August 17, 2023

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

SOQ FOR CONTRACT NO. 2024-003 I-40 BROADBAND: FLAGSTAFF TO NEW MEXICO STATE LINE, COCONINO, NAVAJO AND APACHE COUNTIES

Members of the Selection Committee:

The I-40 Broadband project is the product of the Arizona Department of Transportation's (ADOT) goal to add a high-speed/capacity middle-mile fiber optic backbone to interconnect Intelligent Transportation System (ITS) equipment along I-40 while also allowing private telecommunications providers and Internet Service Providers (ISPs) to place long-haul fiber optic cables within the interstate right-of-way (ROW) along this crucial east-west corridor. This will facilitate the deployment of broadband communications in the rural, disadvantaged communities along I-40. Horrocks Engineers, Inc. (Horrocks) is excited to use our broadband expertise to assist ADOT with this invaluable project.

Different than a typical ITS project, the I-40 project focuses on broadband and we are highly qualified to assist ADOT. We have customers in the public and private broadband sectors and have successfully assisted other departments of transportation (DOTs) with the implementation of broadband projects along interstates. The Horrocks team has designed, permitted, and overseen the installation of more than 2,000 miles of broadband in the past five years. **Horrocks has teamed with major subconsultant Kimley-Horn to combine the most extensive local ADOT broadband expertise with other states, like neighboring Utah, to bring ADOT the most experienced team possible.**

EXPRESSION OF INTEREST: Horrocks is a 900-person, full-service engineering firm that delivers broadband projects similar to the I-40 Broadband: Flagstaff to New Mexico State Line throughout the western United States. **Our major subconsultant, Kimley-Horn has designed the I-40 West, I-17, and I-19 broadband projects for ADOT over the past several years, and has the strongest ADOT broadband experience of any team.** Our two firms have strategically teamed on other similar projects in Utah and Arizona for various agencies including the Arizona Commerce Authority, (ACA), the State of Utah, and UDOT. Our combined experience brings ADOT unparalleled broadband and ITS experience to this project. For this project, we have determined the teaming arrangement based on staff workload, experience, and availability to best meet the needs of this project. In addition to Kimley-Horn, we have also added other subconsultants including Lee Engineering, Newton Environmental, Westland Engineering and Environmental, AeroTech Mapping, and Ethos Engineering. **Our combined team proudly expresses our vested interest in being selected for this project.**

COMMITMENT OF KEY PERSONNEL: We fully commit the key personnel identified in the submittal to the extent necessary to meet ADOT's quality and schedule expectations. Brian Christensen (AZ PE No. 48970), our Principal-in-Charge, brings similar project experience that includes technical and project management of rural interstate broadband projects and management of staff and project teams. Brian will support the team who will utilize their broadband and ITS expertise to deliver this project effectively for ADOT. Assisting Brian will be Tom McCullough from Kimley-Horn as the lead QC/QA manager. Tom brings a depth of ADOT broadband expertise and institutional knowledge to this project.

PRIME CONSULTANT PRINCIPAL, OFFICER OF THE FIRM, AND PROJECT (CONTRACT) MANAGER: Erin Kline, PE (AZ PE No. 52633), our Authorized SOQ Signer, Principal, and Officer of the Firm, will take responsibility for this contract. Erin is properly registered with the BTR at the time this SOQ is submitted. She is supported by our **Principal-In-Charge and Telecom Leader, Brian Christensen, PE (AZ PE No. 48970)**, the local **Project (Contract) Manager, Scott Carey**, and a thoughtfully built team of highly capable key personnel.

SUMMARY OF KEY POINTS: Horrocks' qualifications are highlighted with the following key points:

- We will approach this project by focusing on delivering the project within the timeframe of the funding limits. There are several variables associated with this project including long lead items, permits, and potential environmental clearance issues that could potentially cause significant delays to the overall project schedule. Our team is poised to "hit the ground running" to expedite construction beginning by employing a variety of tools and techniques.
- Within the past five years, the Horrocks team has designed over **2,000 miles of broadband infrastructure and 525 miles of ADOT broadband infrastructure through our partnership with Kimley-Horn** and their experience on the current I-40 project to the west, as well as the I-17 and I-19 broadband projects. This ADOT experience, combined with over a decade of Horrocks' expertise from the UDOT fiber optic program and extensive private industry experience, provides ADOT with the most qualified designers needed to deliver this project effectively and efficiently.
- Our team is not only comprised of DOT engineers, NEPA specialists, and broadband experts with years of experience in long-haul fiber, we have **David Haines** and **Tom McCullough** who developed all of ADOT's broadband installation details and special provisions through close coordination with TSMO and ADOT's Northwest, Northcentral, Central, and Southcentral Districts. With this experience, our team has a unique understanding of how ADOT broadband requirements evolved over the past few years through lessons learned from our previous ADOT broadband projects. The Horrocks team looks forward to collaborating with the Northeast District for any further refinements that may be needed based on the unique characteristics of their District.
- **Since 2020** when the ADOT Broadband Office was gaining significant momentum, **Horrocks provided input and support to ADOT's broadband group** based on our past collaboration with the UDOT fiber optics program. This included standards development, broadband valuations, cost estimating, and general support. We look forward to expanding this strong relationship with ADOT on this project as we work together to solve project specific-challenges along the eastern side of the I-40 corridor.

CERTIFIED DBE: Horrocks is not a DBE-Certified firm. Our subconsultants Ethos Engineering, Newton Environmental, and AeroTech Mapping are DBE-certified firms.

Thank you for the opportunity to submit our SOQ. We are excited by the prospect of supporting ADOT on this important project and look forward to hearing from you. If questions about our team or SOQ arise, please contact our Principal-in-Charge at brianc@horrocks.com.

Sincerely,

Erin Kline, PE
Principal, Authorized SOQ Signer
erink@horrocks.com

Brian Christensen, PE
Principal-in-Charge
brianc@horrocks.com

Engineering Consultants Section
SOQ Proposal Certifications Form

Contract #: 2024-003 Consultant Name: Horrocks

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: Erin Kline, PE Title: Principal

Signature: Erin Kline Date: August 17, 2023

Revised 2/11/2022

ARIZONA DEPARTMENT OF TRANSPORTATION
ENGINEERING CONSULTANTS SECTION
PARTICIPATION IN BOYCOTT OF ISRAEL - CONSULTANT CERTIFICATION FORM
ADOT ECS Contract No.: 2024-003

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.

Horrocks Company Name	 Signature of Person Authorized to Sign
2600 N Central Ave Suite 550 Address	Erin Kline, PE Printed Name
Phoenix AZ 85004 City State Zip	Principal August 17, 2023 Title Date

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

ADOT Infrastructure Delivery and Operations

FORCED LABOR OF ETHNIC UYGHURS BAN Certification Form

Forced Labor of Ethnic Uyghurs Ban

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

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

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

Under A.R.S. §35-394:

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

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

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

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

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

Horrocks
Company Name

2600 N Central Ave Suite 550
Address

Phoenix AZ 85004
City State Zip

Signature of Person Authorized to Sign

Erin Kline, PE
Printed Name

Principal
Title

ADOT ECS Contract No: 20XX-XXX

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

1. PROJECT UNDERSTANDING AND APPROACH

Understanding the scope of work in its entirety leads to the building of the right team with diverse and unique skills, which will ensure the success of the project.

PROJECT UNDERSTANDING

PROJECT OVERVIEW

The Horrocks team understands how this broadband infrastructure will be used for immediate commercialization by ADOT's Middle-Mile Fiber Infrastructure Operations, Maintenance, and Commercialization (OMC) vendor to private broadband providers with a shorter return-on-investment (ROI) period, which is needed to help expedite the deployment of broadband services throughout the State. As a second priority, the fiber will be utilized for high-speed/capacity communications between ITS field devices along this portion of the I-40 and the ADOT Traffic Operation Center (TOC).

We will coordinate **with the recently awarded state broadband grant to Navajo County from MP 277.00 to MP 287.00, and the broadband infrastructure provided by the I-40 West project,** which ends at the County Club TI, five miles east of I-17. These coordination efforts are critical for ADOT to deliver a seamless/consistent Middle-Mile Fiber Infrastructure along I-40. The mechanics of this project include:

- 7-way armored microducts with 288 single-mode fiber optic (SMFO) micro-fiber cables for ADOT use.
- ADOT's fiber located in the Blue Microduct
- Triple pull boxes located at maximum 3000-foot spacing so that mechanical splices are minimized.
- Installing 4-inch sleeves at locations requiring directional drilling to further minimize the number of mechanical splices required.
- Node building located at 45-mile (or less) to utilize the 10GBASE-ZR optics standard

This project will tie into the I-17 broadband project at Node 27 within the I-40 / I-17 interchange making the connection to the ADOT TOC. **By including Kimley-Horn and Lee Engineering on the team, this will allow for the seamless connection and collaboration from this project.**

We understand how important it is for ADOT to minimize the number of micro-fiber cable splice points between node buildings because each splice point introduces attenuation. To accomplish this, we work with the micro-fiber cable vendors to determine the maximum reel-length that can be archived in a standard bulk order and then we design the full cable splice locations based on this maximum reel-length. For the 288-Strand micro-fiber cable, the consensus was that the maximum spacing required between full-cable splices should be set at 19,000 feet, including the length of each slack loop within each splice vault it passes through.

We also understand that there are some areas of the project corridor where installing a node building would not be practical, because they are lacking existing power utility infrastructure to support the building. We have identified these four node building locations on the **Project Features Map shown on page 6**.

PROJECT PURPOSE, NEED, AND GOAL

This project is the product of the ADOT Middle-Mile program, which is designed to bridge the digital gap for the unserved and underserved communities. This project will allow private telecommunications providers to place long-haul fiber optic cables within the interstate ROW along this crucial east-west corridor. This will facilitate the deployment of broadband communications in the rural, disadvantaged communities along I-40. This project will also serve as the infrastructure for connecting future ITS devices for ADOT TSMO Division, as well as providing a pathway for SunCorridor Networks. **This is the final piece to linking the I-40 corridor across Arizona from New Mexico to California, and to the I-17 corridor to Phoenix, also linking up I-10 and I-19 in southern Arizona.** This project will ultimately become part of the ADOT broadband lease program, which will be administered by the OMC vendor (recently selected by the ACA).

In addition to the conduit and cable installation, there will be four node buildings installed along the project limits (inside the ROW). These buildings will be used to regenerate the optical signal, as well as serve as distribution points to connect to future ITS field devices. The buildings will be self-contained, pre-fabricated concrete structures, with HVAC for environmental controls. The node buildings will require commercial power, so they will be strategically located in areas where commercial power exists (*see page 7 for further explanation*).

ADOT has programmed $54.8M for construction of this project via the Middle-Mile program, and we understand that the project funding will expire on December 31, 2026. This means all construction funding needs to be expended by that date or any unspent monies will be forfeited. This puts this project on a critical design and construction schedule, which will be discussed further in the risks section.

PROJECT TASKS:

Our project approach and schedule are built to ensure the successful completion of the project tasks as outlined in the scope of work provided by ADOT:

- Project Management
- Stakeholder Coordination: ADOT PM, ADOT Districts, OMC project, railroad, utility stakeholders, and ROW
- Draft and Final Environmental Documents (NEPA)
- Develop Early Deliverable .kmz File: showing preliminary conduit routing and installation types for use by Districts and ADOT Broadband Office
- Initial Traffic Report
- Initial and Final Design Concept Report (DCR)
- Geotechnical Design/Clearance
- Final Design
- Site visit
- Meetings: kick-off, progress, technical, and comment resolution
- Basemapping
- Systems Engineering Checklist
- Identify necessary proprietary materials
- Stage III, IV, and V submittals
- Obtain ROW and Utility and RR Clearances
- Support ADOT in Public Involvement
- Contracts and Specifications (C&S) coordination
- Post Design (separate scope)

PROJECT APPROACH

Our PRIMARY OBJECTIVE is to add capacity and interconnect ITS devices along I-40 while also creating an attractive asset for the ACA and the Governor's Office to leverage and market the conduit and fiber pathways for the broadband industry, while meeting ADOT's need for fiber interconnectivity.

PROJECT MANAGEMENT APPROACH

Our approach to the project will combine our typical approach to DOT ITS design with our broadband design methodology to ensure

the overall return on investment benefits the State, the communities along I-40, and the public. Keeping in mind that this is likely the only time ADOT/ACA broadband conduit will be placed along the corridor, our approach to the design will be forward-thinking to maximize this asset for future needs. Monies generated from leasing the extra conduits may be used to fund additional broadband expansion (and subsequently ITS connectivity) throughout the state, opening the door to broadband and ITS growth into more rural areas. Additionally, this project will serve as the backbone to connect existing and future ITS devices to the ADOT fiber optic network for high bandwidth communications to the ADOT TOC.

We are confident the Horrocks team will achieve this primary objective, providing ADOT and the ACA OMC with a valuable and marketable product, all while building backbone infrastructure to connect future ITS devices.

