

July 22, 2024

Arizona Department of Transportation
Engineering Consultants Section
205 South 17th Avenue, Mail Drop 616E
Phoenix, AZ 85007



RE: Statement of Qualifications for Interstate 19 (I-19); Ruby Road to Rio Rico Drive Interchanges and Frontage Road Modifications (ADOT Contract No. 2025-001)

Dear Members of the Selection Committee:

The Ruby Road Traffic Interchange (TI) project is an important project that will improve operations and safety for all users. This project supports Arizona Department of Transportation's (ADOT) and Santa Cruz County's vision of: Moving Arizona to become the most reliable transportation system in the nation. HDR Engineering, Inc. (HDR) is extremely interested in being selected for this project and has assembled a team that offers the following qualifications and benefits:

**You Spoke,
We Listened.
Our Focus:**

- ✓ Critical path focus and schedule adherence
- ✓ Separate school and truck traffic
- ✓ Most produce trucks stop at multiple stops – allow for all turning movements
- ✓ Maintenance of traffic and construction sequencing! Allow Ruby Road construction to occur while accommodating truck traffic
- ✓ Build consensus through teamwork and effective stakeholder engagement
- ✓ Risk-based design and management approach
- ✓ Meet design budget
- ✓ Foster clear and effective communication
- ✓ High-quality deliverables
- ✓ Maintain a good public image



Trusted Partners. HDR has been a trusted partner of ADOT since 1959. We have a long-standing history of providing engineering design services on transportation projects, with a very stout interstate and TI resume. In fact, the HDR team designed Arizona's first full diverging diamond interchange (DDI) at Interstate 17 (I-17) and Happy Valley Road. Our Project (Contract) Manager, Ted Smithwick, was the lead engineer and post design manager on Arizona's second DDI at Interstate 10 (I-10) and Houghton Road. We provided innovative, practical, and cost-effective solutions while meeting ADOT's budget and schedule expectations. The HDR team completed the Environmental Assessment (EA) and Design Concept Report (DCR), and were the Construction Administration team for the State Route (SR) 189 Design Build project in Santa Cruz County. We are very familiar with the issues facing Santa Cruz County and Nogales, and we know how to deliver projects of all sizes on time and on budget.



Key Stakeholder Understanding and Relationships. It's not possible to discuss a project in Rio Rico or Nogales without taking into account produce and meeting with people who use these facilities daily. Our team met in-person with Santa Cruz County's County Manager, Chairs and Board Members of the Nogales Santa Cruz County Port Authority, and ADOT's Southcentral District Assistant Engineers. Over several hours, our team listened and learned; we shared possible solutions, discussed alternatives, and gathered feedback. We understand the issues at Rio Rico Drive and Ruby Road, and we have a plan to solve them as demonstrated within our Statement of Qualifications.



Project Understanding. We have thoroughly researched this project, and tapped into the historical knowledge of HDR staff who designed the original bridge and road system that exists today. Our Quality Assurance/Quality Control Lead, Brent Kirkman, evaluated the original West Frontage Road at Rio Rico Drive design, and our Project (Contract Manager), Ted Smithwick, was the lead engineer on the 2018 Project Assessment. HDR has had detailed conversations with many ADOT staff – allowing us to understand the scope and major issues and develop a number of solutions and alternatives. Our effort, project understanding, and success delivering similar projects gives us the ability to hit the ground running on the development of the scoping document.



Experienced Santa Cruz County and ADOT Project (Contract) Manager. Ted Smithwick, has worked on projects in Santa Cruz County for over 15 years. Whether it be an intersection improvement project on Rio Rico Drive, a drainage project in Sonoita Wash, an off-system bridge replacement, the I-19 Ruby Road Project Assessment, or the AZ SMART Grant Application for the Ruby Road project – Ted is a trusted resource to Santa Cruz County. Ted is also a trusted resource for ADOT – serving as ADOT's Project Manager on several projects as a Supplemental Services Project Manager, and as a Project Manager on other ongoing ADOT PDOC projects. Ted understands ADOT's process and knows how to complete the needed clearances on time. Ted's experience, combined with his 75% availability, make him the ideal Project (Contract) Manager for this project.

HDR is prequalified with ADOT and is not a certified DBE firm. We embrace your DBE program, and as such, we have included two DBE firms on our team despite the 0.00% goal. As Project Principal on this contract and a Vice President for HDR, Mike Barton has the authority to commit the key staff named within this SOQ to the extent necessary to meet ADOT's quality and schedule expectations.

Thank you for your consideration of the HDR team. We are very excited for the opportunity to continue our strong, long-standing working relationship with ADOT and the local stakeholders. If you have questions, please contact Ted Smithwick at 602.228.5378 or Ted.Smithwick@hdrinc.com.

Sincerely,

HDR Engineering, Inc.

Michael J. Barton, PE, PTOE (AZ PE #25955)
Vice President/Project Principal/Michael.Barton@hdrinc.com/520.584.9647
Owner/Principal/Authorized SOQ Signer

Ted Smithwick, PE (AZ PE #52634)
Project (Contract) Manager/Ted.Smithwick@hdrinc.com/602.228.5378
Authorized SOQ Signer

Engineering Consultants Section SOQ Proposal Certifications Form

Contract #: 2025-001

Consultant Name: HDR Engineering, 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: Aaron Meilleur

Title: Senior Vice President/Area Manager

Signature: 

Date: July 22, 2024

**ARIZONA DEPARTMENT OF TRANSPORTATION
ENGINEERING CONSULTANTS SECTION
PARTICIPATION IN BOYCOTT OF ISRAEL - CONSULTANT CERTIFICATION FORM
ADOT ECS Contract No.: 2025-001**

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.

HDR Engineering, Inc.				
Company Name			Signature of Person Authorized to Sign	
1 South Church Avenue, Suite 1400			Aaron Meilleur	
Address			Printed Name	
Tucson	Arizona	85701	Senior Vice President/Area Manager	July 22, 2024
City	State	Zip	Title	Date



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:

<input checked="" type="checkbox"/>	The Company submitting this Offer does not use, and agrees not to use during the term of the contract, any of the following: <ul style="list-style-type: none"> • 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.
<input type="checkbox"/>	The Company submitting this Offer does participate in use of Forced Uyghurs Labor as described in A.R.S. § 35-394.
<input type="checkbox"/>	Exempt Consultant. Indicate which of the following statements applies to this Consultant (may be more than one): <div style="margin-left: 20px;"> <input type="checkbox"/> Consultant is a sole proprietorship; <input type="checkbox"/> Consultant has fewer than ten (10) employees; and/or <input type="checkbox"/> Consultant is a non-profit organization. </div>

HDR Engineering, Inc.

Company Name

1 South Church Avenue, Suite 1400

Address

Tucson

City

Arizona

State

85701

Zip

Signature of Person Authorized to Sign

Aaron Meilleur

Printed Name

Senior Vice President/Area Manager

Title

1. Project Understanding and Approach

Nature & Scope of the Project

The Interstate 19 (I-19) Ruby Road and Rio Rico Drive Traffic Interchange (TI) project is the next step for the Arizona Department of Transportation (ADOT) to improve the I-19 corridor, as recommended in the 2018 Project Assessment (PA). This project consists of preparing final design construction plans for a two-way East Frontage Road (EFR) between Kipper Street and Rio Rico Drive, a diverging diamond interchange (DDI) along Ruby Road, and a two-way West Frontage Road (WFR) between Calle Calabasas and Rio Rico Drive. **Completing these three improvements will enable Ruby Road and Rio Rico Drive to operate as a connected system by allowing two-way traffic along both frontage roads.** The project also includes relocation of affected utilities, drainage improvements, traffic analysis reporting using design year traffic volumes for 2050, identifying right-of-way (ROW) needs, environmental studies, and public involvement support. This project was awarded an AZ SMART Grant in December 2023 for \$3.2 million – **HDR Engineering, Inc. (HDR) assisted Santa Cruz County in preparing the application providing us with detailed understanding of the grant.** This project was awarded a legislative earmark in May 2023, that is in the current ADOT Five-Year Program in fiscal year 2026 for \$8.6 million. This project will seek additional federal grant funding for utility relocations, ROW, and construction; additional funds needed are approximately \$30 to \$40 million. Santa Cruz County will also be contributing \$500k to design.

The existing Ruby Road TI is a tight diamond interchange with closely spaced, two-way frontage roads that provide access to and from nearby warehouses, as well as the Calabasas School and Rio Rico Fire District Station #2. Ruby Road is currently an undivided five-lane roadway with two eastbound through lanes, one westbound through lane, and a dedicated left-turn lane in each direction. **This TI has extremely high truck volumes that access the Pilot Truck Stop, a newly built Love's Truck Stop, and dozens of warehouses on the east side of the EFR. The high truck volumes through the TI, along Ruby Road, and on the EFR, result in poor operations, which is a major project driver to complete this project.** The existing Rio Rico Drive TI, just over three miles north of Ruby Road, is also a tight diamond TI with closely spaced, two-way frontage roads; however, the traffic volume is lower at this interchange due to no WFR south of Rio Rico Drive, and because the EFR is one-way only at Rio Rico Drive.

Primary Project Tasks & Institutional Elements

The project will include two primary phases. **Phase I will consist of the traffic analysis report and design through Stage II, including completing the environmental technical reports in support of a Categorical Exclusion (CE), while Phase II will consist of final design from Stage III through bid advertisement.** As the design consultant, HDR will actively complete the majority of the design tasks and coordinate with/support ADOT with their assigned tasks (e.g., survey/mapping, ROW, etc.). The primary tasks/elements for this project are noted in the table to the right. Proper execution of Phase I will be a major key to success for the project. Some key objectives of Phase I include:

1. Engage stakeholders (e.g., Federal Highway Administration (FHWA), Santa Cruz County, Fresh Produce Association, Great Nogales Port Authority, developers, utility owners, etc.) including confirming roles/responsibilities, scope of work, and financial participation.
2. Complete traffic analysis/report (that considers recent developments – Love's Truck Stop, warehouses south of Ruby Road).
3. Effectively position project for federal grant funding by documenting benefits to the community, engaging the community, applying community analytics, and responding to community ideas/suggestions regarding the project.
4. Vet constructability (such as staging and access, working over/near traffic, etc.) with focus on reducing complexity and risk and minimizing the unknowns.

PHASE I TASKS/ELEMENTS (TRAFFIC ANALYSIS REPORT AND STAGE II)

- Data collection
- Design schedule
- Field review
- **Traffic data, analysis, and report**
- Assess Performance Based Practical Design (PBPD)
- Stakeholder engagement
- Public outreach
- Evaluation of American Association of State Highway and Transportation Officials (AASHTO) controlling design criteria
- Aerial mapping/field survey by ADOT
- Americans with Disabilities Act (ADA) compliance and feasibility report
- Determine utility impacts, ROW, and temporary construction easement (TCE) needs
- Determine stakeholder responsibility, scope, and financial participation
- Environmental studies (noise, biology, Section 106, etc.), requirements/mitigations, and CE
- Determine variances/exceptions
- Stage II plans and detailed cost estimate for programming
- Evaluate need for change of access (COA)
- Position project for federal grant funding (**we successfully helped ADOT with this on State Route (SR) 189 - \$25M RAISE grant**)

PHASE II TASKS/ELEMENTS (FINAL DESIGN - STAGES III TO V/BID READY)

- Plans, cross-sections, specs, quantities, estimate, and construction schedule
- Reports (drainage, geotechnical, ADA, utility, materials, pavement, earthwork)
- Geotechnical investigation/testing including right-of-entry and permit applications
- Meetings and field review
- Supplemental survey (as needed)
- Aesthetics/landscape coordination
- Utility coordination, designating, prior rights, conflict identification, resolutions, and relocation
- Value analysis support and participation
- Assist ADOT with stakeholder coordination and Intergovernmental Agreements (IGAs)
- Assist ADOT with public involvement as needed
- Assist ADOT with clearances

Project Approach Framework

Our framework for approaching the tasks and addressing the issues is described herein. We will blend practicality, a thorough analysis of the data, with a proven engineering approach to generate constructable project solutions. HDR will approach this project with a strong and continual focus on ADOT's primary goals, which are to:

- Reduce cost
- Expedite schedule (design and construction)
- Reduce long-term maintenance
- Minimize impacts to the traveling public
- Reduce risk
- Maintain a good public image

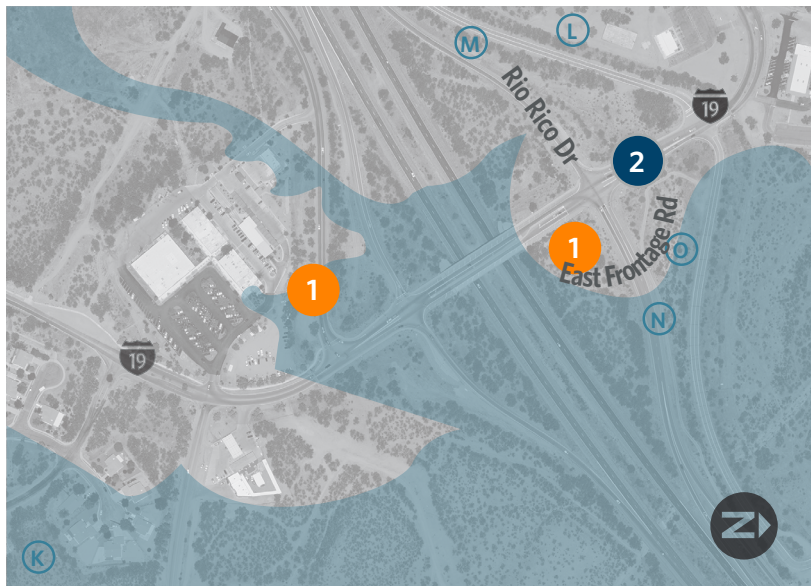
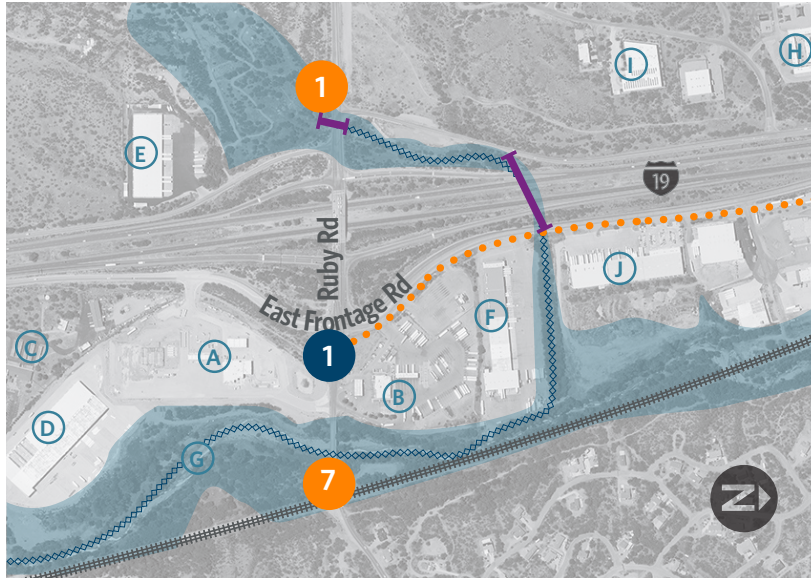
Guiding Principles & Keys to a Successful Project

HDR is excited to work on this project, and has met with ADOT and the project stakeholders to achieve a valuable understanding of the issues, challenges, risks, and requirements/conditions/constraints. We have also developed and refined two possible enhancements to the PA that assist with construction sequencing and traffic operations, and evaluated phasing/MOT. We have obtained our own intersection traffic counts, and reviewed five years of crash data. We understand this project, have assembled this team specifically for the needs of this project, and will implement the following guiding principles to successfully deliver this project and help provide mobility through connectivity:

- Effective stakeholder engagement: the Community, Santa Cruz County, Fresh Produce Association, Greater Nogales Port Authority, Calabasas School, and Rio Rico Fire
- Clear and concise communication to reduce risk, cost, and schedule
- Teamwork to achieve a high level of quality and meets schedules and budgets

Major Issues (MIs)/Tasks

The Issues and Features Map presents a list of issues/tasks categorized as “major” and “other.” The six MIs/TASKS, many of which will be a focal point during Phase I, represent the project drivers and the keys to success. We have developed solutions for many of these to meet ADOT’s goals noted on Page 05 (e.g., reduce cost, reduce risk, etc.). This will allow us to quickly initiate Phase I and minimize its duration.



LEGEND

- Overhead power
- Pipe/Box Culvert
- FEMA Flood Limits
- Project Issues/Tasks Shown on Map
- Drainage conveyance
- Existing Railroad
- Project Issues/Tasks Not Shown on Map

MAJOR ISSUES (MI/TASKS)

- 1 I-19 NB at Ruby Road:** Proximity of Ramp and Frontage Road intersections lead to congestion and backup
 - 2 Rio Rico Drive Reconfiguration:** Provide connectivity without recreating the same Ramp and Frontage Road intersection congestion currently experienced and Ruby Road
- ★ Traffic Control, Construction Sequencing:** Phased approach allows for better access during construction of later phases
 - ★ Stakeholder Coordination:** Community and stakeholder engagement is one of the most important aspects of this project
 - ★ Drainage:** There are multiple FEMA mapped floodplains in the project area, impacts to them could trigger a CLOMR
 - ★ Traffic Analysis:** The HDR team gathered traffic counts and crash data in the project area. We’ve used this information to inform our recommendations and learn more about the project area

EXISTING FEATURES

- | | |
|----------------------------------|-------------------------------|
| (A) Love’s Truck Stop | (I) US DEA |
| (B) Pilot Truck Stop | (J) Produce Exchange |
| (C) US Forest Service | (K) Rio Rico Fire District #2 |
| (D) Delta Fresh Warehouse | (L) Rio Rico Plaza |
| (E) Mariposa Inspection Terminal | (M) Chevron |
| (F) Alpha Fresh Warehouse | (N) Rio Rico Public Library |
| (G) Potrero Creek | (O) Christus Rex Church |
| (H) Calabasas School | |

OTHER TASKS/ISSUES/ELEMENTS

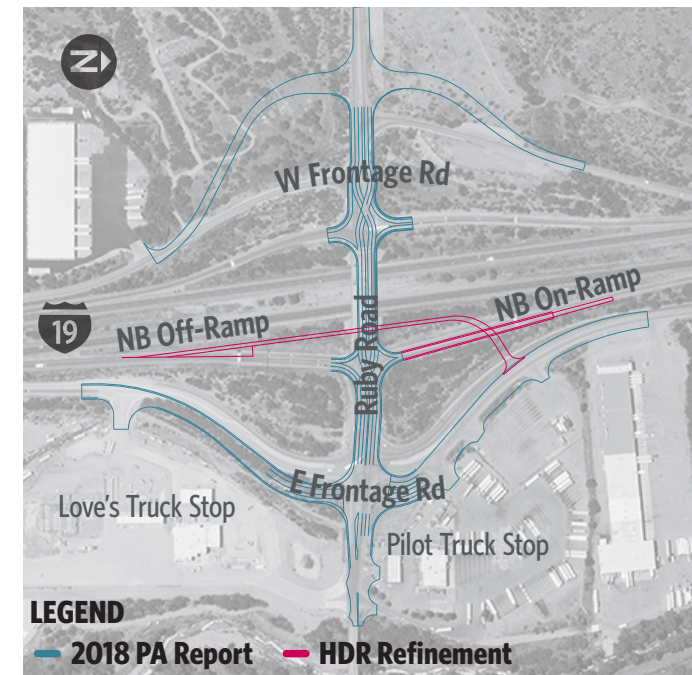
- | | |
|-----------------|-------------------------------|
| 1 ROW/TCEs | ★ Landscape & Erosion Control |
| 2 Environmental | ★ Traffic Design |
| 3 Geotechnical | 7 Potrero Creek Bridge |
| ★ Utilities | |

1 MI#1 I-19 Northbound (NB) at Ruby Road - Trucks to EFR Warehouses

Fact: Traffic data show the heaviest movement in the area is the eastbound (EB) left to NB at the EFR/Ruby Road intersection.

