DOTD

IDIQ CONTRACT FOR INTELLIGENT TRANSPORTATION SYSTEMS (ITS), SYSTEM DESIGN, DEVELOPMENT, INTEGRATION AND VERIFICATION SERVICES, STATEWIDE

CONTRACT NO. 4400029393 • June 4, 2024

ARCADIS

In Partnership with:

iteris® metric VENABLE Niti

Tuesday, June 4, 2024

Louisiana Department of Transportation and Development
1201 Capitol Access Road
Baton Rouge, LA 70802-4438

ARCADIS

6100 Corporate Blvd., Suite 325
Baton Rouge, Louisiana 70808
Tel 225 292 1004

Contact Akhil Chauhan, PE, PTOE, PTP, PMP
Phone 225 368 6536
Email akhil.chauhan@arcadis.com

Subject: **Contract No. 4400029393 IDIQ Contract for Intelligent Transportation Systems (ITS), System Design, Development, Integration and Verification Services, Statewide**

Dear Project Evaluation Team Members:

Over the last two decades, Arcadis/IBI Group and its teaming partners have worked together with DOTD through multiple Indefinite Delivery/Indefinite Quantity (IDIQ) contracts. This has allowed us to learn your organization in an intimate way. We take the time to work with you, as an extension of your staff, to learn what you need to deliver high-quality programs that solve our State's most complex problems. Every contract gives us further insight into the organization with each contract different from the next. Working on a wide range of IDIQ contracts – ITS Statewide System Design, Integration and System Verification Services, ITS Statewide Maintenance Engineering & Inspection (ME&I), ITS Construction Engineering & Inspection (CE&I), traffic engineering, safety studies, and Linear Referencing System (LRS) – we are in tune with many facets of DOTD that will contribute to the delivery of a comprehensive ITS system design, integration and system verification services. The knowledge gained from each of these contracts allows us to approach ITS system design, integration and system verification with the big picture in mind. Our local knowledge and experience are complemented by our national ITS experience where our team has ***successfully delivered over 150 ITS projects including 511/ATIS, ATMS, VDMS, CAV, EV, System Engineering Analysis and System Design***. This results in well-rounded, streamlined engineering services that are effective and efficient. We are confident our qualifications combined with our intimate knowledge of DOTD's ITS program makes us the best choice.

Proven Qualified Team

Our Project Manager, Paul Hsu, PE joined the Arcadis Team in 2016. Paul served as a project engineer in DOTD's ITS section for nearly 8 years and he is very familiar with DOTD's ITS program and infrastructure. After leaving DOTD, Paul has continued to work with DOTD's ITS section to provide comprehensive services including systems engineering analyses, traffic analyses, ITS system engineering design, system integration, IV&V, maintenance, and Connected & Automated Vehicles (CAV) technology support. ***Paul's historical knowledge combined with his extensive ITS expertise will serve as an ideal project management role in bringing together our national experts along with Louisiana based staff to deliver all task orders according to, and surpassing, DOTD's expectations.***

We have teamed with Iteris, a leader in providing intelligent transportation solutions to the transportation market. They bring local knowledge combined with national expertise for ***ITS system engineering analysis, 511/ATIS software, ATMS software, and hands on expertise with connected vehicle infrastructure and system testbeds***. Secondly, we have teamed with Metric to broaden our ITS system engineering design capabilities. Metric provides experienced ITS staff who has developed a wide range of ITS designs including CCTV, DMS, Bluetooth, MVDS, ATMS, and CAV. Metric also provides a plethora of ITS experience relating to strategic implementation planning, TMC coordination, and IT applications support. For ***CAV and EV policies expertise,*** we have partnered with Venable to provide legal guidance in reference to administration policies, legislation, and rulemaking for highway and motor vehicle safety issues. Finally, we have partnered with Niti Systems (DBE) to provide strategic implementation planning support relating to CAV technologies. **This unique teaming approach between Arcadis, Iteris, Metric, Venable, and Niti will provide DOTD with the most in-depth knowledge and available resources to meet the growing challenges associated with ITS technologies.**

WHAT SETS US APART	VALUE TO YOU
National CAV Planning & Implementation Leader	We have extensive CAV strategic planning and implementation experience with many state DOTs that cover this contract's entire scope of services relating to CAV and EV. From strategic planning and policy development to implementation, we can support DOTD with CAV project developments at every step of the way. Our wide coverage of national CAV experience allows us to bring the best practices and lessons learned to support DOTD's ITS program.
Exceptional System Engineering and System Engineering Design Expertise	Our project manager, Paul Hsu, and his team of ITS engineers have conducted more than 20 systems engineering analyses and five ITS master plans. Paul also has vast experience with developing specifications and design plans for ITS deployments, electrical systems, communication network systems, video distribution management systems (VDMS), and traffic management center (TMC) video wall systems. Our Team brings extensive ITS systems engineering and system engineering design experience with many state DOTs (LADOTD, TxDOT, FDOT, GDOT, VDOT, etc.).
Unmatched 511/ATIS, ATMS, VDMS software development support team	Our Team has deployed and supported the majority of ATIS/511 implementations (25+) throughout North America. Additionally, we have accumulated a thorough understanding of ATMS deployment and integration needs from our ATMS installations (10+) within the last 10 years. Combining our Team's extraordinary experience and skill set in 511/ATIS, ATMS, and VDMS software developments (including DOTD's current 511/ATIS), we are the most qualified team to support DOTD's system development, integration, and IV&V services contract scope.
Direct Experience with DOTD's Data Mining & Performance Measures	We've assisted data collection and database management on the Statewide LADOTD ITS Maintenance Retainer Contract. We collected ITS data and developed a robust database of statewide ITS infrastructure within the maintenance management system (MMS) application. Our digital team has experience with SQLdatabase administration; software development in JavaScript, HTML, Python, and other widely used languages; We have worked with and are intimately familiar with DOTD's database management systems. That means there is no learning curve in meeting your ITS data and performance measure needs.
Full lifecycle services experience	We understand LADOTD is looking for an agile and adaptable consultant to accommodate its ITS needs and challenges. We have demonstrated our ability to solve highly technical and complex ITS issues during the full lifecycle of a project including strategic planning, system engineering analysis, system design, system integration, construction, and maintenance. We went beyond the scope of the contract to deliver comprehensive ITS solutions.
Trusted and Reliable Staff	Our Team has cultivated the depth of knowledge and balanced skillset that is needed to meet and exceed DOTD's requirements for this ITS contract. We will utilize the same knowledgeable, dedicated staff who has developed a trusted relationship with DOTD's ITS staff.

We look forward to the opportunity to continue partnering with DOTD to improve the mobility, safety, service, and reliability of Louisiana's transportation system. Thank you for your time and consideration.

Sincerely,

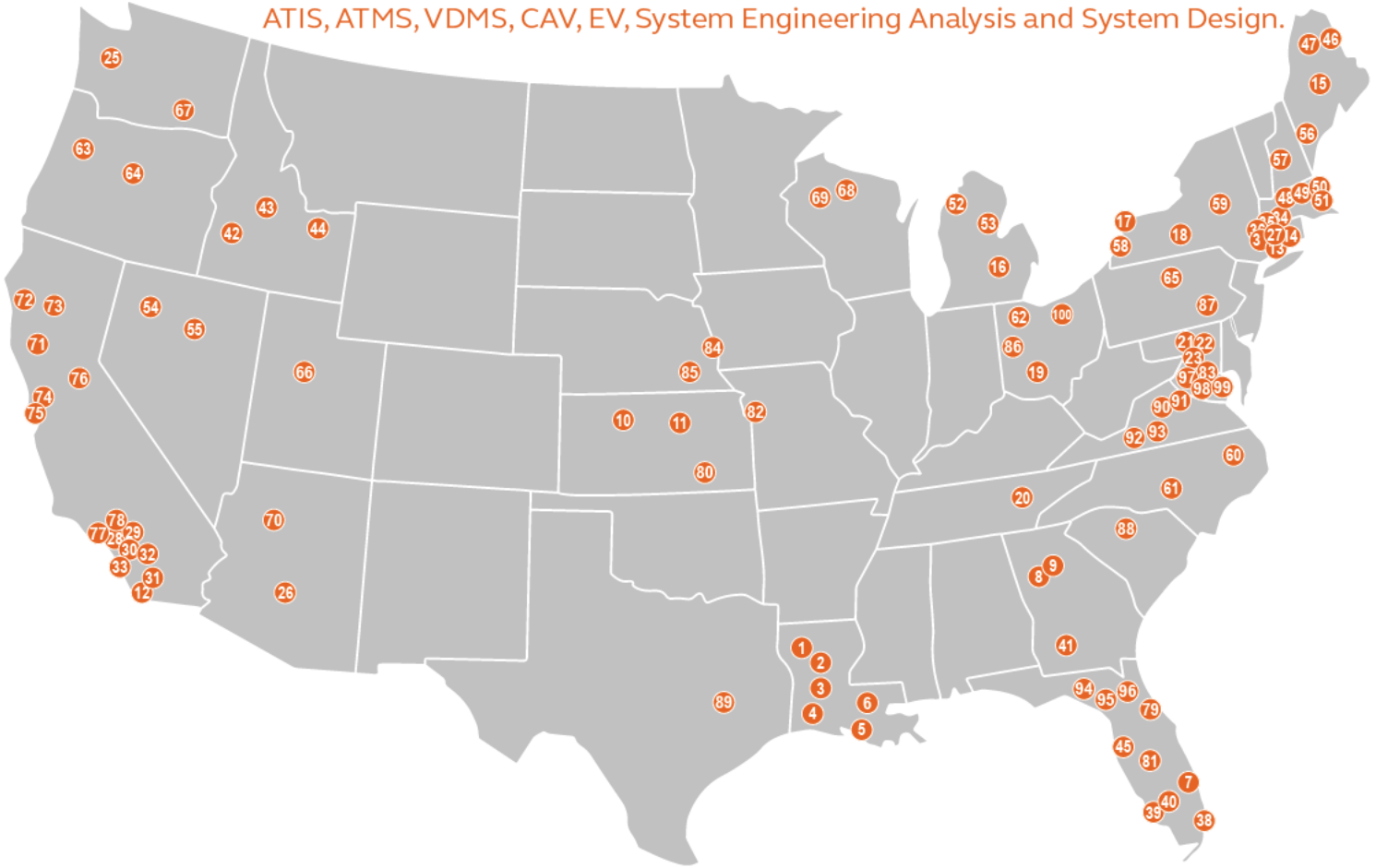
Arcadis

Akhil Chauhan, PE, PTOE, PTP, PMP
Principal-in-Charge/Vice President

Paul Hsu, PE
Senior ITS Project Manager

Sections 1-11

The Arcadis Team has successfully delivered 150+ ITS projects including 511/ ATIS, ATMS, VDMS, CAV, EV, System Engineering Analysis and System Design.



"..I would like to send my sincere appreciation to you and all your staff that I've worked with at Arcadis over my years while at DOTD. My experience working with you and all your staff has always been pleasant and professional. The ***quality of all work*** *products under the* ***ITS Integration Retainer*** *for DOTD's ITS Section provided by Arcadis is and has always been* ***top notch****. I could always* ***count on Arcadis to provide thorough, timely and accurate*** *deliverables. Arcadis' knowledge and experience in the transportation engineering field has provided the ITS Section of DOTD with many benefits and has helped our program to* ***succeed and continue to move forward.****"*

– Carryn Sollie, *DOTD Project Manager – ITS System Design, Integration, and System Verification Services IDIQ Contract*

1. LADOTD CAV Strategic Plan
2. LADOTD ITS Maintenance Program IDIQ
3. LADOTD ITS System Design IDIQ
4. LADOTD ACMV Policy Development
5. LADOTD 511/ATIS Planning & Implementation
6. LADOTD CAV Technology Team Support
7. USDOT Central FLA AV Proving Grounds
8. City of Atlanta North Avenue Smart Corridor
9. Gwinnett County Smart Corridor Deployment Program
10. Kansas Statewide CAV Vision Plan
11. Kansas Statewide CAV Implementation
12. Otay Mesa Border Crossing ConOps
13. CTDOT Statewide ITS Architecture Update
14. CTDOT ATMS Strategic Plan
15. MaineDOT CVISN and Weigh-in-Motion
16. MDOT CV Testbed Development and Expansion
17. NITTEC Buffalo-Niagara Operations Support
18. NYCDOT ITS Strategic Plan
19. ODOT Emerging Technology Impact Assessment
20. TDOT I-14 Smart Corridor
21. AASHTO V21 Footprint Analysis
22. USDOT Integrated ITS Deployment and Research Support
23. USDOT Traffic Incedent Management Support
24. VDOT I-66 Shoulder Lane Control System
25. Olympia Smart Corridors
26. AZDOT 511/ATIS Deployment
27. CTDOT SWZ Guide
28. LA Metro Real-Time Transit Alerts
29. LA Metro 511/ATIS Deployment
30. LA Metro Regional Integration of ITS Strategic Plan
31. SANDAG Regional ITS Strategic Plan Update
32. City of Whittier AV Shuttle Feasibility Study
33. SCAG Mobility Technology Plan and AV Roadmap
34. CTDOT ATMS Deployment
35. CTDOT 511/ATIS Deployment
36. CTDOT CAV Strategic Plan
37. CTDOT 511 Deployment Planning & Impl.
38. City of Miami Beach ATMS Deployment
39. FDOT 511/ATIS Planning & Implementation
40. FDOT PedSafe/Greenwaay CV Platform & App Develop.
41. GDOT 511/ATIS Planning & Implementation
42. Ada County ATMS Implementation
43. COMPASS I-84/I-184 Freeway Operations Plan
44. ITD 511/ATIS Planning & Implementation
45. JTA U2 Circulator AV Impl.
46. MaineDOT ACMV Screening System - Action Plan & Automated Weigh Station Design
47. MaineDOT TIM Strategic Plan
48. MassDOT ATMS Planning & Implementation
49. MassDOT Regional ITS Architecture Development
50. MassDOT Coolidge Bridge Rehab ATMS
51. MassDOT ITS Engineering On-call Services
52. MDOT Advanced Automotive & Smart Mobility Solutions for Border Crossing
53. Michigan Central Mobility District Smart City Technology Implementation Plan
54. NDOT ATMS Planning & Deployment
55. NDOT 511/ATIS Planning & Deployment
56. New England 511 Deployment & Coordination
57. New England Transportation Consortium (NETC) 511 Deployment and Coordination in New England
58. Niagara International Transportation Technology Coalition ATMS
59. NYSDOT 511/ATIS Planning & Implementation
60. NCDOT ATMS Planning & Implementation
61. NCDOT Multi-Modal CV Pilot
62. ODOT ATMS Planning & Deployment
63. Oregon DOT Mid-Willamette Valley ITS Strateigc Plan
64. Oregon DOT Emerging Technology Impact Assessment
65. PA Turnpike ATMS Planning & Deployment
66. UDOT 511 Planning & Deployment
67. Thurston Regional Planning Council - Smart Corridors
68. WisDOT ATMS Planning & Deployment
69. WisDOT 511/ATIS Planning & Implementation
70. AZDOT Broadway Curve ATIS Design & Implementation
71. MTC IDEA Category 2 Systems Engineering
72. MTC NextGen Arterial Operations Program SEA
73. MTC 511 SF Bay System Integrator, Data Management, and Interactive Voice Response Phone System
74. Town of Los Gatos Smart Signals Project
75. San Mateo Smart Corridor Program
76. San Mateo Smart Corridor Program
77. OCTA Katella Avenue Regional Traffic Signal Synchronization Projects
78. OCTA Main Street Regional Traffic Signal Synchronization Projects
79. FDOT ITS Architecture Update
80. City of Wichita Regional ITS Architecture
81. FDOT Truck Parking Availability System
82. Mid-America Regional Council ATMS Systems Engineering
83. USDOT National ITS Architecture Development, Evolution, and Deployment Support
84. City of Omaha Traffic Signal Systems Manager - SEA, ATMS, VDMS
85. City of Lincoln North 27th Street Adaptive Signal Control Technology (ASCT) - SEA
86. TRC Smart Center Design - CAV
87. PTC CAV Communication Assessment
88. SCDOT 511/ATIS Planning & Implementation
89. College Station ITS Design and Implementation
90. VDOT CAV Readiness
91. VDOT CV Testbed - Blacksburg and Fairfax
92. VDOT 511/ATIS Planning & Deployment
93. VDOT Traffic, Traveler, and Road Information Program
94. FDOT District 5 Integrated Corridor Management (ICM) Services IDIQs
95. FDOT District 3 ITS and ATMS Consultant IDIQs
96. FTE ITS Services IDIQs
97. Federal and State AV Policy Counseling
98. Federal AV Regulatory Compliance Counseling
99. Medium and Heavy Zero Emission Vehicle Coalition
100. I-70 Truck Automation Corridor

DOTD FORM: 24-102

(Revised January 1, 2023)

PROPOSAL TO PROVIDE CONSULTANT SERVICES

Prime consultant shall complete the DOTD Form 24-102 without altering the Form's text; however, the instruction and/or guidance for Sections 12 through 23 can be removed but do not remove Section title and number.

ANY CONSULTANT FAILING TO SUBMIT ANY OF THE INFORMATION REQUIRED ON THE DOTD FORM 24-102, OR PROVIDING INACCURATE INFORMATION ON THE DOTD FORM 24-102, MAY BE CONSIDERED NON-RESPONSIVE.

1. Contract Name as shown in the advertisement	IDIQ CONTRACT FOR INTELLIGENT TRANSPORTATION SYSTEMS (ITS), SYSTEM DESIGN, DEVELOPMENT, INTEGRATION AND VERIFICATION SERVICES, STATEWIDE
2. Contract Number(s) as shown in the advertisement	CONTRACT NO. 4400029393
3. State Project Number(s), if shown in the advertisement	N/A
4. Prime consultant name **(name must match as registered with the Louisiana Secretary of State where such registration is required by law**)	ARCADIS **ARCADIS U.S., INC.**
5. Prime consultant license number (as registered with the Louisiana Professional Engineering and Land Surveying Board (LAPELS) if registration is required under Louisiana law)	EF.0002808 DUNS 057690414
6. Prime consultant mailing address	6100 Corporate Blvd., Suite 325 Baton Rouge, LA 70808
7. Prime consultant physical address (existing or to be established, if location is used as an evaluation criteria)	6100 Corporate Blvd., Suite 325 Baton Rouge, LA 70808
8. Name, title, phone number, and email address of prime consultant's contract point of contact	Paul Hsu, PE Project Manager P. 225.244.8271 | paul.hsu@arcadis.com
9. Name, title, phone number, and email address of the official with signing authority for this proposal	Akhil Chauhan, PE, PTOE, PTP, PMP Senior Vice President P. 225.368.6563 | akhil.chauhan@arcadis.com

Prime consultant should enter the firm name in the footer at the bottom of this page. (It will carry over to subsequent pages.)

10. This is to certify that all information contained herein is accurate and true, and that the team presently has sufficient staff to perform these services within the designated time frame. By submitting this proposal, proposer certifies that it is not engaged in a boycott of Israel and it will, for the duration of its contract obligations, refrain from a boycott of Israel. Proposer also	

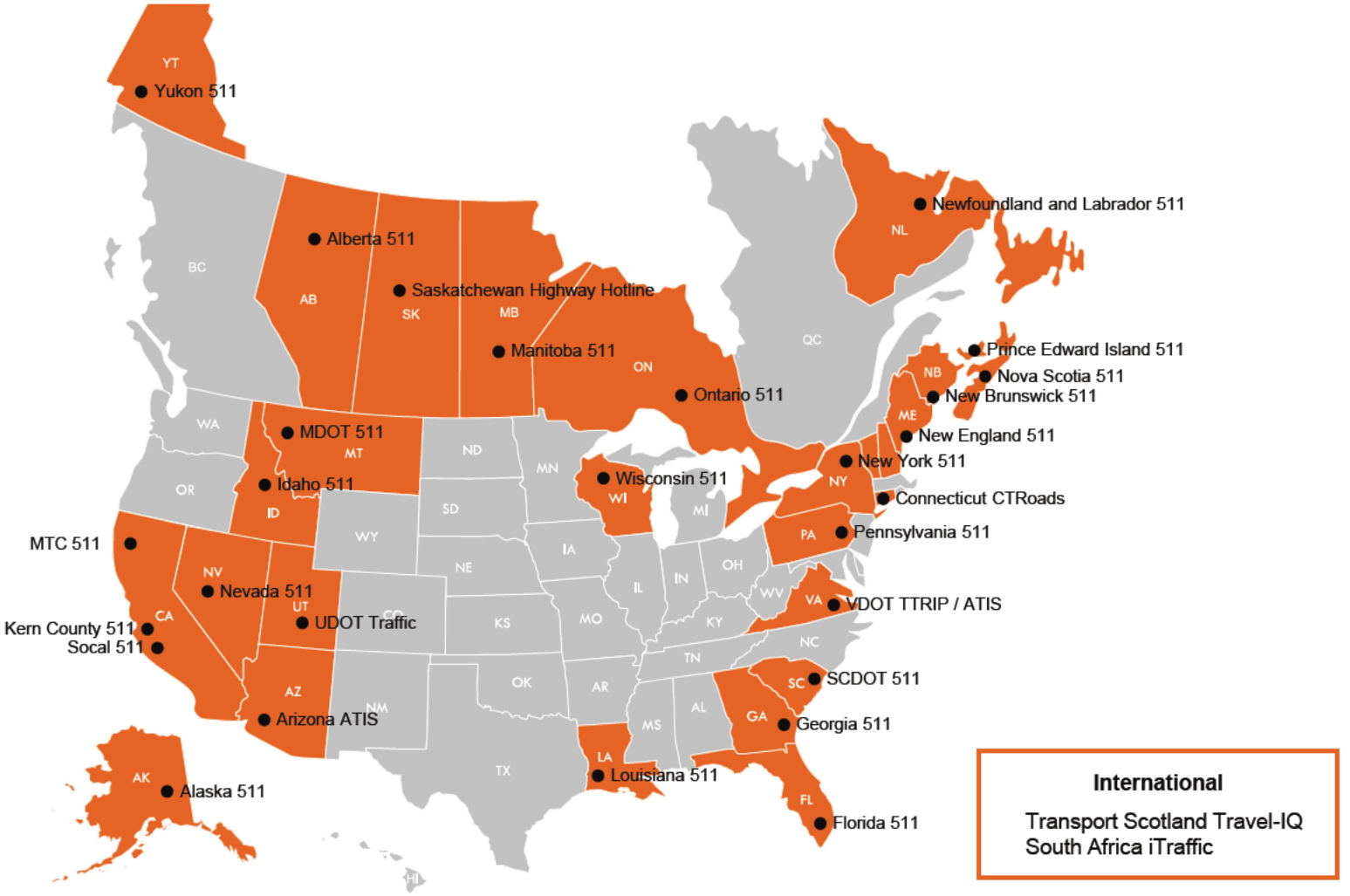
certifies and agrees that the following information is correct: In preparing its response, the proposer has considered all proposals submitted from qualified, potential subcontractors and suppliers, and has not, in the solicitation, selection, or commercial treatment of any subcontractor or supplier, refused to transact or terminated business activities, or taken other actions intended to limit commercial relations, with a person or entity that is engaging in commercial transactions in Israel or Israeli-controlled territories, with the specific intent to accomplish a boycott or divestment of Israel. The proposer also has not retaliated against any person or other entity for reporting such refusal, termination, or commercially limiting actions. DOTD reserves the right to reject the response of the bidder or proposer if this certification is subsequently determined to be false, and to terminate any contract awarded based on such a false response.	 Akhil Chauhan, PE, PTOE, PTP, PMP Date: June 4, 2024

11. If a Disadvantaged Business Enterprise (DBE) goal has been set for this advertisement, indicate which firm(s) will be used to meet the DBE goal and each firm(s)' percentage.	Firm(s): **Niti Systems Consultants, Inc.**	Firm(s)' %: **2%**

Sections 12-14

ARCADIS

The Arcadis Team has deployed and supported the majority of ATIS/511 implementations (25+) throughout North America.



"Akhil, as you know Paul Hsu and Luis Alvergue are working with me on various task orders. I wanted to drop you a quick note to let you know they are both doing an excellent job on all but most notably the 511 ATIS Implementation Support Services TO. They have ***exceeded my expectations*** *related to this task order with their* ***diligent attention to detail and their invaluable participation*** *in all the document reviews, planning, testing and focused attention to the project schedule. Their involvement has been a* ***huge asset*** *to me during this project and will prove to be a great benefit to the successful completion of the new LADOTD 511 ATIS project once rolled out to the public."*

– Carryn Sollie, *DOTD Project Manager – ITS System Design IDIQ Contract – 511 ATIS Implementation Support Services Task Order*

12. Past Performance Evaluation Discipline Table:

As indicated in the advertisement, insert the completed table here. The percentages for the prime and sub-consultants must total 100% for each past performance evaluation discipline, as well as the overall total percent of the contract.

The **only** past performance evaluation disciplines to be used are: Road, Bridge, Traffic, CE&I/OV, Geotech, Survey, Environmental, Data Collection, Planning, Right-of-Way, CPM, ITS, Appraiser and Other (please specify).

Past Performance Evaluation Discipline(s)	% of Overall Contract	ARCADIS	iteris	metric	VENABLE LLP	Niti Systems Consultants DBE	Each Discipline must total to 100%
ITS	80%	53%	25%	15%	5%	2%	100%
Traffic	10%	40%	30%	16%	10%	4%	100%
Planning	5%	90%	-	10%	-	-	100%
Data Collection	5%	50%	40%	10%	-	-	100%
Identify the percentage of work for the **overall contract** to be performed by the prime consultant and each sub-consultant.							
Percent of Contract	100%	53.4%	25.0%	14.6%	5.0%	2.0%	

13. Firm Size:

Firm name	DOTD Job Classification	Number of personnel committed to this contract	Total number of personnel available in this DOTD Job Classification (if needed)
ARCADIS	Principal	6	7
	Supervisor Engineer	3	9
	Supervisor-Other	2	3
	Engineer	3	5
	Engineer-Other	3	3
	Engineer Intern	2	4
	Professional	2	3
	Engineering-Aide	1	1
	Planner	2	4
	Computer Analyst	11	11
	GIS Analyst	4	6
	ITS Technician- Lead	1	1
	Senior Technician	1	1
iteris	Computer Analyst	3	6
	Engineer-Other	3	3
	GIS Analyst	2	5
	ITS Technician-Lead	1	4
	Planner	1	3
	Professional	2	4
	Principal	1	3
	Senior Technician	1	4
	Supervisor-Other	2	4
metric	Principal	1	2
	Engineer	1	1
	Engineer Other	2	9
	Project Office Manager	2	2
	Computer Analyst	1	1
	Senior Technician Engineer	1	5
VENABLE	Principal	1	1
	Professional	1	1
Niti	Computer Analyst	1	3
	Engineer	1	2
	GIS Analyst	1	2
	ITS Technician Lead	1	2

14. Organizational Chart

Legend:

1 - Arcadis
2 - Iteris
3 - Metric
4 - Venable
5 - Niti Systems (DBE)
Meeting MPR ❖
Workzone Training ◆

Principal-in-Charge
Akhil Chauhan, PE, PTOE, PMP [1] ❖

Project Manager
Paul Hsu, PE[1] ❖

Technical Advisor
Doug Tilt, PE[1] ❖
Moe Zarean, PhD, PE[2]
Marwan Abboud, PE[5]

QA/QC
Shahram Malek, PhD, PE[1]
Dean Gustafson, PE, PTOE[2]
Rolando Ramirez, PE[3] ❖

Technical Lead CAV
Ram Kandarpa, PMP[2] ❖

Technical Lead ATMS
Alex Ariza[1]

Technical Lead ATIS & VDMS
Larry Baldwin[1]

Technical Lead Data
David Ward, GISP[1]

ITS Planning

Systems Engineering Analysis
Paul Hsu, PE[1] ❖
Laura Hartley, PE,PTOE[1] ❖
Johnny Tse, PE[1]
David Binkley[2] ❖
Cliff Heise, PMP[2]
Tom Lusco, CSEP[2]

Strategic Implementation Planning
Shahram Malek, PhD, PE[1]
Koushik Arunachalam, PE[1]
Vamshi Mudumba, PE, PTOE[1]
Dean Gustafson, PE, PTOE[2]
Anita Vandervalk, PE, PMP[2]
Dale Cody, PE, PTOE[3]
Rolando Ramirez, PE[3] ❖
David Binkley[2] ❖
Jignesh Patel[5] ❖

ITS & CAV Policy
Ramin Massoumi, PE[1]
Dean Gustafson, PE, PTOE[2]
Ariel Wolf, JD[4] ❖
David Bonelli, JD[4] ❖

EV Services and Grant Applications
Akhil Chauhan, PE, PTOE, PMP[1] ❖
Laura Hartley, PE, PTOE[1] ❖
Meredith Guidry, EI, RSP[1]

System Design

System Engineering Design Plans
Ranzy Whiticker, PE[1] ❖
Vamshi Mudumba, PE, PTOE[1]
Tait Karlson, PE, PTOE[1]
Braulio Ramirez, PE[1]
Sarath Gorthy, PE[1]
Acey Roberts, PE, PTOE[2]
Tom Lusco, CSEP[2]
Dale Cody, PE, PTOE[3]
Jessica Knox, PE, PTOE[3]
Rolando Ramirez, PE[3] ❖
Jonathan Katz, PE[3]

Traffic Operations Center Coordination
Tim Fox[2]
Jessica Knox, PE, PTOE[3]
Dale Cody, PE, PTOE[3]
Penny Kamish[3] ❖

Network Operations/Asset Mgt Coordination
Kyle Tackett[2]
Demetrius Lewis[3] ❖

System Implementation Support

System Integration
Ranzy Whiticker, PE[1] ❖
Paul Hsu, PE[1] ❖
Laura Hartley, PE, PTOE[1] ❖
Jeff Jones, IMSA[1] ❖ ◆
Cody Lemoine[1] ❖ ◆
David Register[2] ❖
Dwight Shank[2] ❖
Jessica Knox, PE, PTOE[3]