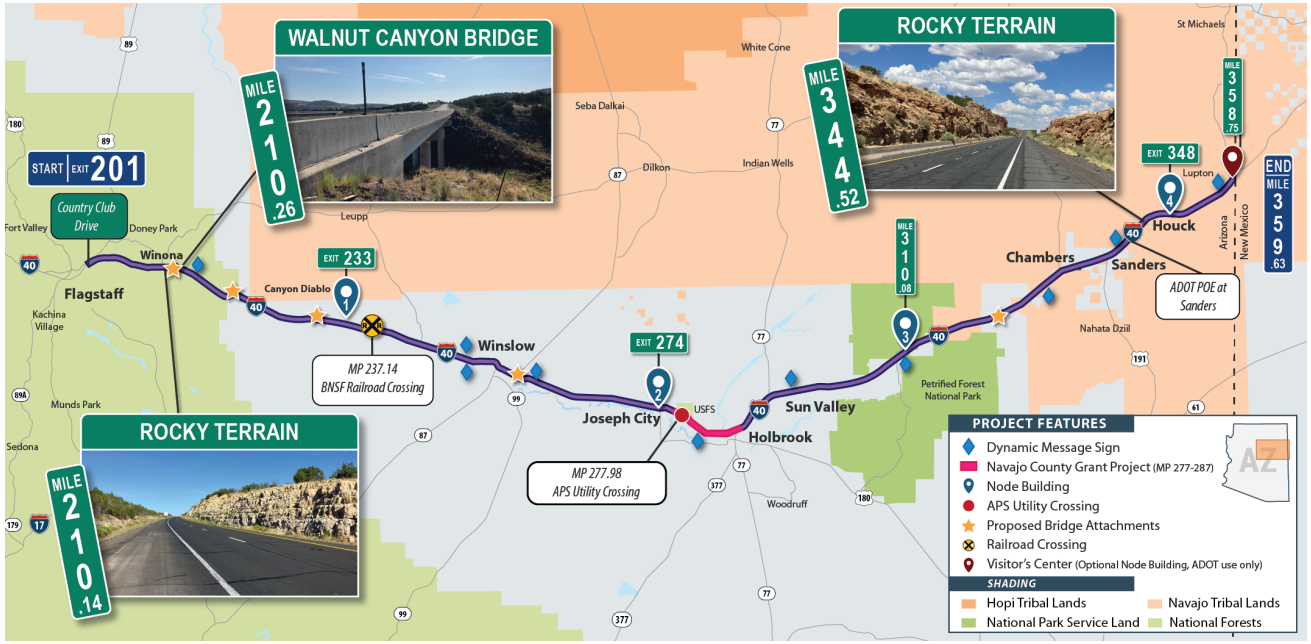
To do this, Horrocks has added a major subconsultant, Kimley-Horn to the team. Kimley-Horn has been providing broadband design services to ADOT for the I-40 West, I-17, and I-19 broadband projects. Kimley-Horn has the most broadband experience with ADOT and will bring their extensive resume, and lessons-learned from previous projects to this project.

Combined, Horrocks and Kimley-Horn bring:

- ✓ More than 175 years of combined expertise in our proposed key staff serving the broadband and the DOT/ITS industries, bringing both perspectives into this project.
- ✓ Extensive experience designing, permitting, and constructing more than 4,000 miles of broadband connectivity projects along rural, suburban, and urban interstate ROWs.
- ✓ Expertise from multiple DOTs on ITS communications projects and a solid understanding of what is needed for robust communications to ITS field devices.

Our approach to the project will begin by first addressing the areas that impact the schedule. These include data gathering, environmental/cultural sensitivity, permitting from tribes and federal agencies, utilities, railroads, and agency coordination. Beginning with the critical time frame issues up-front enables us to uncover the unknowns, develop a pathway for design, and plan for risk mitigation as we minimize the surprises and risks to the schedule. **Some of the issues are explained in greater detail in Section 2, Project Risks and Schedule**, accompanied by our mitigation measures. The following information outlines several key issues our project team has identified, along with our approach related to each.

PROJECT FEATURES MAP



EARLY-ACTION ITEMS

ADOT has identified 300 calendar days for the project length of service. **Early action items must commence as soon as possible to avoid any potential project delays. We will also explore alternative-delivery construction methods (CMAR), as well as material procurement tasks to streamline construction commencement.** If CMAR is the selected method, our team has worked as the designer on several CMAR projects, including the ADOT I-17 Broadband project, which will allow us to seamlessly transition into that role on this project. Additionally, we will work with ADOT to procure the major broadband materials (conduit, cable, boxes) for construction, allowing ADOT to lock in their pricing early and avoid delays in material lead times.

Navajo County Project Coordination: With Navajo County's award of a state broadband grant to complete broadband installation from **MP 277.0-MP 287.0, this segment of I-40 will need to be prioritized** for possible early design and construction coordination. We will work with Navajo County on their needs and will attend design meetings and other coordination efforts, as needed, to ensure the two projects are integrated seamlessly. We will create early-release packages for those areas that are cleared earlier. We will also help ADOT with the procurement of the CMAR construction partner and review cost estimating and scheduling. We will design the conduit to have tie-in points at the boundaries of that project (fiber cable will be installed as part of the greater I-40 project).

Tribal Consultation and Permitting: Several segments within this project corridor cross Navajo Nation reservation boundaries. Gaining approval to cross these areas can be a lengthy process, as previous efforts have required up to 18 months to release. **We will begin tribal consultation with the Navajo Nation as soon as the project commences.** We have already had preliminary discussions with the Navajo Nation leadership making them aware of this project. Our in-house tribal liaison, Chuck Howe, currently lives in the Navajo Nation and is highly familiar with the Nation's leadership. We will draw upon his understanding of the Nation to begin consultation quickly.

Environmental and Cultural Clearances: This segment of I-40 has not had any significant ground disturbance within the ROW in decades. This means that the entire segment will need to be culturally surveyed to ensure there are no significant impacts with this project. Furthermore, avoidance measures will be implemented to stay away from sensitive areas. At the outset of the project, we will conduct a literature search and field investigation of known cultural sites.

It is likely that we will not know the locations of culturally sensitive sites until after our 60% submittal. Our practice on previous projects, like I-40 West, is to identify preliminary microduct locations based on observed field conditions and then modify the location once the culturally sensitive sites are known. This way we can keep the plans development on schedule. From experience, the cleanest way to avoid cultural impacts is to micro-trench within the already disturbed, roadway prism in the shoulder.

For the NEPA document, Westland Resources will produce the document, with support from our in-house environmental broadband experts. Westland has identified several key project risks that will need to be mitigated (*see project risks section on pages 10-11*).

OMC Coordination: ADOT has recently selected EX2 to provide OMC services for this infrastructure statewide. **One unique benefit to our team is that our teaming partner, Kimley-Horn, is the designer for the OMC team making the design coordination seamless.** EX2 will be invited to attend all major milestone review meetings and at regular coordination meetings throughout the design. We will collaborate closely with them as an additional stakeholder.

We have learned from ADOT's Broadband office that it is possible there is more interest along I-40 from ISPs than originally anticipated. This suggests that it is possible that more than one microduct may be warranted along portions of the corridor. We will coordinate closely with ADOT and be flexible in our design approach as the interest becomes more defined.

Federal Agencies: Preliminary investigations of the project limits revealed a potential need for coordination with various federal land-use agencies. There are three US Forest Service boundaries that project will cross. Also, preliminary research has indicated that the Petrified Forest National Park boundary is currently crossed by the I-40 corridor and there is a significant amount of land controlled by the Bureau of Land Management (BLM). We will verify all project ownership at the outset of the project and determine the level of coordination/permitting that may be needed. If special permits are needed, our team has worked with the US Forest Service, National Park Service, and BLM on multiple past broadband projects, and has a strong understanding of what is needed to gain approval.

Utilities and Railroads: Preliminary investigations of the project limits revealed that there are no significant utilities that will need to be avoided. There are some shallow utility lines (water) crossing I-40 near the Cholla Power Plant (near MP 275 Joseph City). Additionally, there are dozens of box and pipe culverts that cross I-40. We will avoid impacting these facilities by shallow trenching over them, drilling under them, or going around them. We will conduct a full utility investigation at the outset of the project to investigate any other private utilities that will need to be avoided. If crossing permits/approvals are required, our team will begin those tasks immediately.

Additionally, there is a **Burlington North and Santa Fe (BNSF) railroad line crossing I-40 near MP 237** (east of the Meteor Crater Rest Areas). This crossing will require a separate permit from the BNSF railroad. We will work with Sayeed Hani, ADOT's railroad liaison, to coordinate the permit process early in the project just as Kimley-Horn did on the I-40 West project which had nine BNSF crossings.

Permitting: The permitting process will be a two-step process to avoid any schedule delays and budget impacts. The first step will be focused on building the broadband infrastructure for ITS purposes only. The second step will be to get a permit for the Non-Transportation use of the broadband Infrastructure, which can occur in parallel to the construction phase. This 2-step process has worked successfully with the I-17 broadband project.

ITS DEVICES

Preliminary on-the-ground field reconnaissance has indicated that there are nine existing DMS and several Road Weather Information System (RWIS) within the project. This project will provide communications connections to all these existing ITS devices. We will avoid impacting existing Automated Traffic Recording (ATR) stations within the project limits.

We will strategically locate broadband splice vaults in these existing ITS device areas and extend a 3-inch ITS Branch conduit to these devices where practical, so TSMO can make the final fiber connection at a later date. **This is the approach that the ADOT Broadband Office and TSMO agreed on during the design of Kimley-Horn's I-17 broadband project that helped maximize the available budget for building the broadband infrastructure.**

Proposed Innovation: Junction Box Rodent Barriers - We will work with ADOT to implement a new standard for this project for junction box protections. Currently rodents can access the infrastructure by tunneling through the floor of the boxes. We have a range of box treatments that could be implemented to protect the box from rodent entry.

Junction boxes will be placed near those future locations so devices can easily be spliced into the fiber optic network later. In addition to ITS devices, we propose to connect the Port of Entry at Sanders to the fiber optic network. This will provide opportunities for the Port to have access to the system for faster broadband communications.

NODE BUILDINGS

It is anticipated that this project will install four communications node buildings. These buildings will house electrical equipment for optical signal regeneration, as well as distribution out to the field devices. The buildings will be prefabricated concrete shelters and be installed approximately every 45 miles to accommodate standards-based 10GBASE-ZR optics. Preliminary investigations have indicated that these buildings will be located near MP 233, 274, 310, and 348. The buildings require commercial power to operate the equipment and HVAC units. They will be located within the ROW near areas where there is existing commercial power available at traffic interchanges.

Project Example: I-10 Node Buildings

Once the node building locations are identified, we will produce grading details and electrical connection details as part of the design. We will also work with the serving power utility company in the area and coordinate with them and ADOT utilities to secure agreements for power connection. We will prepare and submit the new power source load information to the serving power company and coordinate with them on gaining approval. We have determined that most of the power sources will come from APS, but there is a chance that one of the power sources (near MP 348) may come from the Navajo Tribal Utility Agency (NTUA). If this is the case, early coordination will occur to avoid any possible project delays. Alternate commercial power sources may need to be evaluated to reduce schedule impacts.

Additionally, our team will work with ADOT to determine the size of the node buildings to be used. Our team has experience designing larger 10 feet by 30 feet shelters as part of other broadband projects.

These shelters are sectioned off with separate areas and entrances for DOT and provider equipment. We will evaluate the pros and cons of these larger buildings with ADOT and work to develop the standard for use on this project.

INSTITUTIONAL DOCUMENTS

The ADOT RFQ prescribes that this project will develop an Initial and Final DCR. An Initial Traffic Report shall be prepared. Our team will lead the project through effective communication with ADOT, stakeholders, and the design team to identify project solutions in the above-mentioned scoping documents. We will create cost-benefit analyzed alternatives to present to ADOT. The Initial DCR shall be completed concurrently with the initial environmental investigation. The Final DCR shall recommend the preferred running line position for the broadband conduit and the preferred node building locations.

DESIGN WORKSHOP

Broadband projects within interstate ROWs are different from a typical roadway improvement or ITS project, as many typical roadway design elements are not applicable. However, other items must be considered to achieve a successful broadband project. **These include conduit offset, conduit depth, installation method, trench backfill requirements, pavement restoration in saw cut areas, pull box and node building placements/locations, and future maintenance access.** We propose holding a design workshop with the ADOT project team immediately following the kickoff meeting to discuss specific design element details such as micro-trenching, node building entrances, attachments to existing bridges, and maintaining fiber utility location markers in areas near snowplow operations. This workshop will inform the rest of the project regarding design details, installation methods, etc. **Kimley-Horn's vast previous project experience on I-40 West, I-17, and I-19 will be very beneficial to this exercise.** We will also draw upon the design experience that our team has had in other states and determine if any enhancements could be made to the design of this project. For example, modifying the triple pull box design to include the new Duraline "duct plug" fittings to prevent rodents from getting into the boxes.

The project design will utilize four primary methods for the buried conduit installation segment (plow, micro-trench, trench, shallow trench, and directional bore). It is anticipated that due to the relatively flat terrain and regular/non-rocky soil conditions for much of the project, the installation method will be done via plow.

This will significantly reduce construction costs, as well as construction times. **Our teaming partner, Tom McCullough with Kimley-Horn, applied this approach successfully on the ADOT I-19 Broadband project.**

Proposed Innovation: Duct Plug - Our team understands the importance of protecting the 7-way microduct and 288 count SMFO cable ADOT investment. Protecting the conduits and fiber cabling from debris, water intrusion, and animals (such as desert rats) is an important aspect to maintaining the health of the overall system. We have worked with Duraline (the microduct manufacturer) on a "duct plug" solution in lieu of the example foam currently being used to seal the voids of the pull box term-a-ducts where the conduit enters. We learned on the I-17 and I-19 projects that the pull boxes are not completely sealed to avoid intrusion by desert rats and we want to incorporate those lessons learned to the I-40 east project.

DATA GATHERING/VERIFICATION

We will perform a full corridor field reconnaissance of the conditions. We do not anticipate completing a detailed topographical survey of the entire project corridor. We will obtain high-resolution orthorectified imagery that will be used as a base map. This imagery, coupled with the field data gathered, will contain conditions and terrain for the project, which will assist in determining the best location and installation method for the broadband conduit. However, we will provide supplemental topographical survey data for the proposed node building locations.

FUTURE/CONCURRENT PROJECTS

With several ADOT projects slated for construction along the corridor, in addition to working closely with the existing Kimley-Horn I-40 team for the project to the west, we will coordinate with each project's scope and determine how the I-40 project can be constructed with little impact on future projects. These projects represent an opportunity to assist with connecting future ITS or other field devices into the ADOT communications system. For example, coordinating pavement rehabilitation projects with a segment that requires micro-trenching for this project presents an opportunity to install the conduit prior to the pavement rehabilitation. For bridge attachments, we will investigate any conflicts a potential conduit attachment could have on a future bridge rehabilitation.

For future traffic interchanges, we will coordinate the locations of the conduits to be outside of the footprint of the interchange to minimize or eliminate the need for later relocations.