Issue: The 2018 PA recommended the DDI. While the DDI offers operational improvements on Ruby Road, it still proposes a very short (300 feet) distance between the I-19 Ruby Road NB off-ramp to the EFR intersection. This short distance results in poor level of service at the off-ramp and the EFR intersection due to truck merging and queuing and difference between the two-phase and four-phase signal phasing at the intersections. We understand that this is the heaviest truck movement because HDR collected traffic data at this intersection in April 2024 and learned that this is the heaviest truck movement at the intersection and that nearly 70% of trucks on the west leg are turning left.

HDR Approach: Reducing the truck traffic that is turning right from the off-ramp and then trying to turn left almost immediately at the EFR will greatly improve traffic operations on I-19, the off-ramp, on Ruby Road, and on the EFR. HDR has developed a solution that involves providing a new, one-lane slip lane from the Ruby Road NB off-ramp, that would be dedicated to the EFR, north of Ruby Road. The new slip lane would travel beneath the existing Ruby Road bridge, beneath the NB on-ramp, and create a new EFR intersection north of Ruby Road. An initial sketch of this alternative is provided below.



LEGEND

- 2018 PA Report
- HDR Refinement

I-19 NB at Ruby Road Alternative Concept

Other Considerations: The new slip lane may require a COA Report, requiring FHWA approval. The new slip lane would also require removing the existing concrete slope paving beneath the Ruby Road bridge. A new retaining wall would be constructed in place of the slope paving that would fit the new lane. An example of this condition is seen in the Tucson area on crossroads in a couple of locations both on I-10, one at Cortaro Road, and one at Valencia Road. Additionally, a new underpass structure would be required to traverse beneath the Ruby Road NB on ramp. This structure could likely be a large box culvert or slab bridge. Finally, a new signalized intersection would be constructed with the proposed exit and the EFR. The phasing of this signal would be straightforward in that it would be two phases – one for left-turning traffic from the exit, one for NB/southbound (SB) traffic on the EFR.

While we recognize this solution will add cost, the long-term benefits will far outweigh them:

- Improved traffic operations on I-19, Ruby Road NB off ramp, and the EFR – 70% of trucks would be removed from the EFR intersection.
- Increased safety due to reduced merging on Ruby Road.
- Streamlined construction sequencing and traffic control – this concept can be built largely offline and will alleviate traffic during construction of the DDI. This concept can continue to operate and serve the EFR warehouses during DDI construction, as well as provide long-term operational benefits.
- Funding - this project currently has limited funding. This concept presents a standalone alternative that can be built immediately with available construction funding.**

Federal Grant Application

Construction of this project is largely contingent on federal grant funding. **The HDR team understands how to best strengthen and position Santa Cruz County to obtain these funds – we did so in 2018 on SR 189 where a \$25M RAISE grant was awarded to construct the ultimate solution.** The I-19 Ruby Road and Rio Rico Drive project is well positioned for a federal discretionary grant award. In addition to freight movement, supporting trade with Mexico and the regional fresh produce trade a significant component of the local economy, the corridor is an important local route serving the community. The project area is predominantly minority (approximately 90 percent Hispanic) and a substantial portion of the population is characterized as low income (45 percent). The project benefits the local community with frontage roads that reduce congestion and improve local access; resulting in reduced local trips on the freeway and improved through movement, reduced crashes, and fewer vehicle conflicts. Documenting these facets of the project, applying community analytics to engage and communicate with stakeholders throughout the design process to understand their concerns, and responding to these issues will strengthen the local benefits of the project, while positioning the project for future grant success. We have successfully supported ADOT similarly, by helping to secure discretionary grant funding for critical improvements to other projects such as I-17 Flex Lanes (INFRA, \$90M, 2019) and I-10 GRIC GEC (FASTLANE, \$50M, 2016; INFRA, \$95M, 2023). We will bring our proven approach to benefit this project.

HDR discussed the slip lane idea with Santa Cruz County and the Fresh Produce Association. Both entities were generally supportive of the idea, but acknowledged the additional costs.

Other Solutions: While HDR's proposed solution of adding a slip lane to the off-ramp dedicated to the EFR best improves operations, there are other options to consider that vary in cost. During our discussions with Santa Cruz County and the Fresh Produce Association, the idea of widening the Ruby Road bridge was presented to HDR several times.

We agree that additional through lanes and turn lanes on Ruby Road, especially on the east side of I-19, would provide added operational benefits for truck traffic and local traffic. However, we believe the DDI can be implemented without widening the bridge, and recent inspection reports show that it is in good condition. While this solution offers some benefits, we believe the cost/benefit ratio does not support it.

Another solution that can be considered is creating a "NB-EFR-Only" Lane from the Ruby Road off ramp. Traffic in this lane would be forced to turn north onto the EFR by raised curb or delineators.

The existing sign shown to the right is located on the NB off-ramp at Ruby Road. Our proposed concept of creating the "NB-EFR-Only" Lane takes this sign one step further.



NB Off Ramp Sign at Ruby Road

Creating this dedicated lane would have the benefits of eliminating the unsafe merging between ramp terminal intersection and the EFR intersection.

It comes at the cost of any traffic that is mistakenly in that lane will have to reroute after turning north onto the EFR, or they may be tempted to perform an illegal maneuver at the intersection.

The proximity between the ramp terminal intersection signal and the EFR signal makes it difficult to accommodate the large number of turning trucks. This issue can be improved with better traffic signal timing and coordination; however, **we believe the ideal solution is simply to reduce the number of vehicles using these intersections, and HDR's proposed slip lane does exactly that, at a relatively low cost.**

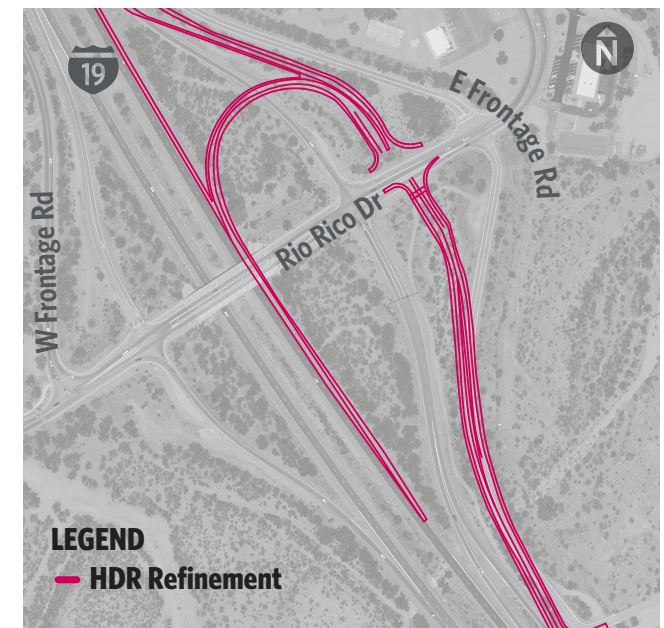
2 MI#2 I-19 NB at Rio Rico Drive Reconfiguration

Fact: The 2018 PA presents an option to provide a two-way EFR near Rio Rico Drive, but it recreates an issue seen at Ruby Road – a closely-spaced ramp terminal intersection with a two-way frontage road.

Background: A two-way EFR is imperative to better serve this project – it provides truck traffic an alternate route to access the warehouses along the EFR between Ruby Road and Rio Rico Drive. However, the concept presented in the PA has a shortcoming – most NB EFR traffic wants to access NB I-19.

The PA presents an option where this NB EFR traffic must turn left onto Rio Rico Drive, then almost immediately turn right onto the NB on ramp. The EFR north of Rio Rico Drive dead ends into private property. While the PA solves the issue of providing a two-way EFR, it seemingly creates a potential operational issue between the two intersections.

HDR Approach: Our approach aims to maintain the two-way EFR, and provide more direct access from the EFR to I-19. Our concept primarily involves redesigning the NB off ramp at Rico Drive by providing a loop ramp that ultimately connects to the north side of Rio Rico Drive. This concept eliminates the need for two, closely spaced intersections and simplifies them into one intersection that allows for two-way traffic in both directions. NB off ramp traffic can access the warehouses by a simple through movement at the intersection and the NB EFR traffic can access NB I-19 again by a simple through movement. A sketch of this concept is provided below.



I-19 NB Off Ramp at Rio Rico Drive Alternative Concept

Other Considerations: This concept may require a COA Report, and it now requires the NB off-ramp to EB Rio Rico Drive to turn left rather than right at Rio Rico Drive, however it offers significant benefits.

Most importantly, it offers:

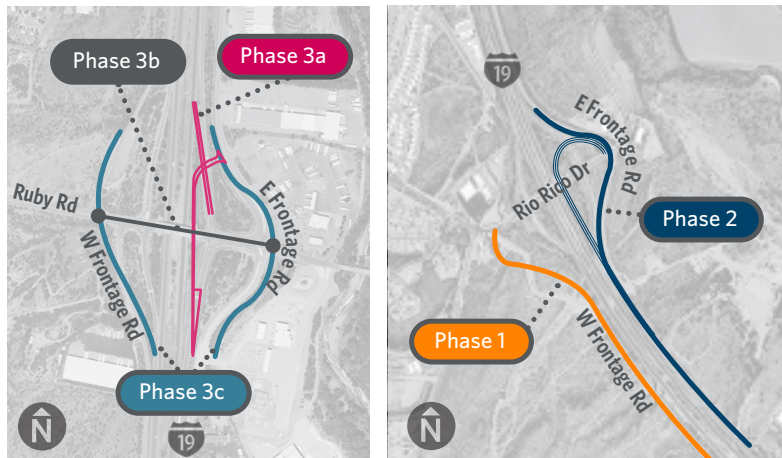
- Better access to and from I-19 from the EFR, resulting in overall better traffic operations at Rio Rico Drive.
- Eliminates two, closely-spaced intersections – eliminates merging and queuing.
- An option to build a reconfigured off ramp that can be built largely offline and allows for better construction sequencing.
- Requires less new ROW than the PA concept.
- Requires fewer overhead power utility relocations.

★ MI#3 Traffic Control, Construction Sequencing

Fact: Traffic volumes in the project area, especially on Ruby Road, are extremely high, which makes construction difficult. On top of the high traffic volumes, Ruby Road is the primary access to most of the EFR warehouses north of Ruby Road, and the primary route for Calabasas School traffic.

Background: Our team sat down with ADOT's Southcentral District Assistant District Engineers. From our discussion, we understand that the biggest issues for ADOT are traffic control and construction sequencing. We know that how the project is phased and constructed, with live traffic, is critical, and that proactively addressing this issue will drastically improve construction.

HDR Approach - Federal Grant Funds Obtained: Our approach involves several phases and aims to solve this issue by constructing elements offline and providing alternate routes where possible. Each Phase is indicated below.



Phase 1: Construct WFR from Calle Calabasas to Rio Rico Drive. This construction causes little to no impact to the traveling public. It can largely be constructed without any road closures or detours. Once Phase 1 is completed, it can be opened to traffic and can immediately begin to relieve Ruby Road traffic.

Phase 2: Construct EFR from Kipper Street to Rio Rico Drive. While this phase can be partially constructed offline, there will be occasional short-term closures of the existing, NB EFR and ramps on and off I-19 at Rio Rico Drive. EFR and Rio Rico Drive traffic impacted by these closures will use Ruby Road and the WFR constructed in Phase 1 to alleviate the issue.

Phase 3a: Construct HDR-concept of a new slip lane for NB EFR traffic. This can largely be constructed offline; however, some closures of the NB on-ramp will be required.

Phase 3b: Close Ruby Road on and off ramps at I-19 and reconstruct the TI terminal intersections for approximately 45 days. The closure would be planned during winter; the low point of the produce season. Ruby Road traffic would be diverted to Rio Rico Drive while construction is occurring. Traffic could use the two-way EFR constructed in Phase 2, or the new WFR constructed in Phase 1. Traffic could also use the new exit for NB EFR traffic constructed in Phase 3a.

Phase 3c: Construct EFR and WFR intersections with Ruby Road. These can be partially constructed during Phase 3b.

Consideration will be given to construction timing relative to truck traffic as well as school traffic. While truck traffic is lowest during the winter months, school traffic is lowest during the summer months.

HDR performed construction observation during the Ruby Road Bridge Rehab Project two years ago: F0101. We spoke with the Project Supervisor, regarding that project and how things operated during construction. The Project Supervisor noted that truck turning movements during construction, especially with narrow lanes adjacent to closed lanes, barricades, or barriers, should be closely considered. HDR will perform truck turning movements for all phases of the traffic control design and will be sure to use a WB-67.

HDR Approach - Limited Funding: Our team has presented an approach that best solves construction sequencing in a way that provides alternate routes. However, there are other items that will be considered during the traffic analysis report and Final Design:

- If funding is limited, particularly in the short-term, there are alternate approaches to construction sequencing. Particularly, constructing Phases 2 or 3a first is a more cost-effective alternative than constructing Phase 1 first. Phase 1 has a preliminary ROW, utility, and construction cost of more than \$16M. Phases 2 or 3a have preliminary total cost estimates of less than \$15M each. **HDR-concept, shown as Phase 3a, is relatively inexpensive and provides value by immediately removing truck traffic from Ruby Road.**

★ MI#4 Stakeholder Coordination

Fact: All projects in Nogales and Rio Rico have heavy involvement from Santa Cruz County, Fresh Produce Association, Southeastern Arizona Governments Organization (SEAGO), and the Greater Nogales Port Authority.

Background: As HDR began researching and preparing for this project, one of our first steps was to meet with members of Santa Cruz County Public Works, Fresh Produce Association, and the Greater Nogales Port Authority. Over multiple in-person meetings, the HDR team listened and learned from project stakeholders regarding their questions, concerns, and ideas on how to design, implement, and construct this project.

What We Heard, Learned, and Solutions:

- "Don't delay the process."** This was the first comment made from multiple stakeholders during our meetings. The project area has not functioned well operationally in over ten years. Since the original PA in 2015, truck traffic has significantly increased in the project area, and there are many new warehouses, a Love's Truck Stop, and overall increase in demand of produce provided through the port in Nogales. All of this has meant that the level of service in the project area has steadily declined over the years. Delivering this project in a timely manner is critically important to stakeholders and their constituents. There are several items that could delay this project including ROW acquisition, federal grant funding, utility relocations, and others. **HDR has developed a thorough risk register that discuss each of these items and our approach to mitigating them. Most importantly, while there are several critical path items and moving parts, we have identified improvements that can be made now with the available design and construction funding. We believe these improvements can begin construction in 2026, meaning relief is on the way.**
- The next biggest issue that was discussed included the interaction between school and truck traffic; the traffic counts that we gathered on Ruby Road confirm this issue. The school traffic on Ruby Road is accessing the Calabasas School. Our traffic counts showed the heaviest WB through traffic on Ruby Road occurs between 7:00am and 7:45am. In reviewing the Calabasas School bus routes, this is the primary route for school traffic for most residents living east of I-19. There are three options that can improve this with varying levels of cost:
 - Construct WFR to relieve Ruby Road and allow school traffic to use Rio Rico Drive to access the Calabasas School. This option is important to the stakeholders (they cited residential growth near the WFR), but it is the most expensive.
 - Construct the HDR-concept slip lane at Ruby Road - this removes a large portion truck traffic from the Ramp and Frontage Road intersections.
 - Lastly, public education and signage is an option that has a nominal cost and could make a short-term impact (school traffic use Rio Rico Drive, trucks use Ruby Road).
- There are several new warehouses in the project area. Access to these warehouses and associated origin-destination traffic modeling is important to understanding how the TI design can be configured. Along the EFR, south and north of Old Tucson Road - there are three, large warehouses that have been built since 2016. On the WFR, just south of Old Ruby Road, there are two new, large warehouses - one that opened in 2018 and one in 2022. HDR recommends performing an origin-destination study as part of the traffic analysis to better understand truck routing such that the TI traffic signals and turn lanes can be best designed to accommodate this new development.

