PUBLIC PRIVATE PARTNERSHIP (P3) DESIGN-BUILD-MAINTAIN AGREEMENT

for

202 MA 054 H882701C
SR 202L (SOUTH MOUNTAIN FREEWAY)
I-10 (MARICOPA FREEWAY) – I-10 (PAPAGO FREEWAY)

Between

ARIZONA DEPARTMENT OF TRANSPORTATION

and

[DEVELOPER]

VOLUME II

TECHNICAL PROVISIONS – TP ATTACHMENTS

Dated as of: [_____], 2016

ADDENDUM #~~1~~2

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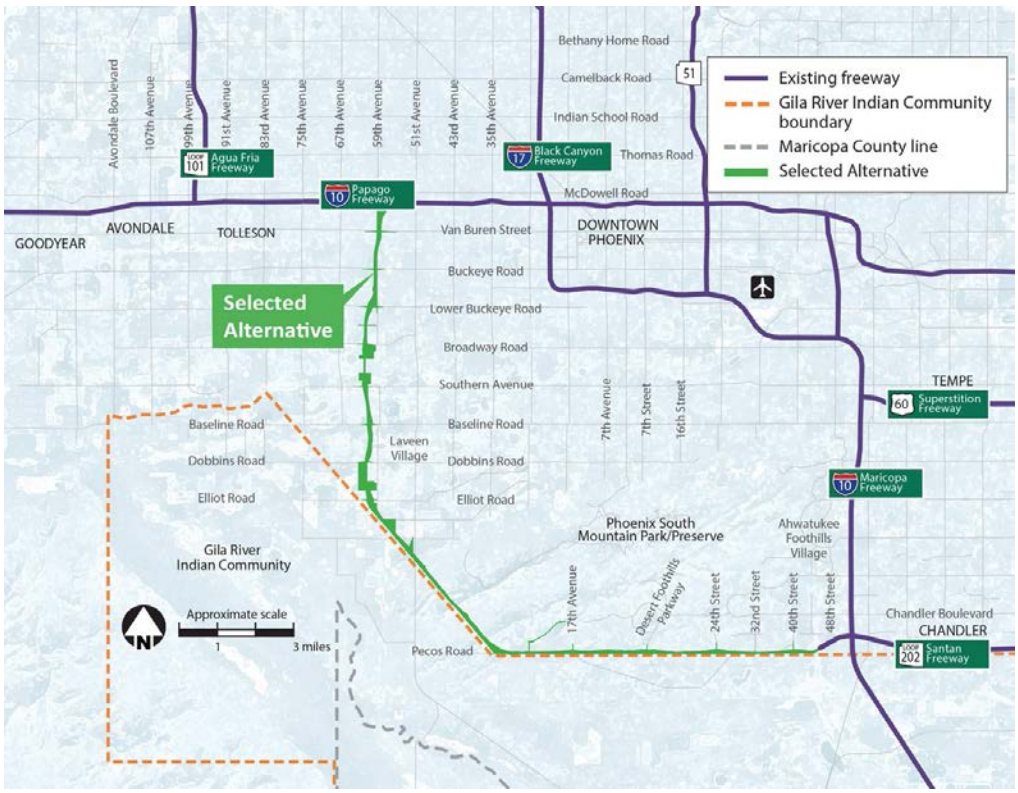
TP ~~ATTACHMENT~~Attachment 110-1 – Project Description

1 PROJECT DESCRIPTION

In general, the South Mountain Freeway Project (Project) is located in the southwestern portion of the Phoenix metropolitan area in Maricopa County. The South Mountain Freeway Project constitutes a section of Loop 202 within the regional freeway and highway system. The Record of Decision (ROD) for the Project identified as the selected alternative the combination of the W59 and E1 Alternatives is shown in Figure 1-1.

Figure 1-1
Vicinity Map



The Project will help address the region's congestion, travel delays, and limited options for moving people and goods safely through the Phoenix metropolitan region by increasing regional mobility and capacity by linking regional freeways in the eastern and western portions of the Phoenix metropolitan area. The connection will further optimize system continuity and the effectiveness of individual network components, which are important to overall transportation operation. The Project will reduce the duration of congested conditions on most adjacent freeways, improve travel times throughout the region, and attract trips from the arterial street network.

The Project is led by the Arizona Department of Transportation (ADOT), in cooperation with the Maricopa Association of Governments (MAG). ADOT has undertaken certain planning and

preliminary concept work concerning the Project development, which is included in the Reference Information Documents (RIDs).

~~1.1.1.1~~2 PROJECT STATUS

ADOT has been moving forward with development of the Project for several years, using its own personnel; retaining consultants; and engaging with stakeholders such as MAG, the municipal planning organization for Maricopa County, Cities along the Project corridor, resource agencies, and the public.

On April 26, 2013, a notice of availability for the South Mountain Freeway Draft Environmental Impact Statement (DEIS) was published in the Federal Register. This notice began a 90-day public comment period. During the comment period, a public hearing was held on May 21, 2013, at the Phoenix Convention Center; numerous other community outreach events were also held. The public comment period ended on July 24, 2013.

On September 26, 2014, the study team released the Final Environmental Impact Statement (FEIS) for a 60-day public review period. The FEIS incorporates analysis and conclusions presented in the DEIS for the proposed action, public comments and responses on the DEIS, and new information that became available after public release of the DEIS. Each comment received on the DEIS is accompanied by a response in Volume III of the FEIS. Following the FEIS review period, the study team considered comments received and prepared a ROD which was released to the public on March 13, 2015.

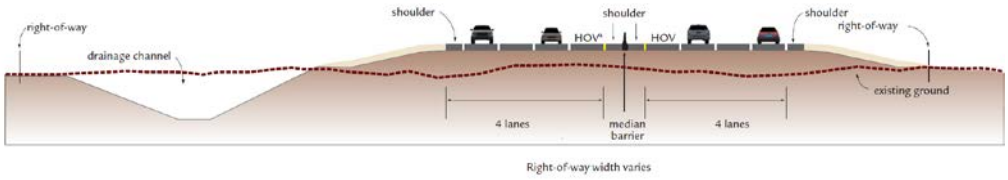
At the same time as the DEIS publication, the study team also submitted the Initial Location/Design Concept Report (L/DCR) to ADOT technical groups and agency stakeholders. The design plans included in the Initial L/DCR represent approximately 15%-level design plans. The Final L/DCR has been finalized and is included in the RIDs.

~~1.1.1.2~~3 GENERAL PROJECT IMPROVEMENTS

The Project will complete the Loop 202 from I-10 (Maricopa Freeway) (milepost MP 54.31) to I-10 (Papago Freeway) (MP 75.91), a distance of approximately 22 miles, in the southwestern quadrant of the Phoenix metropolitan area. It will begin at its eastern terminus with the existing system traffic interchange between I-10 (Maricopa Freeway) and Loop 202 (Santan Freeway). From this point, it will head westward on the Pecos Road alignment for approximately 8 miles before heading northwest for approximately 5 miles to a point near the existing Elliot Road and 59th Avenue intersection. The freeway will head north for approximately 9 miles, crossing the Salt River, and reach its western terminus at a new system traffic interchange with I-10 (Papago Freeway) near 59th Avenue. The new system traffic interchange will include a direct high-occupancy vehicle (DHOV) ramp connection to and from the east on I-10. The design of the system traffic interchange at I-10 is being coordinated with the high-capacity transit corridor planned for I-10.

The roadway typical section consists of eight-lanes with three general purpose lanes and one high-occupancy vehicle (HOV) lane in each direction (see Figure 3-1~~-2~~). The median is closed with a concrete median barrier dividing the directions of travel. Entrance and exit ramps are designed using a parallel-type configuration coupled with auxiliary lanes between service traffic interchanges, as warranted. The freeway mainline design primarily features a rolling profile with the freeway rising above grade to cross over the crossroads.

Figure ~~13~~-1
Typical Freeway Section



There are over 50 bridge sites (approximately 77 bridges) along the freeway corridor. Notable bridges include the Salt River Bridge, which is over 3,000 feet long, multiple bridges over the Union Pacific Railroad, and the flyover ramps at I-10 (Papago Freeway). Much of this construction will be over active traffic. There are also five multiuse crossings in the area of the South Mountains.

FINAL RFP

TP ~~ATTACHMENT~~Attachment 110-2 – ~~ADOT~~Materials Quality Assurance ~~Requirements for Alternative Acceptance Projects~~

Program

~~FINAL RFP~~ADDENDUM #2

ARIZONA DEPARTMENT OF TRANSPORTATION

MATERIALS QUALITY ASSURANCE REQUIREMENTS

~~for~~

~~ALTERNATIVE ACCEPTANCE PROJECTS~~

For the

LOOP 202 SOUTH MOUNTAIN FREEWAY PROJECT

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~~FINAL RFP~~ADDENDUM #2

~~1 SCOPE~~

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1 SCOPE

It is the objective of this document for the Arizona Department of Transportation (ADOT) to define the Quality Assurance requirements for ~~Alternative Acceptance construction projects, in which the Contractor's QC results may be used as a part of the acceptance decision.~~the Loop 202 South Mountain Freeway ("Project"). The Quality Assurance requirements described herein have been developed to provide consistent implementation and supporting documentation in accordance with the Code of Federal Regulations (23 CFR 637 Subpart B) – "Quality Assurance Procedures for Construction" and Federal Highway Administration (FHWA) Technical Advisory T6120.3, which are available at the following links:

- ~~23 CFR 637B - http://www.ecfr.gov/cgi-bin/text-idx?rgn=div5&node=23:1.0.1.7.25~~
- ~~TA 6120.3 - http://www.fhwa.dot.gov/construction/t61203.cfm~~
- 23 CFR 637B - http://www.ecfr.gov
- TA 6120.3 - http://www.fhwa.dot.gov

This document, established by the Arizona Department of Transportation (ADOT), ~~ensures~~verifies that materials and workmanship incorporated into ~~Alternative Acceptance highway construction projects~~the Project are in reasonable conformance with the approved plans and specifications, including any approved changes.

This document ~~covers~~is intended to complement ADOT's Materials Quality Assurance Program and defines the ~~procedures for an Alternative Acceptance~~ main components of the Project-specific materials quality assurance program~~, including a~~ that involves the collaborative efforts of both the Developer and ADOT. The primary components of the materials quality assurance program include: quality control ~~program, an acceptance program, a verification program, an independent assurance (IA) program and correlation testing.~~(QC) activities by the Developer, Quality Acceptance activities by an Independent Quality Firm (IQF), and Owner Verification (OV) activities by ADOT or ADOT's representatives. As noted in Figure 1, the Quality Acceptance and OV activities constitute the Acceptance Program. The Quality Acceptance test results performed by ~~an Independent Quality Firm (IQF)~~the IQF may be used as part of an acceptance decision ~~if~~only when the Quality Acceptance results are validated by ~~the~~ Owner Verification (OV) testing results ~~performed by ADOT.~~

~~The purpose of~~ activities. As a part of the materials quality assurance program, ADOT will implement a modified version of their existing Independent Assurance (IA) program, as discussed later in this document~~ is to provide statewide consistency and a programmatic approach to quality assurance where the IQF's test results are used in the acceptance decision. It~~.

This document clarifies federal requirements relating to Quality Acceptance and statistical analysis procedures. ~~The content of this program is developed for Alternative Acceptance projects with no Special Experimental Project 15 (SEP-15) exceptions with respect to quality acceptance.~~ This document is to be included (or referenced) in the ~~contract~~Agreement, and other key preconstruction ~~project~~Project documents with approvals by ADOT and FHWA.

~~The~~ A vigorous ADOT Owner Verification program is instrumental to the success of a project where the use of IQF test results will be used as part of the acceptance decision~~ should be carefully evaluated for each project, because a robust ADOT owner verification program is instrumental to its success~~.

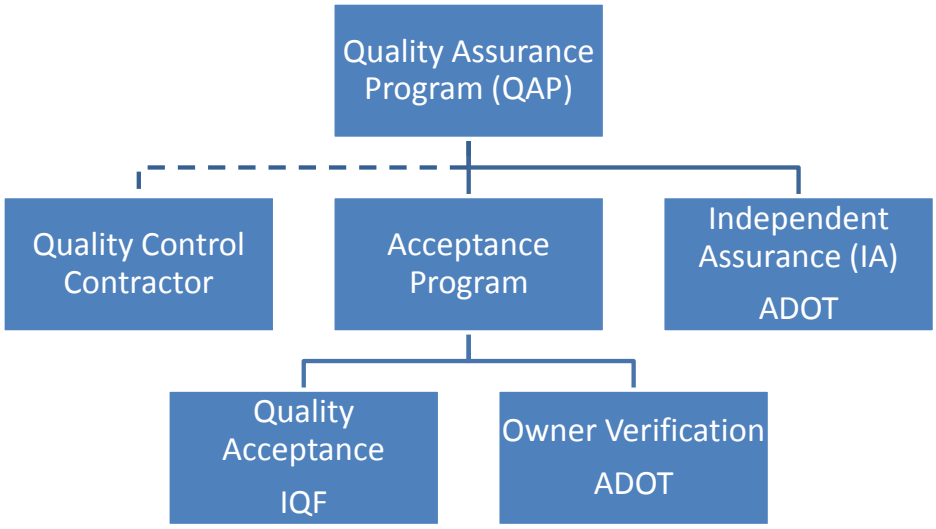
~~This document is comprised of several components, and the~~ The relationships between the parties and functions described in this document are shown in Figure 1.

The ~~Alternative Acceptance~~acceptance process for the Project is composed of the following main components:

- Personnel qualifications
- Laboratory qualifications
- Approval of ~~Contractor's~~Developer's Construction Quality Management Plan (CQMP)
- ~~Contractor~~Developer QC requirements
- IQF Quality Acceptance requirements
- Owner Verification Testing and Inspection Plan (OVTIP)
- Independent Assurance (IA) program

~~FINAL RFP~~ADDENDUM #2

Figure ~~1:~~1: Components and Relationships in ~~this QAP~~



~~2 LIST OF ABBREVIATIONS~~

~~ADOT~~	~~Arizona Department of Transportation~~
~~CFR~~	~~Code of Federal Regulations~~
~~CQMP~~	~~Construction Quality Management Plan~~
~~IA~~	~~Independent Assurance~~
~~IQF~~	~~Independent Quality Firm~~
~~NCR~~	~~Non-Conformance Record~~
~~OV~~	~~Owner Verification~~
~~OVTIP~~	~~Owner Verification Testing and Inspection Program~~
~~QC~~	~~Quality Control~~
~~RFP~~	~~Request for Proposals~~
~~TP~~	~~Technical Provisions~~

~~3 GLOSSARY OF TERMS~~

~~The following Glossary of Terms is in addition to the Glossary of Terms to be found in Section III of ADOT's~~ **Materials Quality Assurance Program**~~.~~

~~**Alternative Acceptance** - Projects where the Contractor's QC results may be used as a part of the acceptance decision.~~

~~**Construction Quality Management Plan** – A plan developed by the Contractor which consists of both QC and Quality Acceptance activities with respect to performance of the work. The CQMP is provides procedures that clearly describe how the Contractor's staff will address various quality requirements.~~

~~**Contractor** - The entity identified in the Agreement to perform work under the applicable project, together with its successors and assigns.~~

~~**Correlation Testing** – Testing performed to check or establish variability of testing procedures and equipment between testing laboratories.~~

~~**Dispute Resolution** – Testing to resolve differences in material test results or statistical sample populations between the IQF and ADOT~~

~~**Independent Assurance** - All activities that are included in an unbiased and independent evaluation program for all the sampling and testing procedures used in the Acceptance Program.~~

~~**Independent Quality Firm (IQF)** - The independent Quality Firm required as part of the Contractor's team who will perform Quality Acceptance.~~

~~**Owner Verification** - Sampling and testing performed to validate the quality of the product. The sampling and testing are to be performed by qualified testing personnel employed by ADOT or its designated agent, excluding the Contractor.~~

~~**Owner Verification Testing and Inspection Program** - Describes the commitments of the owner for oversight of the Contractor's work. ADOT staff, or their designee, performs OV inspection and testing and conducts audits to verify the Contractor's compliance with the approved CQMP~~

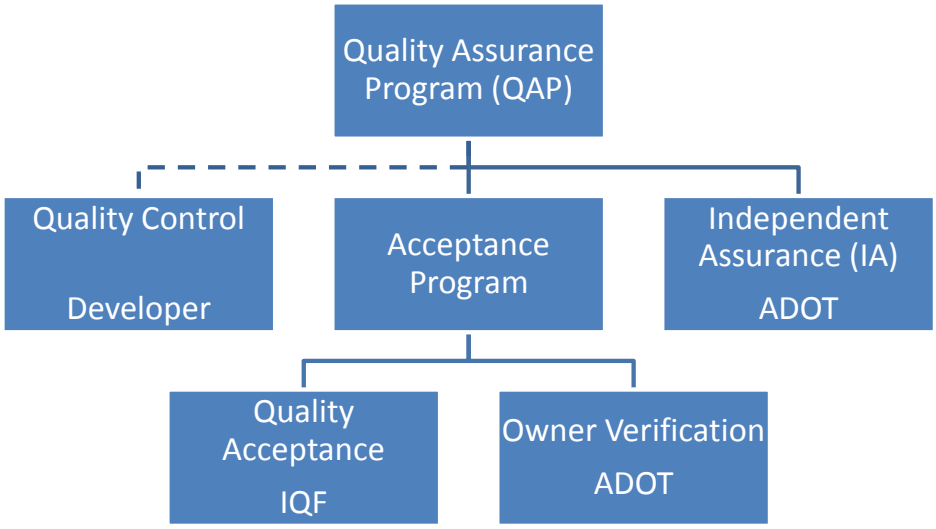
~~**Quality Acceptance** - All planned and systematic actions performed by the IQF, as defined in the contract for their portion of the acceptance decision.~~

~~**Quality Control** – All Contractor operational techniques and activities that are performed or conducted to fulfill the contract requirements.~~

~~**Referee Testing** – Testing performed by ADOT's central laboratory to resolve disputes over specific test results between the IQF and ADOT.~~

~~**System Basis** – A method of IA which is based on observing and verifying satisfactory performance by the individuals performing acceptance sampling and teting, and the equipment utilized, for a particular period of time.~~

~~4 QUALIFICATION OF TESTING PERSONNEL~~



1 QUALIFICATION OF TESTING PERSONNEL

All field and laboratory personnel performing sampling or testing of construction materials on ~~a construction project with Alternative Acceptance~~the Project must meet the technician qualification requirements as presented in the Section VII of the ADOT *Materials Quality Assurance Program* ("Sampling and Testing Personnel Qualification Requirements"). ~~This includes IQF and ADOT personnel. Contractor technicians may need to meet these qualification requirements if so specified in the RFP~~All personnel who are sampling and testing as a part of the Acceptance Program must be observed on an annual basis by ADOT's IA program for the sampling and testing they perform.

~~5 QUALIFICATION OF LABORATORIES~~

In the absence of ATTI certification, individuals who currently possess active certification(s) under another state's certification program may be allowed to perform Project activities that would normally be covered by ATTI certification as part of the acceptance decision on a provisional basis. This provisional status requires prior approval by ADOT on a case-by-case basis, and is only applicable to this Project. In order to request provisional approval, the Developer shall supply the following information to ADOT a minimum of 14 Days before the individual starts sampling and testing on the Project:

- Name of the individual
- Name of the appropriately certified person who will be supervising the individual's work
- Description of the Work to be performed by the individual, including the type of sampling and testing the individual is expected to perform
- List of applicable certifications currently held under another state's certification program and expiration dates

- Differences between the other state certifications and the corresponding ATTI certifications.
- Description of how these differences will be managed to avoid errors.

Any authorized provisional approval will be in effect for a maximum of six (6) months from the time the individual begins working on the Project. By the time this six month period has elapsed, the individual must have obtained the appropriate ATTI certification(s) in order to be allowed to continue sampling and testing or materials related inspection on the Project. While in provisional status, such individuals must be under the direct supervision of someone who has the appropriate ATTI certification(s). The IQF must obtain this provisional approval from ADOT, document the certification status of these individuals, and ensure the individuals obtain the appropriate ATTI certification(s) within the time allotted. Individuals receiving provisional allowance to perform acceptance work must be observed by ADOT's IA program within the first 14 days from the time the individual begins sampling and testing on the Project.

2 QUALIFICATION OF LABORATORIES

All laboratories, including mobile or satellite labs, engaged in sampling or testing of construction materials on ~~an Alternative Acceptance construction project~~the Project must meet the laboratory qualification requirements as presented in Section VI of the ADOT Materials Quality Assurance Program ("Laboratory Qualifications~~").~~") prior to being utilized on the Project.

Laboratories satisfying these requirements, and the specific test methods for which they are approved, are listed in the ADOT "Directory of Approved Materials Testing Laboratories" (~~https://www.azdot.gov/docs/default-source/business/directory-of-approved-materials-testing-laboratories.pdf?sfvrsn=12~~https://www.azdot.gov), which is updated periodically. ~~If the Contractor or IQF utilizes a laboratory from this directory, the Contractor~~The Developer is responsible for confirming the ~~laboratory still meets the~~ approval ~~requirements, and~~ status of any laboratories utilized by the Developer, and verifying that ~~such requirements are maintained~~laboratories maintain their approval status over the life of their service on the ~~project~~Project.

To avoid an appearance of a conflict of interest, any qualified laboratory and any qualified personnel ~~shall~~must perform only one of the following types of testing on the ~~same Alternative Acceptance project~~Project:

A. ~~Contractor~~Developer Quality Control testing;
B. IQF Quality Acceptance testing;
C. ADOT Owner Verification testing;
D. ADOT Independent Assurance testing; or
E. ~~Dispute Resolution~~Referee testing.

~~6 CONTRACTOR'S CONSTRUCTION QUALITY MANAGEMENT PLAN (CQMP)~~

3 ~~THE CONTRACTOR'S~~DEVELOPER'S CONSTRUCTION QUALITY MANAGEMENT PLAN

Developer's Construction Quality Management Plan (CQMP) shall consist of the ~~quality control (~~QC~~)~~ to be performed by ~~the Contractor~~Developer (see Section ~~7) and~~ 5), the Quality Acceptance to be performed by the IQF~~,~~ (see Section 6), and how such activities will be conducted in conjunction with ~~OVT, with respect to performance of the work~~OV activities (see Section ~~8).~~7). The CQMP ~~shall~~must establish a clear distinction between QC and Quality

Acceptance activities and ~~the persons performing each function.~~ define roles and responsibilities.

~~ADOT will be responsible for developing more detailed requirements~~ Additional information for the ~~Contractor's CQMP to be included in the Technical Provisions (TPs) of the project's Request for Proposals (RFP).~~

~~Contractor shall submit the CQMP to ADOT for~~technical, review, and approval ~~prior to the performance~~requirements of Developer's CQMP may be found in Section GP Section 110.07.2.1.3 of ~~any work~~the TPs.

~~7 CONTRACTOR QUALITY CONTROL REQUIREMENTS~~

4 ~~THE CONTRACTOR~~DEVELOPER QUALITY CONTROL REQUIREMENTS

Developer shall be responsible for the quality of the ~~work~~Work. Project quality will be enhanced through the daily efforts of all the workers involved with the ~~work~~Work, supported by ~~Contractor's~~Developer's CQMP. ~~The Contractor's~~Developer's QC portion of the CQMP ~~shall~~must include the specific and detailed internal procedures used by ~~the Contractor~~Developer that will ensure that the ~~work~~Work is delivered in accordance with the ~~released for construction plans, approved shop drawings, working drawings, and specifications~~RFC Documents. This involves the active participation of the entire work force in working to achieve "quality" initially and to minimize/eliminate re-work. ~~Contractor's~~Developer's QC ~~shall~~is not ~~be~~a part of the ~~acceptance program~~Acceptance Program.

~~The Contractor's~~Developer's CQMP ~~shall~~must establish a systematic approach to define the processes, methods, procedures, and documentation for delivery of QC on the Project. These methods and procedures ~~shall~~must clearly define the authority and responsibility for the administration of ~~Contractor's~~Developer's QC plan.