System Development / Updates
Neena Soans[1]
Larry Baldwin[1]
Geoff Knapp[1] ❖
Nick O'Hara[1] ❖
Simon Illingworth[2]

IT Applications Support
Jonathan Darton[1]
Demetrius Lewis[3] ❖
Wilfredo Vargas[3] ❖

Independent Verification and Validation (IV&V)
Michael McNeely[1] ❖
Cristina Birjega[1]
Anthony Moore, PE, IMSA[1] ◆
Jeff Jones, IMSA[1] ❖ ◆
Ranzy Whiticker, PE[1] ❖
Laura Hartley, PE, PTOE[1] ❖

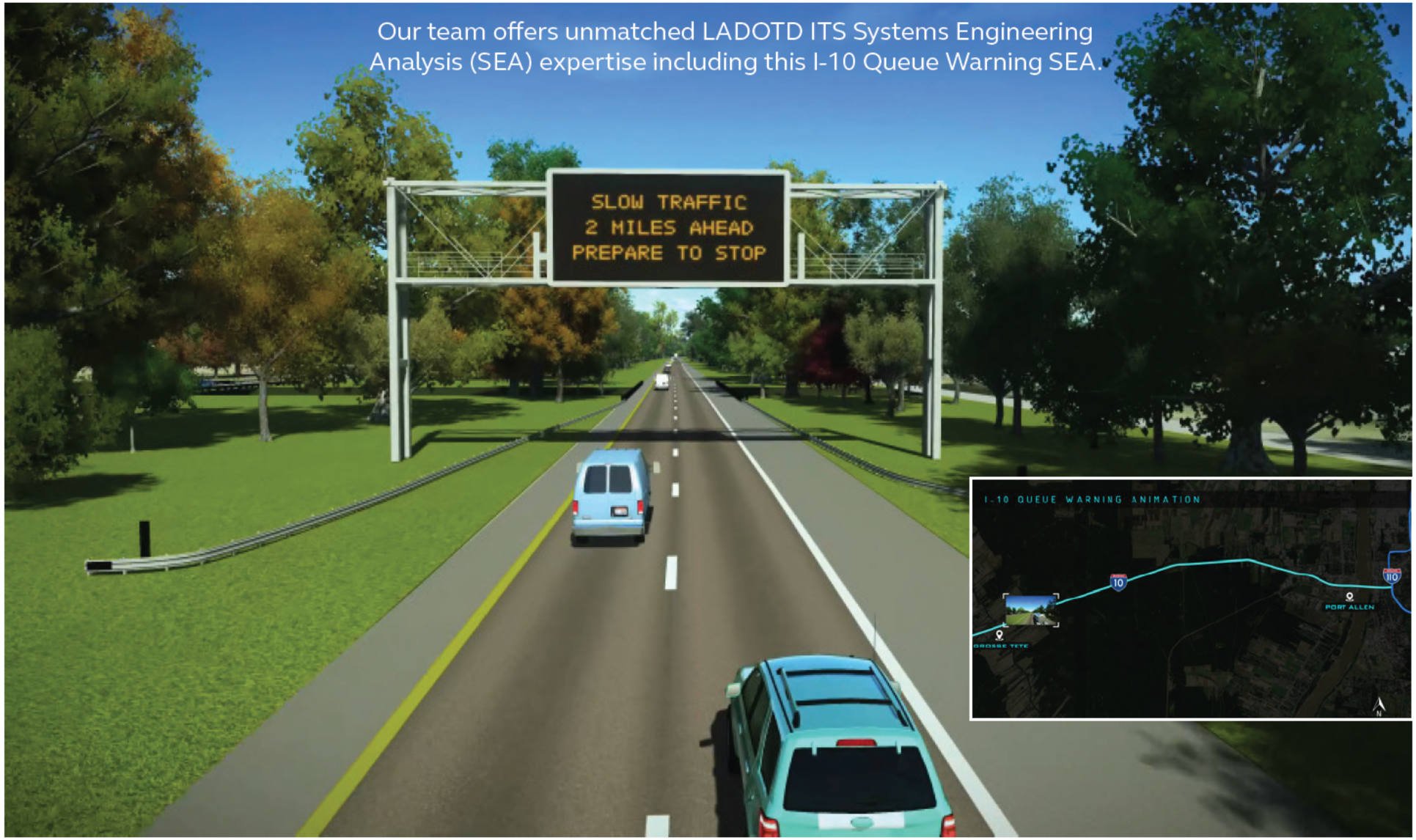
Construction Technical Support
Anthony Moore, PE, IMSA[1] ◆
Jeff Jones, IMSA[1] ❖ ◆
Cody Lemoine [1] ❖ ◆
Anthony Jackson, IMSA[1] ◆

Transportation Data & Performance Measures

Database Management and Analytics
Drew Knott[1] ❖
Weimin Jin, PhD[1]
Michael McNeely[1] ❖
Matt Glasser, PE[1]
Dibya Maheshwari[1]
Simon Illingworth, CSM[2] ❖
Tyler Normile, CSM[2]
Dale Cody, PE, PTOE[3]
Jessica Knox, PE, PTOE[3]

GIS Professionals
John Battle[3]
Simon Illingworth[2] ❖
Tyler Normile[2] ❖
Joshua Chatelain[1]

Sections 15-16



"Arcadis performance has exceeded our expectations in terms of providing the expertise to analyze the traffic/safety data as well as **engaging the project stakeholders to develop consensus** *toward a complete solution. This project was challenging in many ways but the engineering team at Arcadis* **went beyond the scope of the project** *to make sure that our needs for this project were documented and addressed. The feedback and comments to the deliverables were minimal and were easily and promptly resolved.... Arcadis provided excellent project management throughout the duration of the project. Arcadis provided the project schedule, biweekly and monthly status reports regarding completed and scheduled work in a timely manner.* **Exceptional performance in communications, cooperation and follow-up with stakeholders.**"

- ***Rosalinda Deville,*** *LADOTD I-10 Queue Warning SEA Project Manager*

15. Minimum Personnel Requirements:

Use the table below to identify both prime consultant and sub-consultant staff designated to work on this contract meeting the Minimum Personnel Requirements (MPRs) specified in the advertisement. Ensure the résumé reflects the required experience stated in the MPR. Make sure the P.E. discipline is also listed (highlighted in table) that is meeting the MPR; e.g. professional civil engineer should show the discipline of the license as civil if meeting that MPR.

MPR No. Do not insert wording from ad	Personnel being used to meet the MPR (Individual(s) may not satisfy more than one MPR unless specifically allowed by Attachment B of the advertisement)	Firm employed by	Type of license and discipline meeting MPR/ certification & number (Ex: PE # - Civil)	State of license	License / certification expiration date
1	Doug Tilt, PE *(27 years of experience)*	ARCADIS	PE.0033502 – Civil	LA	03/31/2026
2	Ranzy Whiticker, PE *(29 years of experience)*		PE.0034132 – Electrical and Computer Engineer	LA	03/31/2025
3	Ranzy Whiticker, PE *(29 years of experience)*		PE.0034132 – Electrical and Computer Engineer	LA	03/31/2025
4	Laura Hartley, PE *(17 years of experience)*		PE.0039030 – Civil	LA	09/30/2024
5	Paul Hsu, PE *(21 years of experience)*		PE.0035983 – Electrical	LA	03/31/2025
6	David Binkley *(36 years of experience)*	iteris	N/A	N/A	N/A
	Ram Kandarpa, PMP *(27 years of experience)*		N/A	N/A	N/A
	Rolando Ramirez, PE *(26 years of experience)*	metric	N/A	N/A	N/A
7	Akhil Chauhan, PE, PTOE, PMP, PTP *(21 years of experience)*	ARCADIS	PE.0033703 – Civil	LA	09/30/2024
	Ariel Wolf, JD *(15 years of experience)*	VENABLE	N/A	N/A	N/A
	David Bonelli, JD *(17 years of experience)*		N/A	N/A	N/A
	Jignesh Patel *(30 years of experience)*	Niti	N/A	N/A	N/A
	David Register *(30 years of experience)*	iteris	N/A	N/A	N/A
8	Michael McNeely *(16 years of experience)*	ARCADIS	N/A	N/A	N/A
	Nicholas O'Hara *(16 years of experience)*		N/A	N/A	N/A
9	Jeff Jones *(22 years of experience)*	ARCADIS	N/A	N/A	N/A
	Cody Lemoine *(10 years of experience)*		N/A	N/A	N/A
	Dwight Shank *(43 years of experience)*	iteris	N/A	N/A	N/A

	Penny Kamish *(33 years of experience)*	metric	N/A	N/A	N/A
10	Geoff Knapp, PE *(25 years of experience)*	ARCADIS	N/A	N/A	N/A
	Demetrius Lewis *(20 years of experience)*	metric	N/A	N/A	N/A
11	Drew Knott *(21 years of experience)*	ARCADIS	N/A	N/A	N/A
	Wilfredo Corchado Vargas *(21 years of experience)*	metric	N/A	N/A	N/A
12	Simon Illingworth *(32 years of experience)*	iteris	N/A	N/A	N/A
	Tyler Normile *(19 years of experience)*		N/A	N/A	N/A

(Add rows as needed)

MPR Nos. 1 through 3 may be met by the same person.
MPR Nos. 6 through 12 may be satisfied through the use of a sub-consultant(s).
NOTE: WHEN SATISFYING A MINIMUM PERSONNEL REQUIREMENT, PLEASE ENSURE THE RÉSUMÉ REFLECTS REQUIRED EXPERIENCE AS REQUESTED.

- Please note the number of MPRs are minimal; however, all relevant personnel necessary to perform the Scope of Services must be identified in Section 14 of the DOTD Form 24-102 and their resumes included in Section 16 of the DOTD Form 24-102.

* Systems Engineer (MPR No. 5) would be a licensed systems engineer or unlicensed with a degree in Computer Engineering, Software Engineering, Transportation Engineering, Computer Science (or equivalent computer or IT-related bachelor degrees) and with certification in one of the following:

- o Microsoft Certified Systems Engineer (MCSE)
- o Certified Systems Engineering Professional (CSEP)
- o Master Certified Electronics Technician (CETma)
- o Cisco Certified Network Associate (CCNA)
- o Certified Information Systems Security Professional (CISSP)

16. Staff Experience

PERSONNEL RESUMES

CONTRACT LEADERSHIP TEAM

16. Staff Experience:

Firm employed by	ARCADIS		Meets MPR No. 5
Name	Paul Hsu, PE	Years of relevant experience with this employer	8
Title	Principal ITS System Design Engineer	Years of relevant experience with other employer(s)	13
Degree(s) / Years / Specialization		BS / 2002 / Electrical & Computer Engineering, Louisiana State University (LSU)	
Active registration number / state / expiration date		PE.0035983 / Louisiana / Exp. 03/2025	
Year registered	2011	Discipline	Electrical Engineering
Contract role(s) / brief description of responsibilities.		Project Manager	

Experience dates	Experience and qualifications relevant to the proposed contract
	Mr. Hsu's experience encompasses both public and private-sector projects. His areas of expertise in ITS planning and system integration include **ATMS, 511 ATIS, VDMS, communications system, traffic management center, CAV, Regional ITS Architecture**, as well as performing **Systems Engineering Analysis (SEA) for over 15 ITS deployments.** Paul has also led the design of many ITS projects under LADOTD, ALDOT, MDOT, TxDOT, FDOT, and GDOT. He has thorough knowledge of WiFi, cell networks and C-V2X technologies that will play a very prominent and integral role in any CAV systems planning, evaluation and impending deployment.
05/17 – 12/20	**ITS System Design & Integration IDIQ - Connected & Autonomous Vehicles (CAV) Technology Team Support Task Order (TO), LADOTD, Statewide, LA** – *Task Manager*: Provided CAV technology expertise to DOTD's CAV Technology Team (composed of four working groups drawn from about 25 sections of the Department) for exploring and evaluating the latest CAV technology. *Facilitated web meetings and workshops* to identify ways LADOTD can achieve ITS missions by leveraging CAV technology, present "lessons learned from Connected Vehicle (CV) deployments" from other agencies, determine roles and responsibilities within DOTD to support CAV projects, and *keeping the team up to date with current CAV technological developments.*
05/18 – 12/18	**ITS System Design & Integration IDIQ – 511 Advanced Traveler Information System (ATIS) Integration Support Services TO, LADOTD, Baton Rouge, LA** – *Project Manager:* Provided project management, system integration, and independent verification & validation (IV&V) services to assist DOTD migrate from an existing 511 ATIS system that was launched in 2005 to a brand-new system with a significant number of upgrades. Scope included *contractor submittal reviews, request for information (RFI) tracking and support, scope/design change resolution, software deployment support, integration support, and system acceptance testing (SAT) support* for every 511 ATIS component. Our attention to detail and disciplined approach in providing technical expertise relating to system requirements and submittals allowed DOTD to successfully complete the project on-time and within budget.
04/18 – 02/20	**ITS System Design & Integration IDIQ - Video Distribution Management System (VDMS) Replacement System Engineering Analysis (SEA) TO, Baton Rouge, LA** – *Project Manager:* Utilized the SEA process to *evaluate various replacement options for the current VDMS* in order to provide necessary system upgrades. Five different products and three different hosting solutions were evaluated to gain insight on available *technology*. Led the Arcadis team to develop a list of needs and system requirements that was used to compare the different products across several categories in detail. The selected concept consisted of a hybrid-hosted system which combined the benefits from the local and cloud -hosted solutions and represented the most value.
11/14 – 05/15	**ITS System Design & Integration IDIQ - Advanced Transportation Management System (ATMS) Support TO, LADOTD, Baton Rouge, LA** – *Project Manager:* assisted LADOTD with *developing reporting outlines of the ATMS to assist with the traffic management center (TMC) traffic operations.* Tasks include developing and providing reports to enhance the TMC operations, such as constructing standard performance measure metrics, providing performance data, and monitoring event management activities as required

	by DOTD. The project team provided DOTD with *configuration and integration support of existing and new ATMS sub-systems such as CCTV cameras, dynamic message signs, and vehicle detectors*.
04/17 – 07/17	ITS System Design & Integration IDIQ - Real-time Traffic Data Services SE Analysis TO, LADOTD, Baton Rouge, LA – *Project Manager:* Completed a SEA for a real-time traffic data service in compliance with FHWA Rule 940 (23 CFR Part 940.11). A major undertaking was to *evaluate subscription-based data services which included real-time traffic data, historical data, and data analytics tools;* and to determine a suitable procurement method for DOTD to purchase the data service. The team facilitated stakeholder workshops and coordinated traffic data vendors' demonstrations to identify the most suitable traffic data services for DOTD.
06/18 – 10/19	ITS System Design & Integration IDIQ - I-10 Queue Warning SEA TO, LADOTD, Baton Rouge, LA – *Project Manager*: Led a comprehensive team of ITS, Traffic, Data, and Safety engineers to complete a highly complex and first of its kind *ITS SEA involving the evaluation of a Queue Warning system* for a frequently congested corridor on I-10 eastbound from LA-77 to I-110. The analysis developed short, medium, and long-term options to provide a comprehensive approach in enhancing the traveler's safety. In addition to developing the operational concept, physical architectures, and alternative analysis configuration, also *provided preliminary 30% design plans* that included *Queue warning design alternative analysis, communication system integration, electrical system design recommendations, opinions of probable costs, and design drawings.*
07/13 – 09/13	ITS System Design & Integration IDIQ - Lake Charles Phase 2 SEA TO, LADOTD, Lake Charles, LA – *Lead Project Engineer:* Developed a SEA document for the Lake Charles phase 2 ITS project in compliance with the FHWA Final Rule (23 CFR Part 940.11) for project implementation. This project defined the high-level requirements and concept of operations for a new ITS deployment located in the Lake Charles region that includes fiber optics communications network, CCTV, and DMS on I-10. The SEA included the following: *operational concept, physical architecture, functional requirements, user needs/requirements, alternative analysis configuration, standards,* and updated Turbo Architecture file.
10/13 – 06/14	ITS System Design & Integration IDIQ – VDMS Implementation TO, LADOTD, Statewide, LA – *Lead Project Engineer:* designed and implemented a VDMS for the distribution of DOTD video sources statewide. Performed in two phases, Phase 1 included the development of a *detailed VDMS design and implementation plan*. Phase 2 included the *implementation and integration of the VDMS* in accordance with the Final VDMS design and Implementation Plan. The VDMS was designed to collect video sources from throughout the state and distribute amongst their internal ITS systems and externally to media, partners, and other agencies, and to and from other regional and the Statewide TMCs.
11/14 – 03/15	ITS System Design & Integration IDIQ - Lake Charles RTMC SEA TO, LADOTD, Lake Charles, LA – *Lead Project Engineer: Developed a SE analysis (SEA) document for the Lake Charles ITS RTMC* project in compliance with the FHWA Final Rule (23 CFR Part 940.11) for project implementation. This project defined the high-level requirements and concept of operations for a new RTMC located in the Lake Charles region. The SEA included the following: operational concept, physical architecture, functional requirements, user needs/requirements, alternative analysis configuration, standards, and updated Turbo Architecture file.
08/19 – 05/21	ITS System Design & Integration IDIQ - Connected and Automated Vehicles (CAV) Strategic Plan TO, LADOTD, Statewide, LA – *Task Manager:* Developed a statewide strategic plan to identify high-priority CAV technologies and early start projects for deployment in Louisiana. The comprehensive development process involved review of current Louisiana ITS infrastructure and architecture, federal and international CAV initiatives, as well as the broader CAV industry developments to gather pertinent information and assess current conditions for CAV development. The team *facilitated workshops to help define high-level goals* for the CAV program and implementation strategies for which CAV should be considered in the future. The plan outlines *14 prioritized CAV projects/actions to maximize CAV's potential for enhancing traveler safety and mobility* in Louisiana.

16. Staff Experience:

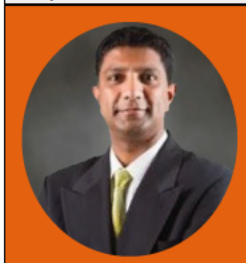
Firm employed by	ARCADIS		Meets MPR No. 7
Name	Akhil Chauhan, PE, PTOE, PTP, PMP	Years of relevant experience with this employer	16
Title	Principal ITS & Traffic Engineer	Years of relevant experience with other employer(s)	5
Degree(s) / Years / Specialization		MS / 2003 / Transportation, Massachusetts Institute of Technology (MIT) BS / 2001 / Civil Engineering, Indian Institute of Technology (IIT)	
Active registration number / state / expiration date		PE. 0033703 / LA / Exp. 09/2024; PTOE 2544 / USA / Exp. 11/2026 PTP 246 / USA / Exp. 12/2024; PMP 1444676 / USA / Exp. 08/2026	
Year registered	2008	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities.		Principal-in-Charge	

Experience dates	Experience and qualifications relevant to the proposed contract
	Mr. Chauhan has more than 21 years of experience in **all phases of ITS project life-cycle** delivery (planning/policy, design, implementation, operations & maintenance) working with many State DOTs and is the National Director for **smart mobility and connected & autonomous vehicle (CAV)** for Arcadis US. In this role, he leads multi-discipline project teams, connecting deep technology specialists and engages required resources nationally and globally, with the goal of developing strategically creative solutions for clients' challenges in CAV, **electric vehicle (EV), and other emerging new mobility technologies**. Mr. Chauhan brings a unique and comprehensive experience of closely working with different DOTD sections and stakeholders - such as ITS, Traffic Engineering, Safety, Planning, Data/GIS, and Districts – to deliver positive outcomes on projects such as this one.
05/17 – 06/21	**ITS System Design & Integration IDIQ - CAV Technical Assistance TOs, LADOTD, Statewide, LA** – *Project Manager*: TO 1 – CAV Technology Team Support: Led and facilitated workshop and web-based discussion for a multi-disciplinary 30-member DOTD CAV Technology Team that consisted of 4 working groups: Highway Infrastructure Technology, Multi-Modal Infrastructure Technology, Departmental Applications, and Policy & Agency Role. The main goal was to keep pace with current technological developments. Conducted several 4-hour long workshops and 1-hour long webinars on topics such as *Key CAV Impacts & Considerations*, CAV Applications, AV Mapping Technologies, CAV Legislation and Policy Updates, Digital Infrastructure & Data for CAV, and Security in CV Deployments. TO 2 - Policy Formulation for LA AV Laws: Development of a policy and necessary permits to implement Louisiana's AV law (Act 232) that provided DOTD the sole jurisdiction over the operations of "Autonomous Commercial Motor Vehicles" (ACMV). The proposed policy document outlines *requirements and operating constraints for safe operations of ACMVs* in the state. The policy covers individual ACMVs as well as ACMVs in platooning. TO 3 – CAV Strategic Plan: Development of *Louisiana's first* CAV Strategic Plan. Scope of services include comprehensive review of State's ITS infrastructure and architecture, federal CAV initiatives, CAV strategic plans in other states, international CV and co-operative ITS (C-ITS) initiatives, state of CAV research, state of CAV in private sector; workshop to develop CAV strategic vision and goals, identify current mobility, safety, multi-modal and infrastructure issues; perform *CAV Readiness Analysis* to assess maturity level of CAV applications; identify and *prioritize CAV pilots and deployments* with greatest benefits; identify potential partnerships, data requirements and sharing needs, infrastructure and resource implications; and develop *CAV Action Plan* that includes timeline for CAV application deployments in next 5 years.
05/18 – 12/18	**ITS System Design & Integration IDIQ – 511 Advanced Traveler Information System (ATIS) Integration Support Services TO, LADOTD, Baton Rouge, LA** – *Principal/Technical Advisor*: Provided project management, *system integration, and independent verification & validation services* which assisted LADOTD migrate from an existing 511 ATIS system that was launched in 2005 to a brand-new system with a significant number of upgrades. Responsibilities included contractor submittal reviews, requests for information

	tracking and support, *scope/design/configuration changes technical support, software deployment support, and system acceptance* test support for every 511 ATIS component. Attention to detail and disciplined approach that provided technical expertise related to system requirements and project submittals allowed LADOTD to successfully completed the project on-time and within budget.
04/18 – 02/20	ITS System Design & Integration IDIQ - Video Distribution Management System (VDMS) Replacement Systems Engineering Analysis (SEA) TO, LADOTD, Statewide, LA – *Principal/Technical Advisor*: Utilized the SEA process that *evaluated various replacement options for the current VDMS* that provided necessary system upgrades. Five different products and three different hosting solutions were evaluated to gain insight on available technology. Led the Arcadis team to *develop a list of needs and system requirements* that was used to compare the different products across several categories in detail. The selected concept consisted of a *hybrid-hosted system* which combined the benefits from the local and cloud -hosted solutions and represented the most value for the LADOTD.
04/17 – 07/17	ITS System Design & Integration IDIQ - Real-time Traffic Data SEA TO, LADOTD, Baton Rouge, LA – *Principal/Technical Advisor*: Provided *systems engineering expertise* that assisted DOTD transition from legacy roadway sensor infrastructure to traffic probe data service. The systems engineering approach involved comprehensive stakeholder coordination and detailed evaluation of traffic probe data service providers. A *SEA document was developed* for this project that included a concept of operations that determined how the real-time traffic data was utilized by the department in achieving traffic management goals. Additionally, the SEA included the *development of project's physical architecture, high level system requirements*, procurement options, *alternative analysis configurations*, and applicable *ITS standards*. The SEA was developed to guide the project development process and provided the groundwork for the ensuing system procurement and implementation.
06/18 – 10/19	ITS System Design & Integration IDIQ - I-10 Queue Warning SEA TO, LADOTD, Baton Rouge, LA – *Principal/Technical Advisor*: Managed a comprehensive team of *ITS*, traffic, data, and safety engineers specialized in their respective areas that completed a highly complex and first of its kind ITS SEA involved the *evaluation of a Queue Warning system* for a frequently congested corridor on I-10 eastbound from LA-77 to I-110. The analysis developed short, medium, and long-term options that provided a comprehensive approach that enhanced the traveler's safety within the project area. In addition to the developed operational concept, physical architectures, and *alternative analysis configuration*, the Arcadis team also provided *preliminary 30% design plans that included Queue warning design alternative analysis, communication system integration, opinions of probable costs, and design drawings*.
04/22 – 08/22	EV Charging Infrastructure Deployment Plan & Alternative Fuel Corridor Nominations, MDOT, Jackson, MS - *Principal/Technical Advisor:* Development of an Electric Vehicle Charging Infrastructure (EVCI) Deployment Plan for MDOT to *take advantage of the funds available through the National Electric Vehicle Infrastructure (NEVI)* Formula Program. Scope included review of the existing data and information, state agency coordination, public engagement, development of the plan vision, goals, and contracting strategies to deploy EVCI with private entities. Additionally, scope included the study of geography, terrain, climate, EV ownership/ availability, grid capacity, electric utilities, cybersecurity, labor and workforce, land use patterns, public transportation, freight, and other supply chain needs that could have an impact on EVCI deployment. Finally, scope included deployment analysis and implementation, program evaluation and a development of final EVCI plan to ensure a *convenient, reliable, affordable, and equitable charging experience*.
10/22 – 11/22	Strengthening Mobility and Revolutionizing Transportation (SMART) Grant Application Support, LADOTD, Baton Rouge, LA - *Project Manager:* Scope includes development of *grant application to deploy advanced technology* such as Adaptive Signal Control Technologies (ASCT) at 39 signalized intersections along primary alternative route to provide a sustainable solution for efficient mobility across the region. Implementation of ASCT includes hardware upgrades, detection upgrades, communication upgrades, and traffic signal operations software upgrade to adaptive control system to counter the unpredictable fluctuations of traffic flow due to construction, incidents and speciate events.

16. Staff Experience:

Firm employed by	iteris			Meets MPR No. 6
Name	Ram Kandarpa, PMP	Years of relevant experience with this employer	4.5	
Title	Principal ITS/CAV Lead	Years of relevant experience with other employer(s)	23	
Degree(s) / Years / Specialization		MS / 1996 / Transportation Engineering, Virginia Tech, Blacksburg		
Active registration number / state / expiration date		PMP #1674783, Exp. 11/23/2025		
Year registered	2013	Discipline	Project Management Professional (PMP)	
Contract role(s) / brief description of responsibilities.		Technical Lead (CAV)		

Experience dates	Experience and qualifications relevant to the proposed contract
	Mr. Kandarpa has 27 years of experience leading a diverse portfolio of **multimodal ITS projects covering system analysis, planning, design, deployment, operations, and evaluation of highway, transit, freight, and intermodal systems and services.** He brings strong technical expertise in a broad range of functional areas, applications, and technologies, to deliver ITS services and solutions to federal, state, and local transportation agencies, commercial organizations, and industry stakeholders. For the past 17 years, Mr. Kandarpa has been focusing on emerging **transportation technologies including connected vehicles and infrastructure, smart cities, and automated vehicles**, to help his clients achieve their mission to improve transportation safety, mobility, environment, and productivity.
04/17 – 08/17	**ITS System Design & Integration IDIQ - Connected & Autonomous Vehicles (CAV) Technology Team Support Task Order (TO), LADOTD, Statewide, LA –** *CAV Technology Advisor:* Iteris is a core member of the project team providing advisory services to a Louisiana DOTD CAV technical committee overseeing the direction and definition of future *CAV deployment activities and* helping DOTD to identify requirements for development of a *CAV strategic plan.* Mr. Kandarpa provided expert technical input on Federal research and development activities related to *current CAV technologies, Federal and state policies for testing and deployment, and operational issues.*
10/20 – 11/21	**CAV Readiness, Virginia Department of Transportation – Richmond, VA -** *CAV Technology Advisor:* VDOT is preparing for the deployment of connected and automated vehicles on Virginia's roadways. In order to prepare the Department appropriately, Mr. Kandarpa led a project for the Department's Office of Strategic Innovation and its CAV Working Group, and developed a CAV readiness framework, conducted baseline *system analysis and readiness assessment,* developed a *roadmap for selected CAV applications*, created an education strategy, and a business strategy for CV/AV implementation as called out in the roadmap.
04/22 – 10/22	**CAV Program Systems Mapping, Virginia Department of Transportation – Richmond, VA –** *Project Manager:* Mr. Kandarpa led this project to support VDOT's initiative to ensure an efficient transition to future of TSMO, through *understanding CAV data needs,* cybersecurity and privacy risks, technology trends, and potential for altering the transportation data paradigm. The project helped VDOT gain a high-level understanding of **how to integrate CAV data from external sources** into VDOT's information technology (IT) and operations technology (OT) related systems to help enhance their business functions, and conversely, how to share agency-wide business data from their IT and OT related systems to help serve CAVs' data needs and support *deployment of CAV applications*.
01/21 – 05/22	**V2X Market Research, District Department of Transportation – Washington, DC -** *Project Manager:* Mr. Kandarpa led this project to identify District of Columbia's transportation needs that *existing or future V2I, V2V, and V2X technologies* may be able to address, with an emphasis on near-term, practical applications. Based on these identified needs, the project team performed

	market research on existing and forthcoming *C-V2X technologies* that DDOT could leverage in the near-term. Market research included a description of the technology, intended use cases, applicability to DDOT needs, maturity and deployment to date, types of service and/or data provided, costs, and system requirements (e.g., power, communications, other physical asset access, *data storage and maintenance, integration with existing business processes*, inter-agency coordination or public outreach, etc.).
05/20 – 12/20	**CAV Workforce Development Training, Florida Department of Transportation – Tallahassee, FL -** *Project Manager:* FDOT is looking to undertake a comprehensive training program for its workforce. The training program will cover a wide variety of topics including *deployment of multimodal CV applications* that have the potential to improve safety, mobility, environment, and productivity across the state. Mr. Kandarpa led the development and *delivery of CAV training courses.*
05/18 – 07/19	**Impacts of Connected and Automated Vehicle Technologies on the Highway Infrastructure, National Cooperative Highway Research Program (NCHRP) – Washington, DC. -** *Project Manager:* Mr. Kandarpa led this research to *produce guidance* for state and local transportation agencies in evaluating and—if necessary—adapting their standards and practices for roadway and intelligent transportation *system designs* (including traffic control devices) *and implementations* to reflect the *deployment of connected and automated vehicle technologies.*
05/18 – 07/19	**Mobility on Demand and Automated Driving Systems: A Framework for Public-Sector Assessment, National Cooperative Highway Research Program (NCHRP) – Washington, DC -** *Project Manager:* Mr. Kandarpa led the research to establish a framework to assess the effects of MOD services and ADS on transportation demand and supply and the broader economic and societal ecosystem. The framework will be developed with the intent of informing relevant standards development organizations.
08/16 – 04/18	**Dedicating Lanes for Priority and Exclusive Use by Connected and Automated Vehicles (CAV), National Cooperative Highway Research Program (NCHRP) – Washington, DC -** *Project Manager:* Mr. Kandarpa led this project to develop guidance on the conditions that appear to be amenable to dedicating lanes for CAV users and what *policy advisory* and actions are needed to make this feasible. Using modeling and simulation, his team identified conditions that can enable and hinder mobility, environmental, *safety and economic benefits of dedicating lanes to CAV users.*
10/15 – 01/17	**Challenges to Connected and Autonomous Vehicle (CAV) Applications in Truck Freight Operations, National Cooperative Highway Research Program (NCHRP) – Washington, DC -** *Project Manager:* Mr. Kandarpa's team led this research to analyze existing and emerging freight regulatory, planning, *policy development*, and operational environments and *challenges for connected and autonomous truck technologies*; identify public and private sector barriers to, and opportunities for implementation of these technologies in freight operations; and propose next steps for addressing the challenges for deployment and adoption.
12/15 – 02/16	**Tampa Smart City Pilot Concept – City of Tampa, FL.** Working with the City DOT, several local government agencies, automakers and tier 1 suppliers, university researchers, and non-profit entities, Mr. Kandarpa led the development of concepts of operation, *system analysis, policies, and implementation for automated vehicle pilot deployments* in downtown Tampa, local airport and port, and highway on-road testing.