- The stakeholders shared several ongoing issues with an existing roundabout at SR 189 and Target Range Road. Approach speed, large trucks, and turning movements were concerns. The stakeholders reiterated that a roundabout is not desired at Ruby Road.
- There was discussion regarding law enforcement and the possible DDI concept. One concern was wrong-way traffic and for law enforcement's ability to travel through the TI terminal intersections if needed. Mountable curb was installed at the I-10 Houghton Road interchange, and this can be considered at Ruby Road.
- The stakeholders recommended a detailed public involvement plan to share how the DDI operates and how trucks can effectively navigate it. HDR has a team of public involvement experts and we are prepared to assist ADOT in this effort. The HDR team is currently leading communication efforts for the complex design on the I-17 Flex Lanes Improvement project.
- Another idea that can be considered is the implementation of smart technology for signage on I-19 and both Ruby Road and Rio Rico Drive. Real time traffic information could be gathered at the EFR intersections and delay information could be displayed on the smart signs. These signs would direct trucks to the interchange that would provide the fastest access to the warehouses along the EFR.
- Better wayfinding signage could be installed along I-19. The signage would direct trucks and school traffic which exit to use depending on their destination. The wayfinding signage could indicate several large warehouses by name, the Calabasas School, and other large destinations.

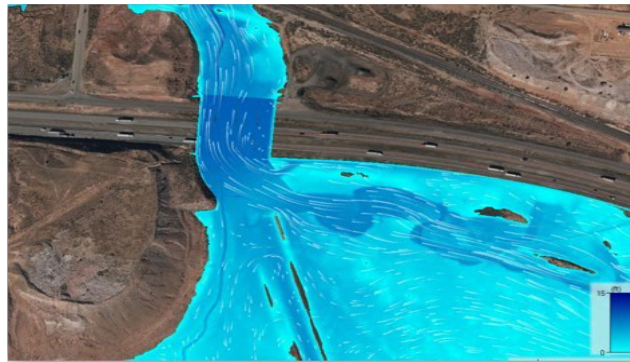
★ MI#5 Drainage

Fact: The project contains multiple proposed improvements that fall within a FEMA-designated floodplain.

Background: HDR is very familiar with this project area. There are several areas that merit detail consideration:

Offsite Analysis Approach: HDR will manage the analysis of two Special Flood Hazard Areas (SFHA) as identified by the current Flood Insurance Study for Santa Cruz County. Both Ruby Road and Rio Rico Drive SFHA's are mapped as "approximate" flood zones with no regulatory flood elevations to contend with. HDR's goal is to minimize impacts to the regulatory flood zones, limiting the potential of triggering the Conditional Letter of Map Revision (CLOMR)/ Letter of Map Revision (LOMR) process. This will be completed by maintaining conveyance capacity of the existing infrastructure and limited vertical/horizontal changes to the roadway geometry. We will follow both federal and county regulations to determine pre versus post flood hazard limits, to provide ADOT a trusted advisor who can walk you through the floodplain permitting process.

Onsite Analysis Approach: The Ruby Road improvements will result in significant changes to volume and peak discharge rates of pavement runoff, particularly at the Ruby Road DDI, relocated Frontage Road intersections, and new Frontage Road configurations. HDR's hydraulics and hydrology (H&H) experts are well-versed in the analysis of interstate pavement drainage systems. Our team will develop onsite drainage improvements, such as spillways and scuppers, control pavement stormwater and convey it safely off the corridor and into the available drainage network that outfall into the surrounding washes. HDR's design will utilize the system TI infields to retain/detain excess stormwater developed from the interchange improvements, estimated to be a total of one acre foot of additional volume of pavement runoff. The infields will drain via inlet and swales which will meter discharge rates to the available downstream system, limiting impacts to the offsite drainage network.



HDR's Floodplain Analysis for Roadway Improvements

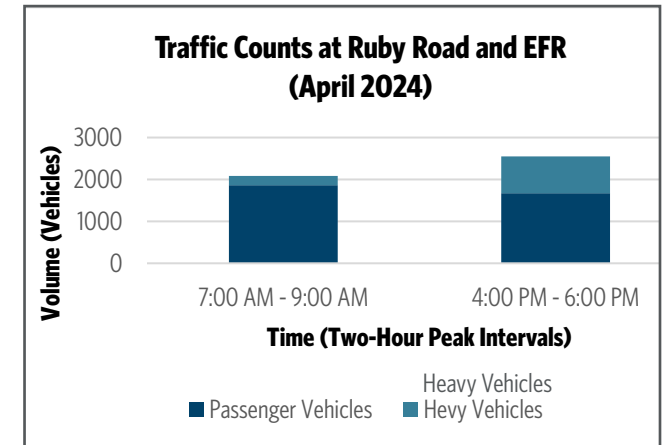
★ MI#6 Traffic

Fact: HDR gathered traffic volumes and turning movement counts in April 2024, as well as crash data over the past five years. This data confirmed our understanding and information we received from numerous stakeholders regarding the traffic issues in the area.

Background: HDR completed a preliminary analysis to establish traffic trends. The collected traffic data shows that 92% of the volumes correspond to passenger vehicles in the EB-WB direction during the AM peak period, suggesting commuters are traveling from or to the adjacent residential areas, developments, and schools in proximity to access I-19. A chart of Peak Hour Traffic Counts is shown in the graph on the right. We realize that AM truck traffic directly related to operating hours of the Mariposa Port of Entry (POE), which currently opens at 8:00 am. The traffic data in the PM peak period, indicated 57% heavy vehicles, which is consistent with the truck centric land-use, warehouses and truck stops. HDR also gathered crash data for the past five years and completed a preliminary safety analysis. Sideswipe crashes were identified to be the most common crash manner and the most frequent time for crashes coincide with the PM period with high heavy vehicle volumes.

HDR Traffic Analysis Approach: HDR will prepare a traffic analysis report using design year traffic volumes for 2050. This report will consider current traffic counts as well as projected traffic growth. HDR will also develop a sensitivity analysis, that takes into account changes in operations at the Mariposa POE, to determine how port operations impact traffic at the TI. These analyses will be used to determine and finalize the design parameters for the recommended DDI TI configuration. It will also be used to evaluate signal system operations for optimum traffic operations and safety performance. We propose using VISSIM to complete microscopic simulations of these elements, and will review traffic operations during construction, to facilitate truck movements during construction.

HDR Crash Analysis Approach: HDR will incorporate FHWA proven safety countermeasures to improve safety, which could include access management, lighting improvements, and signal timing improvements. Our preliminary analysis identified truck sideswipe crashes, particularly in the same direction. FHWA mitigation countermeasures that can be implemented to improve this condition include completing a detailed AutoTurn analysis of all turning movements at the TI intersections and adjacent Frontage Road intersections, specifically for truck movements. Wider lanes, particularly at turn lanes, have been shown to offer benefits for improving safety regarding sideswipe crashes.



Traffic Counts

Other Tasks, Issues, and Institutional Elements

In the major issues discussion, we presented background information that will drive project decision making and we provided detailed approaches and design solutions. While working within the project requirements, conditions, and constraints, each of these approaches/solutions solve key issues, and in many cases, lower costs and mitigate risks. In addition to the MIs, there are "other" project tasks, issues, and elements that will not be major project drivers, but still need to be addressed. These are listed on the Project Features and Issues Map and are discussed on the following page.

1 ROW/TCEs: The 2018 PA indicated new ROW needs of over 27 acres, with over 17 acres needed for the new WFR alone. It is anticipated that ADOT will be leading the ROW acquisition process for this project including preparing maps and negotiating ROW costs; however, ADOT expects the Consultant to develop the requirements needed for the ROW and TCEs. The largest area of need along the WFR is from a property owned by Rio Rico Pacific, LLC, that has zoned the parcel for residential construction. There may be opportunities to work with this owner to have them donate part of the ROW in exchange for certain concessions such as driveways. Furthermore, because the new ROW for this project will be using federal dollars, it is important that all ROW is cleared environmentally before proceeding.

★ Environmental: HDR's environmental team has significant experience working with ADOT, having recently completed environmental technical documents for ADOT's F0252 I-10; SR 202L to SR 387 EA, and technical documents in support of ADOT categorical exclusions (CEs) for F0696 I-17 and I-40 rest area truck parking project, and F0362 Airport Road TI underpass. **Our environmental lead, Maria Altemus, is in Tucson and has extensive knowledge and experience of environmental issues and local laws and regulations in southern Arizona.** It is anticipated that the National Environmental Policy Act (NEPA) class of action for the Ruby Road and Rio Rico TIs project would be a CE. A CE is appropriate because potential impacts do not appear to limit the use of a CE as described in 40 Code of Federal Regulations 1508.4(e), e.g., only a minor amount of additional ROW is expected to be required with no displacements. HDR would prepare the environmental technical reports, which ADOT would review and approve, and use to prepare the CE. Below are brief discussions of the main environmental categories that would be addressed as part of the CE.

Cultural - A desktop review of cultural resources indicates that three National Register of Historic Places (NRHP)-eligible sites are within the project area. Because previous cultural resources surveys are over 10 years old, HDR would conduct a Class III archaeological survey and report of the area of potential effects (APE), as needed and determined by pre-fieldwork background research. The survey and report would be conducted in accordance with state and federal requirements and laws. Additionally, HDR's cultural staff would assist ADOT with Section 106 consultation by developing draft consultation letters, including: (1) initial consultation; and (2) consultation on the Class III report and finding of effect.

Biology - The project is located near the Santa Cruz River and Potrero Creek. As a result, critical habitat for Endangered Species Act-protected species (yellow-billed cuckoo and Southwestern willow flycatcher) occurs adjacent to Rio Rico Drive and I-19. A preliminary investigation of the project area indicates that marginal suitable habitat may occur within the project area along drainages. If needed, species-specific surveys would be conducted to determine the presence or absence of threatened or endangered species. A biological evaluation would be prepared to determine the project impacts on these species and the critical habitat.



Yellow-billed cuckoo

Early coordination with the USFWS is recommended to understand their concerns and expectations. In a similar situation on the SR 30 project, HDR was able to conduct informal consultation for impacts in marginal critical habitat. It is likely that informal consultation with the USFWS would occur subsequent to submittal of the biological evaluation. The biological evaluation would also include an analysis of impacts to Arizona Native Plan Act-protected species, migratory and nesting birds protected under the Migratory Bird Treaty Act, federally protected bald and golden eagles, and any other special status species and resources that occur in the project area.

Hazardous Materials - HDR would prepare a Preliminary Initial Site Assessment (PISA) to identify potential hazardous materials sites in the project area. Paint and structure samples would be tested for lead-based paint and/or asbestos as needed, with the results documented in separate documentation letters.

Clean Water Act - The Santa Cruz River and Potrero Creek occur to the east of and outside of the project area and several smaller drainages cross the project area. Some of the drainages in the project area appear on the USFWS National Wetlands Inventory as "riverine" features, however, their field characteristics indicate they are ephemeral in nature. While there may be some xeroriparian vegetation along the ephemeral drainages in the form of mesquite bosques, there does not appear to be any true riparian or wetland features or vegetation within the project area. An Approved Jurisdictional Determination (AJD) would be prepared for the U.S. Army Corps of Engineers to document the presence or absence of jurisdictional Waters of the US (WUS), which would assist in determining the need for or level of Clean Water Act Section 404 permitting. Because the Potrero Creek and Santa Cruz River are designated as Impaired watercourses by the Environmental Protection Agency (EPA) an individual Section 401 permit may be needed from the Arizona Department of Environmental Quality (ADEQ).

Noise - The bridge replacements and TI improvements would not result in substantial vertical or horizontal alignment shifts and would not add capacity, this would not be considered a Type I project. A qualitative noise analysis would be conducted and provided in a technical memorandum.

Air Quality - The project area is in nonattainment for particulate matter 10 microns or less in diameter (PM10). Because the project is not increasing capacity or increasing truck traffic, we anticipate a full hot-spot analysis would not be needed. HDR would recommend interagency consultation and a consultation document demonstrating the traffic volumes and responses to the air quality questionnaire.

★ Geotechnical: HDR has engaged a strategic subconsultant, Terracon Consultants, Inc. (Terracon), to assist on the field investigation and report for this project. Terracon has completed many projects in Santa Cruz County, specifically on the 2018 PA for this project, as well as the adjacent project on Potrero Creek. The TI is located in the upper Santa Cruz Valley, which includes varying geology including infilled basins generally underlain with conglomerate, sandstone, and granitic rocks. The subgrade soils at the TI are generally coarse-grained soils with low to medium plasticity, weak to moderate cementation, and gravel contents in the range of approximately 10 to 50 percent and include cobbles. The soils in the vicinity are known to include collapsible soils. Exposed bedrock is present a few hundred feet away from the TI and the depth to bedrock at the site will be further evaluated with respect to the planned structures. Based on previous information in the vicinity, groundwater depths are variable may be encountered in deeper bridge borings. With over 15 previous geotechnical projects performed by Terracon within approximately a ½-mile radius of the site, our team's experience and capabilities will be combined to provide a robust investigation plan to develop cost-effective solutions for the design and construction of the proposed TI.

★ Utilities: HDR has submitted an AZ811 ticket to preliminarily identify all existing utilities within the project area. The ticket revealed the presence of Orbital Communications, Lumen and CenturyLink, Liberty Utilities, and UniSource Energy Services Company. There are also ADOT lighting and associated electric along the NB off ramp at Rio Rico Drive and EFR, traffic signal equipment and associated underground electrical at Ruby Road. There are several overhead power facilities owned by UniSource with communications underhung owned by Orbital on the east side of the EFR south of Rio Rico Drive. These facilities are in conflict with 2018 PA; however, HDR's revised configuration at the EFR (MI#2) in this area avoid this conflict.

★ Landscape and Erosion Control: Wheat Design Group (WDG) will use the latest Roadside Design standard details and specifications. Hardscape and planting will be desert and cactus, respectively, with temporary irrigation until established.

★ Traffic Design:

- **Signals -** Signal design and signal timing will be coordinated between the on-ramps, off-ramps, and frontage road intersections to accommodate the existing traffic patterns of passenger cars and heavy vehicles. Special consideration will be given to allocating sufficient green time for heavy vehicles making the EB left turn towards the business park to avoid queuing. **Benefit:** Optimal traffic operations and safety performance.
- **Lighting -** HDR will complete the photometric analysis for the TI (including ramps and gores) at Ruby Road and Rio Rico Drive. We will also evaluate bridge underdeck lighting. Lastly, new lighting will be proposed at the intersections. **Benefit:** Appropriate lighting levels to promote safety.
- **Signing & Pavement Marking -** A combination of appropriate pavement markings and signage will be proposed to allow traffic to flow efficiently and safely through the DDI. Signage in metric units will be implemented as needed in coordination with ADOT for this segment of I-19. **Benefit:** Corridor consistency.
- **FMS/ITS -** Project F0347 installed new seven-way micro-duct conduit and pull boxes along the west side of I-19. Special consideration will be given to these facilities to protect them. They likely will not be impacted since they are along the ramps and not at the to-be-reconstructed frontage roads. **Benefit:** Maintain existing connections uninterrupted.

7 Potrero Creek Bridge: Santa Cruz County received a federal grant, state grant, and discretionary funding to replace, widen, and span the Potrero Creek/UPRR line. HDR has reviewed the plans for these proposed improvements. These improvements will require adjustments to account for the recently constructed Love's Truck Stop on the south side of Ruby Road just west of Potrero Creek. Ruby Road east of the EFR intersection will account for the proposed horizontal and vertical alignments of the Potrero Creek Bridge. Sequence of construction should be considered between these projects – ideally the WFR at Rio Rico Drive would be constructed before the Potrero Creek Bridge; however, HDR's proposed new exit at Rio Rico Drive will also offer benefits.

Project Risks

The impact a risk has on a project is a function of the probability of its occurrence and its severity. Risks, which most often impact project cost and/or schedule, can be managed through either eliminating the risk or developing a mitigation strategy to reduce the risk's probability and/or severity. Risk reduction is a major focus of HDR, as noted in the "Project Approach Framework" and "Guiding Principles" sections on Page 05. Our risk management approach uses an iterative process to identify and then monitor the risks. The risks are revisited throughout the design process (via a risk register) as a project team until they are retired or mitigated to an acceptable level.

HDR led the risk management process on the SR 189 project in Santa Cruz County. Our risk management focus allowed the team to maintain schedule and successfully mitigate risks that included new ROW, TCEs, utility relocations, an individual 404 permit, and working with ADOT to obtain federal funding to build the flyover ramps to I-19. Project Manager Ted Smithwick and Principal Mike Barton will use their proven risk management techniques to mitigate the risks identified in the register below.

Through our understanding of this project and our conversations with ADOT and stakeholders, we developed an initial comprehensive list of

issues and risks that could impact schedule and cost. The list will be expanded through participation of the entire project team and monitored throughout the design process.