~~8 INDEPENDENT QUALITY FIRM (IQF) QUALITY ACCEPTANCE REQUIREMENTS~~

5 INDEPENDENT QUALITY FIRM QUALITY ACCEPTANCE REQUIREMENTS

The Quality Acceptance on ~~Alternative Acceptance projects~~the Project consists of frontline acceptance testing and inspection being performed by the IQF. Owner Verification (OV) and Quality Acceptance together are the basis for the acceptance decision~~, provided that~~. With regard to materials testing, the IQF-performed Quality Acceptance results may be used in the acceptance decision, provided that they are statistically validated and/or verified by the OV test results (See Section ~~9~~7 for details about OV). Quality acceptance is performed by the IQF~~,~~ and OV is performed by ADOT or their consultant(s). With regard to workmanship and other inspection driven features of the Work, the IQF's inspection observations and conclusions may be used in the acceptance decision, provided that OV activities verify the CQMP process, procedure and documentation adherence.

~~The Contractor's~~Developer's Quality Acceptance portion of the CQMP ~~shall~~must include the procedures used by the IQF to ensure that the ~~work~~Work is inspected and tested to verify compliance with the ~~released for construction plans, approved shop drawings, working drawings, and specifications. Contractor's Quality Acceptance shall be separate from the Contractor's QC program~~RFC Documents.

~~Contractor's~~Developer's CQMP ~~shall~~must establish a systematic approach to define the processes, methods, procedures, and documentation for the IQF to deliver Quality Acceptance

on the Project. These methods and procedures ~~shall~~must clearly define the levels of authority and responsibility for the administration of IQF's Quality Acceptance plan.

~~ADOT will be responsible for developing more detailed requirements for the IQF's Quality Acceptance to be included in the Technical Provisions (TPs) of the Project Request for Proposals (RFP).~~

~~9 OWNER VERIFICATION TESTING AND INSPECTION PROGRAM (OVTIP)~~

~~5.1 ADOT has responsibility for verifying that the Project is designed and constructed in compliance with the contract. As such, ADOT~~ IQF Materials Acceptance

The quality of materials and construction incorporated into the Project are controlled by sampling and testing, and must be accepted based on compliance with Developer's specifications and the Contract Documents. Compliance is determined by acceptance sampling and testing. The IQF must randomly sample at prescribed frequencies based on the IQF sampling guide schedule that meet or exceed those presented in ADOT's Sampling Guide Schedule in the ADOT *Materials Quality Assurance Program*, Appendix C. The IQF's sampling guide schedule must be published in Developer's CQMP. Sampling and testing must be performed by qualified laboratories and by qualified sampling and testing personnel.

The IQF must not rely wholly on the results of sampling and testing in determining the acceptability of materials and construction work. The sampling and testing must be supplemented by sufficient visual inspection of the materials to determine whether the samples and tests are reasonably representative. In addition, there should be sufficient observation of the construction operations and processes to assure uniformly satisfactory results.

5.2 IQF Acceptance Sampling and Testing

The IQF's sampling guide schedule must apply to sampling frequencies only for acceptance sampling and testing. It must indicate the material type to be sampled, the controlling specification(s), the frequency of sampling, the location where sampling will occur, the testing to be performed, and the acceptance criteria. Acceptance samples must be obtained randomly by IQF. With regard to material types, an approach to type identification similar to that defined in Table 10 of the ADOT *Materials Quality Assurance Program*, Appendix C shall be included in the CQMP. If the Table 10 codes are not adopted outright by the Developer, an alternate coding system may be proposed; however, such alternate system must then include a direct cross reference to the codes of Table 10.

After samples are taken, they must be in the immediate custody of the IQF technician. Thereafter, the samples must remain in IQF's "chain of custody" until they are delivered to the appropriate laboratory for testing.

During their initial cure, concrete cylinders may not be in IQF's continual "chain of custody". If this is the case, appropriate measures must be taken to ensure the integrity of the samples.

The intent of the IQF's sampling guide schedule is to provide guidance to personnel responsible for sampling and testing materials. The frequency may vary for phases of the Project in accordance with job conditions, such as, the uniformity of materials at the source, the methods and equipment used, and weather conditions. The actual number of samples, and locations from which they are taken, must be representative of the actual construction operations and must adequately assure or verify that the materials incorporated into the final product, are in compliance with the Contract Documents and Developer's specifications. Under extenuating

circumstances, the CIQM may utilize engineering judgment to justify acceptance when sampling frequencies do not meet the IQF's sampling guide schedule on a case by case basis. Conversely, the CIQM may utilize engineering judgment to direct that an amount of acceptance testing greater than the required minimum be done when deemed necessary. The CIQM must formally document these variations from the prescribed frequencies. The manner in which these deviations will be documented must be defined in the Developer's CQMP.

The IQF must develop a materials sampling and testing plan, indicating the recommended number of acceptance samples for any given Project element. For an example, see Section V(E)(1) of the ADOT *Materials Quality Assurance Program*.

For materials that are sampled on a time designated lot basis, the CQMP must define the methodology to estimate the relationship between the production lot quantity and the time required to produce such quantity. This relationship is required in order for the IQF to determine the recommended number of acceptance samples.

5.3 IQF Acceptance of Materials by Certification or Other Means

Acceptance of materials by "Certificate of Compliance" or "Certificate of Analysis" must meet or exceed the requirements of Subsection 106.05 of the *Standard Specifications for Road and Bridge Construction*, Section 1000 of the ADOT *Materials Testing Manual*, and applicable ADOT Materials Policy and Procedure Directives. The IQF's sampling guide schedule must reflect the specific items or components that are planned to be accepted on the basis of certification.

The CQMP must include provisions for such approval and define how the IQF will ensure that when such approvals are used, they also meet the requirements of the IQF's sampling guide schedule and/or the requirements of Contract Documents and Developer's specifications.

6 OWNER VERIFICATION TESTING AND INSPECTION PROGRAM

IQF inspections, test results and conclusions must by validated by Owner Verification activities. For materials testing, such validation will be achieved through statistical comparisons between IQF testing results and OV testing results. For inspection activities, OV will be focused on IQF process adherence and documentation confirmation. In addition to real-time evaluation, ADOT, or their consultant(s) will ~~perform owner verification testing and inspection to verify the quality of materials used on the construction project. ADOT will~~ also conduct periodic audits to verify ~~the Contractor's~~Developer's compliance with the approved CQMP.

ADOT or its ~~designated agent~~consultant(s) will develop a comprehensive ~~Owner Verification Testing and Inspection Plan (OVTIP) for each Alternative Acceptance project~~OVTIP for the Project and submit it to FHWA for their concurrence. ADOT's OVTIP ~~shall~~will include internal procedures used by ADOT and their consultant(s) to ensure that the IQF's frontline acceptance ~~is~~activities are performed in accordance with the approved CQMP and to verify ~~Quality Acceptance testing and inspection. ADOT shall~~adherence to the CQMP. ADOT may complete the development of the OVTIP ~~following~~in parallel with acceptance of ~~the Contractor's~~Developer's CQMP.

~~ADOT's~~The OVTIP ~~shall~~will clearly address, at ~~the~~a minimum, how ADOT's OV staff will address the following requirements:

A. Methods and procedures that clearly define the authority and responsibility for the administration of OVTIP.

B. Procedures for overseeing and inspecting the ~~work~~Work for compliance with ~~the Contractor's~~Developer's CQMP for each construction operation.

C. Procedures to ensure that the education, training, and certification of personnel performing OV activities are achieved and maintained, and that all ~~work~~Work is performed in accordance with the approved OVTIP.

D. Procedures to oversee the status and disposition of any identified noncompliance with the plans and specifications.

E. Measures to ensure that tools, gauges, instruments, and other measuring and testing devices used in activities affecting quality are properly maintained, controlled, calibrated, certified, and adjusted at specified periods to maintain accuracy within industry standards.

F. A system of planned and periodic audits of ~~Contractor's~~Developer's CQMP to determine adherence to and the effectiveness of the CQMP. Audit results ~~shall~~will be documented, reviewed, and sent to ADOT and ~~the Contractor.~~Developer. Follow-up action, including re-audit of deficient areas following corrective action, ~~shall~~must be taken where indicated.

G. A system of planned and periodic audits to determine adherence to and the effectiveness of the OVTIP. Audit results ~~shall~~will be documented, reviewed, and sent to ADOT. Follow-up action, including re-audit of deficient areas following corrective action, ~~shall~~will be taken where indicated.

H. Procedures for performing periodic inspection of ~~work~~Work to verify that the IQF has performed ~~work~~Work in compliance with the ~~released~~Released-for-~~construction plans~~Construction Plans, specifications, and ~~approved working~~Approved Working and ~~shop drawings~~Shop Drawings. The procedure should identify a target oversight inspection rate and methods for performing verification inspections for all QC and IQF inspectors.

I. Procedures on how OV material sampling and testing will be performed including the process for generating random test locations, tracking material samples, processing material samples, review and approval of test records, and tracking compliance with material testing frequency.

J. Procedures for reviewing Quality Acceptance and OV test results for compliance with mutually agreed-upon processes and naming conventions to ensure data integrity for accurate statistical analyses.

K. Procedures for ~~ensuring~~verifying that only tests performed by qualified IQF testing personnel are submitted to ADOT.

L. Procedures for auditing of QC and Quality Acceptance records, documentation, procedures, and processes to verify compliance with the ~~contract~~Contract Documents and approved CQMP.

M. ~~Procedures~~Roles and procedures for reviewing Portland cement concrete and hot-mix asphaltic concrete mix designs.

N. Target ~~frequency~~frequencies for the independent sampling and testing that are to be conducted as a part of OV~~, subject to project-specific recommendations.~~. The target frequency ~~shall~~will include a higher frequency of testing at the beginning of the ~~project~~Project and may be adjusted, as appropriate throughout the Project, based on the observed consistency of the product, the statistical comparison between OV and IQF test results and ADOT engineering judgment.

O. Procedures for ensuring that OV testing ~~shall be~~is performed at the ~~frequency~~frequencies stipulated in the OVTIP.

P. Identification of the platform and data structure of the database management system that will be used to collect, store and retrieve OV test data. Identification of a strategy to coordinate data between the IQF and ADOT.

Q. Procedures for performing statistical analyses in compliance with procedures outlined in this ~~Appendix E~~TP Attachment 110-2.

~~P.~~R. Procedures for satisfying System Basis IA obligations on this Project.

~~10~~7 SAMPLE TYPES AND USES

Sampling is either random or fixed, depending on whether the location was selected randomly (random) or if a specific location was subjectively identified (fixed). Sampling is also either independent or dependent, based on whether the location was independently selected (independent) or whether it is based on the location of another sample (dependent/split). The F- and t- tests described in the "FHWA Reporting" section below are only valid when using random independent samples.

The IQF ~~shall~~must perform additional (fixed) tests when the quality of material is questionable at a location other than the randomly selected location. This fixed test ~~shall~~must constitute an acceptance test, and a failing result ~~shall~~must be addressed in a similar manner to a failing random independent test. Fixed tests ~~shall~~must not count towards meeting minimum IQF testing frequencies and ~~shall~~must not be used in statistical analysis.

Split samples may be used outside of the statistical analysis for ~~owner verification~~OV of IQF-performed acceptance tests under ADOT's OVTIP. A comparison process for performing and analyzing split samples between ADOT and IQF is necessary during the initial implementation of the ~~QAP~~ADOT Materials Quality Assurance Program to ensure that ADOT and IQF laboratory and testing procedures are in alignment. These samples will be analyzed by ADOT and the results discussed with the IQF to assure laboratory and technician test results compare favorably. When the allowable variation limits in OVTIP are exceeded, corrective actions for either or both parties will be identified and corrective actions will be incorporated as appropriate. This process will help provide initial alignment of the ADOT and IQF laboratories and testing procedures.

Split samples may also be performed throughout the life of the ~~project~~Project as necessary to investigate non-~~-~~validating material categories and verify or realign testing equipment and personnel.

ADOT will review the IQF's weekly report(s) which continuously ~~tracks~~track and ~~records~~record the quantity of material incorporated into the Project. ADOT ~~shall~~will use the report(s) to verify compliance of both the Quality Acceptance and OV testing frequency.

~~11 DISPUTE RESOLUTION~~

~~Throughout the life of the Project, there may be differences in material test results or statistical sample populations between the IQF and ADOT. It is important to recognize the difference between material quality and statistical validation.~~

~~Material quality is measured by whether a test passes or fails and is an indication of whether the material will perform its intended purpose. Engineering judgment may be used to substantiate the use of material failing to meet the specification if the material still meets the intended purpose. Statistical validation is a measure of whether the OV and Quality Acceptance populations are statistically equal. It does not represent the quality of material being incorporated into the Project. Refer to Section 15, "Referee Testing".~~

~~12~~8 NON-VALIDATION ~~AND~~AND STATUS ~~OF~~OF MATERIAL QUALITY

When OV test results do not statistically validate the Quality Acceptance test results, ADOT and IQF jointly investigate the source of non-validation. In addition to the need to investigate the non-validation, the material in question must be immediately evaluated to determine if it can be left in place or has to be removed, reworked, or repaired. If material is to remain incorporated into the Project, the material in question will be evaluated using the process described in this section. ~~The appropriate (~~IQF or ADOT~~) party~~ may exercise engineering judgment to determine whether the material will perform its intended purpose. ~~-~~There are four possible combinations of passing and failing results between the OV and Quality Acceptance ~~and OV~~ test results. See Figure 2 for a flowchart of this process.

~~1.~~A. Both the OV and Quality Acceptance ~~and OV~~ test results ~~pass~~are within specification limits.

Although statistical validation has not occurred, both the OV and IQF ~~and OV~~ test results are ~~passing~~within the established specification limits; thus, material quality in question is considered acceptable.

~~2.~~B. ~~Quality acceptance test results fail and~~ OV test results ~~pass~~are within specification limits and Quality Acceptance test results are outside of specification limits.

Material may be left in place if the IQF determines that engineering judgment may be used to accept the material or if the material is accepted through the NCR process.

~~3.~~C. Both the OV and Quality Acceptance ~~and OV~~ test results ~~fail~~are outside of the specification limits.

Material may be left in place if the IQF determines that engineering judgment may be used to accept the material or if the material is accepted through the NCR process. The acceptance of material is subject to one of the two scenarios below.

~~a.~~1. OV test ~~result indicates~~results indicate reasonable conformance with specification requirements, and ADOT exercises engineering judgment to concur with acceptance of material based on the IQF's engineering judgment or through the NCR process.

~~b.~~2. OV test result does not indicate reasonable conformance with specification requirement~~, and the IQF must perform an additional fixed test at the OV failed test location.~~. ADOT makes decision on acceptability based solely on OV test results and ADOT's percentage within limits (PWL) analysis. Based on ~~the results of IQF test result and subsequent investigation discussions between ADOT and the Contractor,~~this analysis, ADOT makes a determination ~~is made~~ and ~~documented on~~documents whether the material may be left in place.

~~Quality acceptance~~If the material is reworked, the IQF must perform a fixed test at the ADOT OV failed location followed by random-independent tests by both the IQF and ADOT. Random-independent test results representing material prior to rework should be excluded from new statistical analyses.

~~4.~~D. OV test results ~~pass~~are outside of specification limits, but ~~OV~~Quality Acceptance test results ~~fail~~are within specification limits.

Material may be left in place if the IQF determines that engineering judgment may be used to accept the material or if the material is accepted through the NCR process. This is subject to ADOT response in the two scenarios below.

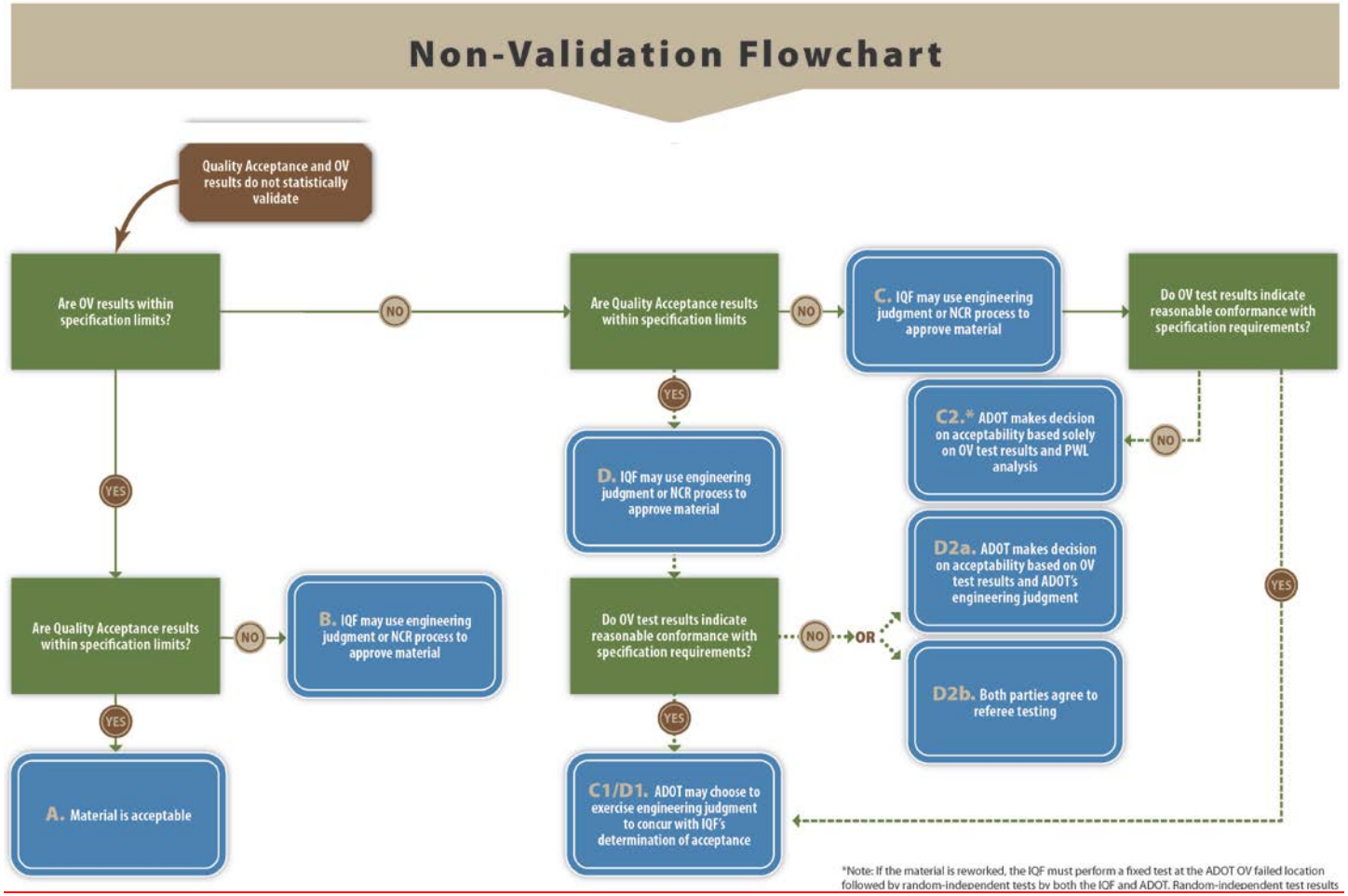
~~a.~~1. OV test result indicates reasonable conformance with specification requirements~~, and~~. ADOT exercises engineering judgment to concur with acceptance of material based on the IQF's engineering judgment or through the NCR process.

~~b.~~2. OV test result does not indicate reasonable conformance with specification requirement~~, and the IQF must perform an additional fixed test at the OV failed test location. Based on the results of IQF test result and subsequent investigation discussions between ADOT and the Contractor, a determination is made and documented on whether the material may be left in place~~.

a. ADOT makes decision on acceptability based solely on OV test results and ADOT's percentage within limits (PWL) analysis; or

b. Both parties agree to referee testing as outlined in Section 14 – Referee Testing. Based on the results of referee testing, a determination is made and documented on whether the material may be left in place.

Figure 2: Non-Validation Flow Chart



ADDENDUM #2

9 ENGINEERING JUDGMENT GUIDING PRINCIPLES

The development of the Project must proceed with a reasonable approach to the quality duties of the IQF and the extension of the IQF's ability to render decisions in the field with regard to the Work performed. ADOT recognizes that the IQF is an element of Developer team working to progress the development of the Project for ADOT, and working alongside Developer who is responsible for compliance. ADOT recognizes that the IQF should be afforded the opportunity, in concert with their independent role, to render engineering decisions with respect to appropriate documents for inspection and testing as long as:

A. Engineering decisions will be delegated no lower than the "Project Engineer"* in charge of a project or section. “Project Engineer” may be an employee of ADOT, ADOT's Consultant, or IQF and must be a Registered Professional Engineer in the State of Arizona. Engineering decisions will be within an individual’s area of expertise.

B. Engineering judgment to accept material or Work failing specifications will never be applied solely to promote "partnering" or to help out Developer. The project development quality will be regarded as the highest order of concern. Schedule is a secondary consideration with respect to quality delivery of the Project.

C. If these guiding principles do not address the situation, the individual applying engineering judgment must provide a decision to ADOT as to whether a material failing to meet specification requirements and is not within applicable tolerances should be accepted, or not accepted, based on sound engineering principles, experience, and or related results of applicable material tests.

D. Engineering judgment to accept materials or Work failing specification requirements will be applied only in cases where natural resources may be lost that will otherwise meet the intent of the design, (i.e. strength tests versus slump requirements), rejection of material endangers quality or loss of larger or more significant item (i.e. by rejecting load of concrete, structure element subject to a cold joint, reflective cracking, etc.) or some other issue that unduly threatens the overall quality/schedule of the Project.

E. Failed results of material tests may be accepted only for individual tests. Patterns of failure will not be accepted and will be considered a breakdown in Quality Control activities and shall be addressed in the CQMP. Recurring use of engineering judgment for the same plan or specification deviation should result in process corrections to the construction operations to assure material and work is conforming to plan and specification requirements. The intent of delegating engineering judgment to the IQF is not to allow widening of a specification requirement on a continuing basis.

F. Under extenuating circumstances, the CIQM may utilize engineering judgment to direct that less acceptance sampling and testing be accomplished on a case by case basis. Conversely, the CIQM may utilize engineering judgment to direct that an amount of acceptance testing greater than the required minimum be done when deemed necessary. The CIQM must document these variations from the prescribed frequencies.

G. The individual making the engineering judgment will apply good engineering practices to ensure quality of accepted material by making additional tests, through engineering analysis, etc. and will document his/her acceptance and justification.

H. When accepting material or Work not meeting specification requirements will result in a change in Agreement cost or time, approval must be obtained from ADOT.

I. Engineering judgment in acceptance of material or Work not meeting specification requirements will be applied only to situations that are technically sound, in consideration of localized conditions. Engineering judgment will not be utilized to waive

specification for conditions that have project wide implications. The acceptance of material or Work not meeting specifications in one instance at a location will not become a corridor wide or project wide decision. Each situation will be judged on the merits of its unique characteristics.

J. ADOT may, at any time, remove engineering judgment authority from the IQF Project Engineer in specific circumstances.

K. ADOT and FHWA have oversight agreements in place that requires specific documentation relating to nonconforming material that is allowed to remain in place. Any instance of the application of these Guiding Principles will be accompanied by appropriate documentation.

L. The IQF is encouraged but not required to consult with ADOT prior to making acceptance decisions.

M. IQF personnel are not placed, or appear to be placed, in a position that exhibits signs that they were pressured by Developer to accept, approve, or continue the duties of the IQF scope of work as detailed in the Project under duress.

~~13~~10 FHWA REPORTING

ADOT will submit quarterly reports to FHWA for concurrence with ADOT's compliance with the OVTIP. Approved reports ~~shall~~must be distributed to the IQF after receiving FHWA concurrence. The reporting period for specific pay items or materials is dependent on the pace of construction and the number of tests performed in each analysis category, the time period of the sampling, and the specification and quality requirements. Each report ~~shall~~must cover a period of construction not greater than ~~three~~3 months.

