved, the relationship to the submitting Business Entity, relevant dates, the government entity involved, and any remedial or corrective action(s) taken and the current status of the issues.

Leadership Integrity

If the Business Entity is a joint Venture Entity, answer "N/A — Not Applicable" to questions below:

Within the past three (3) years has any individual previously identified, or any other Business Entity Leader not previously identified, or any individual having the authority to sign, execute, or approve bids, proposals, contracts or supporting documentation with the City of Phoenix been subject to:

A sanction imposed relative to any business or professional permit and/or license? Yes _____ No _____

An investigation, whether open or closed, by any government entity for a civil or criminal violation for any business related conduct? Yes _____ No _____



City of Phoenix
AFFIDAVIT OF IDENTITY

Your completion of this form is required by Arizona state law. A.R.S. §§ 1-501 and -50 only if you are a sole proprietor.

I, _____ (print full name exactly as on document), hereby affirm, upon penalty of perjury, that I presented the document marked below to the City of Phoenix, that I am lawfully present in the United States, and that I am the person stated on the document. (select one category only)

☐ Arizona driver license issued after 1996.

Print first four numbers/letters from license:

--	--	--	--

☐ Arizona non-operating identification license.

Print first four numbers/letters:

--	--	--	--

☐ Birth certificate or delayed birth certificate issued in any state, territory or possession of the U.S.

Year of birth: _____; Place of birth: _____

☐ United States Certificate of Birth Abroad.

Year of birth: _____; Place of birth: _____

☐ United States Passport.

Print first four numbers/letters on Passport:

--	--	--	--

☐ Foreign Passport with United States Visa.

Print first four numbers/letters on Passport:

--	--	--	--

Print first four numbers/letters on Visa:

--	--	--	--

☐ I-94 Form with a photograph.

Print first four numbers on I-94:

--	--	--	--

☐ USCIS Employment Authorization Document (EAD).

Print first four numbers/letters on EAD:

--	--	--	--

or Perm. Resident Card (acceptable alternative):

--	--	--	--

☐ Refugee Travel Document.

Date of issuance: _____; Refugee country: _____

☐ U.S. Certificate of Naturalization.

Print first four digits of CIS Reg. No.:

--	--	--	--

☐ U.S. Certificate of Citizenship.

Date of issuance: _____; Place of issuance: _____

☐ Tribal Certificate of Indian Blood.

Date of issuance: _____; Name of tribe: _____

☐ Tribal or Bureau of Indian Affairs Affidavit of Birth.

Year of birth: _____; Place of birth: _____

Signed: _____

Dated: _____

**BUY AMERICA CERTIFICATE
FOR COMPLIANCE WITH TITLE 23 USC § 313
(For Procurement of Steel, Iron, or Manufactured Products)
(EXCLUDES ROLLING STOCK)**

**7th Street Fiber Transportation Enhancement
PROJECT NO. ST89340660
FEDERAL AID NO. PHX-0(361)D
ADOT TRACS NO. T0236 01C**

(Complete form and submit with bid)

The Bidder/Proposer hereby certifies that it will comply with the requirements of Title 23 USC § 313 and the applicable regulations in 23 CFR Part 635.410.

Executed on _____, 2016, at _____, _____
(Date) (City) (State)

Typewritten or Printed Name Signature of Authorized Official Title

BUY AMERICA CERTIFICATE FOR NON-COMPLIANCE WITH TITLE 23 USC §. 313

The Bidder/Proposer hereby certifies that it cannot comply with the requirements of Title 23 USC § 313, but it may qualify for an exception pursuant to Title 23 USC § 313 and the regulations in 23 CFR 635.410.

Executed on _____, **2024**, at _____, _____
(Date) (City) (State)

Typewritten or Printed Name Signature of Authorized Official Title

**AFFIDAVIT BY CONTRACTOR
CERTIFYING THAT THERE WAS NO
COLLUSION IN BIDDING OF CONTRACT**

STATE OF: Arizona)
)
)
COUNTY OF: Maricopa) ss

(Name of Individual)

being first duly sworn upon oath deposes and says:

That he is _____
(Title)

of _____
(Name of Company, Firm or Corporation)

and that, pursuant to Subsection 112(c) of Title 23, United States Code and Title 44, Chapter 10, Article 1, and Title 34, Chapter 2, Article 4 of Arizona Revised Statutes, he certifies that neither he nor anyone associated with the company, firm, or corporation mentioned above has, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of fully competitive bidding in connection with project:

CITY OF PHOENIX PROJECT NOS.: ST89340660.
FEDERAL AID NO. PHX-0(361)D
ADOT TRACS NO. T0236 01C

Subscribed and sworn to before me this

_____ day of _____, 2024.

Signature

My Commission expires:

Notary Public

If by a Corporation:

(Seal)