16. Staff Experience.

Firm employed by	ARCADIS		
Name	Alex Ariza	Years of relevant experience with this employer	13
Title	ATMS Practice Lead	Years of relevant experience with other employer(s)	13
Degree(s) / Years / Specialization		MS / 2011 / Civil Engineering, University of Toronto BS / 2009 / Engineering Science & Infrastructure Engineering, University of Toronto	
Active registration number / state / expiration date		100318961 / Ontario	
Year registered	2017	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities.		Technical Lead (ATMS)	

Experience dates	Experience and qualifications relevant to the proposed contract
	Mr. Ariza is an ITS software specialist with more than 10 years expertise in a variety of transportation operations roles, ranging from field data collection to traffic management center (TMC) operations. Alex is technically proficient and operationally minded, providing support for the deployment of new software both from technical systems integration and adapting standard operating practices perspectives. A **key member of Arcadis' ATMS practice**, bridging the gap between technical software and traffic operations management.
10/19 – Ongoing	**ATMS Planning and Implementation, Ohio Department of Transportation (ODOT), Columbus, OH** – *Technical Project Manager*: The inSIGHT ATMS software solution was successfully deployed for the ODOT's TMC in Columbus. Responsible for managing feature and issue prioritization, supporting the configuration of the system to meet operational needs, and assisting in the development of standard operating procedures using the new ATMS. Support was also provided for *systems integration between the ATMS and field devices*, technical troubleshooting, ad-hoc operator training, system testing, and design specification.
11/16 – Ongoing	**Next Generation ATMS Planning & Deployment, Wisconsin Department of Transportation (WisDOT), Milwaukee, WI** – *Project Manager:* Arcadis outfitted the WisDOT Traffic Management Centre in Milwaukee with ATMS. Responsible for being situated on-site to provide coordination between Arcadis and WisDOT during the first two years of operation. Supported the configuration of the system to meet WisDOT operational needs and assisted in the *development of standard operating procedures using the new ATMS*.
04/18 – Ongoing	**Next Generation ATMS Planning & Deployment, Pennsylvania Turnpike Commission (PTC), PA** – *Technical Project Manager:* Arcadis deployed inSIGHT ATMS in May of 2019 as the corridor wide ATMS for PTC. Deployed at the PTC Traffic Management Center, the project applies *state-of-the-art decision support capabilities to manage traffic conditions*, maximizing the return on investment in Pennsylvania's turnpike system and minimizing the harmful effects of unnecessary congestion. The ATMS allows PTC to maintain situational awareness of the network via traffic data and cameras and improve incident management via the decision support system and automated event response functionality. The ATMS provides TMC operators with a *single interface to fog detection, Waze, INRIX data, ATIS/511, travel time route monitoring, data archiving, and detour monitoring*.
01/00 – Ongoing	**ATMS Planning & Implementation, Niagara International Transportation Technology Coalition (NITTEC), Western NY** – *Project Manager:* Arcadis has provided ATMS software to NITTEC for over two decades. In fall 2022, Arcadis upgraded NITTEC to the current inSIGHT ATMS platform. The upgrade project brought NITTEC onboard the inSIGHT ATMS community and allows NITTEC to receive quarterly updates and new functionality as the product continues to evolve. The system includes event management for Western New York, *interfaces with external event providers and Waze, output to 511 ATIS, and control of field*

	devices. This project reflects the successful partnership approach that Arcadis seeks to create in all our transportation systems management and operations (TSMO) software projects. Over the course of two decades, several priorities changed for NITTEC. Arcadis and NITTEC worked together to enhance the system to meet ongoing operational needs.
01/14 – 09/15	Pan Am/Parapan American Games Transportation Delivery Plan (TDP), Ministry of Transportation Ontario (MTO), Toronto, ON – *Project Coordinator:* Arcadis built upon the development of the Strategic Framework for Transportation and worked with the Games Delivery Partners to detail the TDP. Moving from planning to games-time, the TDP operationalized the *strategies for spectators, visitors, and other Games Clients*. Responsible for weekly and monthly progress tracking, schedule updates, and budget forecasting.
09/14 – 09/15	Pan Am/Parapan American Games Spectator Parking Operations, MTO, Toronto, ON, 2015 – *Deputy Manager:* Arcadis worked with the Games Delivery Partners on the planning and delivery of spectator parking at seven venues. This included site management and logistics, lot design, shuttle services, game-time operations of the lots, and commissioning/decommissioning of the parking sites. To support these operations, Arcadis set up the Spectator Parking Operations Control Centre, providing an oversite of Arcadis Spectator Transportation Coordinators stationed at all venues, including locations with and without parking operations. Led the *procurement, commissioning and decommissioning, and systems integration efforts for the control center*. Provided logistics coordination and procurement management and filled a games-time operations in the Spectator Parking Operations Control Centre.
06/16 – 08/19	MTO High Occupancy Toll (HOT) Lanes Survey and Data Collection, MTO, Toronto, ON – *Project Manager:* The MTO has commissioned Arcadis to *collect and visualize data* regarding the usage of the Queen Elizabeth Way High Occupancy Toll (QEW HOT) lane in support of the HOT Pilot Project. The data collection effort consisted of three parts. a license plate/mail-out perception survey, detailed classification counts for the HOT lane, and a non-renewal survey. The data collected includes origin-destination, trip purpose, QEW usage characteristics, perceived changes since the introduction of the pilot, and general attitudes. The *collected data are presented using a Business Intelligence reporting tool*.
09/16 – 05/17	Transportation Network Forecast Model Update, City of London, London, ON – *Survey Lead:* The City of London has commissioned Arcadis to update the city's transportation demand model. In support of this model update, Arcadis conducted an extensive household travel survey in the city and outlying areas, as well as a supplementary survey targeting post-secondary students. The survey includes household characteristics, travel patterns, and transportation attitudes and was conducted using a hybrid web and telephone approach. The survey *datasets were fused, and a multi-dimensional expansion* was used to create a representative dataset for the city.
06/12 – 05/15	Southern Ontario Commercial Vehicle Survey, MTO, Toronto, ON – *Field Survey Supervisor:* Arcadis commissioned to undertake a survey of commercial vehicle travel throughout Southern Ontario. The study consisted of the development of a survey application, the commercial driver intercept survey, the capture of traffic counts, the coding and validation of the survey data, and the expansion and summary of the commercial vehicle data collected between 2010-2013. Responsible for *liaising with the software application team, making sure the application met client requirements*. Responsible for administering field staff, survey logistics, data processing, validation, and analysis. Playing a key role in making sure the smooth operation of the survey and the accuracy of the collected data.

16. Staff Experience:

Firm employed by	ARCADIS		
Name	Larry Baldwin	Years of relevant experience with this employer	12
Title	Transportation Software Product Bundle Director	Years of relevant experience with other employer(s)	18
Degree(s) / Years / Specialization		Bachelor of Science / 1999 / SAGU, TX	
Active registration number / state / expiration date		N/A	
Year registered	N/A	Discipline	N/A
Contract role(s) / brief description of responsibilities.		Technical Lead (ATIS & VDMS), Implementation Support (Software Development / Updates)	

Experience dates	Experience and qualifications relevant to the proposed contract
	Mr. Baldwin has 30 years of extensive software and systems engineering experience managing and designing data ingestion, **video distribution system (VDS)**, web, mobile, voice, and multi-modal user interface services. His long career includes project and program management as well as web and speech recognition user interface application design and delivery. He is a senior leader for Arcadis' ATIS practice, **managing multiple 511 ATIS deployments and creating the Arcadis 511 Interactive Voice Response (IVR)** platform. He provides oversight of operations and maintenance and **client management for a substantial number of Arcadis' 12 ATIS deployments**. A visionary in interactive design, Mr. Baldwin is the **inventor or co-inventor of multiple user experience design patents**. He has designed and deployed telematics, web, and in-home speech, touchscreen, and web-browser applications since 1999, exploring the boundaries and experiences of Human Computer Interaction. His wealth of deployment, operations, and maintenance experience translates to a strong user experience design understanding. He has managed operations for entities such as the Arizona 511 ATIS, Los Angeles 511 ATIS (five county region), San Francisco Bay Area 511 ATIS, Florida 511 ATIS, Alaska 511 ATIS, Massachusetts 511 ATIS (Mass511), New York 511 ATIS, and Alberta 511 ATIS. These deployments include **complex user interactions such as real-time traffic, transit, and weather information**. His experience includes designing, deploying, and managing large customer-facing systems for companies such as Expedia.com, Western Wireless, and Arch/Page-Net, which handle multiple millions of customer interactions each year.
01/12 – Ongoing	**Travel-IQ *(Advanced Traveler Information System (ATIS) Product Platform),* Multiple Locations, US and Canada –** *Product Lead:* Arcadis' Travel-IQ Solution *(511 ATIS) has been deployed in more than 26 states, provinces, and countries*. Larry is the Product Lead, responsible the deployment, support, on-going maintenance, and product maturation.
01/12 – Ongoing	**Florida 511 ATIS, Florida Department of Transportation (FDOT), Tallahassee, FL –** *Project Implementation/Support Lead:* Arcadis was responsible for the *detailed design and development of a state-wide 511 website* for the state of Florida, as well as the design and development of the database warehouse that drives the 511 IVR. As part of the contract extension for the statewide data integration and *Video Aggregation System (DIVAS), this project deployed the Intelligent Video Distribution System (iVDS) platform, which aggregates and disseminates live video from the Department's 4,000 traffic cameras.* Customized Data Fusion System (DFS), which ingests real-time data from the State's eleven traffic management centers and various external data sources was also deployed to supply normalized information products to internal and external stakeholders and agency partners.
01/18 – Ongoing	**Arizona 511 ATIS, Arizona Department of Transportation (ADOT) -** *Project Manager:* Arcadis is the Prime Contractor for the development, deployment, and operation of the Advanced Traveler Information System for the state of Arizona. The system *went live in under three months*.
01/12 – Ongoing	**Southern California (SoCal) 511 ATIS, Motorist Aid and Traveler Information System, Los Angeles Service Authority for Freeway Emergencies, Multiple Locations, CA -** *Multiple Project Roles*. Arcadis was the Prime Contractor for the *development,*

	deployment, and operation of the SoCal 511 traveler information IVR system for the five-county greater Los Angeles area. The project included SoCal 511, an IVR, and a website.
01/16 – Ongoing	Alaska 511 ATIS, Alaska Department of Transportation & Public Facilities (DOT&PF), AK – *Project Manager:* Arcadis is the Prime Contractor for the *development, deployment, and operation* of the traveler information system for the state of Alaska.
01/18 – Ongoing	Wisconsin 511 ATIS, Wisconsin Department of Transportation (WisDOT), Madison, WI – *Project Manager/IVR Lead:* Arcadis was the Prime Contractor for the *development, deployment, and operation* of the Wisconsin511 traveler information system. Responsible for the IVR system.
01/14 – Ongoing	New York 511 ATIS (NY511), New York State Department of Transportation (NYSDOT), NY – *Deputy Project Manager/IVR System Lead:* Arcadis is the Prime Contractor for the development, deployment, and operation of the NY511 traveler information system for the state of New York. The *system includes a public website, mobile website, IVR, Mobile App*, and Application Programming Interface.
01/16 – Ongoing	Alberta 511 ATIS, Alberta Transportation, Alberta, CA – *IVR Systems Lead:* Arcadis was the Prime Contractor for the *development, deployment, and operation* of the traveler information system for the province of Alberta.
01/18 – Ongoing	Mass511 Services, Massachusetts Department of Transportation (MassDOT), Boston, MA – *IVR Systems Lead:* Arcadis was the Prime Contractor for the development, deployment, and operation of the Mass511.com traveler information system for the state of Massachusetts. The system includes a *public responsive website* and IVR.
01/08 – 01/12	VoiceBox Vehicle, Home, and Phone Applications, VoiceBox, Bellevue, WA – *User Experience Director:* Responsible for the User Interaction design for complex multi-modal (speech and touch) products that span use cases from in-car telematics/entertainment applications such as Toyota in-dash systems and XM/Sirius Radio to home entertainment products such as Voco, the *world's first voice controlled wireless music system*.
01/05 – 01/08	Western Wireless Enterprise Voice Portal, Western Wireless, Bellevue, WA – *Program Manager:* Responsible for handling the customer service applications for more than one million wireless customers across multiple platforms at Western Wireless, including toll free phone support as well as customer relationship management web applications and quality control systems.

16. Staff Experience:

Firm employed by	ARCADIS		
Name	David Ward, GISP	Years of relevant experience with this employer	20
Title	Certified GIS Project Manager	Years of relevant experience with other employer(s)	4
Degree(s) / Years / Specialization		BS / 1999 / Environmental Studies, Eckerd College	
Active registration number / state / expiration date		GISP 51378 / Exp. 04/30/2025	
Year registered	2011 Discipline	Geographic Information Systems Professional (GISP) - US	
Contract role(s) / brief description of responsibilities.		Technical Lead (Data)	

Experience dates	Experience and qualifications relevant to the proposed contract
	Mr. Ward has extensive experience as a Project and Task Manager, **Geographic Information Systems (GIS) Analyst**, Database Developer and Administrator, and ArcSDE Administrator with experience in **GIS development, implementation, and integration**; database modeling and development; **asset and work order management systems integration and development**; environmental policy support; marine science analysis and modeling; **transportation system modeling and analysis**; utilities infrastructure modeling; information management; and enterprise information systems design and development. Mr. Ward's technical experience is in the areas of ArcGIS, ArcGIS Server, ArcSDE, SQL Server, and Oracle.
04/14 – 08/18	**ESRI Roads and Highways Linear Referencing System (LRS) Implementation, LADOTD, Baton Rouge, LA** – *Program Manager*: Responsible for the assessment, design, build, and implementation of roads and highways LRS for LADOTD. Led efforts to perform an initial needs assessment, including the understanding of existing conditions and desires for future functionality, and subsequently developed a plan for implementation. Directed the team's daily efforts using an *Agile Project Management system, driven by user stories and acceptance criteria* to track task work and perform regular quality control. Oversaw the development of a customized *data* model to fit LADOTD'S needs, as well as the implementation of a *statewide route network and data migration efforts* of events. Instructed his team through the systems implementation steps using the various tools of roads and highways, including ArcGIS Desktop tools, Workflow Manager, *Data* Reviewer, and Roadway Characteristics Editor (RCE) web application.
02/20 – 06/24	**Highway Performance Monitoring System (HPMS)& Certified Public Miles (CPM) Reporting using Esri Roads and Highways (FY2019 – FY2022), LADOTD, Baton Rouge, LA** - *Program Manager:* Provided critical data translation and quality assurance/quality control support for the April and June HPMS reports submitted to the Federal Highway Administration (FHWA). Responsible for *translating linear referenced event data from one route network to another*, validating and cross-checking event data against FHWA HPMS guidelines, and formatting the submittal files appropriately.
02/20 – 06/24	**Enterprise Systems Integration w/ Esri Roads and Highways, LADOTD, Baton Rouge, LA** - *Program Manager:* Provided *Agile project management techniques, data analysis, and systems design* consulting in support of LADOTD's mission to integrate enterprise business systems with their Roads and Highways Implementation. MS2, Deighton dTIMS, Agile Assets, and the State's crash data systems are being integrated with Roads and Highways to facilitate data sharing, data management, and federal reporting (HPMS & CPM).
04/08 – 03/11	**Bridge and Pavement Management Systems, City/Parish of East Baton Rouge, Baton Rouge, LA** – *Systems Architect and Developer:* Pavement management solution that uses an Esri LRS to integrate the Planning Commission's Street centerline file with Public Works' Deighton Management System. *Architected a Bridge Management System* to manage the tracking and scheduling of bridge inspections as well as the inventory and condition assessments of each structure. The bridge system was designed using Oracle Apex and is access through EBR's intranet.

09/16 – 01/20	**AASHTOware SafetyAnalyst Implementation and Integration, Arizona Department of Transportation (ADOT), Phoenix, AZ –** *Project Manager:* Responsible for Integrating SafetyAnalyst with ADOT's Enterprise GIS to leverage temporality and changes over time to the road segments and other data values. SafetyAnalyst is also integrating the Safety Data Mart (SDM) and other enterprise databases for the required data values for SA analysis modules. Used an *Agile approach to develop and integrate systems to support statewide crash and safety analysis.*
01/17 – 12/17	**Deighton dTIMS Pavement and Bridge Management Integration w/ Esri Roads and Highways, Indiana Department of Transportation (InDOT), Indianapolis, IN –** *Project Manager:* Responsible for a feasibility study and implementation plan to integrate the Deighton dTIMS pavement and bridge management programs with InDOT's existing R&H. Provided background and training to Deighton personnel to understand the touchpoints between R&H and dTIMS through ArcGIS Server REST endpoints and the enterprise database. *Systems development and architecture design* to support the development of the next generation of dTIMS software.
03/17 – 6/22	**Nevada DOT Enterprise GIS Implementation using Esri R&H, Nevada Department of Transportation (NDOT), Carson City, NV –** *Program Manager:* Responsible for the assessment, design, and implementation of Roads & Highways linear referencing for Nevada Department of Transportation (NDOT). Led efforts for initial discovery and needs assessment that capture current conditions and desires for *future functionality and developing a plan for enterprise implementation*. Utilized a customized Agile Project Management system to direct team's efforts via user story generation to track task work.
01/11 – 12/11	**Arizona Safety Action Plan (ASAP), Arizona Department of Transportation (ADOT), Phoenix, AZ –** *Senior Systems Analyst:* Responsible for the development and analysis of statewide crash information to support the development of a Safety Action Plan for ADOT to minimize the impact of fatalities and serious injuries throughout the state. Conducted detailed historical analysis of crash information to establish trends within the emphasis areas of the SHSP. Performed *business process reviews and analysis to reengineer ADOT's workflows* and methodologies to better support the State's safety mission.
10/18 – 09/20	**Enterprise Implementation of Esri Roads and Highways and Road Log Development, Montana Department of Transportation (MDT), Helena, MT –** *Program Manager:* Leveraging the Agile method to led the team through the implementation of an enterprise linear referencing system using Esri Roads & Highways. Developed the *database schema and model in Oracle & ArcSDE to support the LRS* and directed the efforts for data migration and business process workflow development. Responsible for the overall program including the development of a Statewide Road Log (Straight-Line Diagram Reporting).
01/16 – 09/16	**HPMS & CPM Reporting FY2015 - FY2016 using Esri Roads and Highways LRS, Arizona Department of Transportation (ADOT), Phoenix, AZ –** *Project Manager:* Responsible for the Highway Performance Monitoring System (HPMS) and Certified Public Miles (CPM) federal reporting requirements for ADOT FY2015 & FY2016. Oversaw the development and evaluation of sample panel sufficiency, as well as the *workflow established to help team members efficiently extract roadway characteristic information* from construction plans. Kept the team on track with the federal deadline and made sure the use of external business system datasets, such as traffic and pavement management, were fully integrated with Roads & Highways.
01/12 – 12/12	**Traffic Control Asset Inventory Analysis – MUTCD, TDOT, Nashville, TN –** *Principal Designer:* Responsible for an alternatives analysis and system design for enterprise systems and business processes that incorporates the State's Linear Referencing System, LiDAR, Asset Inventory, and financial Work Management System into a replacement system that supports asset management and MUTCD compliance for all DOT assets. *System included field/mobile applications as well core enterprise RDBMS and management applications. Solution centralized Asset Management across all TDOT Regions.*

Firm employed by	ARCADIS			Meets MPR No. 1
Name	Douglas Tilt, PE		Years of relevant experience with this employer	23
Title	Principal ITS Engineer		Years of relevant experience with other employer(s)	4
Degree(s) / Years / Specialization			BS / 1996 / Civil Engineering, Georgia Institute of Technology - Main Campus	
Active registration number / state / expiration date			PE. 0033502 / LA / Exp. 03/31/2026	
Year registered	2007	Discipline	Civil Engineering	
Contract role(s) / brief description of responsibilities.			Technical Advisor	

Experience dates	Experience and qualifications relevant to the proposed contract
	Mr. Tilt is the National Practice Lead for ITS, Traffic, GIS, and Database Management services for the Arcadis US and has more than **27 years of experience in ITS, CAV, and ATMS design, traffic engineering,** transportation planning, and transportation design. He has managed and designed numerous projects throughout the southeastern United States and globally, including ITS, CAV, and ATMS projects, traffic signal projects, intersection improvement projects, traffic and corridor studies, roadway concept development, and safety and operation studies.
08/09 – 03/11	**Baton Rouge to Lafayette ITS - Traffic Incident Management Phase 2, LADOTD, Multiple Parishes, LA -** *ITS Design Manager/QC Manager: Provided ITS design, construction, and integration services.* Responsibilities included managing, leading, and reviewing design of fiber optic and wireless communication along with 13 CCTV cameras and RVDs, 4 DMSs, and 2 HARs on I-10, I-49, US 90 and US 190 between Baton Rouge and Lafayette. Managed and reviewed monthly project reports, schedule, and budgets. Interacting with the client and other stakeholders on a regular basis for project progress review meetings. Conducted and supervised several field trips to *verify design requirements and to meet technical specifications.*
06/16 – 09/17	**North Avenue Smart Corridor, City of Atlanta, Atlanta, GA -** *Project Manager and Senior Engineer:* Responsible for the design of the *Smart Corridor Demonstration* Project. This project improves multimodal traffic operations for 2.3 miles of North Avenue which links some of the City's most important businesses. The deployment included dedicated short-range communication (DSRC) and cellular based communication to test and *evaluate various CAV applications* at difference transmission rates and user saturations rates. Applications included collision warning and avoidance, emergency vehicle preemption, roadside advisor, and signal detection. In addition to broadcasting *basic safety messages (BSMs), signal phasing and timing (SPaT)* information is also transmitted. The project also includes deployment of an adaptive signal systems, travel time detection system and smart pedestrian detection. The technologies deployed tie back to the technology hub in Renew Atlanta's offices.
06/06 – 05/08	**Traffic Control Center (TCC) Upgrade and ATMS Modernization, City of Atlanta, GA** – *Project Engineer*: Scope included specification, procurement, installation, and integration of all the TCC equipment. This also included all the equipment at the Georgia DOT (GDOT) hub buildings and the field to bring the Atlanta traffic control systems up to current standards. The projects were executed successfully and accepted by the City of Atlanta and was completed in a period of 12 months. During Phase I, developed an Atlanta TCC field device architecture and strategic plan. Evaluated existing conditions, which included taking *inventory of existing ATMS field device conditions* in the Atlanta area. During Phase 2, *evaluated potential technologies and strategies of ATMS field devices* in use in Atlanta. During Phase 3, *developed an ATMS network field communication deployment plan* to bring the Atlanta TCC up to current state-of-practice.

06/13 – Ongoing	**ITS Maintenance Retainer Contract – Program Management and Maintenance Management System, LADOTD, Statewide, LA –** *Technical Advisor/QA-QC*. Responsible for *developing, implementing, and managing ITS maintenance plans, policies, standards, procedures, and guidelines.* Responsibilities also include deployment planning, installation, configuration validation, data migration support and ongoing update to database, training, and annual Maintenance Management System (MMS) software support. Arcadis provided routine and responsive maintenance for the DOTD's statewide ITS infrastructure. Such infrastructure includes Closed-circuit television (CCTV) cameras, Dynamic Message Signs (DMS), radar vehicle detectors, and ramp meters, totaling more than 500 sites statewide. The project scope includes program management; maintenance management system software; comprehensive maintenance plan for routine and responsive maintenance; health and safety and traffic control plan development; and tracking and performance measures reporting.
6/20 – Ongoing	**Statewide Broadband Program, GDOT, Statewide, GA –** *Project Manager/ITS Technical Advisor:* Working with a team of legal and financial experts to develop a series of design-build (DB) projects to deploy the *nation's largest CV infrastructure*. The DB projects will expand GDOT's fiber network to over 1,300 miles covering every interstate mile statewide and deploy over *500 CV roadside units (RSUs)* at all interstate interchanges. In parallel with the DB projects, GDOT, with Arcadis and their legal and financial efforts, are developing a *first-of-its-kind for Georgia Operate Maintain and Commercialize (OMC) broadband program*. The OMC will leverage GDOT's interstate value to gain commercialized broadband revenue share. This shared revenue provides GDOT a revenue stream to pay for ITS operations and maintenance and further expand NaviGAtor's (GDOT's ATMS) role in improving safety and operations.
08/16 – Ongoing	**ITS Maintenance Retainer Routine Maintenance Task Orders – CCTV Camera, DMS, Vehicle Detectors (VD), and Ramp Meters, LADOTD, Statewide, LA.** *Technical Advisor/QA-QC*. Responsible for providing routine *maintenance of 500+ statewide ITS sites* including, CCTV cameras, DMS, VD, and ramp meters. Responsibilities include development of detailed checklist by device type; *integration of checklist with MMS software*; standardized reporting; development of routine maintenance schedule; and coordination with statewide TMC, regional TMCs, and DOTD districts.
09/11 – 10/11	**ITS Maintenance and System Integration, Georgia State Road and Tollway Authority (SRTA), Fulton and DeKalb Counties, GA** - *Project Manager*: *System integration and maintenance* of the I-85 High Occupancy Vehicle (HOV) to High Occupancy Toll (HOT) conversion project. As a part of this effort, Arcadis reviewed the available design plans and *network configuration* documents. Arcadis provided *final integration* and maintenance support during the "go live" implementation of the I-85 HOT lanes, which included validation that the contractor installed the correct switch/router per contract, optimized the VLAN routing to the WAN, redesigned IP address schedule for improved network management, and developed a comprehensive maintenance plan to SRTA to keep the system running at peak efficiency.
01/15 – 01/16	**New Orbital Highway and Truck Route – Project 23 (Contract 2), Qatar Public Works Authority "ASHGHAL", Doha, Qatar -** *Project ITS Technical Lead*: This design-build project (Contract 2) of the New Orbital Highway included a 38km roadway network with 7 interchanges and 1 tunnel. The project also included truck only facilities to separate passenger and commercial truck traffic. ITS requirements included a communication network with Lane Control Signs, DMS, magnetometers, License Plate Recognition cameras, and CCTV cameras. Responsibilities included *ITS device layout design*, coordination with other disciplines, *design report and documentation*, and overall ASHGHAL *design guideline and specification adherence*.