The FHWA quarterly report ~~shall~~must address the following areas:

A. Statistical analysis results~~,~~ to include specification requirements and status of validation process during start-up and completion of an item;

B. Monthly Materials Certification letter from the IQF;

C. Non-validation investigation;

D. Non-conformance log; and

E. Construction certification.

~~14~~11 STATISTICAL ANALYSIS

F-tests and t-~~-~~tests will be used to analyze OV and Quality Acceptance data. The F-test is a comparison of variances to determine if the OV and Quality Acceptance population variances are equal. The t-test is a comparison of means to determine if the OV and Quality Acceptance population means are equal. ~~-~~In addition to these two types of analyses, independent verification and observation verification will also be used to validate the Quality Acceptance test results. ADOT will perform a project-specific analysis of risks in order to develop the type of analysis and recommended level of significance for specific tests to be performed during OV by ADOT. This information will be included in the ~~project~~Project OVTIP.

~~15~~12 REFEREE TESTING

Throughout the life of the Project, there may be differences in material test results or statistical sample populations between the IQF and ADOT. It is important to recognize the difference between material quality and statistical validation.

Material quality is measured by whether a test passes or fails and is an indication of whether the material will perform its intended purpose. Engineering judgment may be used to substantiate

the use of material failing to meet the specification if the material still meets the intended purpose. Statistical validation is a measure of whether the OV and Quality Acceptance populations are statistically equal. It does not represent the quality of material being incorporated into the Project.

While expected to occur very rarely, disputes over specific test results may be resolved in a reliable, unbiased manner by Referee Testing and evaluation performed by ADOT's ~~central~~Construction & Materials Group or an independent third-party testing laboratory~~.~~ as appointed by ADOT's Construction & Materials Group. The decision by ~~ADOT's central laboratory~~ADOT, or its designee, ~~shall be~~is final. Referee testing is solely an owner function. Therefore, if a third-party laboratory is utilized, ADOT will pay for this testing.

13 ~~INDEPENDENT ASSURANCE (~~INDEPENDENT ASSURANCE PROGRAM

~~16~~ THE CODE OF FEDERAL REGULATIONS (23 CFR 637, SUBPART B) REQUIRES THE IMPLEMENTATION OF AN IA~~) PROGRAM~~

program. ADOT, or its designee, ~~shall~~will implement the ~~Independent Assurance (~~IA~~)~~ program as ~~designated~~described in the ADOT Materials Quality Assurance Program, Sections V.B ("Independent Assurance Sampling and Testing") and V.C ("Correlation Testing").

~~ADOT shall utilize~~ The IA program evaluates the ~~System Basis for implementing~~sampling/testing personnel and testing equipment used in acceptance of materials. The Code of Federal Regulations allows observations, split sample results, and proficiency sample results as means of evaluating testing personnel within a State's IA program. Calibration checks, split sample results, and proficiency sample results are permissible inclusions to the IA program~~.~~ for evaluating acceptance testing equipment. The IA program does not directly determine the acceptability of materials.

ADDENDUM #2

~~TP ATTACHMENT 408-1 – PERTINENT AGREEMENT REQUIREMENTS~~

The Project will utilize a "System Basis" IA, which is based on observing and verifying satisfactory performance by the individuals performing acceptance sampling and testing, and the equipment utilized, for a particular period of time.

The objective of the "System Basis" is to observe and verify that the individuals performing acceptance sampling and testing, and the equipment utilized, are qualified for a twelve month period. The goal is for all individuals who are performing such sampling and testing, and the equipment utilized, in a given twelve month period to be covered by this verification.

For each twelve month period, ADOT will submit a report to the FHWA documenting activities of the I.A. "System Basis" program for the Project. The report will include the following information:

A. Names and number of technicians performing acceptance sampling and testing the Project.
B. Number of such technicians evaluated by the program.
C. Number of such technicians that had deviations, as determined by the evaluation.
D. Summary of how the deviations were addressed, along with any potential systematic solutions to recurring deficiencies.
E. Goals for the upcoming twelve month period.

ADOT will identify materials requiring IA sampling and testing in the OVTIP. The IA program does not directly determine the acceptability of materials

TP Attachment 408-1 – Pertinent Third-Party Agreement Requirements

TP Attachment 408-1 – Pertinent Third-Party Agreement Requirements

TP Attachment 408-1.1 – Project Master Maintenance Agreement *[Under Development]*
TP Attachment 408-1.2 – Local Street Turnback *[Under Development]*

TP Attachment 408–1.1 [UNDER DEVELOPMENT]

City of Phoenix Project Master Maintenance Agreement The following table identifies the commitments stated in the pertinent ~~agreements~~Third-Party Agreement listed above. Developer is responsible for complying with all requirements identified in the following table, except those requirements that are specifically identified as being the obligations of ADOT, City of Phoenix, or Maricopa County Parks and Recreation.		
Third-Party Agreement Reference Number	**Third-Party Agreement Term**	**Description of Obligations of ADOT**
	[Under development. ~~-~~ADOT plans to provide by Addendum No. 3.]	

TP Attachment 408-1.2 [UNDER DEVELOPMENT]

City of Phoenix Local Street Turnback The following table identifies the commitments stated in the pertinent ~~agreements~~Third-Party Agreement listed above. Developer is responsible for complying with all requirements identified in the following table, except those requirements that are specifically identified as being the obligations of ADOT.		
Third-Party Agreement Reference Number	**Third-Party Agreement Term**	**Description of Obligations of ADOT**
	[Under development. ~~-~~ADOT plans to provide by Addendum No. 3.]	

TP ~~ATTACHMENT~~Attachment 420-1 – ~~PROJECT ENVIRONMENTAL COMMITMENT REQUIREMENTS~~

Project Environmental Commitment Requirements

TP Attachment 420-1
South Mountain Freeway Project Record of Decision (ROD)
Developer's Environmental Commitment Requirements

The following table includes the Project-specific environmental commitments as written in the ROD, with minor modifications for clarification purposes. As it relates to these Technical Provisions, references to freeway, project, South Mountain Freeway, proposed action, proposed freeway, and Selected Alternative mean the Project, and references to contractor mean Developer. Developer shall comply with and perform all of the contractor and ADOT requirements, including the ADOT obligations, commitments, and responsibilities, identified in the following table, except to the extent of those requirements that are specifically identified in the third column, entitled "Description of ADOT Responsibilities," which are not delegated to Developer.

ECR Number	Environmental Commitment Record Requirements	Description of ADOT Responsibilities
Land Use		
LNDU-1	ADOT and FHWA will coordinate with public land holding agencies (BLM and ASLD) managing affected public land and the various leaseholders to complete acquisition of parcels needed for the South Mountain Freeway.	ADOT will satisfy this commitment.
Social Conditions		
SOC-1	ADOT will consider methods of reducing the amount of R/W needed, providing alternative access to the local road network to satisfy emergency services access requirements, and using noise barriers, aesthetic treatments of structures, and landscaping to reduce neighborhood intrusions.	ADOT to oversee for compliance.
SOC-2	ADOT will coordinate during the design phase to designate necessary utility corridors for relocations where appropriate.	ADOT to oversee for compliance
SOC-3	ADOT will coordinate with all local agencies and private facility owners to minimize, where possible, the effects of utility relocations and adjustments. Coordination will include, when possible, developing construction schedules to coincide with scheduled maintenance periods and off-peak loads.	ADOT to oversee for compliance
SOC-4	ADOT will coordinate with appropriate City of Phoenix officials during the final design process to consider and identify, if appropriate, enhancements such as a pedestrian overpass to reduce possible pedestrian-related impacts. Such enhancements would be independent of this project and would not change this NEPA document.	ADOT will satisfy this commitment, except to the extent of the Developer obligations set forth elsewhere in the Contract Documents.
SOC-5	ADOT will coordinate with municipalities and affected communities to address and resolve impacts on internal road networks.	ADOT to oversee for compliance

Note: A list of acronyms and abbreviations is provided at the end of the attachment.

TP Attachment 420-1 South Mountain Freeway Project Record of Decision (ROD) Developer's Environmental Commitment Requirements The following table includes the Project-specific environmental commitments as written in the ROD, with minor modifications for clarification purposes. As it relates to these Technical Provisions, references to freeway, project, South Mountain Freeway, proposed action, proposed freeway, and Selected Alternative mean the Project, and references to contractor mean Developer. Developer shall comply with and perform all of the contractor and ADOT requirements, including the ADOT obligations, commitments, and responsibilities, identified in the following table, except to the extent of those requirements that are specifically identified in the third column, entitled "Description of ADOT Responsibilities," which are not delegated to Developer.		
ECR Number	**Environmental Commitment Record Requirements**	**Description of ADOT Responsibilities**
SOC-6	ADOT will develop and implement a public involvement plan for the design and construction phases of the proposed action. Objectives of continued public involvement may include, but will not be limited to, a level of involvement in: • architectural design treatment of structures • measures to minimize harm to Section 4(f) resources • the acquisition and relocation process • modification to the local roadway network • construction activity monitoring	ADOT to oversee for compliance
SOC-7	ADOT will coordinate with all appropriate emergency services, and efforts will be made to minimize effects on response routes and times for all service areas.	ADOT to oversee for compliance
Displacements and Relocations		
DIS-1	An acquisition and relocation assistance program will be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (49 C.F.R. Part 24), which identifies the process, procedures, and entitlements for R/W acquisition and relocation of affected residents or businesses.	See Article 5 of the Agreement for further details related to ADOT's responsibilities.
DIS-2	Relocation assistance will be available to all residential and business relocatees, without discrimination. All replacement housing will be decent, safe, and sanitary. Replacement housing is available in the general area; last-resort housing will, however, be provided if it were found that sufficient, comparable housing were not available within monetary limits of owners and tenants. If necessary, specific relocation plans will be developed to assist displacees, including residents of mobile homes, in finding new locations for their mobile homes. All acquisitions and relocations resulting from the proposed freeway will comply with Title VI of the Civil Rights Act of 1964 and with 49 C.F.R. Part 24.	See Article 5 of the Agreement for further details related to ADOT's responsibilities.

TP Attachment 420-1
South Mountain Freeway Project Record of Decision (ROD)
Developer's Environmental Commitment Requirements

The following table includes the Project-specific environmental commitments as written in the ROD, with minor modifications for clarification purposes. As it relates to these Technical Provisions, references to freeway, project, South Mountain Freeway, proposed action, proposed freeway, and Selected Alternative mean the Project, and references to contractor mean Developer. Developer shall comply with and perform all of the contractor and ADOT requirements, including the ADOT obligations, commitments, and responsibilities, identified in the following table, except to the extent of those requirements that are specifically identified in the third column, entitled "Description of ADOT Responsibilities," which are not delegated to Developer.

ECR Number	Environmental Commitment Record Requirements	Description of ADOT Responsibilities
DIS-3	Private property owners will be compensated at market value for land and may be eligible for additional benefits. As for renters, HUD considers anything under a 6 percent rental vacancy rate as a "tight" rental market. The Rental Supplement is based on a calculation between the current rental plus utilities and the determined available comparable rental unit plus utilities times 42 months (if the amount of the benefit exceeds $7,200 the benefit would fall under the Last Resort Provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended). This payment will be made available to assist with the difference in rent if the cost of replacement housing were to exceed the rental cost at that time (with conditions).	See Article 5 of the Agreement for further details related to ADOT's responsibilities.
DIS-4	ADOT will provide, where possible, alternative access to properties losing access to the local road network. In the event that alternative access could not be provided, ADOT will compensate affected property owners in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.	See Article 5 of the Agreement for further details related to ADOT's responsibilities.
DIS-5	ADOT will coordinate with the local jurisdictions, MAG, and Valley Metro to identify opportunities to use excess R/W, whenever possible, for future park-and-ride lots and related public facilities.	ADOT will satisfy this commitment, except to the extent of the Developer obligations set forth elsewhere in the Contract Documents.
Economics		
ECON-1	During construction, ADOT will coordinate with local businesses to ensure reasonable access to businesses will be maintained during regular operating hours.	ADOT to oversee for compliance
Air Quality		

TP Attachment 420-1 South Mountain Freeway Project Record of Decision (ROD) Developer's Environmental Commitment Requirements The following table includes the Project-specific environmental commitments as written in the ROD, with minor modifications for clarification purposes. As it relates to these Technical Provisions, references to freeway, project, South Mountain Freeway, proposed action, proposed freeway, and Selected Alternative mean the Project, and references to contractor mean Developer. Developer shall comply with and perform all of the contractor and ADOT requirements, including the ADOT obligations, commitments, and responsibilities, identified in the following table, except to the extent of those requirements that are specifically identified in the third column, entitled "Description of ADOT Responsibilities," which are not delegated to Developer.		
ECR Number	**Environmental Commitment Record Requirements**	**Description of ADOT Responsibilities**
AQ-1	Mitigation measures will be followed in accordance with Maricopa County rules 310 and 310.01. Such measures could include, but are not limited to: Site preparation • Minimize land disturbance. • Use watering trucks to minimize dust. • Stabilize the surface of dirt piles if not removed immediately. • Use windbreaks to prevent accidental dust pollution. • Limit vehicular paths and stabilize temporary roads. • To prevent dirt from tracking or washing onto paved roads, stabilized construction entrances will be placed adjacent to paved roads and fencing will be installed to direct vehicles to drive over the track pad immediately before entering a paved surface.	ADOT to oversee for compliance

TP Attachment 420-1 South Mountain Freeway Project Record of Decision (ROD) Developer's Environmental Commitment Requirements The following table includes the Project-specific environmental commitments as written in the ROD, with minor modifications for clarification purposes. As it relates to these Technical Provisions, references to freeway, project, South Mountain Freeway, proposed action, proposed freeway, and Selected Alternative mean the Project, and references to contractor mean Developer. Developer shall comply with and perform all of the contractor and ADOT requirements, including the ADOT obligations, commitments, and responsibilities, identified in the following table, except to the extent of those requirements that are specifically identified in the third column, entitled "Description of ADOT Responsibilities," which are not delegated to Developer.		
ECR Number	**Environmental Commitment Record Requirements**	**Description of ADOT Responsibilities**
AQ-2	Mitigation measures must be followed in accordance with Maricopa County rules 310 and 310.01. Such measures could include, but are not limited to: Construction • Use dust suppressants on unpaved traveled paths. • Minimize unnecessary vehicular and machinery activities. • To prevent dirt from tracking or washing onto paved roads, stabilized construction entrances will be placed adjacent to paved roads and fencing will be installed to direct vehicles to drive through the entrance before entering a paved surface. • To the extent practicable, construction equipment that meets EPA's Tier 4 emission standards shall be used. • Where feasible, construction equipment powered by alternative fuels (e.g., biodiesel, compressed natural gas, electricity) shall be used. • ADOT will require training in compliance with Maricopa County rule 310 for contractor's personnel regarding air quality impacts from construction activities, potential health risks, and methods to reduce emissions.	ADOT to oversee for compliance
AQ-3	Mitigation measures must be followed in accordance with Maricopa County rules 310 and 310.01. Such measures could include, but are not limited to: Postconstruction • Revegetate or use decomposed granite or rock mulch on all disturbed land. • Remove dirt piles and unused materials. • Revegetate all vehicular paths created during construction to avoid future off-road vehicular activities. • Include control of access fence to prevent vehicle traffic on unpaved surfaces.	ADOT to oversee for compliance

TP Attachment 420-1
South Mountain Freeway Project Record of Decision (ROD)
Developer's Environmental Commitment Requirements

The following table includes the Project-specific environmental commitments as written in the ROD, with minor modifications for clarification purposes. As it relates to these Technical Provisions, references to freeway, project, South Mountain Freeway, proposed action, proposed freeway, and Selected Alternative mean the Project, and references to contractor mean Developer. Developer shall comply with and perform all of the contractor and ADOT requirements, including the ADOT obligations, commitments, and responsibilities, identified in the following table, except to the extent of those requirements that are specifically identified in the third column, entitled "Description of ADOT Responsibilities," which are not delegated to Developer.

ECR Number	Environmental Commitment Record Requirements	Description of ADOT Responsibilities
AQ-4	A Traffic Management Plan will be developed and implemented to help reduce impacts of traffic congestion and associated emissions during construction.	ADOT to oversee for compliance
AQ-5	An approved dust permit will be obtained prior to demolition and construction from the Maricopa County Air Quality Department for all phases of the proposed action. The permit will describe measures to control and regulate air pollutant emissions.	ADOT to oversee for compliance
Noise		
NOI-1	General locations of noise barriers have been identified, but these locations and general noise wall design will be reevaluated as design progresses. Where feasible, noise barriers will be constructed as early as possible in the construction phasing to shield adjacent properties from construction-related noise impacts.	ADOT to oversee for compliance
Water Resources		
WRE-1	The proposed freeway will have properly designed drainage channels to resist erosion, energy-dissipating structures at all culverts where discharge velocity may cause downstream erosion, and sediment-trapping basins strategically located to maximize sediment removal and to function as chemical-spill containment structures.	ADOT to oversee for compliance
WRE-2	Vegetative or mechanical means will be used to minimize erosion from cut and fill slopes.	ADOT to oversee for compliance
WRE-3	Runoff discharge from the roadway to the irrigation district canals and conveyance ditches will be minimized by roadway design and the use of permanent BMPs.	ADOT to oversee for compliance
WRE-4	To reduce the potential impact of contaminants such as oil, grease, soil, and trash, settling basins will be used to collect water and allow materials to settle. The basins could also serve to contain chemical spills resulting from vehicle accidents. Each basin will be designed to contain an initial rainfall runoff volume before allowing discharge. If an accident occurs, and the basins are dry at the time of the accident, the spill volume, in most cases, will be accommodated.	ADOT to oversee for compliance

TP Attachment 420-1 South Mountain Freeway Project Record of Decision (ROD) Developer's Environmental Commitment Requirements The following table includes the Project-specific environmental commitments as written in the ROD, with minor modifications for clarification purposes. As it relates to these Technical Provisions, references to freeway, project, South Mountain Freeway, proposed action, proposed freeway, and Selected Alternative mean the Project, and references to contractor mean Developer. Developer shall comply with and perform all of the contractor and ADOT requirements, including the ADOT obligations, commitments, and responsibilities, identified in the following table, except to the extent of those requirements that are specifically identified in the third column, entitled "Description of ADOT Responsibilities," which are not delegated to Developer.		
ECR Number	**Environmental Commitment Record Requirements**	**Description of ADOT Responsibilities**
WRE-5	A construction AZPDES permit, for ground-disturbing activities exceeding 1 acre, will be obtained from ADEQ for the project in accordance with the provisions set forth in Section 402 of the CWA. The AZPDES permit must be consistent with discharge limitations and water quality standards established for the receiving water. The contractor shall coordinate with ADOT before filing a Notice of Intent and a Notice of Termination with ADEQ in accordance with Section 402 of the CWA and shall provide copies of the permit authorization to ADOT.	ADOT to oversee for compliance
WRE-6	A SWPPP shall be prepared by the contractor in accordance with the AZPDES construction general permit. Upon construction completion, all contaminated material (e.g., concrete wash water) will be removed and disposed of in accordance with local, regional, and federal regulations. The contractor will comply with ADOT's Post-Construction Best Management Practices Program.	ADOT to oversee for compliance
WRE-7	ADOT will coordinate with appropriate governmental bodies such as flood control districts and GRIC when designing drainage features for the proposed action.	ADOT to oversee for compliance
WRE-8	ADOT will replace water lost through well acquisitions. This will be done through full well replacement or well abandonment and compensation (if requested by the owner).	See Article 5 of the Agreement for further details related to ADOT's responsibilities.
WRE-9	An analysis will be performed during the design process to determine whether it is possible to keep the Foothills Community Association well in its current location, but move the well controls and associated piping to outside of the R/W.	ADOT will satisfy this commitment.
WRE-10	Existing irrigation canals affected by the freeway may be relocated to allow for conveyance of irrigation water (through installation of pipe, conduit, or extension) from one side of the freeway to the other.	ADOT to oversee for compliance

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ECR Number	**Environmental Commitment Record Requirements**	**Description of ADOT Responsibilities**
WRE-11	A copy of the certificate authorizing permit coverage and a copy of the Notice of Termination acknowledgement letter will be sent to ADOT EPG, Glendale, Phoenix, Chandler, Goodyear, Tolleson, and Avondale, as appropriate, based on the location of project activities	ADOT to oversee for compliance
WRE-12	ADOT will comply with the State of Arizona Surface Water Quality Standard Rules (18 A.A.C. § 11).	ADOT to oversee for compliance
WRE-13	Water used for dust suppression will not contain contaminants that could violate ADEQ water quality standards for surface waters or aquifers and will not be discharged off site. ADOT will obtain the necessary permits for such activities.	ADOT to oversee for compliance
Floodplain		
FLD-1	Bridge structures will be designed to cross floodplains in such a way that their support piers and abutments will not contribute to a rise in floodwater elevation of more than a foot.	ADOT to oversee for compliance
FLD-2	Floodplain impacts will be minimized by implementing transverse crossings of the floodplain and avoiding longitudinal encroachments.	ADOT to oversee for compliance
FLD-3	The Maricopa County Floodplain Manager will be given an opportunity to review and comment on the design plans.	ADOT to oversee for compliance
FLD-4	On-site drainage design must be performed using the procedures in FHWA's *Urban Drainage Design Manual*, *Hydraulic Engineering Circular No. 22* (2009b, with revisions).	ADOT to oversee for compliance

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ECR Number	Environmental Commitment Record Requirements	Description of ADOT Responsibilities
FLD-5	The hydraulic design of culverts must be performed using the procedures in FHWA's *Hydraulic Design Series No. 5*, *Hydraulic Design of Highway Culverts* (2012). Other criteria include: • Culverts must be sized, at a minimum, based on the design discharge of a 50-year storm. • With the 100-year storm, water levels must not significantly increase the flood damage potential on areas outside of the proposed R/W or as noted in accordance with ADOT's *Roadway Design Guidelines* (2012a), Section 611.3.C. • Reinforced concrete box culvert and reinforced concrete pipe must be provided with adequate cover. • Outflow discharges from detention basins must not cause peak discharges downstream greater than peak discharges without the project.	ADOT to oversee for compliance
FLD-6	Comprehensive hydrologic, hydraulic, sediment transport, and erosion-related assessments regarding potential 100-year flood effects associated with ephemeral washes will be conducted on the Selected Alternative. Results will provide information necessary to make a determination regarding what mitigation measures will need to be implemented. Measures may include physical structures associated with the freeway such as culverts.	ADOT to oversee for compliance
Waters of the United States		
WUS-1	ADOT will prepare and submit an application to USACE for a CWA Section 404 permit as appropriate, dictated by impacts on jurisdictional waters. If necessary, ADOT will submit a CWA Section 401 application to ADEQ. The permit conditions will be developed according to the current Memorandum of Agreement between USACE, ADOT, and FHWA. Work must not occur within jurisdictional waters until the appropriate CWA Section 401 certification and Section 404 permit is obtained.	ADOT will be the signatory for this commitment (see Section DR 420.2.6.2 of the TPs for more details).

