I-40 RIORDAN BNSF RAILROAD OP EB/WB

CONTRACT NUMBER: 2025-006

November 19, 2024

Arizona Department of Transportation (ADOT) | Engineering Consultants Section
205 South 17th Avenue, Mail Drop 616E
Phoenix, Arizona 85007

Dear Selection Panel Members:

Replacing the almost 75 year old Riordan I-40 structures that cross the BNSF Railway just west of Flagstaff is key to saving maintenance costs and improving safety, as many recent emergency repairs have been costly and negatively impacting to travelers. ADOT is advancing final design to replace the eastbound (EB) and westbound (WB) bridges, which will include project scoping and bridge type selection. WSP is very interested in providing ADOT with services to deliver these improvements. Our team has developed Performance-Based Practical Design (PBPD) options that optimize this project, vetted concepts with stakeholders, and identified significant cost savings. Building from our continuous work in Flagstaff for the past seven years on bridge projects that require BNSF, USACE, and Forest Service coordination (SR 89A, Lone Tree Overpass (OP), and Downtown Mile), we bring unmatched local expertise and experience.

WSP has tailored our team to include partners who bring unique value to this project. We are exclusively teamed with **TranSystems** for BNSF coordination and **Kimley-Horn** for I-40 broadband considerations. Both have prior work experience with the I-40 Riordan bridges. Our team also includes **Corral Design Group** for erosion control/landscaping support and **Cooper Aerial** for surveying. **Angie Galietti** will serve as our Project Manager (PM), specifically selected for her leadership experience working with the ADOT Project Management Group (PMG), Bridge Group (BG), and Northcentral (NC) District. The WSP team's combined knowledge of the project area, including the BNSF West Flagstaff triple track project and existing fiber optics, enhanced by our ADOT bridge design experience will be key to identifying the appropriate structural approach for this project.

WSP is committed to meeting all quality and schedule expectations for the I-40 Riordan BNSF Railroad Overpass Bridge Replacements project. While WSP is not a certified DBE and this project is designated as Race Neutral with a 0% DBE goal, we are dedicated to assisting ADOT in reaching its overall goal through meaningful inclusion of DBE subconsultants. If you have any questions or require additional information related to our proposal, please contact me at 480.921.6875 or joy.melita@wsp.com

Sincerely,
WSP USA Inc.

Joy Melita, AZ PE #31131
Senior Vice President, Project Principal

Angie Galietti, AZ PE #58889
Project Manager

WSP Benefits for Successful Delivery:

Unique Stakeholder Relationships

- WSP and TranSystems are working with the BNSF on City of Flagstaff Lone Tree Overpass and Downtown Mile projects. Successful partnering with BNSF was critical in obtaining design approvals, managing variance requests with the railroad (total of 10), developing a construction schedule, and obtaining final approvals.
- We are familiar with the Dark Skies program that will be required by the US Naval Observatory on this project. We will balance Dark Skies and BNSF requirements using independent approaches to structure and roadway lighting practices.
- WSP environmental staff bring longstanding relationships with U.S. Fish and Wildlife Service and the Coconino National Forest from the A-1 Mountain TI and I-17, Coconino County Line to I-40 projects. Their insights will help with identifying concerns and ensuring mitigations are followed during design and construction.

Project Manager with Relevant Experience

- Angie Galietti delivered the San Pedro River and Clifton Bridge Replacement projects as the ADOT Project Delivery Manager (PDM). She understands how to execute design and advertisement while adhering to funding constraints and the ADOT project delivery process.
- Angie has completed five pavement projects and one broadband project with Northcentral District. She is familiar with staff and their priorities, such as movement of traffic (MOT) operations, winter shutdowns, and materials considerations.
- I-40 East Broadband Backbone project has given Angie insight on the future I-40 West project that will impact the Riordan bridges. She has reviewed construction documents and coordinated impacts to railroad bridges.

PBPD Bridge Design Approach

- We bring fresh ideas for replacing the Riordan bridges that minimize traffic disruptions and final roadway realignments.
- We have experience in Arizona utilizing innovative bridge elements such as precast stay-in-place forms and new girder shapes. We have also investigated various construction methods like cantilever post tensioned boxes with drop-in spans and bridge launching for construction with BNSF on the Lone Tree Overpass project.
- WSP has in-house rock geology experts with extensive experience in this region. On similar projects in the area, the team has performed various types of geophysical surveys, including REMI and MASW, as necessary to characterize the underlying surface materials.

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wsp.com

Engineering Consultants Section
SOQ Proposal Certifications Form

Contract #: 2025-006 Consultant Name: WSP USA Inc.

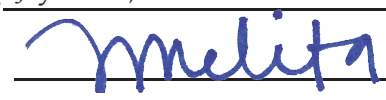
Please read the fifteen (15) statements below. The statements are to ensure Consultants are aware and in agreement with Federal, State and ECS guidelines related to the award of this contract. Consultants shall submit the specific Certification form attached to each RFQ advertised, as revisions to the form may occur from time to time. Failure to sign and submit the certification form specified in the RFQ with the SOQ proposal will result in the SOQ proposal being rejected.

Submission of the SOQ by the Consultant certifies that to the best of its knowledge:

1.	The Consultant and its subconsultants have not engaged in collusion with respect to the contract under consideration.
2.	The Consultant, its principals and subconsultants have not been suspended or debarred from doing business with any government entity.
3.	The Consultant shall have the proper Arizona license(s) and registration(s) for services to be performed under this contract. Furthermore, the Consultant shall ensure that all subconsultants have the proper Arizona license(s) and registration(s) for services to be performed under this contract.
4.	The Consultant's signature on any SOQ proposal, negotiation document or contract constitutes that a responsible officer of the Consultant has read and understands its contents and is empowered any duly authorized on behalf of the Consultant to do so.
5.	The Consultant's Project Team members are employed by the Consultant on the date of submittal.
6.	All information and statements written in the proposal are true and accurate and that ADOT reserves the right to investigate, as deemed appropriate, to verify information contained in proposals.
7.	Key members of the Project Team, including subconsultants, are currently licensed to provide the required services as requested in the RFQ package.
8.	All members of the Project Team who are former ADOT employees did not have or provide information that gives the Consultant a competitive advantage; and either (1) concluded their employment with ADOT at least 12 months before the date of the SOQ or (2) have not made any material decisions about this project while employed by ADOT.
9.	Work, equating **at least 51%** of the contract value, shall be completed by the Consultant unless otherwise specified in the SOQ or contract.
10	No Federally appropriated funds have been paid or shall be paid, by or on behalf of the Consultant for the purpose of lobbying.
11.	The Consultant understands that it is required to have a compliant accounting system, in accordance with Generally Accepted Accounting Principles (GAAP), Federal Acquisition Regulation (FAR) of Title 48, Code of Federal Regulations (CFR)-Part 31, applicable Cost Accounting Standards (CAS), and ADOT Advance Agreement Guideline.
12.	If project is funded with Federal Aid funds, the Consultant affirmatively ensures that in any subcontract entered into pursuant to this advertisement, Disadvantaged Business Enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award, in accordance with Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4) and the Regulations.
13.	The Consultant shall utilize all Project Team members, subconsultants and DBE firms, if applicable, submitted in the SOQ, and shall not add other Project Team members or subconsultants, unless the Consultant has received prior written approval from ADOT.
14.	The Consultant shall either meet its DBE goal commitment and any other DBE commitments or make Good Faith Efforts to meet the DBE goal commitments as stated in its SOQ proposal or Cost Proposal and shall report on a timely basis its DBE utilization as detailed in the contract.
15.	If selected, the Consultant is committed to satisfactorily carry out the Consultant's commitments as detailed in the contract and its SOQ proposal.

I hereby certify that I have read and agree to adhere to the fifteen (15) statements above and/or that the statements are true to the best of my knowledge as a condition of award of this contract.

Print Name: Joy Melita, PE Title: Senior Vice President, Project Principal

Signature:  Date: November 19, 2024

Revised 2/11/2022

ARIZONA DEPARTMENT OF TRANSPORTATION
ENGINEERING CONSULTANTS SECTION
PARTICIPATION IN BOYCOTT OF ISRAEL - CONSULTANT CERTIFICATION FORM
ADOT ECS Contract No.: 2025-006

This Certification is required in response to legislation enacted to prohibit the State from contracting with companies currently engaged in a boycott of Israel. To ensure compliance with A.R.S. §35-393, this form must be completed and returned with any response to a solicitation (SOQ), Contract Cost Proposals, and Contract Time Extensions. The Consultant understands that this response will become public record and may be subject to public inspection.

Please note that if any of the following apply to this Solicitation, Contract, or Contractor, then the Offeror shall select the "Exempt Solicitation, Contract, or Contractor" option below:

- The Solicitation or Contract has an estimated value of less than $100,000;
- Contractor is a sole proprietorship;
- Contractor has fewer than ten (10) employees; OR
- Contractor is a non-profit organization.

Pursuant to A.R.S. §35-393.01, public entities are prohibited from entering into contracts "unless the contract includes a written certification that the company is not currently engaged in, and agrees for the duration of the contract to not engage in, a boycott of goods or services from Israel."

Under A.R.S. §35-393:

1. "Boycott" means engaging in a refusal to deal, terminating business activities or performing other actions that are intended to limit commercial relations with entities doing business in Israel or in territories controlled by Israel, if those actions are taken either:

   (a) Based in part on the fact that the entity does business in Israel or in territories controlled by Israel.
   (b) In a manner that discriminates on the basis of nationality, national origin or religion and that is not based on a valid business reason.

2. "Company" means an organization, association, corporation, partnership, joint venture, limited partnership, limited liability partnership, limited liability company or other entity or business association, including a wholly owned subsidiary, majority-owned subsidiary, parent company or affiliate, that engages in for-profit activity and that has ten or more full-time employees.

…

5. "Public entity" means this State, a political subdivision of this State or an agency, board, commission or department of this State or a political subdivision of this State.

The certification below does not include boycotts prohibited by 50 United States Code Section 4842 or a regulation issued pursuant to that section. *See* A.R.S. §35-393.03.

In compliance with A.R.S. §§35-393 *et seq*., all offerors must select one of the following:

☑ The Company submitting this Offer **does not** participate in, and agrees not to participate in during the term of the contract, a boycott of Israel in accordance with A.R.S. §§35-393 *et seq*. I understand that my entire response will become public record in accordance with A.A.C. R2-7-C317.

☐ The Company submitting this Offer **does** participate in a boycott of Israel as described in A.R.S. §§35-393 *et seq*.

☐ **Exempt Solicitation, Contract, or Contractor.**
Indicate which of the following statements applies to this Contract:
☐ Solicitation or Contract has an estimated value of less than $100,000;
☐ Contractor is a sole proprietorship;
☐ Contractor has fewer than ten (10) employees; and/or
☐ Contractor is a non-profit organization.

WSP USA Inc.	Melita
Company Name	Signature of Person Authorized to Sign
1230 W Washington Street, Suite 405	Joy Melita, PE
Address	Printed Name
Tempe Arizona 85288	Senior Vice President, Project Principal November 19, 2024
City State Zip	Title Date

Participation in Boycott of Israel – Consultant Certification
Form Revised - 4/28/2020

FORCED LABOR OF ETHNIC UYGHURS BAN
Certification Form

Forced Labor of Ethnic Uyghurs Ban

Please note that if any of the following apply to the Consultant, then the Offeror shall select the "Exempt Consultant" option below:

- Consultant is a sole proprietorship;
- Consultant has fewer than ten (10) employees; OR
- Consultant is a non-profit organization.

Pursuant to A.R.S. § 35-394, the State of Arizona prohibits a public entity from entering into or renewing a contract with a company unless the contract includes written certification that the company does not use the forced labor, or any goods or services produced by the forced labor, or use any consultants, subconsultants, or suppliers that use the forced labor or any goods or services produced by the forced labor of ethnic Uyghurs in the People's Republic of China.

Under A.R.S. §35-394:

1. "Company" means an organization, association, corporation, partnership, joint venture, limited partnership, limited liability partnership, limited liability company or other entity or business association, including a wholly owned subsidiary, majority-owned subsidiary, parent company or affiliate, that engages in for-profit activity and that has ten or more full-time employees.

   (a) Based in part on the fact that the entity does business in Israel or in territories controlled by Israel.
   (b) In a manner that discriminates on the basis of nationality, national origin or religion and that is not based on a valid business reason.

2. "Public entity" means this State, a political subdivision of this State or an agency, board, commission or department of this State or a political subdivision of this State.

In compliance with A.R.S. §§ 35-394 et seq., all offerors must select one of the following:

☑	The Company submitting this Offer does not use, and agrees not to use during the term of the contract, any of the following: • Forced labor of ethnic Uyghurs in the People's Republic of China; • Any goods or services produced by the forced labor of ethnic Uyghurs in the People's Republic of China; or • Any Consultants, Subconsultants, or suppliers that use the forced labor or any goods or services produced by the forced labor of ethnic Uyghurs in the People's Republic of China.
☐	The Company submitting this Offer **does** participate in use of Forced Uyghurs Labor as described in A.R.S. § 35-394.
☐	**Exempt Consultant.** Indicate which of the following statements applies to this Consultant (may be more than one): ☐ Consultant is a sole proprietorship; ☐ Consultant has fewer than ten (10) employees; and/or ☐ Consultant is a non-profit organization.

WSP USA Inc.
Company Name

1230 W Washington Street, Suite 405
Address

Tempe | Arizona | 85288
City | State | Zip

Signature of Person Authorized to Sign

Joy Melita, PE
Printed Name

Senior Vice President, Project Principal
Title

ADOT ECS Contract No: 20XX-XXX

Forced Labor of Ethnic Uyghurs Ban Certification Form *(rev 10-2022)*

Introduction

The Riordan BNSF Railroad OP bridges have come to the end of their design service lives. These two steel structures were originally constructed in 1950 to carry I-40 EB and WB traffic over the existing railroad just west of Flagstaff. Since construction, the bridges have been widened, updated with new barrier, seismically retrofitted, and repaired numerous times. Today, the Riordan bridges convey key commerce traffic by spanning two BNSF Railway TransCon Mainline tracks, Forest Service Road 520, the US Naval Observatory (USNO) access road, and a small drainage channel.

ADOT Bridge Group (BG) and Northcentral (NC) District have been rehabilitating and performing emergency repairs on the Riordan bridges for the last 34 years. As discussed with Bill Downes (ADOT BG), during the most recent emergency repairs, patches began failing before the deck repair project was complete. Additionally, multiple guardrail replacements have been needed adjacent to the WB left lane since trucks repeatedly hit the assembly. To reduce guardrail sideswipes, TSMO has installed chevrons to direct attention to the curvature across the bridge.

Considering the age and deterioration of these bridges, ADOT has prioritized replacement in the Five-Year Program for FY27 construction using Bridge Formula Program funds. The WSP team, led by Angie Galietti, brings extensive bridge design experience working with ADOT, BNSF, the USNO, and Coconino National Forest in the Flagstaff area to efficiently deliver the Riordan bridge replacements. We understand ADOT design practices to apply blended local and ADOT expertise in developing Performance-Based Practical Design (PBPD) solutions right for the Riordan bridges, as well as their requirements and local conditions. An overview of our team's understanding of issues and concerns – as identified through ADOT and stakeholder discussions, project research, corridor experience and relevant lessons learned – is shown in **Figure 1.** We have performed extensive conceptual design in preparation for this project and have tailored our delivery approach specific to this project based on these concerns.

Figure 1. *Identified Issues from Stakeholder Discussions*

We've Heard Your Concerns

ADOT Project Management Group

- Deliver project in FY27
- Bridge Formula Program funds cover Replacement only, any spiral curve realignment will be required to fit within bridge limits and will need to justify additional funding

ADOT Bridge Group

- Provide minimum 23'-6" vertical clearance over BNSF tracks with minimal roadway profile adjustment and minimum 15'-0" horizontal clearance from edge tracks

ADOT Northcentral District

- Reduce the number and duration of crossovers and maintain two lanes of traffic in each direction during MOT operations

ADOT Geotechnical Group

- Prepare a comprehensive field exploration plan for challenging project features including topography, traffic impacts, and BNSF coordination

BNSF Railway

- Meet vertical and horizontal clearances
- Accommodate future 3rd track
- Consider no Q4 work and minimal track interference windows during construction

ADOT Utilities & Railroad

- Obtain Right of Entry for Design and Construction Maintenance Agreement
- Provide early BNSF coordination

ADOT Environmental Planning

- Prioritize early geotechnical environmental clearance
- Provide early documentation of historic elements including Riordan Atchison, Topeka and Santa Fe Railroad EB OP, Historic Route 66 and AT&SF Railroad Mainline, and Northern Route Topock-Lupton Railroad

Coconino National Forest

- Maintain access during construction
- Build coordination with Forest Service into design schedule

US Naval Observatory

- Maintain road access during construction
- Ensure Dark Skies requirements are provided during and after construction to comply with BNSF underdeck lighting.