PROJECT DOCUMENT CONTROL

As there are several complex issues for this project, **we will set up a project WorkFront site to house all project information**. This site will contain information relative to the project and will include a project map, issue logs, decisions, risks register, mitigations, project notebooks (meeting agendas and minutes), KMZ file to view the proposed broadband infrastructure locations in google earth, and other relative project information. Each team member will have access to this site to check on the project status, decisions, and meeting minutes.

ADOT DESIGN PROCESS

Once these early-action items have begun, we will follow the typical ADOT design process. This includes the draft and final environmental document and assessment, preliminary design plans (60%), obtaining the utility, railroad, and ROW clearances, draft final design (95%), and final sealed plans (100%). With each design phase, we will provide an accurate cost estimate utilizing our in-house experts, as well as contacts within the broadband industry. At the conclusion of each design phase, we will verify project risks and assess whether any adjustments to the risk register need to be made, or if further mitigation actions will be required.

Throughout the design process, we will update the WorkFront site regularly to maintain accuracy with the latest design decisions. We will hold regular coordination meetings with the project team with more frequency early in the data-gathering and decision-making period.

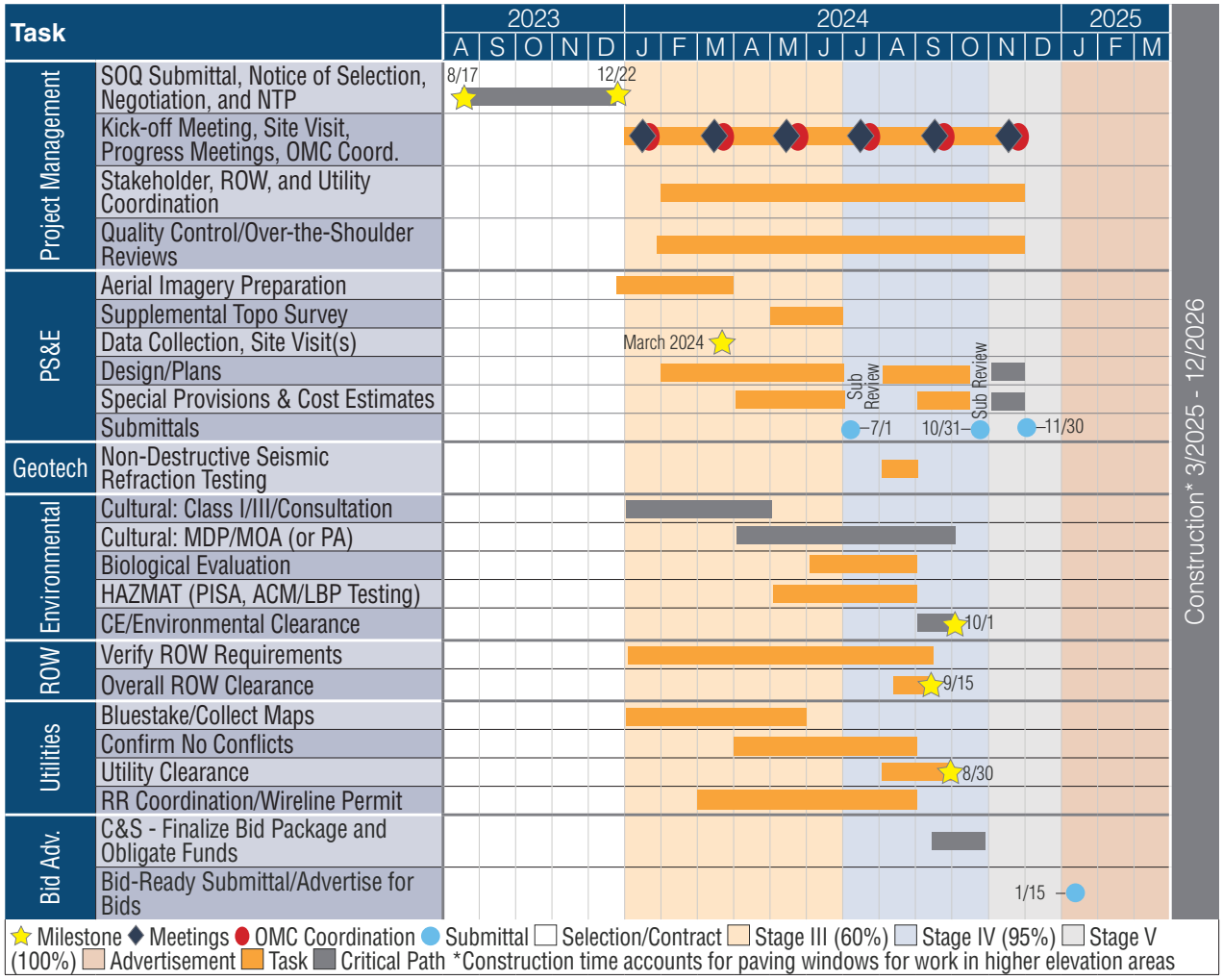
COST ESTIMATING

In order to track the project budget accurately, on a monthly basis and at key milestones, our team will generate a cost estimate. This will help the project team stay informed as to the project budget and make adjustments, as necessary. Our team has strong relationships with broadband contractors, as well as vast experience from past projects to draw on to assist in this effort. We will use forecasting tools for installation rates and consider other factors (i.e. project location, mobilization costs) to maintain an accurate estimate. Results will be shared with the team on a minimum monthly basis, and at key milestones.

2. PROJECT RISKS AND SCHEDULE

PROJECT SCHEDULE

The proposed project schedule for this project outlines the general flow of the project and the anticipated start and completion dates for major tasks or milestones. Our experience shows that front-loading the scheduled critical path items needing to start early is crucial to delivering the project on time.



Many of the risks identified in the Risk Register on the following page may significantly impact the schedule, and we will be attentive to each of these items. We will ensure the project moves forward through our regularly scheduled team and project stakeholder meetings. Our team has the availability to deliver this project on time. The broadband industry moves at a rapid rate and our processes are set up to bring success and minimize slips in the schedule. **In short, we work efficiently, in close and regular collaboration with the team and project stakeholders, and mitigate the risks to keep the project moving forward.**

LESSONS LEARNED

Some lessons learned from previous broadband projects that will benefit ADOT for this project:

- **Micro trench Backfill** – When trenching in the shoulder, alternate backfill options could be considered to reduce complications, such as 2-sack sand slurry to provide a smooth finished surface.
- **Fiber Management at Node Buildings** – The fiber and conduit entrances at the node buildings can be modified to allow for future cable installations without demolition, separate entrances for ISPs, and adequate conduit capacity.
- **Appropriate Environmental Clearance Limits** – Conducting a literature search at the outset of the project to determine if there are any areas that should be avoided, and setting a boundary around what areas should be examined, or otherwise avoided, to reduce time spent in cultural evaluation.
- **Splice Couplers** – Require proper construction methods to reduce failure by placing microduct couplers in straight sections to reduce strain and offsetting couplers to minimize bending. Our team has already developed details to address this.
- **Traffic Control** – Due to the heavy truck traffic along I-40, our team will specify that no lane closures will be allowed on Sundays for the WB direction and on Tuesdays for the EB direction. This will minimize disruption to the truck traffic heading to/from the Port of Los Angeles and Long Beach.

AVOIDING SCHEDULE SLIPPAGE:

- Focus on key priorities previously listed
- Develop a comprehensive scope prior to the project start
- Identify schedule risks and establish proper mitigation and review risks at monthly project meetings.
- Develop and maintain an action item register with deadlines that are properly tracked and updated at project meetings
- Early and regular coordination with stakeholders/agencies
- Proactive and responsive communications

MAKING UP SLIPPAGE:

- Identify and openly discuss the issue: don't mask or hide
- Meet with ADOT and key team members to develop a corrective action plan, create interim milestones, and get task(s) back on track
- Review task dependency for advance start on future tasks that are not tied to the slipped task
- Mobilize additional staff from our deep bench of resources

RISK MANAGEMENT

We enhance our project management and final design strategies through comprehensive risk assessment and mitigation tracking. One approach to identifying and resolving issues includes the preparation of a risk register which will be presented to the team at the design kickoff meeting to begin these critical discussions focused on preemptive mitigation and, more importantly, gain buy-in from the full team. Team members can add and/or retire risks from the register as the design progresses. The risk register will be discussed in every team meeting and continually monitored throughout the design. Our team has already identified some of the project risks, shown in the Risk Register chart below. We have also provided visual representation on the Project Features Map on Page 6. We feel these items have a high potential to impact the scope, schedule, and/or budget. As such, we will prepare the necessary design information, exhibits, and background information so ADOT team members may immediately understand the issues and risk mitigation strategies can be developed as quickly as possible.

PRELIMINARY RISK REGISTER

Risk Type	Risk Description	Severity	Probability	Risk Category	Mitigation	Post-Mitigation Risk Category
Schedule, Budget	*Design and Construction Funding Schedule:* Funding for construction will expire on 12/31/26. Assuming this project is a 20-24-month construction duration (including fiber lead time and weather-related restrictions) and 14-month design schedule (plus a potential six-month negotiating time frame to get design NTP).	3	3	High	Work with ADOT to employ a range of tools to expedite construction start including: expediting the design phase scope and fee development process, working with the OMC contractor for early procurement of materials, examining the feasibility of using CMAR delivery method, developing early-release packages for areas to begin construction, conducting constructability reviews early in the design process, and others.	Low
Schedule, Scope, Budget	*Elevation:* Low winter temperatures at high elevations introduces some challenges to construction activities. Snow on the ground will impede off-shoulder trenching activities. Low temperatures will impact curing time of the 2-sack slurry backfill when micro-trenching in the shoulder.	3	3	High	Develop a construction schedule that maximizes construction activities at high elevations during the non-winter months. This can be accomplished by allowing multiple construction shifts per 24-hour period and allowing multiple construction crews to work simultaneously in different project areas. **These are the types of mitigation measures that successfully worked during the construction phase of ADOT's I-17 Broadband project to keep the project on schedule.**	Low
Schedule, Scope, Budget	*Crossing Tribal Land:* Currently ADOT has agreements to build and maintain the I-40 freeway in areas where the freeway crosses tribal lands, but these past roadway agreements do not allow ADOT to build it for the sole purpose of leasing/commercializing the broadband infrastructure. Obtaining the necessary permits needed to lease/commercialize ADOT's broadband infrastructure could have a significant impact the project schedule and budget.	3	3	High	The design and construction phase efforts need to be focused on building the broadband infrastructure to support future expansions of ADOT's ITS which will help to improve ADOT's ability to efficiently operate and maintain the I-40 roadway corridor. This is the primary reason ADOT is involved in building this broadband infrastructure and operating/maintaining the freeway system should already be covered in the existing agreement. ADOT's ability to obtain any additional permits needed for commercializing the infrastructure can be a parallel effort that should not impact the design and construction of this needed ITS broadband infrastructure. During contract finalization, we intend to start meeting with the stakeholders and develop a Memorandum of Understanding, (MOU) between ADOT, the Navajo Nation, and all underlying landowners concerning review time for cultural and environmental documents. The permitting process will be a two-step process to avoid any schedule delays and budget impacts: 1) building the broadband infrastructure for ITS purposes only, and 2) permitting for the Non-Transportation use of the broadband infrastructure, which can occur in parallel to the construction phase.	Low
Schedule, Budget	*Permitting Process:* BNSF Railroad Crossing at MP-237 has potential for impacting the schedule and budget if approvals are not received in time for construction.	3	2	Med	Early identification of the proposed crossing location and coordination with Sayeed Hani, ADOT's Railroad Liaison, will help to streamline the permitting process. Showing ROW accurately and knowing if there are any culturally sensitive areas that need to be avoided is essential to selecting exact location of the ADOT broadband conduit when crossing BNSF property.	Low

RISK TYPE: Scope; Budget; Schedule **SEVERITY (S):** 1 = Low; 2 = Medium; 3 = High **PROBABILITY (P):** 1 = Unlikely; 2 = Possible; 3 = Probable **RISK CATEGORY:** Low, Medium, High

Risk Type	Risk Description	Severity	Probability	Risk Category	Mitigation	Post-Mitigation Risk Category
	Permitting Process: Permitting with the BLM, BIA, Tribal agencies, USFS, Petrified Forest National Park, and AZ State Trust Land coordination for permits can be a lengthy process, holding up construction activities.	3	3	High	Mitigation is managed through negotiation meetings early in the process to outline the runline, decide the process for receiving design drawings for review and approval, and set expectations. An MOU (Letter of Intent) will allow construction to occur if permits are not approved when needed. The team will ensure the cultural site surveys are done appropriately and on time. Our team will also commit to not removing any existing trees that these entities want to protect.	Low
	Node Buildings: Lack of power limits the available locations of the node building.	3	3	High	We will meet in the field with power service providers to identify and confirm available power service locations before Stage III. We will maintain dialogue with service providers in case available power locations change. Node buildings will likely be located at TIs where commercial power is available.	Low
	APS Utility Crossing: The project will cross an APS utility line at MP 227.98.	2	2	Med	We will investigate the exact location and work with APS for line crossing.	Low
	Concurrent Project Coordination: Navajo County Grant project coordination.	3	3	High	Early communication and coordination with this project to define the two locations of the triple pull box interconnection point between both projects, which is needed for ADOT to deliver a seamless/ consistent Middle-Mile Fiber Infrastructure along I-40. Construction schedules will also need to be coordinated to determine which project will need to install these pull boxes (i.e., whoever gets there first will need to install the pull boxes).	Low
	BIA Permitting: Bureau of Indian Affairs (BIA) approval for Non-Transportation Infrastructure Use.	3	3	High	Understanding the Non-Transportation Infrastructure Use requires an additional permit, the team will coordinate with the BIA early to implement the proposed two-step permitting process.	Low
	Existing Infrastructure: Advanced Warning Signs in the State of New Mexico ROW.	2	2	Med	Planning and coordination to ensure the broadband infrastructure along EB I-40 near the NM state line is designed to eliminate any need for traffic control in New Mexico ROW.	Low
	Cultural Areas: Culturally sensitive areas are located throughout the project limits.	3	3	High	Avoiding these culturally sensitive areas is the best way to mitigate any associated construction phase delays. However, on the I-17 Broadband project, there were culturally sensitive areas that stretched from ROW to ROW. The Kimley-Horn team applied the micro trenching installation method to help mitigate the risk of construction delays (i.e., the 14" depth of disturbance stayed within the already disturbed roadway prism), which we would propose to do here. Directional boring was also acceptable in some sensitive areas on I-17.	Low
	Geotechnical: Unforeseen geotechnical conditions.	3	3	High	Our geotechnical consultant, Ethos, is familiar with this area and will conduct ground verification with a robust test pit program at node building locations and other limited areas of concern. An in-depth geotechnical evaluation throughout the entire project limits was not deemed warranted on past ADOT broadband projects.	Low

RISK TYPE: = Scope; = Budget; = Schedule **SEVERITY (S):** 1 = Low; 2 = Medium; 3 = High **PROBABILITY (P):** 1 = Unlikely; 2 = Possible; 3 = Probable **RISK CATEGORY:** Low, Medium, High

3. PROJECT TEAM EXPERIENCE AND AVAILABILITY

Since 2011, Horrocks has provided significant support to DOTs and their respective fiber optic/broadband programs. State broadband programs are relatively new to the landscape, and we have helped several DOTs navigate the industry and assisted them to comply with FHWA requirements to facilitate broadband installation along interstate ROWs.