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ECR Number	Environmental Commitment Record Requirements	Description of ADOT Responsibilities
WUS-2	If more time is required to complete the South Mountain Freeway than authorized by the Section 404 of the CWA permit, ADOT will submit a request for a time extension to USACE and ADEQ at least 1 month prior to reaching the authorized date.	ADOT to oversee for compliance
WUS-3	If previously unidentified cultural resources are encountered in or adjacent to waters of the United States during the construction of the freeway, ADOT will notify FHWA and USACE immediately to make arrangements for the proper treatment of those resources.	Developer must alert ADOT immediately if any unidentified cultural resources are encountered during activity related to the construction of the freeway. ADOT will make arrangements for the proper treatment of those resources and notify the appropriate agencies to evaluate the significance of those resources.
WUS-4	If ADOT sells the freeway, ADOT will obtain the signature of the new owner in the applicable space provided in the permit and will forward a copy of the permit to USACE to validate the transfer of the authorization.	ADOT will satisfy this commitment.
WUS-5	ADOT will provide a copy of the Section 401 water quality certification conditions to all appropriate contractors and subcontractors. ADOT will post a copy of these conditions in a water-resistant location at the construction site where it may be seen by workers.	ADOT to oversee for compliance
WUS-6a	ADOT will maintain the project authorized by the permit in good condition and in conformance with the terms and conditions of the permit.	ADOT to oversee for compliance
WUS-6b	ADOT will not be relieved of this condition even if ADOT abandons the project. Should ADOT cease to maintain the freeway or abandon the freeway without a good faith transfer, ADOT will obtain a modification of the CWA Section 404 permit from USACE.	ADOT will satisfy this commitment.
WUS-7	If a substantive change/modification to the project is necessary, ADOT will provide notice and supporting information to FHWA, ADEQ, and USACE for review.	ADOT to oversee for compliance

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ECR Number	**Environmental Commitment Record Requirements**	**Description of ADOT Responsibilities**
WUS-8	When construction begins, ADOT will notify ADEQ and USACE prior to the start date. When notification is made, ADOT will provide the start date and the name and phone number of the primary contractor and a contact person. When the activities are completed, ADOT will notify ADEQ and USACE after project completion as required by the CWA Section 401 certification and CWA Section 404 permit.	ADOT to oversee for compliance
WUS-9	ADOT will comply with all conditions set forth in the CWA Section 404 permit, CWA Section 401 certification, and CWA Section 402 construction general permit made as part of the project.	ADOT to oversee for compliance
WUS-10	Prior to initiating construction activities under the permit, ADOT will ensure that all appropriate contractors and subcontractors have been provided with a copy of the Section 404 authorization. This is to confirm that the contractor(s) will comply with the terms and conditions of the Section 404 authorization and that a copy of the permit is maintained on-site.	ADOT to oversee for compliance
WUS-11	After completion of the proposed project, the washes will be returned to a preconstruction elevation. [see Section DR 420.3.7 of the TPs]	ADOT to oversee for compliance
WUS-12	Pollution from the operation of equipment in the floodplain shall be cleaned up and removed by the contractor before it can be washed into a watercourse. Spills will be promptly cleaned and properly disposed.	ADOT to oversee for compliance
WUS-13	Temporary erosion and sediment control measures will be installed, at a minimum, according to ADOT's *Standard Specifications for Road and Bridge Construction* (2008) and *Erosion and Pollution Control Manual* (2012b), prior to construction and will be maintained as necessary during construction and will not be installed in a manner that causes noncompliance with the Section 404 permit.	ADOT to oversee for compliance

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ECR Number	Environmental Commitment Record Requirements	Description of ADOT Responsibilities
WUS-14	If permanent erosion and sediment control measures are required, they will be installed as soon as practicable, preferably prior to construction activities, and will be maintained throughout the life of the project. Permanent erosion and sediment control measures will be located to protect downstream entities from construction impacts when there will be a flow in watercourses within the project boundary.	ADOT to oversee for compliance
WUS-15	Any soil contaminated as a result of contractors' operations shall be assessed and then disposed of in an appropriate, approved disposal facility.	ADOT to oversee for compliance
WUS-16	No excavation, fill, or leveling will be permitted in the watercourses outside the boundaries of the permitted work area.	ADOT to oversee for compliance
WUS-17	No fill will be taken from any watercourse outside the boundaries of the permitted work area. Fill will come from an area outside the OHWM of any watercourses and will be free of any contaminants or pollutants.	ADOT to oversee for compliance
WUS-18	Heavy equipment traffic shall be restricted from entering the watercourses outside the boundaries of the permitted work area. Appropriate barricades shall be installed to preclude this activity.	ADOT to oversee for compliance
WUS-19	During construction, the work sites shall be maintained such that no construction debris or material spillover shall be allowed in the watercourses. Upon completion of the work, all construction debris and excess material shall be removed from the job sites and disposed of appropriately outside the USACE jurisdictional areas.	ADOT to oversee for compliance
WUS-20	During construction, appropriate measures shall be taken to accommodate flows within the watercourses, such that waters will not be diverted outside the OHWM.	ADOT to oversee for compliance
WUS-21	ADOT will fence, stake, or flag the construction limits for work within waters of the United States	ADOT to oversee for compliance
WUS-22	ADOT will mitigate for any permanent loss of waters of the United States, as required by USACE.	ADOT to oversee for compliance
Geotechnical		

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ECR Number	**Environmental Commitment Record Requirements**	**Description of ADOT Responsibilities**
GEO-1	The contractor shall be required to perform in-depth pre- and postconstruction surveys for all structures located within one-half mile in the event any blasting and/or heavy ripping is planned for construction purposes. This documentation shall include photographic and video documentation.	ADOT to oversee for compliance
GEO-2	Geotechnical-related construction effects will be mitigated through use of appropriate design, including excavations and slopes in soil and rock with an accepted degree of safety, placement of fills with an accepted degree of safety, protection of excavation and fill slopes against erosion, and design of roadway subgrade and foundations in accordance with accepted practices.	ADOT to oversee for compliance
Biological Resources		
BIO-1	Protected native plants within the project limits will be affected by this project; therefore, ADOT will determine whether ADA notification will be needed. If notification is needed, ADOT will send the notification at least 60 calendar days prior to the start of construction.	ADOT to oversee for compliance

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ECR Number	**Environmental Commitment Record Requirements**	**Description of ADOT Responsibilities**
BIO-2	The freeway will be designed to protect and maintain opportunities for wildlife movement between the South Mountains, the Gila River, and the Sierra Estrella. These opportunities will be located in the region where the freeway will intersect the southwestern portion of the South Mountains. The project will include the five multiuse crossings (bridge structures) identified in Figure 16 of the ROD. Multiuse crossing 4 is aligned with the Maricopa County Regional Trail/Sun Circle Trail/National Trail (see Figure 5-5 on page 5-8 of the Final Environmental Impact Statement). Multiuse crossings 1, 2, 3, and 5 will facilitate wildlife movement and provide access by GRIC members to the South Mountains. These crossing structures and associated fences will be designed to reduce the incidence of vehicle-wildlife collisions and to reduce the impact of the proposed action on wildlife connectivity between the South Mountains, the Gila River, and the Sierra Estrella. ADOT will coordinate with USFWS, AGFD, and GRIC Department of Environmental Quality during the design phase regarding the location and design of wildlife-sensitive roadway structures.	ADOT to oversee for compliance
BIO-3	For drainage structures, such as culverts located in potential wildlife movement corridors, ADOT will coordinate with USFWS, AGFD, and GRIC Department of Environmental Quality during the design phase regarding the location and design of wildlife-sensitive roadway structures based on the results of species surveys.	ADOT will satisfy this commitment.
BIO-4	All disturbed soils not paved that will not be landscaped or otherwise permanently stabilized by construction will be seeded using species native to the project vicinity.	ADOT to oversee for compliance
BIO-5	ADOT will coordinate with AGFD and GRIC Department of Environmental Quality regarding State and culturally sensitive species and ADOT will determine whether additional species-specific mitigation measures are appropriate.	ADOT will satisfy this commitment.

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ECR Number	Environmental Commitment Record Requirements	Description of ADOT Responsibilities
BIO-6	If new species or critical habitat are listed following completion of the ROD, or if the potential effects on species or critical habitat from the Project have changed from those described in the Biological Evaluation, an update to the Biological Evaluation must be prepared and any required consultation with USFWS must be completed. ADOT will coordinate with USFWS, AGFD, and the Community's Department of Environmental Quality to determine whether any additional species-specific mitigation measures are required.	This commitment must be satisfied through Final Acceptance.
BIO-7	Prior to construction, ADOT will arrange for surveys to be completed for the Sonoran desert tortoise and other species as determined by ADOT to be necessary.	ADOT will satisfy this commitment.
BIO-8	ADOT will require the contractor's personnel to receive training as part of the overall project safety program regarding procedures for interactions with sensitive species that may be encountered during construction.	ADOT to oversee for compliance
BIO-9	If vegetation clearing will occur during the migratory bird breeding season (March 1 to August 31), the contractor shall avoid any active bird nests. If the active nests cannot be avoided, the contractor shall notify the ADOT Engineer to evaluate the situation. During the non-breeding season (September 1 to February 28), vegetation removal is not subject to this restriction. If any active bird nests cannot be avoided by vegetation clearing or construction activities, the ADOT Engineer will contact the EPG Biologist (602-712-6819 or 602-712-7767) to evaluate the situation.	ADOT to oversee for compliance
BIO-10	Invasive species surveys will be conducted during the design phase. If noxious or invasive species are found to be present in the project footprint during that survey, the contractor will develop and implement an invasive and noxious species control plan.	ADOT to oversee for compliance
BIO-11	To prevent the introduction of invasive species seeds, the contractor shall inspect all earthmoving and hauling equipment at the equipment storage facility and the equipment shall be washed prior to entering the construction site.	ADOT to oversee for compliance

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ECR Number	Environmental Commitment Record Requirements	Description of ADOT Responsibilities
BIO-12	To prevent invasive species seeds from leaving the site, the contractor shall inspect all construction equipment and remove all attached plant/vegetation and soil/mud debris prior to leaving the construction site.	ADOT to oversee for compliance
BIO-13	Habitat impacts shall be minimized by restricting construction activities to the minimum area necessary to perform the activities and by maintaining natural vegetation where possible.	ADOT to oversee for compliance
BIO-14	If any Sonoran desert tortoises are encountered during construction, the contractor shall adhere to the most current guidelines regarding encounters with Sonoran desert tortoises.	ADOT to oversee for compliance
BIO-15	The contractor shall develop procedures for encounters with sensitive species in the Environmental Management Plan. The procedures shall include allowing the animal to leave of its own accord or contacting a trained person if the animal needs to be removed from the work area.	ADOT to oversee for compliance
BIO-16	A biologist will be employed to complete a preconstruction survey for burrowing owls 96 hours prior to construction in all suitable habitat that will be disturbed. The biologist shall possess a burrowing owl survey protocol training certificate issued by AGFD. Upon completion of surveys, the survey results will be reviewed with the ADOT biologist and a course of action will be identified.	ADOT will review and determine the course of action based on Developer's survey.
BIO-17	If any burrowing owls are located in the work area, the contractor shall immediately stop work at that location and notify the ADOT Engineer. The ADOT Engineer will contact the ADOT biologist to determine whether the owls could be avoided or must be relocated. The contractor shall not work within 100 feet of any active burrow until the situation had been evaluated by the ADOT biologist. If the ADOT biologist determined that the owl must be relocated, a biologist holding a rehabilitation permit from USFWS will relocate burrowing owls from the project area.	ADOT must be contacted immediately if any burrowing owls are located in the Work area and ADOT will determine whether the owls could be avoided or must be relocated.
Cultural Resources		

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ECR Number	Environmental Commitment Record Requirements	Description of ADOT Responsibilities
CUL-1	ADOT, on behalf of FHWA and in conjunction with tribal and local authorities, Western, and BIA, developed a Programmatic Agreement (PA) for the proposed action under Section 106 of the National Historic Preservation Act of 1966. No ground-disturbing activities will be conducted until ADOT EPG has notified the ADOT Engineer that the terms and stipulations of the PA have been fulfilled.	ADOT will develop and implement all testing and data recovery for cultural resources at the Known Cultural Resource Sites.
CUL-2	Strategies for prehistoric sites will include: • In accordance with the PA, a historic properties treatment plan will be developed and implemented for the sites by ADOT. ADOT will consult with SHPO and other consulting parties as required. Depending on the results of the testing program, follow-up data recovery excavations might also be required. • A burial agreement with the ASM and concerned Native American Tribes will be developed to outline procedures for proper removal, treatment, and reburial of any human remains and associated funerary objects that might be encountered.	-ADOT will satisfy this commitment, except that Developer shall be responsible for costs in connection with Developer-Designated ROW and Developer's Temporary Work Areas.
CUL-3	Impacts on the Roosevelt Canal and historic Southern Pacific Railroad will be avoided through the use of bridges to span the resources.	ADOT to oversee for compliance
CUL-4	ADOT and FHWA will fund a TCP evaluation of the South Mountains TCP to be prepared by GRIC. FHWA and ADOT will fund the development and implementation of a TCP enhancement and management plan to be prepared by GRIC.	ADOT will satisfy this commitment.
CUL-5	Consultation will continue throughout design and construction with SHPO, GRIC, and other Tribes regarding other appropriate mitigation strategies; selected, limited disclosure of locations of cultural resources sites; and other cultural resources issues related to the freeway.	ADOT will be the point of contact for all consultation.

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ECR Number	Environmental Commitment Record Requirements	Description of ADOT Responsibilities
CUL-6	Pedestrian access to TCPs will be modified by the freeway. Access will be maintained by multifunctional crossings under the freeway. The interested Native American Tribes will continue to be consulted on the multifunctional crossings in conjunction with the design of the freeway.	ADOT will be the point of contact for all consultation.
CUL-7	Gaps in the cultural resources inventory are being investigated by ADOT and will continue during the design phase. All cultural resource inventories will be completed prior to any construction or any ground-disturbing activities. Additionally, all land acquired by ADOT that has not been previously surveyed will be surveyed and consultation will occur as appropriate.	ADOT will satisfy this commitment for Known Cultural Resource Sites.
CUL-8	If previously unidentified cultural resources are encountered during activity related to the construction of the freeway, the contractor shall stop work immediately at that location and shall take all reasonable steps to secure the preservation of those resources and notify the ADOT Engineer. The ADOT Engineer will contact the ADOT EPG HPT immediately and make arrangements for the proper treatment of those resources. ADOT will, in turn, notify the appropriate agency(ies) to evaluate the significance of those resources.	ADOT must be contacted immediately if any unidentified cultural resources are encountered during activity related to the construction of the freeway. ADOT will make arrangements for the proper treatment of those resources and notify the appropriate agencies to evaluate the significance of those resources.
CUL-9	The contractor shall contact the ADOT EPG HPT (602-712-8636 or 602-712-7767) at least 14 business days prior to the start of ground-disturbing activities to arrange for a qualified archaeologist to flag avoidance areas and arrange for a monitor. The contractor shall avoid all flagged and/or otherwise designated sensitive resource areas within or adjacent to the project area.	ADOT to oversee for compliance

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ECR Number	**Environmental Commitment Record Requirements**	**Description of ADOT Responsibilities**
CUL-10	If human remains or funerary objects are encountered during activity related to the construction of the freeway, the contractor shall stop work immediately within the area of the discovery, take steps to protect the discovery, and immediately notify the ADOT EPG HPT (602-712-8636 or 602-712-7767). ADOT EPG HPT shall notify and consult with appropriate Native American groups to determine the proper treatment and disposition measures in accordance with the implemented burial agreement. ADOT EPG HPT shall also inform the director of the ASM and SHPO of the discovery.	ADOT to oversee for compliance
CUL-11	All key personnel and those people involved in field work or ground disturbing activities during the design, construction, and operation of the project will attend cultural sensitivity training conducted by GRIC prior to any ground disturbing activities.	ADOT to oversee for compliance
Prime and Unique Farmlands		
PUF-1	During the design phase of the proposed action, ADOT will coordinate with affected property owners as part of the R/W acquisition process to provide access, if possible, for farm equipment between divided agricultural parcels or to purchase remaining farm parcels considered too small to be farmed either economically or functionally.	ADOT to oversee for compliance
PUF-2	Provision will be made for access to farmland otherwise made functionally inaccessible by the project.	ADOT to oversee for compliance
Hazardous Materials		
HZM-1	A site-specific Phase I assessment will be performed prior to site acquisition for each property.	ADOT will perform Phase I assessment for Retained Parcels.

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ECR Number	Environmental Commitment Record Requirements	Description of ADOT Responsibilities
HZM-2	ADOT will review the status of open regulatory cases relating to hazardous materials releases during the Phase I assessments. Responsible parties associated with any open regulatory cases will be determined at that time. ADOT will coordinate with responsible parties to determine the status of any required cleanup actions.	ADOT will perform Phase I assessment for Retained Parcels.
HZM-3	ADOT will conduct asbestos and lead-paint inspections of structures to be demolished and will require abatement measures during demolition according to NESHAP regulations.	ADOT will comply with this requirement for Retained Parcels.
HZM-4	ADOT will determine the need for additional site assessments with the Final Design submittal.	ADOT to oversee for compliance
HZM-5	Staging for construction activities near wells or dry wells will be located in areas where accidental releases of potential contaminants will be minimized and any accompanying threat to groundwater resources minimized.	ADOT to oversee for compliance
HZM-6	In cooperation with the contractor, ADOT will develop and coordinate emergency response plans with local fire authorities, local hospitals, and certified emergency responders for hazardous materials releases or chemical spills.	ADOT to oversee for compliance
HZM-7	If suspected hazardous materials are encountered during construction, work will cease at that location and ADOT will arrange for proper assessment, treatment, or disposal of those materials.	ADOT will take responsibility with respect to third-party vehicle spills per the Agreement.
HZM-8	Asbestos- and lead-paint-containing materials identified in structures to be demolished will be properly removed and disposed of prior to demolition according to NESHAP and EPA/HUD regulations, respectively.	ADOT will comply with this requirement for Retained Parcels.
HZM-9	Any existing aboveground storage tanks or underground storage tanks will be removed or relocated. The removal/relocation activities will be addressed in accordance with applicable laws and regulations of ADEQ.	ADOT will comply with this requirement for Retained Parcels.
HZM-10	The contractor shall develop an on-site health and safety plan for construction activities.	ADOT to oversee for compliance

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ECR Number	Environmental Commitment Record Requirements	Description of ADOT Responsibilities
HZM-12	The contractor shall develop a hazardous waste management plan for the handling of hazardous materials during construction.	ADOT to oversee for compliance
HZM-13	Use of asbestos-containing materials will be prohibited for construction.	ADOT to oversee for compliance
Visual Resources		

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South Mountain Freeway Project Record of Decision (ROD)
Developer's Environmental Commitment Requirements

The following table includes the Project-specific environmental commitments as written in the ROD, with minor modifications for clarification purposes. As it relates to these Technical Provisions, references to freeway, project, South Mountain Freeway, proposed action, proposed freeway, and Selected Alternative mean the Project, and references to contractor mean Developer. Developer shall comply with and perform all of the contractor and ADOT requirements, including the ADOT obligations, commitments, and responsibilities, identified in the following table, except to the extent of those requirements that are specifically identified in the third column, entitled "Description of ADOT Responsibilities," which are not delegated to Developer.

ECR Number	Environmental Commitment Record Requirements	Description of ADOT Responsibilities
VIS-1	During the design phase, ADOT will evaluate: • leaving in place rock outcrops—if stable and not a hazard to the traveling public—not interfering with construction or looking out-of-place in the natural landscape • using vegetative buffers to screen views both of the road and from the road • transplanting saguaro, mature trees, and other cacti likely to survive the transplanting and setting-in period to visually sensitive or critical roadway areas • blending retention basins and their landscape treatments into their natural surroundings • placing landscape treatment on the periphery of R/W areas at overpass locations as well as at other areas adjacent to residential development • clustering or grouping plant material in an informal pattern to break up the linear form of the freeway • using strategic gaps in plantings to frame positive views from the road • using earth colors for overpasses, retaining and screen walls, and noise barriers • using natural-tone metals with a non-contrasting, non-glare finish for guardrails and handrails • using riprap that blends with the surrounding rocks and exposed soil color • using shotcrete that matches the color and texture of adjacent rocks • using bridges and overpass structural systems that help unify a visually complex landscape • minimizing structural sizes and/or recessing the face of structural members from the edge of the Roadway to reduce real or apparent breadth of structures	ADOT to oversee for compliance

TP Attachment 420-1 South Mountain Freeway Project Record of Decision (ROD) Developer's Environmental Commitment Requirements The following table includes the Project-specific environmental commitments as written in the ROD, with minor modifications for clarification purposes. As it relates to these Technical Provisions, references to freeway, project, South Mountain Freeway, proposed action, proposed freeway, and Selected Alternative mean the Project, and references to contractor mean Developer. Developer shall comply with and perform all of the contractor and ADOT requirements, including the ADOT obligations, commitments, and responsibilities, identified in the following table, except to the extent of those requirements that are specifically identified in the third column, entitled "Description of ADOT Responsibilities," which are not delegated to Developer.		
ECR Number	**Environmental Commitment Record Requirements**	**Description of ADOT Responsibilities**
VIS-2	If a jurisdiction through which the freeway will pass were to request treatments other than ADOT's South Mountain Freeway corridor standard palette of treatments to noise barriers, screen walls, piers, concrete barriers, retaining walls, or highly visible headwalls, such efforts may be negotiated with ADOT. (Treatments beyond the ADOT South Mountain Freeway corridor standard palette may be more expensive to construct and/or maintain. In such cases, a given jurisdiction must cover the additional expenses to secure the desired treatment.)	ADOT to oversee for compliance
VIS-3	Road cuts through the South Mountains will incorporate the newly exposed rock faces characteristic of the adjacent natural rock features, including scale, shape, slope, and fracturing to the extent that could be practicable and feasible as identified through geotechnical testing and constructibility reviews. ADOT will require the contractor to round and blend new slopes to mimic the existing contours to highlight natural formations. ADOT will evaluate having the contractor adjust and warp slopes at intersections of cuts and natural grades to flow into each other or transition with the natural ground surfaces without noticeable breaks.	ADOT to oversee for compliance
VIS-4	Freeway lighting will be provided along the median of the freeway and at interchanges to achieve desired lighting levels for safety reasons. Any freeway lighting will be designed to reduce illumination spillover onto sensitive light receptors (such as residential and natural areas).	ADOT to oversee for compliance
Temporary Construction Impacts		
TMP-1	A traffic control plan will be developed and implemented to help reduce impacts of traffic congestion and associated emissions during construction.	ADOT to oversee for compliance
TMP-2	An approved "Application for Earth Moving Permit, Demolition, and Dust Control Plan" will be obtained prior to construction from the Maricopa County Air Quality Department for all phases of the proposed action. The permit will describe measures to control and regulate air pollutant emissions during construction.	ADOT to oversee for compliance

TP Attachment 420-1
South Mountain Freeway Project Record of Decision (ROD)
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ECR Number	Environmental Commitment Record Requirements	Description of ADOT Responsibilities
TMP-3	The following measures will be implemented for the Selected Alternative: • All equipment exhaust systems will be in good working order. Properly designed engine enclosures and intake silencers will be used. • Equipment will be maintained on a regular basis. New equipment will be subject to new product emission standards. • Stationary equipment will be located as far away from sensitive receivers as possible. • Construction-related noise generators will be shielded from noise receivers (e.g., use temporary enclosures to shield generators or crushers, take advantage of site conditions to provide topographic separation). • Construction alerts will be distributed to keep the public informed of construction activities, and a toll-free number for construction-related complaints will be provided. • During the design phase, hours of operation will be evaluated to minimize disruptions during construction.	ADOT to oversee for compliance
TMP-4	Congestion from construction-related traffic will create temporary impacts in the project vicinity. The magnitude of these impacts will vary depending on the location of the sources of the fill material and of the disposition sites for surplus material, the land uses along the routes, the duration of hauling operations, staging locations, and the construction phasing. To identify acceptable routes and times of operation, ADOT, or its representative, will prepare an agreement with local agencies regarding hauling of construction materials on public streets.	ADOT to oversee for compliance

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ECR Number	**Environmental Commitment Record Requirements**	**Description of ADOT Responsibilities**
TMP-5	Traffic will be managed by a detailed Transportation Management Plan, including coordination with potentially affected public services. Access will be maintained during construction, and construction activities that might substantially disrupt traffic will not be performed during peak travel periods. To minimize disruption, ADOT will coordinate with local jurisdictions regarding traffic control and construction activities during special events. Requirements for the use of construction notices and bulletins will be identified as needed. The effectiveness of the traffic control measures will be monitored during construction and any necessary adjustments will be made.	ADOT to oversee for compliance
TMP-6	ADOT will coordinate with the responsible local entities regarding the relocation of utilities, as appropriate. ADOT coordination with affected utilities will be ongoing and will continue through the design phase. Utilities with prior rights will be relocated at ADOT cost according to the requirements of the utility.	ADOT to oversee for compliance
TMP-7	Disruptions to utility services, if necessary, will be restricted to being short-term and localized. ADOT and project contractors will continue to coordinate with utility providers during the design phase and project construction to identify potential problems and/or conflicts and to provide opportunities for their resolution prior to proposed actions. Replacement and/or relocation of utilities will be coordinated with ADOT construction activities and other projects in the area. Planning will include scheduling of disruptions and prior notification of adjacent property owners who will be affected by temporary service cut-offs. Emergency response procedures will be outlined by ADOT in consultation with local utility providers to ensure quick and effective repair of any inadvertent or accidental disruptions in service.	ADOT to oversee for compliance
TMP-8	GRIC access to the TCPs will be maintained during construction, but may temporarily involve detours. The TCPs will be flagged or fenced for avoidance during construction.	ADOT to oversee for compliance