ADOT Drainage

- Realign EB bridge piers parallel with flow direction to minimize flow impact
- Bridge pier scour mitigation

Tasks & Technical Elements

With more than 40 years of service to ADOT, WSP has extensive experience in preparing scoping and final design documents for ADOT highways and interstates. In her role as an ADOT PDM and a Consultant PM for ADOT projects, Angie Galietti has gained experience with the ADOT project management procedures and funding requirements to understand Department goals that focus project delivery in accordance with the Dictionary of Standardized Work Tasks. The major tasks associated with the I-40 Riordan bridge replacement project are detailed in **Figure 2.** Effective execution of these tasks will address special issues and mitigate risks to successfully deliver this project.

WSP understands $45M has been programmed using Bridge Formula funds, which will include design and coordination with BNSF but does not include any design outside of the bridge limits. With the PA, we will estimate the project cost to validate the funding amount needed.

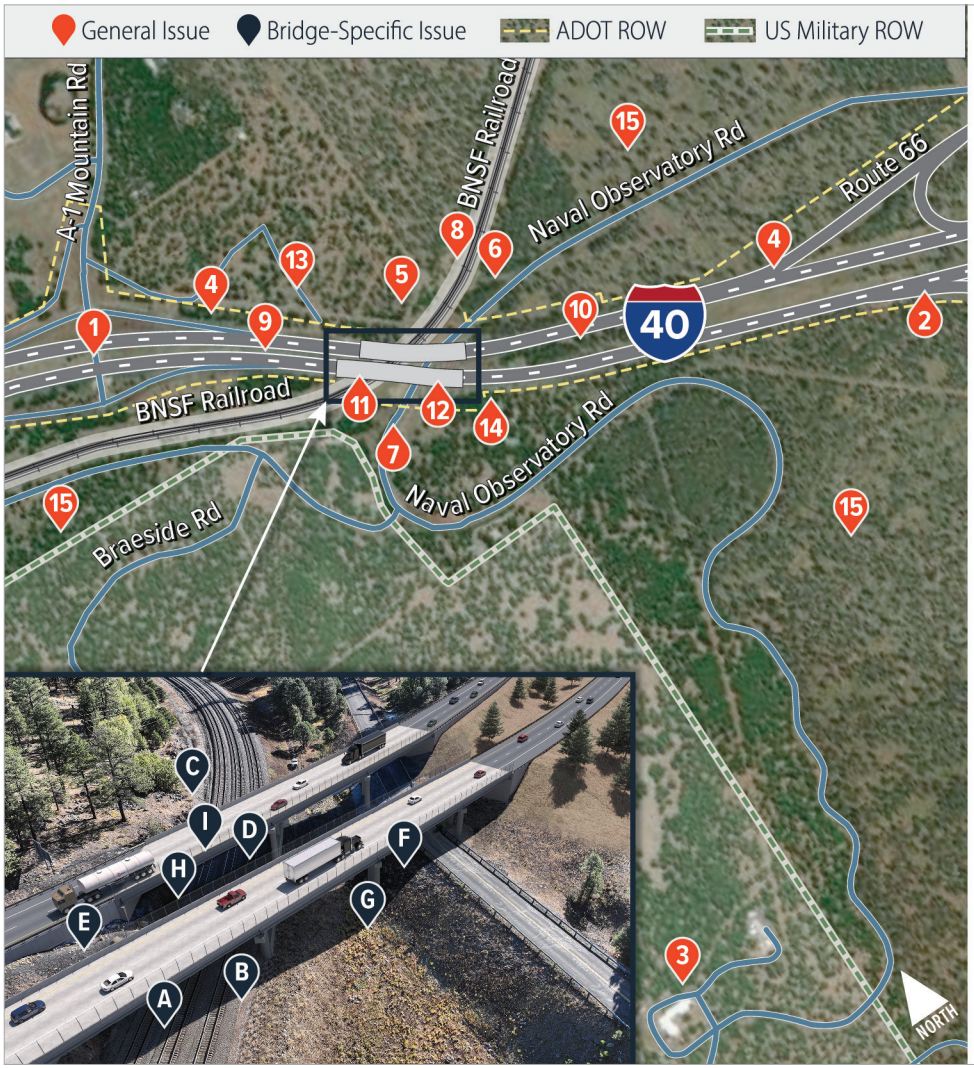
Figure 2. *Major Tasks for Delivering I-40 Riordan*

Scoping Document	Environmental	Stakeholder Outreach	Final Design
» Design Criteria	» Geotechnical Clearance	» Agency Coordination	» VE Workshop
» AASHTO Report	» Section 106 Documentation	» Continued Stakeholder Coordination	» Discipline Design and Reports
» Preliminary Bridge Selection Report	» NEPA Scoping Letters	» ADOT URR Coordination Support with BNSF	» Final Bridge Selection Report
» Project Assessment (PA)	» Technical Resources Reports	» USNO/Military Coordination for Temporary and Permanant Construction Impacts	» Design Exceptions/ Variances
» Variances required from BNSF and other stakeholders	» NEPA Document		» Stage II, III, IV, PS&E
» Data Collection /Field Investigations			» URR, R/W, EP Clearances
			» Advertisement and Post Design Services

Our team will take a fresh look at the recommendations noted in the *2013 Draft Final DCR I-40, Bellmont to Winona* to accommodate the A-1 Mountain and West Kingman TI projects which were constructed after the DCR was finalized. These TI's both introduce constraints that were not applicable during DCR development. WSP will address these constraints in a Project Assessment (PA) in addition to completing the Initial Bridge Selection Report (BSR). Incorporating newly identified BNSF requirements and projects will be key in this update. The PA will evaluate alternatives and discuss I-40 realignment options to eliminate A-1 Mountain TI ramp reconstruction as shown in the DCR. Following PA completion, the team will work to provide Stage II, Stage III, Stage IV, Final BSR, and PS&E design documents for bid advertisement.

Our team's previous design work gives us a unique local understanding of the tasks and elements required for successful delivery (see **Figure 3**). Our Bridge Lead, Rafe Davis, also brings unique institutional knowledge for this bridge, gained while working as ADOT Assistant State Bridge Engineer - Bridge Operations & Preservation Services, to streamline scoping and final design activities. Effectively engaging stakeholders will be necessary to reach timely consensus on the PA to successfully advance the project as programmed for FY27 construction. With the team's previously established relationships with ADOT PMG, ADOT NC, BNSF and Forest Service from recent projects, we understand coordination with all parties will be essential to ensure all needs and requirements are understood early in the process.

Figure 3. *WSP Features and Project Issues Map*



GENERAL PROJECT ISSUES

S *WSP Solutions to Project Issues*
E *WSP Executable Actions to Project Issues*

1. A-1 Mountain TI Proximity
2. West Flagstaff Kingman TI Proximity
3. US Naval Observatory
4. Minimize crossover to reduce ramp closures and minimize realignment to eliminate permanent geometric changes of I-40 S
5. Provide BNSF Access Road E
6. Utilize existing construction access route for geotechnical investigations and construction access S
7. Maintain Naval Observatory Road Access during construction E
8. Protect existing tracks and maintain rail traffic during construction E
9. I-40 existing spiral curve adjustments to reduce vehicular collisions to barrier and guardrail S
10. MOT operations to maintain two lanes in each direction open during construction E
11. Maintain ITS service during construction and replace 4" rigid metal conduit with 7-way micro duct conduit E
12. Coordinate APS electric line relocation E
13. Section 106 to provide early identification of Old Route 66 and other historic elements E
14. Coordinate with Military to ensure minimal impact in their easement near MP 191. E
15. Coconino National Forest.

BRIDGE-SPECIFIC ISSUES

- **A.** Minimize profile adjustment to provide minimum vertical clearance 23'-6" to BNSF tracks S
- **B.** Lengthen span to incorporate BNSF future third track and provide horizontal clearance S
- **C.** BNSF Aerial Easement
- **D.** Underdeck lighting to meet BNSF and Naval Observatory Dark Skies requirements. E
- **E.** Mechanical removal on rock slopes required to accommodate BNSF blasting restrictions. S
- **F.** Utilize shallow foundations to reduce construction footprint and large equipment need. S
- **G.** Reevaluate and replace scour mitigation measures. E
- **H.** Obtain BNSF approval for construction of span and use of shoring over track.
- **I.** Propose Precast Concrete Girders over tracks, Cast-in-place prohibited. S

Special Issues

Bridge Replacement Alternatives

ISSUE: ***The existing I-40 EB and WB Riordan bridges require replacement with a variety of constraints, including vertical clearance, horizontal geometry, future 3rd track considerations, and access during construction.***

Approach:

WSP is proposing a common and conventional approach to meet the project's constraints (see **Figure 4**). We recommend a concrete structure that utilizes cantilevered girders over the piers on either side of the tracks that will allow a reduced girder span and minimal profile adjustments. Slight alignment adjustments will be completed through bridge phasing and construction (see MOT & Construction Sequencing on page 9) to shorten spans and mitigate geometric concerns associated with truck/barrier collisions on I-40 (see I-40 Curvature, page 8). Although steel structures can provide a reduced superstructure depth and allow for longer spans, WSP has evaluated similar configurations over BNSF rails and determined that concrete girders are more cost effective comparatively.

Various Accelerated Bridge Construction (ABC) methods may be utilized to decrease construction time and costs. Due to BNSF restrictions on bridge slides, our team has found other ways to use ABC methods to ensure BNSF design approval. A modified bridge launching approach can be evaluated during to design to consider girder placement from the existing I-40 structures to reduce construction footprint on BNSF and US Navy properties.

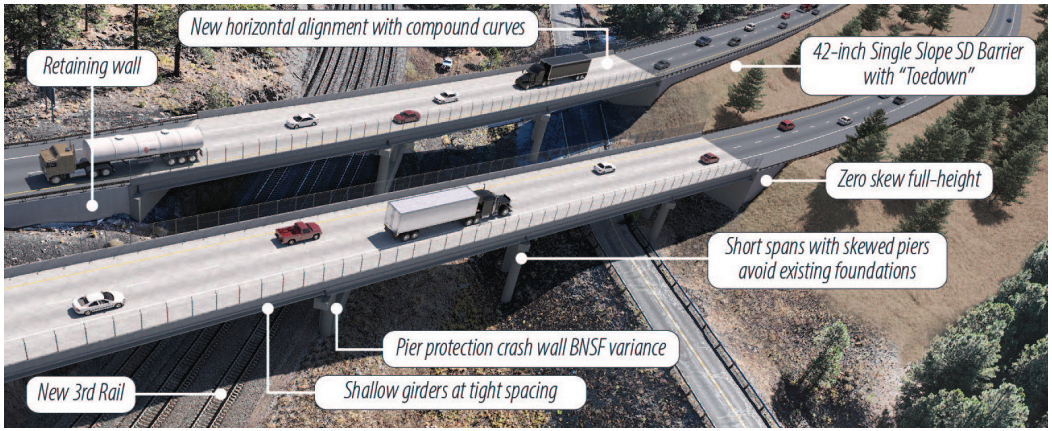
During project scoping phase and through the BSR, the team will evaluate various structure types in concurrence with MOT and I-40 alignment considerations to provide a cost/benefit comparison that will consider the following design elements:

- Increasing span length without raising vertical profile (see **Figure 5**)
- Phasing bridge removal for most economical construction
- Using shallow foundations instead of drill shafts to reduce construction access and footprint
- Obtaining variances from BNSF for the use of crashwalls to reduce the horizontal clearance, span length, girder lifting weight and project costs

Benefit/Value of WSP's Bridge Concept:

- Shortens bridge by building the east Abutment between the existing pier and abutment. Negates need for deep shoring, shortens bridge, and prevents major excavation in problematic existing fill.
- Skews piers adjacent to tracks and wash to reduce scour and shorten spans, which will reduce I-40 profile adjustments and project costs.
- Builds new abutments with no skew to reduce the volume of concrete and horizontal forces. Single phase construction of bridges reduces contract time, improves resiliency of bridges, improves constructability, and reduces costs.
- Orients foundations to prevent conflict with existing bridge foundations for single-phase construction of the bridges. Reduces contract time, improves constructability, shifts construction away from traffic, reduces roadway work and reduces costs.

Figure 4. *Visualization of WSP's Concrete Bridge Concept*



WSP's bridge innovations will save $2.5M from typical baseline practices in the industry.

PBPD Options

- Use clear Stay-in-Place forms to meet BNSF requirements of no removable wood forms of the deck and allow for future inspection of the underside of the deck to meet ADOT and FHWA bridge inspection requirements.

Courtesy of Contech ClearCast Forms

- Place Bulb Deck Girder with Ultra-High Performance Concrete joints to eliminate formwork, eliminate deck and reinforcing placement, and reduce bridge construction by a minimum of three months.

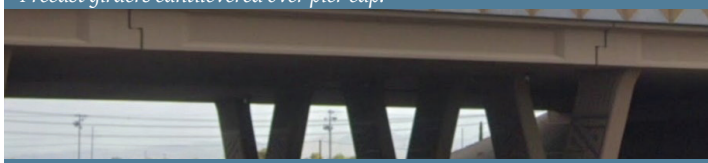
Our PBPD ideas optimize dollars spent and reduce risk.

Concepts Not Compatible With Project

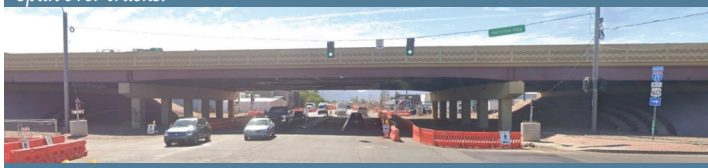
- Avoid Bridge Slides over BNSF tracks, violates BNSF requirements. Bridge skew and geometry restrict slide compatibility.
- Avoid Bridge Launching. Risky with skew and curve and not allowed over BNSF.

Figure 5. *Examples of Cantilevered Girders on ADOT Bridges*

Precast girders cantilevered over pier cap.



CIP PT-box girder bridge. Cantilever with hinge for drop in precast span over tracks.



3 span steel plate girder bridge with variable depth.

I-40 Curvature Across Bridges

ISSUE: ***While bridge formula funds may limit the scope of work that can be included in replacements, the I-40 curvature currently contributes to bridge incidents and was recommended to be realigned in the I-40 DCR.***

Approach:

The Riordan BNSF Railroad OP bridges are located between sharp reverse curves and spiral transitions requiring a maximum 5.9% superelevation in both directions of travel. Since the DCR recommended realigning I-40, conditions in the area have changed and warrant a fresh review. With the PA, we will develop alternatives to improve geometrics that complement the bridge replacements and explore funding opportunities as necessary to bundle this roadway work with the project. From our preliminary analysis, we recommend taking advantage of the wide median by realigning up to ½ mile of EB I-40 north into the median. This allows a more streamlined bridge construction/removal process, eliminates the need for temporary EB crossovers, and reduces impacts to the recently reconstructed A-1 Mountain Road TI ramps. We believe an EB realignment is more desirable than a WB realignment because:

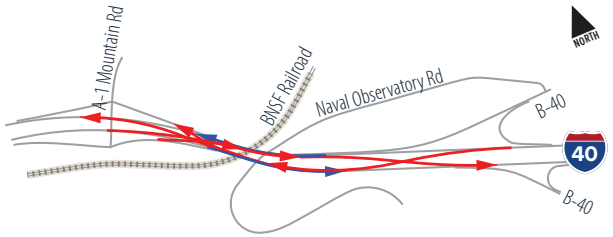
- WB cannot shift north due to pinch point with private land to east and rock outcroppings to west
- WB shift into median results in a larger reconstruction footprint due to the existing reverse curve layout
- WB realignment requires more reconstruction of WB A-1 Mountain Road off-ramp
- EB realignment uses the existing reverse curve layout to minimize reconstruction
- EB A-1 Mountain Road on-ramp geometry is more conducive to minimizing ramp reconstruction limits

Benefit/Value:

Our approach uses the I-40 realignment geometry to minimize reconstruction extents and eliminate EB crossovers while increasing driver safety by providing adequate superelevation and runout lengths (per 2021 ADOT Roadway Design Guidelines (RDG) (revised February 2022)). This approach also improves constructability by minimizing the impacts of superelevation transitions across the structures. The flat longitudinal grades along I-40 will allow flexibility to accommodate the 23'-6" vertical clearance over the future 3rd BNSF track without extending reconstruction limits beyond what is necessary for the horizontal realignment. Our initial analysis also indicates that we can raise WB I-40 in its current alignment to accommodate the 23'-6" clearance over BNSF without encroaching into the WB A-1 Mountain Road off-ramp (**Alternative 2** in **Figure 6** below). We are aware that the existing EB A-1 Mountain Rd on-ramp is deficient in entrance taper length due to its proximity to the Riordan OP. Any reconstruction of this ramp associated with the EB I-40 realignment without widening the new structure to accommodate the required taper length will require approval of a Design Variance. We will prepare the AASHTO Report and necessary documentation for ADOT/FHWA approval of any DE/DVs.