16. Staff Experience:

Firm employed by	metric			Meets MPR No. 6
Name	Rolando Ramirez, PE		Years of relevant experience with this employer	20
Title	Traffic Operations & ITS Lead		Years of relevant experience with other employer(s)	6
Degree(s) / Years / Specialization			B.S. / 1997 / Civil Engineering	
Active registration number / state / expiration date			PE #60918 / Florida / Exp. 2/28/2025	
Year registered	2004	Discipline	Civil Engineering	
Contract role(s) / brief description of responsibilities.			CAV and EV Subject Matter Expert (SME), QA/QC	

Experience dates	Experience and qualifications relevant to the proposed contract
	With 26 years of experience, Mr. Ramirez has served as an **ITS Project Manager**, leading over 80 ITS design and planning projects. His experience includes **planning, studying, and designing traffic operations, ITS, TSM&O, and advanced traffic signal systems projects**. Additionally, he has experience designing ITS infrastructure such as Roadside Units (RSU) and vehicle/pedestrian detection for emerging technologies including Automated Traffic Signal Performance Measures (ATSPM) and **Connected Vehicles.**
05/21 – Ongoing	**TSM&O Engineering Analysis and Minor Design, FDOT District 7, Tampa, FL** – *QA/QC/Technical Advisor:* The objective of this contract is to maximize efficiency of transportation systems by focusing on mobility outcomes, such as travel time reliability. There will be a performance driven approach for solving arterial congestion and traffic problems in which ITS is utilized to locate and correct congestion causes in real-time. Task Work Orders are assigned by District 7 related to *technical support, strategic planning, studies and conceptual plans, deployment of ITS components and public involvement.* Other activities that are included with this effort include reviewing and developing plans and specifications for design or design-build contracts to install TSM&O field devices; reviewing project requirements and hardware configuration analysis; developing proper sequencing, cost estimating, scheduling and coordination of ITS projects; performing *system engineering analyses;* and reviewing the utilization of systems devices hardware and software.
01/20 – Ongoing	**ATMS Design-Build, FDOT District 7, Tampa, FL** – *QA/QC/Technical Advisor:* This citywide ATMS project consists of the upgrade of 402 signals to expand the City's existing ATMS. The project *includes design, construction, and installation of a next generation traffic management system* that connects vehicles and people to the transportation system to optimize traffic flow, and improve mobility, reliability, resiliency, and safety. This includes the design and installation of a fiber optic communications system, Closed Circuit Television (CCTV) traffic cameras, 40 Roadside Units (RSU) with DSRC radios, Microwave Vehicle Detection System (MVDS), Flood Sensors, traffic signal controllers and cabinets, Uninterruptible Power Supplies (UPS), traffic signal software, predictive analytics, Software, Servers, and Workstations for TMC staff.
09/19 – Ongoing	**CV Readiness Study & Implementation Plan, Florida's Turnpike Enterprise (FTE), Statewide, FL** – *QA/QC/Technical Advisor:* This contract is a continuing services contract for general ITS Design Services for ITS device replacements and express lane enhancements covering multiple areas within FTE system of toll roads. As a TWO under this contract, Metric developed a *CV* Readiness Study & Implementation Plan. This plan included *conducting a CV Readiness assessment* where Metric staff researched and documented the current state of CV technology within the industry and conducted various internal hardware, software and storage needs, security, and staffing proficiency assessments as well as roadway infrastructure evaluations as it pertains to the readiness of FTE to *deploy CV technology*. All these tasks aid in the development of a short and long-term CV Technical Implementation Plan for FTE. Metric worked with FTE on the identification of key stakeholders and interviewed and

	worked with the various agencies to identify and document current initiatives, lessons learned, use cases, expected benefits, and more. *This assessment was conducted at a national and statewide level.*
09/17 - Ongoing	**Continuing Services Contract (CSC) ICM - Freeway/Arterial Operations, FDOT District 5, Orlando, FL** – *QA/QC/Technical Advisor:* The FDOT ICM project seeks to improve overall operations and mobility in the Central Florida area; specifically, through the operation and management of the Regional TMC and associated programs on both the freeway and arterial systems. Metric functions as an extension of the Department's resources, providing professional services for a wide range of engineering, technical, management and administrative services to assist with numerous TSM&O projects within the work program. The current ICM footprint covers nine Freeways and 12 Arterials within Counties/Cities with 452 traffic signals in six jurisdictions (City of Maitland, City of Orlando, City of Winter Park, Seminole County, Orange County, and Osceola County). TSM&O strategies are being utilized and synthesized by our RTMC staff as they integrate the operations of freeway and arterials to improve the travel time reliability of existing transportation network (arterials and freeways).
01/21 – 1/24	**Professional Design Services for ATMS, Manatee County, FL** - *QA/QC/Technical Advisor:* This project includes provisions for county wide *Advanced Transportation Management Systems (ATMS)* and includes project management and data collection. It also involves the review of the data to create preliminary and final designs that include *network design and cost opinions for the ATMS features that are in the project.* The design is for fiber-optic based communication infrastructure and a variety of *ATMS devices like Advance Traffic Controllers (ATC) replacement,* Advance Vehicular Detection Systems (ADS), BlueTooth based Travel-Time Devices (BT), Arterial Dynamic Message Signs (ADMS), Closed Circuit Television (CCTV), traffic volume monitoring sites using Microwave Vehicle Detection System (MVDS) and Dynamic Trail Blazing Signs (DTBS). The goal of this project is to achieve greater network efficiency/ring structure, best connectivity, and network-communication redundancy.
11/17 – 11/21	**I-75 On- and Off-System F.R.A.M.E. (Florida's Regional Advanced Mobility Elements), FDOT District 5, Orlando, FL** – *QA/QC/Technical Advisor:* Metric represented the FDOT District 5 ITS as the Systems Manager for the I-75 F.R.A.M.E. *Connected Vehicles (CV)* project which assists in the advancement of the Multimodal Integrated Corridor Management (MMICM) plan. As the Systems Manager, Metric was responsible for a majority of project activities, with the exception of construction, to include conducting a *Systems Engineering Analysis* and creation of the appropriate Systems Engineering documentation, review of the Regional ITS Architecture (RITSA) and creation of a Project ITS Architecture (PITSA), coordinating, testing and providing documentation on the various technologies to include Roadside Units (RSUs) communicating via either Dedicated Short Range Communications (DSRC) or *Connected Vehicle to Everything (CV2X),* vehicular On-board Units (OBUs) as well as emulated OBUs (mobile devices and/or tablets) to ensure device interoperability. This project was in line with the USDOT goals and contributed to increased safety, reliability and mobility needs using advanced *CV technologies*. Metric staff was responsible for integrating these devices to multiple signal controllers with the goal of verifying the various *CV-related applications*: Signal Phase & Timing (SPaT), Automated Traffic Signal Performance Measures (ATSPM), MAP messages, Traveler Information Messages (TIM), Basic Safety Messages (BSM), Emergency Vehicle Protocol (EVP), Transit Signal Priority (TSP) and others related to pedestrian safety. Metric staff created detailed test plans and conducted extensive testing in both the lab and field environments with equipment provided by several CV vendors. As a result of the testing, reports were generated to guide the System Manager in their decision-making process for the *development of the CV specifications* and eventual decision-making on the F.R.A.M.E., SR 434, and PedSafe projects and any other future CV deployments. Metric was also responsible for *configuring, integrating and testing all CV devices into the FDOT ITS network.*

16. Staff Experience:

Firm employed by	ARCADIS		
Name	Shahram Malek, PhD, PE	Years of relevant experience with this employer	15
Title	Principal ITS & Traffic Engineer	Years of relevant experience with other employer(s)	18
Degree(s) / Years / Specialization		PhD / 1992 / Civil Engineering, Georgia Institute of Technology - Main Campus	
Active registration number / state / expiration date		PE. 022998 / GA / Exp. 12/2024	
Year registered	1996	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities.		QA/QC, Planning (Strategic Implementation Planning)	

Experience dates	Experience and qualifications relevant to the proposed contract
	Dr. Malek has more than **30 years of experience in project management and ITS program assistance services**. He has extensive knowledge and hands-on experience in planning, design, deployment, operation, and maintenance of systems ranging from small traffic control systems to large statewide systems. He served as a project manager and technical lead on numerous GDOT projects, including the Advanced Transportation Control (ATC) Hardware/Software Specifications, Regional Traffic Operations Program (RTOP), ATC Deployment On-Call, and Fast-Forward Signal Upgrade Programs. He served as the curriculum developer and principal instructor for Federal Highway Administration's Demonstration Project 105, **providing technology demonstration**/instructional presentation on traffic operations principles/practices to more than **2,000 local, state, and federal transportation professionals in 48 states.**
08/09 – 03/11	**Baton Rouge to Lafayette ITS – TIM Phase 2 Design-Build, LADOTD; Multiple Parishes, LA** – *Senior ITS Engineer*: Responsibilities include ***supporting the specification refinement and technology testing and reviews of various proposed ITS products*** that were being proposed for this project. The one-year contract included designing, installing, integrating, and accepting fiber optic and wireless communication along with 13 CCTV Cameras, 13 RVDs, 4 DMSs, and 2 HARs on I-10, I-49, US 90 and US 190 between Baton Rouge and Lafayette.
03/20 – Ongoing	**ITS On-Call Services Contract: I-24 SMART Corridor Operations & Maintenance, TDOT, Davidson & Rutherford Counties, TN** – *Integrated Corridor Management (ICM) Technical Lead*: Responsible for delivering all I-24 SMART Corridor Operations and Maintenance activities. The project is tasked with providing technical support to TDOT by developing and implementing Operations and Maintenance ***strategies for the I-24 SMART Corridor*** from Nashville to Murfreesboro. The project includes implementing Active Traffic Management, Active Arterial Management, and Integrated Corridor Management. Dr. Malek has been involved in all aspects of the project including ***developing Standard Operating Guidelines (SOGs)*** for various sub-components such as the Lane Control System, Variable Speed Limits, DMSs and CCTV Cameras. He also reviewed the development of the I-24 SMART Corridor diversion scenarios, incident management signal timing plans and provided extensive coordination between TDOT and the local agency stakeholders. Additionally, we have instituted the Standard Operation Procedure (SOP) and SOG processes and practices into everyday operation at the TDOT Region 3 TMC.
04/01 – 04/08	**ITS On-Call Services, Alabama Department of Transportation (ALDOT), Montgomery, AL** – *Project Manager*: This project ***initiated the Statewide ITS program rollout*** and as consultant to the ALDOT we help defined the processes, procedures, and specifications for ITS planning, design, operations, and maintenance. Managed various tasks but also led many of the technical activities including the design and implementation of the Mobile TMC that monitors numerous tunnels and bridges. In addition,

	supervises and is responsible for QA/QC of the regional architecture's developments throughout the State. Also contributed to the State's standards and specifications rewrite activity which resulted in the *new ITS field hardware and communication standards* for the State of Alabama.
06/13 – Ongoing	**ITS Maintenance IDIQ – Program Management and Maintenance Management System, LADOTD, Statewide, LA –** *Technical Advisor / QA-QC:* Scope includes *developing, implementing, and managing ITS maintenance plans, policies, standards, procedures, and guidelines.* Responsibilities also include *deployment planning, installation, configuration validation, data migration support and ongoing update to database, training, and annual MMS software support.* Arcadis provides routine and responsive maintenance for the DOTD's statewide 500+ sites that include CCTV cameras, DMS, radar vehicle detectors, and ramp meters.
01/12 – 12/12	**Hattiesburg ITS and Traffic Message Channel Upgrades, MDOT, Jackson, MS –** *Project Manager and Technical Lead*: Full responsibility for the *delivery of all communication, software, and system component*. Arcadis performed configuration of all field devices including CCTV systems, DMS system, Radar Detection Stations and supporting communication electronics and made all system work back at the two responsible TMCs. Additionally, Arcadis was responsible for all submittal deliveries, and delivery and execution of the various *acceptance testing plans* for each of the system components and the overall project.
02/06 – 02/09	**ITS Bond Program, Clayton County, Clayton County, GA –** *Project Manager:* Provided technical support on various activities that included *leading the implementation of the County's configuration management (CM) program* that tracked all communication plants and ITS field assets, supporting design of the *upgrades for the Countywide ATMS* that updated legacy devices and extended the ITS reach to all critical corridors, upgrades to TCC, and development of a new ITS master plan and operations plan.
05/01 – 05/05	**Advanced Transportation Control Hardware and Software, GDOT, Atlanta, GA –** *Project Manager*: Leading to statewide consensus among the stakeholders and resulting in a functional requirements and specification for what has become the *unified standard* for the State traffic control equipment and software. Technical lead in developing the hardware specifications as well as *consensus building among the stakeholders for unified software requirements.*
06/03 – 09/06	**Chattanooga Regional ITS System, TDOT, Chattanooga, TN –** *ITS Designer:* For this *multi-faceted system upgrade* project, Arcadis was tasked to use an existing wireless mesh *network* installed by the City of Chattanooga as a method of communication for traffic applications. The project includes 381 signal upgrades (86 inside the Central Business District). The system upgrades included eight-phase Eagle EPAC M-52 controllers, Malfunction Management Units, and National Electrical Manufacturers Association (NEMA) Technical Specification - 2 cabinets.
02/19 – 02/20	**ITS Planning Program, TxDOT, San Antonio, TX** – *Technical Advisor/Principal Engineer:* Developing *ITS Program Plan, ITS Master Plan and Architecture updates* for TxDOT San Antonio District while working with District leadership, partner agencies and TxDOT Division. The program plan aims to institutionalize Transportation Systems Management and Operations (TSMO) within the District by integrating traffic operations within planning, design, construction, operations and maintenance activities.

16. Staff Experience:

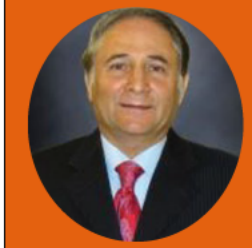
Firm employed by	iteris		
Name	Dean Gustafson, PE, PTOE	Years of relevant experience with this employer	<1
Title	ITS Project Manager	Years of relevant experience with other employer(s)	30
Degree(s) / Years / Specialization		Bachelor of Science / 1992 / Civil Engineering	
Active registration number / state / expiration date		FL #85628, Exp. 2/28/2025; GA # PE 045717, Exp. 12/31, 2024; TN #126904, Exp. 9/30/2024: TX #131391, Exp. 6/30/2024: VA #0402038528, Ex. 5/31/2025; PTOE, ITE, #1298, Exp. 2/3/2025	
Year registered	1998	Discipline	Civil Engineering/Transportation
Contract role(s) / brief description of responsibilities.		QA/QC, ITS Strategic Implementation Planning Subject Matter Expert (SME)	

Experience dates	Experience and qualifications relevant to the proposed contract
	Dean brings more than 30 years of experience in the transportation industry, spanning both the public and private sector, supporting Departments of Transportation in planning and designing stronger transportation infrastructure systems that improve safety and mobility. Mr. Gustafson **developed a Traffic Operations Strategic Plan for Virginia DOT**, implemented a VDOT Traffic Operations Messaging Plan, Fiber Master Plan for Utah DOT, Broadband Strategic and Implementation Plan for Oregon DOT, and TMP's for several agencies. Dean served as State Operations Engineer for Virginia Department of Transportation (VDOT) for 6 years, where he led the largest services contract in VDOT history, numerous cross-functional initiatives, **from traffic operations, connected and automated vehicles, traffic incident management, ITS standards, system engineering, to agency emergency response at the policy, legislative, strategic, and project level.** He previously held progressive leadership roles in Regional Operations and ITS over 10 years in Staunton and Culpeper Districts. Dean worked for New York State Department of Transportation in construction, planning, and traffic engineering roles in Buffalo, NY. Mr. Gustafson is an active participant in the TRB ACP20 Freeway Operations Committee and AASHTO Committee on Transportation System Operations. Mr. Gustafson was an instructor at the National Operations Academy on TSMO/ITS Procurement. Dean was a **Technical Advisor to National Operations Center of Excellence (NOCoE). Dean serves as ITS America Broadband Task Force Chair.**
5/23 – Ongoing	**Traffic Operations Strategic Plan, Virginia Department of Transportation (VDOT), VA -** *Deputy Project Manager/Senior Advisor:* Mr. Gustafson *co-leads the development of a Traffic Operations Strategic Plan* to guide agency Traffic Operations vision, mission, goals and objectives for the next five years. Dean led effort to assess 20 industry trends and 13 Agency Initiatives and their impacts to Traffic Operations. The project began in May 2023 and is ongoing.
11/22 – Ongoing	**Traffic Operations Messaging Improvement Program, Virginia Department of Transportation (VDOT), VA -** *Project Manager.* Mr. Gustafson leads the implementation of 41 Action Items for the VDOT Traffic Operations Messaging Improvement Program. Dean is driving the action items and overall schedule. The project began in November 2022 and is ongoing and should be completed by July 2024.
11/23 – Ongoing	**Systemwide Traffic Engineering and Operations, Open-End, Pennsylvania Turnpike Commission – Pennsylvania -** *Project Manager:* Mr. Gustafson served as the project manager for the PTC *Systemwide Traffic Engineering and Operations* open end which was a $1.5 M contract over 3 years. Dean was responsible for the client single point of contact and distributing contract and Task Orders across sub-consultants. The project began in November 2023 and is on-going.
04/21 – 4/23	**SR-710 Connected Vehicle Corridor Pilot – Palm Beach, FL -** *Project Manager:* Completed design of 6 signalized intersections to add near-miss video detection, bicycle and pedestrian detection, adding roadside units, upgrade signal controllers with transit

	signal priority, and upgrading highway railroad interface to improve performance at entrance to Port of Palm Beach. Responsible for preliminary and final design including plans, *technical requirements* and cost estimate. The project began in April 2021 and was completed in April 2023.
03/21 – 11/22	I-275 Integrated Corridor Management – Tampa, FL - *Project Manager:* Dean led *development of a $30 M I-275 Integrated Corridor Management Design/Build for FDOT District 7 to instrument CAV technology* and solutions along 6 key corridors with fiber optic communications, advanced signal detection, ATSPM, roadside units, Bluetooth, dynamic travel time signs, transit signal priority integration, and dynamic routing signs. The project began in March 2021 and Nov 2022.
06/21 – 09/22	Oregon DOT Broadband Strategic and Implementation Plan – Salem OR - *Project Manager:* Dean led *development of Broadband Strategic and Implementation Plan* for Oregon DOT. Dean *authored the Broadband Best Practices* from other State DOT's technical member and drove the implementation plan. The project began in June 2021 and ended in September 2022.
09/12 – 03/18	Connected and Automated Vehicle Program Plan – Richmond, VA - Division Administrator/Program Sponsor: Dean was responsible for *developing agency connected and automated vehicle program* plan to identify vision, goals, objectives, and agency roles/responsibilities, and program priorities in Virginia. Represent agency in Secretary of Transportation Automated Vehicle Task Force to *develop Commonwealth of Virginia Automated Vehicle Strategic Plan; Executive sponsor* and support to Connected Vehicle Pooled Fund Study. The project began in September 2012 and ended in March 20218.
06/20 – 11/22	Wrong Way Driving System Design/Build RFP; Florida Turnpike - Central and Southern, FL - *Project Manager:* Mr. Gustafson served as ITS Design/Project Manager and led the *development a Wrong Way Driving System for Florida Turnpike* along 87 exit ramps in Central and Southern Florida. The scope included developing 30% concept plans and determining location of incoming detector, outgoing detector, CCTV, supplemental wrong way arrows, wrong way signs, and supplemental pavement markings and signs at intersecting roadways. Dean led the development of plans, specs and estimates for the project, including ERC Comment resolution, including *system architecture documents.* The project began in June 2020 and ended in November 2022.
08/19 – 06/20	Utah DOT Fiber Optic Master Plan – Salt Lake City, FL - *Project Manager:* Dean developed a 5-year master plan for expanding fiber optic master plan for Utah DOT. The scope included recommending *process improvements, organizational capability improvements*, and making the business case for *additional funding for fiber optic system expansion*. The project began in August 2019 and ended in June 2020.
06/12 – 03/15	Statewide TOC and ATMS Contract – Richmond, VA - *Project Manager:* Dean developed, procured, and managed the statewide Traffic Operations Center (TOC) and *ATMS contract*, which was largest service contract in VDOT history. A 6-year, $355 million non-professional services contract, procured using competitive negotiation to staffing for 5 TOC's, 147 SSP Routes, *maintained over 3,000 ITS field devices, and developed statewide ATMS software.* The project began in June 2012 and ended in March 2015.

16. Staff Experience:

Firm employed by	iteris		
Name	Moe Zarean, PhD, PE	Years of relevant experience with this employer	22
Title	National ITS Practice Lead	Years of relevant experience with other employer(s)	14
Degree(s) / Years / Specialization		PhD / 1987 / Transportation Engineering, Ohio State University, Columbus MS / 1982 / Transportation Engineering, Ohio State University, Columbus BS / 1979 / Civil Engineering, West Virginia Institute of Technology	
Active registration number / state / expiration date		24GE03555600 / NJ / Exp. 4/30/2026	
Year registered	1991	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities.		Technical Advisor	

Experience dates	Experience and qualifications relevant to the proposed contract
	Dr. Zarean serves as Senior Vice President for Iteris' Mobility Operations Services and has been with the firm since 2002. Dr. Zarean is a nationally recognized **expert in the field of ITS, with more than 100 reports, papers, and presentations in this field.** He has extensive experience in Advanced Traffic Management Systems, Advanced Traveler Information Systems, **Connected Vehicles and Advanced Rural Transportation Systems.** Dr. Zarean has served as Program Manager for many task order contracts including VDOT ITS On Call Services contracts, NHI's ITS and Traffic Operations Education and Training Services contract, FHWA's Rural ATIS task order contract, and NHI's Safety Training contract. Dr. Zarean has provided management and quality control services on transportation projects valued from $200,000 to more than $10 million. He has an excellent reputation for delivering superior technical products, quickly responding to customers, coordinating with the team, and positively managing project and task order schedules and costs.
09/11 – Ongoing	**Virginia Transportation Video and Data (TV&D) Services, VA** – *Principle in Charge:* This project included the development of a new traveler information website, a *new 511* Integrated Voice Response (IVR) Phone System, and two new *mobile applications*. Subsystems have been developed within these tools to also support VDOT's parallel "Reach the Beach" Program. The Iteris Team also focused on aggregating all VDOT video (nearly 800 CCTV cameras) and data resources from five regional operations centers via deployment of a single standardized video/data distribution center.
12/07 – 12/16	**Systems Operations ITS On-Call Services, VA** – *Project Manager:* Dr. Zarean managed Iteris' ITS On-Call Services contract for Virginia Department of Transportation's (VDOT) Northern Region Operations and a similar contract for VDOT's Central Office. These contracts provided technical support related to a variety of ITS projects. Activities, within the context of ITS, range the gamut from software development to general support services. Task areas under this contract include travel information; statewide/regional ITS-operations planning; ITS standards; *software and systems integration*; electronic toll collection; signal systems support; telecommunications; intelligent vehicle initiative; incident management; performance management; congestion management; and emergency transportation management.
10/97 – 05/02	**FHWA's Development of Rural ITS** - *Principal Investigator:* This contract provided support to the Rural ITS Program, and defined and developed Rural ITS through *system engineering*, *integration, analysis and deployment and planning guidance*. Task Orders included: Development of Rural Requirement for Input to the USDOT's National ITS Architecture; Rural Crash Prevention; Rural Mobility Services; Acadia National Park ITS Field Operational Test; Rural ITS Web-site Development; Development of Interim Basic Guidance for Statewide & Rural Deployment of ITS; Rural ITS Toolbox; Statewide/Rural ITS Strategic Plan Guidance Document; and Support for MCO User Service Workshops.
06/97 – 03/98	**New Jersey Turnpike Automated Traffic Surveillance & Control System, NJ** – *Project Engineer:* Dr. Zarean was responsible for the evaluation of various vehicle detection technologies (video image-processing detector systems, laser detectors, magnetometers, etc.) and communications alternatives (spread-spectrum radio, VSAT, etc.) for the implementation of an *advanced traffic surveillance and control system*. He was also extensively involved in preparing construction plans and contract documents.

16. Staff Experience:

Firm employed by	Niti		
Name	Marwan Abboud, PE	Years of relevant experience with this employer	1
Title	Traffic operations and ITS Lead	Years of relevant experience with other employer(s)	39
Degree(s) / Years / Specialization		MS / 1983 / Transportation Engineering, Georgia Institute of Technology	
Active registration number / state / expiration date		PE020612/ GA / Exp. 12/31/2024	
Year registered	1993	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities.		Technical Advisor	

Experience dates	Experience and qualifications relevant to the proposed contract
	Mr. Abboud is a senior traffic, planning and intelligent transportation systems (ITS), and infrastructure asset management consultant with 40 years of experience. He is a Professional Engineer certified in 5 States, including Georgia. He managed, engineered, specified and supported the installation of numerous ITS, traffic engineering and planning projects. Marwan has experience in the planning, design, specification, installation and timing of traffic signal systems, Advanced Transportation Management System (ATMS), Advanced Traveler Information systems (ATIS), and traffic control centers (TCC). Marwan has managed large teams to successfully deliver ITS, Traffic Engineering and Asset Management solutions.
05/17 – 12/20	**ITS System Design & Integration IDIQ - Connected & Autonomous Vehicles (CAV) Technology Team Support Task Order (TO), LADOTD, Statewide, LA –** *Technical Advisor:* Provided technical support services and facilitate need-based CV/AV planning activities related to CAV and their impact on highway infrastructure for the department's CAV Technology Team. Marwan and the Arcadis team *facilitated workshops and web-based discussions for an inter-disciplinary 30-member CAV Technology Team to keep LADOTD updated on industry trends* while preparing Louisiana for the future of transportation. The LADOTD CAV Technology Team consists of 4 working groups: Highway Infrastructure Technology, Multi-Modal Infrastructure Technology, Departmental Applications, and Policy & Agency Role. The main goal of this project is to keep pace with current technological developments and better understand DOTD's needs before developing a CAV Strategic Implementation Plan. The purpose of the web meetings and workshops was to identify ways LADOTD can achieve ITS missions by *leveraging CAV technology,* present "lessons learned from Connected Vehicle (CV) deployments" from other transportation agencies, determine roles and responsibilities within LADOTD to support CAV projects, and helped to track current CAV technological developments.
05/16 – 07/23	**Georgia DOT, Statewide, GDOT, Atlanta, GA -** *QC/QA Advisor:* The project included *design of 93 traffic signals along 12 arterial corridors* in Coffee, DeKalb, Fulton, Hall, Liberty, Montgomery, Tatnall, Telfair, and Wheeler counties. The project included developing plans and special provisions for the signal upgrade, which included replacing a mast arm, strain pole, and signal and control equipment, signal interconnect by fiber and wireless Ethernet, and spread spectrum.
08/09 – 03/11	**Baton Rouge to Lafayette ITS – TIM Phase 2 Design-Build, LADOTD; Multiple Parishes, LA** – *Resource Manager:* Responsibilities included the *assessment and evaluation of design for accuracy, adequacy, compliance, conformance, cost effectiveness, and quality.* Responsible for QA/QC of design deliverables for the project, and coordination activities associated with the project. Also responsible for the QA/QC of the overall design of the ITS, electrical, and structural systems. Performed QA/QC of all efforts relating to position of field devices, including sites for 13 CCTV cameras, 13 Radar Vehicle Detectors, four DMSs, and two HARs. He also provided QA for the communication system, including both physical layout of the fiber optic and wireless

	system, and Ethernet network design. He provided oversight of the electrical design, including power services to all field devices. Provided QC to the critical bridge attachment conduit system that made use of a stable and secure design, chemical anchor support system under the bridge deck.
02/10 – 06/20	ITS Maintenance On-Call Services, Georgia Department of Transportation (GDOT), Atlanta, GA - *QC/QA Advisor:* Supported the *design and implementation* of a significant portion of the upgrade and maintenance of the GDOT Intelligent Transportation System (ITS) assets installed on the Metro Atlanta freeways. Arcadis' responsibility included upgrading the entire 540 CCTV camera system in 24 GDOT HUBs from the obsolete analog to state-of-the-art digital encoding system. We supported the inventory and engineering design upgrades of the structures for 45 Dynamic Message Signs (DMS) sites, in addition to the inventory and upgrade support of the numerous microwave data systems sites that are critical for the field devices operation.
08/19 – 05/21	Connected and Automated Vehicles (CAV) Strategic Plan, LADOTD; Statewide, LA - *Task Manager:* Developed a statewide strategic plan to identify high-priority CAV technologies and early start projects for deployment in Louisiana. The comprehensive development process involved review of current Louisiana ITS infrastructure and architecture, federal and international CAV initiatives, as well as the broader CAV industry developments to gather pertinent information and assess current conditions for CAV development. The team *facilitated workshops to help define high-level goals* for the CAV program and implementation strategies for which CAV should be considered in the future. The plan outlines *14 prioritized CAV projects/actions to maximize CAV's potential for enhancing traveler safety and mobility* in Louisiana.
07/06 – 07/23	Gwinnett County Transportation Demand Services, Gwinnett County Department of Transportation (GCDOT), Norcross, GA - QC/QA Advisor: *Provided traffic engineering, ITS design, and traffic signal design.* Some of the projects have included Pleasant Hill Road ATMS, SR 20 ATMS, Satellite Boulevard ATMS, Lawrenceville Suwanee ATMS, Gwinnett TCC Fiber Relocation, and Old Norcross at Boggs Road Signal Design.
03/14 – 07/20	North Avenue Smart Corridor, City of Atlanta, Fulton County, GA - *QC/QA Advisor:* Provided design of the North Avenue Smart Corridor Demonstration project. The project improves multimodal traffic operations for 2.3 miles of North Avenue which links some of the City's most important businesses. The *deployment included dedicated short-range communication (DSRC) and cellular-based communication to test and evaluate various connected vehicle applications* at different transmission rates and user saturations rates.
03/10 –12/22	Regional Traffic Operations Program (RTOP renamed to SIGOPS) - Georgia Department of Transportation (GDOT), Atlanta, GA - *Technical Project Advisor:* The RTOP contract involved 540+ traffic signals across 12 regionally significant corridors in Metro Atlanta. The program architecture allowed for a unique regional system to communicate with the traffic control and monitor assets in all 12 participating agencies through a single system housed at the GDOT TMC. Marwan led a team *responsible for routine/preventative maintenance to meet required program thresholds for operation uptime for the various assets.*
03/13 – 08/15	Express Lanes Design-Build - Georgia Department of Transportation (GDOT), Henry and Clayton Counties, Atlanta, GA - *Quality Control Lead:* Performed the ITS design of 18 miles of interstate corridor and 1.5 miles of arterials corridor. The project designs included three Master HUB units, 40 miles of fiber optic backbone system, 60 CCTV cameras, 30 Infrared cameras, 50 Changeable Message Signs (CMS), 61 Microwave Detector Units (MDS), and 60 Automated Vehicle Identification (AVI) units. The project also involved *designing barrier separated managed lane Access Control Systems that include communication and control to 60 gates and seven open road tolling systems.*

16. Staff Experience

PERSONNEL RESUMES

ITS PLANNING PROFESSIONALS

16. Staff Experience.

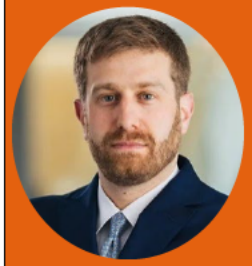
Firm employed by	ARCADIS		Meets MPR No. 4
Name	Laura Hartley, PE, PTOE	Years of relevant experience with this employer	5
Title	Principal ITS/Traffic Engineer	Years of relevant experience with other employer(s)	12
Degree(s) / Years / Specialization		BS / 2006 / Civil Engineering, University of Mississippi	
Active registration number / state / expiration date		PE.0039030 / LA / Exp. 09/30/2024 PTOE 4322 / Exp. 11/2026	
Year registered	2014	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities.		Planning (Systems Engineering Analysis, EV Services and Grant Applications), Implementation Support (System Integration, IV&V)	