TP Attachment 420-1 South Mountain Freeway Project Record of Decision (ROD) Developer's Environmental Commitment Requirements The following table includes the Project-specific environmental commitments as written in the ROD, with minor modifications for clarification purposes. As it relates to these Technical Provisions, references to freeway, project, South Mountain Freeway, proposed action, proposed freeway, and Selected Alternative mean the Project, and references to contractor mean Developer. Developer shall comply with and perform all of the contractor and ADOT requirements, including the ADOT obligations, commitments, and responsibilities, identified in the following table, except to the extent of those requirements that are specifically identified in the third column, entitled "Description of ADOT Responsibilities," which are not delegated to Developer.		
ECR Number	**Environmental Commitment Record Requirements**	**Description of ADOT Responsibilities**
Material Sources		
MAT-1	The contractor may use material sources from the ADOT *Contractor-Furnished Materials Sources List*. If the source that the contractor prefers to use is not on the ADOT list, then the contractor shall complete ADOT EPG's Material Source Environmental Analysis Application. Contractor-furnished material sources must go through a process to obtain environmental clearance for use on ADOT projects. The material source owner or operator must submit a Material Source Environmental Analysis Application, with cultural survey and reports, to ADOT EPG. After receiving the completed application, ADOT EPG will initiate a cultural consultation process. Upon successful completion of the environmental review, the material source will receive a tracking number and may be included on the ADOT *Contractor-Furnished Materials Sources List*.	ADOT to oversee for compliance
MAT-2	Materials excavated from the cuts through the South Mountains shall be used along the project only between 51st Avenue and 17th Avenue.	ADOT to oversee for compliance
Section 4(f)		
S4F-1	Where the Selected Alternative will cross NRHP-eligible properties (specifically, the Grand Canal, Roosevelt Canal, and the historic Southern Pacific Railroad [Wellton-Phoenix-Eloy Mainline]), the freeway will be constructed as an elevated span to clear the properties.	ADOT to oversee for compliance
S4F-2	Because existing access to some of the NRHP-eligible properties afforded protection under Section 4(f) may be affected, alternative access will be provided. In those instances, access will not be restricted and utility of the resources will not be altered.	ADOT to oversee for compliance

TP Attachment 420-1
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ECR Number	Environmental Commitment Record Requirements	Description of ADOT Responsibilities
S4F-3	Where the Selected Alternative will cross over trail segments (specifically, Segments Seven, Fifty-six, Sixty-eight, and Sixty-nine of the Maricopa County Regional Trails System, and Segment One of the Sun Circle Trail), the freeway will be constructed as an elevated span to clear the trail segments.	ADOT to oversee for compliance
S4F-4	ADOT will engage Maricopa County in the design phase to coordinate the design of the freeway with relevant segments of the County's trail system.	ADOT to oversee for compliance
S4F-5	During the design phase, ADOT will consult directly with the Phoenix City Manager's office in representing City of Phoenix interests and on behalf of the Sonoran Preserve Advisory Committee, Phoenix Mountains Preservation Council, Mountain Bike Association of America, Phoenix Parks and Recreation Board, and Arizona Horsemen's Association to identify and implement other design measures, when possible, to further reduce parkland needed for the freeway.	ADOT to oversee for compliance
S4F-6	During the design phase, ADOT will consult directly with the Phoenix City Manager's office in representing City of Phoenix interests to enter into an IGA to identify and purchase replacement land. Replacement land will not exceed a 1:1 ratio (minus previously purchased replacement land) unless ADOT and the City of Phoenix determine jointly that exceeding the 1:1 ratio will be in the best interests of both parties. Under provisions set forth in the IGA entered into by both ADOT and the City of Phoenix, the City will be responsible for identification of replacement land. Once agreed upon under the terms of the IGA, ADOT will issue payment to the City of Phoenix for the acquisition of replacement land. Provisions of the IGA will ensure commitment of the transaction will be solely for the purposes of timely acquisition of public parkland within Phoenix.	ADOT will satisfy this commitment.
S4F-7	ADOT will undertake the acquisition process to obtain the land from SMPP for the Selected Alternative. Replacement land will be provided as a measure to minimize harm.	ADOT will satisfy this commitment.

TP Attachment 420-1 South Mountain Freeway Project Record of Decision (ROD) Developer's Environmental Commitment Requirements The following table includes the Project-specific environmental commitments as written in the ROD, with minor modifications for clarification purposes. As it relates to these Technical Provisions, references to freeway, project, South Mountain Freeway, proposed action, proposed freeway, and Selected Alternative mean the Project, and references to contractor mean Developer. Developer shall comply with and perform all of the contractor and ADOT requirements, including the ADOT obligations, commitments, and responsibilities, identified in the following table, except to the extent of those requirements that are specifically identified in the third column, entitled "Description of ADOT Responsibilities," which are not delegated to Developer.		
ECR Number	**Environmental Commitment Record Requirements**	**Description of ADOT Responsibilities**
S4F-8	Design measures will be implemented to blend the appearance of the cuts with the surrounding natural environment, as feasible. The degree of slope treatment will depend on the interaction of two primary factors: the angle of the cut slope and the receptivity of the cut rock to rock sculpting and rounding to mimic existing contours and allow for staining, revegetation, and other related measures to blend the slope with the South Mountains' natural setting.	ADOT to oversee for compliance
S4F-9	ADOT will undertake additional geotechnical investigations during the design phase to determine, in part, how receptive the proposed slope angles will be to slope treatments. During this period, ADOT will consult directly with the Phoenix City Manager's office in representing City of Phoenix interests and on behalf of the Sonoran Preserve Advisory Committee, Phoenix Parks and Recreation Board, and Phoenix Mountains Preservation Council in establishing a slope treatment plan for cut slopes through the ridgelines, with the clear intent to blend as well as will be possible the cut slopes with the South Mountains' natural setting.	ADOT to oversee for compliance
S4F-10	Barriers proposed to mitigate noise impacts on neighboring residential developments (near the Foothills Reserve residential development and the Dusty Lane residential area), while not specifically intended to mitigate noise intrusion into SMPP, will provide incidental noise mitigation.	ADOT to oversee for compliance

TP Attachment 420-1
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ECR Number	Environmental Commitment Record Requirements	Description of ADOT Responsibilities
S4F-11	Where appropriate, visual intrusions will be reduced by a number of measures: • Vegetation buffers will be used to screen views of the freeway from SMPP. • Saguaros, mature trees, and other cacti likely to survive the transplanting and setting-in period will be transplanted in relatively natural areas near the proposed action to blend with the existing landscape. • Clustering or grouping plant material in an informal pattern to break up the linear form of the freeway will be utilized where appropriate to "naturalize" areas within the R/W. • Landscape treatments using native plants on the periphery of R/W areas at overpass locations and areas near residential developments will be installed where appropriate. • Aesthetic treatments and patterning will be applied to noise barriers, overpasses, abutments, retaining and screening walls.	ADOT to oversee for compliance
S4F-12	To set clear parameters defining the scope of the mitigation measures to be implemented and for making environmental determinations, an IGA will be created between ADOT and the City of Phoenix. For the proposed action through SMPP, ADOT will consult directly with the Phoenix City Manager's office in representing City of Phoenix interests and on behalf of the Sonoran Preserve Advisory Committee, Phoenix Parks and Recreation Board, and the Phoenix Mountains Preservation Council and with GRIC representatives to develop the aesthetic treatment of landscaping and structures through the park/preserve.	ADOT will be the signatory for any IGA between the City of Phoenix and ADOT.
S4F-13	During the design phase, ADOT will consult directly with USFWS, AGFD, and the GRIC Tribal Historic Preservation Officer and Department of Environmental Quality to finalize design features and locations of the crossings designed to provide access to SMPP.	ADOT will satisfy this commitment.

TP Attachment 420-1 South Mountain Freeway Project Record of Decision (ROD) Developer's Environmental Commitment Requirements The following table includes the Project-specific environmental commitments as written in the ROD, with minor modifications for clarification purposes. As it relates to these Technical Provisions, references to freeway, project, South Mountain Freeway, proposed action, proposed freeway, and Selected Alternative mean the Project, and references to contractor mean Developer. Developer shall comply with and perform all of the contractor and ADOT requirements, including the ADOT obligations, commitments, and responsibilities, identified in the following table, except to the extent of those requirements that are specifically identified in the third column, entitled "Description of ADOT Responsibilities," which are not delegated to Developer.		
ECR Number	**Environmental Commitment Record Requirements**	**Description of ADOT Responsibilities**
S4F-14	The Selected Alternative was designed to avoid two contributing elements to the South Mountains TCP, resulting in no direct use of the TCP elements. A R/W fence will restrict access to the sites by freeway users, but GRIC members will continue to gain access to the sites as they do currently. ADOT and FHWA will consult with GRIC during final design of these features.	ADOT to oversee for compliance
S4F-15	As a measure to minimize harm to the South Mountains TCP, ADOT and FHWA will provide funds for GRIC to conduct the TCP evaluation.	ADOT will satisfy this requirement.
S4F-16	ADOT will invite GRIC to participate in direct consultation with the City of Phoenix in establishing a slope treatment plan for cut slopes through the ridgelines, with the clear intent to blend the cut slope with the South Mountains' natural setting.	ADOT to oversee for compliance
S4F-17	ADOT will invite GRIC to participate in direct consultation with the City of Phoenix to develop the aesthetic treatment of landscaping and structures (e.g., noise barriers) through the South Mountains TCP.	ADOT to oversee for compliance
S4F-18	The multipurpose crossings constructed as a measure to minimize harm to SMPP will provide access from GRIC land to the mountains.	ADOT to oversee for compliance

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ECR Number	Environmental Commitment Record Requirements	Description of ADOT Responsibilities

A.A.C. – Arizona Administrative Code
ADA – Arizona Department of Agriculture
ADEQ – Arizona Department of Environmental Quality
ADOT – Arizona Department of Transportation
AGFD – Arizona Game and Fish Department
ASLD – Arizona State Land Department
ASM – Arizona State Museum
AZPDES – Arizona Pollutant Discharge Elimination System
BIA – U.S. Bureau of Indian Affairs
BLM – Bureau of Land Management
BMPs – best management practices
C.F.R. – Code of Federal Regulations
CWA – Clean Water Act
EPA – U.S. Environmental Protection Agency
EPG - ADOT Environmental Planning Group
FHWA – Federal Highway Administration
GRIC – Gila River Indian Community
HPT – ADOT Historic Preservation Team
HUD – U.S. Department of Housing and Urban Development
IGA – intergovernmental agreement
MAG – Maricopa Association of Governments
NEPA - National Environmental Policy Act
NESHAP - National Emissions Standards for Hazardous Air Pollutants
NRHP – National Register of Historic Places
OHWM – ordinary high-water mark
PA – programmatic agreement
ROD - Record of Decision
R/W – right-of-way
SHPO – State Historic Preservation Office
SMPP – Phoenix South Mountain Park/Preserve
SWPPP – Stormwater Pollution Prevention Plan
TCP – traditional cultural property
USACE – U.S. Army Corps of Engineers
USFWS – U.S. Fish and Wildlife Service
Western – Western Area Power Administration

ADDENDUM #1

TP ~~ATTACHMENT~~Attachment 440-1 – ~~ROADWAY DESIGN CRITERIA~~Roadway Design Criteria

ADDENDUM #1

TP Attachment 440-1 Roadway Design Criteria					
	Mainlines	**System to System 2-Lane Direct Connectors and HOV Direct Connectors**	**Interchange Ramps**	**Frontage Roads/ Access Roads**	**Crossroads (within Access Control)**
General					
Minimum Design Speed	65 MPH	Body: 55 MPH @ Mainline Entrance Gore: 60 MPH @ Mainline Exit Gore: 65 MPH	Body: 50 MPH @ Mainline Entrance Gore: 55 MPH @ Mainline Exit Gore: 60 MPH @ Crossroad Terminus: 35 MPH	45 MPH	40 MPH But not less than the design speed of the approaches to the interchange
Cross Section					
Lane Width	12 feet	12 feet	12 feet	12 feet	12 feet
Shoulder Width[1] (includes gutters):					
Left Shoulder	10 feet	4 feet	2 feet	2 feet	
Right Shoulder	10 feet	8 feet	Multi-Lane: 2 feet 1-Lane: 8 feet	4 feet (5 feet where there is commercial access)	6 feet (including gutter)
Barrier Offset[2]	2 feet	2 feet	2 feet	2 feet	2 feet
Maximum Superelevation Rate	6%	6%	6%	4%	2%
Normal Cross-Slope	2%	2%	2%	2%	2%[3]

ADDENDUM #1

TP Attachment 440-1 Roadway Design Criteria					
	Mainlines	**System to System 2-Lane Direct Connectors and HOV Direct Connectors**	**Interchange Ramps**	**Frontage Roads/ Access Roads**	**Crossroads (within Access Control)**
Curb Type (ADOT Construction Std C-05.10)	If used, Type B, E (or E-1) or C (or C-1), See Section 302.2 of the ADOT *Roadway Design Guidelines* for guidance			Type D (or D-3), h=6 inches	Outside: Type D (or D-3), h=6 inches Medians: Type A or A-1, h=6 inches
Vertical Clearance					
Over Roadway[4]	16 feet – 6 inches				
Overhead Signs[4]	18 feet – 0 inches; 18 feet – 6 inches to variable message signs				
Overhead Pedestrian Crossings[4]	17 feet – 6 inches				
Multiuse Crossings	16 feet - 0 inches at point where equestrians would cross				
Over Railroad[4]	23 feet – 6 inches				
Over Canals and Channels[4]	Per Canal / Channel Authority Requirements				
Other					
Design Vehicles	WB-67	WB-67	WB-67	WB-67	WB-67

Notes:
1. Left and right are in the direction of travel
2. Does not apply to median shoulders. Does not apply to 12 foot shoulders. 12 feet is the maximum shoulder.
3. 1.5 percent is allowable on crossroads at frontage road intersections to minimize crown breakover for the through movement.
4. The required vertical clearance must be provided over the entire roadway width, including shoulders and bike lanes. For railroads, clearance is measured from the top of rail.
5. See Section DR 440 of the TPs for design vehicle requirements at traffic interchanges and outside ADOT access control.

FINAL RFP

TP ~~ATTACHMENT~~Attachment 440-2 – ~~CROSSROAD DESIGN INFORMATION~~

Crossroad Design Information

TP Attachment 440-2 Crossroad Design Information								
					Through Lanes To Be Accommodated at Freeway Crossings (Base Configuration Turn Lanes Shown)			
Crossroad	**Crossing Type (Base Configuration)**	**Jurisdiction**	**Classification**	**Governmental Entity's Ultimate Standard**	**WB/SB Through Lanes**	**WB/SB Left Turn Lanes**	**EB/NB Left Turn Lanes**	**EB/NB Through Lanes**
40th Street	Interchange	City of Phoenix	Arterial	COP Detail P-1010, Type C	18', 12'	2-12'	12'	12', 18'
32nd Street	Grade Separation Only	City of Phoenix	Arterial	COP Detail P-1010, Type B	17',11',12'	—	—	12', 11', 17'
24th Street	Interchange	City of Phoenix	Arterial	COP Detail P-1010, Type C	18', 12'	2-12'	12'	12', 18'
Desert Foothills Parkway	Interchange	City of Phoenix	Arterial	COP Detail P-1010, Type C	18', 12'	2-12'	12'	12', 18'
17th Avenue	Interchange	City of Phoenix	Arterial	COP Detail P-1010, Type ~~C~~D	18', 12'	2-12'	12'	12', 18'
Ivanhoe Street	Grade Separation Only	Maricopa County DOT	Collector	Unknown	17'-6"	—	—	17'-6"
51st Avenue	Grade Separation Only	City of Phoenix	Arterial	COP Detail P-1010, Type CM	18', 12'	—	—	12', 18'
51st Avenue Spur	Interchange	City of Phoenix	Arterial	COP Detail P-1010, Type CM	18', 12'	2-12'	12'	12', 18'
Estrella Drive	Grade Separation Only	City of Phoenix	Arterial	COP Detail P-1010, Type D	18', 12'	—	—	12', 18'
Elliot Road	Interchange	City of Phoenix	Arterial	COP Detail P-1010, Type CM	18', 12'	12'	12'	12', 18'
Dobbins Road	Interchange	City of Phoenix	Arterial	COP Detail P-1010, Type C	18', 12'	12'	2-12'	12', 18'
Baseline Road	Interchange	City of Phoenix	Major Arterial	COP Detail P-1010, Type A	18', 2-12'	2-12'	2-12'	2-12', 18'
Southern Avenue	Interchange	City of Phoenix	Arterial	COP Detail P-1010, Type CM	18', 12'	12'	12'	12', 18'

TP Attachment 440-2 Crossroad Design Information								
					Through Lanes To Be Accommodated at Freeway Crossings (Base Configuration Turn Lanes Shown)			
Crossroad	**Crossing Type (Base Configuration)**	**Jurisdiction**	**Classification**	**Governmental Entity's Ultimate Standard**	**WB/SB Through Lanes**	**WB/SB Left Turn Lanes**	**EB/NB Left Turn Lanes**	**EB/NB Through Lanes**
Broadway Road	Half Interchange	City of Phoenix	Arterial	COP Detail P-1010, Type CM	18', 12'	12'	12'	12', 18'
Lower Buckeye Road	Half Interchange	City of Phoenix	Arterial	COP Detail P-1010, Type CM	18', 12'	2-12'	2-12'	12', 18'
Buckeye Road	Interchange	City of Phoenix	Arterial	COP Detail P-1010, Type C	18', 2-12'	2-12'	2-12'	2-12', 18'
Van Buren Street	Half Interchange	City of Phoenix	Arterial	COP Detail P-1010, Type C	18', 2-12'	2-12'	2-12'	12', 18'
Roosevelt Street	Grade Separation Only	City of Phoenix	Minor Collector	N/A	Existing			

Notes:
1. Developer shall verify existing conditions

ADDENDUM #~~1~~2

TP ~~ATTACHMENT~~Attachment 450-1 – ~~CHARACTER AREA PLANT LIST~~Character Area Plant List

ADDENDUM #~~1~~2

TP Attachment 450-1A Character Area 1 Plant List		
Botanical Name	**Common Name**	**Minimum Percentage that Each Species Shall be Represented in Final Design (%)**
Large Trees		
Cercidium floridum	Blue palo verde	10
Olneya tesota	Desert ironwood	10
Pithecellobium flexicaule	Texas ebony	10
Prosopis pubescens	Screwbean mesquite	10
Prosopis velutina	Velvet mesquite	10
Small Trees		
Acacia willardiana	Palo blanco	8
Caesalpinia cacalaco	Cascalote	8
Pistacia lentiscus	Mastic tree	8
Psorothamnus spinosus	Desert smoke tree	8
Sophora secundiflora	Texas mountain laurel	8
Sophora secundiflora 'Silver Peso'	'Silver Peso' Texas mountain laurel	8
	Remaining large or small trees	To be determined by Developer
Large Shrubs		
Caesalpinia pulcherrima	Red bird of paradise	6
Calliandra sp.	Fairy duster	6
Cordia parvifolia	Little leaf cordia	6
Justicia californica	Chuparosa	6
Leucophyllum candidum	Silver Cloud sage	6
Leucophyllum frutescens	Green Cloud sage	6
Leucophyllum laevigatum	Chihuahuan sage	6
Simmondsia chinensis	Jojoba	6
Small Shrubs		

ADDENDUM #~~1~~2

TP Attachment 450-1A Character Area 1 Plant List		
Botanical Name	**Common Name**	**Minimum Percentage that Each Species Shall be Represented in Final Design (%)**
Muhlenbergia capillaris	Regal Mist	25
Ruellia peninsularis	Baja ruellia	25
	~~Accent~~Remaining large or small shrubs	To be determined by Developer
Accents		
Asclepias sp.	Milkweed	8
Carnegiea gigantea	Saguaro	8
Dasylirion wheeleri	Desert spoon	8
Fouquieria splendens	Ocotillo	8
Hesperaloe parvifloia	Red yucca	8
Yucca sp.	Yucca	8
	Remaining accents	To be determined by Developer

Inserted Cells

ADDENDUM #~~1~~2

TP Attachment 450-1B Character Area 2 Plant List		
Botanical Name	**Common Name**	**Minimum Percentage that Each Species Shall be Represented in Final Design (%)**
Large Trees		
Cercidium floridum	Blue palo verde	10
Cercidium microphyllum	Foothills palo verde	10
Olneya tesota	Desert ironwood	10
Prosopis pubescens	Screwbean mesquite	10
Prosopis velutina	Velvet mesquite	10
Small Trees		
~~Psorothamnus spinosus~~Acacia greggii	~~Desert smoke tree~~Whitethorn acacia	~~25~~15
~~Sophora secundiflora 'Silver Peso'~~Acacia constricta	~~'Silver Peso' Texas mountain laurel~~Catclaw acacia	~~25~~15
	Remaining large or small trees	To be determined by Developer
Large Shrubs		
Calliandra sp.	Fairy duster	12
Justicia californica	Chuparosa	12
Larrea tridentate	Creosote	12
Simmondsia chinensis	Jojoba	12
Small Shrubs		
Ambrosia deltoidea	Bursage	17
Encelia farinosa	Incienso brittlebush	17
Sphaeralcea ambigua	Globe mallow	17
	~~Accent~~Remaining large or small shrubs	To be determined by Developer
Accents		
Asclepias sp.	Milkweed	10
Carnegiea gigantean	Saguaro	10
Ferocactus sp.	Barrel cactus	10
Opuntia sp.	Prickly pear	10

Inserted Cells

ADDENDUM #~~1~~2

TP Attachment 450-1B Character Area 2 Plant List		
Botanical Name	**Common Name**	**Minimum Percentage that Each Species Shall be Represented in Final Design (%)**
Opuntia sp.	Cholla	10
Fouquieria splendens	Ocotillo	10
	Remaining Accents	To be determined by Developer

ADDENDUM #~~1~~2

TP Attachment 450-1C Character Area 3 Plant List		
Botanical Name	**Common Name**	**Minimum Percentage that Each Species Shall be Represented in Final Design (%)**
Large Trees		
Cercidium floridum	Blue palo verde	15
Dalbergia sissoo	Indian rosewood	5
Pistachia chinensis	Chinese pistache	5
Pithecellobium flexicaule	Texas ebony	5
Prosopis velutina	Velvet mesquite	15
Quercus virginiana	Southern live oak	5
Ulmus parvifolia	Evergreen elm	5
Small Trees		
Caesalpinia cacalaco	Cascalote	~~8~~5
Chitalpa tashkinensis	Chitalpa	~~8~~5
Pistacia lentiscus	Mastic tree	~~8~~5
Psorothamnus spinosus	Desert smoke tree	~~8~~5
Sophora secundiflora	Texas mountain laurel	~~8~~5
Vitex agnus-castus	Chaste tree	~~8~~5
	Remaining large and small trees	To be determined by Developer
Large Shrubs		
Caesalpinia Mexicana	Mexican bird of paradise	7
Cordia parvifolia	Little leaf cordia	7
Dodonaea viscosa	Hop bush	7
Eremophila maculate	Valentine bush	7
Leucophyllum candidum	Silver Cloud sage	7
Leucophyllum frutescens	Green Cloud sage	7
Simmondsia chinensis	Jojoba	7
Small Shrubs		

TP Attachment 450-1C Character Area 3 Plant List		
Botanical Name	**Common Name**	**Minimum Percentage that Each Species Shall be Represented in Final Design (%)**
Lantana sp. 'New Gold'	New Gold lantana	12
Muhlenbergia capillaris	Regal Mist	12
Rosmarinus officinalis prostrates	Prostrate rosemary	12
Ruellia peninsularis	Baja ruellia	12
~~Accent~~Remaining large and small shrubs		To be determined by Developer
Accents		
Agave sp.	Agave	12
Asclepias sp.	Milkweed	12
Hesperaloe funifera	Giant hesperaloe	12
Hesperaloe parviflora	Red yucca	12
Remaining accents		To be determined by Developer