Figure 6. *WSP's Approach to Roadway Permanent Construction and MOT Sequencing*

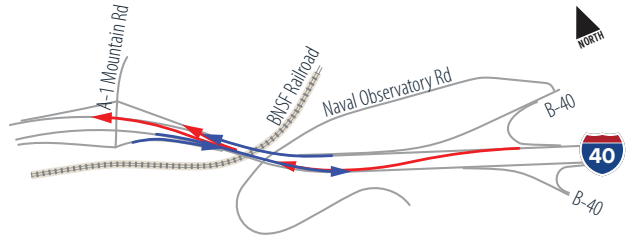
ALTERNATIVE 1 - Reduce I-40 to single-lane in each direction, use a temporary crossover to resconstruct each bridge in a single phase with no final centerline shift.



- ▲ Single phase demolition and construction of bridges
- ▲ Reduces roadway reconstruction
- ▲ Requires 2600 LF of permanent roadway reconstruction
- ▼ Reduces I-40 to single lane in each direction
- ▼ Requires temporary crossovers for each direction
- ▼ No improvements to existing spiral transitions
- ▼ Highest user delay costs

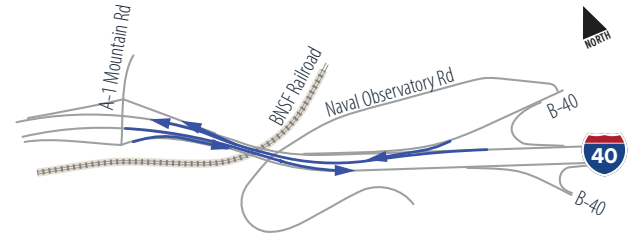
PREFERRED ALTERNATIVE

ALTERNATIVE 2 - Use a permanent centerline shift to construct the EB bridge with single phase in the median. Temporarily shift WB traffic on new bridge to remove/reconstruct WB bridge in existing location.



- ▲ Single phase construction for each bridge
- ▲ Sufficient room in median for construction movements
- ▲ Maintains 2 lanes of traffic in both directions during construction
- ▲ Improvements to existing spiral transitions
- ▼ Additional Roadway construction
- ▼ Temporary crossovers required for one direction
- ▼ Requires 4000 LF of permanent roadway reconstruction

ALTERNATIVE 3 - Multi-phase construction to realign new bridge in existing median. Phase I constructs partial bridge in median and Phase II demolishes existing bridges and builds remaining to outside.



- ▲ No temporary crossovers
- ▲ Maintains 2 lanes of traffic in both directions during construction
- ▼ Requires 6700 LF of permanent roadway reconstruction
- ▼ Limited space in median between bridges for crane picks
- ▼ 2 phases of construction per bridge
- ▼ Limited geometric flexibility
- ▼ Additional construction season
- ▼ Increased roadway costs $3M compared to Alternative 2

Ultimate Throwaway ▲ Pro ▼ Con

MOT & Construction Sequencing

ISSUE: ***Due to high traffic volumes, reducing I-40 to one lane in each direction is undesirable for the long durations associated with bridge construction.***

Approach:

Incorporating innovative design elements that reduce costs, streamline construction, and minimize impacts to the traveling public is at the heart of WSP's approach to MOT and construction sequencing. We evaluated several MOT strategies for this project. To minimize disruptions to this critical Interstate corridor our recommended option (**Alternative 2**, see **Figure 6** on page 8) maintains all travel lanes for the duration of construction by constructing the project in two major phases.

- Phase I constructs the full width of the new EB bridge adjacent to the existing EB bridge (median side) while maintaining traffic on both existing bridges. Phase I is constructed in a single summer construction season, allowing I-40 traffic to remain on the existing bridges during the first winter season.
- Phase II occurs in the next summer construction season and crosses WB I-40 traffic over to the new EB bridge, allowing for the removal and reconstruction of the WB bridge in-place. Upon completion of the new WB bridge both EB and WB I-40 are shifted to their final alignments on the new bridges and the temporary crossovers and existing EB bridge are removed.

WSP will coordinate with ADOT, BNSF, USNO, Forest Service, and other project stakeholders to evaluate allowable closures and potential detour routes if needed.

Benefit/Value:

By constructing the project in this manner

- Two lanes of traffic in each direction can be maintained except for temporary closures required for specific needs.
- Each new structure can be constructed to full width without a longitudinal construction joint.
- Existing WB I-40 approach roadway can remain in place.
- Large portions of the WB median crossover pavement can be constructed as permanent and used for the final EB I-40 roadway.
- BNSF allowable construction methods and available track windows for the project are met.
- Higher cost effectiveness is achieved over other ABC approaches like slides and launching, which BNSF is likely to prohibit.
- New bridge design using a progressive girder placement could be used to eliminate short term closures on I-40.

WSP's approach to MOT and Construction Sequencing is estimated to reduce the number of construction seasons and save project costs.

Stakeholder Involvement

ISSUE: ***This project will require approvals from multiple stakeholders including BNSF, Forest Service, and USNO that require adherence to their requirements and approvals.***

Identified approvals from these third parties include:

- **BNSF –** Right of Entry will be required for survey and geotechnical investigations. Right of Occupancy will be a project construction cost to be identified during design. A construction maintenance agreement will also be required.
- **Forest Service –** Any TCE's or permanent R/W will require lengthy consultation reviews.
- **USNO –** The conservatory, operated by the US Navy, has an active observatory with Dark Skies requirements which will affect underdeck lighting. The access road is also controlled by the conservatory and will restrict long term closures and activities on the road below the bridge.

Approach:

Our team is uniquely situated to support and deliver permits and approvals from third parties. WSP has extensive experience working with BNSF , USFS, USNO and ADOT. Our exclusive subconsultant Jeremy Morken, TranSystems, is the lead designer of the BNSF West Flagstaff triple track project and will provide direct coordination to assist ADOT URR in obtaining clearance. He will also work with our bridge engineers to identify preferred pier locations supporting clearances between ADOT and BNSF.

With their recent I-40 West Broadband project, another exclusive team member, Kimley-Horn, has worked with all the key stakeholders at this location to identify constraints, permits, and construction requirements to attach ITS broadband backbone to the existing EB structure. We will follow similar methods for gaining project acceptance for the bridge replacement.

Howard Olien (WSP Traffic Lead) has worked diligently with USNO and BNSF to provide project lighting to meet restrictions for both parties. BNSF security lights are required from dusk to dawn with a minimum of 1 foot-candle on the tracks, while USNO requires specific amber lighting to ensure the spectrum of light does not interfere with the observatory telescopes. WSP will utilize similar recommendations for minimal impact.

Benefit/Value:

With our unmatched pre-established relationships with the key stakeholders on this project, WSP will successfully support ADOT through clearances and permits by providing a design and project approach that meets requirements for all stakeholders. This will ensure the ADOT design schedule can move forward without delays. WSP has firsthand experience with listed agency expectations and concerns with bridge construction.

WSP Key Differentiator

WSP has unparalleled experience in the Northcentral District with recent bridge work involving BNSF. As the lead designer on both the Lone Tree Overpass and Downtown Mile for Flagstaff, WSP is delivering the first stage of BNSF's Triple Track projects. WSP has partnered with ADOT NC and BNSF to design 5 bridges along the downtown rail corridor, including one OP similar to what is required at Riordan. We understand the complexities involved following AREMA and BNSF Guidelines, know the BNSF PM, Rafer Nichols, his review team, and key BNSF technical leads. We understand their concerns, scheduling of reviews, and processes to obtain right-of-entry, variances, and design approval. Our delivery on these projects has proven our ability to successfully engage with BNSF.

Discipline Issues & Tasks

Geotechnical

The project site lies within the Colorado Plateau and is characterized by a sequence of sedimentary rocks. The geologic units exposed in the immediate project area is dominated by volcanic rocks including pyroclastic deposits, lava flows and cinder cones. These rocks are anticipated to vary in strength, fracturing, and weathering characteristics and are overlain by a thin colluvium and man-placed fill with varying proportions of clay, sand, and oversized materials.

The primary geologic hazards within the project area include seismic activity associated with the Northern Arizona Seismic Belt, collapse of lava tubes that may be associated with the lava flows and potential solutioning of the underlying dolomite/limestone deposits of the Kaibab Formation. Based on review of the site seismicity, as well as adjacent projects at A-1 Mountain and West Flagstaff TI, the site is considered to be in Seismic Zone 1.

The other prime geologic hazard in this area is associated with potential collapse of underground voids within the Kaibab Formation. Voids are known to occur within this rock unit, however typical karst topography is not apparent at the surface of the site and the Kaibab Formation is covered by relatively thick volcanic rock deposits of the San Francisco Volcanic fields in the site area. Lava Tubes are also known in the Flagstaff area and surface collapse can occur if the roof of the tubes fail.

The geotechnical approach to evaluate the anticipated geologic and geotechnical conditions will include coordinating with ADOT Geotechnical Services in completing research of existing record drawings and reports, performing a geologic reconnaissance to observe existing site conditions, and to develop a field investigation program. The field investigation program may include soil borings, rock cores, and geophysical surveys to characterize the subsurface conditions. The key geotechnical issues associated with this bedrock setting and required construction include the following:

- The bedrock should adequately support the planned bridge foundations. Select geotechnical borings and geophysical surveys will be required to evaluate rock quality and hardness particularly beneath the bridge foundations, evaluate fracture spacing and orientation, and confirm continuous bedrock is present.
- Access to the proposed foundation locations may pose challenges to the geotechnical field investigation program due to existing constraints associated with traffic, BNSF right-of-way, and existing topography. Specialized drilling equipment may need to be considered.
- We anticipate excavated rock and soil materials could be considered for embankment fill provided the material is not oversized and can be compacted. Screening and/or processing may be necessary

WSP Key Differentiator

We have the experience to identify and mitigate project challenges through our local Flagstaff bridge geotechnical work. These projects encountered overlaying clay layers and voids, and we successfully developed construction approaches such as pilot holes and additional seismic refraction testing to evaluate geologic profiles to reduce risk impacts during construction.

Traffic

Traffic control will be a critical element of this project, as discussed in the special issues section. Our team will meet with NC District to propose details of our approach and work out any issues or concerns to ensure all are in agreement. We are experienced in accurately quantifying traffic control items, either itemized or lump sum. We are aware of historical crash patterns in the area, including a trend of WB traffic hitting the bridge barrier and will ensure alternatives address these maintenance and safety concerns and roadway alignments to remedy the situation or extend the guardrail. With the work that WSP has performed in this District and in Flagstaff, we will use our experience in developing anticipated construction schedules to determine short term closures and verify construction activities can occur outside of winter shutdown. Our extensive experience designing signing and marking will also ensure smooth project delivery, incorporating elements specific to this region including dual component striping and inlaid pavement markings to accommodate snow plow activities.

I-40 Broadband

The ADOT Statewide middle-mile broadband program has grown significantly including along the critical I-40 corridor. Maintaining the broadband infrastructure during construction of the I-40 Riordan bridges is important because critical communications networks that exist along the fiber optic cabling in this corridor including Node-to-Node, ADOT Variable Speed Limit (VSL), CCTV camera, and pavement sensor device networks. These networks serve critical regional traffic management and emergency response capabilities.

Our subconsultant, Kimley-Horn, recently completed both the I-40 Broadband project (F0499) and the HSIP funded I-40 VSL project (F0281) along the I-40 corridor including within the areas of the I-40 Riordan bridge improvements. We know, for example, that the F0499 project is currently under construction and will add a 4" rigid metal conduit with 7-way micro duct conduit on the southside of the I-40 EB Riordan Bridge. We also know that critical communications networks required to operate the VSL signs west of the I-40 Riordan Bridge location travel thru the F0499 infrastructure and these critical networks need to be maintained during construction of the bridge improvements.

The I-40 EB Riordan bridge improvements will require a relocation or reroute of existing broadband infrastructure attached to the existing bridge. Our approach to minimizing downtime and designing a reroute of the infrastructure will including working with construction phasing designer to develop a design that avoids any conflict with bridge improvements.

Drainage

Offsite drainage originates northwest of the project site. Runoff flows south to I-40 where it crosses under the interstate and railroad via culverts. Once through the railroad culvert flow is directed east towards the project site and under the existing bridges. A recent (2019) project installed scour countermeasures along the piers adjacent to the flowline. Through our research, we understand that hydraulic data has not been studied outside of a high-level StreamStat assessment resulted in a 50-year flow rate of approximately 1100-cfs. This minor flow will be verified in final design and considered for pier scour and any channel layout changes that may be identified.

Project Clearances

Right of Way (R/W)

No new R/W is anticipated for this project. The project crosses parcels owned by BNSF, USA Commander Western Division, United States National Forest, and a private landowner. R/W to the south of the EB structure varies and has a minimum offset of 100' from the construction centerline (CL) at the west end jogs to 200' along the BNSF Railway R/W. R/W to the north of the WB structure also varies, with an offset of 100' at the west end to the intersection of the BNSF R/W and jumps to 150' along the east edge from the WB CL.

Construction access will be a major concern and will be considered during design and clearance development to ensure any Temporary Construction Easements (TCE's) are identified by Stage II. TCE processing with BNSF, USNO, and Forest Service could pose delays to the schedule if not considered early. WSP will collaborate with ADOT R/W to verify ADOT easements and R/W and provide support for TCE processing as needed. The team will also coordinate with Sayeed Hasani (ADOT URR) to obtain right of entry permits for design work within BNSF, identify changes to the existing aerial easement with ADOT, and coordinate the CMA with BNSF for construction. We will work with BNSF during design to develop project costs related to construction right of occupancy and BNSF costs such as flaggers and review during construction to develop a comprehensive project cost estimate.

Utilities

WSP will work with ADOT Utilities to identify conflicts and proposed relocations early in the schedule. An existing APS power line runs along the EB south bridge barrier exterior face, and a video monitoring device is located in the median west of the crossing, but no other major utilities are anticipated within the project limits. Our team is aware of the broadband backbone currently being installed along the I-40 corridor. These facilities will be in place once construction begins on the Riordan bridge and will need to be coordinated again with BNSF, removed, and replaced. Specifications and detailing will mimic prior detailing to ensure statewide consistency. All utilities crossing the BNSF R/W will need to follow the BNSF Utility Accommodation Policy for permits and approvals. All utilities will need to identify "prior rights", identify relocation costs, and provide documentation to provide a clearance letter.

Environmental

WSP will provide technical documentation in support of a Categorical Exclusion (CE) prepared by ADOT Environmental Planning (EP) as required for NEPA. Preliminary cultural and historic sites have been identified within the proposed project limits. It has been more than 10 years since the resources were researched, which will require a Class III cultural resource survey. Our team met with the Coconino National Forest NEPA planner and it was determined that a Section 7 consultation would not likely be required as the nearest Mexican Spotted Owl (MSO) PAC is over 2 miles from the project location. This saves the project schedule at least 45 days (informal consultation). Based on our team's area experience and project knowledge, below shows specific technical considerations:

Cultural

- Historic and Cultural sites located in project vicinity are outdated and will need to be updated through Class III Survey
- Section 106 National Historic Preservation Act compliance, documentation & support
- Provide an additional three months in schedule for Cultural Consultation Period with Tribes
- Coordinate with ADOT EP & HPT

Biological Resources

- Coordinate with ADOT EP, USFWS, Coconino Forest Service regarding habitat and potential survey.
- MSO PAC over 2 miles from project, no concern
- Forest biologist identified "no effect" finding for MSO. Saves 45 days of informal consultation.
- Field survey to identify noxious weeds, bridge and bats under structure.
- Provide 6 months in schedule for ROW/TCE Coordination while USFWS follows their pre-decisional objection process. 45-day objection filing & 75-day review period.

Hazardous Materials

- Conduct new PISA
- Conduct asbestos testing on I-40 pavement
- Assess further lead testing and abatement as needed for existing steel structure from 1950.

Section 404 Waters

- None anticipated. No Waters of the US within the project limits.

Air & Noise Quality

- None required, project is outside of EPA non-attainment area.

Quality

WSP meets the rigorous ISO 9001:2015 international standards, demonstrating our commitment to consistently provide products that meet client and regulatory requirements for quality. Angie will prepare a project specific Quality Management Plan that defines the quality procedures to be followed by the team and Jason Carlaftes, with over 20 years of ADOT experience, will be WSP's independent internal quality champion for this project. Jason will:

- Ensure the QMP is followed.
- Schedule time for thorough QC reviews.
- Assure reviews are completed by a qualified reviewer.
- Perform inter-discipline cross checking not only during QC periods, but also through day-to-day review of project activities.
- Stay on top of changes to guidelines and risk register.

WSP understands that the Riordan OP Structures have a rich history with many complexities to consider with their replacement. WSP is ready to support ADOT with innovative ideas, sound MOT strategies, and comprehensive third-party coordination.