Our team has designed and overseen numerous broadband installation projects on multiple interstate corridors. Our major subconsultant, **Kimley-Horn will play an integral role in bringing their previous ADOT broadband experience to this project**. Our two firms have teamed well on other projects in the West. We have developed our team based on the needs of this project to bring the best value and knowledge to ADOT.

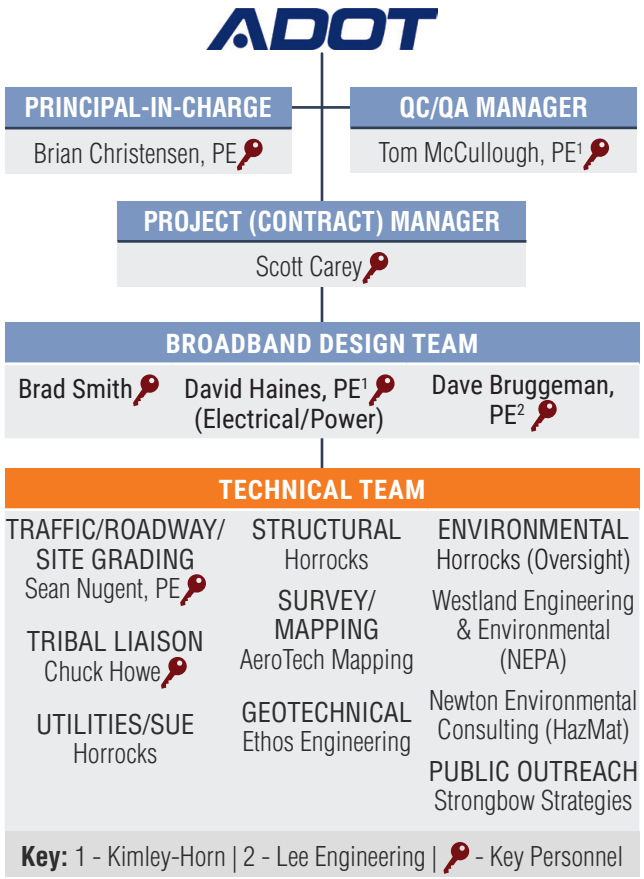
As outlined in the organization chart, **our key management team includes Horrocks team members Brian Christensen as our Principal-in-Charge, our local Arizona Broadband Expert, Scott Carey as Project (Contract) Manager, and QC/QA Manager Tom McCullough from Kimley-Horn**. Their combined experience gives us an in-depth understanding of ADOT's requirements and project needs, which we will implement from the beginning of the project to avoid re-work and excessive review comments that could compromise the schedule.

Our Design Team includes three experts that will work in tandem to design the segments of the project. **Brad Smith, David Haines, PE, and Dave Bruggeman, PE, are career broadband designers. Brad Smith will lead the design team and ensure each segment of workflows seamlessly into the next.**

In anticipation of working closely with the Navajo Nation, our team includes **expert Tribal Liaison, Chuck Howe**. In addition to being a Senior Environmental Specialist, Chuck has dedicated his career to the coordination of development projects on Tribal lands.

TEAM CORE ATTRIBUTES:

TEAM ORGANIZATIONAL CHART:



In addition to the key members identified above, we are assisted by **Westland with subconsultant Newton Environmental for HazMat, AeroTech, Ethos Engineering, and Strongbow Strategies,** all who have experience working with ADOT and in the project area. Through past experience and team interaction for this project, we know our team works well together. We respect each other's knowledge, skills, abilities, and professionalism and are looking forward to collaborating with ADOT on this project.

EXPERIENCE AND QUALIFICATIONS OF THE PROJECT MANAGER

SCOTT CAREY
Project (Contract) Manager

Years Experience: 31 | 75% Availability

Qualifications & Value Added to ADOT:

- Scott brings over 31 years of experience in engineering, construction, implementation, and operations in the telecom industry both fiber and wireless in Arizona.
- Throughout his career, Scott has worked with or for major carriers throughout and managed teams of internal and external resources deploying hundreds of projects that are metro, longhaul, middle mile, and rural in nature.
- Scott has a deep understanding of the existing broadband infrastructure and the still unmet needs of the various locations in the State of Arizona.
- With his past project experience in Arizona, Scott has worked with the ACA and the Arizona Department of Education (AZED) in regards to E-rate, grant, and bonded broadband projects.

Relevant Experience:

Scott has overseen thousands of miles of broadband installation in Arizona over his career. These include:

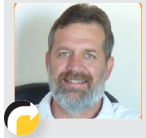
- Fiber Optic Strategic Build-out/Parks Facilities Fiber Connection PMCM, Town of Gilbert, Gilbert, AZ, *Project Manager*
- FTTT Phoenix/Tucson Metro Area, Verizon Wireless, Phoenix/ Tucson, AZ, *Deployment Manager**
- Deployment Manager for Various District Fiber Connectivity Programs for Schools, Libraries, and Office Buildings for the following*:
  - Paradise Valley Unified School District (Dark Fiber)
  - Pinal County Unified School District (E-rate Funding)
  - Globe Unified School District (E-rate Funding)
  - City of Page
- Utah BEAD Program Digital Connectivity Plan, Utah Broadband Center, UT, *Technical Support*

Concurrent Projects:

Town of Gilbert Fiber PM/CM: 25% time commitment

** Experience Prior to Joining Horrocks*

= Horrocks = Kimley-Horn = Lee Engineering

Key Personnel:	Qualifications & Value Added to ADOT:	Relevant Experience:
 **Brian Christensen, PE** *Principal* Exp: 23 yrs | AZ PE: 48970 | 35% Availability	• Expert in DOT ITS/Broadband infrastructure planning and design, as he has overseen the UDOT contract for 10 years. • As principal, Brian will ensure the project has the staffing and resources to maintain the budget and schedule.	• I-70/I-84 CARES Act Broadband, UDOT, UT; Principal • Utah BEAD Program, Utah Broadband Center, UT; Principal • Statewide Fiber/ITS/Broadband Contract (2013-Present) UDOT, Statewide, UT; Principal
 **Tom McCullough, PE** *QC/QA Manager* Exp: 19 yrs | AZ PE: 50066 | 45% Availability	• Extensive project experience with ADOT, including on your largest broadband infrastructure project, Tom has developed strong working relationships with various ADOT staff in the ADOT PMG, TSMO, and Broadband offices. • Tom also has in-depth knowledge of ADOT ITS/broadband infrastructure and helped develop the current Broadband Implementation standard details.	• I-40 Broadband, CA State Line to I-17/I-40 TI, ADOT, AZ; Project Manager • I-19 ITS/Broadband Infrastructure DB, Pima/Santa Cruz County, ADOT, AZ; Design Project Manager • I-17 ITS/Broadband Infrastructure, Van Buren/Phoenix to I-40/ Flagstaff, ADOT; AZ; Project Engineer
 **Brad Smith** *Design Manager & Segment Designer* Exp: 23 yrs | IMSA ITS Fiber Optics Level II | 50% Availability	• 23-year career in the fiber optics field with extensive experience in the design, installation, inspection, maintenance, and management for DOTs. • Combines real-world fiber optic installation, maintenance/testing, and management experience with expertise in design, implementation, and construction management. • Certified by Corning Cable Systems in FTTH/FTTB design and TS-LAN 500, The Light Brigade Fiber Optics for Utilities, and IMSA Fiber Optics for ITS Levels 1 &2	• I-70 CARES Act Broadband, Milepost 0-116 Design and CM, UDOT, Millard, Sevier and Emery Counties, UT; Project Engineer • Statewide Fiber Optics Support Contract (2013-Present), UDOT, Statewide, UT; Telecom Design Manager • Big Cottonwood Canyon Fiber Optics and DAS Design and CM, Crown Castle, Salt Lake County, UT; Telecom Design Manager
 **David Haines, PE** *Segment & Electrical Design* Exp: 30 yrs | AZ PE: 35268 | 75% Availability	• Knows how to coordinate with the various ADOT Districts, Materials Group, Bridge Group, TSMO, and the Broadband Office to establish new broadband fiber infrastructure requirements. • Developed the broadband infrastructure special provisions and installation details that ADOT is currently using on multiple projects and understands the design decisions behind these new requirements, as well as areas for improvements based on lessons learned from the I-17, I-19, and I-40 ADOT broadband projects.	• I-40 Broadband, CA State Line to I-17/I-40 TI, ADOT, AZ; Electrical/ Power technical resource and QA/QC Manager • I-17 ITS/Broadband Infrastructure, Van Buren/Phoenix to I-40/ Flagstaff, ADOT, AZ; Project Manager/Lead Designer • I-19 ITS/Broadband Infrastructure DB, Pima/Santa Cruz County, ADOT, AZ; Technical resource
 **Dave Bruggeman, PE** *Segment Design* Exp: 43 yrs | AZ PE: 16229 | 40% Availability	• Consultant to ADOT since 1989 and is well versed with local, state, and federal regulations and standards • Known for ITS and traffic signal design and development of standards • 10 years as the Manual on Uniform Traffic Control Devices (MUTCD) member of the Traffic Signals Committee	• I-40 Broadband, CA State Line to I-17/I-40 TI, ADOT, AZ; Segment Design Lead • I-17 Flex Lanes, ADOT, Phoenix, AZ; ITS Design Lead
 **Sean Nugent, PE** *Traffic, Roadway, & Site Grading Lead* Exp: 16 yrs | AZ PE: 59571 | 45% Availability	• Expert roadway engineer and project engineer, coordinating multi-discipline project teams for traditional and alternative delivery projects (including Design-Build). • Arizona Roadway and Traffic discipline lead for complex interstate freeway, interchange, and highway projects as well as urban arterial, roundabouts, intersection, and local roadways.	• SR 189 Design-Build, International Border to Grand Avenue, Nogales, ADOT, AZ; Lead Traffic Engineer • Project Development On-Call, Case Creek Bridge Replacement, Clifton, AZ; Lead Traffic Engineer • US 93, Carrow to Stephens, ADOT, Mohave County, AZ; Lead Roadway Engineer
 **Chuck Howe** *Tribal Liaison* Exp: 33 yrs | Environmental Planner | 75% Availability	• Environmental Specialist with 33 years of experience in federal, state, Tribal, and private sectors. • Extensive NEPA and regulatory permitting experience from the private sector to ADOT, tribal and federal governments; has prepared, overseen, and/or approved hundreds of CE documents, dozens of EAs, and participation and oversight on several EISs. • Career dedicated to Program and Project Management for Tribal developments.	• Utah BEAD Program, Utah Broadband Center, UT, Tribal Liaison • SR-162/262 Safety & Energy Corridor, San Juan County, UT; Tribal Liaison • Former ADOT Environmental Compliance Manager: Developed and operated an environmental compliance program for operations, construction, and development programs.

SUBCONSULTANTS' EXPERTISE

We have extensive experience partnering with our proposed subconsultants, each of which also has an extensive background completing projects for ADOT. Their notable expertise is highlighted below:

KIMLEY-HORN | Broadband Design Support and QC/QA | Kimley-Horn is a full-service engineering and planning firm comprised of transportation planners; civil, structural, electrical, and roadway engineers; environmental professionals; and construction phase experts. Their national firm is home to more than 7,200 staff in 125+ offices across the United States, with 360 in Arizona. We are organized as one company with multiple locations, and our organization structure is focused on high-quality client service. We have worked on some of ADOT's largest broadband infrastructure projects in recent years, including the I-40 Broadband: CA State line to I-17/I-40 Traffic Interchange (TI), I-19 Broadband Infrastructure Design-Build (DB), and I-17 ITS/Broadband Infrastructure projects. **Value to ADOT: This experience demonstrates our familiarity with ADOT's broadband specifications and procedures to help us efficiently complete this project.**

LEE ENGINEERING | Broadband Design Support | Lee Engineering has current experience dealing with ADOT broadband facilities on the I-17 Flex Lanes project, where they were responsible for the connectivity to all project elements requiring reliable and secure communication and designing minor modifications to existing broadband facilities caused by the flex lane roadway and barrier system design. They also provided design on over 53 rural DMS installations, including 10 on I-10 over seven separate project phases. LEE has 42 full-time employees, and 8 of them are associated with the Phoenix office. This experience illustrates regional knowledge of I-40 and how they will leverage prior utility contacts for power provisions and site-specific knowledge of existing ITS devices along I-40.

ETHOS ENGINEERING (DBE) | Geotechnical | Ethos Engineering LLC, founded in 2012, is a disadvantaged business (DBE/SBE) which provides geotechnical and structural engineering consulting services, primarily to the transportation market. Ethos 14 team members have managed more than 300 ADOT projects and continue to be a resource to them throughout the state. Ethos also has a long-standing relationship with Stanley Consultants having provided geotechnical services to them since 2013 on highway/roadway projects. Ethos was recently selected as the No. 1 firm to serve on the ADOT Statewide Geotechnical Subsurface Investigations On-call Contract.