Inserted Cells

ADDENDUM #~~1~~2

TP Attachment 450-1D Character Area 4 Plant List		
Botanical Name	**Common Name**	**Minimum Percentage that Each Species Shall be Represented in Final Design (%)**
Large Trees		
Cercidium praecox	Palo brea	15
Dalbergia sissoo	Indian rosewood	5
Pistache chinensis	Chinese pistache	5
Pithecellobium flexicaule	Texas ebony	5
Prosopis glandulosa	Honey mesquite	15
Quercus virginiana	Southern live oak	5
Small Trees		
Caesalpinia cacalaco	Cascalote	10
Chitalpa tashkinensis	Chitalpa	10
Pistacia lentiscus	Mastic tree	10
Psorothamnus spinosus	Desert smoke tree	10
Sophora secundiflora	Texas mountain laurel	10
	Remaining large and small trees	To be determined by Developer
Large Shrubs		
Bougainvillea sp.	La Jolla	5
Caesalpinia Mexicana	Mexican bird of paradise	5
Caesalpinia pulcherrima	Red bird of paradise	5
Dodonaea viscosa	Hop bush	5
Leucophyllum candidum	Silver Cloud sage	5
Leucophyllum frutescens	Green Cloud sage	5
Leucophyllum laevigatum	Chihuahuan sage	5
Simmondsia chinensis	Jojoba	5
Tecoma stans ‘Orange Jubilee’	Orange jubilee	5
Small Shrubs		

ADDENDUM #~~1~~2

TP Attachment 450-1D Character Area 4 Plant List		
Botanical Name	**Common Name**	**Minimum Percentage that Each Species Shall be Represented in Final Design (%)**
Acacia redolens 'Desert Carpet'	Prostrate acacia Desert Carpet	10
Lantana sp. 'New Gold'	New Gold lantana	10
Muhlenbergia capillaris	Regal Mist	10
Rosmarinus officinalis prostrates	Prostrate rosemary	10
Ruellia peninsularis	Baja ruellia	10
~~Accent~~Remaining large and small shrubs		To be determined by Developer
Accents		
Aloe sp.	Aloe	12
Asclepias sp.	Milkweed	12
Dasylirion wheeleri	Desert spoon	12
Hesperaloe parviflora	Red yucca	12
Remaining accents		To be determined by Developer

Inserted Cells

ADDENDUM #~~1~~2

TP Attachment 450-1E Character Area 5 Plant List		
Botanical Name	**Common Name**	**Minimum Percentage that Each Species Shall be Represented in Final Design (%)**
Large Trees		
Cercidium praecox	Palo brea	12
Dalbergia sissoo	Indian rosewood	12
Eucalyptus papuana	Ghost gum	12
Prosopis glandulosa	Honey mesquite	12
Small Trees		
Acacia aneura	Mulga	10
Acacia willardiana	Palo blanco	10
Chitalpa tashkinensis	Chitalpa	10
Psorothamnus spinosus	Desert smoke tree	10
Sophora secundiflora	Texas mountain laurel	10
	Remaining large and small trees	To be determined by Developer
Large Shrubs		
Bougainvillea sp.	La Jolla	8
Caesalpinia pulcherrima	Red bird of paradise	8
Leucophyllum candidum	Silver Cloud sage	8
Leucophyllum frutescens	Green Cloud sage	8
Leucophyllum laevigatum	Chihuahuan sage	8
Tecoma stans 'Orange Jubilee'	Orange Jubillee	8
Small Shrubs		
Acacia redolens 'Desert Carpet'	Prostrate acacia Desert Carpet	25
Ruellia peninsularis	Baja ruellia	25
	~~Accent~~**Remaining large and small shrubs**	To be determined by Developer
Accents		
Agave sp.	Agave	7

Inserted Cells

ADDENDUM #~~1~~2

TP Attachment 450-1E Character Area 5 Plant List		
Botanical Name	**Common Name**	**Minimum Percentage that Each Species Shall be Represented in Final Design (%)**
Aloe sp.	Aloe	7
Asclepias sp.	Milkweed	7
Dasylirion wheeleri	Desert spoon	7
Fouquieria splendens	Ocotillo	7
Hesperaloe parviflora	Red yucca	7
Yucca sp.	Yucca	7
Remaining accents		To be determined by Developer

Inserted Cells

ADDENDUM #1

TP ~~ATTACHMENT~~Attachment 450-2 – ~~SEED MIX~~Seed Mix

ADDENDUM #1

TP Attachment 450-2A Low Grass And Forb Seed Mix		
Botanical Name	**Common Name**	**Pounds Per Acre of Pure Live Seed**
Abronia villosa	Sand verbena	0.25
Argemone platyceras	Prickly poppy	0.25
Aristida purpurea	Purple threeawn	2
Baileya multiradiata	Desert marigold	2
Bouteloua aristidoides	Needle grama	2
Bouteloua rothrockii	Rothrock's grama	0.5
Bothriochloa barbinodis	Cane beardgrass	1
Distichlis stricta	Desert saltgrass	1
Encelia farinose	Incienso brittlebush	1
Encelia frutescens	Button brittlebush	1
Eschscholtzia Mexicana	Mexican poppy	2
Larrea tridentate	Creosote bush	0.5
Lesquerella gordonii	Gordon's bladderpod	1
Lupinus sparsiflorus	Desert lupine	1.5
Lupinus succulentus	Arroyo lupine	5
Phacelia crenulata	Arizona desert bluebell	2
Plantago ovata	Desert indian wheat	1
Salvia columbariae	Desert chia	1
Senna covesii	Desert senna	1
Sphaeralcea ambigua	Desert globemallow	2
Sporobolus cryptandrus	Sand dropseed	0.75
Verbena goodingii	Desert verbena	0.5

ADDENDUM #1

TP Attachment 450-2B Tall Background Seed Mix		
Botanical Name	**Common Name**	**Pounds Per Acre of Pure Live Seed**
Abronia villosa	Sand verbena	0.25
Acacia greggii	Catclaw acacia	~~025~~0.25
Ambrosia dumosa	White bursage	1
Argemone platyceras	Prickly poppy	0.25
Aristida purpurea	Purple threeawn	2
Atriplex canescens	Fourwing saltbush	1
Baileya multiradiata	Desert marigold	2
Bothriochloa barbinodis	Cane beardgrass	1
Bouteloua aristidoides	Needle grama	2
Bouteloua rothrockii	Rothrock's grama	0.5
Calliandra eriophylla	Fairy duster	0.25
Cercidium floridum	Blue palo verde	0.5
Cercidium microphyllum	Foothills palo verde	0.5
Distichlis stricta	Desert saltgrass	1
Encelia farinosa	Brittlebush	1
Encelia frutescens	Button brittlebush	1
Eschscholtzia mexicana	Mexican poppy	2
Kallstroemia grandiflora	Arizona poppy	0.25
Larrea tridentata	Creosote bush	0.5
Lesquerella gordonii	Gordon's bladderpod	1
Lupinus sparsiflorus	Desert lupine	1.5
Lupinus succulentus	Arroyo lupine	5
Olneya tesota	Desert ironwood	3
Phacelia crenulata	Arizona desert bluebell	2
Prosopisjuliflora velutina	Velvet mesquite	0.25
Salvia columbariae	Desert chia	1

ADDENDUM #1

TP Attachment 450-2B Tall Background Seed Mix		
Botanical Name	**Common Name**	**Pounds Per Acre of Pure Live Seed**
Senna covesii	Desert senna	1
Sphaeralcea ambigua	Desert globemallow	2
Sporobolus cryptandrus	Sand dropseed	0.75
Verbena goodingii	Desert verbena	0.5

ADDENDUM #1

TP Attachment 450-2C Wash Seed Mix		
Botanical Name	**Common Name**	**Pounds Per Acre of Pure Live Seed**
Ambrosia dumosa	White bursage	1
Aristida purpurea	Purple threeawn	2
Atriplex canescens	Fourwing saltbush	1
Baileya multiradiata	Desert marigold	0.5
Bothriochloa barbinodis	Cane beardgrass	1
Bouteloua aristidoides	Needle grama	0.5
Bouteloua rothrockii	Rothrock's grama	0.5
Calliandra eriophylla	Fairy duster	0.25
Celtis pallida	Desert hackberry	2
Cercidium floridum	Blue palo verde	0.5
Chilopsis linearis	Desert willow	0.5
Distichlis stricta	Desert saltgrass	3
Encelia farinosa	Incienso brittlebush	1
Encelia frutescens	Button brittlebush	1
Eschscholtzia mexicana	Mexican poppy	2
Larrea tridentata	Creosote bush	0.5
Lupinus sparsiflorus	Desert lupine	1.5
Lupinus succulentus	Arroyo lupine	5
Lycium andersonii	Wolfberry	2
Olneya tesota	Desert ironwood	3
Phacelia crenulata	Arizona desert bluebell	2
Prosopisjuliflora velutina	Velvet mesquite	0.25
Salvia columbariae	Desert chia	1
Senna covesii	Desert senna	1
Sphaeralcea ambigua	Desert globemallow	2
Sporobolus airoides	Alkali sacaton	2

ADDENDUM #1

TP Attachment 450-2C Wash Seed Mix		
Botanical Name	**Common Name**	**Pounds Per Acre of Pure Live Seed**
Sporobolus cryptandrus	Sand dropseed	0.5
Verbena goodingii	Desert verbena	0.5

ADDENDUM #2

TP ~~ATTACHMENT~~Attachment 460-1 – Specifications for Battery Back-up System for Traffic Signals

ADDENDUM #2

Specifications for Battery Back-up System for Traffic Signals

1 GENERAL

This specification establishes the minimum requirements for a complete emergency battery back-up system for use at traffic signals utilizing light emitting diodes (LED) signals and pedestrian heads. The battery back-up system (BBS) must include, but not be limited to the following:

A. UPS with inverter, charger, tap switching transformer and internal power transfer switch;
B. Automatic/manual bypass transfer switch unit;
C. Batteries;
D. Cabinet;
E. Mounting hardware; and
F. Wiring.

The BBS must provide reliable emergency power to a traffic signal in the event of a power failure or interruption.

2 OPERATION

2.1 General

The BBS must provide the following operational modes when operating on battery power:

A. Full operation of all traffic signal devices;
B. Flash operation; and
C. Combination of full and flash operation.

2.2 Run Time

The BBS must provide a minimum of 8.0 hours of full time operation with a 450 watt load. The minimum battery size requirement is listed in section 7.0, Battery Type.

2.3 Compatibility

The BBS must be compatible with Model 332, 336, and 337 cabinets; the ITS cabinet; model 170 and 2070 controllers and any NEMA style cabinet and enclosures; the advanced transportation controller; and all cabinet components for full time operation.

2.4 Output Capacity

The BBS must provide a minimum of 1100W/1100VA at 25°C active output capacity with 83 percent minimum inverter efficiency with 30 percent minimum loading.

2.5 Output Voltage

When operating in backup mode, the BBS output must be 120VAC ± 2 percent, pure sine wave output, ≤ 3 percent THD, 60Hz ± 0.3 Hz.

2.6 DC System Voltage

The BBS DC system voltage shall be 48VDC nominal.

2.7 Transfer Time

The maximum transfer time allowed, from disruption of normal utility line voltage to stabilized inverter line voltage from batteries, must be 5 milliseconds (ms). The same maximum allowable time must also apply when switching from the inverter line voltage to utility-line voltage. Transfers to and from battery operation must not interfere with the operation of the other equipment in the intersection.

2.8 Operating Temperature

The BBS and all components must operate without performance degradation over a temperature range of -40°C to +74°C with a maximum load of 70 percent of rated output of the BBS inverter.

2.9 Feedback Level

The BBS must be tested and certified to Electrical Standards UL 1778 and CSA 107.3.

2.10 Surge Protection

The BBS must have surge protection compliant with IEEE/ANSI C.62.41 Cat. A & B.

2.11 Reliability

The BBS system must have a mean-time-before-failure of 174,955 hours at a temperature of 25 degree C (77 degree F) and 103,030 hours at a temperature of 50 degree C (122 degree F).

2.12 Power and Control Connections

The BBS must be easily installed, replaced, or removed by using easily removable cables for AC input, AC output, DC input, external transfer control/alarm and battery temperature sense.

2.13 AC Connection

The AC input and output must hard wired connections.

2.14 DC Connection

The DC connection must be a recessed one piece Anderson Style connector rated to handle the maximum DC current required by the inverter while running on batteries.

2.15 Temperature Probe Connections

The battery temperature sense inputs shall be panel-mounted Telco style connector.

2.16 Unit Failure

In the event of inverter/charger failure, battery failure or complete battery discharge, the automatic bypass transfer switch shall revert to normally closed (NC) (de-energized) state, where utility line power is connected to the cabinet.

2.17 Overload

The BBS inverter module must be able to shutdown in order to protect against internal damage in the event of an overload at the output. The inverter must support an overload up to 115 percent for 2 minutes and then turn off the inverter output. The fault recovers when the overload is removed and line power returns.

2.18 Schedule

The BBS must provide a time-of-day schedule settings programmable by the user.

The time-of-day schedule must allow the user to program schedule operational modes as required, per intersection.

The BBS time-of-day function when programmed must automatically change operational modes based on the time-of-day schedule. Operational modes must be red flash or full operation.

The BBS must not switch from flash operation to full operation mode when the remaining battery capacity is ≤ 40 percent.

2.19 AC Feedback

The BBS must prevent a malfunction feedback to the cabinet or from feeding back to the utility service.

2.20 BBS Failure Mode

In the event of BBS failure (inverter/charger or battery) or complete battery discharge, the internal power transfer relay must revert to NC (de-energized) state and provide utility power to the intersection when utility line power is available to the cabinet.

2.21 Automatic Shutdown

The BBS must initiate an automatic shutdown when battery output reaches 42.5VDC.

2.22 Destructive Discharge or Overcharge

The BBS must be equipped with an integral system to prevent the battery from destructive discharge or overcharge.

3 AUTOMATIC BYPASS TRANSFER SWITCH

3.1 Rating

The BBS must include an automatic/manual transfer switch rated at 120VAC/30 amps.

3.2 Automatic & Manual Bypass Switch

The automatic bypass transfer switch must be a combination automatic/manual bypass switch. Placing the bypass switch in the “bypass” mode must transfer the intersection load from the UPS output directly to commercial power. AC commercial power must still be available to the UPS input, allowing the UPS to keep the batteries charged. An inverter input breaker must be provided and located on the bypass switch so to shut off commercial power to the UPS input, allowing safely disconnecting and removing the inverter. With the inverter turned off, the batteries can be safely disconnected from the system.

3.3 Indicator Light

The automatic bypass transfer switch must include a bypass indicator light that automatically notifies the user when the manual bypass switch is in bypass position. The indicator light must be illuminated when in UPS mode.

3.4 Status Relay

The automatic transfer switch must have an optional bypass status relay with normally open, dry contacts that automatically close when the manual bypass switch is in bypass position.

3.5 Integrated Switch

The manual bypass switch and the automatic transfer relay must be integrated together within the automatic bypass transfer switch allowing the manual bypass switch to be rated at 15 Amp and to be integrated with the bypass indicator light.

3.6 Terminal Blocks

The automatic bypass transfer switch must have terminal blocks capable of accepting #6 AWG wiring for the AC input and output with #10 AWG from the automatic bypass transfer switch to inverter/charger module.

4 FUNCTIONALITY

4.1 Output Voltage Regulation Mode

The BBS must include auto voltage regulation functionality.

4.1.1 AC Input Voltage Range for Output Regulation

The buck/boost mode must have a minimum range of 88 - 175 VAC.

4.1.2 Transfer Set Points

There must not be any user definable transfer set points for the buck boost mode.

4.1.3 Regulated Voltage

Whenever auto voltage regulation mode is selected the output of the system must be regulated between 108-130VAC. When the output of the system can no longer be maintained with this range, the BBS must transfer to backup mode.

4.2 Circuit Breakers

The BBS must be equipped with an AC Input circuit breaker that protects both the UPS and the loads connected to the output. Should the AC input breaker on the UPS trip, it must allow the UPS to go to inverter mode to power the intersection off of batteries. Should an overload condition still exist when the inverter is energized the inverter must revert to its internal electronic protection, preventing damage to the inverter due to the overload or short circuit condition, on the output. Once this overload condition is cleared the inverter must energize and power the intersection utilizing the available battery power. If the condition does not clear itself, the inverter must stay in the standby mode until manually cleared by a technician.

The BBS must have a flush mounted battery circuit breaker installed on the front panel of the BBS inverter module.

4.3 Line Qualify Time

The BBS must have a user definable line qualify time. The user must be able to select a minimum of six possible settings. The settings must be 3, 10, 20, 30, 40 and 50 seconds. The default line qualify time must be 3 seconds.

4.4 Battery Charger

The BBS must have an integral charger that is compatible with Gel and AGM battery topology. The charger must be an intelligent charger with control systems that automatically incorporates bulk, absorption and float charging modes.

4.4.1 Battery Temperature Compensation

The integral intelligent charger must use temperature compensation. The charging system must compensate over a range of 2.5 - 6.0mV/°C per cell, user adjustable when required.

4.4.2 Battery Temperature Sensor

A temperature probe which plugs into the front panel of the BBS must be used to monitor the internal temperature of the batteries. The temperature sensor must be 2 meter in length, external to the inverter/charger module and taped to the side of a center battery within the battery string.

4.4.3 Battery Temperature Charging

The batteries must not be recharged whenever the battery temperature exceeds 50°C.

4.4.4 Battery Balancing

The BBS must include an external battery balancer to automatically balance the battery charger voltage on all batteries in the string to within +/- 100 mV between any two batteries. The balancer must allow for any single 12V battery within the battery string to be replaced without replacing all batteries in the string during the battery warranty period.

4.4.5 Recharge Time

The recharge time for the batteries from “protective low-cutoff” to 90 percent or more of full charge capacity must not exceed 12 hours. The BBS charger must be capable of providing 15 amps at 54VDC.

5 USER INTERFACES AND DISPLAYS

5.1 Inverter/Charger Display

The BBS inverter/charger unit must include a backlit LCD display for viewing all status and configuration information. The screen must be easily viewable in both bright sunlight and in darkness.

5.1.1 Screen Size

The screen must be large enough to display the following information with the use of menu scrolling buttons to read required information. All active readings must be real time.

A. Operating mode (line, standby, backup, buck / boost)
B. Utility input voltage
C. BBS output voltage and current
D. Battery temperature
E. Input frequency
F. Output power
G. Battery voltage
H. Charger current
I. Shed timer relays time to activation
J. Ethernet MAC address and IP address
K. Accumulated output power in kW hours
L. Battery runtime remaining
M. Unit serial number

N. Unit firmware version
O. Any alarms and faults

5.1.2 Keypad

The BBS inverter/charger unit must include a keypad for navigating system information.

5.1.3 Web-based Interface

The BBS must be provided with a web-based-interface for user configuration and management through a web browser.

5.1.4 Minimum Capabilities

The BBS must allow the user to do the following through the web browser:

A. View logs;
B. Change modes of operation;
C. Configure email alarms;
D. Adjust line qualify time;
E. Program relay contacts;
F. Configure network parameters;
G. Inverter/charger firmware to be upgradeable remotely via Ethernet; and
H. Communication module firmware upgradeable remotely.

5.1.5 Status LEDs

The BBS must have discrete status LED indications on the front of the inverter/charger.

5.1.6 Green Output LED

This LED must be “on” any time that the output of the BBS is in normal mode. When the BBS output is either in backup mode or auto voltage regulation modes the LED must flash “on” and “off”.

5.1.7 Red Fault LED

This LED must be solid “on” any time that there are any faults in the system.

5.1.8 Red Flashing Alarm LED

This LED must flash “on” and “off” any time that there are any alarms in the system.

5.1.9 Event Log

The BBS must maintain an event log containing a minimum of 200 of the most recent events recorded by the BBS. These events must be down loadable remotely via Ethernet and automatically reported to the central monitoring software. The events log must be date and time stamped.

5.1.10 Events, Alarms and Faults

The BBS must display and log the following events, alarms and faults:

A. Operating mode;
B. Weak battery;
C. Overload;
D. High and low temperatures;

E. User input, S2 is shorted;
F. Line frequency out of specifications;
G. No temperature probe;
H. Low battery;
I. Battery breaker open;
J. BBS is performing a self-test;
K. Fan fail;
L. Incorrect firmware;
M. AC input breaker open;
N. Short circuit;
O. Output voltage high;
P. Output voltage low;
Q. Battery voltage high;
R. Battery voltage low;
S. Isolation relay fail; and
T. Temperature high.

5.1.11 Counters

The BBS must keep track of the following:

A. The number of times that the unit was in backup mode.
B. The accumulated number of hours and minutes that the unit has operated in backup mode since the last reset.

5.1.12 Programmable Relay Contacts

The BBS must provide the user six programmable dry relay contacts and one 48VDC relay contact. As a minimum, the programmable options must be on battery, low battery, timer, alarm, fault, and off. The BBS must also have three input dry relay contacts. BBS self test, user alarm, and BBS shutdown.

5.2 Relay Contact Terminals

The relay contacts must be made available on the front panel of the BBS via 6, 3 position plug-in terminal blocks with screw down wiring connections.

5.2.1 Contacts

Each relay, C-1 through C-5 must have their own common and their own set of normally open (NO) and NC terminals. The terminals for each relay must be oriented as NO-C-NC on the terminal block. C-6 must provide continuous 48 VDC voltage for powering of enclosure DC fan.

5.2.2 Labeling

The contacts on the terminal block must be labeled 1-18, left to right. Additionally, each set of contact must be labeled with the NO-C-NC designation, as well as C1…C6 from left to right. Printed labels noting all alarms and faults must be provided with the BBS inverter/charger to be installed when required.

5.2.3 Rating

The relay contacts must be rated at a minimum of 1 amp at 250 VAC.

5.2.4 On Battery Relay Contact

The dry relay contacts that are configured for “on battery” must only energize when the Inverter is operating in backup mode.

5.2.5 Timer Relay Contacts

The BBS must include a timer that must energize the “timer” configured dry relay contact after the user configured time has elapsed. The timer is started when the BBS enters backup mode. The user must be able to configure the timer to the required time. The format must be hours, minutes, seconds.

5.2.6 Low Battery Relay Contact

The BBS must have an adjustable low battery relay setting. This setting must be adjustable so that the user can set the point at which the low battery relay contact is energized.

6 COMMUNICATIONS

6.1 Serial Interface

The BBS must be equipped with an industry standard RS-232 serial connection for user configuration and management. The serial port must be an EIA-232 (DB9-Female) connector.

6.2 Ethernet Interface

The BBS must have an internal Ethernet communication interface for user configuration and management. The Ethernet port must be an RJ-45, EIA 568B pin out connector.

6.3 Remote Monitoring

The BBS must be include remote monitoring & alarms transmission capabilities through the Ethernet RJ-45 IP addressable port, using simple network management protocol.

6.4 Notification

System must have the capability of notifying operations, maintenance or TMC via e-mail of any alarms, faults or events, user selectable. E-mail set up must allow for different levels of notifications based on the criticalness of the alarms.

6.5 User Configuration Menus

All BBS configuration and system menus must be accessible and programmable from the RS-232 and Ethernet port.

6.6 Communication Protocols

The BBS must support TCP and UDP over IP protocol communications.

6.7 Application Layer Protocols

The BBS must support FTP, Telnet, and HTTP.

6.8 Simple Network Management Protocol

The BBS must be simple network management protocol compliant.

7 BATTERIES

7.1 Battery Type

The battery must be comprised of extreme temperature, float cycle, GEL valve regulated lead acid. Individual batteries must meet the following specifications:

A. Voltage rating: 12V
B. Amp-hour rating: 109 AH, at the 20 hour rate, to 1.75 Volts per cell, minimum battery rating. Larger AH batteries are acceptable providing they do not exceed the group size listed below. (Case 31)
C. Group size: Case 31
D. Batteries must be easily replaced and commercially available off the shelf
E. Batteries must provide 100% runtime capacity out-of-box. Each battery must meet its specification without the requirement of cycling upon initial installation and after the initial 24 hour top off charge.

7.2 Battery String

Batteries used for the BBS must consist of a 4 batteries configured for a 48 VDC battery buss system.

7.3 Operating Temperature

The battery system must consist of one or more strings of extreme temperature; float cycle GEL valve regulated lead acid batteries. Batteries must be certified to operate at extreme temperatures from –40°C to +71°C.

7.4 Construction

7.4.1 Terminals

The batteries must have maintenance-free threaded insert terminals eliminating annual torqueing. Battery terminals that require annual torqueing of each post connection must not permitted.