Risk

Angie will lead the team in identifying, resolving, and managing risks by implementing the following:

- Advance register at kickoff to further identify potential risks and mitigations.
- Solicit input from the team and project stakeholders to further identify risks and risk categories.
- Develop mitigation strategies and solutions to avoid or minimize project impacts.
- Assign a team member as the risk owner to follow and ensure the risk is ultimately mitigated.
- Monitor risks with Arash at monthly check-ins.
- Update register with monthly progress meetings.
- Conduct risk assessments with ADOT PMG, project partners, NC District, and C&S at milestones.

Experience to anticipate risks and develop mitigation strategies will be essential to deliver the I-40 Riordan bridge replacements on time and within budget. Our preliminary risk register includes potential risks that may occur during project development and construction. Foreseeing construction risks during design will allow proper mitigation to be implemented with our deliverables.

Pre-Mitigation	Risk Severity and Impact: Low Medium High Risk & Potential Impact	Scope	Schedule	Budget	Post-Mitigation	Mitigation Approach/Value to ADOT
	Railroad Future Project: BNSF West Flagstaff Triple Track project will dictate the design of the replacement bridges, impacting structure depth, vertical and horizontal clearances, and girder types.	✓	✓	✓		Our team is in the process of delivering five City of Flagstaff bridges involving BNSF. We will use our understanding of BNSF requirements, future plans, and relationships to identify a viable concept and request required BNSF variances.
	BNSF Permits and Construction Requirements: BNSF has strict shoring, construction, and blasting requirements that will need to be incorporated into the design documents and specifications.	✓	✓	✓		We have supported the City of Flagstaff with BNSF coordination, permits and clearances. We know the permit process for design and construction and will incorporate these into the design documents to minimize construction risk and support bidding.
	Lighting: The USNO has strict requirements for Dark Skies while BNSF has strict requirements for underdeck lighting that can be in conflict.		✓			We obtained approvals for BNSF underdeck lighting and Dark Skies with the nearby City of Flagstaff Lone Tree Overpass project by providing narrow bandwidth amber lighting. We understand the requirements and will implement a similar solution on this project.
	MOT: MOT operations require lane reduction and long-term lane closures.		✓	✓		Bridge concepts will consider construction phasing to balance costs with traffic impacts to keep all lanes of traffic open with optimized crossover locations.
	Geometric Clearances: To meet vertical and horizontal clearance requirements, spans are lengthened and superstructure depth increased requiring substantial I-40 profile adjustment.		✓	✓		Our project team will develop a concept to balance construction costs by evaluating beam type (concrete vs steel) with roadway reconstruction costs to identify a concept to minimize construction costs. We will work with BNSF for allowable variances to reduce spans, depths and project costs.
	Third Party Involvement: Third party approvals will delay project clearances and postpone advertisement.	✓	✓	✓		We have established relationships with BNSF from other projects and a relationship with USFS to facilitate permits and accurately accommodate in our schedule.
	Unit Cost Escalation: Inflationary increases to materials and construction costs during design.		✓	✓		We have recent project experience with BNSF and access to recent bidding through the contractors we are working with. We are aware of adjacent projects and impacts to costs.
	Scope Creep: Project has been programmed for $45M construction for a bridge replacement, PA recommends extensive roadway realignment to remove existing spiral curve.	✓	✓	✓		PA evaluation will include full assessment of bridge replacement with and without realignment to compare safety, costs, and constructability to ensure project funding is achievable.
	R/W Acquistion: To facilitate construction and realignment options, TCEs or R/W to be required from various third parties.		✓	✓		Constructability evaluations will be performed during PA and Stage II development to identify accessibility concerns and document any areas that need to be obtained.
	Historic Bridge Elements: Section 106 analysis required.		✓	✓		Design and cultural teams will work together to identify schedule timeframes to ensure information is provided early to mitigate costly delays.
	Early Environmental Clearance for Geotechnical: Early environmental clearance and BNSF approvals delay geotechnical investigations.		✓			Early boring plans will be drafted based on Scoping Document concepts to start railroad coordination for geotechnical investigation access. Cultural and Biological work will commence early to ensure clearance can occur.
	Construction Sequencing: Multiple phases of traffic control and unfamiliar drivers result in traffic crashes and delays.		✓			Design temporary crossovers to permanent standards and reduce traffic control phases to two.

Schedule

The duration and functional relationship of major tasks and key events are shown in **Figure 7.** Angie will provide ADOT with a critical path schedule for Workfront entry and schedule updates immediately upon any change. We have developed a realistic 12-month design schedule to meet RFQ requirements and will allow the project to be bid-ready by Q3 of FY26 (three months early). This will allow float in the schedule to accommodate unexpected delays. It will also allow the project to be shelf-ready if funds become available for early advertisement.

Strategies to Avoid Slippage

Geotech Clearance. This will be critical path on this project. We will work with ADOT EP to provide necessary technical reports and information to facilitate a quick clearance. We will work with ADOT Geotech to have a boring plan ready so they can start with borings once clearance is obtained.

BNSF Coordination. BNSF has a designated review schedule for each stage of design. This can often be exceeded when variances are required. Our team has worked closely with BNSF within the Flagstaff area on numerous projects and will leverage this relationship to set and meet a realistic schedule and facilitate their reviews.

Coconino State Forest. WSP will provide early coordination with the Forest Service as it will be crucial for project coordination. Although not anticipated, any R/W or TCE's along the USFS will require 6 months for additional consultation periods and will be critical to identify early.

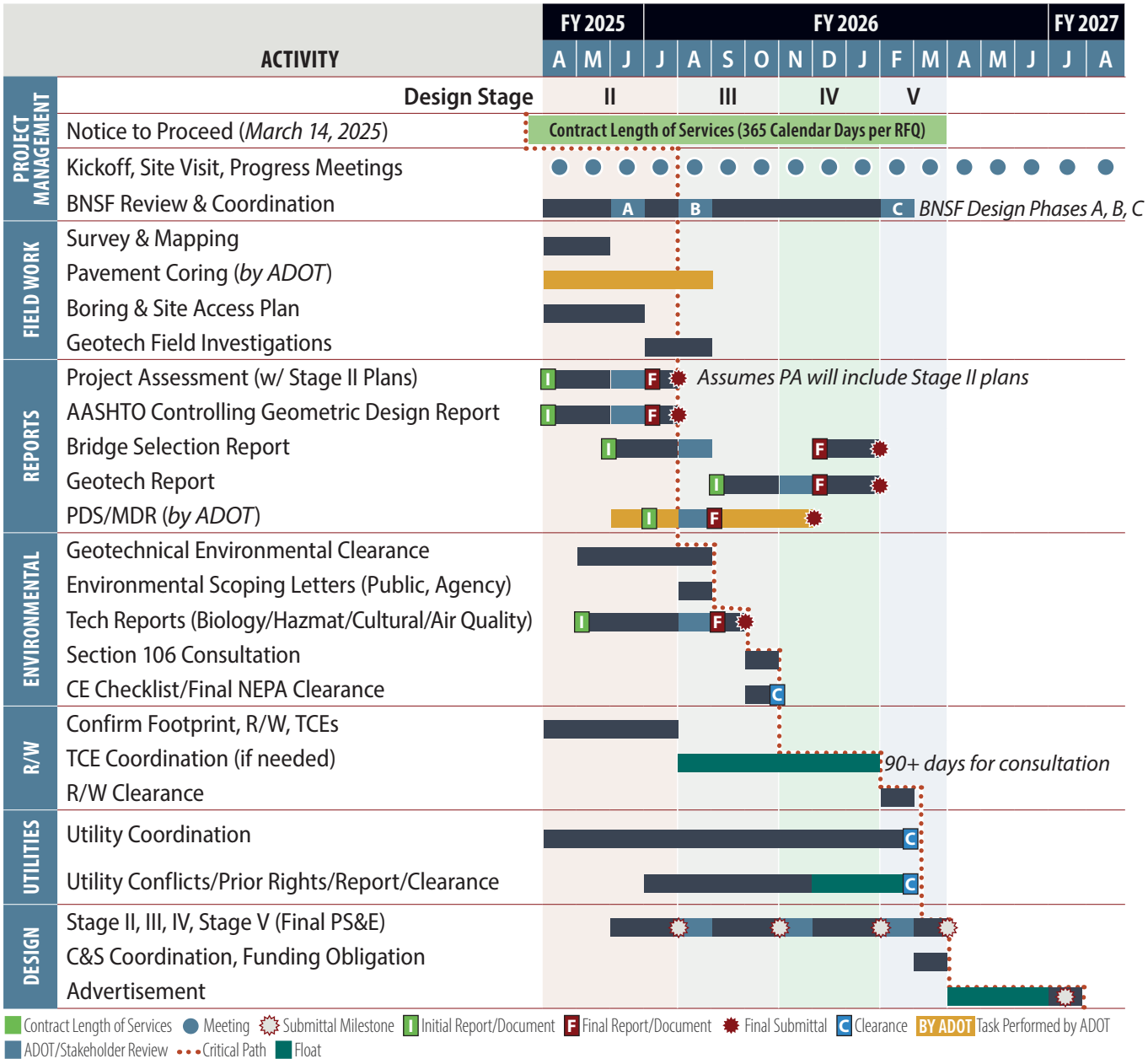
USNO. The design team will use our previous contacts and experience with the Navy to ensure all work is coordinated early and accepted over their facility.

Project Risks. We will update the risk register with the team at monthly progress meetings. Schedule related risks will be tracked at recurring check ins.

Project Clearances. We have planned float in our schedule for all clearances to mitigate unforeseen items.

Resources. Our team has local availability to fast-track this project and can mobilize additional resources if needed.

Figure 7. *WSP's Proposed Schedule*



BNSF has a defined review schedule as outlined in their Grade Separation Guidelines that is different from ADOT. We are aware of this process and have plans in place to coordinate the BNSF schedule with ADOT, reducing potential project delays. We implemented this on our Flagstaff Projects. Phase A - Concept with Plans and Site Pictures | Phase B - 30% with Plans, Specifications, Phasing and Reports | Phase C - Final with Plans, Specifications, Phasing and Reports

Project (Contract) Manager| Angie Galietti

AZ PE #58889 | BS, Civil Engineering

60% | 60% | 16 yrs

Angie Brings Value to this Project:

- ✓ *Led design of* **34 ADOT interstate bridges** *using various delivery methods*
- ✓ **Managed over 39 projects** *ranging from bridge replacement, bridge scour retrofit, new traffic interchange projects, and pavement rehabilitation projects*
- ✓ *Understands* **ADOT internal processes** *and how they are impacted by funding sources, delivery schedules, and scope changes*
- ✓ *Delivered 11 projects at* **$66.5M in FY24** *as an ADOT PDM*
- ✓ **Structural engineering background** *and extensive experience optimizing bridge design with constructability, MOT, and interdisciplinary coordination*

Angie is a PM and Structural Discipline Lead for projects of all sizes and complexities throughout Arizona. Her design and constructability experience include a variety of bridge types and structures for several DOTs, local agencies, and private developers, ranging from single- span small structures to multiple-span large-scale bridge configurations. As a PM, Discipline Lead, and Project Engineer, Angie has led projects from conception through construction, delivering plans, specifications, estimates, and construction services on-time. She has experience in preparing PAs, BSRs, final design bid packages, and post design services. Angie has served as a Supplemental PM on over 39 projects in 3 years and has been the Consultant PM on two recent PDOC tasks. Through her experience, Angie has gained the ability to modify her management approach to meet the needs of the project and client.

Her leadership style focuses on open communication, motivating the team to successfully achieve project goals, and following through with tasks to ensure the project stays within scope and on schedule. Angie has proven that her interpersonal and communication skills help her to be a successful PM. Her wide variety of project experience gives her a strong foundation for engineering design and project management.

Recent Bridge Experience

- ADOT PDOC Dry Wash RCB Scoping Document (PM)
- ADOT SR 260 Lion Springs and SR 202L South Mountain Freeway (Bridge Lead)
- ADOT I-10 Ruthrauff Road TI and SR 303, MC85 to Van Buren (Bridge Lead)
- ADOT SR 80 San Pedro River and Clifton Chase Creek Bridge Replacements (ADOT PDM)
- Flagstaff Lone Tree Overpass and Downtown Mile (Bridge QA/QC)
- SR 89A Spur Overpass Bridge Rehabilitation (Bridge QA/QC)

Current Commitments: ADOT Supplemental PM (40%)

Key Personnel

Figure 8. *WSP Team Organizational Chart*

ADOT Project Manager	Arash Ghazanfari, PE, SE
Principal-in-Charge	Joy Melita, PE
QA/QC: Jason Carlaftes, PE	Project Manager: Angie Galietti, PE

Structures: Rafe Davis, PE	Geotechnical: Kevin Porter, PE	Survey: Cooper[4]
Roadway: Manny Medrano, PE	Environmental: Anthony Scolaro	Utilities: WSP
Drainage: Zuchen Deng, PE	BNSF Coordination: Jeremy Morken, PE[1]	R/W: WSP
Traffic/MOT: Howard Olien, PE	Landscape/SWPPP: CDG[2]	ITS Coordination: KHA[3]

[1] TranSystems | [2] Corral Design Group (DBE) | [3] Kimley-Horn and Associates | [4] Cooper Aerial

Rafe Davis - AZ PE #53506 | Structures | BS Civil Engineering

85% | 85% | 17 yrs

- 17 years of structural engineering experience and 6 years as bridge design manager for ADOT, leading projects from inception to completion
- Experience includes rural bridge rehabilitation projects, complicated urban projects, emergency structural repairs, and overseeing the review of structures submittals on fast-paced design-build projects
- Part of engineering team to inspect and observe Riordan deterioration for acceptance into the 5-year program for replacement

Manny Medrano – AZ PE #37310 | Roadway | BS Civil Engineering

60% | 60% | 28 yrs

- Specializes in design of rural and urban highways and interchanges on 60+ ADOT projects
- Creative geometric design solutions for MOT strategies
- Expertise with innovations developed during VE, interdisciplinary, and constructability reviews
- Understands ADOT variance and FHWA Design Exception processes

Zuchen Deng - AZ PE #69361 | Drainage | MS Civil Engineering

90% | 90% | 9 yrs

- Specializes in surface water hydrology, hydraulic analysis and design, drainage studies, floodplain modeling and mapping, bridge and culvert hydraulic modeling, soil and water conservation planning and implementation, and civil design
- Responsibilities include roadway drainage analysis and design; channel hydraulic modeling and developing floodplain maps; and preparing engineering plans/sheets, drainage reports, and cost estimates
- Proficient in software programs, including Open Roads Designer, MicroStation Inroads, AutoCAD Civil 3D, FlowMaster, HY-8, TR-55, XPSWMM/SWMM, HEC-RAS 2D, HEC-HMS, and ArcGIS

Howard Olien - AZ PE #26335 | Traffic/MOT | BS Civil Engineering

50% 50% 38 yrs

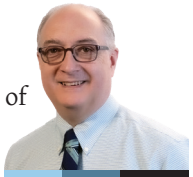
- Detail-oriented ADOT traffic design expertise spanning over 38 years
- Extensive MOT experience on urban and rural highways, including US 93 Tompkins Canyon and SR 260 Lion Springs
- Thorough understanding of construction processes and procedures, which will help inform his MOT approach to keep traffic flowing
- detailed construction schedule planning with ADOT NC and Flagstaff area projects

Kevin Porter - AZ PE #41716 | Geotechnical | MS Civil Engineering

50% 50% 27 yrs

- 20 years working with ADOT on geotechnical issues in Arizona
- Familiar with the challenging topography and geology in the I-40 Riordan area needed to effectively investigate and adequately characterize the bedrock beneath foundation elements
- Knowledgeable with the coordination efforts and requirements needed to perform geotechnical investigations within the BNSF R/W from recent Flagstaff projects

Anthony Scolaro | Environmental | MUP Urban Planning



60% 60% 29 yrs

- Led environmental efforts for TIs along I-10, I-17, Loop 303, and other major highways throughout the state of Arizona
- Experience includes our efforts on the Willard Springs TI on I-17 near Flagstaff, which faced similar issues to Lupton and Window Rock

Jeremy Morken (TranSystems) – AZ PE #68325 | BNSF Coordination | BS, Civil Engineering

60% 60% 29 yrs

- Served in leadership roles on multiple railroad projects, and has experience that includes construction inspection, main line track, siding track, and grading design
- Experience working with BNSF in Flagstaff including 22.3-mile third main track project with 10 bridges in shallow rock conditions and 2 overpasses (BNSF Angell to East Flagstaff Triple Track) and 11.6-mile third main track project involving five bridges, 2 overpasses including the I-40 overpass with pier configurations requiring challenging track alignments (BNSF West Flagstaff to Bellemont Triple)

Jason Carlaftes – AZ PE #45151, SE #50678 | QA/QC Lead | MS, Civil Engineering

60% 60% 22 yrs

- 22 years of innovative urban and rural bridge design with understanding of modern and ABC techniques
- Led structures oversight as ADOT GEC for I-10 Broadway Curve and SR 202L South Mountain Freeway, understanding the balance of innovation, constructability, and ADOT's requirements
- Flagstaff area experience overseeing management and quality for three recent projects, all of which included bridge design, BNSF coordination, and seasonal construction

Subconsultants

TranSystems | BNSF Coordination

TranSystems is an industry leader in providing track design and will support the WSP team with BNSF coordination, a similar role they have provided WSP on our other Flagstaff projects. TranSystems has designed 350 miles of BNSF Railway mainline track to date, including two recent BNSF projects in the Flagstaff area, and will use this experience to efficiently navigate BNSF's design approval and implementation of the Construction and Maintenance agreement. They understand BNSF's future track plans, design requirements, and variance processes to identify innovative solutions early in design.