We eliminated several items, recognizing that they would be mitigated through proper design (e.g., maintaining emergency access and warehouse access during construction). Of the risks that remained, the most severe of those are presented below along with associated mitigations that will reduce the threat of those risks. **Risks presented below are also discussed in our Understanding and Approach, including how our approaches and solutions help mitigate those risks.**

ID	RISK TYPE	RISK & IMPACT	PRE-MITIGATION			MITIGATION STRATEGIES	POST-MITIGATION RISK CATEGORY
			(S)	(P)	(R)		
R1	Cost Schedule External	High costs: (1) Project estimate much higher than current estimate; (2) challenges with availability of labor and materials (supply chain issues); (3) dramatic increases in inflation Impact: Possible need to reprogram due to high costs; challenges with awarding project if bids are high; construction schedule impacts due to supply chain challenges	3	3	9	<ul style="list-style-type: none"> Monitor economic trends (including AGC resources) to develop reliable estimates Account for future inflation in Phase I estimate to avoid future change in programming Build float into construction schedule to allow for labor and material challenges Identify long-lead items in specs requiring early procurement by contractor (traffic signal equipment, PVC pipe, etc.) 	4
R2	Cost Schedule Scope External	Federal Grant not awarded: As part of the AZ Smart Grant Funding, Santa Cruz County is required to apply for grants to address the additional construction funding needs Impact: The current construction estimate is over \$40M and the program only includes \$8.6M	3	3	9	<ul style="list-style-type: none"> Encourage Santa Cruz County to submit on grants in Spring 2025 - doing so enables a debrief with the USDOT, bettering chances at selection at the next round Document public engagement process to include providing project information in Spanish and English, reaching out to the local school district and social services organizations for understanding Accelerate the traffic analysis phase of the project to provide better information in the grant application Develop a standalone construction package that can be built using the available \$8.6M of funding such that local relief can occur in the short-term 	4
R3	Schedule Scope External	Critical Habitat and Potential for Wetlands: Impacts to CH require formal consultation with US Fish and Wildlife Service (USFWS). Detailed field investigation reveal presence of true riparian or wetland features Impact: Schedule delays for formal consultation with USFWS. Wetlands would require additional permitting, mitigation, and possible redesign of proposed roadway concepts	3	2	6	<ul style="list-style-type: none"> Complete detailed field review early in project to determine if and where wetlands occur Identify early on all design reports and documents that any wetlands are clearly identified such that any redesign or reconfigurations do not pose any impacts 	3
R4	Schedule Scope External	COA: Challenges with determining need for COA report and obtaining FHWA approval Impact: Scope (safety analysis, etc.) and design schedule delays	3	2	6	<ul style="list-style-type: none"> Utilize HDR experience (I-10: SR202L to SR387 EA/DCR and I-17 Happy Valley) and local knowledge (I-10 Houghton TI) where COA was not required Consider design approach that does not involve changing or adding ramps from I-19, decreasing probability of COA report needed If COA report needed, complete traffic and safety analysis in Phase I and parallel report development with EA re-eval (to submit COA report early in Phase II) 	3
R5	Schedule External	ROW agreement process: Complications in executing ROW/TCE acquisitions due to property owner cooperation (e.g., developers) Impact: ROW clearance and design schedule delays	3	2	6	<ul style="list-style-type: none"> Most ROW is needed for the WFR concept. Work with geotechnical team to refine and optimize large cut slopes needed along the West Frontage Road to reduce ROW Complete EA re-eval in Phase I to give sufficient time for ROW agreement process 	3
R6	Schedule External	Utility relocation designs and agreements: Challenges with getting utility companies (e.g., Unisource, Orbitel) to complete relocation designs and execute agreements Impact: Utility clearance and design schedule delays	3	2	6	<ul style="list-style-type: none"> ID all conflicts during Phase I and complete second phase of SUE early in Phase II so all information is available by 60% Capitalize on HDR's strong relationships with impacted utility companies Conduct early and regular one-on-one utility coordination meetings to promote timely solutions and development of plans and agreements 	3
R7	Schedule External	CLOMR: Impacts to floodplains result in need for CLOMR Impact: Design schedule delays	3	2	6	<ul style="list-style-type: none"> Verify that design includes compensatory storage for any volume offset by proposed improvements Grading infield or other features to reduce impacts to the floodplains 	3

3. Project Team Experience and Availability

Project (Contract) Manager Ted Smithwick, PE



**17 Years of Experience | BSCE | MBA | AZ PE #52634
75% Available | 75% Commitment**

Project Responsibilities:

As Project Manager, Ted will actively manage this project, serve as the single point of contract for our team, and be responsible for the team's adherence to scope, schedule, and budget. Ted will work as a partner with ADOT to effectively identify and manage risk, set and meet budgets and schedule, and coordinate with project stakeholders.

Qualifications/Approaches & Value to ADOT:

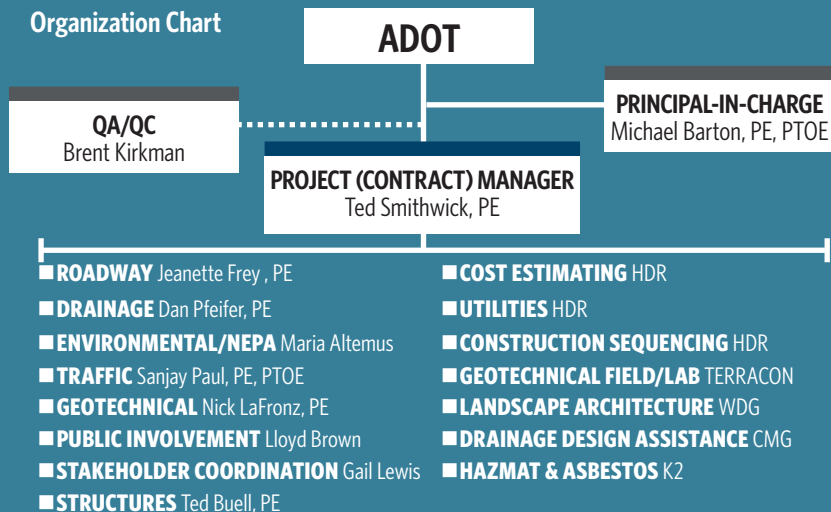
Ted has worked with ADOT for 17 years, specifically managing rural and urban roadway projects varying in size and complexity, including many on-call projects. As an Arizona native, he is very familiar with the intricacies of various design standards, best practices, and contacts throughout the state. Ted's ability to use design software and spreadsheets differentiates and streamlines his project management approach – many times ADOT has called Ted during post design to ask a question, and, as a result of his PM practices, Ted has been able to provide an immediate and accurate answer.

ADOT Experience & Record of Success:

The list below includes just a few of the ADOT projects Ted has successfully managed (on schedule and within budget) that included similar elements as this project and had challenging issues with prominent stakeholders. **See Ted's resume for current commitments and the qualifications and experience that make him ideal for this project.**

- Santa Cruz County, Babocomari Creek Bridge
- ADOT, Pendleton Drive at Sonoita Creek Wash
- ADOT, I-10 Houghton Road TI
- ADOT, SR 347 Pavement Preservation

Organization Chart



Legend ALTA Survey = ALTA | CMG Drainage Engineering, Inc. = CMG | K2 Site Assessments (DBE) = K2 | Terracon Consultants, Inc. = Terracon | Wheat Design Group (DBE) = WDG

Key Personnel: Name Role License No. Availability/Commitment	Relevant Experience Owner, Project Name	Qualifications / Value to ADOT and Project Stakeholders
Brent Kirkman , PE QA/QC Experience: 20 years AZ PE No. 48983 10% Available/Committed	<ul style="list-style-type: none"> ADOT, SR 30 - SR 303 to SR-202L L/DCR and EA ADOT, US 191-Chinle Wash to Lukachukai Wash Bridges Replacement & Rehabilitation ADOT, I-10 Ina Road TI to Ruthrauff Road TI DCR 	<ul style="list-style-type: none"> ✓ Trusted partner with ADOT in southeast Arizona and around the state ✓ Ability to find funding and move projects
Jeanette Frey , PE Roadway Experience: 14 years AZ PE No. 67397 70% Available/Committed	<ul style="list-style-type: none"> ADOT, SR 189 International Border to Grand Avenue DCR - Mariposa Port of Entry (POE) ADOT, I-10 Ina Road TI to Ruthrauff Road TI DCR 	<ul style="list-style-type: none"> ✓ Familiar with the project and has a good understanding of the project's needs
Dan Pfeifer , PE Drainage Experience: 16 years AZ PE No. 54445 50% Available/Committed	<ul style="list-style-type: none"> ADOT, SR 189 International Border to Grand Avenue DCR - Mariposa POE ADOT, I-10 Gila River Indian Community (GRIC) General Engineering Consultant (GEC) ADOT, I-17 Improvement Project GEC ADOT, I-10, SR 202L to SR 387 EA/DCR 	<ul style="list-style-type: none"> ✓ TI and interstate scoping and final design experience ✓ Trusted advisor for ADOT Drainage Group ✓ Significant experience with regulatory floodplain management and permitting
Maria Altemus , CEP-IT Environmental/NEPA Experience: 11 years 40% Available/Committed	<ul style="list-style-type: none"> ADOT, I-10 GRIC GEC Santa Cruz County, Babocomari Creek Bridge ADOT, I-17 Improvement Project GEC ADOT, I-10, SR 202L to SR 387 EA/DCR 	<ul style="list-style-type: none"> ✓ Extensive experience working with ADOT NEPA processes ✓ Completed documentation to ADOT standards for more than 25 ADOT projects
Sanjay Paul , PE, PTOE Traffic Experience: 15 years AZ PE No. 60687 50% Available/Committed	<ul style="list-style-type: none"> ADOT, I-10 GRIC GEC ADOT, Arizona-Sonora Border Infrastructure Master Plan 	<ul style="list-style-type: none"> ✓ HDR's Arizona/New Mexico Area Traffic Business Class Leader ✓ Experience in traffic engineering design and operations, transportation modeling and planning, roadway safety, lighting, and ITS
Nick LaFronz , PE Geotechnical Experience: 42 years AZ PE No. 22198 45% Available/Committed	<ul style="list-style-type: none"> ADOT, I-17 Pinnacle Peak Rd and Happy Valley Rd TIs Reconstruction ADOT, SR 189 International Border to Grand Avenue DCR - Mariposa POE ADOT, I-10 GRIC GEC ADOT, I-17 Improvement Project GEC 	<ul style="list-style-type: none"> ✓ Experienced and respected geotechnical engineer with vast ADOT experience ✓ Will establish comprehensive site investigation to mitigate risks with variable subsurface conditions
Lloyd Brown Public Involvement Experience: 33 years 35% Available/Committed	<ul style="list-style-type: none"> ADOT, I-10 GRIC GEC ADOT, I-17 Improvement Project GEC ADOT, I-10, SR 202L to SR 387 EA/DCR ADOT, Arizona-Sonora Border Infrastructure Master Plan 	<ul style="list-style-type: none"> ✓ Leading GEC strategic communications support for two ADOT major projects ✓ Drafted and implementing ADOT Digital Delivery Program Implementation communication plan ✓ Supporting ADOT P3/Major Projects on-call strategic communications
Gail Lewis Stakeholder Coordination Experience: 45 years 35% Available/Committed	<ul style="list-style-type: none"> ADOT, 2022 Mega Grant/I-10 GRIC Corridor ADOT, Arizona-Sonora Border Infrastructure Master Plan 	<ul style="list-style-type: none"> ✓ Fifteen years with ADOT as the Director of the Office of International Affairs ✓ Deep understanding of the border economy and the value of cross-border trade to Arizona
Ted Buell , PE Structures Experience: 35 years AZ PE No. 29368 50% Available/Committed	<ul style="list-style-type: none"> ADOT, SR 189 International Border to Grand Avenue DCR - Mariposa POE Santa Cruz County, Babocomari Creek Bridge ADOT, I-10 Ina Road TI to Ruthrauff Road TI DCR 	<ul style="list-style-type: none"> ✓ Structural lead that excels at finding the best solutions to structural challenges ✓ Registered structural engineer with extensive experience statewide including on ADOT and Santa Cruz County projects

HDR's Recent Relevant Experience: HDR has a very strong resume for successfully completing the scoping and final design of ADOT TI projects with similar features, complexities, cost, and stakeholders. Key relevant and comparable features are shown below. All of these projects, were delivered on time, within budget, and with a high level of quality.	RELEVANT PROJECT ELEMENTS												
	DDI/ Interchanges	Frontage Roads	Drainage	Signing/ Striping	Grant Funding	Environmental	Traffic	Geotechnical	Public Involvement	Stakeholder Coordination	Structures	Utilities	Phasing/MOT
ADOT, I-17 PINNACLE PEAK RD AND HAPPY VALLEY RD TIS RECONSTRUCTION	☑	☑	☑	☑		☑	☑	☑	☑	☑	☑	☑	☑
HDR provided final design services for the widening one mile of I-17 and the full reconstruction of the Pinnacle Peak Road and Happy Valley Road TIs. The TI reconstruction, which included the first DDI in Arizona at Happy Valley Road, required replacement of the bridges at both TIs as well as interstate and arterial improvements. HDR's DDI solution greatly improved traffic operations, safety, phasing, and construction duration compared to the baseline recommended solution by others. ROLE: Prime DESIGN BUDGET VALUE: \$4.2M													
ADOT, SR 189 INTERNATIONAL BORDER TO GRAND AVENUE DCR - MARIPOSA POE	☑	☑	☑	☑	☑	☑	☑	☑		☑	☑	☑	☑
SR 189 is a 3.75-mile primary arterial roadway that links the US - Mexico border crossing with I-19 and Grand Avenue in Nogales, Arizona. Working with ADOT, HDR developed engineering and environmental studies to identify and evaluate alternatives and select a preferred alternative to increase roadway capacity, improve access control and traffic circulation, reduce travel times and increase safety along this vital trade route between the POE and I-19. The primary tasks HDR completed included DCR; 30% design plans; Traffic Operations Analysis Report; COA Report; Alternatives Selection Report; Draft and Final EA/FONSI; public involvement; environmental technical reports for air quality, noise, hazardous materials, Clean Water Act Section 404/401 Permitting, and Biological and Cultural Resources Consultations; and Air Quality Regional Conformity Analysis. This was a very high-profile project that required significant coordination with project stakeholders to develop consensus. ROLE: Prime DESIGN BUDGET VALUE: \$3.5M													
ADOT, I-10 GRIC GEC	☑		☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
This project is located within Maricopa and Pinal Counties in Arizona. The I-10 corridor limits extend from the I-10/202 TI (Milepost 161) to south of SR 387 TI (Milepost 187). The Project is led by ADOT, in cooperation with GRIC, the Maricopa Association of Governments (MAG), and FHWA. The Corridor includes four projects that will widen I-10 to include one additional general purpose lane in both directions south of Riggs Road, and one additional general purpose lane and a high occupancy vehicle (HOV) north of Riggs Road. There are also six interchanges and four crossroads. All 10 locations will require bridge work (either rehabbing/widening or new construction) and all six interchanges will be improved. All four projects in the Corridor are currently fully funded. ROLE: Prime DESIGN BUDGET VALUE: Project in progress													
SANTA CRUZ COUNTY, BABOCOMARI CREEK BRIDGE 15%			☑	☑	☑	☑				☑	☑		
Santa Cruz County submitted an "OSB Program Application" to ADOT in December 2023. OSB Funding is a federal-aid program and must follow all federal-aid requirements. The proposed work is in eastern Santa Cruz County at the Town of Elgin, where the Upper Elgin Road crosses Babocomari Creek. The original bridge was built in 1920. It is a single-span modified Warren Steel Half-Through Truss Bridge. The bridge has a 61'-2" single-span and a clear roadway width of 16'-4". The steel stringers are supported on steel floor beams that are connected at the truss panel points. The bridge was rehabilitated in 1999 by replacing the wood decking with a cast-in-place reinforced concrete deck slab with concrete curbs. The rehabilitation also included repairing and strengthening existing steel members, repainting the bridge, and installing approach guardrail. ROLE: Prime DESIGN BUDGET VALUE: \$58K													

Subconsultant Expertise and Increase in Capacity: HDR and our subconsultants have a strong professional relationship having successfully delivered projects together. Each firm specializes in the services they are providing and brings added value to ADOT as noted.

FIRM/SCOPE OF WORK/ LOCAL RESOURCE POOL	NOTABLE EXPERTISE (RELEVANT PROJECT EXPERIENCE)		QUALIFICATIONS/VALUE TO ADOT
ALTA Survey/4 RLSs, 5 Survey Technicians and 12 field survey crews	<ul style="list-style-type: none"> City of Nogales, Water and Wastewater Improvement Projects City of Nogales, Industrial Park Drive 	<ul style="list-style-type: none"> ADOT, SR 79 Gila River Bridge ADOT, SR 77 River Rd to Suffolk Dr 	<ul style="list-style-type: none"> Partnered with HDR to deliver similar professional land survey services Extensive experience performing boundary and design surveys in Santa Cruz County Ability to assign multiple personnel to meet critical deadlines
CMG Drainage/8 local resources	<ul style="list-style-type: none"> Town of Marana, Tangerine Rd, I-10 to Twin Peaks Blvd Town of Sahuarita, Quail Crossing Extension Ph2 	<ul style="list-style-type: none"> City of Tucson, Drexel Rd, Midvale to Calle Santa Cruz PCDOT, Valencia Rd, SR-86 to Wade Rd 	<ul style="list-style-type: none"> Extensive experience working for Santa Cruz County as the Floodplain Administrator Extensive FEMA floodplain LOMR services for Santa Cruz County Capacity to help HDR with cross-drainage analysis in 1D or 2D environment
K2 HAZMAT/2 local resources	<ul style="list-style-type: none"> US 191 Chinle to Lukachukai (4 Bridges) I-17 Airport Road TI UP 	<ul style="list-style-type: none"> City of Tempe, Country Club MUP (Tempe) PCDOT, Blanco Wash Bridge 	<ul style="list-style-type: none"> 23 years ADOT PISA/asbestos/lead experience 300+ ADOT projects Intimate familiarity with ADOT procedures
Terracon Geotechnical Field & Data Report/30 local resources	<ul style="list-style-type: none"> ADOT, I-19 Ruby Road, East Frontage Road ADOT, I-19 Ruby Road TI UP #1240, Temporary Pavement Geotechnical Data Report 	<ul style="list-style-type: none"> Santa Cruz County, Ruby Road Bridge ADOT, Potrero Creek Bridge Erosion Protection 	<ul style="list-style-type: none"> Performed 12 previous geotechnical projects in the vicinity of the I-19 project corridor Extensive geotechnical engineering experience with ADOT projects including I-17 Pinnacle Peak Rd and Happy Valley Road TIs and GEC support services for I-10 GRIC
WDG Landscape, Erosion Control, & Aesthetics/8 local resources	<ul style="list-style-type: none"> ADOT, I-10/Houghton Road TI ADOT, I-10/Ruthrauff Road TI 	<ul style="list-style-type: none"> ADOT, I-10/Ina Road Traffic Interchange ADOT, I-10/Ruthrauff to Ina TI ("The Gap") 	<ul style="list-style-type: none"> Extensive ADOT experience ADOT Certified Erosion Control Coordinator Decades of working with Roadside Development



Ted Smithwick, PE

Project (Contract) Manager

Ted specializes in managing rural and urban roadway projects varying in size and complexity. Ted has worked with cities and towns around Arizona for over 17 years. As an Arizona native, Ted has spent his entire career working on projects around the state. As a Project Manager, Ted is focused on the project's schedule and building consensus among all stakeholders by listening to their goals and objectives.

Strengths/Approaches/Performance: Ted has a remarkable track record of consistently delivering successful projects within the designated time-frames, which can be attributed to his unwavering commitment to promptly respond to all communications within 24 hours. By proactively establishing clear expectations and diligently following up on the critical path as necessary, Ted confirms that projects adhere to the established schedule. He firmly believes in the principle that timely attention to matters leads to smooth progress. Most recently, on Ted's PDOC task for Santa Cruz County, the schedule was adhered to exactly as was originally committed in the scope of work – even the date of progress meetings. Ted was able to accomplish this by communicating the project design with stakeholders including Santa Cruz County, ADOT, and various utility companies. Ted also set internal schedules for the design team that included time for design, reviews, plan production, and quality control. Whenever a lag started, Ted brought in additional resources to confirm the schedule was still met.