7.4.2 Ability to Function

An integral lifting handle should be provided on the batteries for ease of removal/installation.

8 CABINET

8.1 General

8.1.1 BBS Cabinet Dimensions

The dimensions for the BBS cabinet must not exceed 50 inches in height, 17 inches in width and 17 inches in depth.

8.1.2 Inverter/Charger Mounting

The inverter/charger unit must be shelf or rack mounted on a standard EIA 19 inch rack.

8.1.3 Automatic Transfer Switch Mounting

The automatic transfer switch must be mounted on EIA 19 inch rail.

8.1.4 Interconnect Wiring

All interconnect wiring must be provided and must be UL Style 1015 CSA TEW.

8.2 BBS Replacement

The BBS equipment and batteries must be easily replaced and must not require any special tools for installation.

8.3 Hot Swappable

The BBS inverter and batteries must be hot swappable. There must be no disruption to the traffic signal when removing the inverter or batteries for maintenance.

8.4 Quick Disconnects

All inverter and battery connections must be of the quick disconnect type for ease of maintenance.

8.5 Ancillary Installation Hardware

All necessary installation hardware (bolts, fasteners, washers, shelves, racks, etc.) must be included.

8.6 Cabinet Sizing

The external cabinet must be capable of housing batteries up to a group 31 size, inverter/charger power module, automatic transfer switch, control panels, wiring, wiring harnesses, and all other ancillary equipment.

8.7 Cabinet Types

The BBS can be installed either as:

A. Free-standing base-mounted cabinet with optional 8 inch riser for easy cable entrance;
B. Pole-mounted cabinet with optional pole mount bracket kit; or
C. Side-mounted to a traffic controller cabinet with no mounting brackets required.

8.8 Rating

All external cabinets must be NEMA 3R rated. The enclosure must be made of 0.125 (5052-H32) aluminum.

8.9 Ventilation

The external cabinet must be ventilated through the use of louvered vents, filter, and one thermostatically controlled fan. The filter must be the re-usable type and matching the dimensions of the louver with both located on the bottom half of the door.

The cabinet fan must be DC operated for longer reliability.

8.10 Ancillary Hardware

The BBS cabinet must come with all bolts, washers, nuts required to mount it to a controller cabinet.

8.11 Accessibility

All components, terminations, terminal blocks, relays, etc. must be fully accessible.

8.12 Shelves

Battery shelves must be located in the bottom half of the enclosure. All battery shelves must be removable and on ball bearing rollers to slide in and out for easy access for the batteries. Air

must be allowed for flow from the bottom of the cabinet and up the back internal wall. Neither the top battery shelf nor the power module shelf must inhibit the airflow to the top of the cabinet.

8.12.1 Locking

The cabinet must include a 3 point locking system, including a Type 2 Corbin lock and utilize a handle with pad locking capability.

8.12.2 Cabinet Options

The following options must be available for the cabinet:

A. On-battery lamp mounted externally on the top of the cabinet that illuminates when the BBS is operating in inverter mode;
B. Battery heater mats to increase battery capacity in cold climates;
C. Receptacle plate assembly that mounts on the transfer switch panel to provide utility power to the battery heater mats;
D. Automatic generator transfer switch that senses a generator is connected and automatically switches to the generator source;
E. Internal lamp with door push-button switch to illuminate the interior of the cabinet; and
F. Status monitoring dry contacts for the automatic transfer switch and the generator transfer switch.

9 MAINTENANCE

9.1 Probe Jacks

The BBS must provide voltmeter standard probe input-jacks (+) and (-) to read the exact battery voltage drop at the inverter input.

9.2 Self-Testing

The BBS inverter module must be programmable to perform automatic self-testing, programmed in weekly intervals and programmed by the user to meet their specific requirements or manufacturer's recommendation. During self-test the BBS inverter module must identify a weak battery or multiple batteries in the string that have reached a weak state and notify maintenance by initiating a weak battery alarm.

10 WARRANTY

10.1 Battery Backup System

The BBS system must include a five-year warranty on parts and labor on the entire BBS system, including batteries, to ADOT when utilizing the BBS Manufacturers own designed enclosure, meeting the above cabinet specifications.

If another enclosure is provided by the BBS manufacturer, the manufacturer must provide a three-year warranty on parts and labor on the BBS inverter module only.

10.2 Batteries

The BBS manufacturer must provide a 5 year unconditional full replacement warranty for every battery with the BBS under this specification. Under the warranty time period, the battery must provide a minimum of 70% of its original capacity.

ADDENDUM #2

11 VENDOR SUPPORT

11.1 Technical Support

The BBS manufacturer must provide a toll-free technical support phone number. The toll-free phone number must be included in the BBS manual.

11.2 Documentation

Equipment manuals must be provided for each BBS cabinet. Equipment manuals must include installation, operation, programming, maintenance and troubleshooting.

12 QUALITY ASSURANCE

12.1 Design and Production

Each BBS must be manufactured in accordance with a written manufacturer's Quality Assurance program. The QA program must include, as a minimum, specific design and production QA procedures.

12.2 ISO Certified

The BBS power module manufacturer must be ISO 9001or ISO 9002 certified.

12.3 Design Qualification Testing

The manufacturer must be certified to carry out the CSA and UL standards testing on the BBS system.

TP Attachment 470-1 – ROW ~~FORMS~~

Forms

FINAL RFP

ARIZONA DEPARTMENT OF TRANSPORTATION
RIGHT OF WAY GROUP
ACQUISITION SECTION
205 South 17th Avenue, MD 612E
Phoenix, Arizona 85007

AUTHORIZATION TO RELEASE INFORMATION TO THIRD PARTY

To Whom It May Concern:

The Arizona Department of Transportation is currently in the process of purchasing my property located at _____, Phoenix, Arizona.

You may consider this letter as your authorization to provide the following loan information to the Arizona Department of Transportation. We are enclosing a self-addressed stamped envelope for your convenience.

1. Current Principal Balance _____
2. Current Interest Rate _____
3. Monthly Payment (principal & interest only) _____
4. Original term of loan (months) _____
5. Remaining term of loan (months) _____
6. Heloc loan balance 180 days prior* _____

If you have any questions, please contact Right of Way Agent _____
Phone Number: _____

THIS LETTER ALSO AUTHORIZES YOU TO PROVIDE ALL INFORMATION ON MY LOAN TO THE STATE'S ESCROW AGENCY UPON REQUEST. *NOTE IF MORTGAGE IS A HELOC, PLEASE PROVIDE BOTH CURRENT PRINCIPAL BALANCE AND PRINCIPAL BALANCE THAT EXISTED 180 DAYS PRIOR TO THIS REQUESTED DATE. DO NOT INCLUDE ANY LATE PAYMENTS, FEES, ETC. IN PRINCIPAL BALANCE.

Property owner to provide current:
Mortgage loan servicer _____
Mortgage loan servicer address _____
Mortgage loan number _____
Loan servicer phone number _____

_____ _____
Property Owner/Borrower Date Property Owner/Borrower Date

Project:_____ Section:_____ Parcel:_____

FINAL RFP

RIGHT OF ENTRY AND USE

Name
Attention
Address
City, State, Zip Code

Dear

Permission is hereby granted for _____ of _____, employees or their agents to enter upon the land State of Arizona, by and through the Arizona Department of Transportation (ADOT) land described as follows:

Property Identified as: Approximately _____ square feet of that portion of Land _____Arizona, GSRB&M

Part of Tax Code # _____

ADOT Parcel # _____

For the purpose(s) of: Access for _____

It is understood that this is a voluntary permission and is not a waiver in any way of the right to compensation for such land or of any remedy authorized by law to secure payment thereof.

This Right of Entry permission is in effective on the **Close of Escrow Date or the Order of Immediate Possession**, and it is further agreed that said permission will terminate automatically **upon the beginning of the proposed construction of the** _____.

In receipt of this agreement we are requesting from the _____-, a Certificate of Public Liability Insurance naming ADOT as "Additional Insured" in the amount of not less than $2,000,000.00 and will hold harmless the Arizona Department of Transportation from any liability as a result of any actions caused by _____, agrees to hold the State of Arizona, by and through the Arizona Department of Transportation (ADOT) harmless from any liability as a result of actions caused by _____, in conjunction with the its employees, licensees, invitees, trespassers or third parties.

On _____ day of _____, 2014.

_____ _____

DATE

APPROVED: ARIZONA DEPARTMENT OF TRANSPORTATION:

By: _____
Raul R. C. Torres, Manager
Property Management Section

ARIZONA DEPARTMENT OF TRANSPORTATION (ADOT)
RIGHT OF WAY GROUP – STATEWIDE/URBAN ACQUISITION SECTION

SUMMARY STATEMENT OF OFFER TO PURCHASE AND IMPROVEMENT REPORT

This statement accompanies our letter of _____ and shows the basis on which the offer is made, including any settlement amount.

A. IDENTIFICATION OF THE PROPERTY

The land is identified as _____,
_____County, Arizona

also known as Assessor Parcel No(s). _____

B. THE ESTATE OR INTEREST NEEDED

The estate(s) or interest(s) needed is/are as follows (indicated by an "X"):

☐	Fee interest (new right-of-way)	_____	Square Feet
☐	Underlying fee interest (existing rights-of-way)	_____	Square Feet
☐	Easement (new right-of-way)	_____	Square Feet
☐	_____Easement	_____	Square Feet
☐	Temporary Construction Easement	_____	Square Feet
☐	_____	_____	Square Feet

C. THE OFFER AS JUST COMPENSATION, AND BREAKDOWN

The amount offered represents just compensation, and is the result of a review and analysis of an appraisal made by a certified real estate appraiser. If only part of the property is needed, full consideration has been given to the value of the remaining property, including items requiring compensation on a "cost-to-cure" basis, if any. The analysis of the remaining property takes into account the effect of the acquisition of the land needed, and the establishment and construction of the project. A breakdown of the offer is as follows:

Land (including improvements)	$	_____
Severance Damages to remaining property (possible on partial acquisitions only)	$	_____
"Cost-to-Cure" compensation involving a facility or component on the remaining property	$	_____
_____	$	_____
Total Just Compensation	$	_____

Project:_____ Section:_____ Parcel:_____

1 – 3

D. THE IMPROVEMENTS

THE IMPROVEMENTS ASSOCIATED WITH THE PURCHASE ARE DESCRIBED AS FOLLOWS: _____

It is hereby acknowledged that all buildings and other improvements listed above that are situated entirely within or partially within the Right of Way take limits are conveyed to ADOT with Rights of Entry upon the Grantors remaining land for the purpose of building removal and other improvements as noted.

E. COST TO CURE

THE COST TO CURE ASSOCIATED WITH THE PURCHASE ARE DESCRIBED AS FOLLOWS: _____

Grantor agrees to remove all cost to cure items no later than 30 days from the date of payment, and assumes all liability connected with said removal. Further, upon expiration of the time provided for removal, all improvements associated with the cost to cure remaining partially or wholly upon the lands conveyed shall become the property of the State of Arizona, and all rights of the Grantor to said improvements associated with the cost to cure shall cease and terminate. Grantor shall be liable for the reasonable cost incurred in removing said improvements. (REMOVE STATEMENT IF COST TO CURE IS NOT WITHIN R/W)

COMMENTS AND/OR EXCLUSIONS:

_____

PERSONAL PROPERTY NOT ACQUIRED (INCLUDES ITEMS NOT PERMANENTLY ATTACHED):

_____

F. THE DOCUMENTS NEEDED

Following is a summary of the documents requiring signature (indicated by "X"):

☐ **Purchase Agreement** (this document shows the terms of the transaction, and the attached Exhibit "A" provides the exact legal description)

☐ **Warranty/Special Warranty/Quitclaim Deed** (to be notarized)

☐ Extended Occupancy Agreement

☐ **Manufactured Home**

☐ Right of Way Contract (to be notarized)

☐ **Easement** (to be notarized)

☐ Temporary Construction Easement

☐ **Arizona Substitute W-9 Form**

☐ **Summary Statement of Offer to Purchase and Improvement Report** (see below)

G. SECURITY DEPOSIT INFORMATION AND ACKNOWLEDGMENT

ADOT shall withhold $_____ in escrow, as a security deposit, in accordance with the terms of the Purchase Agreement.

Project:_____ Section:_____ Parcel:_____

2 – 3

FINAL RFP

H. SUBSURFACE IMPROVEMENT STATEMENT

1. I ☐ am ☐ am not aware of the presence of any subsurface improvements (e.g., septic systems, storm cellars, ground wells) within the area of ADOT's acquisition.*
2. Well(s) ☐ Yes ☐ No Well Registration No(s): 55-_____
3. Irrigation Water Rights ☐ Yes ☐ No **IGR Number**: 58-
4. Well is located ☐ within the acquisition area, ☐ outside the acquisition area.
   (NOTE: If you answered yes regarding water rights, please provide a copy of the appropriate certificate if available)

*If aware of such improvements, please provide any information that may assist in locating same.

GRANTOR

_____ Date _____

_____ Date _____

08/1/12

Project:_____ Section:_____ Parcel:_____

3 – 3

DEMOLITION AUTHORIZATION

DATE:_____ **DEMO #:**_____

PARCEL(S)#:_____

JOB LOCATION: _____

LIST OF STRUCTURES:_____

PERMITS: _____**DEMO** _____**DUST**

NESHAP NOTIFICATION FILED:_____

UTILITIES SHUT OFF: ___**ELECTRIC** ___**GAS** ___**WATER**___**PHONE**___**CABLE**

ABATEMENT COMPLETED BY (COMPANY/OVERSIGHT):

_____

DATE ABATEMENT COMPLETED:_____

IDENTIFY HAZARDOUS MATERIALS: _____

UNDERSTAND ENTIRE SCOPE OF WORK:_____

ALL PARTIES RECEIVED DEMO SPECS:_____

POTENTIAL: UNDERGROUND STORAGE TANKS_____**SEPTIC SYSTEM**_____

SPECIAL CONDITIONS OR CAUTIONS:_____

REMARKS:_____

_____

SIGNATURES

_____
DEMOLITION CONTRACTOR/SUPER/MGR

_____
DEMOLITION ONSITE EQUIP OPER

_____
ADOT DEMOLITION REPRESENTATIVE

(THIS CHECKLIST SHALL SERVE AS THE FINAL AUTHORIZATION FOR THE DEMO COMAPANY TO COMMENCE WORK ON PROPERTY)

Arizona Department of Transportation
Intermodal Transportation Division
206 South Seventeenth Avenue Phoenix, Arizona 85007-3213

RE: Project #:_____

I certify that I have received the following documents from the Arizona Department of Transportation:

1. State of Arizona Asbestos Contract Directory
2. Asbestos NESHAP Regulations
3. NESHAP Notification for Renovation and Demolition Activities, Arizona Department of Transportation Facilities
4. ADOT Erosion and Pollution Control Manual

_____ _____ _____
SIGNATURE PRINTED NAME DATE

_____
FIRM'S NAME

_____
STREET ADDRESS

_____ (____) _____
CITY STATE ZIP CODE TELEPHONE

ADDENDUM #1

TP ~~ATTACHMENT~~Attachment 470-2 – Demolition Contractor Requirements

ADDENDUM #1

Demolition Contractor Requirements

Demolition Contractors Experience and Licensing:

A. Minimum of 5 years experience in demolition as primary work.
   1. Commercial and residential experience
   2. Must be able to provide detailed qualifications in performing the range of demolition services on various property types in compliance with NESHAP standards, including team's resumes.
   3. Must be able to provide 3 examples of work completed similar to the Work to be contracted to complete and references
   4. Must have adequate staff to complete contract requirements on time.

B. Demolition contractor and its sub-contractors must be licensed and bonded within the State of Arizona, minimum licensing requirements are; B-1, L-57, K-57, and C-22R. Copies of licenses to be provided.

C. Demolition contractor and its sub-contractors must provide ADOT with a *Certificate of Insurance* as defined by ADOA Risk Management.

D. Demolition contractor must not subcontract work without review and consent from ADOT and all approved sub-contractors must comply with the same requirements of the prime demolition contractor.

E. Must provide a payment and performance bond

F. All demolition contractor or sub-contractors must provide and file all necessary permits required to include proper filing of all NESHAP, SWPPP, dust permits, and any and all required documentation regarding regulatory requirements. Copies of all documents must be provided to ADOT.

Equipment:

A. Provide a detailed listing of equipment owned and ability to obtain additional equipment necessary to complete the assigned work within the specified time frame.

B. All equipment must conform to current Federal, State, EPA and OSHA Laws, rules, and regulations.

C. Equipment must not be utilized for any activity that is not related to the demolition project.

D. All equipment must be in good running order and truck bed should contain side boards and top covers to prevent debris and material from spilling out.

Personnel:

A. Detailed resume of all key personnel.

B. Demolition project manager, onsite superintendent or foreman, must be AHERA certified as a contractor/supervisor. AHERA certification credential must be available at all times. If the designated individual leaves the work site, all work must cease.

C. Company must have designated and have a certified dust control coordinator on site and all water truck operators must have their certification in basic dust control. All credentials must be available at all times.

ADDENDUM #1

Job Site Requirements:

A. Demolition contractor and its sub-contractors must ensure that all debris and waste is deposited in an approved licensed landfill as defined by the type of waste classification.

B. Demolition contractor and its sub-contractors must remove all structure, substructures and abandoned utilities and remove trash and debris from the site and backfill any excavation with clean fill. If any excavation requires backfill it must be backfilled to a 30º slope or back to grade upon direction of the demolition project manager.

C. Remove all Freon by an approved certified EPA technician from the A/C units on the structures prior to beginning demolition.

D. Demolition contractor and its sub-contractors must be responsible for coordination and contacting Blue Stake and identify any utilities within the work area.

E. If any asbestos containing material or other hazardous material is discovered on the work site all work must cease, the demolition project manager must be notified and all workers must be removed from the area until the material can be analyzed, identified, and removed upon which the work can resume upon written notification by the demolition project manager.

F. Contractor must submit the NESHAP notification for review and approval by ADOT prior to filing it with the appropriate jurisdiction, as required by Law.

G. Demolition contractor must notify the demolition project manager of any unforeseen item discovered during demolition prior to removing said same from the project site.

H. Demolition contractor must notify ADOT of any environmental concerns that may be uncovered during the demolition process and cease work in the area immediately until the demolition project manager issues a release to commence work.

Utility Abandonments:

A. ADOT will provide a blank ABANDONMENT LETTER (template) to Developer for there use in abandoning the utilities.

B. The demolition contractor must have a contact person or number for all Utilities companies to fax or email abandonment letters and cc ADOT on every correspondence.

C. Gas-remove meters and abandon riser.

D. Electrical-remove meters and overhead lines.

E. Water-remove meters.

F. Communication – Phone, Cable

G. Contractor must provide ADOT a time schedule as to when the abandonment will take place prior to any work (asbestos or demo) work be done.

TP ~~ATTACHMENT~~Attachment 470-3 – Acquisition/Relocation Status Report

[THE ACQUISITION/RELOCATION STATUS REPORT IS INCLUDED IN THE RIDS AND WILL BE INCORPORATED AS TP ATTACHMENT 470-3 IN ADDENDUM #3]

ADDENDUM #1

TP ~~ATTACHMENT~~Attachment 500-1 – ~~MAINTENANCE TABLE~~

ADDENDUM #~~1~~2

Maintenance Table

ADDENDUM #~~1~~2

TP Attachment 500-1 Maintenance Table									
Ref.	Element	Performance Requirement	Repair Response		Inspection Method	Inspection Frequency	Measurement Record	Target	Weight
			Temporary	Permanent					
1 – Public Appearance									**20%**
1.1	Debris and obstructions	Paved surfaces and roadside is free from debris and obstructions that presents a hazard to motorists	N/A	2 hours paved surfaces, 48 hours other areas	Visual	Weekly	No debris on travelled way or roadside areas	100%	
1.2	Litter	Keep project in neat condition. Remove and dispose of litter regularly,	N/A	1 week, except that significant incidents of litter deposited on the Project require 2 hour response	Visual – no more than 20 pieces of litter per auditable section visible when travelling at highway speed.	Weekly	Inspection records showing compliance	<20 pieces of litter per auditable section	
1.3	Sweeping	Keep all hard shoulders, gore areas, ramps, intersections, islands, and frontage roads swept clean. Remove and dispose of -all sweepings without stockpiling in the ROW	N/A	1 week except gores and ramps – 2 weeks	Visual No un-swept areas greater than 24 inches wide, 50 feet in length ~~or ½ inch deep~~	Weekly	Inspection records showing compliance	100%	
1.4	Graffiti	All surfaces within the right-of-way shall be maintained free of graffiti.	N/A	24 hours for profanity, areas visible to travelling public and for specific call outs. 1 week for other graffiti discovered in course of Maintenance activities	Visual / Inspection	1 month	Inspection records.	100%.	
1.5	Traffic Signals	All signals including cabinets, signal supports wiring, lenses, and detection loops are functional, clean, aligned, structurally sound, and power supply is maintained. Cabinet electronics are not included.	2 hours	2 weeks	Visual	Monthly	Inspection records.	100%	
1.6	Landscaped areas (Character Areas 1,3,4,5)	All landscaped areas are maintained to their originally constructed condition. Landscaped areas are as designated in the Plans. Irrigation system maintenance and operation; plant maintenance; pruning; insect, disease, and pest control; fertilization; and watering are undertaken according to MMP. ~~Desert pavement, granite~~Granite mulch, rock mulch, and decomposed granite areas are kept free of weeds. A program and to eliminate vegetation in pavement or concrete. Mowing begins before vegetation reaches 18 in. if applicable. Backflow preventers are operating properly. Damaged or dead vegetation is ~~replaced~~removed. Replacements shall occur once survivability is less than the 80% criteria.	N/A	~~1 month~~24 hours for irrigation. 1 month for weeds. 2 months for others.	Visual Backflow preventers: Certified by qualified inspector	Monthly Annually	Inspection records showing compliance~~.~~.	~~X~~100%	

TP Attachment 500-1 Maintenance Table									
Ref.	Element	Performance Requirement	Repair Response		Inspection Method	Inspection Frequency	Measurement Record	Target	Weight
			Temporary	Permanent					
1 – Public Appearance									**20%**
1.7	Landscaped areas (Character Area 2)	Plant maintenance; pruning; insect, disease, and pest control; fertilization; and watering are undertaken according to MMP. Vegetation removal at intersections, ramps, or other areas maintains visibility of appurtenances and sight distance. Vegetation does not encroach into or on paved shoulders, main ~~lanes~~lines, sidewalks, islands, riprap, traffic barriers, or curbs. A ~~herbicide~~ program is undertaken to control ~~noxious~~ weeds ~~and~~. A program to eliminate vegetation in pavement or concrete. The height of grass and weeds is kept between ~~2~~6 in. and ~~8~~18 in. Mowing begins before vegetation reaches ~~8~~18 in. Damaged or dead vegetation is removed. Replacements shall occur once survivability is less than the 50% criteria.	N/A	~~1~~3 month	Visual	Monthly	Inspection records showing compliance.	100%	
~~1.8~~	~~Fire Hazard~~	~~Fire hazards are controlled~~	~~N/A~~	~~24 hours~~	~~Visual~~	~~Monthly~~	~~Instances of dry brush or vegetation presenting a fire hazard~~	~~0~~	
~~**2 – Roadway – Pavement Ride**~~									~~**35%**~~
~~2.1~~	~~Pavement Ride~~	~~All roadways have a smooth, quiet surface course (including bridge decks, covers, gratings, frames and boxes) free from Defects.~~	~~30 days~~	~~1 year~~	~~Ride quality: Measurement of International Roughness Index (IRI) according to ADOT Standards, Operating Inertial Profilers. (New Construction is subject to Construction Standards).~~	~~Once every other year~~	~~Mill and replace AR-ACFC when:~~ ~~Number of Auditable Sections with an average IRI greater than or equal to 150 inches/mile.~~ ~~Mainline lanes and ramps, 0.1 mile average IRI greater than or equal to 150 inches/mile.~~ ~~Frontage roads, 0.1 mile average IRI greater than or equal to 170 inches/mile~~	~~0~~ ~~0~~ ~~0~~	