AEROTECH MAPPING (DBE) | Aerial Mapping | AeroTech Mapping has worked with ADOT since 2010 and in the last five years has completed over 60 projects for ADOT with a staff of three. They have also completed deliverables in Open Roads, have experience with access to air space through coordination with Air Traffic Control, and have provided timely delivery of projects.

STRONGBOW STRATEGIES (DBE) | Public Outreach | Strongbow Strategies, LLC ("SBS") is uniquely qualified to perform advocacy work for the Navajo Nation and her interests. The Strongbow Strategies team has extensive experience in public outreach on a wide variety of issues impacting the Navajo Nation and Indian Country. SBS is a Priority 2, majority Navajo-owned business.

WESTLAND ENVIRONMENTAL | Environmental and Biology/Cultural Resources and Tribal Monitoring | WestLand Engineering & Environmental Services (WestLand) has focused on sound science, out of the box thinking, and a service-oriented approach to our consulting practice to meet their public and private sector client needs. We have grown to become a regionally recognized, award-winning firm with now seven offices throughout the West and over 240 employees. Established in 1997, WestLand is an employee-owned engineering and environmental consulting firm with offices in Flagstaff, Phoenix, Tucson, Reno, Seattle, Spokane, and Portland. Our team is made up of talented and highly experienced scientists, engineers, regulatory specialists, water resource experts, landscape architects, archaeologists, architectural historians, GIS analysts and administrative staff. Each of these experts' partners with our clients with a singular focus of helping our clients successfully achieve their strategic land use permitting and design needs.

NEWTON ENVIRONMENTAL CONSULTING (DBE) | Asbestos/Lead Sampling | Newton Environmental Consulting (NEC) has worked on hundreds of projects with ADOT and is a woman-owned certified Disadvantage Business Enterprise (DBE #20426924), SBE, WBE (WBE # WBE2000197) and WOSB. NEC specializes in preliminary initial site assessments, soil sampling, and roadway and bridge asbestos and lead-based paint sampling. NEC has provided air quality, noise and hazardous materials consulting services to ADOT for more than 20 years.

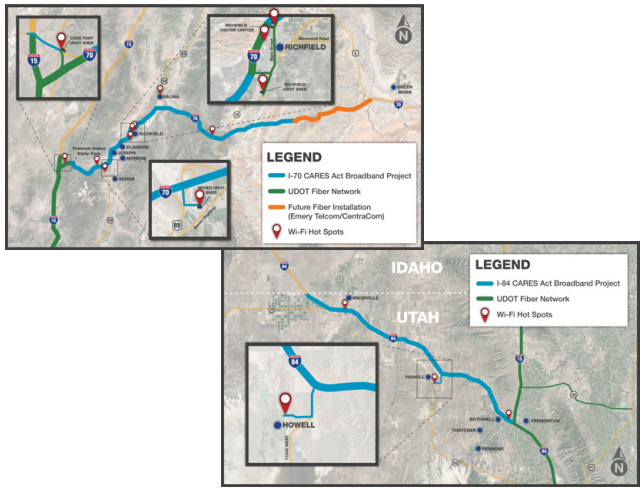
SELECT RELEVANT EXPERIENCE

As a leading engineering firm in the western U.S., Horrocks' core practice for 55 years is in delivering projects like the I-40 Broadband project. Our key personnel possess experience with multiple DOTs, providing projects of this size and complexity. Furthermore, our team members have established relationships with the various agencies and stakeholders, giving us the ability to anticipate their needs and concerns and quickly mitigate to keep the project moving forward. **A sample of our recent relevant experience is as follows:**

UDOT, I-70 & I-84 FIBER OPTIC COMMUNICATIONS CARES PROGRAM, CENTRAL & NORTHERN, UT

Horrocks was hired by the Utah Department of Transportation to design and manage 43 miles on I-84 from the Idaho border to the interchange with I-15 in northern Utah, and 137 miles on I-70 from I-15 to US-6 in central Utah. The goal of the project was to bring broadband connectivity through underserved areas, and the completion of a vital corridor for communication. The project also installed several public wi-fi hotspots along the corridor in key areas. Once construction began, Horrocks was the on-site construction management team, and helped bring on-line access to the wi-fi hotspots. This project had a very aggressive timeline, and went from project inception to final construction complete within six months. **Relevance:** Design, environmental clearances, ROW, state agency coordination, all necessary permitting, and construction management for broadband.

Role: Prime | Budget: $30M



ADOT, STATE ROUTE 189 DESIGN-BUILD, INTERNATIONAL BORDER TO GRAND AVENUE, NOGALES, AZ

Horrocks designed ADOT's State Route 189 (SR 189) Design-Build project to reconstruct 3.75 miles of SR 189 from five to seven lanes, improved traffic signals, and added auxiliary lane reconfigurations at eight intersections.

Relevance: As part of this project, Horrocks designed three miles of the first ITS trunkline in the City of Nogales, which interconnected to the Tucson Regional Transportation Data Network (TRTDN), to the ADOT FMS system, a significant improvement for the joint communication system. This included connecting the TRTDN system via a CenturyLink network backhaul circuit, incorporating multiple level 2 and 3 ethernet switch hubs, and establishing a system-wide CCTV and vehicle detection monitoring technology.

Role: Prime Designer | Budget: $84M

ADOT, TEMPORARY TECHNICAL ENGINEER PERSONNEL CONSTRUCTION ADMINISTRATION PROJECTS (TEMP TECH) | STATEWIDE, AZ

Horrocks has provided professional civil engineering and related services to ADOT through this multi-year contract. We served as Resident Engineer and provided a materials lab (lab technicians and materials coordinators) and inspection services. Services include construction management of ADOT civil work, including roadway (streets) construction/rehabilitation (asphalt and concrete paving), curb and gutter, sidewalk, pedestrian pathways, traffic signals, signage and pavement markings, concrete structures, drainage, stormwater, and erosion control.

Relevance: Under this contract, Horrocks' team members served as full-time inspectors for the ADOT I-17 ITS/Broadband project and Resident Engineer and Inspectors for the I-10 projects led by our teammate Kimley-Horn.

Role: Prime | Budget: $Various

UDOT, SR-162 & SR-262 SAFETY & ENERGY CORRIDOR, SAN JUAN COUNTY, UT

This project will reconstruct 55 miles of state highways in Southeast Utah across the Navajo Nation on SR-162 between Montezuma Creek and Aneth, replace the McElmo bridge, realign the junction of SR-162 and SR-262, rehabilitate the pavement on SR-262 and the rest of SR-162 with asphalt overlays, and provide some additional safety features. These include installing a new roundabout in the center of town, several bridge widenings, utility improvements, and 55 miles of fiber optics/broadband backbone installation. Horrocks is providing full NEPA/environmental clearance and design services.

Relevance: Horrocks performed full design and environmental services on this project. The ITS design included full broadband infrastructure, connections to various buildings within Montezuma Creek, Aneth Chapter House, new CCTV cameras and Non-Intrusive Detectors. We also coordinated with Emery Telcom for the backbone feed and connection. Additionally, a significant part of the PI effort involved coordination and communication with the Navajo Nation, specifically the Aneth Chapter.

Role: Prime | Budget: $4.7M

NOTABLE SUBCONSULTANT EXPERIENCE

ADOT I-40 BROADBAND: CA STATE LINE TO I-17/I-40 TI, ARIZONA

Kimley-Horn is providing technical support for establishing electrical service points for the node buildings and developing the modifications needed to the ADOT Type IV load center to better serve the node buildings and future ITS field devices within rural areas. They are assisting ADOT with developing a new broadband detail for how the 7-way conduit system needs to be installed when crossing roadways to ensure the 7-way conduit system passes through all three broadband pull boxes on each side, as well as establishing how spare conduits need to be installed within these crossing at traffic interchanges in support of future ITS device installations. Kimley-Horn will also be assisting with establishing the seasonal limitations for micro-trenching, to ensure proper curing time of the two-sack slurry backfill.

Relevance: The broadband systems of the I-40 East and I-40 West projects will be interconnected.

Role: Prime (Kimley-Horn) | Budget: $40M

ADOT, I-19 ITS/BROADBAND INFRASTRUCTURE PROJECT, TUCSON TO NOGALES, AZ

Kimley-Horn worked with the Joint Venture to design 63 miles of new 7-way micro-duct conduit and 288 micro-fiber cable. The design also included the installation of two new node buildings located at SR-189/I-19 and Canoa Ranch Rest Area along with modifications to an existing node building located at the I-19/I-10 System Interchange. The project consisted of installing conduit by micro-trenching through culturally sensitive areas, installing conduit sleeves at directional boring locations, minimizing the number of coupler locations, coordinating power service for the new node buildings, and providing utility conflict review.

Relevance: 7-way micro-duct, micro-fiber optic backbone infrastructure, node building design at multiple locations, development of micro-trenching requirements, significant cultural resource evaluation, power design, and post-design services.

Role: Subconsultant (Kimley-Horn) | Budget:$15M

ADOT, I-17 ITS/BROADBAND INFRASTRUCTURE PROJECT, PHOENIX TO FLAGSTAFF, AZ

Kimley-Horn designed a 7-way micro-duct and micro-fiber cabling system for high-speed broadband along 141 miles of I-17. The design includes minimizing impacts to environmental culturally sensitive areas and obtaining associated environmental clearances. The team worked closely with the CMAR and various ADOT departments, including U&RR, ROW, Roadside, TSMO, and the Bridge Group. Kimley-Horn also provided post-design services on all construction segments of this project and has a unique understanding of what broadband infrastructure design decisions are working well and where improvements can be made to better serve ADOT.

Relevance: Fiber optic backbone infrastructure design, node building design at multiple locations, development of micro-trenching requirements, significant cultural resource evaluation, power design, and post-design services. This I-40 East project will be interconnected to the Node 27 building installed by the I-17 project.

Role: Prime (Kimley-Horn) | Budget:$30M

BRIAN CHRISTENSEN, PE

Principal-In-Charge

Brian has 23 years of experience in operations, design, and construction management of various projects. He is a registered professional engineer and is IMSA-certified Level II Fiber Optics for ITS. Brian has 12 years of experience in the design and construction management of fiber optic communication projects. Having started his career in telecommunications designing fiber optic networks, he currently manages Telecommunications Business Line for Horrocks. Brian has an excellent working relationship with his clients in the public and private sectors. He is highly skilled at facilitating trade agreements between public agencies and private telecommunications companies. As such, Brian has managed various fiber optic projects for public agencies and private telecommunications companies, several of which have included public/private partnerships. As Principal-In-Charge for the I-40 Broadband: Flagstaff to New Mexico State Line Project, he will ensure the project team has the tools and resources to meet the project schedule and budget.

COMPANY TITLE
Principal, Telecommunication Executive Leadership

EDUCATION
BS, Civil Engineering, Utah State University

PROFESSIONAL REGISTRATIONS
Arizona PE No. 48970

PE in Two Additional States

PROFESSIONAL AFFILIATIONS
Member – Institute of Transportation Engineers (ITE)

Member – American Society of Civil Engineers (ASCE)

CURRENT COMMITMENTS
UDOT Capital Projects 20%

Utah Broadband Center 15%

SELECT PROJECT EXPERIENCE

UDOT, STATEWIDE FIBER OPTICS PROJECT SUPPORT, (2011-PRESENT), STATEWIDE, UT

Role: Project Manager/Principal **Services:** Horrocks worked for UDOT on multiple fiber optic projects across the state of Utah in rural, suburban, and urban areas. We developed splice details, designed communication channel as-builts, updated IP addressing, coordinated closely with the UDOT network manager, and updated the mapping database showing all fiber optic and ITS devices within the State of Utah. Brian served as the Project Manager, overseeing all design aspects of the project. **Relevance:** DOT ITS/Fiber Optic Permitting, planning, design, and plan sheet production, and construction management and inspection services.

UTOPIA FIBER, DOWNTOWN SALT LAKE CITY RING, SALT LAKE AND DAVIS COUNTY, UT

Role: Principal/Design Manager **Services:** Brian's duties included full engineering and as-builts, permitting for thousands of utility pole attachments, aqueduct crossings, existing shared conduit, and railroads. **Relevance:** Permitting, planning, design, and plan sheet production, and construction management and inspection services.

ANTHEM BROADBAND OF ELKO, ELKO, NV

Role: Principal-In-Charge **Services:** This project includes the design and construction management of 440 miles of FTTH network system, a fully passive network with splitters and field cabinets to connect every residential and business address in Elko and the surrounding communities. Our team also provided full permitting support through various entities including multiple cities, counties/municipalities, Nevada DOT, BLM, railroads, canals, and other special utility crossings. **Relevance:** Permitting, planning, design, and plan sheet production, and construction management and inspection services.

UTAH BROADBAND CENTER, UTAH DIGITAL CONNECTIVITY PLAN, STATEWIDE, UT

Role: Principal-In-Charge **Services:** Horrocks is the lead consultant for technical analysis and stakeholder engagement for the Utah Broadband Center to develop a five-year action plan, the Digital Connectivity Plan (DCP), and Digital Equity Plan for the BEAD program. Brian is serving as a supporting technical expert on this project, in addition to his role as Principal-in-Charge. He is utilizing his contacts and local knowledge of the UDOT network, as well as overseeing the QC/QA efforts and assisting with management responsibilities. **Relevance:** Stakeholder coordination for broadband implementation, stakeholder outreach, and planning.