RELEVANT EXPERIENCE

ADOT, I-19 East Frontage Road (Ruby Road to Rio Rico Drive) Project Assessment (PA), Santa Cruz County, Arizona*

Lead Engineer. Ted served as Lead Engineer on this PA that considered various alternatives for a new traffic interchange type at Ruby Road at I-19, reconfiguring the East Frontage Road near Rio Rico Drive, and constructing a new West Frontage Road near Rio Rico Drive. Ted participated in a variety of meetings regarding this project including public meetings and answering questions, stakeholder meetings, utility meetings, ADOT and Santa Cruz County, as well as a meeting with FHWA. **As Lead Engineer, Ted developed the concepts presented in the PA.** He evaluated feasibility of concepts and compliance with roadway design guidelines. Ted also developed earthwork and construction cost estimate.

Santa Cruz County, Babocomari Creek Bridge 15%, Santa Cruz County, Arizona

Project Manager. Santa Cruz County submitted an "Off System Bridge (OSB) Program Application" to ADOT in December 2023. OSB Funding is a federal-aid program and must follow all federal-aid requirements. The proposed work is located in eastern Santa Cruz County at the Town of Elgin, where the Upper Elgin Road crosses Babocomari Creek. The original bridge was built in 1920. It is a single-span modified Warren Steel Half-Through Truss Bridge. The bridge has a 61'-2" single-span and a clear roadway width of 16'-4". The steel stringers are supported on steel floor beams that are connected at the truss panel points. The bridge was rehabilitated in 1999 by replacing the wood decking with a cast-in-place reinforced concrete deck slab with concrete curbs. The rehabilitation also included repairing and strengthening existing steel members, repainting the bridge, and installing approach guardrail.

ADOT, Pendleton Drive at Sonoita Creek Wash, Santa Cruz County, Arizona*

Project Manager. Ted managed this PDOC task that involved significant project coordination with Santa Cruz County and ADOT. Sonoita Creek Wash at Pendleton Drive experiences large flows, particularly during monsoon season. The scope of work this project included realigning Pendleton Drive and building a new box and pipe culvert system that would convey flows during large storm events. The team thoroughly analyzed storm flows and developed a solution that would minimize water surface elevation increase while also passing the most flow. With significant budget constraints, Santa Cruz County desired a solution that mitigated and reduced roadway flooding while still accommodating large storms events and pedestrians/bicyclists. Ted worked with Santa Cruz County, ADOT, and project stakeholders to garner consensus on this project issue by developing several alternatives with a variety of construction costs. Construction and design on this project was completed on-time and on-budget in Fall 2023.

ADOT, I-10 Houghton Road Traffic Interchange, Phoenix, Arizona*

Project Manager. Ted served as Project Manager for post design services and Lead Engineer for the study concept and final design. Ted played a crucial role in developing all design items related to Arizona's second full Diverging Diamond Interchange (DDI) with construction completed in 2022. Four TI alternatives were considered including a SPUI, DDI, diamond and roundabouts. Ted designed, modeled, and developed cost estimates and after selecting the DDI during the study phase, Ted led the final design efforts that included working closely with ADOT, Pima County and the City of Tucson to verify the DDI operates effectively. This project required extensive coordination with the City of Tucson and Pima County as the ADOT project connected to a City project under construction and a County project under design. Ted worked closely with ADOT on this project for over six years, including managing several subconsultants and coordinating directly with all utilities, stakeholders, and agencies. ADOT has reported that the DDI is functioning very well and this project was awarded an ACEC Award of Excellence. One issue faced during the project development was ensuring that large trucks were able to traverse the proposed DDI effectively. Ted worked closely with the stakeholders, ADOT, and the design team to develop custom vehicles and truck-turning templates. The design team made adjustments to the design as a result. This project was completed on time and on budget.

"I have been thinking about and working on the I-19 Ruby Road project for almost ten years. What I think about most is a conversation I had with a resident in the area during a public meeting at the Calabasas Middle School in 2017. The resident told me about a crash that had occurred on I-19 north of Rio Rico Drive. Due the lack of connectivity in the area, it took a fire truck over 25 minutes to arrive to a crash that was just a couple miles away. I told the resident that this project will help that exact situation. When Santa Cruz County called me in Fall 2023 and asked for my assistance on the AZ SMART grant, my excitement for this project was renewed. I'm committed to seeing this project through and I can assure you that this project will be my top priority."

EDUCATION

MBA, Leadership, Arizona State University, 2010

BS, Civil Engineering, University of Arizona, 2007

REGISTRATIONS

Professional Engineer, Arizona No. 52634

INDUSTRY TENURE

17 Years

HDR TENURE

1 Year

PROJECT AVAILABILITY/ COMMITMENT

75%

COMPANY RESPONSIBILITY/ CORPORATE TITLE

Area Highway and Roads Business Class Leader

CURRENT PROJECT COMMITMENTS

ADOT, F0718 SR89A
Guardrail - 10%

ADOT, Supplemental Part-Time
Project Manager - 15%

OFFICE LOCATION

Phoenix

Ted Smithwick, PE

Project (Contract) Manager

ADOT, SR89 Guardrail Improvements, Oak Creek Canyon, Arizona

Project Manager. Ted is managing this PDOC project that involves the replacement of damaged and sub-standard guardrail from milepost 387 (Pine Flats Campground) to milepost 390 (Scenic Overlook) on SR 89A within Oak Creek Canyon. Ted is currently managing this PDOC project, which involves replacing over 10,000 feet of guardrail on SR89A from MP 387 to MP 390, which includes Oak Creek Canyon. The guardrail within the project limits do not have sufficient height to function properly and replacement of this guardrail within this extremely mountainous area is difficult for District Maintenance crews. HDR is closely evaluating proposed guardrail options in order to design and construct guardrail along SR89A where some locations have a sheer drop off within two feet of the guardrail.

ADOT, Rio Rico Drive at Pendleton Drive, Santa Cruz County, AZ*

Project Manager. Ted managed and designed this local government on-call task. This project involved completing a project assessment and final design with significant budget constraints. Ted and his team developed an option that saved over \$100k by proposing additional stop signs instead of a traffic signal.

ADOT, SR 347 PDOC Pavement Preservation, Maricopa, AZ

Project Manager. Ted is currently managing this PDOC project, which involves milling and overlaying 13.5 miles of SR 347 from the City of Maricopa to I-10. HDR is preparing a Stage II construction cost estimate as well as final design construction drawings. The project also involves removing and evaluating existing guardrail to bring it to current MASH standards, as well as developing traffic control plans that include lane closures to complete the pavement replacement. HDR is also scoped to complete environmental scoping which includes agency scoping and cultural resource consultation in accordance with Section 106. Lastly, this project is within the Gila River Indian Community and Ted has been coordinating closely with them to gain consensus on traffic control for lane closures. This project is currently on time and on budget.

ADOT, Supplemental Contract Part-Time Project Manager, Various, AZ

Project Manager. As a Part-Time Project Manager, Ted serves as ADOT's Project Manager to confirm projects are delivered on-time and on- budget. Ted is currently managing seven projects with ADOT. Four projects are for a local public agency in Yuma County, one project involves correcting superelevation on I-17, another is a passing lane project on US 93, and lastly another local public agency project for City of Surprise. Ted has gained valuable experience through these assignments to better understand how ADOT operates both internally and as projects are developed, designed, and constructed. One issue Ted has faced is scope creep while working within ADOT. Ted has solved the issue by communicating within ADOT and identifying funding sources. Ted's projects are currently on-time and on-budget.

ADOT, I-17 and Indian School Road Traffic Interchange, Phoenix, Arizona*

Lead Engineer. Ted served as Lead Engineer, and was responsible for completing a DCR for the Indian School Road TI, as well as final design. Ted and the team considered several traffic interchange alternatives and worked with ADOT and City of Phoenix to develop Arizona's first flyover concept for Indian School Road at a traffic interchange. Ted designed, modeled and developed cost estimates for the alternatives. He also attended monthly project meetings with ADOT which included MAG and City of Phoenix.

ADOT, I-40 and I-17 Truck Parking Expansion, Various, Arizona

Subject Matter Expert. Ted is serving as Subject Matter Expert for Arizona's first Integrated Design Build project. Truck parking facilities provide a location for truck drivers to take their short- and long-term rest breaks, as required by Federal law. Truck parking, or the lack thereof, has been a concern raised by the trucking industry for over ten years. Recent planning studies completed by ADOT evaluated potential solutions to address truck parking concerns in Arizona. Seven locations have been identified for improvement including Parks and Haviland on I-40, and Christensen and Sunset Point on I-17. ADOT used the Integrated Design Build method which includes qualifications based selection, the design-build team will design and build the project, the design-build team works directly with ADOT to develop the conceptual and final design, and the design-build team prepares a fair market price validated by an independent cost estimator.

ADOT, SR303L MC85 to Van Buren Street, Goodyear, Arizona*

Project Manager. Ted served as Project Manager for this project performing utility coordination. Utility conflicts on this project are extensive and include relocating dozens of APS power poles as well as many Roosevelt Irrigation District irrigation laterals.

ADOT, I-17 Widening and Flex Lanes DCR, Black Canyon City, Arizona*

Lead Engineer. Ted served as Lead Engineer on this Design Concept Report that involved adding one general purpose lane on I-17 between Anthem Way and Black Canyon City, as well as the development of Arizona's first flex lanes project involving widening I-17 southbound from Black Canyon City to Sunset Point.

ADOT, I-19 and Ajo Way Traffic Interchange, Tucson, Arizona*

Post Design Project Manager. Ted served as Project Manager for construction on this project. The project was broken into two phases, with a total construction cost of nearly \$80 million. Ted was responsible for roadway design of both I-19 and Ajo Way. Ajo Way reconstruction required reconstructing over two dozen driveways.

Town of Gilbert, Lindsay Road Traffic Interchange DCR, Gilbert, Arizona*

Lead Engineer. Ted served as Lead Engineer on this DCR which considered four alternatives including a SPUI, DDI, diamond and modified at the Lindsay Road traffic interchange. Lindsay Road traffic interchange did not provide access to Santan SR202L and reconstructing the traffic interchange to provide access to the freeway created several issues including long retaining walls and significant utility coordination. . The Town of Gilbert requested Stage II design drawings within a six-week time frame including legal descriptions and exhibits.

City of Tempe, Smith Road (Apache Blvd to Rio Salado Pkwy), Tempe, Arizona

Project Manager. Ted is serving as Project Manager on this arterial road improvement project. This project includes adding new bus pads and shelters, replacing curb and gutter, replacing driveways, improving onsite drainage, new street lights, new pavement marking and signing to better accommodate bicyclists and pedestrians, as well as new landscape architecture and landscape irrigation. This project is currently under construction.

City of Buckeye, Jackrabbit Trail and McDowell Road Intersection, Buckeye, Arizona

Project Manager. Ted is serving as Project Manager for this project in the City of Buckeye. ADOT has planned improvements at I-10 and Jackrabbit Trail that involve reconfiguring the traffic interchange. The City has planned improvements on Jackrabbit Trail north of I-10 and on McDowell Road east and west of Jackrabbit Trail. HDR is working with both ADOT and City of Buckeye to develop short- and long-term improvements that tie the proposed future improvements at I-10 on Jackrabbit Trail and the immediate improvements on McDowell Road and Jackrabbit Trail north of McDowell Road.

City of Tempe, Country Club Way Bike and Pedestrian Improvements, Tempe, Arizona

Post Design Project Manager. This project includes the planning and final design of bicycle and pedestrian improvements along Country Club Way to provide a north-south multi-modal connection spanning from Warner Road to US 60. This 3.5-mile stretch of Country Club Way intersects four major arterials (Warner Road, Elliot Road, Guadalupe Road, and Baseline Road), minor arterials, as well as side street collector intersections. The project includes safety improvements for multi-modal users; reduce conflict areas for vehicles, bicycles, and pedestrians; and add elements of art, enhanced landscaping, and shade. The team designed two new pedestrian crossings at Warner Road and Elliot Road which did not exist before. This project is currently under construction.

*Previous Employer



Brent Kirkman, PE

QA/QC

Brent has 20 years of experience in transportation engineering. He has worked on all aspects of roadway projects, from preliminary planning and project development to final design through construction with post-design engineering services. Having run projects as a project manager and as the engineering lead, Brent understands how to lead a team to solve technical challenges and design details while also keeping in mind the overall development and delivery of a project. His technical design experience includes developing preliminary and final design geometric layouts, 3D modeling, and addressing ADA compliance. As a project manager, Brent has led internal and external design teams, met with project stakeholders and the general public to build consensus, and led the development of the project deliverables and construction documents. Brent's experience allows him to identify and mitigate potential design issues and risks early in the project, as well as identifying and exploiting design opportunities throughout the life of the project, while meeting the needs of client and the public he serves.

EDUCATION

BS, Civil Engineering, University of Arizona, 2004

REGISTRATIONS

Professional Engineer, Arizona No. 48983

INDUSTRY TENURE

20 Years

HDR TENURE

14 Years

PROJECT AVAILABILITY/ COMMITMENT

10%

COMPANY RESPONSIBILITY/ CORPORATE TITLE

Tucson Roadway Design Team Lead

CURRENT PROJECT COMMITMENTS

City of Tucson, 1st Avenue: River Road to Grant Road - 75%

City of Spokane Valley, Pines Road Underpass - 15%

OFFICE LOCATION

Tucson

RELEVANT EXPERIENCE

City of Tucson, Downtown Links, Tucson, Arizona

Project Manager/Roadway Design Lead. Brent has been an integral part of the COT's largest transportation project that has spanned more than a decade with three distinct project phases. Initially serving as the roadway design lead during Phases 1 and 2, Brent transitioned to project manager for Phase 3, which is currently under construction. The project provided a new four-lane arterial with significant drainage components including two 12'x10' box culverts removing multiple properties from the 100-year floodplain. It also included a grade separation at an existing UPRR crossing with a history of safety issues, new ROW acquisition, historic property mitigation, complex utility issues, and coordination with numerous public and private projects in downtown Tucson. As design lead, Brent led HDR's internal design team and subconsultants and assisted with the project's utility coordination and utility design work. Transitioning to project manager, Brent continued to lead the design team while also managing the projects scope, schedule, and budget and successfully delivered all the project's contract documents.

City of Tucson, Broadway Boulevard, Euclid Avenue to Country Club Road, Tucson, Arizona

Project Manager/Roadway Design Lead. As project manager and roadway design lead, Brent oversaw the innovative and context sensitive design for the politically sensitive redesign of Broadway from a four-lane arterial to a six-lane multi-modal boulevard. Brent met with project stakeholders throughout the project to build consensus between groups with diverse and competing interests. The ultimate design solution removed the dedicated transit lanes and replaced them with local bus pullouts and enhanced bus stop amenities. By removing the dedicated transit lanes more space was allocated to pedestrian and cyclist improvements, additional landscape and shade opportunities, while requiring less overall ROW. It also improved Broadway Boulevard operationally by allowing the buses to pullout for passenger pick-up/drop-off and not impeding traffic flow.

City of Tucson, Grant Road, Palo Verde to Venice Place, Tucson, Arizona

Utility Design Lead/QA/QC Lead. Brent served as the utility design lead and QA/QC lead for this project, which improved and widened 1.5 miles of Grant Road. During the design, Brent worked with the HDR team and COT staff to refine the DCR design to reduce impacts to the existing utilities while also meeting the project goals and addressing concerns from the community. Where utility relocation were required, Brent developed a design for relocating water and sewer lines and coordinated with all the third party utilities. As QA/QC lead for the roadway and drainage elements of the project, Brent led a multi-disciplinary review to identify and eliminate conflicts between roadway, drainage, and utilities.

City of Tempe, Country Club Way Bike and Pedestrian Improvement Project, Tempe, Arizona

QA/QC. The goal of this project is to provide a north-south non-arterial multimodal connection spanning from Warner Road to US 60. The corridor will provide connections to parks and safe route options to schools, educational facilities, major retail, and employment centers. The corridor will also connect to the existing Western Canal Multi-use path and the US 60 bicycle/pedestrian bridge. Key elements of this project included design of a multi-use path, plan production, utility coordination, cost estimates, and team coordination. Brent Completed QA/AC reviews for PS&E, and the design-check to verify compliance with ADA/PROWAG standards.

ADOT, US191-Chinle Wash to Lukachukai Wash Bridges Replacement & Rehabilitation, Arizona

Roadway QA/QC Lead. HDR provided final design services for the rehabilitation of two wash bridges and the replacement of two wash bridges. This project in the Navajo Nation received a special grant, requiring an accelerated design and solutions that met the project budget. Key elements included bridge design and rehabilitation, geotechnical, drainage, phased construction, environmental permitting and compliance, MOT, and stakeholder coordination (Navajo Nation). The team also coordinated with ADOT Utilities and Railroad, and ADOT ROW for TCE/ROW clearances.

ADOT, SR 30 - SR 303 to SR-202L L/DCR and EA, Arizona

Roadway Design Lead. Brent served as a roadway design lead for the SR 30 DCR and EA located in southwest Phoenix metropolitan area. The conceptual design focused on physical, environmental, operational, geometric, and political constraints. Brent designed horizontal and vertical geometry for the SR 30 main line, the SR 30/SR 202L system TI ramps, seven traffic interchanges (67th Ave, Dobbins Rd, Baseline Rd, Southern Ave, Broadway Rd, Lower Buckeye Rd, and Buckeye Rd), and frontage roads. He also created 3D models for the roadway and walls and completed quantity takeoffs for the project.



Jeanette Frey, PE

Roadway

Jeanette is a Transportation Assistant Project Manager with 14 years of experience in roadway safety design. She is proficient with Microstation, InRoads, OpenRoads Designer, AutoCAD Civil 3d, AutoTurn, Bluebeam, and various Microsoft programs. Her responsibilities currently include the 2d and 3d design of roadway geometry and ADA ramp design for signalized and non-signalized intersections, design exceptions, pavement marking, drainage, signage, and quantities.

Jeanette has had several years of experience in highway safety design projects, including ADA ramp design, corridor modernization, and highway ramp design, making her a qualified team player with a versatile skill set.