TP Attachment 500-1 Maintenance Table									
Ref.	Element	Performance Requirement	Repair Response		Inspection Method	Inspection Frequency	Measurement Record	Target	Weight
			Temporary	Permanent					
~~3~~2 – Roadway ~~–~~Pavement ~~Distress Factors~~									**10%**
~~3~~2.1	Pavement ~~distress factors other than ride~~safety hazard	Pavement does not exhibit other pavement distress factors listed in FHWA publication on distress identification manual for long term pavement performance program	~~48~~2 hours for distress ~~affecting traffic~~that presents a safety hazard to motorists on mainline lanes, ramps, crossroads, and frontage roads. ~~30 days for less severe distress on travelled way~~	~~1 year~~	Visual	~~Monthly~~	~~Severity rating of "low" or better" for all pavement areas for all distress factors~~	~~100%~~	
2.2	Ruts		N/A	1 Year	~~Ruts –~~Mainline, shoulders, frontage roads, crossroads, and ramps: Depth as measured using automated device in compliance with ADOT Standards. 10-feet straightedge used to measure rut depth in localized areas.	Every other year	Number of Auditable Sections with average rut depth greater than 1/2 inch. Depth of rut at any location greater than 1 inch.	0	
2.3	Shoulder/Edge drop offs		N/A	~~6 months~~1 year	~~Shoulder/Edge drop offs:~~ Physical measurement of edge drop-off level compared to adjacent paved surface.	Monthly	Repair when: Abrupt vertical differential between the travel lane and paved shoulder ~~reach~~reaches 2 inches.	100%	
2.4	Delamination of AR-ACFC		N/A	1 year	Visual		Repair when: 5 or more areas exhibit delamination within an Auditable Section. Area shall be repaired at one time.	100%	
2.5	Potholes		~~48 hours~~N/A	1 year	~~Potholes:~~ Visual	Monthly	Repair when: Occurrence of potholes of ~~low severity or higher~~2 inch depth and 1 foot diameter.	100%	

TP Attachment 500-1 Maintenance Table									
			Repair Response						
Ref.	Element	Performance Requirement	Temporary	Permanent	Inspection Method	Inspection Frequency	Measurement Record	Target	Weight
2.6	Base Failures		~~48 hours for distress affecting traffic on mainline lanes, ramps, and frontage roads. 30 days for less severe distress on travelled way~~N/A	1 year	~~Base failures:~~ Visual	Annually	Repair when: Occurrence of Base and/or subgrade failures of low severity or higher.	100%	
2.7	Cracks		N/A	~~6 months~~1 year	~~Cracks:~~ Visual	Annually	Clean and seal cracks when: Occurrence of individual cracks 1/~~4~~2 inch wide or wider.	100%	
~~3.1 (Cont.)~~ 2.8	Settlement / Heave / Distortion~~Pavement distress factors other than ride~~	Pavement does not exhibit other pavement distress factors listed in FHWA publication on distress identification manual for long term pavement performance program	~~48 hours for distress affecting traffic on mainline lanes, ramps, and frontage roads. 30 days for less severe distress on travelled way~~N/A	1 year	~~Settlement / Heave / Distortion:~~ Depth as measured using automated device in compliance with ADOT Standards. ~~10-feet straightedge used to measure rut depth in localized areas.~~	Annually	Repair when: Surface deviations reach 1-1/2- inches in a length of 50 feet. ~~International Roughness Index (IRI) exceeds 150 inches/mile.~~ ~~Surface deviations exceed 1/2 inch between adjacent slabs.~~	100%	
					10-feet straightedge used to measure rut depth in localized areas.	Annually	Surface deviations exceed 1/2 inch between adjacent slabs.		
2.9	Joints		~~48 hours for distress affecting traffic on mainline lanes, ramps, and frontage roads. 30 days for less severe distress on travelled way~~N/A	1 year	~~Joints separation or displacement:~~ Physical Measurement	Annually	Repair when: ~~Concrete pavement joints and shoulder joint~~Joint separations between concrete pavement and adjacent asphaltic concrete pavement exceed 1/~~4~~2 inch in width. Concrete pavement joint width more than 1~~ inch or faulting more than 1/4~~/2 inch.	100%	

TP Attachment 500-1 Maintenance Table									
Ref.	Element	Performance Requirement	Repair Response		Inspection Method	Inspection Frequency	Measurement Record	Target	Weight
			Temporary	Permanent					
2.10	Spalling		~~48 hours for distress affecting traffic on mainline lanes, ramps, and frontage roads. 30 days for less severe distress on travelled way~~N/A	1 year	~~Spalling:~~ Physical Measurement	Annually	Repair when: Transverse spall which exceeds 4 inches in length in the direction of travel or which adversely affects ride quality. Longitudinal spall which adversely affect ride quality.	100%	
3 – ADA Ramps, Sidewalks, and Curbs									**10%**
3.~~2~~1	~~Curbs,~~ADA ramps and sidewalks ~~ADA ramps~~	Concrete ~~curbs,~~ramps and sidewalks are ADA compliant and are not displaced or damaged.	1 week for conditions affecting ADA requirements. ~~1 month for other conditions~~	6 months	Visual	Monthly	Inspection records and physical measurements showing compliance	100% for ADA requirements ~~90% in auditable section for curb~~	
3.2	Curb and gutter	Concrete curbs and gutters are not displaced or damaged.	N/A	1 year	Visual	Monthly	Inspection records and physical measurements showing compliance	90% in auditable section for curb and gutter	

TP Attachment 500-1 Maintenance Table									
Ref.	Element	Performance Requirement	Repair Response		Inspection Method	Inspection Frequency	Measurement Record	Target	Weight
			Temporary	Permanent					
4 – Safety and Security									**15%**
4.1	Safety Barriers, attenuators, barrier end treatments, and safety railing	All barriers, guard rail / bridge rail transitions, guard rail end treatments, and attenuators are fully functional, not damaged or displaced and are in proper location and orientation	2 hours to install safety measures	1 week for attenuators and barrier end treatments, 30 days for other failures	Visual	Annual	Inspection records showing compliance	100%	
4.2	Fence/Gates and noise walls	All ROW fence and gates are in good repair, gates are closed and locked. Noise walls are undamaged and functional;	24 hours for ROW fence and gates, Repairs on noise walls that function as ROW fence must be within 24 hrs. 30 days for other noise wall; repairs	1 week for ROW fences and gates, 6 months for noise wall	Visual	Monthly	Inspection records showing compliance	100%	
4.3	Signage and delineators	All signs and delineators are clean, oriented properly, legible, retro-reflectivity greater than 75% of new, unauthorized signs are removed, obsolete signs are removed or replaced,	2 hours for safety critical signs (regulatory and warning); 1 week for other signs.	2 weeks	Visual	Annual	Inspection records showing compliance	100%	
4.4	Lighting	Luminaires are illuminated, clean, free from defects, properly aligned; sign lighting is functional. Electrical supply is maintained from point of service provider,	2 hours for restoration of electrical supply; 2 hours for sign lighting for safety critical signs, 24 hours for other sign lighting, N/A for street lighting luminaires	1 month	Visual	Annual	Number of auditable sections with less than 90% of luminaires functioning; instance of 3 or more consecutive luminaires not functioning; lack of sign lighting creating an illegible condition for the sign	90% 0%	
4.5	Pavement marking	Pavement markings are complete, of correct color and configuration. Retro-reflectivity is 75% of new condition	48 hours	3 months	Visual	Annual	90% of pavement markings are present and compliant; no incorrect markings are present	90%	

TP Attachment 500-1 Maintenance Table									
Ref.	Element	Performance Requirement	Repair Response		Inspection Method	Inspection Frequency	Measurement Record	Target	Weight
			Temporary	Permanent					
5 – Structures									**10%**
5.1	Bridges	FHWA mandated inspections – these inspections are not delegated. ADOT will perform the required inspections. Developer will be required to carry out temporary and permanent repairs as indicated in the inspection reports	2 hours for conditions that affect life safety; 1 week or as indicated in bridge inspection report for other issues.	6 months or as indicated in bridge inspection reports.	By ADOT	Once every other year	Bridges ~~in full repair~~ with no condition rating below 7	100%	
		Visual inspections of bridge components	2 hours for conditions that affect life safety; 1 week ~~or as indicated in bridge inspection report~~ for other issues.	6 months ~~or as indicated in bridge inspection reports.~~	Visual	Annual	No visually apparent defects	100%	
5.2	Retaining walls	Mechanically stabilized earth and other types of retaining walls are free from impact damage, dislocation, are properly drained, have no loose components, and no exposed reinforcing.	2 hours for conditions that affect ~~-~~life safety, 30 days for other conditions	6 months	Visual	Annual	Inspection records showing compliance	~~0~~100%	
5.3	Sign and lighting supports	Sign and lighting supports are structurally sound, have no loose hardware or anchorages and are properly positioned and aligned.	2 hours for conditions that affect ~~-~~life safety, 1 week for other conditions	3 months	Visual	Annual	Inspection records showing compliance	~~0~~100%	
6 – Ponding/Flooding, Drainage and Slopes									**10%**
6.1	Ponding and flooding	Roadway is free from standing water after 50 year storm event	2 hours	1 month	Visual	Monthly and after storm event in compliance with SWPPP requirements	No areas of standing water within travel lanes. Areas of standing water ~~within travel lanes~~on shoulders are less than 50 SY in extent.	100%	
6.2	Detention and retention basins	Detention and retention basins are substantially free from standing water after 50 year storm event	24 hours	1 month	Visual	Monthly and after storm event in compliance with SWPPP requirements	Areas of standing water within detention and retention basins are less than 1,000 SY in extent.	100%	
6.3	Drainage systems	All ditches, channels, culverts, piped drainage systems, including pressure or syphon drainage systems work as designed to carry design flows. Catch basins, inlets, and culverts are substantially free from debris and obstructions in order to carry the design flows.	~~24~~2 hours as required to maintain capacity in case of storm event	6 months or as required to maintain capacity in case of storm event	Visual and CCTV methods a appropriate.	Annual	Drainage system ~~capacity is unimpaired~~to carry design flows	~~100%~~none	
6.4	Slopes	Cut and fill slopes are maintained at design configuration without slope failures or erosion. Erosion debris is ~~kept~~removed from roadway.	2 hours for failures that affect or threaten travelled way. 1 month for other issues.	6 months	Visual	Annual	Erosion of materials or slope failures ~~affecting travelled way~~ .	none	

ADDENDUM #~~1~~2

TP ~~ATTACHMENT~~Attachment 500-2 – ~~EXAMPLE ASSET CONDITION SCORING TABLE~~Example Asset Condition Scoring Table

ADDENDUM #~~1~~2

TP Attachment 500-2 Example Asset Condition Scoring Table										
Maintenance Limits		**Theoretical Maximum ACS**			**Adjusted Baseline ACS**			**Recorded ACS**		
Auditable Sections		**Max Adjectival Score**	**Weighting Factor (Table ~~2~~ 400-4)**	**Maximum Element Score**	**Baseline Adjectival Score**	**Weighting Factor (Table ~~2~~ 400-4)**	**Baseline Element Score**	**Recorded Adjectival Rating**	**Weighting Factor (Table ~~2~~ 400-4)**	**Recorded Element Score**
Physical AS 1										
	Element 1	5	0.35	1.75	5	0.35	1.75	5	0.35	1.75
	Element 2	5	0.15	0.75	5	0.15	0.75	4	0.15	0.60
	Element 3	5	0.10	0.50	5	0.10	0.50	3	0.10	0.30
Physical AS 2										
	Element 1	5	0.10	0.50	5	0.10	0.50	5	0.10	0.50
	Element 2	5	0.15	0.75	5	0.15	0.75	4	0.15	0.60
	Element 3	5	0.10	0.50	5	0.10	0.50	5	0.10	0.50
Physical AS "n"										
	Element 1	5	0.10	0.50	5	0.10	0.50	2	0.10	0.20
	Element 2	5	0.15	0.75	5	0.15	0.75	4	0.15	0.60
	Element 3	5	0.10	0.50	5	0.10	0.50	4	0.10	0.40

Summation of Theoretical Maximum ACS **∑ (maximum adjectival score ∗weighting factor) for all elements**	**Summation of Baseline ACS** **{∑ baseline adjectival score ∗weighting factor) for all elements}∗baseline adjustment factor from ~~table 3~~Table 400-5**		**Summation of Recorded ACS** **∑ (recorded adjectival score ∗weighting factor) for all elements**
6.50	6.50		5.45
Baseline ACS ∗ adjustment factor from Table 400-5 in Section MR 400 of the TPs		Adjustment of Baseline ACS	**Asset Condition Score** **(recorded ACS ÷ Adjusted baseline ACS) %**
Year 10 adjustment:	96.0%	6.~~72~~24	87.3%

ADDENDUM #~~1~~
2

TP Attachment 500-3 - Landscaping Preventative Maintenance Requirements

ADDENDUM #~~1~~
2

1 STAFF QUALIFICATIONS

1.1 Landscaping Supervisor

Landscaping Supervisor must be knowledgeable in the area of responsibility and have a minimum of 12 months experience in the past 24 months, performing in the same capacity on projects of similar size and scope. Supervisor must show continuing education in regards to the landscape and irrigation industry (i.e. class and/or seminars). Supervisor must have completed at least one of the following:

A. Arizona certified Landscaping Professional program or acceptable equivalent
B. Twelve semester hours of Horticulture/Plant care from accredited college
C. Certified Arborist Program as established by the International Society of Arboriculture
D. Other recognized certification programs that require the same level of plant care knowledge/experience

1.2 Irrigation Technician(s)

Irrigation technician(s) must be knowledgeable in the area of responsibility and have a minimum of 12 months experience in the past 24 months performing in the same capacity on projects of similar size and scope. Irrigation worker must show continuing education in regards to the landscape and/or irrigation industry Plant Preventative Maintenance.

1.3 Backflow Prevention Certifiers

Backflow Prevention Certifiers must be certified for the work they perform.

2 GENERAL PLANT MAINTENANCE

2.1 Tree and Plant Growth

Perform all horticultural techniques necessary to promote and maintain healthy growth of trees and plants, including staking, tying, removing or loosening ties, and removing stakes, as needed. Special devices used to tie up plants to retaining walls shall be maintained. Add, maintain, and adjust present wire net devices around plants and trees as necessary to protect plant material from pests.

2.2 General Trimming

Growth which restrict drivers' view of signs and safety devices, or which is creating other sight distance problems for drivers must be pruned. Plants repetitively causing these issues may be removed. Pruning of plant material that is in bloom is discouraged. Schedules should include sufficient time to achieve pruning when plants are dormant. Remove and legally dispose all cuttings by the end of the daily work shift.

2.3 Tree Trimming

Trees must be trimmed as needed to:

A. facilitate visual inspection of the irrigation system,
B. remove dead, diseased, or injured wood; control or direct growth covering roadway signs or causing a sight distance problem to the public,
C. remove crossed limbs,
D. eliminate growth encroaching on roadway, and
E. raise the canopy.

Acceptable practices for pruning include:

A. Crown cleaning,
B. crown thinning,
C. crown raising,
D. vista pruning, and
E. crown reduction.

Unacceptable practices include:

A. Topping,
B. lion tailing, and
C. pollarding.

2.4 Shrub Trimming

Shrubs shall be trimmed as necessary to:

A. facilitate visual inspection of the irrigation system,
B. remove dead, diseased, or injured wood,
C. control or direct growth,
D. eliminate growth encroaching on roadway, and
E. raise the canopy as needed.

No shrubs will be sheared for aesthetic purposes.

2.5 Palm Tree Trimming

All palm trees must be trimmed/skinned so no more than 1 year growth is present.

3 PLANT REMOVAL/REPLANTING

3.1 Removal

Developer shall remove and dispose of plants, shrubs, and trees which are severely distressed or which die as a result of storm damage, age, pests, or disease. All plants being removed must be noted in MIS upon removal from the job site.

3.2 Replacement

Developer shall replace any plant, shrub, or tree which dies or is severely damaged as a result of neglect, inadequate care, or inadequate maintenance, or application of chemicals, including runoff and drift onto adjacent properties. Replacement plants must be nearest size nursery stock available to the plant being replaced~~..~~. Planting methods will be in accordance with standard horticultural practices.

3.3 Potential Survival and Growth

The soil area of the chemically affected plant(s) and planting pit must be treated with activated charcoal and other soil amendments that may be required to enhance the potential survival and growth of the replacement plants.

4 WEED CONTROL

4.1 Non-Granite Areas/Native Vegetation

Developer's pesticide technician must be able to identify various wild flowers and desirable native grasses versus noxious weeds.

Native grasses must be cut, as needed, after seed heads have matured and as directed by the Project Manager or their Representative.

Native shrub species will be left to grow in a natural state and will not be trimmed, pruned, or removed, unless impeding traffic or as directed by the Project Manager or their Representative. Native shrubs must not be allowed to become invasive of one another and form dense thickets.

In the area around plants, Developer shall maintain free of weeds and grass, either a 5-foot radius or the area to the outer edge of the canopy, whichever is greater. A 3-foot radius must be maintained free of weeds and grass around the base of signs, delineators, utility poles, guardrails, fence lines, cable barriers, and other highway fixtures.

All annual and perennial weeds within non-granite areas must be treated with an approved herbicide before reaching 3 inches in height. All weeds and grasses in expansion joints of paved slopes and sidewalks must also be treated with an approved herbicide before reaching 3 inches in height.

If weeds develop beyond 3 inches in height prior to treatment, Developer shall be responsible for manual removal of the weeds, removal and disposal of cut debris, restoration of the disturbed area to its original condition, and application of an approved pre-emergent herbicide to the area.

4.2 Granite Areas

All granite areas within the project must be treated with an approved, pre-emergent herbicide at least once per year. This application will be shown on the annual and monthly schedules. Some variability will be allowed for weather conditions.

The entire granite area is to be maintained free of weeds and grasses. All annual and perennial weeds within granite areas will be treated with an approved herbicide before reaching 3 inches in height.

Disposal must be in a legal manner. All disturbed granite and earth must be restored to original condition when manual weeding is completed.

4.3 Hardscape Areas

Weeds in hardscape areas, including but not limited to slope paving, sidewalks, and capped raised medians and gore points must be treated in the same manner as the granite areas.

5 PESTICIDES AND PESTICIDE APPLICATION

Developer shall furnish all pesticides, equipment, and labor to provide pest control services. Prior to pesticide application, Developer shall provide a listing of all materials and chemicals annually at the maintenance meeting. All pesticides used must be labeled for landscape use. Restricted use pesticides with an LD 50 number lower than 500 are NOT permitted on this Project.

All pesticides used must be in the original manufacturers marked containers and tank-mixed on site. Developer shall provide storage of chemicals at off-site locations, delivering to the work site only sufficient equipment and materials to complete daily tasks.

Developer shall apply all pesticides in strict compliance with the manufacturer's instructions as they appear on the label, and as approved by the rules and regulations of the agency issuing Developer's pesticide license.

Developer shall maintain on site the Material Safety Data Sheets (MSDS) and current labels for each product used on this contract for ready reference.

Gallons of water used from the irrigation system supply for spray mix must be recorded on the daily work report.

6 OTHER PEST CONTROL

Developer shall control pests within the contracted area. Pests may include, but are not limited to mosquitos, ants, bees, rodents, insects, gophers, and other pests which burrow, crawl, fly, nest or otherwise reside within the contracted area. Pests which infest plants must be treated with an approved pesticide.

Developer shall take all normal precautions common to the trade and institute proper procedures for the control of insects, bees, pests, or disease, including clean-up and removal of standing water or other mosquito vectors. Developer shall be responsible for all damages resulting from improper procedures or the failure to take normal precautions.

Developer shall note on the Daily Work Report all pest intrusions by describing the location, the pest to be controlled, and the method of control.

7 IRRIGATION

7.1 General Irrigation

Developer shall:

A. Provide all labor and equipment necessary for inspection, maintenance, operation, and repair of the existing irrigation system.

B. See that all trees and shrubs receive the proper amount of water to maintain health and vigor. This will involve adjusting the irrigation systems for appropriate seasonal frequencies.

C. A watering schedule must be prepared by someone specialized in irrigation, such as a horticulturist or water administrator. The detailed schedule must be submitted annually at the maintenance meeting. This schedule must list water requirements for specific species of plants and be entered in to the controllers. Developer shall adhere to the watering schedule and any changes to the schedule, or deviation from it, must be noted in the MIS.

D. Developer shall establish an annual water budget and set a monthly percentage of that budget to determine a maximum monthly usage. This information must be included in Developer’s annual irrigation plan.

E. Be responsible for daily surveillance of the irrigation system to assure that all component features are operating as designed. These component features include, but are not limited to, back flow preventers, controllers, valves, pressure regulators, filters, water lines, emitters, sensing devices, and the entire electrical system.

F. Alarms showing on controllers must be rectified, and an entry made in MIS of the occurrence.

G. Report through the MIS any malfunction of the irrigation system which requires emergency repair for the safety of the public or to protect the landscaping.

H. Notify the Project Manager's Representative to inspect all subsurface repairs to the irrigation system prior to backfilling.

7.2 Irrigation System Inspection

In addition to daily Surveillance, during the landscape establishment period after Final Acceptance, Developer shall conduct a formal monthly Inspection of the Non-Maintained Element irrigation systems. The irrigation inspection must include the items identified in Table 7~~-~~-1, Irrigation Inspection Checklist.

Irrigation systems in the Maintenance Service Limits shall be inspected when and as determined by Developer.

Table 7-1
Irrigation Inspection Checklist

Item No.	Description	X Indicates Services Completed
1	All emitters for even water distribution over area covered within plant canopy.	
2	Pressure at all electric remote control valves. Clean boxes as needed.	
3	Pressure at all pressure regulators. Clean boxes as necessary.	
4	Gallonage/hour at five emitters per valve.	
5	Pressure at two end caps from same lateral line as emitter check (Item 4). Record valve and regulator number.	
6	Verify zero flow with only master valve open and record pressure.	
7	Verify that the water meter, flow monitor, and controller agree on flow rates.	
8	Clen component cabinets and the controller enclosure area.	
9	Check and record ohms reading for each valve output (all outputs off).	
10	Flush the filter(s) and check pressure gauge(s).	
11	Check system for leakage and malfunctioning components.	
12	Reset total flow counter in flow monitor to zero.	

7.3 Not Used

7.4 Irrigation Water Distribution

7.4.1 Emitters

Emitters must be kept properly positioned for even water distribution within the area of the canopy. Check at random to determine the flow rate in gallons per hour during the monthly irrigation Inspection. When the emitter shows that the flow rate is twice that of the designed flow, the emitter must be replaced by Developer. When the tested emitters have failed, five additional emitters must be checked to determine flow rates. When the majority of emitters fail,

the entire section for the tested valve will be replaced. Developer shall replace all failed emitters as part of the Maintenance Services Work.

7.4.2 Irrigation Line

Line cleaning stubs must be flushed and pressure checked at least monthly. Results of the line cleaning stubs pressure checks shall be noted on the Daily Work Report.

7.4.3 Water Efficiency

Developer shall ensure that water is used efficiently and not wasted. Developer shall water by hand or by other ADOT approved means when the irrigation system is temporarily out of order. In case of interruptions, Developer shall create a notification within the MIS for any such occurrence.

8 REPAIRS TO IRRIGATION SYSTEM

Developer shall furnish all labor, equipment, pipe, repair parts and kits, and supplies to make repairs, replacements, and adjustments to the irrigation systems as part of the irrigation maintenance service.

All replacement parts and installation procedures must be same as original unless otherwise approved by the Project Manager's Representative.

9 HERBICIDES

~~ADOT has approved~~Developer shall use the ~~following~~ herbicides ~~to be utilized~~listed in Table 9-1 for weed control~~ for this contract.~~. Additional products may be ~~approved~~used upon request~~ and~~, evaluation, and approval by ADOT.

Table 9-1
Approved Herbicides for Weed Control

Product Name	Active Ingredient
Surflan	Oryzalin
Pendulum	Pendimethalin
Carricade	Prodiamine
Roundup	Glyphosate
Reward	Diquat dibromide
Poast	Sethoxydim
Fusilade	Fluazifop Butyl
Endurance	Prodiamine
Galary	Isoxaben
Clean	Amine 2,4 Dichloro-Phenoxyacetic acid

All herbicides ~~shall~~must have an approved dye added to facilitate inspection after application