UTOPIA FIBER, STATEWIDE, UT

Role: Principal/Design Manager and Engineer **Services:** Horrocks completed 90 fiber optic construction projects (FTTx) in multiple municipalities in rural, suburban, and urban Utah. The permitting included thousands of utility pole attachment permits, aqueduct crossing permits, existing shared conduit, railroads, and others. Brian's duties included full engineering and as-builts. He also determined fiber allocations, and generated fiber splice details. The projects include:

- UTOPIA, Perry Interconnect, Perry, UT
- UTOPIA, Box Elder Backbone, Box Elder County, UT
- UTOPIA, Vivint Wireless Aerial, Salt Lake City, UT
- UTOPIA, Layton 16/21/23 FTTH, Layton, UT
- UTOPIA, UUHC Farmington/UDOT Conduit, Farmington, UT
- UTOPIA, Timpanogos Park, Orem, UT
- UTOPIA, West Valley Backbone, West Valley City, UT
- UTOPIA, West Valley 001/015/034A/042 FTTH, West Valley City, UT

SCOTT CAREY

Project (Contract) Manager

Scott has 30 years' experience in engineering, construction, implementation, and operations in the telecom industry, focusing on broadband deployment. Scott has worked with or for major carriers throughout his career, and managed teams of internal and external resources deploying hundreds of projects that are metro, longhaul, middle mile, and rural in nature. This vast experience has led to a deep understanding of the existing broadband infrastructure and the still unmet needs of the various locations in the State of Arizona. With his past project experience in Arizona, Scott has worked with the dozens of private and public clients, including municipalities, counties, the ACA, and the Arizona Department of Education (AZED) in regards to E-rate, grant, and bonded broadband projects.

COMPANY TITLE
Senior Telecommunications Project Manager II

EDUCATION
Executive Engineering Courses, Caltech

AAS Computer Aided Drafting and Design ITT

BAS Automated Manufacturing/ Robotics ITT

PROFESSIONAL REGISTRATIONS
Arizona, A - General A License Qualifying Party

CURRENT COMMITMENTS
Town of Gilbert Fiber PM/CM (25%)

PROJECT EXPERIENCE:

UTAH BROADBAND CENTER UTAH DIGITAL CONNECTIVITY PLAN, STATEWIDE, UT

Role: Technical Support **Services:** Scott is providing technical support, as well as cost estimating and review for compliance with the BEAD program. **Relevance:** Broadband conceptual design, budgeting, business case, project kickoff, engineering, licensing and permitting, implementation, construction (conduit, vaults, aerial), fiber placement, fiber splicing/testing, and project closeout.

PINAL COUNTY UNIFIED SCHOOL DISTRICT FIBER OPTICS, PINAL COUNTY, AZ*

Role: Deployment Manager **Services:** E-rate funding – Scott was the Deployment Manager responsible to connect Pinal County schools, libraries, and office buildings with fiber optics and managed services. **Relevance:** Broadband conceptual design, budgeting, business case, project kickoff, engineering, licensing and permitting, implementation, construction (conduit, vaults, aerial), fiber placement, fiber splicing/testing, and project closeout.

PARADISE VALLEY UNIFIED SCHOOL DISTRICT FIBER OPTICS, PARADISE VALLEY, AZ*

Role: Deployment Manager **Services:** Scott was the Deployment Manager responsible to connect Paradise Valley schools, libraries, and office buildings with dark fiber. **Relevance:** Broadband conceptual design, budgeting, business case, project kickoff, engineering, licensing and permitting, implementation, construction (conduit, vaults, aerial), fiber placement, fiber splicing/testing, and project closeout.

GLOBE UNIFIED SCHOOL DISTRICT FIBER OPTICS, GLOBE, AZ*

Role: Deployment Manager **Services:** E-rate funding – Scott was the Deployment Manager responsible to connect City of Globe schools, libraries, and office buildings with fiber optics and managed all services for the project. **Relevance:** Broadband conceptual design, budgeting, business case, project kickoff, engineering, licensing and permitting, implementation, construction (conduit, vaults, aerial), fiber placement, fiber splicing/testing, and project closeout.

CITY OF PAGE FIBER OPTICS, PAGE, AZ*

Role: Senior Project Manager Services: Scott served as the Sr. Project Manager responsible to connect City of Page schools, libraries, and office buildings with fiber optics and managed all services for the project. **Relevance:** Broadband conceptual design, budgeting, business case, project kickoff, engineering, licensing and permitting, implementation, construction (conduit, vaults, aerial), fiber placement, fiber splicing/testing, and project closeout.

VERIZON WIRELESS FTTT PHOENIX/TUCSON METRO AREA, PHOENIX/TUCSON, AZ*

Role: Deployment Manager **Services:** Scott was the Deployment Manager responsible to connect fiber from 500+ towers to backhaul location. **Relevance:** Fiber conceptual design, budgeting, business case, project kickoff, engineering, licensing and permitting, implementation, construction (conduit, vaults, aerial), fiber placement, fiber splicing/testing, and project closeout.

SPRINT FTTT TUCSON METRO AREA, TUCSON, AZ*

Role: Deployment Manager **Services:** Scott was the Deployment Manager responsible to connected fiber from 30+ towers to backhaul location. **Relevance:** Broadband conceptual design, budgeting, business case, project kickoff, engineering, licensing and permitting, implementation, construction (conduit, vaults, aerial), fiber placement, fiber splicing/testing, and project closeout.

GENERAL MANAGER FOR CONSTRUCTION COMPANY, 5 YEARS*

Role: General Manager **Services:** Scott managed 100+ employees, 23 crews, Arial/UG to include, directional drilling, excavation, concrete, asphalt, and wet and dry utilities. During this time 100's of projects were deployed for APS, SRP, City of Peoria, Zayo, Cox, AT&T, VzW, and others. **Relevance:** Conceptual design, budgeting, business case, project kickoff, engineering, licensing and permitting, implementation, construction (conduit, vaults, aerial), fiber placement, fiber splicing/testing, and project closeout.

**Project Prior to Joining Horrocks*

TOM MCCULLOUGH, PE

QC/QA Manager

Kimley»Horn

COMPANY TITLE
Associate

EDUCATION
BS, Civil Engineering,
Arizona State University

PROFESSIONAL REGISTRATIONS
AZ PE No. 50066

PROFESSIONAL AFFILIATIONS
ITS Arizona, Member

Institute of Transportation Engineers, Member

CURRENT COMMITMENTS
ADOT I-19, ITS Infrastructure Design-Build (20%)

Kansas DOT (KDOT) US-83 Broadband Fiber QC (5%)

Glendale Video Detection Upgrades (5%)

Tom manages a broad range of ITS design and traffic engineering/operations projects for both ADOT and local municipalities. His project management experience includes fiber optic communication design, broadband conduit and fiber optic cable infrastructure design, design standards development, traffic signal system design, PS&E preparation, and alternatives analysis. **Tom is currently the Design Project Manager for the I-19 ITS/Broadband Infrastructure DB project, which is the largest current broadband infrastructure design project for ADOT, and Project Manager of the I-40 Broadband, CA State Line to I-17/I-40.** From his extensive project experience with ADOT, Tom has developed strong working relationships with various ADOT staff in the ADOT PMG, TSMO, and Broadband offices. Tom also has in-depth knowledge of ADOT ITS/broadband infrastructure and helped develop the current Broadband Implementation standard details. Tom understands ADOT processes and procedures and has the technical broadband experience necessary to effectively lead this design team. Additional broadband and ITS project experience includes serving as PM for the I-17 FMS from SR 101L to Anthem Way, and I-17 FMS from Peoria Ave to SR 101L projects. **For this project, Tom will use the experience gained on the I-19 ITS/Broadband Infrastructure project and the I-40 Broadband CA State Line project to ensure quality is met and this project is a seamless continuation of the other projects.**

SELECT PROJECT EXPERIENCE

ADOT, I-40 BROADBAND: CA STATE LINE TO I-17/I-40 TI, AZ

Role: Design Project Manager **Service/Relevance:** Tom is managing this 200-mile fiber project along I-40 West. Services include establishing electrical service points for the node buildings and developing modifications needed so the ADOT Type IV load center can better serve the node buildings and future ITS field devices within rural areas. Kimley-Horn is also assisting ADOT with developing a new broadband detail for how the 7-way conduit system needs to be installed when crossing roadways to ensure the 7-way conduit system passes through all three broadband pull boxes on each side, as well as establishing how spare conduits need to be installed within these crossing at traffic interchanges in support of future ITS device installations and assisting with establishing the seasonal limitations for micro-trenching, to ensure proper curing time of the two-sack slurry backfill.

ADOT, I-19 ITS/BROADBAND INFRASTRUCTURE DB, PIMA/SANTA CRUZ COUNTY, AZ

Role: Design Project Manager **Services:** Tom is leading the Kimley-Horn design team on this project which includes the design of a 7-way micro-duct and micro-fiber cabling for high-speed broadband along 63 miles of I-19. **Relevance:** Fiber cabling, broadband infrastructure design, environmental services, new node buildings, and power service.

ADOT, I-17 ITS/BROADBAND INFRASTRUCTURE, VAN BUREN/PHOENIX TO I-40/FLAGSTAFF, AZ

Role: Project Engineer **Services:** Tom provided support on the design of a 7-way micro-duct and micro-fiber cabling system for high-speed broadband along 141 miles of I-17. **Relevance:** 7-way micro-duct and micro-fiber cabling; environmental services; ADOT TSMO, U&RR, and Roadside coordination; ROW clearances; MOT; utility coordination; and ITS and node devices.

ADOT, I-10 FROM SR 85 TO VERRADO WAY GPL, BUCKEYE, AZ

Role: Lead FMS Engineer **Services:** Tom designed micro-fiber, micro-duct conduit, and a node building to enable and consolidate communications. **Relevance:** Fiber infrastructure, multi-duct conduit, node buildings, MOT, and stakeholder coordination.

ADOT, SR 101L, I-10 TO I-17 FREEWAY MANAGEMENT SYSTEM CMAR, PHOENIX, AZ

Role: Deputy Project Manager **Services:** Tom served as Deputy Project Manager for the Phase 10 and 11 FMS buildout. He and the team led the design, provided post-design support, reviewed contractor submittals, provided technical assistance, reviewed shop drawings, reviewed contractor Requests for Information (RFIs), and provided utility coordination assistance. **Relevance:** ITS design.

ADOT, I-10, SUNSHINE BOULEVARD TO PICACHO PEAK DUST SAFETY IMPROVEMENT PROJECT, PINAL COUNTY, AZ

Role: FMS Design Lead **Services:** Tom was the FMS design lead for this project, which added fiber optic cable and conduit and other ITS field devices like dynamic message signs (DMS), CCTV, and detection stations along I-10 terminating at Picacho Peak. **Relevance:** ITS infrastructure design, ADOT systems integration, and VSL signage.

ADOT, DESIGN OF FMS ON I-17 FROM SR 101L TO SR 74, PHOENIX, AZ

Role: Project Manager **Services:** Tom managed this 14-mile FMS project located on I-17 beginning at SR 101L and extending north to Anthem Way. Kimley-Horn provided design services to extend the FMS up to Anthem. **Relevance:** Conduit infrastructure, fiber, CCTV, DMS detection system, electrical service, MOT, environmental services, and ADOT coordination.

BRAD SMITH

Broadband Design Lead / Segment Design Lead

Brad has 23 years of experience working in the fiber optics field. He has extensive experience in the design, installation, inspection, maintenance, and management of various types of fiber optic projects. Brad is certified from International Municipal Signal Association (IMSA) for ITS Fiber Optics Level II. He has worked on several fiber projects as a designer and inspector. Before joining Horrocks, Brad managed the day-to-day fiber optic operations for a local citywide fiber optic network in American Fork, Utah. His duties included network design, bidding, installation oversight, maintenance, troubleshooting, and testing of the network. Brad completed the design, bidding, and construction management of a 30-mile fiber optic backbone system between American Fork and downtown Salt Lake City, Utah. **Brad has an uncanny ability to apply real-world applications of fiber optic construction to design efforts.** He has an eye for constructability and resolving construction issues in the field.

COMPANY TITLE
Principal, Fiber Optics

CERTIFICATIONS
TS-LAN 500 - Corning Cable Systems

TS-AND 500 - Corning Cable Systems

The Light Brigade - Fiber Optics Levels I & II

IMSA - Fiber Optics for ITS Levels I & II

The Light Brigade - Fiber Optics for Utilities Course

CURRENT COMMITMENTS
UDOT Capital Projects - Fiber Optics (40%)

The Point Redevelopment (10%)

PROJECT EXPERIENCE:

UDOT, I-70 CARES ACT FIBER OPTICS, MILEPOST 0 TO MILEPOST 116 DESIGN AND CONSTRUCTION MANAGEMENT, MILLARD, SEVIER, AND EMERY COUNTIES, UT

Role: Project Engineer **Services:** Horrocks designed and managed a 116-mile fiber optic project along I-70 in Central Utah. The project limits were along I-70 from I-15 to the Devil's Canyon Rest Area at MP-116. The goal of the project was to bring broadband connectivity through underserved areas, and the completion of a vital corridor for communication. **Relevance:** Being involved with both the project design and construction management efforts, Brad was able to assist UDOT and their contractor within difficult installation areas by implementing rock saw, microtrenching, and bridge-attached conduit methods to successfully complete the project's construction.

UDOT, STATEWIDE FIBER OPTICS SUPPORT CONTRACT (2013-PRESENT), STATEWIDE, UT

Role: Telecom Design Manager **Services:** Horrocks is working with UDOT on this statewide on-call contract. Brad drafted and executed third-party trade agreements, including conduit and fiber optic cable infrastructure trades. He also coordinated with the third-party company and their contractor. He also provided construction oversight and inspection to ensure all installations met the requirements of UDOT. **Relevance:** Fiber trade agreements, construction management, and inspection of fiber in the DOT ROW statewide.

CROWN CASTLE, BIG COTTONWOOD CANYON FIBER OPTICS AND DAS DESIGN AND CONSTRUCTION MANAGEMENT, SALT LAKE COUNTY, UT

Role: Telecom Design Manager **Services:** This project consisted of 21 DAS poles, 13 miles of fiber optic cable, eight miles of electrical distribution line, and a communications node building. **Relevance:** As Telecom Design Manager, Brad oversaw the telecommunications team and provided planning, design, environmental clearance, and construction management for this project.