EDUCATION

MS, Engineering Management,
University of Arizona, 2013

BS, Civil Engineering, University of
Arizona, 2010

REGISTRATIONS

Professional Engineer, Arizona No.
67397

INDUSTRY TENURE

14 Years

HDR TENURE

14 Years

PROJECT AVAILABILITY/ COMMITMENT

70%

COMPANY RESPONSIBILITY/ CORPORATE TITLE

Assistant Project Manager,
Transportation

CURRENT PROJECT COMMITMENTS

City of Tucson, 1st Avenue: River
Road to Grant Road - 20%

City of Spokane Valley, Pines Road
Underpass - 10%

OFFICE LOCATION

Tucson

RELEVANT EXPERIENCE

COT, Downtown Links, Tucson, Arizona

Roadways Design Lead. This design project initiated by the Tucson Department of Transportation is to provide links between Barraza-Aviation Parkway and Interstate 10, Broadway Boulevard and the 4th Avenue shopping district, and Downtown and the neighborhoods to its north.

COT, Broadway Boulevard, Euclid Avenue to Country Club Road, Tucson, Arizona

Transportation Engineer. The Broadway Corridor Plan included evaluation of the corridor between Euclid Avenue and Country Club Road. It established an innovative and context sensitive solutions oriented approach toward the redesign of this major roadway from a four-lane arterial to a six-lane divided urban boulevard, furnished with bike lanes, bus pull-outs and HAWK crossings. Jeanette helped to design the side streets connecting to the corridor, the driveways, ADA ramps, and retaining walls. She played a key role in designing a four-phase construction phasing plan in order to show feasibility of construction while maintaining traffic along the corridor. She also helped to develop a 3D model of the entire project, which was used to quantify earthwork quantities and to create a video simulation of the project used on the client website.

COT, Grant Road, Palo Verde to Venice Place, Tucson, Arizona

Transportation Engineer. HDR developed the final construction documents to widen approximately 1.5 miles of Grant Road from the existing five-lane section to a six-lane divided roadway, including pedestrian and bicycle facilities, drainage improvements, and inverted siphons. The project also included ROW plans, legal descriptions, and water and sewer modification plans. Jeanette played a key role in designing special sidewalk ramps, side streets, and driveways. Other responsibilities include parking lot grading, cure plans, and sewer design.

ADOT, SR 189 International Border to Grand Avenue DCR - POE, Nogales, Arizona

Transportation Engineer. SR 189 is a 3.75-mile primary arterial roadway that links the US - Mexico border crossing with I-19 and Grand Avenue in Nogales, Arizona. Working with ADOT, HDR developed engineering and environmental studies to identify and evaluate alternatives and select a preferred alternative to increase roadway capacity, improve access control and traffic circulation, reduce travel times and increase safety along this vital trade route between the Mariposa POE and I-19. The primary tasks HDR completed include DCR; 30% design plans; Traffic Operations Analysis Report; Change of Access Report; Alternatives Selection Report; Draft and Final EA/Finding of No Significant Impact; public involvement; environmental technical reports for air quality, noise, hazardous materials, Clean Water Act Section 404/401 Permitting, and Biological and Cultural Resources Consultations; and Air Quality Regional Conformity Analysis. This was a very high-profile project that required, significant coordination with project stakeholders to develop consensus. These efforts were rewarded with the project receiving a \$25M TIGER Grant to expedite project construction.

ADOT, US191-Chinle Wash to Lukachukai Wash Bridges Replacement & Rehabilitation, Arizona

Transportation Engineer. HDR provided final design services for the rehabilitation of two wash bridges and the replacement of two wash bridges. This project in the Navajo Nation received a special grant, requiring an accelerated design and solutions that met the project budget. Key elements included bridge design and rehabilitation, geotechnical, drainage, phased construction, environmental permitting and compliance, MOT, and stakeholder coordination (Navajo Nation). The team also coordinated with ADOT Utilities and Railroad, and ADOT ROW for TCE/ROW clearances.

ADOT, Power Line - SR 77, San Manuel Road, Arizona

Transportation Engineer. This Highway Safety Improvement Program (HSIP) project implemented countermeasures to enhance safety through this corridor. The project limits are along SR 77 between milepost 102.5 to 109.14. In addition to the safety enhancements that were implemented (installing a centerline rumble strip, replacing guardrail end terminals, installing curve warning signs and delineators, and re-striping the lane lines); HDR recognized an opportunity to address a design exception with the existing roadway. In this instance the existing lane drop had left merging with right. HDR took advantage of the opportunity to incorporate this change, without impacting project schedule or cost.



Dan Pfeifer, PE

Drainage

Dan has 16 years of experience in transportation drainage and hydraulics. His career at HDR has consisted of a wide variety of projects, focused heavily on open channel hydraulics and on-site drainage infrastructure. Dan has led both study level and final design of on-site drainage for TI configurations, off-site channel systems, and regional flood control. He is fluent in a wide variety of drainage assessment platforms including 1D/2D hydraulics, floodplain modeling, storm drain design, site civil design, bridge design, scour analysis, and scour mitigation. In his tenure at HDR, Dan has led large-scale drainage studies such as the SR 30 DCR, as well as smaller, detailed bridge hydraulics such as the I-10 Gila River Bridges and SR 101 final design. He is a trusted advisor to the ADOT Drainage Group and has served as design lead and manager on multiple complex drainage projects throughout Arizona and the greater southwest. Through several contracts over the past eight years, Dan has been called upon numerous times to manage and lead teams through both large- and small-scale engineering design.

EDUCATION

BS, Civil Engineering, Northern Arizona University, 2008

REGISTRATIONS

Professional Engineer, Arizona, No. 54445 (Also registered in CA and NM)

INDUSTRY TENURE

16 years

HDR TENURE

16 years

PROJECT AVAILABILITY/ COMMITMENT

50%

COMPANY RESPONSIBILITY/ CORPORATE TITLE

Area Transportation Hydraulics
Business Class Lead

CURRENT PROJECT COMMITMENTS

City of Tucson, 1st Avenue: River Road to Grant Road - 15%

Arizona Eastern Railway, Safford Rail - 20%

NMDOT - NM 264 - 15%

OFFICE LOCATION

Phoenix

RELEVANT EXPERIENCE

ADOT, I-10 GRIC GEC, Arizona

Drainage Lead. The I-10 Improvement Project is located within Maricopa and Pinal Counties in Arizona. The I-10 Project corridor limits extend from the I-10/202 TI (Milepost 161) to south of SR 387 TI (Milepost 187). The Project is led by ADOT, in cooperation with the GRIC, MAG, and FHWA. The project will widen I-10 to include one additional general purpose lane in both directions south of Riggs Road and one additional general purpose land and a high occupancy vehicle (HOV) north of Riggs Road. There are also 10 locations that will add bridges and one location that will remove a bridge. With the current funding, the Department can build some combination of the mainline and bridges at 11 locations in the corridor.

ADOT, I-17 Improvement Project GEC, Phoenix, Arizona

Drainage Lead. HDR is providing GEC services for this project to widen I-17 to three lanes in both directions between Anthem and Black Canyon City, approximately 16 miles. There will also be two "flex" lanes added to the southbound side between Black Canyon City and Sunset Point, approximately 7 miles. ADOT will be delivering this project using the design, build, operate and maintain alternative project delivery method utilizing the statutes governing public private partnerships in transportation. Dan worked closely with ADOT staff to develop the design parameters and criteria for the project including bridge hydraulics, scour protection requirements and floodplain assessment

ADOT, I-10, SR202L to SR387 EA/DCR, Arizona

Drainage Lead. HDR is the prime consultant responsible for the development of a DCR and EA to widen 26 miles of I-10 and improve ten crossroads and interchanges across the GRIC. Complex coordination issues are a major part of this study including ADOT, MAG, GRIC, FHWA, and BIA, to name just a few.

ADOT, I-10 Gila River Crossing - Modeling for Resilience Program, Arizona

Drainage Lead. As a trusted advisor to ADOT, Dan led the development of the first detailed two-dimensional model of the I-10 Gila River Bridges. The assessment included development and assessment of various bridge configurations and conditions including raising and widening of the bridge. Work included a scour assessment and sediment yield analysis to further ascertain the existing conditions and support the development of a preferred alternative for final design.

ADOT, SR 189 International Border to Grand Avenue DCR - POE, Nogales, Arizona

Drainage Lead. SR 189 is a 3.75-mile primary arterial roadway that links the US - Mexico border crossing with I-19 and Grand Avenue in Nogales, Arizona. Working with ADOT, HDR developed engineering and environmental studies to identify and evaluate alternatives and select a preferred alternative to increase roadway capacity, improve access control and traffic circulation, reduce travel times and increase safety along this vital trade route between the Mariposa POE and I-19. The primary tasks HDR completed include DCR; 30% design plans; Traffic Operations Analysis Report; Change of Access Report; Alternatives Selection Report; Draft and Final EA/Finding of No Significant Impact; public involvement; environmental technical reports for air quality, noise, hazardous materials, Clean Water Act Section 404/401 Permitting, and Biological and Cultural Resources Consultations; and Air Quality Regional Conformity Analysis. This was a very high-profile project that required, significant coordination with project stakeholders to develop consensus. These efforts were rewarded with the project receiving a \$25M TIGER Grant to expedite project construction.

ADOT, US191-Chinle Wash to Lukachukai Wash Bridges Replacement & Rehabilitation, Arizona

Drainage Engineer. HDR provided final design services for the rehabilitation of two wash bridges and the replacement of two wash bridges. This project in the Navajo Nation received a special grant, requiring an accelerated design and solutions that met the project budget. Key elements included bridge design and rehabilitation, geotechnical, drainage, phased construction, environmental permitting and compliance, MOT, and stakeholder coordination (Navajo Nation). The team also coordinated with ADOT Utilities and Railroad, and ADOT ROW for TCE/ROW clearances.

ADOT, I-10-Ina to Ruthrauff DCR, Arizona

Drainage Engineer. Dan supported development of the DCR/EA, including the implementation plan, for ADOT. Drainage analysis included review of arterial street crossings of I-10, which currently have at-grade crossings with UPRR, were proposed to be modified to grade separated at the cross road and UPRR. The project included extensive public involvement and evaluating the requirements for Joint Project Agreements between the State of Arizona and local jurisdictions prior to final design.



Maria Altemus, CEP-IT

Environmental

Maria has 11 years experience as an environmental planner and biologist serving in a number of capacities. She has assisted with numerous NEPA clearances, including Categorical Exclusions and Environmental Assessments. Maria has prepared multiple Biological Evaluation Short Forms, Biological Evaluations, and Biological Reevaluations. In addition, she conducts biological field surveys for native and invasive plants, nesting birds, burrowing owls, Mexican spotted owls, snakes, and desert tortoises. She has prepared Preliminary Jurisdictional Delineations (PJDs), Approved Jurisdictional Determinations (AJDs), Pre-Construction Notifications (PCNs), a Wetland Delineation, and completed associated fieldwork and reports for local, county, and state agencies. Her field method experience includes small mammal trapping, mist netting, spotlighting, walking transects, hoop netting, and animal handling. She is well-versed in data collection, data analysis, geographic information systems, report writing, and the permit application process.

EDUCATION

MS, Natural Resources (Wildlife Conservation and Management), University of Arizona, 2016

BA, Interdisciplinary Studies (Animal Science, Spanish, Anthropology), University of Arizona, 2008

REGISTRATIONS

CEP-IT, Arizona No. 44150539

INDUSTRY TENURE

11 years

HDR TENURE

2 years

PROJECT AVAILABILITY/COMMITMENT

40%

COMPANY RESPONSIBILITY/CORPORATE TITLE

Environmental Planner 2

CURRENT PROJECT COMMITMENTS

City of Tucson, 1st Avenue: River Road to Grant Road - 10%

City of Tucson, Drexel Road Bridge - 30%

Pima County, Madera Canyon Bridges - 10%

ADOT, SR 89A Guardrail - 5%

NMDOT Santa Fe, 264 - 5%

OFFICE LOCATION

Tucson

RELEVANT EXPERIENCE

Santa Cruz County, Babocomari Creek Bridge, Santa Cruz County, Arizona

Environmental Planner. Santa Cruz County submitted an "Off System Bridge (OSB) Program Application" to ADOT in December 2023. OSB Funding is a federal-aid program and must follow all federal-aid requirements. The proposed work is located in eastern Santa Cruz County at the Town of Elgin, where the Upper Elgin Road crosses Babocomari Creek. The original bridge was built in 1920. It is a single-span modified Warren Steel Half-Through Truss Bridge. The bridge has a 61'-2" single-span and a clear roadway width of 16'-4". The steel stringers are supported on steel floor beams that are connected at the truss panel points. The bridge was rehabilitated in 1999 by replacing the wood decking with a cast-in-place reinforced concrete deck slab with concrete curbs. The rehabilitation also included repairing and strengthening existing steel members, repainting the bridge, and installing approach guardrail. Maria compiled and wrote the environmental background section for the Project Assessment and OSB application.

Pima County Department of Transportation, Silverbell Road Blanco Wash Bridge, Pima County, Arizona

Environmental Planner and Biologist. HDR is providing plans, specifications, and cost estimates to replace the existing one-lane bridge with a two-lane bridge over the Blanco Wash and will also replace the existing CMPs with box culverts. The project will include the redesign of Silverbell Road, from Aguirre Road to the west of Blanco Wash. The new Blanco Wash bridge will replace the structurally deficient and functionally obsolete single-lane Korean War era Bailey Truss bridge that was built in the 1950s and is currently load posted for 6000 pounds (3 tons). Additional services provided for this project include utility coordination and design, land surveying, a drainage report with corresponding HEC-RAS modeling, traffic engineering, environmental studies, and public participation. Due to the federal funding received for this project from ADOT through the Off-System Bridge Program, HDR will work with Pima County to prepare a Project Assessment (PA) and provide the necessary environmental studies to ADOT so that a Categorical Exclusion (CE) can be issued.

ADOT, I-10, SR202L to SR387 EA/DCR, Arizona

Environmental Planner. HDR is the prime consultant responsible for the development of a DCR and EA to widen 26 miles of I-10 and improve ten crossroads and interchanges across the GRIC. Complex coordination issues are a major part of this study including ADOT, MAG, GRIC, FHWA, and BIA, to name just a few.

ADOT, I-17 Improvement Project GEC, Phoenix, Arizona

Environmental Planner. HDR is providing GEC services for the I-17, Anthem Way TI to Jct. SR 69 (Cordes Junction) project. The project includes 15 miles of one-lane widening and eight miles of "Flex Lanes" or reversible lanes through a mountainous area of I-17. ADOT will be delivering this project using the Design-Build-Operate-Maintain alternative project delivery method utilizing the statutes governing public private partnerships in transportation. HDR led the procurement phase, including industry outreach, development of an RFQ, shortlisting of qualified Proposers, and then development of an RFP and evaluation of proposals. HDR is currently providing contract administration and design and construction oversight support through the construction period.

ADOT, I-17 Airport Road TI UP Bridge Replacement, Arizona

Biologist. This project included the scoping phase and final design phase for the replacement of the J.W. Powell bridge over I-17 within the City of Flagstaff and adjacent to SR 89A and the entrance into Flagstaff Pulliam Airport. The typical section of the bridge was based on current needs but considered widening to an ultimate typical section to address future improvements consisting of a large medical campus and changes to the local street network. The span configuration and bridge layout considered the future widening of I-17. MOT was critical on this project due to high weekend volumes on I-17 and due to being so close to the airport, SR 89A, and Fort Tuthill County Park. Replacement of the bridge required raising the profile and modifications to J.W. Powell, including an existing roundabout. Stakeholder coordination is paramount to success and includes the City of Flagstaff, the airport, emergency services, and Coconino County, among others. The project, which is at Stage IV, is on schedule and budget. Maria completed a Biological Evaluation Short Form for geotechnical environmental clearance and a Biological Evaluation with species analyzed for project clearance.

ADOT, Sonoita Creek Bridge, Arizona

Environmental Planner and Biologist. This was a bridge improvement and scour protection project. Maria conducted fieldwork for a Preliminary Jurisdictional Delineation and prepared a Biological Evaluation with species evaluations.

ADOT, Teas Toh Wash, Arizona

Biologist. This was a bridge replacement project located on the Navajo Nation. Maria prepared an Approved Jurisdictional Determination for the project.



Sanjay Paul, PHD, PE, PTOE, PTP, RSP

Traffic

Sanjay is HDR's Arizona/New Mexico Area Traffic Business Class Leader. He has 15 years of experience in traffic engineering planning, design and operations, transportation modeling and planning, roadway safety, lighting, and intelligent transportation systems in both private and public sectors. He has assisted several agencies in Arizona, Colorado, Nevada, Texas, Oklahoma, Florida, and California with varieties of emerging transportation issues. He has been recognized with National Transportation Safety Council Award by the Institute of Transportation Engineers (ITE). Sanjay has 16 years of experience in assisting the local agencies, counties and ADOT with traffic safety, transportation planning, and emerging technologies.

EDUCATION

Doctoral of Philosophy, Civil Engineering, Arizona State University, 2014

MS, Civil Engineering, Arizona State University, 2012

BS, Civil Engineering, BUET, 2007

REGISTRATIONS

Professional Engineer, Arizona No. 60687

PTOE, No. 4007

PTP, No. 580

RSP, Certification, No. 44

INDUSTRY TENURE

15 years

HDR TENURE

2 years

PROJECT AVAILABILITY/COMMITMENT

50%

COMPANY RESPONSIBILITY/CORPORATE TITLE

Traffic Business Class Leader

CURRENT PROJECT COMMITMENTS

ADOT, I-17 Airport Road - 5%

ADOT, I-10 GRIC GEC - 5%

ADOT, SR347 - 5%

Miscellaneous Projects - 35%

OFFICE LOCATION

Phoenix

RELEVANT EXPERIENCE

ADOT, I-10 GRIC GEC, Arizona

Traffic Lead. The I-10 Improvement Project is located within Maricopa and Pinal Counties in Arizona. The I-10 Project corridor limits extend from the I-10/202 TI (Milepost 161) to south of SR 387 TI (Milepost 187). The Project is led by ADOT, in cooperation with the GRIC, MAG, and FHWA. The project will widen I-10 to include one additional general purpose lane in both directions south of Riggs Road and one additional general purpose lane and a high occupancy vehicle (HOV) north of Riggs Road. There are also 10 locations that will add bridges and one location that will remove a bridge. With the current funding, the Department can build some combination of the mainline and bridges at 11 locations in the corridor.