- BNSF Angell to East Flagstaff Triple Track
- BNSF West Flagstaff to Bellemont Triple

Corral Design Group | Erosion Control & Landscaping (DBE)

Corral Design Group (CDG) completed more than 150 projects for ADOT, including partnering with WSP on numerous statewide ADOT projects. They will provide erosion control and landscaping/aesthetics support, streamlining stakeholder coordination efforts with their previous area work. Their similar relevant experience includes:

- ADOT SR 160, Chinle Wash Bridge
- City of Flagstaff 4th St Bridge & BNSF Railroad Crossing
- ADOT SR 89A Spur Overpass
- ADOT SR 89 Hells Canyon Bridge Replacement
- ADOT I-17 Willard Springs TI

Kimley-Horn and Associates | ITS

Kimley-Horn has partnered with ADOT on hundreds of projects and proven their commitment to providing exceptional client service. Kimley-Horn staff understand that transportation systems are more than infrastructure and specialize in integrating the components of the total system—the road, the vehicle, and the traveler—to make getting around safer and more efficient. Kimley-Horn was instrumental in developing ADOT's middle-mile broadband design standards and the design of over 400 miles of middle-mile broadband infrastructure along I-17, I-19, and I-40. They are dedicated to delivering innovative ITS solutions, providing ample resources, and communicating effectively with stakeholders to help this project be a success.

- ADOT I-40 Broadband (I-17 to CA Stateline)
- ADOT I-17 Broadband (Phoenix to Flagstaff)
- ADOT I-19 Broadband (DB Projects)

Cooper Aerial | Survey

Cooper's expertise includes modern mapping techniques such as aerial photogrammetry, 3D mapping, LiDAR, field surveying, and drone imagery. Cooper's team of photogrammetrists, imagery specialists, surveyors, project managers, and aerial imagery collection staff have provided aerial mapping services on hundreds of projects for ADOT including a substantial stretch of the SR 101L. Similar relevant aerial mapping experience includes:

- ADOT I-40 Bellemont TI
- ADOT I-40 Hermosa Drive Bridge

Figure 9. *WSP Team Relevant Experience*

Experience that Matters

WSP has extensive ADOT freeway design experience on projects with similar features, complexities, cost, and stakeholders, as shown in the following projects.

	SIMILAR TASKS & TECHNICAL/INSTITUTIONAL ELEMENTS									
	Bridge Design	MOT	Drainage	Geotech	Seasonal Construction	Railroad	Forest Service	NEPA	Utilities	New ROW
Lone Tree Road OP | Owner: **City of Flagstaff** | Role: **Prime** | Design Fee: **$5.8M**	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
Downtown Mile | Owner: **City of Flagstaff** | Role: **Prime** | Design Fee: **$3.5M**	☑	☑	☑	☑	☑	☑		☑	☑	☑
ADOT SR 89A Spur Overpass Bridge Rehabilitation | Owner: **ADOT** | Role: **Prime** | Design Fee: **$740K**	☑	☑	☑	☑	☑			☑	☑	☑
ADOT I-10, Ruthrauff Road TI | Owner: **ADOT** | Role: **Prime** | Fee: **$94M**	☑	☑	☑	☑		☑		☑	☑	☑
ADOT SR 260 Lion Springs | Owner: **ADOT** | Role: **Prime** | Design Fee: **$9.3M**	☑	☑	☑	☑	☑		☑	☑	☑	☑
I-40 Allentown to NM State Line Pavement Rehabilitation | Owner: **ADOT** | Role: **Prime** | Fee: **$250K**		☑	☑	☑				☑	☑	
I-40 Querino Rd to Hawthorne Rd Pavement Rehab | Owner: **ADOT** | Role: **Prime** | Fee: **$580K**		☑	☑	☑				☑	☑	

Like the I-40 Riordan Bridge project, Lone Tree Road OP includes a new bridge over BNSF tracks in Northern Arizona. WSP provided final design as part of a progressive design-build project for a new four-lane grade separated crossing of Lone Tree Rd over the USACE RDF project and BNSF between Butler Ave and Route 66. Additional items include drainage design, geotechnical engineering, track design, MOT, construction seasons considerations, R/W acquisition support, and public involvement support.

This federal aid project will realign the BNSF railway over four new bridges and reconstruct three roadways in the downtown Flagstaff area. WSP is providing design services to widen Milton Road (an ADOT facility), improve pedestrian safety with new pedestrian underpasses, and improve area drainage. Extensive coordination with ADOT, BNSF, and USACE is required.

WSP provided design services to widen the SR 89A Spur Overpass in Flagstaff. As part of the project, we developed an innovative MOT approach that reduced the necessary construction phasing, shortening the construction time from three seasons to two while keeping all original lanes of traffic open during construction. Similar approaches may be employed to keep I-40 open to travelers during construction for this project.

WSP designed reconstruction of I-10 to an eight-lane interstate and reconfigured the Ruthrauff Road TI to provide grade separation from the UPRR. Extensive MOT was involved in "flipping" the roadways – lowering I-10, raising Ruthrauff Road over I-10 and the UPRR, and raising the connecting frontage roads and ramps. Our construction sequencing and linear phase construction schedule provided ADOT with information to bid the project as A+B, reducing construction duration by two months.

WSP is providing final design to reconstruct four miles of existing two-lane roadway to a four-lane divided section near Lion Springs. Relevant project features to I-40 Riordan include independent roadway alignments, new mainline structures, extensive geotechnical, MOT considerations for a heavily traveled route with limited detour opportunities, and coordination with land/resource agencies including the US Forest Service.

WSP provided final design for six miles of pavement rehabilitation along I-40 that included the Hawthorne, Window Rock, and Grants TIs. A geotechnical forensic study was performed to determine the cause of frequent pavement failure. Like this project, addressing MOT needs for high truck traffic on I-40 was of critical importance.

WSP is designing 12 miles of pavement rehabilitation on I-40, that includes mainline, ramp, and bridge deck treatments. MOT is common feature, where appropriate District coordination, construction sequencing, and PS&E must be part of project development for a quality delivery.

Angie Galietti, PE

Project Manager

Angie is a Project Manager (PM) and Structural Discipline Lead for projects of all sizes and complexities throughout Arizona. Her experience includes a wide variation of bridge types and structures for DOTs, local agencies, and private developers, ranging from single-span small structures to multiple-span large-scale bridge configurations. As a PM, Discipline Lead, and Project Engineer, Angie has led projects from conception through construction, delivering plans, specifications, estimates, and construction services on-time. Angie has served as PM, Deputy PM and Task Lead on projects for ADOT, Maricopa County Department of Transportation (MCDOT), City of Sedona, and City of Surprise and is an ADOT Supplemental Project Delivery Manager. Angie has the ability to modify her management approach to meet the needs of the project and client.

Her leadership style focuses on open communication, motivating the team to successfully achieve project goals, and following through with tasks to ensure the project stays within scope and on schedule. Angie has proven that her interpersonal and communication skills help her to be a successful PM. Her wide variety of project experience gives her a strong foundation for engineering design and project management.

Years of Experience: 16 (7 with WSP)

Education: BS, Civil Engineering

Registration: Arizona PE #58889

Corporate Title/Role: Assistant Vice President/Project Manager

Availability: 60%

Value to ADOT

- Full understanding of ADOT funding mechanisms and project management procedures
- Strong working relationships with ADOT PMG, Northcentral District, and Technical Groups
- 16 years in project management and bridge design experience
- Focus on multi-discipline team approach to deliver a well rounded project

Professional Experience

ADOT Supplemental Project Development Management (PDM): Project Manager. As a part of the ADOT Supplemental Project Management team, Angie has had the opportunity to work on a series of projects including Local Public Agency (LPA), Consultant Design and In-House Design. Her responsibilities include project initiation, development of project workplans including scope/schedule/budget, leading project meetings and coordination with stakeholders to deliver projects within budget and on time. She has been the project manager for over thirty-nine projects with construction costs ranging from $700k to $49M. Angie has worked closely with her Design teams and C&S to address concerns and push advertisements forward quickly. Her wide variety of projects have included bridge replacements, scour retrofits, pavement life extension and rehabilitations, HSIP safety, AZ Smart Grant, roadway capacity additions, traffic signals and multi-use paths. She has worked closely with Consultants, Designers, Local Agencies and District staff to ensure project scopes and schedules are met to deliver a constructable project. Angie has proven that her interpersonal communication skills and responsiveness help her to be a successful project manager. Angie successfully delivering seven FY24 Q4 projects without requiring deferrals or being placed on the roll-over list, shows her commitment to ADOT's funding requirements often driven by fiscal year schedules. She has mastered Workfront Scheduling, Risk Management and Submittal Delivery which allows all facets of ADOT review and understand the project's current status. Several of her most relevant projects to Riordan are as follows:

- I-40 Flagstaff – NM Broadband **Relevance:** NC District
- Town of Clifton, Chase Creek Bridge Replacement **Relevance:** Bridge Replacement
- SR80, San Pedro River Bridge Replacement **Relevance:** Bridge Replacement
- SR87, Greenvalley Parkway – Houston Mesa Road Pavement Rehab **Relevance:** Bridge Replacement
- NC Pavement Life Extensions on US89, US89A, SR260 and I-40 **Relevance:** NC District
- I-40 Rancho Santa Fe TI - **Relevance:** $45M I-40 TI
- BNSF Intramodal Facility, US60 and SR74 - **Relevance:** BNSF Coordination

ADOT US 70 Reay Lane to 8th Street, Safford/Thatcher, AZ: Project Manager. With the use of Surface Transportation Block Grant (STGP) funds, the design of a pavement rehabilitation project along US 70 from Reay Lane to 8th Street was completed between Safford and Thatcher. In addition to a mill and fill of the existing pavement, ADA upgrades, culvert crack repairs and the addition of cross walks were added to enhance safety along the corridor. Although the project is not programed for construction until July of 2025, Angie led the design team to deliver Stage IV in June of 2024 to shelf the project in order to pull if excess funds were available the fiscal year prior. Through the design process, Angie held multiple meetings with PMG and SE District to identify driveway and sidewalk ramp locations most in need of upgrading as recent unit prices pushed the engineer's estimate above the programed amount. In addition to standard Environmental clearance, Angie worked closely with the ADOT and WSP team to identify mitigation measures for WPA Panels (Works Progress Administration project markers from Roosevelt's New Deal in 1935) to ensure the historic markers were salvaged. Angie worked diligently to ensure the project scope fell within the programmed amount, while ensuring delivery would be early.

ADOT Dry Wash RCB, Phoenix, AZ: Project Manager. The City of Phoenix received Off-System Bridge (OSB) funding to complete a Bridge Scoping Document for the existing Dry Wash five cell RCB in south-east Phoenix. The RCB was recently moved off of the routine frequency inspection schedule as a result of concrete deterioration discovered in the structure. Angie led the WSP team through a thorough culvert inspection to outline current deterioration in order to evaluate the structural capacity. These results were used to evaluate alternatives for the City, determining whether rehabilitation or replacement was necessary. With her guidance, Angie led the team to deliver a Final Scoping Document within 3 months to ensure the City had sufficient time to apply for Final Design and Construction OSB funds through ADOT.

City of Sedona SR 179 Tlaquepaque Pedestrian Crossing, Sedona, AZ: Project Manager and Structures Discipline Lead. The Tlaquepaque Pedestrian Crossing Project looked at several options to connect North and South Tlaquepaque shopping district in the City of Sedona. The City requested a design to provide a safe alternative for the community to bypass SR 179 by moving pedestrians under the existing SR 179 vehicular and pedestrian bridges that run over the Oak Creek crossing. The project tasks included a Feasibility Assessment through final design. Angie was

responsible for subconsultant coordination, budget tracking, project risk analysis determination and tracking, risk determination and monitoring, and quality control implementation as well as serving as lead structural engineer. In addition to the community and stakeholder input for the project, there were many challenges with verifying existing conditions, utilities and working in a scour critical zone. Angie and the team worked together early-on to identify risks and overall impact to the project. She worked closely with ADOT North Central District and the City to provide early design for review as an encroachment permit was needed. Angie provided design support by providing QC reviews of calculations, plans, estimates and specifications. She worked with Structural team members to interpret AREMA code to apply to AASHTO and ADOT standard approaches and guidelines. She used her first-hand knowledge of ADOT staff and methods to effectively coordinate concepts and reviews with the City to maintain collaborative project approaches. Angie's interpersonal skills allowed her to effectively communicate between subconsultants, design and the Client to coordinate interdisciplinary solutions to the site constraints.

ADOT SR 202L South Mountain Freeway, Phoenix, AZ: Structures Corridor Discipline Lead and Deputy Post Design Manager. The South Mountain Freeway Design-Build completes the final 22- mile segment of the SR 202L in the southwestern Phoenix metropolitan area. The project consists of a new eight lane freeway beginning at the existing traffic interchange between I-10 and SR 202L (Santan Freeway) and extends west then north to a new traffic interchange at I-10 near 59th Avenue. A total of 38 vehicular bridges, one pedestrian bridge and one small structure are included in the final design including thousands of feet of retaining and noise walls. In addition to numerous design responsibilities, Angie used her key skill sets to assist in managing multi-disciplinary submittals, field questions, details and project wide consistency with all the designers on the project (which included three different firms in addition to multiple offices for each firm). She also assisted with weekly invoices, man hour discrepancies, back charge justifications and change order processing. Her oral and written communication was effective in progressing design items and closing Contractor questions. She constantly used her problem-solving techniques and interpersonal skills to discuss and provide solutions for field conflicts involving traffic, drainage, and miscellaneous structures. Due to the size of the project, balancing various submittals for multiple segments and disciplines was similar to managing multiple projects. Angie worked closely between the designers, owners and Contractor to provide constructable design appropriate solutions under a fast-paced design and construction schedule.

City of Flagstaff, Lone Tree Road OP, Flagstaff, AZ: Structures Reviewer. WSP provided final design as part of a progressive design-build project for a new four-lane grade separated crossing of Lone Tree Rd over the USACE RDF project and BNSF between Butler Ave and Route 66. Additional items include drainage design, geotechnical engineering, track design, MOT, construction seasons considerations, R/W acquisition support, and public involvement support.

ADOT SR 89A Spur Overpass Bridge Rehabilitation, Flagstaff, AZ: Structures Reviewer. WSP provided design services to widen the SR 89A Spur Overpass in Flagstaff. As part of the project, we developed an innovative MOT approach that reduced the necessary construction phasing, shortening the construction time from three seasons to two. Similar approaches may be employed to keep I-40 open to travelers during construction for this project. Angie provided design and post design support by providing QC reviews of calculations, plans, estimates and specifications.

City of Flagstaff Downtown Mile Connectivity Project CMAR, Flagstaff, AZ: Structures Reviewer. This project realigns BNSF railroad over four new structures and reconstructs three roadways in the Downtown Flagstaff area, improving pedestrian safety with new pedestrian underpasses, widening Milton Road, an ADOT facility, improving area drainage, and providing coordination with multiple projects and Project Partners. This is a Federally funded project utilizing an INFRA grant and will follow Federal Environmental and grant requirements as well as coordination with ADOT, BNSF, and USACE. Angie provided design support by providing QC reviews of calculations, plans, estimates and specifications. She worked with Structural team members to interpret AREMA code to apply to AASHTO and ADOT standard approaches and guidelines.

ADOT I-10 Ruthrauff Road Traffic Interchange, Tucson, AZ: Bridge Engineer. WSP provided final design services for the traffic interchange at I-10 and Ruthrauff Road. The project widens I-10 to an eight-lane roadway and reconfigures the Ruthrauff Road traffic interchange, eliminating the at-grade crossing of the UPRR. This project "flips" the roadway by lowering I-10 and raising Ruthrauff Road over I-10,the UPRR, and Davis Avenue/ Highway Drive, while also raising the connecting frontage roads. This reconfiguration will dramatically improve the operations and capacity of both I-10 and Ruthrauff Road and significantly enhance the safety of the traveling public. Angie led the Bridge Selection Report preparation and provided quality control reviews of bridge, superbox and miscellaneous structure calculations and plans. The quality control and assurance reviews required strong knowledge of federal, state and industry standards.