CROWN CASTLE, LITTLE COTTONWOOD CANYON FIBER OPTICS, SALT LAKE COUNTY, UT

Role: Project Manager **Services:** Horrocks assisted Crown Castle International and UDOT to install an 8.5-mile fiber optic line underground along State Route 210 in Little Cottonwood Canyon, Utah, and nearly one mile of fiber optic cable along three small spur lines leading to a small building, or node, near Alta, which houses communications equipment and fiber connections. **Relevance:** As Project Manager, Brad oversaw all aspects of the project.

DAVID HAINES, PE

Segment Design Lead / Power & Electrical Resource

Kimley»Horn

David is a practicing engineer with over 28 years of experience designing broadband fiber optic communications infrastructure, node building installations, and power distribution systems supporting both ITS and broadband infrastructure. His power distribution system design experience includes coordinating with utility companies to establish new services points, designing modified load centers to better serve rural areas, while minimizing installation and operations and maintenance costs. His communications design experience includes developing communications master plans; designing network architectures (statewide, metropolitan area, and local area); network equipment assessments (switches, routers, security appliances, etc.); and performance of the associated calculations (bandwidth, latency, and fiber optic link loss). His project management experience includes working on projects through on-call contracts; obtaining ROW, utility, and environmental clearances; working with tribes to establish mutually beneficial infrastructure; and successfully producing federally funded project designs. **David knows how to coordinate with the various ADOT Districts, Materials Group, Bridge Group, TSMO, and the Broadband Office to establish new broadband fiber infrastructure requirements, as demonstrated on the I-40 CA State Line and the I-17 ITS/Broadband project.** He developed the broadband infrastructure special provisions and installation details that ADOT is currently using on multiple projects and understands the design decisions behind these new requirements, as well as areas for improvements based on lessons learned from ADOT's I-17, I-19, and I-40 projects.

COMPANY TITLE
Vice President

EDUCATION
BS, Electrical Engineering, Florida Atlantic University

PROFESSIONAL REGISTRATIONS
AZ PE No. 35268

PE in 12 Additional States

Physical Security Network Professional (PSNP)

CURRENT COMMITMENTS
Chandler Fiber Node Buildings (5%)

Las Vegas Fiber Optic Master Plan Phase III (10%)

ADOT Smart Work Zone Support Services (5%)

Miscellaneous Projects (5%)

SELECT PROJECT EXPERIENCE

ADOT, I-40 BROADBAND: CA STATE LINE TO I-17/I-40 TI, AZ
Role: Electrical/Power technical resource and QA/QC Manager **Service/Relevance:** Leading the quality assurance process to ensure the steps within the quality control plan are followed at each submittal stage. David is providing technical support for establishing electrical service points for the node buildings and developing the modifications needed to the ADOT Type IV load center to better serve the node buildings and future ITS field devices within rural areas. Assisted with developing a new ADOT broadband detail for how the 7-way conduit system needs to be installed when crossing roadways to ensure the 7-way conduit system passes through all three broadband pull boxes on each side, as well as establishing how spare conduits need to be installed within these crossing at traffic interchanges in support of future ITS device installations. David will also be assisting with establishing the seasonal limitations for micro-trenching, to ensure proper curing time of the two-sack slurry backfill.

ADOT, I-19 ITS/BROADBAND INFRASTRUCTURE DB, PIMA/SANTA CRUZ COUNTY, AZ
Role: Technical Resource **Services/Relevance:** Technical resource leading the efforts to update the special provision requirements for the micro-fiber cables, fiber optic termination panels, node buildings, and 7-way micro-ducts / conduit system installations. David also assisted with developing the installation details for the 7-way micro-duct conduit system, No.9B bull box, and the "3-PB-In-Series" broadband pull box configuration. David also assisted in performing the fiber optic link loss calculations needed to specify the optical power needed for the SFPs in the single node assemblies and to establish maximum node building spacing.

ADOT, I-17 ITS/BROADBAND INFRASTRUCTURE, VAN BUREN/PHOENIX TO I-40/FLAGSTAFF, AZ
Role: Project Manager/Lead Designer **Service:** David led the design of a 7-way micro-duct and micro-fiber cabling system for high-speed broadband along 141 miles of I-17. **Relevance:** lead the efforts developing the special provisions and installation details needed for the ADOT broadband infrastructure (7-way micro-duct and micro-fiber cabling; micro-trenching, etc.) and lead the multi-discipline coordination efforts for obtaining environmental clearance; U&RR clearance, ROW clearances, establishing MOT requirements and new broadband requirements for ADOT node buildings. David led the effort coordinating with the Yavapai Apache Nation (YAN) to establish the interconnection details for connecting the YAN carrier network to the ADOT broadband network, so YAN can use the ADOT broadband infrastructure to improve broadband communications for their community. David also worked with the ADOT Broadband office to establish the "x,y,z coordinates" requirements needed to assist ADOT in obtaining the necessary permits that will be required for commercializing the broadband infrastructure.

ADOT, FMS COMMUNICATIONS MASTER PLAN, PHOENIX METRO AREA, AZ
Role: Project Manager **Services:** David managed the development of the master plan that provided ADOT with the vision and phased implementation approach needed to migrate over to a fiber-based Ethernet communications backbone. This included a multi-ring topology connecting ADOT node buildings and a plan for connecting ITS field devices to these node buildings. **Relevance:** Worked with ADOT TSMO division to establish new fiber optic installation guidelines for communications architectures that improve reliability and bandwidth capacity, while reducing network latency.

DAVE BRUGGEMAN, PE, PTOE

Segment Design Lead

LEE ENGINEERING

Dave has 43 years of experience specifically in ITS planning and design, traffic signal design, signal timing, and signing and striping. He developed many of the ADOT standards and specifications and participated in ADOT Design-Build projects leading the ITS design, as well as ADOT on-call contracts, such as Alternative Project Delivery, Statewide Project Development, Traffic Engineering, and ITS. Dave also participated in the development of the MUTCD for 10 years as a member of the Traffic Signals Committee and has served as one of the Founders and Past President of ITS Arizona and is a Fellow of the Institute of Transportation Engineers (ITE). He is known for his work in ITS design, development of standards, and communications systems.

COMPANY TITLE
Principal

EDUCATION
BS, Civil Engineering,
University of Arizona

PROFESSIONAL REGISTRATIONS
AZ PE No. 16229

PE In 8 Additional States

Professional Traffic Operations Engineer No. 0007

PROFESSIONAL AFFILIATIONS
Institute of Transportation Engineers, Fellow

CURRENT COMMITMENTS
I-17 Flex Lanes 10%

Pinal County Traffic On-Call 10%

Queen Creek Traffic On-Call 20%

MAG ITS and Safety On-Call 10%

City of Goodyear On-Call 10%

SELECT PROJECT EXPERIENCE

ADOT, I-40 BROADBAND: CA STATE LINE TO I-17/I-40 TI, AZ

Role: Segment Design Lead for 72 mile west segment (Segment 1) **Services:** Dave is the design lead for approximately 1/3 of this 200-mile fiber project along I-40 West, between the California State Line and East Flagstaff. Lee's services include establishing electrical service points for three node buildings and developing modifications needed so the ADOT Type IV load center can better serve the node buildings and future ITS field devices. Based on extensive field examination, this project utilizes trunk line installation along the westbound lanes to minimize impacts by drainage features, using trenching, directional bore, plowing, and micro-trench, depending on specific site characteristics and terrain, and utilizes the typical 3-box layout allowing ADOT and external owners to co-exist in the same infrastructure.

ADOT, I-17 FLEX LANES, PHOENIX, AZ

Role: ITS Design Lead **Services:** As a subconsultant, Dave is leading the design of ITS elements and communications systems linking detection, DMS, and CCTV devices to the recently installed I-17 Broadband trunk system. Project challenges include devising solutions for conflicts between roadway design adjustments made during the flex-lane design with existing broadband conduits and splice vaults, development of splice details and assignment of the 12 SMFO fibers assigned from the trunk fiber, and connecting multiple devices to the trunk system so they may be observed and controlled. Another challenge was to determine locations and elevations of multiple CCTV unis and poles to allow full visual coverage of the flex-lanes system from end to end in difficult vertical and horizontal terrain by using 3D sight visibility modeling. **Relevance:** Dealing with I-17 broadband infrastructure and fiber splicing details.

CITY OF SCOTTSDALE, SR 101L, SHEA ROAD TO CHAPARRAL DB, SCOTTSDALE, AZ

Role: ITS Design Lead **Services:** As a subconsultant, Dave led the design of all the ITS/FMS system and traffic signals. Project challenges included developing a plan for keeping the FMS system operational during construction, continually modifying the interim communications infrastructure to support continued operation, and signal design to City of Scottsdale standards and coordination with City staff. Keeping the 911 system communications operational was a primary requirement successfully achieved by the design team. Lee Engineering participated in post-design services by coordinating field changes between contractors and agencies. **Relevance:** Dealing with the design of fiber infrastructure, attachments to structures, and fiber splicing details.

CITY OF PHOENIX, SR 101L, I-17 TO PRINCESS DR DESIGN-BUILD, PHOENIX, AZ

Role: ITS Design Lead **Services:** As a subconsultant, Dave led the design of all the ITS/FMS system and traffic signals. Project challenges included developing a plan for keeping the FMS system operational during construction, continually modifying the interim communications infrastructure to support continued operation, and signal design to City of Phoenix standards and coordination with City staff. Lee Engineering participated in post-design services by coordinating field changes between contractors and agencies. **Relevance:** Dealing with the design of fiber infrastructure, attachments to structures, and fiber splicing details.

ADOT, DEVELOPMENT OF UPDATES TO ITS STANDARD DRAWINGS, ITS DESIGN GUIDE, AND DRAFT ITS STANDARD SPECIFICATIONS, STATEWIDE, AZ

Role: Project Manager **Service:** Dave led and developed most of the new ADOT ITS Standard Drawings and the 2015 update to the ITS Design Guide, which updated the design criteria and directions to designers for CCTV, DMS, freeway detection systems, and the fiber communications systems used by these elements. A prior assignment under this same contract developed the Statewide DMS Master Plan, which sets forth urban and rural DMS design criteria and techniques for the electronic message signs over and along freeways and rural state highways. **Relevance:** Knowledge of ADOT ITS design standards, details, and unwritten ADOT preferences.

SEAN NUGENT, PE

Traffic, Roadway, & Site Grading Lead

Sean has more than 16 years of engineering experience in several western states and with various state DOTs, including ADOT. His technical expertise includes both Design-Build and traditional delivery methods for highway construction, rural/urban roadway design and modeling (including advanced corridor and site modeling), striping design, intersection modifications, SWPPPs, pipeline design, retention basin design/grading, roundabouts, etc. He has developed successful Maintenance of Traffic construction phasing for large highway projects. Sean's areas of expertise include leading teams in designing plan sets and models, creating cost estimates, and writing project specifications and provisions. He is proficient in MicroStation InRoads/ORD and AutoCAD Civil 3D for design, modeling, and estimation. Sean has served as a Roadway Engineer and Project Engineer coordinating multi-discipline project teams for traditional and alternative delivery projects (including Design-Build). He has completed over 25 PS&E projects for ADOT. Additionally, he has completed multiple complex projects for DOTs throughout the west. He is proficient in cost estimates, project specifications, and MOT design. Sean is also experienced in drainage, utility, traffic control, signing, pavement marking, and lighting design.

COMPANY TITLE
Engineer II, Roadway Group Manager

EDUCATION
BS, Civil Engineering, Arizona State University

PROFESSIONAL REGISTRATIONS
AZ PE No. 59571

PE in 5 Additional States

CURRENT COMMITMENTS
Peters Rd, Casa Grande (20%)

Thornton Rd, Casa Grande (10%)

Nevada DOT (NDOT) Henderson Interchange Design-Build Pursuit (35%)

SELECT PROJECT EXPERIENCE

ADOT SR 189 DESIGN-BUILD, INTERNATIONAL BORDER TO GRAND AVENUE (ALTERNATIVE DELIVERY), NOGALES, AZ

Role: Lead Traffic Engineer **Services:** As Lead Traffic Engineer for the project Sean created a seven-phase Maintenance of Traffic (MOT) construction sequence which entailed detour routes, temporary crossovers, mixed use of the existing roadway and newly constructed roadway, as well as the temporary signing and striping. He created MOT plans, which included a detailed design of the construction phasing and channelization device layout. MOT was simplified to provide the opportunity to construct 3,600 feet of bridge within a single phase, thereby optimizing the schedule. In this project, further traffic elements were critical to the design including new traffic signals at seven intersections, a new fiber optic trunk line to replace the existing radio communications, new lighting for the flyover ramps, and proposed signing along the entire corridor. Sean led his team to develop engineering calculations and plan sets for these items. **Relevance:** ADOT systems and processes, utility coordination

ADOT PROJECT DEVELOPMENT ON-CALL, CHASE CREEK BRIDGE REPLACEMENT, CLIFTON, AZ

Role: Lead Traffic Engineer **Services:** Horrocks was selected to design the replacement of the existing two-lane, single-span bridge at Frisco Ave over Chase Creek. The new bridge is a single span consisting of adjacent prestressed voided slab girders supported by stub abutments on drilled shafts with rock sockets offset from the existing bridge. The bridge layout and structure type were selected to minimize the impacts to the existing, historic bridge and retaining walls. **Relevance:** ADOT systems and processes, utility coordination

UDOT, US-89 FARMINGTON TO I-84 PROGRESSIVE DESIGN BUILD, FARMINGTON, UT

Role: Lead MOT Engineer **Services:** Horrocks designed a full ITS system for a 12-mile suburban corridor in northern Utah. The at-grade facility was undergoing a major reconstruction and conversion to a grade-separated freeway. The elements consisted of a new fiber optic backbone, CCTV cameras, traffic monitoring/radar stations, dynamic message signs, and road weather information stations. Staff evaluated data using a new technology which detects vehicles along the fiber optic cable. Horrocks designed the full construction package for the project including new power connections to all devices and splice details. Sean designed a four-phase construction traffic plan, laid out detour routes, calculated required distances for signing, drafted MOT plans with temporary roadway crossovers, calculated temporary super elevations and stopping sight distances, and designed striping/channelization devices for MOT plans. **Relevance:** New fiber optic backbone, extensive utility coordination

NDOT, I-15/US 93 GARNET INTERCHANGE, NORTH LAS VEGAS, NV

Role: Traffic Engineer **Services:** Sean created a three-phase construction scheme which entailed detour routes, temporary crossovers, mixed use of the existing roadway and newly constructed roadway, as well as the temporary signing and striping. He created MOT plans, which included detailed design of the construction phasing and channelization device layout. He also coordinated and designed a portion of the guide signs in SignCad and was responsible for creating the signing plans. In addition, Sean created the design for the layout of fiber conduit trunk lines. For the proposed overhead street lighting, he located new light poles within the project and analyzed the lighting requirements at each intersection. Lastly, Sean calculated and verified voltage drop calculations for each circuit of lighting. **Relevance:** Designed six miles of fiber conduit trunk lines

CHUCK HOWE

Tribal Liaison

Chuck has an extensive background working within the private, state, and federal sectors and most recently alongside Navajo Nation governing entities and has completed numerous projects in Arizona. Chuck is an Environmental Specialist with more than 30 years of experience in federal, state, tribal, and private sectors. He has primarily focused on program and project management for transportation, environmental and planning, and development fields with an emphasis on tribal developments, environmental clearances, permitting and planning document development, and logistics support. He lives with his wife and daughters on their family ranch in Shonto, Arizona, on the Navajo Nation.