Experience dates	Experience and qualifications relevant to the proposed contract
	Ms. Hartley's experience includes **developing ITS, traffic and transportation planning projects** for various Department of Transportations and municipalities across the Southeast. Her ITS experience and responsibilities include a wide range of activities from overall program management and the initial planning and systems engineering to design development, implementation, integration, **development of ATMS software requirements** and performance measures for operations and maintenance.
04/13 – 10/13	**ITS System Design & Integration IDIQ – VDMS Design & Implementation TO, LADOTD, Statewide, LA** - *Project Engineer*: This project included the *design and implementation of a VDMS* for the distribution of LADOTD video sources statewide. Completed in two phases, Phase 1 included the *development of a detailed VDMS design and implementation plan*. Phase 2 included the *implementation and integration of the VDMS* in accordance with the final VDMS design and Implementation plan. The VDMS was designed to collect video sources from throughout the state and distribute amongst the DOTDs internal ITS systems and externally to media, partners, and other agencies, and to and from other regional and the Statewide TMCs. Responsible for *development of the VDMS design and implementation plan documents.*
04/23 – 06/23	**EV Charging and Fueling Infrastructure (CFI) Grant Application - Electrify MUSIC City: Municipality Upgrades for Stations and Integrated Charging, NDOT, Nashville, TN** - *Project Manager:* The *EV grant application was developed to support the city's need to replace or upgrade their existing charging stations* as well as deploy additional charging locations and fast charges in the area. This grant application was written to accommodate the selection criteria of 1.) Safety; 2.) Climate Change, Resilience, and Sustainability; 3.) Equity, Community engagement, and Justice40; 4.) Workforce Development, Job Quality, and Wealth Creation; 5.) CFI Program Vision, and other key information to *ensure a competitive application*.
03/07 – 06/15	**ITS Task 7 - Design Mississippi Department of Transportation's (MDOT) ATMS Software, MDOT, Jackson, MS** - *Project Manager/Transportation Engineer:* Task 7 included the development of software requirements, updates, and integration with TMC software, 511 integration, MDOT Traffic website and mobile applications. Responsible for *developing software requirements* and assisted MDOT in the *selection of ATMS and Asset Management Software*, which was procured, configured, integrated, and tested under this project. This task also included *supporting the integration of TMC operations and ITS devices with the ATMS software*. Also, supported integration of the ATMS that was included in the Mississippi River Bridges Tiger Grant project which tied systems in Louisiana, Arkansas, and Mississippi together.
03/07 – 06/15	**ITS Integrator, Task 6 - System Requirements, MDOT, Jackson, MS** - *Transportation Engineer/EI:* This task included defining major function, high-level system requirements, detailed system requirements, and software functional requirements for many

	new systems and elements included in various ITS designs, *ATMS* Software, and 511 requirements. Responsible for *developing requirements for various ITS designs* as well as supporting the efforts in *defining the major software requirements*.
03/07 – 06/15	**ITS Integrator, Task 1 - Program Management, Systems Engineering Management Plan and Systems Engineering Analyses, MDOT, Jackson, MS**. *Project Manager/Project Engineer.* Responsibilities included providing program level project management services and coordination, *tracking ITS related projects*, providing document control, developing program reports, developing outreach and marketing materials, developing grant applications, presentations and award submittals and coordinating with other consultants and vendors. Developed or assisted in the development of the Document Control and Management Plan and the development of the SEMP. Also, responsible for the *development SEAs* for more than 15 MDOT ITS projects developed during this period.
03/07 – 06/15	**ITS Integrator, Task 2 - Architectures, MDOT, Jackson, MS -** *Project Manager/Transportation Engineer:* Task 2 included providing updates to existing ITS planning documents and developing several new planning documents as directed by the MDOT ITS project manager. Assisted in the *development of the strategic ITS deployment plan and deployment plan section* of MDOT ITS Strategic Business Plan, and development of the master plan guidelines document.
07/16 – 10/17	**ITS 2015 WA #5 - Tupelo Cell Tower and ITS Field Device Deployment, MDOT, Tupelo, MS -** *Project Manager:* This project included both wireless and traditional fiber optic communications, CCTV cameras, radar detection systems, Bluetooth detection systems, with *dedicated short-range communications (DSRC)*. This is the *first project in the state to pilot this technology*. Served as the overall Project Manager and Project Engineer which included leading a team of engineers in *development of conceptual design, evaluation of alternatives and wireless system recommendations, and development of the SEA*. Based on these, led the *development of construction plans, detailed specifications and cost estimates*.
10/15 – 05/16 & 10/16 – 10/19	**Traffic VDMS (TVDMS) and TVDMS Maintenance Support, Lexington-Fayette Urban County Government, Lexington, KY** - *Project Manager*: This project included *providing recommendations, implementation and integration of a TVDMS* to the Lexington-Fayette Urban County Government (LFUCG). This project also included an evaluation of alternatives, the design, specifications, cost estimates, integration, testing, training, and marketing support of the completed VDMS. Following the *integration of the TVDMS system* this project included providing technical and routine maintenance support for the website, video servers, and database to assist LFUCG in *maintaining continuous and efficient operation of the TVDMS*. It also includes on call support and troubleshooting of any critical issues as well as camera additions, modifications, or removal upon request.
04/22 – 08/22	**EV Charging Infrastructure Deployment Plan & Alternative Fuel Corridor Nominations, MDOT, Jackson, MS** – *Project Manager:* Worked closely with MDOT staff and a diverse cross-discipline professionals to lead and prepare the foundational documents and supporting activities that has *paved the way for the department's EVI program*. Responsible for the development of the project management plan and overseeing all activities to ensure the deliverables met NEVI requirements and the *latest national guidance, along with best-practices and lessons learned from other states*. Had engaged with many project stakeholders and presented the program and plan to industry professionals and MPOs. Both projects were *completed under a fast-track timeline*.
10/23 - Ongoing	**Fleet Electrification Transition Plans - Estée Lauder Companies (ELC), North America, EMEA, LATAM, APAC, Europe** - *Project Manager*: Working to develop a *Fleet Transition toolkit* that each ELC's business region will use to convert its fleet of 2,200 vehicles to EVs by 2030. The fleet transition toolkits include stakeholder interviews and insights, review of current fleet and conduct landscape analysis, cost benefit analysis, green fleet management, financial incentives and expansion of EV charging infrastructure while engaging employees in electrification.

16. Staff Experience:

Firm employed by	VENABLE LLP		Meets MPR No. 7
Name	Ariel Wolf, JD	Years of relevant experience with this employer	10
Title	Attorney, Partner	Years of relevant experience with other employer(s)	5
Degree(s) / Years / Specialization		J.D. / 2011 / Georgetown University Law B.A / 2005 / Harvard University	
Active registration number / state / expiration date		N/A	
Year registered	N/A	Discipline	N/A
Contract role(s) / brief description of responsibilities.		CAV & EV Policy Subject Matter Expert (SME)	

Experience dates	Experience and qualifications relevant to the proposed contract
	Mr. Wolf is chair of Venable's Autonomous and Connected Mobility Group, where he counsels clients facing **complex legal and policy issues at the intersection of automation, electrification, connectivity, data privacy, and cybersecurity.** Mr. Wolf is a **recognized thought leader** who works closely with vehicle manufacturers, technology companies, advanced equipment suppliers, and software developers to navigate the emerging landscape being transformed by autonomous vehicles (AVs) and mobility technology. Mr. Wolf's legal work includes serving as **general counsel to the Autonomous Vehicle Industry Association, the nation's leading coalition of AV developers, to advance federal, state, and international regulatory priorities for the AV industry.** He provides sophisticated legal counseling to clients through the application of general transportation law to novel use cases and technologies and is a seasoned advocate who represents clients before agencies that include the National Highway Traffic Safety Administration and the Federal Motor Carrier Safety Administration.
03/21 – Ongoing	**Autonomous Vehicle Industry Association** – *General Counsel Head Legal Advisor*: Leading Autonomous Vehicle organization comprised over 20 companies focused on safe and swift deployment of fully driverless technology in the passenger car, delivery vehicle and heavy trucking spaces. Advises executive leadership, Board and members on ***organizational legal matters and all state and federal motor vehicle safety and autonomous vehicle laws.*** Counsels' members on ***compliance with transportation, connected vehicle and trade issues related to AVs.*** Drafts regulatory comments for all AV-related rules and requirements. Testifies before state and federal Congress in hearings on AV issues. Represents association before Federal and state legislative bodies and administration agencies.
05/23 – Ongoing	**Medium- and Heavy-Duty Advocacy Organization** – *General Counsel Head Legal Advisor* to America's first association focused on the delivery of nationwide infrastructure for medium- and heavy-duty zero emission infrastructure, Powering America's Commercial Transportation. Assisted in forming, founding, and organizing the association. Recruited over 15 members to join organization in first several months. ***Counsels the members on state and federal charging legal and regulatory issues.*** Drafts and files comments in state utility proceedings, including rate cases and ***transportation electrification.*** Advocates before state legislative bodies on laws to facilitate charging infrastructure for medium-and heavy-duty trucks. Represents Association at industry and utility company forums.
03/21 – 12/23	**Transportation Research Board Autonomous Industry Stakeholder Forums** – *Member Lead AV Industry Association Participant* for public private and research organization forum for "Preparing for Automated Vehicles and Shared Mobility Services." Led ***roundtable policy development discussions from industry perspective*** to advance dialogue and plan for deployment of AVs and shared mobility services. ***Presented state and federal AV legislative updates at annual TRB meetings.***

03/21 – Ongoing	State AV Task Forces and Workgroups – *Member AV Industry Representative* for several state working groups and task forces addressing AV testing and deployment, including Texas Connected and Automated Vehicles Task Force, Oklahoma AV Work Group, Washington AV Workgroup.
07/18 – 06/19	U.S. DOT AV Policy Development – *Counselor* to the Deputy Secretary. Appointed federal government official. Launched the Department's Non-traditional and Emerging Transportation Technology Council, which *develops policy governing autonomous road vehicles and transport and logistics technologies,* including unmanned aircraft systems and the hyperloop concept. Oversaw the Department's efforts on spectrum policy, and developed policies governing automated vehicles, drones, hyperloop, and other innovative technologies.

16. Staff Experience:

Firm employed by	VENABLE LLP		Meets MPR No. 7
Name	David Bonelli, J.D.	Years of relevant experience with this employer	2
Title	Attorney, Partner	Years of relevant experience with other employer(s)	15
Degree(s) / Years / Specialization		JD / 2004 / Mitchell Hamline University	
Active registration number / state / expiration date		N/A	
Year registered	N/A	Discipline	N/A
Contract role(s) / brief description of responsibilities.		CAV & EV Policy Subject Matter Expert (SME)	

Experience dates	Experience and qualifications relevant to the proposed contract
	Mr. Bonelli is a partner at the **Venable Law Firm in the Autonomous and Connected Mobility Group**. He joined Venable in January 2023 from Lyft, where he **managed the company's autonomous vehicle regulatory and legislative portfolio.** Mr. Bonelli has significant experience **developing policy strategies for autonomous, connected, and electric vehicle transportation.** Mr. Bonelli served for over a decade as a **senior attorney in the Office of Chief Counsel for the National Highway Traffic Safety Administration, U.S. Department of Transportation**, where he drafted and advised on administration policies, legislation, and rulemaking for highway and motor vehicle safety issues. He also served as counsel on a detail to the **U.S. Senate Committee on Commerce, Science and Transportation, where he assisted in drafting and negotiating surface transportation safety and infrastructure legislation (MAP-21).**
01/23 – Ongoing	**Autonomous Vehicle Regulatory Counseling** – *Partner:* Assists clients on ***compliance with federal and state motor vehicle laws and regulations.*** Advises state and federal associations and organizations on motor vehicle safety standards. Counsels' autonomous vehicle manufacturers, developers, and technology companies on federal investigations. ***Drafts and review legislation for autonomous vehicle laws, guidance, and regulation.***
05/23 – Ongoing	**Medium- and Heavy-Duty Policy Counseling** – *Partner:* Advises truck manufacturers, commercial fleets, electric vehicle charging developers, infrastructure companies and utilities on state and federal charging infrastructure and utility policies. Drafts regulatory comments for public utility proceedings, make ready programs, ***incentive grants,*** and rate proceedings for coalition clients. Administers weekly committee and subcommittee association meetings for state and federal regulatory and utility matters related to charging infrastructure for medium- and heavy-duty trucks.
04/19 – 12/22	**Autonomous Vehicle Policy Advocacy** - *Federal Manager:* Advised rideshare company on ***autonomous vehicle state and federal regulations, compliance, and legislation.*** Represented rideshare company before state and federal Congress and transportation agencies on autonomous vehicle policies. Develops draft policies and legislation for rideshare company on autonomous vehicles.
01/09 – 09/12	**U.S. DOT Autonomous Vehicle and Electric Vehicle Policy Development** – *Senior Federal Government Attorney:* Drafted federal government Automated Vehicles Guidance documents. ***Represented federal agency before Congress on automated vehicle guidance, legislation, and policies.*** Developed legislative proposals for federal government transportation regulations. Advised senior federal administration officials on connected and automated vehicle requirements. Developed policies for federal government employee workplace charging. Consulted with White House climate policy officials to ***implement workplace EV charging policies at various federal agencies.*** Represented agency before Congress to brief on workplace charging policies
01/09 – 12/09	**U.S. DOT Vehicle Rebate Program** - *Senior Federal Government Attorney:* Drafted implementing regulations for federal government car rebate program – "Cash for Clunkers." ***Advised and reviewed comments from stakeholders on program regulations.*** Represented agency before Congress and stakeholders on program regulations.

16. Staff Experience:

Firm employed by	Niti			Meets MPR No. 7
Name	Jignesh Patel		Years of relevant experience with this employer	8
Title	ITS Practice Lead		Years of relevant experience with other employer(s)	22
Degree(s) / Years / Specialization			Bachelor of Engineering, Mechanical Engineer, M.S. University, India	
Active registration number / state / expiration date			N/A	
Year registered	N/A	Discipline	N/A	
Contract role(s) / brief description of responsibilities.			CAV and EV Subject Matter Expert (SME), Grant Applications	

Experience dates	Experience and qualifications relevant to the proposed contract
	Jignesh Patel is the Founder of Niti Systems Consultants Inc., a certified DBE business and technology firm focused on serving the transit industry. Over 30 years of Public Transit experience in the areas of Transit Planning, Mobility Solutions Delivery, Systems Engineering, IT Advisory Services, Technology Governance, and Data Driven Decisions. Jignesh has **acted as Chief Information Officer for four agencies across the USA and helped the agencies with Technology Solutions, Organization Assessment, Strategic Planning, Systems Implementation and Strategic Planning.** Actively involved with various business and technical committees within APTA and other alliances on various business and technology standards.
01/21 – 09/22	**Advanced Transportation & Congestion Management Technologies Deployment (ATCMTD) Grant Program, Ohio Department of Transportation, OH, -** *Grant Development Lead:* Niti Systems supported Ohio DOT with its ATCMTD program. The ATCMTD Program is a $4.4 million grant awarded by the USDOT and FHWA to a team composed of the ODOT, Indiana Department of Transportation (INDOT), and the Transportation Research Center (TRC). The ***grant application focused on the advanced deployments and adoption of truck automation technologies*** by the logistics industry, integrated into daily "revenue service" operations to deliver all types of products across Ohio and Indiana. The program focused on making a section of I-70 between Indianapolis, IN and Columbus, OH the backbone of the project.
02/20 – 03/21	**Long Beach Transit, Long Beach, CA -** *Chief Information Officer:* Supported the agency with implementation of technology strategic initiatives to enable better coordination between business and technology. ***Supporting the agency with CAV Technology Governance and Technology Strategic Planning.*** Helping with innovative mobility solutions, including EAM, ERP, technology modernization, data driven decisions (BI/DW/Analytics) and more.
04/21 – 06/22	**Electric Vehicle (EV) Procurement, Long Beach Transit, Long Beach, CA -** *Technical Subject Matter Expert:* Supported the agency with a procurement of 45 battery electric bus (BEB) procurement. ***Responsible for market research, technical specification development and procurement support*** for this contract. Scope involved procurement of ***electric buses, charging infrastructure and in-vehicle systems.***
10/19 – 03/21	**Jacksonville Transportation Authority (JTA), Ultimate Urban Circulator (U2C), Jacksonville, FL -** *ITS Subject Matter Expert:* ***Connected Vehicles BRT Corridor.*** Supporting the agency with systems assessment, recommendations, and procurement support for technology components for vehicles, stations, roadway, back-office, data management, integration, and other technology components.
09/19 – 05/20	**Atlanta Regional Commission (ARC), Regional Systems Deployment Planning, Atlanta, GA -** *Planning Subject Matter Expert:* Supported the Atlanta MPO with Regional Transit Systems concept of operation development, ***pilot project identification and projects implementations.*** Helped create the regional ITS Architecture for the whole region including 5 transit agencies, 9 counties, 12 cities and DOT.

03/18 – 07/19	**Palm Beach County Transit (Palm Tran), West Palm Beach, FL -** *Chief Information Officer:* Managed the IT department to oversee activities of the staff to support technology infrastructure, provide project support and develop strategic technology roadmap. Performed organizational assessment, systems assessment and helped with reorganization of the entire department in order to create an efficient and reliable structure.
09/21 – 02/23	**I-70 Truck Automation Corridor project, Ohio Department of Transportation, OH -** *Technical Subject Matter Expert:* Developed ITS Architecture for deployment of smart logistics solutions along a stretch of I-70 between Columbus, Ohio and Indianapolis, Indiana. *Technical Architect responsible for at least three demonstrations that collectively incorporated each of the CAV truck automation technology tracks - Truck Platooning, Level 2 Automation and Level 4 Automation*
06/17 – 02/18	**Georgia Regional Transportation Authority (GRTA), Atlanta, GA -** *Chief Information Officer:* Provided technology governance, advisory and roadmap for a two-agency merger. Acted as an Interim CIO for the twin agencies of the Georgia Regional Transportation Authority (GRTA) and the State Road and Tollway Authority (SRTA).
09/16 – 04/17	**Jacksonville Transportation Authority, Jacksonville, FL -** *Chief Information Officer:* As a CIO lead the technology and innovations initiatives at JTA in order to support business goals and service delivery. Improve the efficiency and quality of information and business operations. Helped JTA successfully launch the first-coast flyer BRT.
03/15 – 09/15	**SFRTA, Technology Advisor/CONOPS Support RTPI/APC Integration, Fort Lauderdale, FL -** *Transit Systems Subject Matter Expert:* Provide technical support for *Concept of Operation* for the AVL and RTPI implementation and integration with the APC for ridership reporting and travel patterns. Worked with network team to identify and resolve the latency issues to provide real-time communication of location data.
11/14 – 03/15	**San Diego MTS, San Diego, CA -** *Sr. Consultant, Chief Information Officer Advisory Services:* Provide mentoring and coaching support to newly appointed CIO to help her translate strategic direction into actionable results, achieve the innovation required for competitive business advantage, and lead MTS transformation of their IT capabilities.
03/14 – 04/14	**San Diego MTS, San Diego, CA -** *Sr. Consultant, Development of Technology Assessment:* Performed an assessment of entire technology stack including *software systems*, infrastructure, *information security policies* and network setup. Scope included, major Systems such as Fare Payment, CAD/AVL, RTPI, Access Control, Surveillance Systems and Communications Systems. Make recommendations to leadership on changes to adopt innovative technologies, restructure department and implement findings. Support executive leadership team in the selection of a new CIO.
01/13 – 04/14	**TransLink Vancouver, Business Intelligence & For Fare Payment System, Vancouver, BC -** *Technical Architect:* The project was to define the strategy and implementation for the Business Intelligence program. • The goals included identification of key systems, objectives and strategy to make effective use of the data available through enterprise systems, including the new Compass Card Program.
07/10 – 04/11	**LA Metro Freeway Service Patrol (FSP). Los Angeles, CA -** *ITS Subject Matter Expert:* • Create *Concept of Operation* for processes and technology and the operations Control Center • Analyze options for communication network, radio equipment (voice and data), CAD/AVL systems, Mobile Data Terminal/ Computer, GPS, Modem, Callbox technology, etc. • Evaluate current FSP technology (software, hardware and equipment) to create a *technology plan*.

16. Staff Experience:

Firm employed by	iteris		Meets MPR No. 6
Name	David Binkley, PMP	Years of relevant experience with this employer	10
Title	ITS Principal Engineer	Years of relevant experience with other employer(s)	26
Degree(s) / Years / Specialization		BS / 1988 / Electrical Engineering, Georgia Institute of Technology	
Active registration number / state / expiration date		N/A	
Year registered	N/A	Discipline	N/A
Contract role(s) / brief description of responsibilities.		CAV System Analysis, Design, and Implementation	

Experience dates	Experience and qualifications relevant to the proposed contract
	David serves as a Principal Engineer for Iteris' Mobility Operations Services and has been with the firm since 2014. He serves as principal investigator for the **National Intelligent Transportation System (ITS) Architecture Development Team.** Mr. Binkley's responsibilities include leadership of all technical activities, leading the maintenance of the architecture, supporting **numerous deployment activities,** and conducting local architecture workshops and classes. Mr Binkley also supports **the development of regional ITS architectures and analysis for connected and automated vehicle projects.** Mr. Binkley has over 35 years of experience in systems engineering with involvement in numerous system development efforts and has been **involved in every aspect of the systems engineering life cycle** from concept to final testing and maintenance activities. He is also a certified Project Management Professional (PMP).
02/16 – 12/20	**ITS System Design & Integration IDIQ - Connected & Autonomous Vehicles (CAV) Technology Team Support Task Order (TO), LADOTD, Statewide, LA -** *Systems Engineer:* Provided CAV technology expertise to the Department's Connected and Automated Vehicle (CAV) Technology Team (composed of four working groups drawn from about 25 sections of the Department) for exploring and evaluating the latest CAV technology. David worked as a member of the Arcadis team through *facilitated web meetings and workshops* in order to identify ways LADOTD could leverage CAV technology, present lessons learned from CAV deployments from other transportation agencies, determine roles and responsibilities within LADOTD to support CAV projects, and *providing critical CAV system analysis applied to V2I, V2V, and V2X.* Mr. Binkley conducted research into current trends and technologies, provided connections to the overall ITS architecture framework, and facilitated discussions regarding the latest CAV research and how it might apply to LADOTD. Mr. Binkley also provided input to the development of a CAV Strategic Plan to guide the state's approach to implementing early CAV projects as well as inputs to the Commercial Motor Vehicle (CMV) policy for automated trucking in the state.
08/19 – 05/21	**ITS System Design & Integration IDIQ - Connected and Automated Vehicles (CAV) Strategic Plan TO, LADOTD, Statewide, LA -** *Systems Engineer:* Providing input into the development of the state's first *CAV Strategic Plan.* Providing research from across the ITS industry, including US and international sources, to inform the state's plan. Will be facilitating workshop participants to identify needs and prioritize potential solutions pertaining to CAV technology.
05/95 – Ongoing	**ITS Architecture Development, Evolution and Deployment Support Program, ITS Joint Program Office, USDOT, Washington, DC –** *Chief Engineer:* Mr. Binkley is the Principal Investigator/ Chief Engineer on the National *ITS Architecture* Program, which has designed, developed, evaluated, and now maintains the overall national reference architecture for ITS. This architecture defines the framework for providing the entire set of ITS services, including *connected and automated vehicles (CAV), electric vehicle (EV) charging, and multimodal and accessible travel.* The Architecture Team is engaged in task order contracts with the US DOT for maintenance, standards development, deployment support, and training activities relating to the National ITS Reference Architecture, also known as *the Architecture Reference for Cooperative and Intelligent Transportation (ARC-IT). Mr. Binkley also leads the testing of the software tools called "Regional Architecture Development for Intelligent Transportation (RAD-IT)" and*

	"Systems Engineering Tool for Intelligent Transportation (SET-IT)". Mr. Binkley leads the maintenance and evolution activities of the architecture, coordinating with the Program Manager and technical staff. This includes leading the incorporation of new user services and concepts into the architecture. Mr. Binkley supported the development of the *Connected Vehicle Reference Interface Architecture (CVRIA),* which used the National ITS Architecture as a basis with the aim of identifying new opportunities for interface standardization. This included the development of four viewpoints (functional, physical, enterprise, communications) and eventual integration with the National ITS Architecture (achieved in 2017 with ARC-IT). Mr. Binkley leads and participates in deployment support activities, including outreach to the ITS community and facilitation of *workshops to help state and local transportation professionals develop and use ITS Architectures and systems engineering processes.* Mr. Binkley supports *ITS training activities* task by maintaining the content of the course and has taught numerous classes.
04/23 – Ongoing	**Regional ITS Architecture Update, Texas DOT, Corpus Christi, TX –** *ITS Architecture Advisor*: As a member of the Arcadis team, Mr Binkley supports the *updates to the regional ITS architecture* for the TXDOT Corpus Christi district. Mr. Binkley *converted the original Turbo files (over 20 years old)* to be compatible with the *current version of RAD-IT* and has provided inputs to the mapping of system elements and the service packages to be included in the updated architecture. Mr. Binkley presented to the TXDOT and regional stakeholders on the evolution of the architecture at the national and regional level and provides support to the team to create the final report.
01/15 – 12/19	**V2I Outreach Content Development, Federal Highway Administration (FHWA), Washington, DC –** *Systems Engineer:* Mr. Binkley provide supported to *FHWAs Vehicle to Infrastructure (V2I) Outreach Content Development* project by providing CAV expertise and content to the outreach products and activities. He represented the project to the client at FHWA, trade shows, and test demonstration sites conducing focus groups. Mr Binkley provided *expert analysis on CAV concepts and quality review for design and implementation applied to V2I.*
03/10 – 04/12	**Connected Vehicle (CV) Core System Engineering, United States Department of Transportation (USDOT) –** *Systems Engineer/ITS Architecture:* Mr. Binkley served as Principal Investigator/*Chief Engineer for a system engineering program to develop a Concept of Operations, (ConOps), System Requirements, and a System Architecture* to define the Core System that will various safety, mobility and environmental applications as part of the *USDOT CAV program*. The Lockheed Martin-Iteris team engaged stakeholders from across the country and across many industries (automotive, telecommunications, application developers) to determine the needs, requirements, and associated system architecture components that define the services of this Core System. Led all technical aspects of the program and represented the team and the program at all public forums. He interfaced directly with the customer to establish the requirements and was responsible for the quality of the architecture products.
03/22 – Ongoing	**Florida ITS Architecture Support and Maintenance Contract, Florida DOT, Statewide, FL –** *Systems Engineer/ITS Architecture*: *Project manager, Systems Engineer, and ITS Architect.* The Florida ITS architecture project consists of the *statewide ITS architecture*, 6 regional ITS architectures (RITSAs) for the districts, and an architecture for the Florida Turnpike Enterprise (FTE). Mr. Binkley updates the maintenance logs to track changes proposed by the stakeholders, updates the *RAD-IT databases*, provides draft content for the websites, and *serves as the interface with the FDOT project management team* for project status.

16. Staff Experience:

Firm employed by	iteris		
Name	Cliff Heise, PMP	Years of relevant experience with this employer	27
Title	Regional ITS Practice Lead	Years of relevant experience with other employer(s)	13
Degree(s) / Years / Specialization		BS / 1984 / Mathematics, Oklahoma State University	
Active registration number / state / expiration date		2088674 / Exp. 10/2026	
Year registered	2017 Discipline	Project Management Professional (PMP)	
Contract role(s) / brief description of responsibilities.		Systems Engineering Analysis Subject Matter Expert (SME)	

Experience dates	Experience and qualifications relevant to the proposed contract
	Mr. Heise has been active in the areas of project management and **systems and software engineering** throughout all phases of program development since 1984. Mr. Heise has been the **Program Manager of the USDOT National ITS Architecture Program since 1996** and has been involved in all aspects of the program's **outreach, maintenance, and management**. Mr. Heise **managed the development of the Minnesota Traveler Alert System** which uses connected vehicle technology to alert motorists of snowplow and maintenance vehicles in their path of travel. He managed the **development of a Connected Vehicle Work Zone Pilot** for the Pennsylvania Turnpike Commission implementing **V2I and V2V technologies.** Mr. Heise managed Iteris' Systems Engineering (SE) activities under the Connected Vehicle Systems Engineering project where the Connected Vehicle Core System Concept of Operations (ConOps), system requirements, and architecture were developed. He has also managed Traffic Operations Center design and ITS device deployment programs.
10/12 – 09/17	**Federal Highway Administration (FHWA) Operations IDIQ, Operations, and ITS Program Area, FHWA, Washington, DC** - *Program Manager: Responsible for the FHWA Office of Operations IDIQ Operations and ITS Program Area*. Under this contract, Mr. Heise managed a large team of experts in the ITS Operations environment. He managed and coordinated task orders executed under this contract including: *Vehicle-to-Infrastructure (V2I) Cybersecurity, Model Systems Engineering Guidance for Video Monitoring Systems, V2I Knowledge and Technology Transfer and Outreach, and V2I Content Development.*
05/10 – 04/12	**Connected Vehicle Systems Engineering Project, Federal Highway Administration (FHWA), Washington, DC** - *Program Manager:* Mr. Heise was responsible for the management of Iteris' activities to develop a *Concept of Operations (ConOps), system requirements, and system architecture for the Connected Vehicle Core System following the systems engineering process.* This effort began with the collection of user needs through a *series of workshops and focus groups*. Work previously accomplished under the Vehicle Infrastructure Integration (VII) initiative was used as a starting point to expand the communications beyond Dedicated Short Range Communications (DSRC) to a broader set of wireless technologies for non-safety applications.
05/96 – Ongoing	**National ITS Architecture Development, Evolution, and Deployment Support, USDOT, Washington, DC** – *Program Manager:* Managed the *National ITS Architecture Program since 1996* and is responsible for all technical and programmatic aspects of this program. He provides advice to USDOT concerning the impact of technical and programmatic changes, as well as, how the program relates to other USDOT ITS projects, including standards, deployment support, *policies, and CAV*. Over the course of the program, he *developed training material,* provided technical review, and delivered the various National *ITS Architecture training courses* as an instructor; he actively participated in the requirements definition and guided the development and support of the Regional Architecture Development for Intelligent Transportation *(RAD-IT) software tool.* Mr. Heise directed the development activities of the *Connected Vehicle Reference Implementation Architecture (CVRIA)* which defined the breadth of the connected vehicle environment based on connected vehicle application concepts of operation, requirements and

	supporting documentation. The CVRIA established the basis for the Connected Vehicle Standards planning and informs the ITS Standards *Harmonization activities within US DOT and internationally*. The CVRIA activities included the development of the Systems Engineering for Intelligent Transportation (SET-IT), a software tool allowing users to define Connected Vehicle project architectures based on the CVRIA definition. The CVRIA was integrated with the National ITS Architecture in June 2017 resulting in the *Architecture Reference for Cooperative and Intelligent Transportation (ARC-IT).* The current support program is scheduled to complete in 2024.
06/19 – Ongoing	ITS Architecture Support and Maintenance Project, Florida DOT, Tallahassee, FL - *Project Manager:* Updated the Florida Department of Transportation's (FDOT) *Statewide Intelligent Transportation Systems (ITS) Architecture (SITSA) and seven Regional ITS Architectures (RITSA) to conform to the latest version of the National ITS Architecture.* The ITS Architecture updates reflect the current and planned ITS and advanced technology solutions Florida stakeholders envision. The scope of services also includes annual maintenance updates of the SITSA and RITSAs. Mr. Heise led the review and evaluation of each architecture, and defined plans for each Florida DOT region to address transportation needs with *advanced technology, such as connected and automated vehicles (CAV).* He directed and participated in architecture update activities including the use of the RAD-IT software. The SITSA and RITSAs support Florida's ITS planning and deployment to encourage interoperability and CAV preparedness. At project completion, FDOT will have Federal Highway Administration Rule 940-compliant ITS architectures that *support Florida's transportation systems management and operations (TSM&O) vision and goals and support ITS and CAV project planning over a 10-year horizon.*
08/18 – 07/19	Ohio Statewide Advanced Traffic Management System (ATMS) Replacement Project, Ohio DOT, Columbus, OH - *Project Manager:* Under a subcontracting relationship, Mr. Heise led the *development of the Ohio DOT Statewide ATMS Project Architecture* and the Iteris support provided to the systems engineering development of procurement-ready materials for the ATMS. He directly contributed to the concept of operation and requirements development activities.
02/20 – 12/23	Minnesota Traveler Alert System, Minnesota DOT, Minneapolis, MN - *Project Manager:* Mr. Heise led the development of a Traveler Alert System for the Minnesota Department of Transportation (MnDOT). The objective of the Traveler Alert Systems was to improve the safety of the traveling public and MnDOT roadway staff by alerting motorists as they approached snowplows or maintenance vehicles in their path of travel. The project leveraged *vehicle to infrastructure technology, as well as Dynamic Message Signs (DMS) to convey alerts to travelers.* The project included systems engineering analysis, testing, and demonstration of the mobile device application and DMS services, as well as operations and maintenance of the service. The was deployed on 183 DMS signs across the state of Minnesota.
11/16 – 6/23	SmarterRoads Data Portal Project, Virginia DOT, Richmond, VA - *Project Manager:* Responsible for the development of a concept of operations, system requirements, development, implementation, and operations of VDOTs SmarterRoads Data Portal. The data portal provided VDOT transportation operations data to registered users. The portal handled user credentialing and access to the operations data feeds for use in the development of transportation services and applications. Mr. Heise served was responsible for the development of Phase II build plan which included *implementation of additional data feeds and an administrative dashboard.* Phase II defined the evolution of the data portal to support data feed expansion and *accommodation of connected vehicle data*.