ADOT, Arizona Border Master Plan, Arizona

Traffic Lead. Arizona Border Master Plan update to the Arizona-Sonora Border Master Plan (2013) and other cross-border planning efforts.

ADOT, I-17 Airport Road TI UP Bridge Replacement, Arizona

Traffic Lead. This project included the scoping phase and final design phase for the replacement of the J.W. Powell bridge over I-17 within the City of Flagstaff and adjacent to SR 89A and the entrance into Flagstaff Pulliam Airport. The typical section of the bridge was based on current needs but considered widening to an ultimate typical section to address future improvements consisting of a large medical campus and changes to the local street network. The span configuration and bridge layout considered the future widening of I-17. MOT was critical on this project due to high weekend volumes on I-17 and due to being so close to the airport, SR 89A, and Fort Tuthill County Park. Replacement of the bridge required raising the profile and modifications to J.W. Powell, including an existing roundabout. Stakeholder coordination is paramount to success and includes the City of Flagstaff, the airport, emergency services, and Coconino County, among others. The project, which is at Stage IV, is on schedule and budget.

MAG, Phoenix Wilson Schools Safety Routes to School Study, Phoenix, Arizona

Project Manager. Sanjay assisted MAG, City of Phoenix and Wilson Schools and performed a Safe Routes to School Study (SRTS) for two schools within the Wilson School District. This study aimed at improving the pedestrian and bike safety around the school, which will promote active transportation to the schools. As part of the safety study, 5 years of crash data was collected in the study zone and analyzed to identify speed-related crashes and bicyclist/pedestrian related crashes. The findings from the crash analysis were used during the development of recommendations to create a safer transportation network for biking and walking. After field reviews, observations of pick up and drop off activities, parents and students survey, and community and stakeholders' meetings, he developed recommendations focusing the '6Es' of traffic safety: education, enforcement, engineering, encouragement, evaluation, and equity. He also developed walking and biking routes for the children in the neighborhood.

Regional Strategic Transportation Safety Plans (STSPs) - Multiple projects for multiple agencies

Safety Engineer/Transportation Planner. As a subconsultant and part of RICK team, Sanjay assisted the following agencies in developing their regional STSPs:

- MAG 2019 STSP update and 2015 Update
- Western Arizona Council of Governments (WACOG) STSP
- Southeastern Arizona Governments Organization (SEAGO), and Sierra Vista Metropolitan Planning Organizations (SVMPO) STSP
- Sun Corridor MPO STSP
- Pinal County STSP
- Yuma MPO STSP Update
- Lake Havasu MPO STSP

Sanjay reviewed crash data, identified crash patterns, and related the crashes with the roadway geometric characteristics and traffic operational/controls, and developed countermeasures to mitigate the crashes. Sanjay utilized the geographic information (GIS) software to correlate the crashes with the exact locations and performed geospatial analysis. These studies include sites in both urban and rural areas. He incorporated multimodal and intelligent transportation solutions to improve the safety and mobility for all models for these study areas. In addition, he assisted in preparing the 100+ grant applications for highway safety improvement program (HSIP) funds and secured approximately \$50M in addition to contributing to the development of their respective regional strategic transportation safety plans.



Nick LaFronz, PE

Geotechnical

Nick has 42 years of experience in planning, coordinating, and implementing geotechnical investigation, analysis and design for transportation projects throughout Arizona and the western U.S., including shallow and deep foundation systems for major river crossings, TI bridges and grade separations, roadway cut and fill slope designs in soil and rock, soil-nail, soldier pile and tieback, conventional and MSE retaining walls, embankments and pavement sections, and several full-scale load tests of deep foundations and design of load test programs including for Salt River crossings; construction observations, integrity testing and acceptance of drilled shafts, drilled piles and spread footings; and extensive experience with specialty techniques including cone penetrometer testing, Sonic method drilling, and geophysical surveys. Nick's transportation geotechnical design experience includes design-bid-build, design-build, CMAR, and design-build-maintain (P3) delivery modes with aggressive project schedules working for both Owners and Contractors. As the Geotechnical Lead, Nick will be responsible for development and execution of the geotechnical investigation program, preparation of all geotechnical design and pavement design submittals, and geotechnical review of construction plans, specifications and cost estimates.

EDUCATION

MS, Civil Engineering, Arizona State University

BS, Civil Engineering, Arizona State University

REGISTRATIONS

Professional Engineer, Arizona No. 22198

INDUSTRY TENURE

42 years

HDR TENURE

19 years

PROJECT AVAILABILITY/ COMMITMENT

45%

COMPANY RESPONSIBILITY/ CORPORATE TITLE

Area Geotechnical Business Leader

CURRENT PROJECT COMMITMENTS

ADOT, I-10 GRIC GEC - 25%

ADOT, I-17 Flex Lanes GEC - 10%

ADOT P3 Projects - 10%

Miscellaneous Projects QC Reviews - 10%

OFFICE LOCATION

Phoenix

RELEVANT EXPERIENCE

ADOT, I-10 GRIC GEC, Arizona

Geotechnical Lead. The I-10 Improvement Project is located within Maricopa and Pinal Counties in Arizona. The I-10 Project corridor limits extend from the I-10/202 TI (Milepost 161) to south of SR 387 TI (Milepost 187). The Project is led by ADOT, in cooperation with the GRIC, MAG, and FHWA. The project will widen I-10 to include one additional general purpose lane in both directions south of Riggs Road and one additional general purpose land and a high occupancy vehicle (HOV) north of Riggs Road. There are also 10 locations that will add bridges and one location that will remove a bridge. With the current funding, the Department can build some combination of the mainline and bridges at 11 locations in the corridor.

ADOT, I-17 Improvement Project GEC, Phoenix, Arizona

Geotechnical Lead. HDR is providing GEC services for the I-17, Anthem Way TI to Jct. SR 69 (Cordes Junction) project. The project includes 15 miles of one-lane widening and eight miles of "Flex Lanes" or reversible lanes through a mountainous area of I-17. ADOT will be delivering this project using the Design-Build-Operate-Maintain alternative project delivery method utilizing the statutes governing public private partnerships in transportation. HDR led the procurement phase, including industry outreach, development of an RFQ, shortlisting of qualified Proposers, and then development of an RFP and evaluation of proposals. HDR is currently providing contract administration and design and construction oversight support through the construction period.

ADOT, I-17 Airport Road TI UP Bridge Replacement, Arizona

Geotechnical Lead. Nick was responsible for final investigation and design of the planned new bridge and reconstructed approach roadways to replace the existing circa 1960 five-span concrete box girder bridge. The new bridge and crossroad alignment will be shifted to the south of the existing alignment. The new two-span concrete box girder bridge will be supported on drilled shaft foundations socketed into limestone bedrock at the abutments and center pier.

ADOT, I-15 Virgin River Bridge #1 Replacement, Arizona

Geotechnical Lead. Nick directed the final geotechnical investigation and design for this CMAR project, including an extensive geophysical evaluation and drilling and sampling program in complex geological and groundwater conditions, and pavement design for the approach roadways. Nick is currently overseeing construction-phase geotechnical services comprising review of CMAR submittals, and detailed review of integrity testing results for drilled shaft foundations for the piers and abutments. Geophysical surveys including 2D multichannel analysis of surface waves and 2D electrical resistivity tomography profiles were performed to supplement and correlate with rock core borings to characterize the variable depth to competent limestone in particular at the pier, and to determine rock properties for drilled shaft design for all foundations.

Pima County Department of Transportation, Silverbell Road Blanco Wash Bridge, Pima County, Arizona

QA/QC Geotechnical Lead. In his role as Geotechnical QC Reviewer, Nick was responsible for oversight and review of the geotechnical investigation and engineering analyses and deliverables. The project included the redesign of approximately 1050 feet of Silverbell Road, which includes a bridge over Blanco Wash and a 3-barrel 84-inch diameter RCP culvert at Los Robles Wash. The new Blanco Wash bridge will replace the structurally deficient and functionally obsolete single-lane Korean War era Bailey Truss bridge that was built in the 1950s and is currently load posted for 6000 pounds (3 tons). Additional services provided for this project include utility coordination and design, land surveying, a drainage report with corresponding HEC-RAS modeling, bank protection design, traffic engineering, NEPA environmental studies, and public participation.

Maricopa County Department of Transportation, Gilbert Road Bridge at Salt River, Flagstaff, AZ

Geotechnical Lead. Nick was the Geotechnical Lead responsible for preliminary and final geotechnical investigation and design for the replacement bridge, riverbank erosion protection and approach roadways, and construction phase review of the CMAR contractor's submittals for drilled shaft foundations. This project included the design of a four-lane bridge that will replace the existing two-lane bridge with raised roadway approaches to provide an all-weather crossing at the Salt River. In addition to the bridge replacement, the project involved an extensive multidisciplinary approach including drainage and scour analysis, geotechnical engineering, and roadway/traffic engineering.



Lloyd Brown

Public Involvement

Lloyd serves as HDR's Strategic Communications Practice Lead in Arizona and New Mexico. Prior to joining HDR, Lloyd served 11 years as Director of Communications and Marketing for the American Association of State Highway and Transportation Officials, where he led an eight-person team responsible for all facets of the AASHTO brand, outreach, and public advocacy. He is a member of the Transportation Research Board's (TRB) Standing Committee on Public Engagement and Communications and serves as an advisor to the TRB Committee Communications Coordinators Council. Lloyd also served as the Washington State Department of Transportation (WSDOT) Communication Director, overseeing the administration of WSDOT's public information and involvement activities throughout Washington.

EDUCATION

MA, Communications
Management, Gonzaga University

BA, Communications and
Journalism, Washington State
University

INDUSTRY TENURE

33 years

HDR TENURE

3 years

PROJECT AVAILABILITY/ COMMITMENT

35%

COMPANY RESPONSIBILITY/ CORPORATE TITLE

Strategic Communications Market
Sector Leader

CURRENT PROJECT COMMITMENTS

ADOT, I-10 GRIC GEC - 5%

ADOT, I-17 Improvement Project
GEC - 15%

UDOT, FrontRunner - 15%

Miscellaneous Projects - 30%

OFFICE LOCATION

Phoenix

RELEVANT EXPERIENCE

ADOT, I-10 GRIC GEC, Arizona

Community Outreach and Engagement Support. The I-10 Improvement Project is located within Maricopa and Pinal Counties in Arizona. The I-10 Project corridor limits extend from the I-10/202 TI (Milepost 161) to south of SR 387 TI (Milepost 187). The Project is led by ADOT, in cooperation with the GRIC, MAG, and FHWA. The project will widen I-10 to include one additional general purpose lane in both directions south of Riggs Road and one additional general purpose lane and a high occupancy vehicle (HOV) north of Riggs Road. There are also 10 locations that will add bridges and one location that will remove a bridge. With the current funding, the Department can build some combination of the mainline and bridges at 11 locations in the corridor.

ADOT, I-17 Improvement Project GEC, Phoenix, Arizona

Community Outreach and Engagement Lead. HDR is providing GEC services for the I-17, Anthem Way TI to Jct. SR 69 (Cordes Junction) project. The project includes 15 miles of one-lane widening and eight miles of "Flex Lanes" or reversible lanes through a mountainous area of I-17. ADOT will be delivering this project using the Design-Build-Operate-Maintain alternative project delivery method utilizing the statutes governing public private partnerships in transportation. HDR led the procurement phase, including industry outreach, development of an RFQ, shortlisting of qualified Proposers, and then development of an RFP and evaluation of proposals. HDR is currently providing contract administration and design and construction oversight support through the construction period.

ADOT, FY2024 Digital Delivery Program, Arizona

Community Outreach and Engagement Support. Assist in the preparation and delivery of a guidance document, tools, workflow, training, communication, and implementation plan for ADOT's Digital Delivery Program.

ADOT, SR 303, 51st Avenue to I-17, Phoenix, Arizona

Community Outreach and Engagement Lead. HDR is serving as a subconsultant to AZTEC on the final design of the SR303, 51st Avenue to Interstate 17 project. Lloyd is leading the public involvement and engagement effort.

San Juan County New Mexico, Consulting Services for Planning/Feasibility Freight Rail Line Study, New Mexico

Community Outreach and Engagement Lead. HDR is evaluating and identifying route alignments, transloading facilities and rights of way for a potential new rail line across the Navajo Nation in northwest New Mexico. The feasibility study is funded through a Federal Railroad Administration grant. Lloyd is leading the public involvement and agency coordination in compliance with federal environmental requirements and expectations.

ADOT, I-40/US 93 Kingman TI Virtual Public Meeting, Arizona

Project Manager. This project outlined the plan to implement a virtual public meeting supporting the I-40/US 93 Kingman TI project. This project was a task order under our existing ADOT PI On Call Contract. HDR planned and conducted a public information meeting for ADOT's I-40/US 93 Kingman TI project.

Pinal County Regional Transportation Authority, Prop 469 Voter Education, Pinal County, Arizona

Community Outreach and Engagement Lead. The county proposed Proposition 469, which would authorize a roughly ½-cent sales tax to fund transportation projects. Lloyd led the Pinal County voter information and education program for the Pinal County Regional Transportation Authority. Lloyd's team developed multi-lingual voter education materials, a public open house and an informational video.

Utah Department of Transportation, FrontRunner Forward, Utah

Community Outreach and Engagement Lead. Lloyd is leading the strategic communications team supporting the design and construction of FrontRunner Forward doubletrack. The work includes formal partnering process for the multi-jurisdictional project team, branding, website development and public engagement during the project design and eventually construction.



Gail Lewis

Stakeholder Coordination

Gail is an experienced professional with globally recognized expertise in P3s and experience in economic development and international trade. She started, developed and led all phases of the successful P3 program for ADOT, and simultaneously ran the Department's Office of International Affairs, leading ADOT's work on the Arizona-Mexico border and serving as the agency's representative on binational work groups. Gail brings an extensive background in economic development and substantial international experience, including two decades of leadership on issues in Mexico and along the US-Mexico border. Since joining HDR, she has advised the Honolulu Authority for Rapid Transportation (HART) on procurement for a multi-billion dollar elevated rail P3 project, and is currently the task lead for the implementation of the Texas-Mexico Border Transportation Master Plan. Gail has a proven ability to bridge the public and private sectors. Her expertise includes program development and management; strategic planning and implementation; project analysis, development and delivery; collaborative management of consultants and staff; public policy development and leadership; consensus building; and financial analysis. A former journalist, she has excellent written and verbal communications skills. Gail grew up in Arizona and spent nearly 30 years in various agencies of Arizona state government, including two stints working directly in the Governor's Office, as well as at ADOT and Arizona State University, all in economic development and infrastructure development roles.

EDUCATION

MA, International Affairs, Columbia University, 1984

BA, International Relations and Journalism, University of Southern California, 1979

INDUSTRY TENURE

45 years

HDR TENURE

4 years

PROJECT AVAILABILITY/COMMITMENT

35%

COMPANY RESPONSIBILITY/CORPORATE TITLE

Advisory Services
Principal Consultant

CURRENT PROJECT COMMITMENTS

ADOT, P3 Advisory Services
Program Management - 25%

Arizona Water Infrastructure
Finance Authority, P3 - 20%

Charlotte (NC) Regional
Transportation Program
Organization, P3 - 25%

OFFICE LOCATION

Phoenix

RELEVANT EXPERIENCE

ADOT, P3 Advisory Services Program Management, Arizona

Deputy Program Manager. Gail is helping to direct this broad effort, assisting ADOT with various aspects of development and implementation of the agency's P3 and alternative delivery program. Gail is currently helping ADOT deliver their EV Charging implementation work, including communications, procurement, and interaction with proposers. For other projects being delivered under the state's broad P3 legislation, she is assisting with communications and development of a future project pipeline.

ADOT, Arizona-Sonora Border Infrastructure Master Plan, Arizona

Project Manager. HDR, with Gail serving as Project Manager, is developing the bi-national region's Border Infrastructure Master Plan, a bi-national planning and coordination process that will deliver a consensus list of priority projects for the border region. This effort includes an extensive assessment of the economic and infrastructure needs of the Arizona-Sonora region, considering input from business, community and government leaders in Arizona and Sonora, as well as federal agencies in the United States and Mexico. The US and Mexico federal governments use the plan to identify projects for priority funding. The project is expected to be completed in 2023.

Water Infrastructure Finance Authority, Arizona

Deputy Program Manager. HDR, with Gail serving as the Deputy Program Manager, is helping WIFA meet a legislative mandate to identify water sources outside of the state that might be available to augment Arizona's water supply as the state continues to grow. The ultimate project will be delivered as a P3. Gail is assisting with the procurement development, advising on legislative and policy issues and providing advice on how other water P3s around the country have been developed. Ultimately, she will advise on the final path to move the effort forward, assist with the procurement process and selection of developer(s), and assist with implementation.

ADOT, 2022 Mega Grant / I-10 GRIC Corridor, Phoenix, Arizona

Advisor. HDR supported ADOT with a Multimodal Planning Discretionary Grant application for I-10 widening. Building on our experience in the corridor, we conducted traffic and safety analysis for this \$993 million project and demonstrated a 2.46 benefit cost analysis (bca) following U.S. Department of Transportation guidance.

Capital Metro Transportation Authority, Program Management Owner Representative (PMOR), Texas

Project Manager for Metro Rapid Component. Project Connect is a plan designed to create a system of high-capacity transit (HCT) options throughout Central Texas. The Plan includes specifically targeted solutions that address deficiencies in existing services and identifies HCT investments that add mobility options for the region. As the PMOR, HDR is augmenting Capital Metro staff by providing program management services including scheduling, cost control, cost estimating and technical document review. Gail managed the team that successfully prepared readiness documents for the Bus Rapid Transit (Metro Rapid) component, the critical first step to receiving federal funding. Project development is expected to be underway for several years.

Florida Department of Transportation (FDOT), Electric Vehicle Deployment, Florida

Program Manager. Gail is serving as Deputy Program Manager for HDR's contract with FDOT to assist in the deployment of Electric Vehicle charging stations statewide. Part of Gail's role is to analyze and advise on delivery and contract options, which includes a possible grant approach that will operate as a P3, including a five-year contract with a payment approach modeled after a P3 availability payment structure. Gail will also assist with the long-term management of the program, including procurement, award, monitoring, installation oversight, and assessment of delivery, operations and maintenance of the charging stations.