COMPANY TITLE

Senior Environmental Specialist II, Tribal Liaison

EDUCATION

BS Biology and Forestry, University of Montana

AS Recreation and Wildlife Resources, Hocking College

CURRENT COMMITMENTS

Utah Broadband Center Outreach (5%)

Miscellaneous Projects (10%)

SELECT PROJECT EXPERIENCE

UDOT, ACTIVE TRANSPORTATION PLAN OUTREACH, STATEWIDE, UT

Role: Tribal Liaison **Services:** Chuck provided outreach to Navajo Nation Chapters within Utah. Seeking input to the active transportation surveys for the plan. He also assisted with the development of a bilingual informational handout. **Relevance:** Coordination with the Navajo Nation

UTAH BROADBAND CENTER, BROADBAND SUPPORT, STATEWIDE, UT

Role: Tribal Liaison **Services:** Chuck is providing the team with outreach and coordination with the Navajo Nation Chapters, as well as regulatory and permitting departments. **Relevance:** Coordination with the Navajo Nation for broadband implementation to unserved and underserved areas of Utah.

UDOT, SR-162 & SR-262 SAFETY & ENERGY CORRIDOR, SAN JUAN COUNTY, UT

Role: Senior Environmental Specialist / Tribal Liaison **Services:** As the Senior Environmental Specialist, Chuck provided regulatory and legislative assistance in obtaining document approvals, supporting resolutions, and connecting team members to the appropriate officials and offices within the Navajo Nation Administration. Served as the Liaison with the Liaison with Aneth Chapter and permitting departments for ROW Acquisition and environmental clearances. He also assisted with the development of a bilingual informational hand-out. **Relevance:** Coordination with the Navajo Nation

PROGRAM DEVELOPMENT/MANAGEMENT – DEVELOPMENT OF REGULATORY ONE-STOP-SHOP*

Role: Tribal Consultant **Services:** Chuck is assisting Navajo Nation Office of President and Vice President to guide regulatory offices in the development and deployment of a One-Stop-Shop in anticipation of delivering $2.2B of ARPA funds. Weekly meetings to summarize current process and propose revised/streamlined process. Presentation to Executive Leadership and Tribal Council. **Relevance:** Coordination with the Navajo Nation

GOOD TIMBER RANCH, VICTOR, ID

Role: Senior Environmental Manager Permit Review **Services:** Chuck provided senior review of the permit application package for an individual permit for clean water act permitting with the Army Corps of Engineers. **Relevance:** Environmental coordination and permit review

**Project Outside of Horrocks Employment*

From: ADOT Business Engagement and Compliance Office <BECO@azdot.gov>
Date: August 9, 2023 at 11:40:52 AM MDT
To: Emilie Turner <emiliet@horrocks.com>
Cc: ContractorCompliance@azdot.gov
Subject: RESENT: (COPY of) Bidders List for Horrocks Engineers

Horrocks Engineers, AZUTRACS Number: 19200 has submitted a Bidder/Proposer list for **2024-003** on 08/09/2023 at 9:44 AM MST (UTC - 07:00).

Bidders/Proposers for this firm include:

Firm Name	AZUTRACS #	Expiration Date	Email Address	Phone Number
Aerotech Mapping Technologies LLC	19588	10/27/2024	leotorres@atmlv.com	702-228-6277
Ethos Engineering, LLC	10363	04/16/2024	soliden@ethosengineers.com	480-720-7769
Kimley-Horn & Associates, Inc.	10608	09/13/2025	raj.christian@kimley-horn.com	602-371-4560
Lee Engineering,L.L.C.	15300	03/30/2024	dbruggeman@lee-eng.com	602-618-0406
Newton Environmental Consulting, LLC	10770	03/09/2026	angie@newtonec.com	602-332-9642
WestLand Resources, Inc.	11290	04/22/2025	acole@westlandresources.com	602-888-7000

Unregistered Bidders:

Firm Name	Email Address	Phone Number
Strongbow Strategies, LLC	cpratte@strongbowstrategies.com	202.294.2987

Engineering Consultants Section

Date: July 27, 2023

TO: ALL INTERESTED PARTIES

SUBJECT: AMENDMENT NUMBER 01

REFERENCE: REQUEST FOR QUALIFICATIONS (RFQ)
CONTRACT NUMBER 2024-003
I-40 BROADBAND: FLAGSTAFF TO NEW MEXICO STATE LINE

The following revisions are made to the referenced RFQ:

1. All references in the RFQ, ECS Consultant Contract Manual, ECS Information Bulletins and the ECS website related to submitting Statement of Qualifications (SOQ) through eCMS are hereby stricken. SOQ submittals will ONLY be accepted via email to the following address: ECSSOQ@azdot.gov. SOQs emailed to any other address will NOT be accepted.

2. Section 4.20, *Number 4. Professional Liability (Errors and Omissions Liability)*, subsection 4 b of the contract boilerplate, referenced in Section XVII of the RFQ, is changed:

From:

b. In the event that the professional liability insurance required by this Contract is written on a claims-made basis, the Consultant warrants that any retroactive date under the policy shall precede the effective date of this Contract; and that either continuous coverage will be maintained or an extended discovery period will be exercised for a period of **three (3) years** beginning at the time work under this Contract is completed.

TO:

b. In the event that the professional liability insurance required by this Contract is written on a claims-made basis, the Consultant warrants that any retroactive date under the policy shall precede the effective date of this Contract; and that either continuous coverage will be maintained or an extended discovery period will be exercised for a period of **eight (8) years** beginning at the time work under this Contract is completed.

June A Cross
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.

Erin Kline PE, Principal, Horrocks Engineers

CONSULTANT NAME

SIGNATURE

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

Engineering Consultants Section

Date:	August 9, 2023
TO:	ALL INTERESTED PARTIES
SUBJECT:	AMENDMENT NUMBER 01
REFERENCE:	REQUEST FOR QUALIFICATIONS (RFQ) CONTRACT NUMBER 2024-003 I-40 BROADBAND: FLAGSTAFF TO NEW MEXICO STATE LINE

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

Question 1: Listed under the in-Appendix A: Responsibility Chart in the RFQ the consultant is to provide Photogrammetric Control & Panels along with Roadway Cross Sections. Will the typical 100' interval cross sections be required for this project, or will there be a different interval required specially for this project?

Answer 1: Use typical 100' interval cross sections.

Question 2: Listed under the in-Appendix A: Responsibility Chart in the RFQ the consultant and ADOT is to provide Utility Identification and Location. What will be the role and responsibility of each party?

Answer 2: ADOT is responsible for providing utility oversight for the project. ADOT will assist with providing existing permits log for the areas. The Consultant will be responsible for utility mapping and identification. The Consultant will be responsible for utility coordination and documentation required to obtain project clearance.

Question 3: Listed under the in-Appendix A: Responsibility Chart in the RFQ, the responsibility for R/W and Centerline Geometry is not listed. Please clarify this role and responsibility.

Answer 3: The Consultant will be responsible for any R/W and Centerline Geometry needed for the project.

June A Cross

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.

Erin Kline, PE, Principal, Horrocks Engineers

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.: 2024-003

CONTACT PERSON: Erin Kline, PE

E-MAIL ADDRESS: erink@horrocks.com

TITLE: Project Principal

CONSULTANT FIRM: Horrocks Engineers

ADDRESS: 2600 North Central Avenue

CITY, STATE ZIP: Phoenix, Arizona 85004

TELEPHONE: 480.863.6629

FAX NUMBER: N/A

DUNS #: 073111676

ADOT CERTIFIED DBE FIRM? (YES/NO)

No

SUBCONSULTANT(S):	TYPE OF WORK	ADOT CERTIFIED DBE FIRM (YES/NO)
Kimley-Horn and Associates, Inc.	Broadband design	No
Lee Engineering, LLC	Traffic	No
Ethos Engineering, LLC	Geotechnical	Yes
Newton Environmental Consulting, LLC	Enviornmental/Hazmat	Yes
WestLand Resources Inc. DBA WestLand Engineering and Environmental Services	Environmental	No
AeroTech Mapping Technologies LLC	Survey	Yes
Strongbow Strategies, LLC	Public Outreach	No

SUBCONSULTANT(S) TABLE:

SUBCONSULTANT FIRM NAME:	Kimley-Horn and Associates, Inc.
CONTACT PERSON:	Tom McCullough, P.E.
E-MAIL ADDRESS:	thomas.mccullough@kimley-horn.com
TITLE:	Project Manager
ADDRESS:	7740 North 16th Street
	Suite 300
CITY, STATE ZIP:	Phoenix, AZ 85020
TELEPHONE:	602.216.1298
FAX NUMBER:	602.944.7423
DUNS #:	061099131

SUBCONSULTANT FIRM NAME:	Lee Engineering, LLC
CONTACT PERSON:	Dave Bruggeman
E-MAIL ADDRESS:	dbruggeman@lee-eng.com
TITLE:	Principal
ADDRESS:	3610 North 44th Street
	Suite 100
CITY, STATE ZIP:	Phoenix, AZ 85018
TELEPHONE:	602.955.7206
FAX NUMBER:	N/A
DUNS #:	196730493

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.

SUBCONSULTANT(S) TABLE:

SUBCONSULTANT FIRM NAME:	Ethos Engineering, LLC
CONTACT PERSON:	Pancho Garza
E-MAIL ADDRESS:	pgarza@ethosengineers.com
TITLE:	Principal
ADDRESS:	9180 South Kyrene Road
	#104
CITY, STATE ZIP:	Tempe, AZ 85284
TELEPHONE:	480.326.8487
FAX NUMBER:	N/A
DUNS #:	030828918

SUBCONSULTANT FIRM NAME:	Newton Environmental Consulting, LLC
CONTACT PERSON:	Angela Newton
E-MAIL ADDRESS:	angie@newtonec.com
TITLE:	Principal
ADDRESS:	9859 East Winchcomb Drive
CITY, STATE ZIP:	Scottsdale, AZ 85260
TELEPHONE:	602.332.9642
FAX NUMBER:	N/A
DUNS #:	080391343

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:	WestLand Resources Inc. DBA WestLand Engineering and Environmental Services
CONTACT PERSON:	Kim Otero
E-MAIL ADDRESS:	KOtero@WestLandResources.com
TITLE:	Project Manager
ADDRESS:	4001 East Paradise Falls Drive
CITY, STATE ZIP:	Tucson, AZ 85712
TELEPHONE:	520.206.9585
FAX NUMBER:	520.206.9518
DUNS #:	01-745-8097

SUBCONSULTANT FIRM NAME:	AeroTech Mapping Technologies LLC
CONTACT PERSON:	Lyle Slater
E-MAIL ADDRESS:	lslater@atmlv.com
TITLE:	General Manager
ADDRESS:	8433 North Black Canyon Highway
	Suite 120
CITY, STATE ZIP:	Phoenix, AZ 85021
TELEPHONE:	602.459.3933
FAX NUMBER:	623.242.8939
DUNS #:	017261688

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.

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SUBCONSULTANT(S) TABLE:

SUBCONSULTANT FIRM NAME:	Strongbow Strategies, LLC
CONTACT PERSON:	Clara Lee Pratte
E-MAIL ADDRESS:	cpratte@strongbowstrategies.com
TITLE:	CEO
ADDRESS:	2418 East Highway 66
	PMB 544
CITY, STATE ZIP:	Gallup, NM 87301
TELEPHONE:	202.294.2987
FAX NUMBER:	N/A
DUNS #:	80057165

SUBCONSULTANT FIRM NAME:	
CONTACT PERSON:	
E-MAIL ADDRESS:	
TITLE:	
ADDRESS:	
CITY, STATE ZIP:	
TELEPHONE:	
FAX NUMBER:	
DUNS #:	

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	August 17, 2023 Date
Erin Kline, PE Printed Name	Principal Title

SOQ SUBMITTAL CHECKLIST

Place a check mark on the left side of the table indicating compliance with the following:

✓	Required Page Limit Met
✓	One PDF Document no larger than 15 MB
✓	All Amendments Included
✓	Introduction Letter (Including all required elements/statements)
✓	SOQ Proposal Formatted According to Requirements Listed in Part C and any applicable amendments
✓	Correct SOQ Certification List Signed and Dated by a Principal or Officer of the Firm
✓	Completed Consultant Information Page (Including listing DBE firms, if applicable)
N/A	Supplemental Services Disclosure Form (REQUIRED for Supplemental Services Contract)
✓	All Subconsultants & Proposed Work Type (Including listing DBE firms, if applicable)
✓	Any Additional Required Documents (Specific Requirements in RFQ such as Resumes, etc.)
✓	Commenting or User Rights Feature Enabled in SOQ PDF Document
✓	DBE Goal Assurance/Goal Declaration completed

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