16. Staff Experience:

Firm employed by	iteris		
Name	Tom Lusco, CSEP	Years of relevant experience with this employer	26
Title	ITS Principal Engineer	Years of relevant experience with other employer(s)	6
Degree(s) / Years / Specialization		Bachelor Science / 1990 / Electrical Engineering, Virginia Tech	
Active registration number / state / expiration date		Certified Systems Engineering Professional (CSEP) #04171 / Exp. 07/30/2026	
Year registered	2017	Discipline	Systems Engineering
Contract role(s) / brief description of responsibilities.		Systems Engineering Analysis and Design Subject Matter Expert (SME)	

Experience dates	Experience and qualifications relevant to the proposed contract
	Mr. Lusco serves as a Principal Engineer Planner for Iteris' Mobility Consulting Solutions and has been with the firm since 1997. He has over 30 years of experience in **systems engineering application** from the solicitation of user needs and the **definition of operational concepts to requirements analysis, architecture, design, development, testing and deployment.** Mr. Lusco has developed viewpoint specifications based on solicited stakeholder concerns, and applied those viewpoints through the recent evolution of **connected and autonomous vehicle architecture concepts, from Core system to the CVRIA** and **most recently, ARC-IT.** He is the lead visionary behind the development and use of SET-IT as a means to simplify the project deployment cycle by providing a means for deployers to build interoperable, similarly documented systems efficiently while respecting the tenets of systems engineering. He has substantial applied experience designing and developing computer software, integrating hardware and software systems, developing test plans and procedures, testing software and systems, and providing training on those systems. Mr Lusco is also a **Certified Systems Engineering Professional** with the International Council on Systems Engineering.
05/03 – Ongoing	**ITS Architecture Development, Evolution and Deployment Support Program, ITS Joint Program Office, USDOT, Washington, DC** – *Lead Engineer:* Mr. Lusco is engaged in all aspects of architecture and support tool evolution and development. He is the *product owner for SET-IT*, the project-focused tool that enables implementers to *document their ITS projects*, including physical, communications and enterprise views, simplifying their development of systems engineering documentation. Mr. Lusco develops product requirements, verifies that those requirements are met and develops sample material for use in training. Mr. Lusco *provides input on all views of ARC-IT*; he is the de facto lead for the enterprise view and shares responsibility for the communications view while providing review and input for the physical. He *develops for ARC-IT's viewpoint specifications* – the mechanism used to frame stakeholder concerns and define the means by which those concerns are addressed-- and documents relevant methodology. He is the lead for development and documentation of security-related updates, including the application of FIPS-199 and the classification of all information flows. Mr. Lusco is also the architecture team's primary participant in international harmonization and international cooperation activities. He is an *expert for the US delegation to the ISO Technical Committee 204 (ITS).* He supports working groups studying connected and automated vehicles as well as smart cities and multimodal accessible travel. He *led harmonization efforts to develop an internationally harmonized reference architecture based on ARC-IT, with European, Australian and Japanese* inputs to identify interface readiness and develop standardization recommendations.
01/12 – 07/17	**V2X Cooperative Systems Engineering, USDOT Research and Innovative Technology Administration (RITA)** – *Systems Engineer:* Mr. Lusco helped *develop the CVRIA*, which used the National ITS Architecture as a basis with the aim of identifying new opportunities for interface standardization. This included the development of four viewpoints (functional, physical, enterprise, communications) and will lead to eventual integration with the National ITS Architecture. Primary sources for this work included

	the applications conceived under the Dynamic Mobility Applications program, safety applications concepts developed by automaker consortiums, *vehicle-to-infrastructure applications concepts* developed by the USDOT and environmental concepts developed under the AERIS program.
03/10 – 4/12	Connected Vehicle (CV) Systems Engineering, USDOT Research and Innovative Technology Administration (RITA) – *Systems Engineer:* Mr. Lusco *developed ConOps for the CV Core System;* met with stakeholders across the United States in a variety of forums, including *public user needs workshops;* presented concepts for operation of USDOT's new vision for the CV program; solicited and *accumulated input from stakeholders* with regard to what CV should enable; identified system and user needs, and developed operational concepts and scenarios for the new system; documented in *Concept of Operations, following IEEE 1362;* developed *System Architecture following guidance of IEEE 1471*; defined five Viewpoint Specifications: Enterprise, Functional, Connectivity, Communications and Information; developed more than 20 views to document the Connected Vehicle Core System architecture; and presented architecture at stakeholder workshops in Detroit, MI, Washington, DC, and San Jose, CA.
01/05 – 03/10	Vehicle Infrastructure Integration Initiative (VII), USDOT Research and Technology Administration (RITA) – *Systems Engineer:* Mr. Lusco led development of public sector applications concepts, including signal timing optimization, ramp metering and corridor management; developed algorithms to compute traditional traffic measures such as queue length, stop delay, time-in-queue and cycle failure detection using VII-supplied probe data; developed applications *high-level architecture, requirements and testing framework to support VII Proof-of-Concept.* Mr. Lusco was a participant in cross-organizational applications and end-to-end systems teams, and a member of the Engineering Review Board overseeing all changes to VII System documentation, concepts, design and requirements. He was also a *key member of the team responsible for VII System definition, top level architecture and requirements.*
02/10 – 6/13	Connected Vehicle (CV) Test Bed Development, Virginia Department of Transportation (VDOT) - *Systems Engineer:* Mr. Lusco worked with VDOT to *configure and install CV test bed environments* in northern Virginia and Blacksburg, for use testing research applications. Mr. Lusco developed the *operational concept and providing integration, installation and configuration* support. The initial installations were complete in mid-2013, providing Dedicated Short Range Communications (DSRC) along a three mile stretch of I-66 and portions of I-495, nearby arterials and the Smart Road at Virginia Tech. This is one of the *largest operational Connected Vehicle test environments* in the U.S.
01/98 – 04/05	Intelligent Transportation Systems (ITS) On-Call Technical Support Services, Virginia Department of Transportation (VDOT) – *Systems Engineer:* Mr. Lusco served as Program Manager to the VDOT ITS *On-Call Technical Support* Service contract, supporting a wide variety of ITS-related issues. He was responsible for leading tasks such as the *Independent Validation and Verification (IV&V) of software, testing, ITS network design, and document review* for Northern Virginia, Hampton Roads and Richmond Smart Traffic Centers, development of a comprehensive training suite for operators and associated *Standard Operating Procedures* for the Northern Virginia Smart Traffic Center, development and deployment of an interagency incident reporting system for the Hampton Roads region, the study and implementation of an Automatic Vehicle Location program for Safety Service Patrol vehicles, and the design and deployment of an Automated Truck Rollover Warning System.

16. Staff Experience:

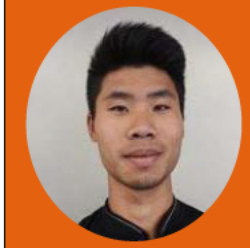
Firm employed by	metric			
Name	Dale Cody, PE, PTOE		Years of relevant experience with this employer	22
Title	Principal Traffic Operations & ITS Engineer		Years of relevant experience with other employer(s)	6
Degree(s) / Years / Specialization			M.S. / 1995 / Civil Engineering	
Active registration number / state / expiration date			PE #47766 / LA / Exp. 9/30/2025; PTOE #1206 / US / 11/19/2024 Traffic Engineering Process & Report (TEPR) Class Modules 1, 2, & 3 / LADOTD	
Year registered	1999	Discipline	Civil Engineering	
Contract role(s) / brief description of responsibilities.			ITS System Engineering Design & Traffic Operations Center Coordination	

Experience dates	Experience and qualifications relevant to the proposed contract
	Mr. Cody is a former FDOT District 5 Assistant District Traffic Operations Engineer (ADTOE) with "hands on" experience in the program management, planning, design, integration, construction, inspection, operation, and maintenance of ITS and advanced traffic signal systems. Throughout his career, Mr. Cody has served as the Project Manager or Principal-in-Charge on **hundreds of ITS/Traffic projects and has been involved in the development and/or modification of ITS and signal specifications, development of Technical Special Provisions and Modified Special Provisions. He is an advocate for Transportation System Management & Operations (TSM&O) and Integrated Corridor Management (ICM), using advanced technologies to help solve transportation issues with an emphasis on Operations & Maintenance (O&M) as well as Performance Measurement reporting.** Through this work, he remains an integral part of the planning, designing, and preparation of emerging Connected Vehicles (CV) technologies. In addition, he regularly presents to the public, clients, organizations, and at industry events on the advancement of ITS and Technology (with the ultimate goal of CAV capabilities) within the transportation industry.
02/20 – Ongoing	**I-4 FRAME System Manager, FDOT District 7, Tampa, FL** – *Principal/Technical Advisor:* Metric was awarded this project to *implement CV technology* connecting the Downtown Tampa area to western portions of Orlando. The I-4 FRAME project deployed an advanced Integrated Corridor Management (ICM) system consisting of next generation traffic incident management, work zone traffic management, road weather alerts, back-of-queue warning, and speed harmonization message systems such as vehicle-to-infrastructure (V2I) via approximately *700 RSUs with DSRC radios and Cellular Vehicle-to-Everything (C-V2X) capabilities. The project is designed and implemented using the System Manager Approach* to ensure design consistency as well as seamless integration with District 1, District 5, District 7, Florida's Turnpike Enterprise, and numerous local agencies. The I-4 FRAME project covers 77 miles of I-4, 122 miles of other limited-access routes, and signalized arterial roadways with a total of 491 traffic signals. The final products to be submitted include *Systems Engineering Analysis and associated documentation,* the *complete ITS design for each corridor and all signalized intersections within them*, and the selection, *integration, testing and verification of all CV devices.*
01/21 – Ongoing	**Professional Design Services for ATMS, Manatee County, FL** - *Principal/Technical Advisor:* This project includes provisions for countywide *Advanced Transportation Management Systems (ATMS)* and includes project management and data collection. It also involves the review of the data to create preliminary and *final designs* that include *network design and cost opinions for the ATMS features* that are in the project. The design is for fiber-optic based communication infrastructure and a variety of ATMS devices like Advance Traffic Controllers (ATC) replacement, Advance Vehicular Detection Systems (ADS), BlueTooth based Travel-Time Devices (BT), Arterial Dynamic Message Signs (ADMS), Closed Circuit Television (CCTV), traffic volume monitoring sites using Microwave Vehicle Detection System (MVDS) and Dynamic Trail Blazing Signs (DTBS). The goal of this project is to achieve greater network efficiency/ring structure, best connectivity and network-communication redundancy.

05/21 – Ongoing	TSM&O Engineering Analysis and Minor Design, FDOT District 7, Tampa, FL - *Principal/Technical Advisor:* The objective of this contract is to maximize efficiency of transportation systems by focusing on mobility outcomes, such as travel time reliability. There will be a performance driven approach for solving arterial congestion and traffic problems in which ITS is utilized to locate and correct congestion causes in real-time. Task Work Orders are assigned by District 7 related to *technical support, strategic planning, studies and conceptual plans, deployment of ITS components and public involvement.* Other activities that are included with this effort include reviewing and *developing plans and specifications for design or design-build contracts* to install TSM&O field devices; reviewing project requirements and hardware configuration analysis; developing proper sequencing, cost estimating, scheduling and coordination of ITS projects; *performing system engineering analyses;* and reviewing the utilization of systems devices hardware and software.
09/17 - Ongoing	Continuing Services Contract (CSC) ICM - Freeway/Arterial Operations, FDOT District 5, Orlando, FL – *Project Manager:* The FDOT ICM project seeks to improve overall operations and mobility in the Central Florida area; specifically, through the operation and management of the Regional TMC and associated programs on both the freeway and arterial systems. Metric functions as an extension of the Department's resources, providing professional services for a wide range of engineering, technical, management and administrative services to assist with numerous TSM&O projects within the work program. The current ICM footprint covers nine Freeways and 12 Arterials within Counties/Cities with 452 traffic signals in six jurisdictions (City of Maitland, City of Orlando, City of Winter Park, Seminole County, Orange County, and Osceola County). *TSM&O strategies are being utilized and synthesized by our RTMC staff as they integrate the operations of freeway and arterials to improve the travel time reliability of existing transportation network (arterials and freeways).*
01/20 – Ongoing	ATMS Design-Build, FDOT District 7, Tampa, FL - *Principal/Technical Advisor:* This citywide ATMS project consists of the upgrade of 402 signals to expand the City's existing ATMS. The project includes design, construction, and installation of a next generation traffic management system that connects vehicles and people to the transportation system to optimize traffic flow, and improve mobility, reliability, resiliency, and safety. This includes the *design and installation of a fiber optic communications system, CCTV traffic cameras, MVDS, Flood Sensors, traffic signal controllers and cabinets, Uninterruptible Power Supplies (UPS), traffic signal software, predictive analytics, software, servers, and workstations for TMC staff.*
11/17 – 11/21	I-75 On- and Off-System F.R.A.M.E. (Florida's Regional Advanced Mobility Elements), FDOT District 5, Orlando, FL – *Project Manager:* As the Systems Manager, Metric was responsible for a majority of *project activities including the development of ITS design plans*. Metric was also responsible for *conducting a Systems Engineering Analysis and creation of the appropriate Systems Engineering documentation,* coordinating, testing and providing documentation on the various technologies to include *Roadside Units (RSUs) communicating via either Dedicated Short Range Communications (DSRC) or Connected Vehicle to Everything (CV2X),* vehicular On-board Units (OBUs) as well as emulated OBUs (mobile devices and/or tablets) to ensure device interoperability. Metric staff was responsible for integrating these devices to multiple signal controllers with the goal of verifying the various CV-related applications: Signal Phase & Timing (SPaT), Automated Traffic Signal Performance Measures (ATSPM), MAP messages, Traveler Information Messages (TIM), Basic Safety Messages (BSM), Emergency Vehicle Protocol (EVP), Transit Signal Priority (TSP) and others related to pedestrian safety. Metric staff *created detailed test plans and conducted extensive testing in both the lab and field environments with equipment provided by several CV vendors.* As a result of the testing, reports were generated to guide the System Manager in their decision-making process for the development of the CV specifications and eventual decision-making on the F.R.A.M.E., SR 434, and PedSafe projects and any other future CV deployments. Metric was also responsible for *configuring, integrating, and testing all CV devices into the FDOT ITS network.*

16. Staff Experience:

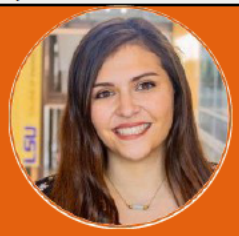
Firm employed by	ARCADIS		
Name	Johnny Tse	Years of relevant experience with this employer	6
Title	ITS Technology Analyst	Years of relevant experience with other employer(s)	5
Degree(s) / Years / Specialization		MS / 2015 / Transportation Engineering / Carleton University BS / 2012 / Civil Engineering / Carleton University	
Active registration number / state / expiration date		N/A	
Year registered	N/A	Discipline	N/A
Contract role(s) / brief description of responsibilities.		ITS Planning (System Engineering Analysis)	

Experience dates	Experience and qualifications relevant to the proposed contract
	Mr. Tse has more than 10 years of experience in transportation planning, Intelligent Transport System (ITS), and transit operations technology. He has been part of largescale efforts to **update regional ITS Architecture** in the San Diego region and for the Texas Department of Transportation. Additionally, he has also had significant roles in **ITS and connected vehicle** pilot projects in the San Diego region. Mr. Tse has also partaken in technology upgrade projects for a range of transit technology systems including Computer-Aided Dispatch and **Automatic Vehicle Location** systems (CAD/AVL), **Vehicle Communication Technologies,** and Fare Collection Systems. He has also been significantly involved in **implementation and testing** activities in these **technology upgrade** projects. Mr. Tse is also familiar with spatial statistics and **geographical information systems (GIS)**.
03/23 – Ongoing	**San Antonio ITS Master Implementation Plan – TXDOT, San Antonio, TX –** *ITS Engineer:* Developing an ITS Master Plan for the TxDOT San Antonio district as part of TxDOT's Transportation Systems Management and Operations (TSMO) program. The ITS Master Plan focuses on *developing ITS strategies that conform to regional plans and objectives*. High level cost estimates for system design and implementation are provided for each project. Key ITS strategies and projects for implementation include system expansion of *communication network, traffic management, traveler information, wrong way driving, integrated corridor management, incident detection, traffic signal optimization, and vehicle to infrastructure (V2I) deployments* leveraging C-V2X technology.
10/20 – 08/21	**San Diego Regional ITS A*rchitecture* Update, San Diego, CA -** *System Engineer*: Supporting the *ITS Architecture* update process using *RAD-IT* as well as *developing the associated technical documentation and training documentation*. Partnering with The San Diego Association of Governments (SANDAG), the project's focus is to *provide comprehensive updates to the Regional ITS Architecture* to help advance the implementation of the region's 5 Big moves.
10/20 – 06/23	**CAD/AVL Assessment and Replacement, Fresno Area Express (FAX), Fresno -** *Transit Technology Analyst:* Supported the technology needs assessment and technical requirements development for FAX. For the project, *conducted stakeholder meetings* with the agency and prepared technical reports to identify areas of improvement in terms of transit technology. Following the CAD/AVL procurement, took part in the proposal evaluation process. Led the implementation phase of the project, providing *system deployment* supervision and oversight.
06/18 – 01/20	**CAD/AVL and Radio Replacement, Foothill Transit, Foothill, CA -** *Transit Technology Analyst:* member of the technical team which supported the implementation phase of the project that include *test plan* review, system validation, and onsite implementation support for Foothill Transit's Avail CAD/AVL and a VoIP communication system through commercial cellular data. In addition, evaluated the test procedures' robustness and provided oversight for vehicle system and central *system acceptance testing*.

01/19 – 02/20	**Bus-on-Shoulder Pilot, SANDAG, San Diego, CA –** *ITS Technology Analyst*: Part of Technical Team provided transit operations and technology expertise for the Bus-on-Shoulder *Pilot* project. Developed technical specifications and provided *system deployment oversight* for *connected vehicle technologies* including onboard sensors to ensure vehicle and passenger safety, as well as *roadside connected vehicle infrastructure (V2I)* leveraging C-V2X technology.
03/23 – 11/23	**Regional Transportation Commission (RTC) of Southern Nevada Technology Assessment and Roadmap, Las Vegas, NV -** *Technology Analyst:* Member of the Arcadis team conducted stakeholder meetings to assess RTC's current state of technology including transit operation management technologies, battery electric bus charge management systems, and communication technologies. The team identify immediate and future needs and developed a transit technology roadmap.
09/23 – 01/22	**Culver City Transportation Technology Roadmap, City of Culver City, CA –** *ITS Technology Analyst:* Member of the Arcadis Technical Team developed an updated transportation technology roadmap for the City of Culver City. The development process includes assessing the City's technology needs through *stakeholder workshops,* assessing *technology options and alternatives*, and assessing implementation strategies.
09/18 – 02/21	**Big Blue Bus Technology Procurement Support, Santa Monica, CA –** *ITS Technology Analyst:* Member of the Arcadis Technical Team provided support for four concurrent transit technology procurements, these projects were recommended based on Arcadis' technology assessment and roadmap previously prepared for the transit agency. The four transit technology *system upgrade* projects and procurements include vehicle and operator scheduling systems, a fallback digital mobile radio *communication system*, and a replacement CAD/AVL system.
08/20 – Ongoing	**Stride Bus Rapid Transit (BRT), Sound Transit, Seattle, WA -** *ITS Technology Analyst:* Member of the Arcadis systems Engineering Team currently developing multiple aspects of Stride, a new BRT system in the Puget Sound region. Primarily leading the *alternative analysis* and development of technical requirements for bus operations technologies as well as onboard security surveillance systems. These technologies include onboard *communication systems,* dispatch management systems, and central management systems.
12/19 – Ongoing	**LA Metro ATMS II, LA Metro, Los Angeles, CA -** *ITS Technology Analyst:* Member of the team that is supporting LA Metro's replacement of their CAD/AVL and radio system. This includes onsite observations at Metro's bus and rail maintenance facilities, *stakeholder meetings*, and leading technical requirements development effort.

16. Staff Experience:

Firm employed by	ARCADIS		
Name	Meredith Guidry, EI, RSP	Years of relevant experience with this employer	3
Title	EV & Grant Specialist	Years of relevant experience with other employer(s)	1
Degree(s) / Years / Specialization		BS / 2020 / Civil Engineering, Louisiana State University	
Active registration number / state / expiration date		EI.0034822 / LA / Exp. 09/30/2025; RSP #861 / USA / Exp. 7/2025	
Year registered	2021 Discipline	Civil Engineering	
Contract role(s) / brief description of responsibilities.		Grant Proposal Development & EV Support Services	

Experience dates	Experience and qualifications relevant to the proposed contract
	Ms. Guidry has gained experience **developing fleet electrification plans, evaluating total costs of ownership**, and assessing needs and solutions for transit agencies and private companies transitioning to electric fleets. Her experience includes knowledge on **electric vehicle (EV) grants and incentives, charging infrastructure for EVs, fire hazards posed by EV use and charging**, and greenhouse gas emissions produced by vehicles. Additionally, Ms. Guidry has assisted in a variety of projects including crash safety analyses, volume analyses, Intersection Modification Reports, and building intersection and traffic signal models. Her software skills include ArcGIS, MATLAB, and MicroStation. Ms. Guidry has **completed LADOTD Traffic Engineering Process and Report Training.**
04/22 – 08/22	**Electric Vehicles Charging Infrastructure (EVCI) Deployment Plan & Alternative Fuel Corridor (AFC) Nominations, MDOT, Jackson, MS** - *EV Specialist*: Assisted in the development of the Alternate Fuel Corridors (AFC) nominations for MDOT. Provided multiple deliverables that reported on high level corridor information, including metropolitan areas and intermodal facilities along the corridor, corridor connectivity with the national network, census and demographics data for equity analyses and considerations, *utility data/electrical grid requirements* to identify needs and potential *challenges for EV charging station deployment*, existing fuel station data for identification of potential *EV charging locations, existing and future state-wide conditions* that affect EV adoption and operation, current and projected EV ownership, known risks and challenges for EV deployment, assessment of state's use of federal funding from the National Electric Vehicle Infrastructure (NEVI) Formula Program measured by the amount of charging leveraged per Federal dollar, overall strategy for charging station installation along nominated corridors, engagement with rural, underserved, and disadvantaged communities, emergency and evacuation needs, State and Federal civil rights laws (including Title VI of the Civil Rights Act, the American with Disabilities Act (ADA), and Section 504 of the Rehabilitation Act), labor and workforce considerations, and the state's schedule and plan for evaluating performance in achieving its 5-year goals and vision.
04/23 – 06/23	**Charging and Fueling Infrastructure (CFI) Grant Application, Electrify MUSIC City: Municipality Upgrades for Stations and Integrated Charging, NDOT, Nashville, TN** - *EV and Grant Specialist*: Developed an *EV grant application* for the CFI Discretionary Grant Program for the City of Nashville's Department of Transportation's Electrify MUSIC City project, which aims to establish a reliable and accessible Electric Vehicle Charging Infrastructure (EVCI) network for the Nashville community. The project involved conducting technical studies and developing four deliverables, including *Budget Information and Cost Estimates for the program, Merit Criteria, Project Narrative, and Project Readiness*, which all focused-on safety, climate change, equity, workforce development, and the vision of the CFI program. GIS was used to identify gaps across the existing EVCI network and *determine optimal locations for the installation* of EVCI using a set of parameters including flood zones,

16. Staff Experience:

	disadvantaged communities (DACs), population density, median income, railway stations, highway network, existing EVCI network. Additionally, the services addressed risks and strategies for deployment, including public engagement and compliance with regulations like ADA and Justice40.
06/22 – 03/23	Fleet Electrification Plan, San Jose Water Company (SJWC), San Jose, CA - *EV Specialist* - Assisted in performing a high-level baseline assessment of the client's vehicle use and operations, fleet operational constraints, and facility needs potentially impacting EV adoption. Compiled a list of currently available and soon to be available electric vehicles and electric, light-, medium- and heavy-duty trucks that could potentially replace the client's gasoline-powered fleet of 225 vehicles. Performed a total cost of ownership analysis for major vehicle classes and a 10-year budgetary cost estimate based on data provided by the client and EV industry standards and research. The cost analysis considered the planning study, design and engineering work, construction and implementation, and additional operational costs compared to the current operational costs. Developed an *EV implementation plan that provided a detailed roadmap, schedule, and financial plan* for deploying EVs and charging infrastructure. Aided the client in updating *current vehicle policies and replacement schedules* to better serve an electric fleet.
05/23 – 11/23	Indoor and Outdoor Charging Assessment for Battery Electric Bus (BEB) Fleet, New Jersey Transit, NJ – *EV Specialist*: Studied operational considerations associated with *charging battery electric buses (BEBs) indoors vs. outdoors* for a public transit agency. Developed a memo that detailed the fire risks associated with BEBs, charging infrastructure, and storing BEBs overnight at indoor and outdoor facilities. Provided potential strategies the client could consider implementing to mitigate fire risks. Developed a list of advantages and disadvantages of charging a BEB fleet indoors and outdoors.
10/23 – Ongoing	Global & Multi Fleet Electrification Transition Plans - Estée Lauder Companies (ELC), North America, EMEA, LATAM, APAC, Europe – *EV Specialist*: Working to develop a *Fleet Transition toolkit* that each ELC's business region will use to convert its fleet of 2,200 vehicles to EVs by 2030. The fleet transition toolkits include stakeholder interviews and insights, review of current fleet and conduct landscape analysis, cost benefit analysis, green fleet management, financial incentives and *expansion of EV charging infrastructure while engaging employees in electrification.*
06/23 – 10/23	Fleet Electrification Total Cost of Ownership (TCO) Model, Cincinnati, OH and Hawaii - *EV Specialist*: Performed a total cost of ownership analysis and a *10-year budgetary cost estimate for replacing the client's gasoline-powered fleet* of more than 500 vehicles, based on data provided by the client and EV industry standards and research. The TCO accounted for specific purchase costs, O&M costs, usage patterns, and cost of electricity for different locations and various vehicle types and classes within the client's fleet.
01/23 – 03/23	US 190 (Vine Street) Reconstruction RAISE Grant Benefit Cost Analysis (BCA), LADOTD, Opelousas, LA – *Grant Specialist:* Project included providing support in the preparation of a Rebuilding America's Infrastructure with Sustainability and Equity (RAISE) *grant application* for DOTD for the reconstruction of Vine Street in the City of Opelousas. Responsibilities included development of the *Benefit Cost Analysis for the grant application*. Also provided input and review on the project narrative, budget and merit criteria documents.