ADOT SR 202L Red Mountain Freeway Design-Build, Mesa, AZ: As-Built/Post Design Manager and Bridge Engineer. General- purpose and HOV lanes were added to the existing Red Mountain Freeway from SR101 to Broadway Road. Angie was responsible for calculations, quantities and plan preparation for the bridge widening of SR202 over Country Club Drive. Angie's project responsibilities also included design review and coordination of roadway details, retaining walls, and geotechnical reports. She managed the final project post design services and coordinated all final As-Built drawings for turn around to ADOT. Angie used her knowledge of ADOT processes and procedures to coordination between the ADOT Resident Engineer, ADOT As-Built coordinator and the Contractor to produce accurate constructions documents that were delivered on-time.

ADOT SR 260, Lions Springs, Gila County, AZ: Structures Lead. Angie is responsible for five single span bulb tee girder wildlife crossing structures. SR 260 will install the last four miles of divided highway for the corridor. The project includes one wildlife overpass and four wildlife underpass crossings that convey large game safely. Angie and the WSP team worked closely with ADOT, EP, and AGFD to evaluate bridge geometrics that provided an openness ratio with appropriate slopes under the bridge to promote wildlife usage, prevent predator ledges, and convey offsite drainage flow. During development of the BSR and scoping, the team evaluated the use of superbox structures to compare construction costs to conventional girders. Due to the large clearance over the existing topography, the minimal scour and the additional length needed to taper roadway slopes, it was determined that conventional girders could provide the most economical solution and adequately convey the wildlife.

Rafe Davis, PE

Structures

Rafe has 17 years of structural engineering experience and 6 years as bridge manager. His project management and structural engineering experience includes rural bridge rehabilitation projects, complicated urban projects, emergency structural repairs, and overseeing the review of structures submittals on fast-paced design-build projects throughout Arizona. Recently, he has managed the ADOT Bridge Sub-program of $60M per year, which includes the off-system bridge sub-program, the bridge inspection program which includes all ADOT on system bridges and Local Public Agencies, and the management of the bridge preservation program.

Rafe served as the lead bridge design manager for the West Kingman US 93/I-40 System Interchange phase I final design and phase II 30% design level. He led and supported a group of 20 Bridge and Geotech engineers on an in-house design effort of 10 bridges, miles of soundwalls, and significant drainage structures. Rafe was the Engineer of Record for the award winning I-15 Virgin River Bridge #6 Superstructure replacement with substructure widening using a Transportation Investment Generating Economic Recovery grant from FHWA.

Years of Experience: 17 (1 with WSP)

Education: BS, Civil Engineering

Registration: Arizona PE #53506

Corporate Title/Role: Assistant Vice President/ Structural Engineering

Value to ADOT

- Structural engineer involved with the repair development of the I-40 Riordan Bridges
- Extensive experience working in the Flagstaff area with the NC District
- Understands ADOT bridge design standards and practices through completing numerous projects

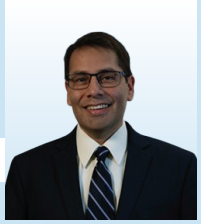
Professional Experience

ADOT I-15 Virgin River Bridge #6, Mojave County, AZ: ADOT Lead Bridge Engineer (previous employment with ADOT). This project involved the Construction Manager at Risk (CMAR) delivery method to meet the deadlines required by the TIGER grant. The existing bridge was a 4-span steel plate girder bridge with a 45-degree skew that was experiencing significant fatigue cracking. Rafe worked with the CMAR to develop solutions to issues regarding environmental mitigation, constructability, Maintenance of Traffic (MOT), equipment access, phasing, and specifications. The project was delivered on a very tight schedule due to the requirements of the TIGER grant. Project won the American Council of Engineering Companies (ACEC) Judges Choice Grand Award, 2017 American Public Works Association Project of the year for the Arizona Chapter, International Partnering Institute Partnered Project of the Year and the Marvin M. Black Partnering Excellence Award as part of the Alliant Build America Awards.

ADOT I-40/US 93 West Kingman System Interchange, Kingman, AZ: ADOT Lead Bridge Design Manager (previous employment with ADOT). This project involved the complete redesign of a 3 level System interchange for both phase I and II. Phase II was taken to 30% design level and phase I was taken to final design. This project included a 7 span precast girder flyover ramp bridge with post-tensioned straddle bent, two Post-tensioned box girder bridge widenings, 3 cast-in-place closed frame bridges, 2 miles of soundwalls, Holy Moses wash soil cement bank protection over 10,000 cubic yards, two span precast girder bridge carrying I-40 WB, and energy dissipation structure. Bridges had to accommodate all possible future phases of construction including future 3rd lanes on I-40 and phase II system ramps. Project required significant MOT coordination and phasing required to build ramp bridge over I-40 with no viable detours.

ADOT SR 89A Pumphouse Wash Bridge Historic Rehabilitation, Pocanino County, AZ: ADOT Lead Bridge Engineer (previous employment with ADOT). This project involved significant the significant rehabilitation of a 90-year-old 5 span steel stringer bridge supported by four-legged steel pier columns on concrete pedestals. Project required extensive coordination with U.S. Fish and Wildlife, Arizona Game and Fish, Coconino National Forest, and traveling public. As lead bridge engineer Rafe initiated a change in project scope from bridge replacement to bridge rehabilitation early in the final design stages in order to mitigate environmental and MOT challenges. Bridge rehabilitation memo identified the existing bridge had no deficiencies that could not be repaired in a feasible and prudent way. Coordinated with several layers of management on the challenges of the project site that enabled a decision to change scope. Coordinated impact areas to environmental group to aid in documentation of impacts to Spotted owl nesting, Narrow Headed Garter, and Yellow-billed Cuckoo. Developed practical paint specifications for the repainting of a steel bridge with lead paint. Coordinated with ADOT Bridge Hydraulics group on the scour mitigation measures to alleviate a headcut that was undermining the piers. Managed a team of engineers and drafters in developing plans, calcs and geometric runs for a complicated steel bridge. Presented at Western Bridge Engineers Seminar 2023 and at the Roads & Streets conference 2023 for this project. Coordinated the bundling of the bridge project with 2 other projects as a single bid.

City of Flagstaff Downtown Mile Connectivity Project CMAR, Flagstaff, AZ: Bridge Design Lead. This project realigns BNSF railroad over four new structures and reconstructs three roadways in the Downtown Flagstaff area, improving pedestrian safety with new pedestrian underpasses, widening Milton Road, an ADOT facility, improving area drainage, and providing coordination with multiple projects and Project Partners. This is a Federally funded project utilizing an INFRA grant and will follow Federal Environmental and grant requirements as well as coordination with ADOT, BNSF, and USACE. Results/Successes- Rafe lead Bridge and Structural design team. As Design Lead Rafe worked with all disciplines to coordinate on many complex challenges, coordinated QC of plans and calcs.



Manny Medrano, PE

Roadway

Manny has 28 years of ADOT design experience with over 22 years focused on highway projects statewide. His design expertise, modeling competency, and attentiveness to quality will bring immense value to this project.

Throughout his career, Manny has gained well-rounded roadway engineering experience, responsible for designing and preparing project construction plans and design calculations utilizing the latest CADD platforms and standards for over 60 ADOT projects. He is well-versed in current ADOT and AASHTO design standards Manny has performed tasks covering the collection and evaluation of project data, project initial and final design, geometrics, earthwork management, R/W delineation, CADD plan production, and quality control/quality assurance. As part of his roadway design experience, he has coordinated utility mapping, conflict identification, and relocation plans in complex urban settings. With his robust design background, he understands the multidisciplinary coordination required and strives to minimize impacts. Manny's experience on several significant ADOT projects makes him the ideal team member for the roadway design lead for this project.

Years of Experience: 28 (23 with WSP)

Education: BS, Civil Engineering

Registration: Arizona PE #37310

Corporate Title/Role: Assistant Vice President/Civil Engineering

Value to ADOT

- Extensive roadway engineering experience on 60+ ADOT projects
- Key contributor of cost saving solutions developed during VE, interdisciplinary, and constructability reviews
- 28-year career focused on ADOT highways, with roadway engineering experience that spans corridor planning, final design, and GEC reviews

ADOT US 93, Tompkins Canyon, Wikieup, AZ: Design Engineer. Manny was directly involved with the geometric design, plan preparation and cost estimates for the reconstruction of the Tompkins Canyon section of US 93. WSP provided the ADOT design and planning services for the reconstruction of a 1.6-mile segment of US 93, Tompkins Canyon Section, to improve safety and traffic operations, and upgrade the existing two-lane roadway to a four-lane divided highway. Scope of services included roadway geometrics, super elevation, drainage design, construction phasing, signing and marking, utility coordination, and cost estimates.

ADOT SR 95, Lake Havasu City, AZ: Lead Roadway Engineer. Manny led design of 12.9 miles of SR 95, upgrading the existing rural two-lane highway to a five-lane urban arterial for nine miles and a four-lane divided roadway for the remainder. Manny was responsible for geometrics, ADA improvements, safety features, plan production, and quantity take-offs.

ADOT I-10 Broadway Curve, Phoenix, AZ: Senior Roadway Lead. Manny was part of the the general engineering consultant contract during the procurement, design, and construction phases, assisting ADOT with delivering best-value, high quality I-10 corridor improvements between I-17 and SR 202L Santan/SMF via a P3 project. GEC services started in May 2018 and will conclude with the completion of construction. Tasks relevant to SR 30 that Manny was involved with include schematic design, R/W delineation, contract development, environmental clearance, risk management, public outreach, design oversight, and construction support. He is currently overseeing contract management through design and construction, performing design reviews, and assisting ADOT in resolving construction issues.

ADOT I-10, Ruthrauff Road TI, Tucson, AZ: Senior Roadway Engineer. Manny was responsible for oversight of final roadway design, quantities, and quality control for this project that widened I-10 to an eight-lane roadway and reconfigured the I-10, Ruthrauff Road Traffic Interchange to eliminate the at-grade crossing of the UPRR. This project "flipped" the roadway by lowering Interstate 10 and raising Ruthrauff Road over Interstate 10, the UPRR, and Davis Avenue/Highway Drive, while also raising the connecting frontage roads.

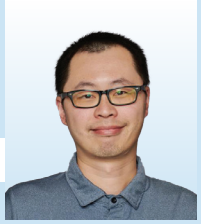
ADOT SR 101L, I-17 to Pima Rd, DB, Maricopa County, AZ: WSP provided GEC services for this GPL widening project that included 13 miles of urban freeway widening, 12 bridge widenings, reconstruction of service TI ramps and gores, as well as other corridor signing, lighting, and landscape improvements. Manny was the Roadway Lead responsible for oversight planning, constructability reviews, RFI response, and assisting ADOT in resolving construction issues.

ADOT SR 24 Final Design Services, Mesa, AZ: Senior Roadway Engineer. Manny was responsible for developing project plans, quantities, and quality control on the 2.4-mile widening of SR 202L from Power Road to Elliot Road. WSP provided final design services as a subconsultant for the system interchange along SR 24 (formerly SR 802), from SR 202L to Ellsworth. The project involved a three-span precast, prestressed concrete American Association of State Highway and Transportation Officials Type VI Girder Bridge (SR 24) over the Powerline Floodway, Powerline Floodway hydraulics, environmental clearance for geotechnical investigations, and overall utility coordination.

ADOT SR 303L, SR 30 to I-10 and I-17, Maricopa County, AZ: Senior Roadway Engineer. Manny was responsible for initial design and plan development for the $1.42B SR 303L corridor and the $1.37B improvements to I-17. Manny assisted with engineering elements, preliminary design, and quality control for the corridors to Stage II. He also prepared cost estimates for the design, R/W acquisition, and construction of defined segments within the freeway corridors.

ADOT US 60 (Superstition)/SR 202L (Red Mountain Freeway)/SR 202L (Santan) System TI, Phoenix, AZ: Senior Roadway Engineer. Manny was responsible for developing project plans and quantities on the four-mile widening of US 60 from Power Road to Crismon Road. Multi-agency coordination and public involvement were key components of this project. As subconsultant, WSP provided roadway, drainage, and traffic design for widening the U.S. Route 60 and crossroad improvements. WSP also provided structure design of service ramps and retaining walls.

ADOT SR 202L (Red Mountain Freeway) University Drive to Southern Avenue, Mesa, AZ: Senior Roadway Engineer. Manny was responsible for development and quality control of final design project plans and quantities on this 2.2-mile section of depressed urban freeway. The project included the design of two diamond interchanges, as well as a one-way collector-distributor road system to service Apache Boulevard. The project also included the design of three cast-in-place, post-tensioned concrete box girder bridges and off-site and on-site drainage facilities, as well as signal, lighting, signing, and striping design for the freeway and three city street crossings of the depressed facility.



Zuchen Deng, PE

Drainage

Zuchen has extensive experience as a drainage engineer/hydrologist, mostly in association with roadway improvement projects. His experience includes hydrologic and hydraulic analyses and design of storm drain, detention basin, cross drainage culvert and channel design, and river hydraulics (including scour analysis and flood-plain mapping). He has worked with assessing letters of map revisions, conditional letters of map revisions, and Federal Emergency Management Agency (FEMA) regulated watercourses, as well as designing to mitigate increases within the FEMA watercourse. He is proficient in using computer programs such as HEC-1, HEC-2, HECRAS, and STORMCAD. His work typically includes preparing and reviewing drainage reports and plans.

Zuchen also has experience with all aspects of the SWPPP development. He oversees subconsultant SWPPP documents and develops the in-house SWPPP for local projects. He stays apprised of changes to the Environmental Protection Agency's (EPA) National Pollution Discharge Elimination System (NPDES) program by subscribing to periodic updates and reviewing training materials through the EPA's website, as well as local regulations through the Arizona Department of Environmental Quality.

Years of Experience: 10 (7 with WSP)

Education: MS, Civil Engineering

Registration: Arizona PE #69361

Corporate Title/Role: Lead Consultant/Drainage Engineer

Value to ADOT

- Specialized drainage experience that entails closed and open systems, flood control facilities, hydraulic modeling, and drainage conveyance
- Proficient at interdisciplinary reviews to ensure no conflicts with other infrastructure

Professional Experience

ADOT I-10 Broadway Curve Reconstruction, Phoenix, AZ: Drainage Engineer. Zuchen was responsible for roadway drainage design and analysis using Inroads. Zuchen is also responsible for designing and analyzing a detention facility using SWMM, as well as pipe network design and analysis using FlowMaster and StormCAD. WSP is working with the ADOT and the Maricopa Association of Governments to develop a comprehensive strategic communication plan for the $700 to $800 million ADOT I-10 Broadway Curve multi-year reconstruction through the center of the Phoenix Metropolitan area. The project is a major reconstruction of the busiest and most congested freeway segment in Arizona. The team hosted a week-long virtual workshop series for ADOT and its stakeholders. The initial plan was to hold a two-day in-person workshop. However, as shelter-in-place orders were instituted in response to COVID-19, the team quickly shifted the meetings to an online webinar format. To maximize success in a virtual environment, the team used a variety of tools to ensure participant engagement.

ADOT SR 202L South Mountain Freeway Design, Phoenix, AZ: Drainage Engineer. Zuchen was responsible for roadway drainage design and analysis using Inroads. Zuchen is also responsible for river/wash hydraulic analysis using HY-8 and HEC-RAS, floodplain mapping using ArcGIS, and preparing the drainage report and cost estimate. WSP is the lead designer for the Loop 202 South Mountain Freeway. The 22-mile, four-lane freeway includes 13 interchanges; two half-diverging diamond interchanges; one double-roundabout interchange; 40 bridges; a 6-mile, 20-foot-wide adjacent shared-use path for pedestrians, bicyclists, and other non-vehicular traffic; five multi-use underpass crossings; and 4.5 miles of widening improvements for Interstate 10. The project also includes a rigorous quality control process to ensure compliance with the project's technical provisions.

City of Flagstaff Downtown Mile Connectivity Project CMAR, Flagstaff, AZ: Drainage Engineer. This project realigns BNSF railroad over four new structures and reconstructs three roadways in the Downtown Flagstaff area, improving pedestrian safety with new pedestrian underpasses, widening Milton Road, an ADOT facility, improving area drainage, and providing coordination with multiple projects and Project Partners. This is a Federally funded project utilizing an INFRA grant and will follow Federal Environmental and grant requirements as well as coordination with ADOT, BNSF, and USACE. Results/Successes- Kevin led the geotechnical and pavement design efforts. Recommendations for shallow and deep foundations in a variable bedrock setting were developed and provided. In addition, recommendations for retaining walls, earthwork, and pavement sections were provided for the project.