Charlotte Regional Transportation Program Organization, North Carolina

Project Advisor. Gail is advising the Charlotte TPO as they consider using a P3 for a new mega-project, expanding I-77 south of the rapidly growing city.

San Diego Association of Governments, Advisor for Otay Mesa East Port of Entry Development, San Diego, California

Project Advisor. Gail was part of a team looking at options for SANDAG to deliver a new federal commercial port of entry on the California-Mexico border. Gail used her knowledge of P3s and the US-Mexico border to drive the analysis of several viable P3 options for project delivery. The project is still under development.



Ted Buell, SE

Structures

Ted's 35 years of consulting engineering experience includes 21 years with HDR where he is the Structures Section Manager for the Tucson office, which specializes in the design of highway, railroad, transit, and pedestrian bridges, as well as mining structures, retaining walls, and drainage structures. He has strong TI experience, having served as the structures lead for the new TI overpasses at I-10 at Congress St., Clark St., 18th St., and 22nd St in Tucson. He also served as the structures lead for HDR's portion of the I-19, Duval Mine Road TI Overpass. Ted is a senior bridge engineer and project manager that has a very long and successful track record of serving as structures lead for ADOT bridge replacement projects and TIs. Ted successfully managed and served as the structures lead for one of ADOT's most recent bridge replacement projects—US 191-Chinle Wash to Lukachukai Wash within the Navajo Nation. Ted assisted ADOT in securing and implementing an FHWA grant allowing advancement of improvements to four bridges located within the project. Ted and his team found an innovative way to widen two existing box beam bridges while providing a new concrete deck, which greatly simplified the ability to replace the existing steel post bridge barrier with the new MASH-compliant concrete barrier. Ted is excited to work on the I-19 Ruby Road TI to use his experience to improve the interchange and create something the community of Rio Rico will be proud of.

EDUCATION

MS, Civil Engineering, University of Arizona

BS, Civil Engineering, University of Arizona

REGISTRATIONS

Professional Structural Engineer, Arizona No. 29368

INDUSTRY TENURE

35 years

HDR TENURE

21 years

PROJECT AVAILABILITY/COMMITMENT

50%

COMPANY RESPONSIBILITY/CORPORATE TITLE

Structural Engineer/Structures Section Manager

CURRENT PROJECT COMMITMENTS

City of Tucson, Drexel Road Bridge - 25%

Pima County, Madera Canyon Bridges - 25%

OFFICE LOCATION

Tucson

RELEVANT EXPERIENCE

Santa Cruz County, Babocomari Creek Bridge 15%, Santa Cruz County, Arizona

Structural Lead. Ted served as the Structures Lead to prepare a scoping letter and Off System Bridge (OSB) program application on behalf of Santa Cruz County to replace the Babocomari Creek Bridge in Santa Cruz County. The Scoping Letter and OSB application were submitted to ADOT in December 2023 and the application was successful resulting in Santa Cruz County receiving \$4 million in federal funds to replace the bridge. OSB Funding is a federal-aid program and must follow all federal-aid requirements. The proposed work is located in eastern Santa Cruz County at the Town of Elgin, where the Upper Elgin Road crosses Babocomari Creek. The original bridge was built in 1920. It is a single-span modified Warren Steel Half-Through Truss Bridge. The bridge has a 61'-2" single-span and a clear roadway width of 16'-4". The steel stringers are supported on steel floor beams that are connected at the truss panel points. The bridge was rehabilitated in 1999 by replacing the wood decking with a cast-in-place reinforced concrete deck slab with concrete curbs. The rehabilitation also included repairing and strengthening existing steel members, repainting the bridge, and installing approach guardrail. As a result of HDR's efforts and successfully obtaining OSB funding, the final design of the project is scheduled to be advertised by ADOT later this year.

ADOT, US 191-Chinle Wash to Lukachukai Wash Bridges, Arizona

Project Manager/Structural Lead. HDR provided final design services for the rehabilitation of two wash bridges and the replacement of two wash bridges. This project in the Navajo Nation received a special grant, requiring an accelerated design and solutions that met the project budget. Ted made sure the design was completed on time and facilitated an effort to reduce project costs by implementing PBPD concepts that ultimately resulted in saving \$2.8 million, and allowed the project to be constructed within ADOT's budget. Key elements included bridge design and rehabilitation, geotechnical, drainage, phased construction, environmental permitting and compliance, MOT, and stakeholder coordination (Navajo Nation). The team also coordinated with ADOT Utilities and Railroad, and ADOT ROW for TCE/ROW clearances. Ted is currently leading the post design services effort.

ADOT, I-10-Ina Road TI To Ruthrauff Road TI DCR, Arizona

Structural Lead. Ted served as the lead structural engineer during the design concept phase of the project that included the preliminary design and preparation of bridge and retaining wall selection reports for the replacement of ten bridges along I-10 between Ina and Ruthrauff. A DCR and Implementation Plan was developed by HDR that was used to derive funded projects for inclusion in future ADOT Five-Year Highway Construction Programs. Ted's ability to find structural solutions quickly and his knowledge of the benefits of different structure types led to the selection of practical, cost-effective structures, which were then implemented by other consultants during final design. The project also included conducting public involvement activities to assure local and agency concurrence with the proposed long-range plan.

ADOT, I-10-St. Mary's Road to 29th Street, Tucson, Arizona

Structural Lead. Ted led the design of bridges and walls for the freeway main line reconstruction through downtown Tucson. This involved six main line and frontage road overpass bridges at four locations including "gateway" Tis at Congress and 22nd Street. This work also included 12,500 lineal feet of cast-in-place and MSE retaining walls. Ted's attention to detail and his ability to come up with innovative solutions led to the development of an effective pigeon mitigation system for the bridges utilizing expanded metal that is still performing well. This system reduces maintenance costs for ADOT. Upon completion of the design, HDR was contracted to combine those plans with the Prince Road to Grant Road design segment and the St. Mary's Road to Grant Road design segment into a single \$200 million project.

ADOT, I-19 Duval Mine Road Traffic Interchange, Arizona

Structural Lead. HDR was the prime consultant for this TI project that replaced the Duval Mine Road Underpass with a new two-span AASHTO I-girder bridge over I-19. Ted's role began as that of a structural advisor to HDR's subconsultant, but he ended up leading the structural design when the subconsultant fell behind and could not continue. Ted was able to step in, manage the plan development, and redesign the abutments to accommodate a more open appearance under the bridge. Ted's ability to incorporate art into the structure was evident in the intricate detailing for the center pier, curved retaining walls, and metal artwork attached to the bridge. Ted also provided post design services during construction including shop drawing review and construction observation.

From: [ADOT Business Engagement and Compliance Office](#)
To: [PHXMarketing](#)
Cc: ContractorCompliance@azdot.gov
Subject: Bidders List for HDR Engineering, Inc.
Date: Friday, July 19, 2024 3:08:35 PM

CAUTION: [EXTERNAL] This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

HDR Engineering, Inc., AZUTRACS Number: [10491](#) has submitted a Bidder/Proposer list for **2025-001** on 07/19/2024 at 3:08 PM MST (UTC - 07:00).

Bidders/Proposers for this firm include:

Firm Name	AZUTRACS #	Expiration Date	Email Address	Phone Number
Alta Survey, LLC	18080	01/09/2027	Patricia.Gajda@altaarizona.com	520-398-6651
CMG Drainage Engineering, Inc.	17981	10/05/2025	saltherr@cmgdrainage.com	520-882-4244
Jana Kading, PLLC	18644	09/09/2024	Jana@janakading.com	214-929-1874
Terracon Consultants, Inc.	11161	01/12/2027	Bianca.Rivera@terracon.com	520-770-1789
Wheat Design Group, Inc.	11292	06/30/2025	laura@wheatdesigngroup.com	520-884-7911



Engineering Consultants Section

Katie Hobbs, Governor
Jennifer Toth, Director
Greg Byres, Deputy Director for Transportation/State Engineer
Steve Boschen, Division Director
Adam Bieniek, Group Manager

Date: July 3, 2024

TO: ALL INTERESTED PARTIES

SUBJECT: AMENDMENT NUMBER 01

REFERENCE: REQUEST FOR QUALIFICATIONS
CONTRACT NUMBER 2025-001
INTERSTATE 19; RIO RICO DRIVE TO RUBY ROAD INTERCHANGES AND FRONTAGE ROAD
IMPROVEMENTS

The following question has been asked in reference to the above Request for Qualifications package:

Question: Because a business day is lost due to the July 4th holiday, would ADOT kindly consider extending the due date to July 24th?

Answer: The Department will not extend the due date for the contract SOQs.

Sincerely,

June A. Cross
Contract Specialist
Engineering Consultants Section

AN OFFEROR MUST ACKNOWLEDGE RECEIPT OF THIS AMENDMENT BY SIGNING BELOW AND INCLUDING ALL PAGES OF THIS AMENDMENT IN THE SOQ SUBMITTAL. FAILURE TO DO SO SHALL RESULT IN REJECTION OF THE PROPOSAL.

HDR Engineering, Inc.

CONSULTANT NAME

SIGNATURE

* This amendment is not included in the total page count in the Statement of Qualification submittal.



Engineering Consultants Section

Katie Hobbs, Governor

Jennifer Toth, Director

Greg Byres, Deputy Director for Transportation/State Engineer

Steve Boschen, Division Director

Adam Bieniek, Group Manager

Date: July 11, 2024

TO: ALL INTERESTED PARTIES

SUBJECT: AMENDMENT NUMBER 02

REFERENCE: REQUEST FOR QUALIFICATIONS
CONTRACT NUMBER 2025-001
INTERSTATE 19; RIO RICO DRIVE TO RUBY ROAD INTERCHANGES AND FRONTAGE ROAD
IMPROVEMENTS

The following question has been asked in reference to the above Request for Qualifications package:

Question: The project assessment references a traffic study and preliminary drainage report. Will ADOT make these available for review?

Answer: Traffic Study has been added to reference documents and can be accessed by sending an email request to E2@azdot.gov. Drainage reports are not available.

Sincerely,

June A. Cross
Contract Specialist
Engineering Consultants Section

AN OFFEROR MUST ACKNOWLEDGE RECEIPT OF THIS AMENDMENT BY SIGNING BELOW AND INCLUDING ALL PAGES OF THIS AMENDMENT IN THE SOQ SUBMITTAL. FAILURE TO DO SO SHALL RESULT IN REJECTION OF THE PROPOSAL.

HDR Engineering, Inc.

CONSULTANT NAME

SIGNATURE

* This amendment is not included in the total page count in the Statement of Qualification submittal.



Engineering Consultants Section

Katie Hobbs, Governor

Jennifer Toth, Director

Greg Byres, Deputy Director for Transportation/State Engineer

Steve Boschen, Division Director

Adam Bieniek, Group Manager

Date: July 12, 2024

TO: ALL INTERESTED PARTIES

SUBJECT: AMENDMENT NUMBER 03

REFERENCE: REQUEST FOR QUALIFICATIONS
CONTRACT NUMBER 2025-001
INTERSTATE 19; RIO RICO DRIVE TO RUBY ROAD INTERCHANGES AND FRONTAGE ROAD
IMPROVEMENTS

The following questions have been asked in reference to the above Request for Qualifications package:

Question: Page 23 indicates that an Environmental Assessment Re-Evaluation shall be prepared, but page 27 notes that a Categorical Exclusion will be utilized. Which environmental clearance is anticipated for the project?

Answer: A CE will be prepared at the time construction funding is identified. The consultant will prepare the technical documents.

Question: Page 27, Section 420, lists environmental studies and technical reports requiring consultant support, including Section 4(f), agency scoping letters, project meetings and plan reviews. Will biological resources, cultural resources, air quality, visual resources, and hazardous materials support be required? Page 35 shows that the consultant would be responsible for these.

Answer: Please be guided by the PEDS.

Sincerely,

June A. Cross
Contract Specialist
Engineering Consultants Section

AN OFFEROR MUST ACKNOWLEDGE RECEIPT OF THIS AMENDMENT BY SIGNING BELOW AND INCLUDING ALL PAGES OF THIS AMENDMENT IN THE SQ SUBMITTAL. FAILURE TO DO SO SHALL RESULT IN REJECTION OF THE PROPOSAL.

HDR Engineering, Inc.

CONSULTANT NAME

SIGNATURE

* This amendment is not included in the total page count in the Statement of Qualification submittal.



Engineering Consultants Section

Katie Hobbs, Governor

Jennifer Toth, Director

Greg Byres, Deputy Director for Transportation/State Engineer

Steve Boschen, Division Director

Adam Bieniek, Group Manager

Date: July 15, 2024

TO: ALL INTERESTED PARTIES

SUBJECT: AMENDMENT NUMBER 04

REFERENCE: REQUEST FOR QUALIFICATIONS
CONTRACT NUMBER 2025-001
INTERSTATE 19; RIO RICO DRIVE TO RUBY ROAD INTERCHANGES AND FRONTAGE ROAD
IMPROVEMENTS

The following questions have been asked in reference to the above Request for Qualifications package:

Question: Is ADOT able to provide the PEDS document?

Answer: PEDS document is available by sending an email to E2@azdot.gov requesting access to reference documents for this contract.

Question: The RFP does not mention completing a PA-update or other scoping document. Should this be included in the scope of work?

Answer: A PA-update or other scoping document is not part of the scope of work

Sincerely,

June A. Cross
Contract Specialist
Engineering Consultants Section

AN OFFEROR MUST ACKNOWLEDGE RECEIPT OF THIS AMENDMENT BY SIGNING BELOW AND INCLUDING ALL PAGES OF THIS AMENDMENT IN THE SOQ SUBMITTAL. FAILURE TO DO SO SHALL RESULT IN REJECTION OF THE PROPOSAL.

HDR Engineering, Inc.
CONSULTANT NAME

SIGNATURE

* This amendment is not included in the total page count in the Statement of Qualification submittal.

CONSULTANT INFORMATION PAGES (CIP)

CONTRACT NO.: 2025-001

CONTACT PERSON: Michael Barton

E-MAIL ADDRESS: Michael.Barton@hdrinc.com

TITLE: Vice President/Project Principal

CONSULTANT FIRM: HDR Engineering, Inc.

ADDRESS: 1 South Church Avenue, Suite 1400

CITY, STATE, ZIP: Tucson, Arizona 85701

TELEPHONE: 520.584.9647

FAX NUMBER: 520.584.3624

UNIQUE ENTITY ID# (FROM SAM WEBSITE): KX5CXFY15J86

ADOT CERTIFIED DBE FIRM? (YES/NO)

SUBCONSULTANT(S):	TYPE OF WORK	ADOT CERTIFIED DBE FIRM (YES/NO)
Alta Survey, LLC	Survey	No
CMG Drainage Engineering, Inc.	Drainage	No
K2 Site Assessments	HAZMAT	Yes
Terracon Consultants, Inc.	Geotechnical Field & Data Report	No
Wheat Design Group	Landscape, Erosion Control, & Aesthetics	Yes

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

SUBCONSULTANT(S) TABLE:

SUBCONSULTANT FIRM NAME:	<u>Alta Survey, LLC</u>
CONTACT PERSON:	<u>Patricia Gajda, RLS</u>
E-MAIL ADDRESS:	<u>Patricia.Gajda@altaarizona.com</u>
TITLE:	<u>Survey Manager</u>
ADDRESS:	<u>2025 W. Ruthrauff Road, Suite 125</u>
CITY, STATE ZIP:	<u>Tucson, AZ 85705</u>
TELEPHONE:	<u>520.398.6651</u>
FAX NUMBER:	<u>N/A</u>
UNIQUE ENTITY ID #:	<u>EA6NJA7NJFN5</u>

SUBCONSULTANT FIRM NAME:	<u>CMG Drainage Engineering, Inc.</u>
CONTACT PERSON:	<u>Scott Altherr</u>
E-MAIL ADDRESS:	<u>saltherr@cmgdrainage.com</u>
TITLE:	<u>Principal Engineer</u>
ADDRESS:	<u>3555 N. Mountain Avenue</u>
CITY, STATE ZIP:	<u>Tucson, AZ 85719</u>
TELEPHONE:	<u>520.882.4244</u>
FAX NUMBER:	<u>N/A</u>
UNIQUE ENTITY ID #:	<u>Z5FCG3TQQVN3</u>

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.

SUBCONSULTANT(S) TABLE:

SUBCONSULTANT FIRM NAME:	Jana Kading PLLC, dba K2 Site Assessments
CONTACT PERSON:	Kelly Kading, CPG
E-MAIL ADDRESS:	kellykading@k2siteassessments.com
TITLE:	Vice President
ADDRESS:	PO Box 3957, alt 1 Manzanita Ct.
CITY, STATE ZIP:	Prescott, AZ 86302
TELEPHONE:	602.708.1993
FAX NUMBER:	N/A
UNIQUE ENTITY ID #:	NS5TPN21J987

SUBCONSULTANT FIRM NAME:	Terracon Consultants, Inc.
CONTACT PERSON:	Ramon Padilla
E-MAIL ADDRESS:	ramon.padilla@terracon.com
TITLE:	Principal/Geotechnical Department Manager
ADDRESS:	4685 S. Ash Avenue, Suite H-4
CITY, STATE ZIP:	Tempe, AZ 85282
TELEPHONE:	480.897.8200
FAX NUMBER:	480.897.1133
UNIQUE ENTITY ID #:	MG15GZJ9BES5

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.

SUBCONSULTANT(S) TABLE:

SUBCONSULTANT FIRM NAME:	Wheat Design Group, Inc.
CONTACT PERSON:	Laura Mielcarek
E-MAIL ADDRESS:	Laura@wheatdesigngroup.com
TITLE:	Principal
ADDRESS:	500 N. Tucson Blvd, Suite 150
CITY, STATE ZIP:	Tucson, AZ 85716
TELEPHONE:	520.884.7911
FAX NUMBER:	520.884.7912
UNIQUE ENTITY ID #:	E75NPKDMZ943

SUBCONSULTANT FIRM NAME:	N/A
CONTACT PERSON:	
E-MAIL ADDRESS:	
TITLE:	
ADDRESS:	
CITY, STATE ZIP:	
TELEPHONE:	
FAX NUMBER:	
UNIQUE ENTITY ID #:	

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.

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.



Signature

July 22, 2024

Date

Aaron Meilleur

Printed Name

Senior Vice President/Area Manager

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:

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

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