16. Staff Experience:

Firm employed by	ARCADIS		
Name	Koushik Arunachalam, PE	Years of relevant experience with this employer	19
Title	Principle ITS/Traffic Engineer	Years of relevant experience with other employer(s)	1
Degree(s) / Years / Specialization		MS / 2005 / Civil Engineering, University of Cincinnati – Main Campus BS / 2001 / Civil Engineering, University of Madras	
Active registration number / state / expiration date		PE 112191 / TX / Exp. 06/2024	
Year registered	2012	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities.		Planning (Strategic Implementation Planning)	

Experience dates	Experience and qualifications relevant to the proposed contract
	Mr. Arunachalam is a Senior Traffic and Intelligent Transport Systems (ITS) Engineer with 20 years of experience in transportation engineering. He has led the **development of several ITS master plans and communication strategies for freeways and arterials to improve ITS system coverage,** maximize efficiency of arterial operations across jurisdictional boundaries, and improve safety with a combination of traditional **ITS technologies (Dynamic Message Signs [DMS], Closed-Circuit Television [CCTV], Detectors) and emerging ITS technologies (connected and automated vehicles, Automated Traffic Signal Performance Measures [ATSPM])** that are consistent with the national and regional ITS architecture.
06/13 – Ongoing	**ITS Maintenance Retainer Contract – Program Management and Maintenance Management System, Louisiana Department of Transportation and Development, Statewide, LA** – *Technical Advisor*: Responsible for quality assurance/quality control of the program management plan; maintenance ***management system software;*** comprehensive maintenance plan for routine and responsive maintenance; health and safety and traffic control plan development; and tracking and performance measures reporting.
06/17 – 10/18	**Fort Worth ITS Master Implementation Plan, Texas Department of Transportation (TxDOT), Fort Worth, TX** – *Project Manager*: Managed the development of the ***Five-Year ITS Master Implementation Plan***, identifying Top 10 Arterials for ***ITS deployment and conducting Connected Vehicle (CV) readiness review*** in the Fort Worth District. This ITS Master Plan evaluated the current systems, determined the future technology requirements to create a five-year implementation plan for development and maintenance of ITS. This plan incorporated various methodologies in conformance with the latest National/Regional ITS Architecture. The project scope includes identifying pilot corridors (arterial and freeway) for ***CV infrastructure along with Connected Freight needs***. Transportation Operations Planning Suite - Benefit-Cost (a Federal Highway Administration tool) was used to conduct benefit-cost analysis and achieve performance measures-driven project prioritization and implementation planning.
08/19 – Ongoing	**City of Sugar Land ITS Master Plan Update, City of Sugar Land, Sugar Land, TX** – *Project Manager:* Managed a comprehensive team of ITS and Traffic engineers to assist the city of Sugarland in updating their ITS Master Plan. The purpose of the plan is to determine how ***ITS can improve safety and mobility*** for the city during the next five years. The plan will evaluate the current systems (which include ITS, traffic signal controllers and preemption equipment, and railroad monitoring systems), determine the future technology requirements, and create a five-year data-driven implementation plan for development and maintenance of ITS.

05/18 – 03/19	US 377 ITS Concept Design, TxDOT, Fort Worth, TX – *Project Manager:* Developed a Smart Corridor concept including a communication plan for the 10-mile segment of US 377 consistent with the *TxDOT Fort Worth ITS Master Implementation Plan and regional ITS architecture.* Performed in-depth field evaluation of ITS/traffic signal equipment to understand the gaps in existing infrastructure. Developed ITS concept and cost to include fiber and radio communication, CCTV/fisheye cameras for corridor monitoring, DMSs for traveler information, bluetooth + dedicated short-range communications radios for *CV applications*, traffic signal cabinet/controller/detection upgrades to enable *ATSPMs*, dual radar for speed and vehicle classification, and emergency vehicle preemption.
08/18 – 02/19	FM 1464 Signal Timing Project, TxDOT, Houston, TX – *Project Manager:* Led the optimization of 13 signalized intersections along FM 1464. Field deployed and configured Miovision Signal Performance Measures (SPM), used a hybrid of Synchro and SPMs to optimize splits, offsets, and cycle lengths, performed detector troubleshooting using SPMs, programmed Econolite controllers through Centracs, and performed field fine-tuning to optimize signals. Demonstrated before/after performance improvements with SPMs and traditional means. The reduced delay and fuel consumption will save the corridor drivers about $2.04 million annually.
06/08 – 04/10	ITS Deployments Evaluation for Revive 285 Top End, Georgia Department of Transportation, Atlanta, GA – *ITS Design Engineer:* Evaluated strategies such as CCTV cameras, DMS, ramp meters, video detection systems, incident management strategies, and end route guidance to minimize the impacts of non-recurrent congestion. Responsibilities included *review of existing ITS deployments and data on the corridor, identify potential ITS alternatives to improve mobility, safety, and congestion*, utilize ITS Deployment Analysis System to evaluate different alternatives on the network imported from the travel demand model, analyze, and compare ITS alternatives by comparing measure of effectiveness such as mobility, travel time travel time reliability, emission and fuel use, and accidents reduction.

16. Staff Experience:

Firm employed by	ARCADIS		
Name	Ramin Massoumi, PE	Years of relevant experience with this employer	2
Title	Principle ITS & Mobility Engineer	Years of relevant experience with other employer(s)	30
Degree(s) / Years / Specialization		MBA / 2004 / MBA / University of Southern California, Los Angeles MS/ 1996 / Engineering / University of California Berkeley BS / 1994 / Civil Engineering / University of California	
Active registration number / state / expiration date		PE. 64225 / California / Exp. 06/2025	
Year registered	2003	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities.		Planning (ITS and CAV Policy)	

Experience dates	Experience and qualifications relevant to the proposed contract
	With 32 years of leadership experience, Mr. Massoumi is a key proponent of **using a platform-based approach to solve mobility challenges in the traffic engineering and Intelligent Transportation Systems (ITS) industry**, with a particular passion for driving data- focused solutions. He currently serves on the Intelligent Transportation Society of America Boards of Directors, is a lecturer of upper-division courses on traffic engineering, ITS and multimodal operations at the University of California at Irvine, and serves as a member of the University of California cross campus advisory group guiding research areas in CAV and transportation policy.
03/18 – Ongoing	**ITS America** – *Board of Directors and Past Chair:* ITS America serves as an advocacy organization for the use of technologies in the transportation space. As a Board member and past chair, Ramin has been engaged in the *Digital Infrastructure, V2X & Connected Transportation, Automated Vehicles, and Emerging Technologies committees developing policy positions that have been presented to Congress on behalf of ITS America and its members.* These policy positions have been used in coordination with USDOT and FHWA to develop the IIJA funding priorities.
05/24 – Ongoing	**Harbor Blvd TSP and Detection Pilot Project, Orange County, CA** – Principal-in-Charge: *Arcadis is evaluating various ITS and Connected Vehicle technologies including pedestrian and bicycle detection and transit signal priority to improve safety, bus speeds and reliability on the Harbor Boulevard Corridor.* Scope of work elements include the development of a TSP Conceptual Plan that will include TSP deployment, bus speed and reliability, project cost estimates, funding opportunities and risk mitigation.
06/22 – 12/23	**Regional Synchronization Performance Analysis Support, Orange County, CA for Orange County Transportation Authority (OCTA)** - *Principal-in-Charge:* Enhance the existing Corridor Synchronization Performance Index (CSPI) and develop *new metrics to collect data and measure signal synchronization performance* within Orange County. The CSPI was developed as part of the Regional Traffic Signal Synchronization Program (RTSSP) to measure and grade regional corridor performance.
03/11 – 12/21	**Metro Rapid Bus Transit Priority System Deployment, Los Angeles County, CA** – Principal-in-Charge: Managed the *design, integration and testing of the Connected Vehicles Transit Signal Priority project* for Los Angeles County Metro BRT project. The project included the design and deployment of Wireless Ethernet communication hardware, traffic controller communication hardware and refining the design for power distribution of the multiple devices installed in traffic controller cabinets.
06/06 – 12/21	**Traffic and ITS Engineering Services Regional Traffic Signal Synchronization Projects (RTSP), Orange County Transportation Authority, CA** - *Principal-in-Charge:* Managed a county wide program for the ITS system design, deployment, and integration of various system along with signal optimization across Orange County, California. Over $300m program upgraded the ITS

	infrastructure, traffic engineering infrastructure, and optimize signalized intersections at over 2,500 intersections across Orange County with the aim of improving traffic flow, enhancing public safety and decreasing stops.
06/07 – 02/09	Omnitrans E-Street sbX BRT Project, San Bernardino County, CA - *Technical Lead:* Supported Omnitrans in deploying the County's first BRT service. The approximately 15-mile (mi) alignment runs through the Cities of San Bernardino and Loma Linda. As Senior Project Engineer, responsible for *evaluating and selecting a Transit Signal Priority (TSP) solution* and providing design plans (PS&E) at all 52 study intersections to allow for TSP operation.

16. Staff Experience:

Firm employed by	iteris		
Name	Anita Vandervalk, PE	Years of relevant experience with this employer	6
Title	Regional ITS Lead	Years of relevant experience with other employer(s)	29
Degree(s) / Years / Specialization		BS / 1989 / Civil Engineering (Transportation), Queen's University	
Active registration number / state / expiration date		PE 47003 / FL / Exp. 02/1/2025	
Year registered	1993	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities.		ITS Strategic Implementation Planning Subject Matter Expert (SME)	

Experience dates	Experience and qualifications relevant to the proposed contract
	Ms. Vandervalk serves as Regional Vice President for the East US Consulting Business for Iteris, Inc. She has experience managing transportation programs and projects in the disciplines of planning, engineering, program management, **Intelligent Transportation Systems (ITS) operations and data management.** She passionately facilitates collaboration and innovation with partners and stakeholders, helping them achieve their goals and realize their vision through her proven track record in transportation planning and management. Ms. Vandervalk is nationally **recognized for her work in the operations, traffic, roadway and safety performance measures, and data arenas.**
2010 – Ongoing	**FHWA Data Business Plan Development and Implementation – FHWA – Washington, DC** - *Project Manager:* Ms. Vandervalk has led the Iteris and Cambridge Systematics teams to support the development and implementation of the FHWA Data Business Planning program since 2010. She led the development of the Guide, conducted *stakeholder workshops* to train and implement data business planning and governance aspects for improving mobility and operations data coordination and management, and supports the U.S. DOT Mobility Coordination Group. This includes leading stakeholder workshops on the topic of *data management/governance regularly and FHWA approval of all deliverables.*
2017 – 2018	**Connected and Automated Vehicle (CAV) Strategic Plan Support, Ministry of Transportation of Ontario (MTO), Ontario, Canada** – *Project Support*: Ms. Vandervalk served in a support role as a facilitator for the Ministry of Transportation, as part of a multidisciplinary team, to conduct research while supporting workshops to develop an MTO *CAV Strategic Plan.*
2009 – 2012	**Asset Management Assessment, Florida Department of Transportation (FDOT), FL** - *Project Manager:* For FDOT's Maintenance Office, Ms. Vandervalk co-led a project to assess the agency's existing business practices and tools, identify gaps, and develop a work plan that addresses these gaps. The work plan provides a set of recommendations for incorporating asset management concepts throughout the agency. Data programs examined included pavement, bridge, roadway, and geographic linear referencing system. The plan focused on bridge, pavement and maintenance management and also set the framework for future addition of *Intelligent Transportation System (ITS) Master Plan and safety components.*
2018 – 2021	**Arterial Performance Measurement Framework, Los Angeles County Metropolitan Transportation Authority (Metro), Los Angeles, CA** - *Project Manager:* Developed a *Concept of Operations (ConOps)* for Metro's first arterial performance measurement framework. This included development of a ConOps consistent with *Intelligent Transportation Systems (ITS) Engineering* approaches. The study included preparation of plans and specifications for extracting data from signal timing systems. She also *led several stakeholder workshops* throughout the LA Metro area.

16. Staff Experience.

Firm employed by	ARCADIS		
Name	Vamshi Mudumba, PE, PTOE	Years of relevant experience with this employer	10
Title	Principal ITS Engineer	Years of relevant experience with other employer(s)	9
Degree(s) / Years / Specialization		MS / 2007 / Civil Engineering, Louisiana State University BS / 2007 / Civil Engineering, Osmania University	
Active registration number / state / expiration date		PE. 036972 / GA / Exp. 12/31/2024	
Year registered	2012	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities.		Strategic Implementations Planning, System Engineering Design Plans	

Experience dates	Experience and qualifications relevant to the proposed contract
	Mr. Mudumba has more than 18 years of experience in managing transportation planning and ITS engineering projects throughout the U.S. He has worked on various ITS design and design-build projects in Louisiana, Georgia, Tennessee, and Florida. His transportation engineering/planning experience includes but not limited to countywide **ATMS design, ITS communication design, ITS specifications development, ITS cost estimation**, traffic control plans development, travel demand modeling, and signal design. He is proficient in various software packages including MicroStation and ProjectWise.
08/09 – 03/11	**Baton Rouge to Lafayette ITS Design-Build Phase 2, LADOTD, Multiple Parishes, LA** - *ITS Engineer:* Provided *ITS design, construction, and integration services*. Responsibilities include managing, leading, and reviewing design of fiber optic and wireless communication along with 13 CCTV cameras and RVDs, four DMSs, and two HARs on I-10, I-49, US-90 and US-190 between Baton Rouge and Lafayette.
06/17 – 10/18	**ITS Master Implementation Plan and Connected Vehicles Readiness, TxDOT, Fort Worth, TX** - *Associate Project Manager: Developed the 5-Year ITS Master Implementation Plan* (MIP) to guide TxDOT Fort Worth in developing the ITS strategies and network along key corridors within the district. Led the team to evaluate 59 Key corridors within the Fort Worth District to provide a *5-year ITS deployment plan*. Major tasks included but not limited to developing ITS Vision and Goals, existing ITS related systems/networks, stakeholder coordination, identify district's needs, develop key ITS projects.
06/14 – 05/15	**I-95 ITS Design, Florida DOT, St. Johns County, FL** - *Traffic/ITS Engineer:* Analysis and *design of an ITS network for Interstate 95*. The project was completed on an accelerated schedule and was required to be seamlessly integrated into the existing ITS architecture. Prepared a construction plan set for field equipment, communication and devices including Dynamic Message Signs (DMS), CTV, and Microwave Vehicle Detection Systems (MVDS), to integrate with the existing FDOT SunGuide System, as well as the St. Johns' County fiber optic system along CR 210, International Golf Parkway, SR 16 and SR 207.
07/16 – 12/18	**North Avenue Smart Corridor, City of Atlanta, GA** - *Associate Project Manager:* Developed the recommended concept for the deployment of *Internet of Things (IoT) devices* and other technologies with phasing recommendations to ensure quick implementation, cost effectiveness, and within the existing footprint of the corridor. The project deployed includes adaptive system technology that combines with artificial intelligence and traffic theory, *V2I technology* and robust communication system.
10/17 – 01/22	**Wekiva Parkway Section 6 Design Build, FDOT District 5, Lake and Seminole County, FL** - *Associate Project Manager:* This design-build project involves the design, construction, installation, and integration of a new ITS deployment and electrical power distribution system. Responsibilities include preparing quantities and cost estimates, preparing plans and specifications, and providing *technical support during construction* such as Request For Information (RFI) reviews and shop drawing reviews.

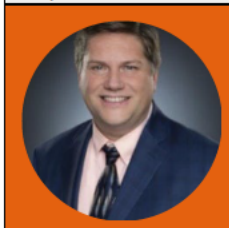
16. Staff Experience

PERSONNEL RESUMES

SYSTEM DESIGN PROFESSIONALS

16. Staff Experience:

Firm employed by	ARCADIS			Meets MPR No. 2 & 3
Name	Ranzy Whiticker, PE	Years of relevant experience with this employer	5	
Title	Principal ITS & Electrical Engineer	Years of relevant experience with other employer(s)	24	
Degree(s) / Years / Specialization		BS / 1994 / Electrical and Computer Engineering, University of Tennessee, Knoxville		
Active registration number / state / expiration date		PE.0034132 / LA / Exp. 03/31/2025		
Year registered	2008	Discipline	Electrical and Computer Engineer	
Contract role(s) / brief description of responsibilities.		System Design (System Engineering Design Plans), Implementation Support (System Integration, IV&V)		

Experience dates	Experience and qualifications relevant to the proposed contract
	Mr. Whiticker has more than 29 years of experience in the **development, design and management of information communication systems and programs,** including ITS and emergency response systems. His work has included hands-on design, development, integration and operations of numerous types of communication, data and information systems. He has established partnerships for resource sharing and **data integration between ITS programs and various emergency and transportation management agencies,** and he has **directed the implementation of innovative solutions such as VDMS,** public information display systems, and **CAV technologies** for multiple DOTs and local agencies.
10/12 – 07/15	**ITS System Design and Integration Services, LADOTD, Statewide, LA** - *Project Manager and Project Engineer:* General program assistance, *ITS system configuration, configuration verification and management, 511 ATIS concept of operations and high-level requirements, video system support and Advanced Transportation Management System (ATMS) system support.* Tasks and activities included assisting in project management services, coordination and provision of *management oversight of the ITS program*, system configuration and documentation support, public relations and sponsorship program support, and system configuration management support.
10/12 – 10/16	**Video Distribution Management System (VDMS), LADOTD, Statewide, LA** - *Project Manager: Designed and implemented a VDMS* for the distribution of LADOTD video sources statewide. Done in two phases, Phase 1 included the *development of a detailed VDMS design and implementation plan*. Phase 2 included the *implementation and integration of the VDMS in accordance with the Final VDMS design and Implementation Plan.* The Video Distribution Management System was designed to collect video sources from throughout the state and distribute amongst their internal ITS systems and externally to media, partners, and other agencies, and to and from other regional and the Statewide Traffic Management Center(s).
08/20 – 06/23	**I-24 Smart Corridor, TDOT, Nashville, TN** - *Senior Engineer:* Supported the planning, operations, maintenance, and system integration of the I-24 SMART Corridor to develop, implement, and deploy *comprehensive systems, communications, management strategies and operational and maintenance processes and activities* to monitor and control traffic; improve system and travel time reliability; and improve the safety, efficiency, maintenance, operations, and mobility of all users (motorists, transit riders, transit operators, and freight haulers). Lead stakeholder coordination, updating planning and operational documents such as the Concept of Operations, Communication Master plans, operations plans, and development of functional requirements definitions, and Standard Operating Guidelines for the corridor.
02/22 – Ongoing	**Ultimate Urban Circulator Program, Jacksonville Transit Authority (JTA), Jacksonville FL** - *PM and Senior Engineer:* Design Build project to include Autonomous Shuttle in the City of Jacksonville; *Integration of 15 signals on the AV route/loop* in downtown Jacksonville; Construction of Maintenance Yard for AV shuttles; Deployment of charging stations for AV shuttles; Multiple Sheltered Stops. Also provide construction and integration of signal and AV roadside equipment.

06/21 – Ongoing	**Traffic Management Systems Support Services, Hillsborough County, Tampa, FL -** *Project Manager and Senior Engineer:* Ongoing task work order contract to support TMC operations and services. Developed *Systems Engineering Analysis* for Hillsborough County (HC) ATMS. The HC ATMS project is expected to upgrade and enhance the current traffic signal systems communicating and the central traffic management software. Development of a TSMO Master Plan and associated software application for the management of the TSMO work program.
06/06 – 06/15	**ITS Integrator IDIQ, MDOT, Statewide, MS** - *Principal, Project Manager and Project Engineer:* Planning, design, integration, and operations and management of ITS projects, systems and program as directed by the MDOT project manager. Responsibilities included *system evaluation and recommendations for ITS systems and development of technical specifications, including typical field ITS devices;* communications equipment; video walls; adaptive signal control technology software; video distribution; 511 and Smart Work Zone systems; and grant development and grant project designs.
11/07 – 06/12	**ITS Task 8 - TMC Operations, MDOT, Jackson, MS -** *Principal and Project Manager*: Provided oversight of Statewide and Regional TMC operations. Provided oversight and technical staff, including network administrators, database managers, and ITS Technician staff. This task included the *development of the Concept of Operations and Standard Operating Procedures* and regular updates and maintenance of the documents.
10/08 – 06/14	**ITS Task 7 - Design of MDOT's ATMS Software, MDOT, Jackson, MS -** *Principal and Project Engineer*: For software functional requirements definition, *development, deployment, and management of TMC software, 511 integration*, MDOT Traffic website and mobile applications. Provided *integration of TMC operations and ITS devices with the ATMS software.*
08/18 – 07/19	**Tampa Hillsborough Expressway Authority (THEA) General Engineering Contract (GEC), Tampa, FL -** *Project Engineer*. *Reviewed Connected Vehicle Pilot Project and developed Systems Requirements Traceability and Verification Matrix against the project System Design Document (SDD); Development of an ITS Master Plan*; Developed a story board and concepts for submission of AV Grant; Developed requirements for TMC Video Wall RFP ; Assist THEA with updates for SOP documents.
11/16 – 07/17	**Mississippi River Bridges Incident Management, Freight Movement and Security ITS Project, MDOT, Multiple Locations, MS** - *Project Manager and Engineer:* TIGER grant project involving work at locations in Mississippi, Arkansas and Louisiana. Provided project *design and construction oversight of an ITS project* among MDOT, ARDOT andLADOTD to build a regional three-state ITS network to improve operational efficiency at the four Mississippi River crossings between the states through traffic monitors and dynamic message boards, river monitoring, and other means of conveying traveler information and detour route management. The project included testing and performance measure creation and monitoring for reporting to FHWA.
11/16 – 07/17	**Tupelo Cell Tower and ITS Field Device Deployment WA#5, MDOT, Tupelo, MS –** *Project Manger:* Proposed ITS and wireless system improvements. *Developed construction plans, detailed specifications and cost estimates.* The project included erection of a new wireless tower to support multiple cell carriers and establish MDOT's regional cell tower. The design included interconnecting 13 traffic signals, 18 closed-circuit television cameras, and seven Bluetooth detection systems with dedicated short-range communications capabilities over 32 miles of freeway and four miles of urban/state highway.
06/99 – 12/00	**Systems Integration, GDOT, Norcross, GA -** *Senior Electrical Engineer*: Responsible for *design evaluations and technical studies* mainly for GDOT's NaviGAtor system. Responsibilities included developing operational and functional requirements for tasks such as presence detection systems. Performed evaluation studies such as lightning protection, solar-powered field sites, and video transport technologies. Other assignments included ITS architecture for GDOT, Atlanta's 911 studies and MARTA communication systems. *Developed test procedures for system software releases.*

16. Staff Experience.

Firm employed by	ARCADIS		
Name	Braulio Ramirez, PE	Years of relevant experience with this employer	<1
Title	Principal ITS Engineer/Project Manager	Years of relevant experience with other employer(s)	20
Degree(s) / Years / Specialization		BS / 2007 / Civil Engineering, California State Polytechnic University	
Active registration number / state / expiration date		PE.0048956 / LA / Exp. 09/30/2024	
Year registered	2024 Discipline	Civil Engineering	
Contract role(s) / brief description of responsibilities.		Systems Engineering Design Plans	

Experience dates	Experience and qualifications relevant to the proposed contract
	Mr. Ramirez's experience encompasses 20 years in Intelligent Transportation Systems (ITS) Design and traffic communication networks. He has served as the Project Manager for the Rancho Cucamonga ATMS Phase I Project, Brookhurst Street RTSSP for OCTA, and Tustin Avenue-Rose Drive RTSSP led by the City of Orange. He has served as Project Engineer on numerous ITS, Transit Signal Priority (TSP), and traffic engineering projects. His design experience includes **ATMS, video distribution management, wireless communication systems, fiber optic communication systems**, Vehicle Detection Systems (VDS), Closed-Circuit Television (CCTV) cameras, Dynamic Message Signs (DMS), signing and striping, traffic control, stage construction, neighborhood traffic management, and operations of other ITS elements.
08/19 – Ongoing	**Professional Design and Construction Support for the TSS for ATMS, City of Rancho Cucamonga, CA** – *Project Manager:* Prepared coordination timing plans, *plans, specifications and estimates for traffic signal modifications and communication system upgrades.* During construction, Provided construction support and integration services. *The primary goal of this project was to deploy new intelligent transportation system (ITS) communication infrastructure* to support the management of the city's transportation network, implement optimized coordination timing plans to achieve optimal traffic flow, and improve safety for all road users, including vehicles, buses, bicycles, and pedestrians.
12/19 – 06/23	**Traffic and Intelligent Transportation Systems Engineering Services, Main Street RTSSP, Orange County Transportation Authority, Orange County, CA** – *Design, Integration and Construction Support Lead*: The goal of the project is to provide updated clearance parameters for the safety of vehicles, pedestrians, and bicyclists, accompanied by new coordinated plans that will improve progression along the MacArthur Boulevard corridor without significantly increasing delays on the side streets. During construction, This project was turn-key and *coordinated with the contractor daily to ensure adherence to schedule and compliance with plans and standards.* Assisted with reviewing and approving submittals provided by the contractor and responded to RFIs as necessary. Helped the City of Santa Ana *migrate from Mist to Centracs ATMS.*
10/19 – 06/22	**ATMS Master Plan Update, Grant Services, Engineering Design Services and Project Management Services, City of Corona, CA** – *Deputy Project Manager:* Prepared an update to the original Master Plan (developed in 2006) which researched technologies for IP-addressable cameras, changeable message signs, video detection, network redesign, fiber management, data analytics, connected vehicles and Gigabit Ethernet network. This update included a full *Traffic Management Center (TMC) redesign and install, including a new VDSM.*
07/18 – 06/23	**Brookhurst RTSSP, OCTA, Orange County, CA** – *Project Manager:* Provided traffic signal/ITS equipment upgrades and signal synchronization along Brookhurst Street. This project consists of 59 study intersections along a 16.5 -mile stretch in the cities of Huntington Beach, Westminster, Garden Grove, Anaheim and Fullerton. Fiber-optic cables will be installed at various segments of the corridor to close the communication gap. Many intersections were upgraded with new controllers, cabinets, service, emergency vehicle preemptions (EVP) and Closed-Circuit Television (CCTV). *Procured, configured, and tested all equipment* to

	ensure operability met the requirements of the project and stakeholders. *Assisted the City of Huntington Beach migrate from Quicnet to Transparity ATMS, and installed a video wall for the new Avigilon VDSM.*
02/17 – 02/24	I-405 Design-Build Improvement Project, OCTA; Orange County, CA – *Project Engineer:* Responsible for preparing Electronic Toll and Traffic Management ETTM and signal plans and acting as a subconsultant of a multidisciplinary design and construction team, on this $2.1 billion dollar design build project in Orange County California. The project improved 16 miles of the I-405 between the SR-73 freeway in Costa Mesa and the I-605 near the Los Angeles County line. The project added one regular lane in each direction from Euclid Street to I-605, making improvements to freeway entrances, exits and bridges, and will also implement Express Lanes that expanded the existing HOV lane from one lane to two lanes in each direction from SR-73 to I-605. *Responsible for the design of the Caltrans ITS field infrastructure, temporary ITS field infrastructure supporting maintenance of traffic during construction, toll system infrastructure and coordination*, street lighting, and agency traffic signal improvements along the corridor.
08/16 – 10/16	Traffic and Intelligent Transportation Systems Engineering Services, MacArthur RTSSP, Orange County Transportation Authority, Orange County, CA – *Construction Support Lead:* The goal of the project is to provide updated clearance parameters for the safety of vehicles, pedestrians, and bicyclists, accompanied by new coordinated plans that will improve progression along the MacArthur Boulevard corridor without significantly increasing delays on the side streets. During construction, *assisted with following up with the contractor to verify that the schedule, standards, and guidelines were adhered to.* Also assisted with *reviewing and approving submittals provided by the contractor and responded to RFIs as necessary.*
06/14 – 06/16	Hamner Avenue Traffic Signal Synchronization Project, City of Eastvale, Eastvale, CA – *Lead Engineer:* Provided traffic/ITS design services for the City of Eastvale. The project involved *preparing plans, specifications, estimates for the design of new fiber-optic communications systems* along 6 intersections of Hamner Avenue, as well as the upgrade of Video Detection Systems (VDS) at two intersections. In addition to the traffic signal infrastructure improvements, signal coordination plans were developed for AM, Mid-Day, and PM peak hours for all project traffic signals along the corridor. *Provided construction support by answering RFIs and approving submittals.*
07/14 – 05/16	Traffic Control Technology Phase II, City of Brea, Brea, CA – *Project Manager and Design Lead Engineer:* Provided ITS design and integration services to the City of Brea. Developed communication network plans to depict all ITS devices connected to the fiber infrastructure as designed by Willdan (Prime Consultant). Also *configured the Ethernet switches that were implemented for the proposed intersections as part of this project.* After construction and integration were completed, *conducted end-to-end acceptance testing from the field locations to the Traffic Management Center (TMC).*
08/19 – 05/21	I-435 ITS Design, Kansas Department of Transportation (KDOT), Kansas City, MO – *Design Lead:* Responsible for *preparing the PS&E of Dynamic Message Signs (DMS), Closed-Circuit Television Cameras (CCTV) and Radar Vehicle Detector (RVD) stations* along the I-435 corridor between 87th Street and the Missouri River. The project included four DMS, 11 CCTVs, and 16 RVD stations along the I-435 corridor between 87th Street and the Missouri River. There were seven existing CCTV cameras within this roadway section including two on wood poles that will be replaced as part of this project. The project included design of fiber optic communications, using both KDOT-owned and leased fiber systems. The project was an *expansion of the existing Kansas City Scout Advanced Traffic Management System,* a bi-state freeway management system in the Kansas City metropolitan area. The purpose of the devices is to provide increased traffic monitoring, incident management and traveller information along this route and supplement existing systems along I-70 and in the vicinity of the Kansas Speedway. These devices will communicate with and be operated by Kansas City Scout in Lee's Summit, MO.