City of Flagstaff, Lone Tree Road OP, Flagstaff, AZ: Drainage Engineer. Like the I-40 Riordan Bridge project, Lone Tree Road OP includes a new bridge over BNSF tracks in Northern Arizona. WSP provided final design as part of a progressive design-build project for a new four-lane grade separated crossing of Lone Tree Rd over the USACE RDF project and BNSF between Butler Ave and Route 66. ADOT SR 89A Spur Overpass Final Design, AZ: Senior Geotechnical Engineer. Kevin was responsible for the bridge widening near the Northern Arizona University Campus. WSP provided design services for replacing the existing bridge with new drilled shaft foundations socketed into bedrock along the east side.

ADOT I-10, SR 85 to Citrus Rd Widening, Buckeye, AZ: Lead Drainage Engineer. Zuchen was responsible for roadway drainage analysis and design using ORD. Zuchen is also responsible for assessing FEMA flood zone impact for Zona AE and A. Coordinating with Flood Control District of Maricopa County to obtain the floodplain use permit and necessary supporting documents.

Pima County Suset Road Improvement Project, Tucson, AZ: Drainage Engineer. Zuchen was responsible for roadway drainage analyses and design using Inroads. Zuchen is also responsible for analyzing and designing offsite drainage including bridge hydraulic analysis using HEC-RAS model which submitted to FEMA for CLOMR and LOMR approval, assess bridge scour and design scour mitigation and floodplain mapping.

City of Phoenix Local Sites Flooding Assessment, Phoenix, AZ: Lead Drainage Engineer. Zuchen was responsible for assessing 10 local sites ponding/flooding issues by conducting hydrology analyses using ArcGIS Arc Hydro Tool and hydrologic design using HEC-HMS. Zuchen is also responsible for hydraulic analysis using HEC-RAS 2D and preparing the drainage memo and cost estimate.

Howard Olien, PE

Traffic/MOT

As the Traffic/MOT Lead, Howard knows maintaining safe traffic flow is critical to the success of this project. Working directly with ADOT Northwest District and Regional Traffic, along with our roadway and construction administration team members, he will bring a direct approach to develop the most optimal traffic management plan that maintains safety with the least disruption to the traveling public.

Howard brings extensive experience in transportation engineering, particularly on rural and urban highways and freeways, and has led the design of signing, striping, traffic control, and MOT design for many similar ADOT projects). Howard's years of experience, level of knowledge and history developing traffic design for ADOT, and in-depth understanding of traffic and MOT design is evident in the high-quality work he produces.

For each project, Howard looks for ways to incorporate the District's design preferences into the MOT design to streamline construction. This experience also allows him to bring a holistic approach to traffic design, especially MOT, as he knows rural highways and has designed around various challenges and constraints.

Years of Experience: 38 (38 with WSP)

Education: BS, Civil Engineering

Registration: Arizona PE #26335

Corporate Title/Role: Assistant Vice President/Traffic Engineering

Value to ADOT

- Over 30 years of traffic and lighting design experience on ADOT interstates
- Extensive MOT experience on ADOT facilities statewide, including in the NC District
- Detailed traffic design using MUTCD and ADOT traffic design guidelines

Professional Experience

ADOT US 93, Tompkins Canyon, Wikieup, AZ: Traffic Lead. Howard worked on this widening and safety project to upgrade 1.6 miles of US 93 from a two-lane roadway to a four-lane divided highway. The $7.5-million Tompkins Canyon segment of US 93 is located between Wikieup and I-40 in Mohave County. Howard led all traffic design elements including signing, striping, and traffic control. He worked closely with District and Regional Traffic to ensure his MOT approach met their needs and minimize impact to the traveling public.

ADOT US 93 Widening, Pliocene Cliffs to Big Sandy, AZ: Traffic Engineer. Howard was responsible for signing, pavement marking, and traffic control for four miles of rural highway improvements. This project widened the existing two-lane highway to a four-lane divided highway, similar to this Big Jim Wash segment. Howard led the traffic control efforts, ensuring that traffic could be maintained on the existing roadway and safely transitioned over to the new facility to facilitate construction.

City of Flagstaff Downtown Mile Connectivity Project CMAR, Flagstaff, AZ: Traffic Lead. This project realigns BNSF railroad over four new structures and reconstructs three roadways in the Downtown Flagstaff area, improving pedestrian safety with new pedestrian underpasses, widening Milton Road, an ADOT facility, improving area drainage, and providing coordination with multiple projects and Project Partners. This is a Federally funded project utilizing an INFRA grant and will follow Federal Environmental and grant requirements as well as coordination with ADOT, BNSF, and USACE. Results/Successes- Kevin led the geotechnical and pavement design efforts. Recommendations for shallow and deep foundations in a variable bedrock setting were developed and provided. In addition, recommendations for retaining walls, earthwork, and pavement sections were provided for the project.

City of Flagstaff, Lone Tree Road OP, Flagstaff, AZ: Traffic Lead. Like the I-40 Riordan Bridge project, Lone Tree Road OP includes a new bridge over BNSF tracks in Northern Arizona. WSP provided final design as part of a progressive design-build project for a new four-lane grade separated crossing of Lone Tree Rd over the USACE RDF project and BNSF between Butler Ave and Route 66. ADOT SR 89A Spur Overpass Final Design, AZ: Senior Geotechnical Engineer. Kevin was responsible for the bridge widening near the Northern Arizona University Campus. WSP provided design services for replacing the existing bridge with new drilled shaft foundations socketed into bedrock along the east side.

ADOT SR 260 Lion Springs, Gila County, AZ: Traffic/MOT Lead. The goal of this project was to improve safety and capacity by converting an existing two-lane highway into a divided four- lane highway. This project is similar to the Big Jim Wash project, requiring a thoughtful traffic control approach to minimize impacts to the traveling public, as this section of highway experiences significant seasonal travel in the summertime, resulting in backups extending many miles. Howard is working closely with District and Regional Traffic to ensure his approach will address their concerns and provide for a safe work zone and management of traffic during construction.

ADOT SR 101L, Princess Drive to Shea Boulevard, Scottsdale, AZ: Traffic Engineer. Howard was responsible for lighting and MOT for widening SR 101L for 4.5 miles through Scottsdale. The project is adding a general purpose lane while also reconfiguring interchanges to improve capacity. Howard, in coordination with Central District, Regional Traffic, and the project stakeholders, developed a TMP and traffic control plan to construct this impactful project on such a busy section of urban freeway.

ADOT SR 202L, South Mountain Freeway, Phoenix, AZ: Traffic Engineer. Howard was responsible for design of the new median mounted lighting system, and modifications to the existing high mast lighting system for the high occupancy vehicle freeway- to-freeway connections from I-10 to SR 202L, as well as a four-mile section along the freeway corridor. WSP was responsible for the design of two freeway-to-freeway high occupancy vehicle ramp bridge structures, and median widening of the existing freeway to accommodate new high occupancy vehicle lanes on state Route 202 from Interstate 10 to Gilbert Road. The project included the design of four freeway-to-freeway high occupancy vehicle ramp bridge structures; internal and external widening of the existing freeway to accommodate the high occupancy vehicle lanes and reconfigured interchange ramps; and more than 20 lane miles of Portland cement concrete pavement, retaining walls, drainage, signing, and striping and lighting.

Kevin Porter, PE

Geotechnical

Kevin is experienced in construction, earthwork, subsurface investigations, deep and shallow foundations, pavements, soil stabilization techniques, slope stability analyses, and other geotechnical-related analyses and design. He is a registered civil engineer with extensive experience in geotechnical design and management of various projects, with an emphasis in transportation-related projects.

Kevin has performed numerous bridge investigations and provided recommendations for such clients as the ADOT, the California Department of Transportation, the Nevada Department of Transportation, and various cities and counties. His experience also encompasses various field activities, including subsurface investigations, drilled shaft installation, rock coring, over-water drilling, soil and groundwater sampling, slope stability assessments, inclinometer and rock anchor installation, foundation inspection, geophysical surveys, and pile driving.

Years of Experience: 27 (6 with WSP)

Education: MS, Civil Engineering; BS, Civil Engineering

Registration: Arizona PE #41716

Corporate Title/Role: Vice President/Geotechnical Engineer

Value to ADOT

- Kevin has been working on geotechnical issues in Arizona with ADOT for more than 25 years
- He's familiar with our soils and the challenges the desert can present. His input will be key to implementing our earthwork strategy that will reduce cost for ADOT, but also improve safety conditions during construction
- Experience widening bridges on 89A, I-17, SR 101L and other highways throughout the state

Professional Experience

ADOT SR 260 Lion Springs, Gila County, AZ: Senior Geotechnical Engineer. Kevin provided recommendations for drilled shaft and shallow spread footing foundations, slopes, rockfall containment, pavement subgrades, and general earthwork. The purpose of this project is to widen the roadway from two lanes to five, aiming to increase the operational safety and capacity. WSP's responsibilities include reviewing environmental documentation, reviewing utility services, right-of-way, geotechnical investigations and reports, drainage analysis and reporting, structure analyses, roadway design, traffic design, and preparing construction bid documents.

City of Flagstaff Downtown Mile Connectivity Project CMAR, Flagstaff, AZ: Geotechnical Lead. This project realigns BNSF railroad over four new structures and reconstructs three roadways in the Downtown Flagstaff area, improving pedestrian safety with new pedestrian underpasses, widening Milton Road, an ADOT facility, improving area drainage, and providing coordination with multiple projects and Project Partners. This is a Federally funded project utilizing an INFRA grant and will follow Federal Environmental and grant requirements as well as coordination with ADOT, BNSF, and USACE. Results/Successes- Kevin led the geotechnical and pavement design efforts. Recommendations for shallow and deep foundations in a variable bedrock setting were developed and provided. In addition, recommendations for retaining walls, earthwork, and pavement sections were provided for the project.

City of Flagstaff Lone Tree Overpass Progressive DB, Flagstaff, AZ: Geotechnical Lead. Design of a voter approved initiative to connect Lone Tree Road between Butler Avenue and Route 66. This new connection will create a new grade separated overpass for Lone Tree Road over a USACE flood control project, Rio de Flag, six tracks of BNSF railway and tie into an ADOT facility, Route 66. USACE, BNSF, and ADOT are all major stakeholders on this project along with an actively involved community and council. Key elements of this project include modern intersection design, a new four-span structure, roadway design, drainage design incorporating stakeholder requirements, traffic, public involvement, ROW acquisition, and economic impact analysis. This project is also the City's first use of the Progressive DB delivery method for horizontal construction. Results/Successes- Recommendations for shallow and deep foundations in a variable bedrock setting were developed and provided. In addition, geophysical surveys were used to characterize bedrock conditions along the BNSF alignment where traditional exploration was limited.

ADOT SR 89A Spur Overpass Final Design, AZ: Senior Geotechnical Engineer. Kevin was responsible for the bridge widening near the Northern Arizona University Campus. WSP provided design services for replacing the existing bridge with new drilled shaft foundations socketed into bedrock along the east side.

ADOT US 93/Wickenburg Interim Bypass, Wickenburg, AZ: Senior Project Enginee . Kevin was responsible for the geotechnical evaluation of the design of 1.7 miles of highway to connect US 60 to the existing US 93. The project included the construction of a bridge over the Hassayampa River, a superbox culvert, retaining walls, and 25-foot-high roadway embankments adjacent to the Hassayampa River. The geotechnical evaluation consisted of drilling soil borings through alluvial and bedrock materials. The analyses included drilled shaft capacities in bedrock, slope stability analysis of embankments, and settlement calculations.

ADOT I-10 Broadway Curve, Phoenix, AZ: WSP is providing program and project management services for the design and realignment of the I-10 Broadway Curve. The project area stretches from I-10 and I-17 Interchange to SR 202 and involves widening and reconstructing the rush-hour-challenged Broadway Curve. The firm is responsible for the development of schematic plans and environmental approvals.

ADOT I-17, SR 101L to Jomax Rd, Phoenix, AZ: Senior Project Engineer. Kevin was responsible for the geotechnical evaluation of the design of 4.3 miles of freeway improvements, including roadway and bridge widening and replacement, retaining and sound wall construction, and drainage improvements. The geotechnical evaluation consisted of drilling soil borings to depths up to approximately 100 feet through alluvial materials. The analyses included drilled shaft capacities, slope stability analysis of embankments, pavement design, and settlement calculations of the proposed bridges and roadway. The project included preparing reports for a geotechnical evaluation, a foundation report, a pavement design summary, materials design report for improvements associated with the roadway, and a geotechnical evaluation for drainage improvements.

Anthony Scolaro

Environmental

Anthony has led environmental efforts for TIs along I-10, I-17, Loop 303, and other major highways throughout the state of Arizona. His experience includes our efforts on the Willard Springs TI on I-17 near Flagstaff and the Lone Tree OP, which faced similar issues to I-40 Riordan BNSF Railroad OP.

Anthony Scolaro has extensive planning experience, specializing in environmental planning conducted in accordance with NEPA for highway, transit, and public works projects. Currently in charge of environmental planning at WSP's Tempe office, he has managed the public outreach component of numerous transportation studies and is skilled in writing and editing technical reports and impact assessments. His experience in environmental planning ranges from minor environmental overview memoranda to managing multiple tasks and reviewing technical reports for major EIS. Environmental resource categories for which Anthony has prepared or overseen research and documentation include land use, socioeconomic impacts, Section 4(f) properties, cultural resources, noise impacts, air quality, and hazardous materials.

Years of Experience: 29 (6 with WSP)

Education: MUP, Urban Planning; BA, English

Corporate Title/Role: Vice President/Environmental Planner

Value to ADOT

- Extensive knowledge of NEPA process and ADOT assignment, completing numerous clearance documents and compliance reviews for freeway facilities
- Proven ability to deliver a legally compliant NEPA decision document in an expedited time-frame
- Attentive to detail and implementation of new environmental requirements (cultural and species) and processes (air quality)

Professional Experience

ADOT SR 101L, Princess Drive to Shea Boulevard, Scottsdale, AZ: Anthony led environmental services for the widening of this freeway in both directions including the widening of four major structures. WSP's responsibilities included environmental documentation, utility relocation coordination, roadway design, drainage design, geotechnical investigations and reports, structure analyses, traffic design, and construction bid document preparation. New Air Quality regulations and review staff presented schedule challenges to the environmental clearance that Anthony helped successfully negotiate.

City of Flagstaff, Lone Tree Road OP, Flagstaff, AZ: Environmental Lead. Anthony responded to Army Corps comments on the Section 408 Environmental Assessment and conducted a Greenhouse Gas Analysis for the same study. He was also involved in coordination of other environmental tasks for that project. Like the I-40 Riordan Bridge project, Lone Tree Road OP includes a new bridge over BNSF tracks in Northern Arizona. WSP provided final design as part of a progressive design-build project for a new four-lane grade separated crossing of Lone Tree Rd over the USACE RDF project and BNSF between Butler Ave and Route 66.

ADOT I-10, Ruthrauff Road TI, Tucson, AZ: Environmental task manager overseeing the re-evaluation of a prior environmental assessment/Finding of No Significant Impact (FONSI) examining the potential environmental impact of depressing the I-10 mainline and bridging Ruthrauff Road over I-10 and the adjacent Union Pacific Railroad Sunset Route. Changes during final design required right of way and temporary construction easements outside of the previously cleared project footprint. Anthony coordinated with the design team, sub consultants, ADOT Environmental Planning, and ADOT Project Development, as well as other agencies and jurisdictions. The project widened I-10 to an eight-lane roadway and reconfigured the I-10 Ruthrauff Road traffic interchange, eliminating the at-grade crossing of the Union Pacific Railroad. This project "flipped" the roadway by lowering I-10 and raising Ruthrauff Road over I-10, the Union Pacific Railroad, and Davis Avenue/Highway Drive, while also raising the connecting frontage roads. This reconfiguration dramatically improves the operations and capacity of both I-10 and Ruthrauff Road and significantly enhance the safety of the travelling public.

ADOT I-10, SR 87 to Picacho Peak Widening Design, Pima County, AZ: Environmental task manager coordinated with subconsultants and ADOT Environmental Planning to update technical analyses for this widening and realignment project that straightened and flattened I-10 between Mile Post 210 and Mile Post 213. This project required reevaluation of an environmental assessment and Finding of No Significant Impact issued earlier. WSP provided final design of proposed improvements on I-10, resulting in an interim widening from two lanes in each direction to three, by adding lanes generally on the outside of the roadways. The goal of the project was to increase capacity and improve traffic operations and safety for this segment of Interstate 10, which extends from the SR 87 Interchange westbound entrance ramp connection to I-10 to the Picacho Peak State Park. WSP's responsibilities included utility relocation, right of way acquisition, construction of two new bridges, drainage facilities, traffic signals, and lighting.

ADOT SR 303L I-10R/Maricopa County 85 to I-10, Maricopa County, AZ: Environmental task manager coordinated with ADOT Environmental Planning, subconsultants, and consultant project manager prepared the draft environmental assessment, supported the public hearing, and prepared the final environmental assessment and Finding of No Significant Impact for the four-mile extension of SR 303L south of I-10 in Goodyear. WSP was responsible for this four-mile segment of new freeway, which included three service interchanges, one system interchange, and in-depth coordination between local agencies and utility companies.

ADOT I-10 Broadway Curve General Engineering Consultant Services, Phoenix, AZ: Environmental task manager developed the National Environmental Policy Act environmental assessment and later coordinated with ADOT, the design-build developer, WSP environmental staff and technical specialists, and subconsultants as part of the general engineering consultant team, on environmental compliance review of contract, design, and construction documents, as well as to prepare a procurement package based on the environmentally approved schematic design of proposed capacity and operational improvements to this section of I-10 in Phoenix, Tempe, Guadalupe, and Chandler. WSP is providing program and project management services for the design and realignment of the I-10 Broadway Curve. The project area stretches from I-10/I-17 Interchange to SR 202 and involves widening and reconstructing the Broadway Curve Interchange, which is described by ADOT as being rush-hour-challenged. WSP is responsible for the development of schematic plans and environmental approvals for the project.

Jeremy Morken, PE

BNSF Coordination

Jeremy is a project manager and civil engineer at TranSystems with significant experience in overseeing the design and construction of track, roadway, grading, and drainage projects for BNSF Railway and other Class I railroads. His expertise includes leading multidisciplinary teams to deliver complex projects such as mainline and siding track, grading designs, and the development of railroad yards and industries.

Jeremy's background also includes time with MoDOT as a highway designer, where he gained valuable experience in project planning and execution. He developed conceptual, right-of-way, and final plans, ensuring compliance with MoDOT standards, and managed critical components of the projects.

Years of Experience: 16 (14 with TranSystems)

Education: BS, Civil Engineering

Registration: Arizona PE #68325

Corporate Title/Role: Project Manager/Civil Engineer

Value to ADOT

- Understands the BNSF Triple Track project goals and has previously worked with BNSF on the third main at this location
- Will facilitate BNSF coordination during initial design and support variance development and execution with BNSF

Professional Experience

BNSF Angell to East Flagstaff Triple Track, Flagstaff, AZ: Design Lead. Jeremy led design of a 22.3-mile third main track project between MP 317.9 and 340.2 on the Seligman Subdivision. The project involved 10 bridges in shallow rock conditions, two overpasses, numerous culvert extensions, and rock excavation. Multiple crossings and crossovers were also part of the project scope of work.

BNSF West Flagstaff to Bellemont Triple Track, Flagstaff, AZ: Design Lead. Jeremy led design of a 11.6-mile third main track project between MP 344.6 and 356.2 on the Seligman Subdivision. The project involved five bridges in shallow rock conditions, two overpasses including the I-40 Overpass with pier configurations requiring challenging track alignments, numerous culvert extensions, and rock excavation. Multiple crossings and crossovers were also part of the project scope of work.

City of Flagstaff Downtown Mile Connectivity Project CMAR, Flagstaff, AZ: BNSF Coordinator. This project realigns BNSF railroad over four new structures and reconstructs three roadways in the Downtown Flagstaff area, improving pedestrian safety with new pedestrian underpasses, widening Milton Road, an ADOT facility, improving area drainage, and providing coordination with multiple projects and Project Partners. This is a Federally funded project utilizing an INFRA grant and will follow Federal Environmental and grant requirements as well as coordination with ADOT, BNSF, and USACE.

City of Flagstaff Lone Tree Overpass Progressive DB, Flagstaff, AZ: BNSF Coordinator. Design of a voter approved initiative to connect Lone Tree Road between Butler Avenue and Route 66. This new connection will create a new grade separated overpass for Lone Tree Road over a USACE flood control project, Rio de Flag, six tracks of BNSF railway and tie into an ADOT facility, Route 66. USACE, BNSF, and ADOT are all major stakeholders on this project along with an actively involved community and council. Key elements of this project include modern intersection design, a new four-span structure, roadway design, drainage design incorporating stakeholder requirements, traffic, public involvement, ROW acquisition, and economic impact analysis. This project is also the City's first use of the Progressive DB delivery method for horizontal construction.

BNSF Southwest Division Project Management, AZ/NM: Project Manager. Jeremy was in charge of approximately 30 miles of third main track, yard reconfigurations, slope projects, and curve reduction projects across the BNSF Southwest Division.

BNSF Truxton Flyover, Kingman, AZ: Project Manager. Jeremy led this project during construction of a rail over rail flyover near MP 477.10 on the Seligman Subdivision. The project involved a 426-foot railroad bridge over the existing BNSF two main tracks. Adjacent high embankments and large double arch culverts with challenging geotechnical conditions were also part of the project scope of work.

BNSF Ash Fork Siding Extension, Ash Fork, AZ: Project Manager. Jeremy led this project during design of a nearly two-mile siding extension in Ash Fork, AZ on the Seligman Subdivision. The project involved a bridge in shallow rock conditions, numerous culvert extensions, and rock excavation.

Jason Carlaftes, PE

QA/QC Lead

Jason Carlaftes is a senior bridge engineer with over two decades of structural engineering experience and five years overseeing QA/QC programs on projects. His experience includes everything from small rural bridges to large complex urban bridge design. With 10 years of design-build and alternative delivery experience, Jason brings a unique skillset to incorporating constructability and value engineering into his designs to provide his clients with efficient, cost-effective approaches. As Structures Lead, Jason will be responsible for the planning, concept development, and final design of all bridge and drainage structures on the project.

Years of Experience: 22 (6 with WSP)

Education: MS, Civil Engineering

Registration: Arizona PE #45151, SE #50678

Corporate Title/Role: Senior Vice President/Structural Engineering

Value to ADOT

- Oversaw and supported QA/QC programs for Design Build, Progressive Design Build, and traditional bridge design projects
- Understands ISO 7000 Quality Program requirements
- Led design on over 20 bridge projects in last decade (over 35 structures)
- Federal and State standards and requirements expertise

Professional Experience

City of Flagstaff Downtown Mile Connectivity Project CMAR, Flagstaff, AZ: Project Manager. This project realigns BNSF railroad over four new structures and reconstructs three roadways in the Downtown Flagstaff area, improving pedestrian safety with new pedestrian underpasses, widening Milton Road, an ADOT facility, improving area drainage, and providing coordination with multiple projects and Project Partners. This is a Federally funded project utilizing an INFRA grant and will follow Federal Environmental and grant requirements as well as coordination with ADOT, BNSF, and USACE. Results/Successes: Jason developed a project specific QA/QC program for this CMAR project for the City. As PM, Jason worked with the QA Manager to oversee the Quality Program ensuring compliance with quality control and interdisciplinary reviews.

City of Flagstaff Lone Tree Overpass Progressive DB, Flagstaff, AZ: Project Manager. Design of a voter approved initiative to connect Lone Tree Road between Butler Avenue and Route 66. This new connection will create a new grade separated overpass for Lone Tree Road over a USACE flood control project, Rio de Flag, six tracks of BNSF railway and tie into an ADOT facility, Route 66. USACE, BNSF, and ADOT are all major stakeholders on this project along with an actively involved community and council. Key elements of this project include modern intersection design, a new four-span structure, roadway design, drainage design incorporating stakeholder requirements, traffic, public involvement, ROW acquisition, and economic impact analysis. This project is also the City's first use of the Progressive DB delivery method for horizontal construction. Results/Successes: Jason developed a project specific design QA/QC program for this PDB project for Ames Construction. As PM, Jason worked with the QA Manager to oversee the Quality Program ensuring compliance with quality control and interdisciplinary reviews.

ADOT South Mountain Freeway L202 GEC, Phoenix, AZ: Structures Lead. The 22-mile, four-lane South Mountain freeway include 13 interchanges; two half-diverging diamond interchanges; one double-roundabout interchange; 40 bridges; a 6-mile, 20-foot-wide adjacent shared-use path for pedestrians, bicyclists, and other non-vehicular traffic; five multi-use underpass crossings; and 4.5 miles of widening improvements for Interstate 10. The project also includes a rigorous quality control process to ensure compliance with the project's technical provisions. Results/Successes: Jason supported quality audits as part of the design QA/QC program representing ADOT as a member of the General Engineering Consultant. QA/QC documentation was reviewed for conformance to the Quality Management Plan and comments provided to the Joint Venture for Corrective Action.

ADOT SR 260 Lion Springs Widening DBB, Gila County, AZ: WSP provided final design services for a rural corridor reconstruction of state Route 260. The purpose of this project is to widen the roadway from two lanes to five, aiming to increase the operational safety and capacity of state Route 260 at Lion Springs sections. WSP's responsibilities include reviewing environmental documentation, reviewing utility services, right-of-way, geotechnical investigations and reports, drainage analysis and reporting, structure analyses, roadway design, traffic design, and preparing construction bid documents. Results/Successes: Jason provided quality control reviews of the structural design of five bridge crossings and the associated retaining walls for the project. Quality control reviews included risk assessment, value engineering reviews, cross disciplinary coordination, and client and contract standard reviews.

ADOT SR 101L I-17 to Pima GEC, Phoenix, AZ: Improvements are needed to address growing traffic demands in the northeast Valley and relieve traffic congestion on the Loop 101 during the morning and evening peak travel periods. Major elements of this project include adding one general purpose lane in each direction between I-17 and Pima Road, adding an auxiliary lane in each direction between Seventh Street and Cave Creek Road, constructing a new overpass structure at the future Miller Road alignment, and modifying freeway ramps and frontage road connections at 11 interchanges. Additional components include construction of noise or retaining walls where warranted, improvements to drainage and new rubberized asphalt resurfacing and pavement markings. Jason served as the structural technical lead as part of the General Engineering Consultant, helping ADOT develop the procurement documents, evaluating alternative technical concepts, and providing reviews on design documents and insight on construction issues during the life of the project. Results/Successes: Jason served as the Structural Technical Lead (GEC) for the procurement and overview of design and construction. Tasks included oversight of quality audits during design ensuring compliance with the Quality Management Plan for the Joint Venture.

From: ADOT Business Engagement and Compliance Office
To: Hebert, Vernon
Cc: ContractorCompliance@azdot.gov
Subject: Bidders List for WSP USA Inc.
Date: Friday, November 15, 2024 12:31:04 PM

WSP USA Inc., AZUTRACS Number: 16571 has submitted a Bidder/Proposer list for **2025-006** on 11/15/2024 at 12:30 PM MST (UTC - 07:00).

Bidders/Proposers for this firm include:

Firm Name	AZUTRACS #	Expiration Date	Email Address	Phone Number
Cooper Aerial	16537	03/27/2027	Phil@cooperaerial.com	602-678-5111
Corral Design Group, Inc.	10207	10/26/2025	ecorral@corraldesigngroup.com	602-222-9822
Kimley-Horn & Associates, Inc.	10608	06/11/2027	raj.christian@kimley-horn.com	602-371-4560
TranSystems	22294	11/14/2027	balehr@transystems.com	816-329-8686

CONSULTANT INFORMATION PAGES (CIP)

CONTRACT NO.: 2025-006

CONTACT PERSON: Joy Melita, PE

E-MAIL ADDRESS: joy.melita@wsp.com

TITLE: Senior Vice President, Project Principal

CONSULTANT FIRM: WSP USA Inc.

ADDRESS: 1230 W Washington Street, Suite 405

CITY, STATE, ZIP: Tempe, AZ 85288

TELEPHONE: 480-921-6875

FAX NUMBER: 480-966-9234

UNIQUE ENTITY ID# (FROM SAM WEBSITE): LLWLXEU6T563

ADOT CERTIFIED DBE FIRM? (YES/NO) No

SUBCONSULTANT(S):	TYPE OF WORK	ADOT CERTIFIED DBE FIRM (YES/NO)
TranSystems	BNSF Coordination	No
Corral Design Group	Erosion Control & Landscaping	Yes
Kimley-Horn	ITS	No
Cooper Aerial	Survey	No

NOTE: This page is not evaluated by the Selection Panel but is used by Engineering Consultants Section for administrative purposes.

Revised 05/02/2024

SUBCONSULTANT(S) TABLE:

SUBCONSULTANT FIRM NAME:	TranSystems
CONTACT PERSON:	Jeremy Morken
E-MAIL ADDRESS:	jlmorken@transystems.com
TITLE:	Project Manager
ADDRESS:	2400 Pershing Rd, Suite 400
CITY, STATE ZIP:	Kansas City, MO 64108
TELEPHONE:	816-329-8865
FAX NUMBER:	N/A
UNIQUE ENTITY ID #:	M3QZCWH5LB14

SUBCONSULTANT FIRM NAME:	Corral Design Group, Inc.
CONTACT PERSON:	Edward Corral
E-MAIL ADDRESS:	ecorral@corraldesigngroup.com
TITLE:	President
ADDRESS:	4632 S 36th Street
CITY, STATE ZIP:	Phoenix, Arizona 85040
TELEPHONE:	602-222-9822
FAX NUMBER:	602-222-9079
UNIQUE ENTITY ID #:	09-725-4846

NOTE: Each Subconsultant listed in the SOQ must be included in the Subconsultant Table of the CIP. Add additional Subconsultant Table pages as necessary. The CIP is not evaluated by the Selection Panel but is used by Engineering Consultants Section for administrative purposes.

*Please confirm that each Subconsultant listed is in the eCMS database. If a Subconsultant's name is not in the eCMS database, contact ECS at E2@azdot.gov and allow two (2) business days to have the Subconsultant added to eCMS. Click Here check the eCMS database or go to ECS Website.

Revised 05/02/2024

SUBCONSULTANT(S) TABLE:

SUBCONSULTANT FIRM NAME:	Kimley-Horn and Associates, Inc.
CONTACT PERSON:	Tom McCullough, PE
E-MAIL ADDRESS:	Thomas.McCullough@kimley-horn.com
TITLE:	Project Manager/Associate
ADDRESS:	1661 E. Camelback Road, Ste. 400
CITY, STATE ZIP:	Phoenix, AZ 85016
TELEPHONE:	602.216.1298
FAX NUMBER:	N/A
UNIQUE ENTITY ID #:	V8PKGG6NLKV6

SUBCONSULTANT FIRM NAME:	Cooper Aerial
CONTACT PERSON:	Philip Gershkovich
E-MAIL ADDRESS:	phil@cooperearial.com
TITLE:	President
ADDRESS:	11402 N. Cave Creek Rd
CITY, STATE ZIP:	Phoenix, Arizona 85020
TELEPHONE:	602-678-5111
FAX NUMBER:	N/A
UNIQUE ENTITY ID #:	62-343-7324

NOTE: Each Subconsultant listed in the SOQ must be included in the Subconsultant Table of the CIP. Add additional Subconsultant Table pages as necessary. The CIP is not evaluated by the Selection Panel but is used by Engineering Consultants Section for administrative purposes.

*Please confirm that each Subconsultant listed is in the eCMS database. If a Subconsultant's name is not in the eCMS database, contact ECS at E2@azdot.gov and allow two (2) business days to have the Subconsultant added to eCMS. Click Here check the eCMS database or go to ECS Website.

Revised 05/02/2024

DBE GOAL ASSURANCE/DECLARATION

This Contract is Race Neutral (No DBE Goal-DBE use encouraged).

By signing below, and in order to submit an SOQ proposal and be considered to be awarded for this contract, in addition to all other pre-award requirement, the consultant/Proposer certifies that they will meet the established DBE goal or will make good faith efforts to meet the goal for the contract and that arrangements with certified DBEs have been made prior to SOQ and/or Cost Proposal submission. The proposer will meet the established DBE goal or will make good faith efforts to meet the goal on each Task Order assignment associated with the contract and that arrangements with certified DBEs have been made prior to SOQ and/or Task Order proposal submission.

Melita

Signature

November 19, 2024

Date

Joy Melita, PE

Printed Name

Senior Vice President, Project Principal

Title

SOQ SUBMITTAL CHECKLIST

Place a check mark on the left side of the table indicating compliance with the following items. Only include the Supplemental Services Disclosure Form listed below if the form is requested in the Request for Qualifications:

☑	SOQ is within the page limit indicated in the RFQ
☑	SOQ is combined into one PDF Document no larger than 15 MB
☑	All Amendments are Included and Signed
☑	Introduction Letter (Including all required elements/statements)
☑	SOQ Proposal Formatted According to Requirements Listed in RFQ Section IV, #11.
☑	Correct SOQ Certification List (15 pt **OR** 9 pt) Signed and Dated by a Principal or Officer of the Firm
☑	Completed Consultant Information Pages (CIP)(Including listing DBE firms, if applicable)
☑	DBE Goal Assurance/Goal Declaration completed (located at the top of this page)
☑	All Subconsultants & Proposed Work Type listed on CIP (Including indicating DBE firms)
☑	Any Additional Required Documents (Specific to RFQ such as Resumes for all Key Personnel named)
☑	Commenting or User Rights Feature Enabled in SOQ PDF Document
☐	Supplemental Services Disclosure Form (Required for Supplemental Services Type Contracts ONLY)

NOTE: This page is not evaluated by the Selection Panel but is used by Engineering Consultants Section for administrative purposes.

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