16. Staff Experience:

Firm employed by	iteris		
Name	William Acey Roberts, PE	Years of relevant experience with this employer	1
Title	Principle ITS/Traffic Engineer	Years of relevant experience with other employer(s)	23
Degree(s) / Years / Specialization		BS / 1999 / Civil Engineering, University of Mississippi	
Active registration number / state / expiration date		PE 82914 / Florida / Exp. 2/2025	
Year registered	2011	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities.		ITS System Engineering Design	

Experience dates	Experience and qualifications relevant to the proposed contract
	Acey has 23 years' experience as an ITS/Traffic engineer both as a state employee and as a consultant. He is an industry expert in Traffic Design and Intelligent Transportation Systems Design and is a current board member of ITS Florida and a past president of Gulf Region ITS (GRITS). His work experience includes ITS program management and oversight, transportation systems management and operations (TSM&O), connected and autonomous vehicle solutions (CAV), construction engineering and inspection (CEI), technical plan development, ITS systems engineering, asset management, and arterial management programs.
2/21 – Ongoing	**Bay Street Innovation Corridor, Jacksonville Transportation Authority, Jacksonville, FL** – *Engineer of Record*: Provided design of ITS and traffic signal improvements for the 3+ mile JTA downtown autonomous vehicle shuttle program for JTA under a design build contract led by Balfour Beatty. ITERIS is providing *ITS Architecture, Systems Engineering Plans (ITS and Traffic Signalization), Specifications, ITS Cost Estimates, Fiber Optic Network design,* for the project to provide AV shuttle service on existing city streets connecting to 12 new AV shuttle stops and a new AV operations building. The total program is planned for 10 miles of autonomous transit service making this the largest deployment of AV in the US.
12/23 – Ongoing	**Arterial Management Program (AMP), FDOT District Seven, Tampa, FL** – *Project Manager:* Provided project management for the FDOT D7 Arterial Management Program. This 5-year program includes integrating corridor signals and traffic controllers to D7's ATMS program to allow real-time signal adjustments and corridor coordination. Providing *Asset Management,* diversion routes, special event signal plans, addressing citizen complaints, construction activities and interaction with local agencies. Other work includes traffic data dashboards, GIS tools and asset management.
2/19 – 11/20	**Truck Parking Accessibility System, FDOT District One, Bartow, FL** – *ITS Construction Engineering & Inspection:* Supported FDOT District One's construction office with ITS construction inspection and project management for multiple FDOT-maintained rest areas in D1 and D7. Provided project plans and submittal review, *Construction Engineering, and Inspection (CEI) support,* and coordination between contractors, the department, and other inspectors.
2/17 – 11/18	**I-10 (I-95 to US 90) Intelligent Transportation System Design Services, FDOT D2 / D3, Jacksonville, FL** – *ITS Plans and Design:* Design task lead of ITS field devices and networking review for this 150-mile project between Districts Two and Three. Oversaw production staff and provided quality control/quality assurance support and technical design support. This project involves full traffic *Engineering Plans using Microstation, Fiber Optic Network* design and management systems, including closed-circuit television, radar traffic collection, Bluetooth, and dynamic message signs, along the corridor from Tallahassee to Jacksonville.
2/17 – 11/18	**I-75 FRAME – Connected Vehicle Project, FDOT D2, Jacksonville, FL** – *Quality Control Engineer:* Provide quality control for a connected vehicle and communications *Engineering Plans in Microstation* along I-75 in FDOT District Two as part of Florida's Regional Advanced Mobility Elements (FRAME) program. The project includes CAV technology to assist commercial vehicles and

	the public in safely navigating a section of I-75 that experiences chronic congestion in Alachua County. Provided quality reviews periodically during the design process.
10/16 – 10/20	General Engineering Consultant Contract, FDOT D1, Bartow, FL – *Traffic Engineering Design:* Supported this contract on various assignments including embedded EOR staffing support in traffic design *Engineering Plans in Microstation , Cost Estimates, Specifications, ITS Fiber Design and Communications*, providing overall program management, quality control, training and daily assistance to DOT and consultant staff and provided long range estimates and designs for the department on the future work program.
2/18 – 10/219	Tampa International Airport South Development Area Roadway Improvements, HCAA, Tampa, FL - *ITS Plan Design:* Provided *ITS and Signalization plan design* for this design-build project involving widening and relocation of the existing north-south spine service road, relocation of the Bessie Coleman service road, and associated improvements to the roadway network in the general South Terminal Support Area. Other services included *Cost Estimates, Specifications, Integration and Construction Support.*
2/18 – 10/20	Colorado Department of Transportation, Smart Mobility Plan, Colorado Department of Transportation, Denver, CO – *ITS Architecture:* Provided statewide *ITS Architecture* updates as part of the statewide Smart Mobility Plan. Worked with CDOT to develop a Smart Mobility plan for the future of CO, and to provide potential technology solutions to some of their biggest safety and congestions issues. Solution included statewide mobility planning and GIS mapping features to improve decision making, priority funding decisions and technology for the future.
2/22 – Ongoing	Transportation Research Board, Freeway and CAV Simulation Sub-committee – *Committee Member:* Currently serving on the freeway and connected and autonomous vehicle simulation subcommittee to help TRB research and establish best practices for traffic simulation of interstates and freeways incorporating CAV traffic.
10/18 – 10/20	FHWA Technical Support Services IDIQ Contract - *Principal Investigator:* Served as one of the principal investigators on various TOPR task orders under a federal IDIQ contract for USDOT. Services range from evaluation of safety of first responders, pedestrian and bicycle safety studies, asset management for traffic management centers, complete trip evaluation (MaaS) and commercial truck studies

16. Staff Experience:

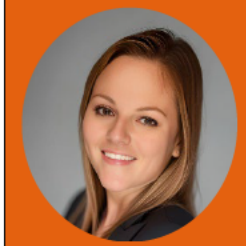
Firm employed by	metric		Meets MPR No. 10
Name	Demetrius Lewis	Years of relevant experience with this employer	8
Title	Director of Technology Services	Years of relevant experience with other employer(s)	12
Degree(s) / Years / Specialization		A.A. / 2010 A+, Network+, MSDCT Certificates / 2005 / Information Technology A.A. / 2003	
Active registration number / state / expiration date		N/A	
Year registered	N/A	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities.		Systems Analyst, Network Operations/Asset Management Coordinator	

Experience dates	Experience and qualifications relevant to the proposed contract
	Mr. Lewis has 20 years of experience in ITS, network engineering, administration, design, and integration of local- and wide-area networks (LAN/WAN). He has been responsible for maintaining FDOT's and Central Florida Expressway's ITS telecommunications system, technical contract writing, management and negotiations, fiber-optic network design and management, reviewing network design plans and fiber schematics, SunGuide® software administration and integration, and interfacing and coordinating with multiple interagency disciplines and externally to successfully develop RFPs and deploy ITS projects. This experience included over 10 years of ITS Project Management at FDOT District 5 where he was responsible for overseeing ITS engineering development and deployment. **He is an expert in the management of ITS projects, budgets, and schedules, overseeing the installation of ITS infrastructure and subsystems such as Video Walls, Dynamic Message Signs (DMS), Closed-Circuit Television (CCTV) systems, Vehicle Detection System (VDS), and Fiber-Optic Networks (FON). He is also experienced in the creation and review of Systems Engineering documentation to include Concepts of Operation (ConOps), Systems Engineering Management Plans (SEMP), Requirements Traceability and Verification Matrices (RTVM), and Regional ITS Architectures (RITSA) for ITS projects. He is focused on the planning, testing, and integration of emerging technologies** and addressing the need of an ever-evolving transportation industry to support a more technologically based model (i.e. CV, Data Management, Network Security, and more).
02/20 – Present	**I-4 FRAME System Manager, FDOT District 7:** Metric was awarded this project to *implement CV technology* connecting the Downtown Tampa area to western portions of Orlando. The I-4 FRAME project is deploying an advanced Integrated Corridor Management (ICM) system consisting of next generation traffic incident management, work zone traffic management, road weather alerts, back-of-queue warning, and speed harmonization message systems such as vehicle-to-infrastructure (V2I) via approximately 700 RSUs with DSRC radios and Cellular Vehicle-to-Everything (C-V2X) capabilities. The project is designed and implemented using the System Manager Approach to *ensure design consistency as well as seamless integration with District 1, District 5, District 7, Florida's Turnpike Enterprise*, and numerous local agencies. The I-4 FRAME project covers 77 miles of I-4, 122 miles of other limited-access routes, and signalized arterial roadways with a total of 491 traffic signals. The final products to be submitted include Systems Engineering Analysis and associated documentation, the complete *design* for each corridor and all signalized intersections within them, and the selection, *integration, testing and verification of all CV devices. Mr. Lewis currently leads all integration, testing and verification work for this project.*
07/19 – Present	**US 41 Arterial FRAME Systems Manager Project, FDOT District 1:** As a TWO under Metric's Traffic Operations ITS General Consultant Service Contract, this project (as part of Florida's Regional Advanced Mobility Elements (FRAME)) is deploying connected and automated safety applications along the US 41 corridor (7 miles; 25 signals total) from Airport Road to Pine Island

	Road in Lee County. This project is in support of FDOT's District 1 goal to improve safety and mobility along US 41, especially since US 41 is parallel to I-75 and serves as a detour route during incident management. All signals are interconnected with Econolite Advance Traffic Controller (ATC) (version range 2.58 and 2.64). Metric prepared all *Systems Engineering related documentation* (ConOps, SEMP, PITSA and RITSA updates, Stakeholder Meetings, and creation of the RTVM), *produced a complete design of the project (ITS plans, Network and Communications Design, Structural Design, MOT, cross-sections, etc.)* prepared required Project Specifications (Technical Special Provisions and Modified Special Provisions), prepared Construction Cost Estimates and Long-Range Estimates, selected and assisted FDOT with Procurement Specifications and Support for all CV devices, *configured and Integrated all project devices and conducted all Subsystem and System Testing*. In an effort to ensure use of best-in-class devices and interoperability of all project components, Metric was tasked with *the design, deployment, and testing of a Pilot Project* on US 98 in Bartow Florida at multiple intersections. This Pilot Project served as a basis for Metric to perform an *alternatives analysis* for and ensure *interoperability of all CV devices* used on the project. *Mr. Lewis has been integral in all Technology related aspects since the beginning of the project.*
01/17 – 01/22	**CV Readiness Study & Implementation Plan, Florida's Turnpike Enterprise:** Metric was tasked with conducting a *CV Readiness Assessment* for the FTE under Metric's DW Continuing Services ITS Consultant contract. With the FTE's interest in deploying CV technology on its roadway infrastructure, they requested the assistance of the Metric staff to help them prepare for future CV deployments. As a part of this task, the Metric staff researched and documented the current state of CV technology within the industry and conducted various internal hardware, software and storage needs, security, and staffing proficiency assessments as well as roadway infrastructure evaluations as it pertains to the readiness of FTE to deploy CV technology. All these tasks aided in the development of a short and long-term *CV Technical Implementation Plan* for FTE. Metric worked with FTE on the identification of key stakeholders and interviewed and worked with the various agencies to identify and document current initiatives, lessons learned, use cases, expected benefits, and more. *This assessment was conducted at both a national and statewide level.*
11/17 – 11/21	**I-75 On- and Off-System F.R.A.M.E. (Florida's Regional Advanced Mobility Elements), FDOT District 5:** Metric represented the FDOT District 5 ITS Group as the Systems Manager for the I-75 F.R.A.M.E. *Connected Vehicles (CV)* project which assists in the advancement of the Multimodal Integrated Corridor Management (MMICM) plan. As the Systems Manager, Metric was responsible for the majority of project activities, with the exception of construction. This work included *conducting a Systems Engineering Analysis and creation of the appropriate Systems Engineering documentation*, review of the Regional ITS Architecture (RITSA) and creation of a Project ITS Architecture (PITSA), coordinating, testing, and providing documentation on the various applicable technologies to include *Roadside Units (RSUs) communicating via either Dedicated Short Range Communications (DSRC) or Connected Vehicle to Everything (CV2X),* vehicular On-board Units (OBUs) as well as emulated OBUs (mobile devices and/or tablets) to ensure device interoperability. Metric staff was responsible for integrating these devices to multiple signal controllers with the goal of verifying the various CV-related applications: Signal Phase & Timing (SPaT), Automated Traffic Signal Performance Measures (ATSPM), MAP messages, Traveler Information Messages (TIM), Basic Safety Messages (BSM), Emergency Vehicle Preemption (EVP), Transit Signal Priority (TSP) and other applications related to pedestrian safety. Metric staff *created detailed test plans and conducted extensive testing in both the lab and field environments with equipment provided by several CV vendors.* As a result of the testing, reports were generated to guide FDOT and the Systems Manager in their decision-making process for the *development of the CV specifications* and eventual decision-making on the F.R.A.M.E., SR 434, and PedSafe projects and any other future CV deployments. Metric was also responsible for *configuring, integrating, and testing all CV devices into the FDOT ITS network.*

16. Staff Experience:

Firm employed by	metric		
Name	Jessica Knox, PE, PTOE	Years of relevant experience with this employer	10
Title	Director of TMC Operations	Years of relevant experience with other employer(s)	4
Degree(s) / Years / Specialization		BS / 2010 / Civil Engineering MS / 2015 / Industrial Engineering (specializing in Engineering Management)	
Active registration number / state / expiration date		PE.0047713 / LA / Exp. 9/30/2025 PTOE #4353 / US / 11/20/2026 Traffic Engineering Analysis Process & Report Class Modules 1, 2, & 3 / LADOTD	
Year registered	2016	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities.		Traffic Operations Center Coordinator	

Experience dates	Experience and qualifications relevant to the proposed contract
	Ms. Knox has served in numerous Traffic Operations, ITS, and TSM&O roles, diversifying her experience within the industry. She started as an RTMC Operator; monitoring and analyzing real time traffic data. She performed as an in-house Turnpike Traffic Services Specialist, reviewing and evaluating traffic plans and studies. She also has experience as an **ITS Engineer, including the design of freeway and arterial networks, Advanced Traffic Management Systems (ATMS), network integration and emergency pre-emption**. Ms. Knox also served as an in-house consultant for District 5 **performing plans reviews, systems engineering documentation preparation, and assisted the client with daily operations**. Ms. Knox moved to Jacksonville in June of 2016, where she has since been working on the District 2 TMC Consultant Contract. She is responsible for plans reviews, assisting with minor ITS design projects constructed through the ITS Maintenance Contract, reviewing TSM&O policy and procedure documents developed by Central Office, and assisting the client with any tasks necessary. Besides the TMC Consultant Contract, she is also currently serving as the Deputy Project Manager and Engineer of Record for the I-4 FRAME project. She also serves as an independent reviewer for both traffic and ITS design and studies. This diverse experience has provided Ms. Knox with knowledge and understanding of many facets of the Traffic Operations Program for several FDOT Districts and Statewide efforts.
06/21 - Present	**Transportation System Management and Operations (TSM&O) Master Plan, TWO under the Districtwide TSM&O: ITS & ATMS Consultant, FDOT District 3, FL** - *TMC Coordinator:* Metric provided professional engineering services for Intelligent Transportation System (ITS) and Advanced Traffic Management System (ATMS) services on a Task Work Order (TWO) basis for District 3's ITS/ATMS programs. As a TWO under this contract, Metric prepared the TSM&O Master Plan. Metric *coordinated with stakeholders and maintaining agencies* and performed additional analyses to support the selection of specific Master Plan projects to include *system upgrades and replacements* as well as expansion projects. Other TWOs under this contract were focused *on ITS/ATMS/CAV planning, research, studies, and design support; project management; integration, operations, and maintenance support; communication and network support services*; and participation in D3's Traffic Incident Management (TIM) Team activities. District 3's objective was to provide multilevel priority on-site response to ATMS/traffic signal phasing, timing, coordination, and malfunction issues highlighted by concerned citizens, public officials, and law enforcement personnel.
05/21 - Present	**Transportation System Management & Operation (TSM&O) Engineering Analysis and Minor Design – Continuing (2021 – 2026), FDOT District 7, FL** – *TSMO Support Engineer:* Metric was awarded this contract to provide a range of engineering, planning and technical services to establish and support the Transportation System Management and Operations (TSM&O) program within FDOT District 7. The objective of this contract is to maximize efficiency of transportation systems by focusing on mobility outcomes, such as travel time reliability. There will be a *performance driven approach for solving arterial congestion and traffic*

	problems in which Intelligent Transportation Systems (ITS) is utilized to locate and correct congestion causes in real-time. Task Work Orders will be assigned by District 7 related to *technical support, strategic planning, studies and conceptual plans, deployment of ITS components and public involvement*. Specific TWOs include: TSM&O Program Support: Tasks include building and further developing the PEG and P-PEG goals from the TSM&O Strategic Plan and combining efforts between arterials and freeways. Additionally, Metric will support *developing a real time data dashboard; developing an economic vitality component for performance measures; evaluating the feasibility of AMP corridor recommendations;* and examining all work program projects and develop "goes-with" TSM&O projects based on solutions from the AMP corridor concepts and solutions. Other activities that are included with this effort include *reviewing and developing plans and specifications for design or design-build contracts to install TSM&O field devices*; reviewing project requirements and hardware configuration analysis; developing proper sequencing, cost estimating, scheduling and coordination of ITS projects; performing system engineering analyses; reviewing the utilization of systems devices hardware and software; and coordinating and assisting the TSM&O/ITS Program Office.
02/20 – Present	**Engineer of Record for the I-4 FRAME Systems Manager, FDOT District 7:** Metric was awarded this project to *implement CV technology* connecting the Downtown Tampa area to western portions of Orlando. The I-4 FRAME project deployed an advanced Integrated Corridor Management (ICM) system consisting of next generation traffic incident management, work zone traffic management, road weather alerts, back-of-queue warning, and speed harmonization message systems such as vehicle-to-infrastructure (V2I) via approximately *700 RSUs with DSRC radios and Cellular Vehicle-to-Everything (C-V2X) capabilities*. The project is designed and implemented using the Systems Manager Approach to ensure design consistency as well as seamless integration with District 1, District 5, District 7, Florida's Turnpike Enterprise, and numerous local agencies. The I-4 FRAME project covers 77 miles of I-4, 122 miles of other limited-access routes, and signalized arterial roadways with a total of 491 traffic signals. The final products to be submitted include *Systems Engineering Analysis and associated documentation*, the complete design for each corridor and all signalized intersections within them, and the selection, *integration, testing and verification of all CV devices*.
09/17 – Present	**Continuing Services Contract (CSC) for Integrated Corridor Management (ICM) - Freeway/Arterial – Operations (2017 – 2021) (2021 – 2026), FDOT District 5:** The FDOT ICM project seeks to improve overall operations and mobility in the Central Florida area; specifically, through the operation and management of the Regional Traffic Management Center (RTMC) and associated programs on both the freeway and arterial systems. Metric functions as an extension of the Department's resources, providing professional services for a wide range of engineering, technical, management and administrative services to assist with numerous TSM&O projects within the work program. General work elements include RTMC staffing and *operations for both freeways and arterials, project management, integration, TIM/first responder coordination, and public information assistance*. The current ICM footprint covers nine Freeways and 12 Arterials within Counties/Cities with 452 traffic signals in six jurisdictions (City of Maitland, City of Orlando, City of Winter Park, Seminole County, Orange County, and Osceola County). TSM&O strategies are being utilized and synthesized by our RTMC staff as they integrate the operations of freeway and arterials to improve the travel time reliability of existing transportation network (arterials and freeways). *Metric has held this contract for two consecutive terms including (2017 – 2021) (2021 – 2026).*

16. Staff Experience:

Firm employed by	iteris		
Name	Timothy Fox	Years of relevant experience with this employer	8
Title	Traffic Operations Practice Lead	Years of relevant experience with other employer(s)	22
Degree(s) / Years / Specialization		AA Liberal Arts / 1994 / Traffic Operations Centers	
Active registration number / state / expiration date		N/A	
Year registered	N/A	Discipline	N/A
Contract role(s) / brief description of responsibilities.		Traffic Operations Center Coordinator	

Experience dates	Experience and qualifications relevant to the proposed contract
	Timothy has more than 30 years of experience in the **ITS and Transportation Operations** industry. He is a highly proficient Program Manager with an extensive career history in traffic operations, and he is adept at coordinating services to ensure successful program delivery and customer satisfaction. Mr. Fox has rare experience in both **Urban and Rural ITS operations with vast TSMO application,** and he is recognized as a subject matter expert in Traffic Management Center (TMC) staffing and operations. Mr. Fox is a Vice President in Iteris' Richmond office, and as the national practice lead, he provides **strategic guidance and leadership to traffic operations programs** throughout the nation. Timothy currently serves on the Board of Directors for ITSVA.
03/18 – Ongoing	**Traffic Operations Center Services, Virginia Department of Transportation (VDOT), VA** – *Project Manager:* In March of 2018, Mr. Fox began to provide specialized support to VDOT's goal of ***achieving a statewide operations program***, ushering consistency and efficiency for traffic incident management among the TOCs in Virginia's five operations regions. Mr. Fox heads the ***delivery of TOC operations services across the Commonwealth***, at the program level, to include ***strategic direction, process and knowledge development, performance management,*** budget, best practices, and innovations.
07/18 – Ongoing	**TMC Staff and Process Development Leadership, District 7 Florida Department of Transportation (FDOT), FL** - *Project Manager:* Mr. Fox leads Iteris' support of the District 7 (Tampa Bay Sun Guide TMC) with staff and process development leadership. Collaborating with the local Operations and Project Managers, Mr. Fox works to identify, engage, and mentor TMC staff, facilitating opportunities to support their career development in the traffic management field. Leadership development is a realized outcome of this process. Mr. Fox also ***leads the innovative solutions*** team for Iteris (in this operation), in which ideas for process efficiencies are developed and implemented.
04/20 – Ongoing	**511 Traveler Information and Express Lanes Operations, City of San Francisco, CA** - *Project Manager:* Mr. Fox guided the effective transition of the San Francisco Bay Area 511 Traveler Information and Express Lanes Operations centers to Iteris (Apr - Jun 2020) and continues support today as the Project Manager. In this role, he has led a developmental change effort that produced a clearly ***improved operations performance trend***, program organization, operations expansion, and a renewed culture of productivity and trust. The program provides operations of the ***managed lanes program and traveler information services*** in the Bay Area.
05/16 – 06/18	**Statewide Operations Program Management, Virginia Department of Transportation (VDOT), VA** - *Project Manager:* Serving as the Deputy Program Manager of Operations as contracted support in VDOT's Program Management Office (PMO), Mr. Fox provided direct coordination and oversight to the ***statewide operations program*** for two years. Principal functions of his role included seeking innovations / improvements to provide efficiency and promote consistency in operations through discovering and developing best practices for implementation in each of the five operations regions in Virginia. Mr. Fox

	successfully led numerous initiatives leading to enhanced efficiency in the program by resourcing his vast experience in *ITS operations,* interminable enthusiasm, and a well-honed ability to incite collaboration and partnership.
02/12 – 03/16	Statewide Services Contract, Virginia Department of Transportation (VDOT), VA - *Project Manager:* Managed the Commonwealth of Virginia's largest geographical operations region (34 counties), in which he was principally responsible for all aspects of delivering a multidiscipline services contract (i.e., TOC, Safety Service Patrol (SSP), *Traffic Incident Management Coordinator (TIMC), ITS Maintenance,* and Arterial/Signal Operations, Customer Service Center (CSC) Staffing, General Support Services/Task Order development and execution). Mr. Fox employed successful risk mitigation tactics to monitor and manage the performance of Service Level Agreements. Engaging a progressive and innovative approach in his management of the project, Mr. Fox developed several performance and management tools and techniques on the *project cited as best practices in the program.* Prior to the establishment of the statewide services contract in 2013, Mr. Fox was the Regional Project Manager of the Southwest Region (SWRO), during which time he reestablished the region's prior-dissolved Safety Service establishment of the statewide services contract in 2013, Program and developed an effective command/control function in the TOC. Mr. Fox also served as the operations lead for the I-81 corridor services contract to provide *traffic incident management/operations* consistency between the Northwest and Southwest Regions.
08/94 – 01/12	Hampton Roads Control Room Operations and ATMS Enhancements, Virginia Department of Transportation (VDOT), VA - *Project Manager:* The initial 18 years of Mr. Fox's career were formed in Virginia's Eastern Region, in which he established a deep functional command of operations through proficient service in every tier of the Hampton Roads operation (i.e., Traffic Management System Operator, Control Room Operator, Control Room Supervisor, and Control Room Operations Manager). Mr. Fox was responsible for the exponential maturation of VDOT's premier TOC Control Room between 2005 and 2012, while functioning as the Control Room Operations Manager. During this period, Mr. Fox provided the *operations expertise and design for numerous ATMS enhancements,* updated critical operations processes and procedural documentation (i.e. Reversible Roadway Operations), managed all aspects of operations personnel, developed and *delivered a training and certification program to elevate the standard of performance,* designed for development numerous operations support tools, developed and improved operational processes that demonstrated largely enhanced proactivity and efficiency in Control Room Operations, and essentially evolved nearly every aspect of TOC operations with fine attention to detail, to include a full redesign of the physical operations floor to optimize the workflow of an advanced TOC operation. Mr. Fox is well-known for producing many passionate and skilled ITS professionals developed under his leadership, many of which have become key players in ITS in and beyond VA.

16. Staff Experience:

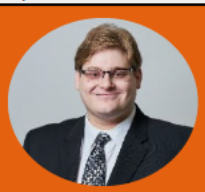
Firm employed by	metric			Meets MPR No. 9
Name	Penny Kamish		Years of relevant experience with this employer	21
Title	TMC Operations Lead		Years of relevant experience with other employer(s)	12
Degree(s) / Years / Specialization			N/A	
Active registration number / state / expiration date			N/A	
Year registered	N/A	Discipline	Traffic Operations Center Operations / Supervisor-Other	
Contract role(s) / brief description of responsibilities.			Traffic Operations Center Coordination	

Experience dates	Experience and qualifications relevant to the proposed contract
	Ms. Kamish has over 33 years of experience in Traffic Operations Management and the dissemination of real-time traffic information. She has been a member of the North Florida Freeway Management Team, now referred to as Traffic Incident Management (TIM), for 20 years. **Her experience includes experience as a subject matter expert in performing management and operations, system diagnostics and troubleshooting, system testing, and system maintenance of ITS systems.** She also has a strong record of service within Public/Private sectors coordinating scheduled and non-scheduled traffic events (incidents, special events, hurricanes, major roadway closures and wildfires). Ms. Kamish works diligently as the Project Manager on FDOT District 2 RTMC Operations contract as well as serving as Operations Manager on several operations related contracts and provides assistance producing Standard Operations Guidelines (SOGs) and/or Standard Operations Procedures (SOPs), and Performance Measure Dashboards for reporting purposes.
08/21 – Ongoing	**ITS General Consultant Services, FDOT District 1, Fort Myers, FL** - *Project Manager:* Metric provides a wide range of professional engineering services specifically to support all facets of the District 1's Traffic Operations Office ITS Program. This is a Task Work Order based contract related to ITS services *including studies, planning, design, integration, diagnostic, operations, management, review, evaluation, and engineering services projects as well as facilitating the Traffic Incident Management (TIM) Team activities and TIM initiatives.* Metric also supports in the area of Transportation Systems Management and Operations (TSM&O) to interface state systems with local systems, bringing together efforts from the state, Metropolitan Planning Organizations (MPOs) and local units of governments (i.e. Integrated Corridor Management (ICM), etc.). Metric continues to provide innovative resources to propel ITS, CAV, and Automated Traffic Signal Performance Measures within the District.
02/20 – Ongoing	**Regional Transportation Management Center Operation and Maintenance, FDOT District 2, Jacksonville, FL** - *Project Manager:* This is an operations contract involving the *day-to-day management of two locations of the ITS Traffic Management Center.* Responsibilities include the use of multiple software programs, including FDOT's SunGuide®, to monitor District 2 devices, including 2,415 ITS Devices* (936 CCTVs; 218 DMS/ADMS/DDMS; 754 MVDS; 22 RWIS; 23 WWD; 4 Beacons; access to 398 BlueTOADS (between District 2, City of Jacksonville and City of Gainesville) 36 Toll DMS; and 24 TPAS DMS) for the purpose of detection of roadway obstructions, including disabled vehicles, crashes, construction as well as congestion. Metric staff was actively involved in all aspects of the successfully opening of District 2's first managed lanes project, with the I-295 West Beltway Express Lanes going live in May of 2019. This included *developing SOPs, training modules, and hands on testing of SELS software* and simulation. Metric also assisted in the preparation work prior for the First Coast Expressway and managed it for three months prior to Florida's Turnpike Enterprise (FTE) assuming responsibility in December 2019. The Network staff is actively involved with the District 2 ITS SunGuide® System, both for *testing, system diagnostics and troubleshooting, and the integration of new devices.* Metric staff monitor all 511 feedback messages reporting traffic incidents, contact the motorists leaving the feedback to obtain additional information, then make the appropriate FDOT District aware of the incident. Bilingual

	Operators provide Spanish floodgate recording for all Districts, as requested, as well as providing critical testing for the Spanish module of the 511 system, both phone and website. City of Jacksonville System Monitoring & Reporting: The primary focus of services is the monitoring of system health, device maintenance, ATMS.now alarm management, optimization of signals and to maximize coordination between FDOT, NFRTMC, City of Jacksonville Signals and area Law Enforcement. Metric staff have also worked with ATMS.now to help guide development of a develop a signal interface in SunGuide®. This will act as a modified Integrated Corridor Management (ICM). SunGuide® and ATMS.now have been tied together so that predefined ICM plans can be activated through SunGuide® response plans and confirmed/ monitored in ATMS.now. Three corridors have been set up on parts of US 90, Normandy, and Philips Highway in Duval County for implementation. City of Gainesville Signal Operations: As a part of our District 2 RTMC Operations contract, Metric provides Operators to monitor arterial roadway conditions and provide traffic information to motorists. Based off of criteria and timing plans set up by the City, Metric Operators can flush a ramp back up before it reaches the through lanes as well as during lane-blocking incidents. This contract also involves traffic management to running escorts for large events like a UF Football game and Gator Nationals. Our staff dynamically changes timing plans "on the fly" (based on what the municipality provides) to maximize traffic patterns. Changes are tracked via performance measures to see the Benefit/Cost Ratio per event due to the signal retiming.
10/12 – 10/17	**ITS Support Services, FDOT District 4, West Palm Beach, FL** - *Project Manager:* This project included support services for the TSM&O program within the FDOT to improve the efficiency of the existing transportation network through *performance monitoring, active arterial management, Integrating Freeway Management with Arterial Management and Incident Management on Arterials and Freeways*. The project included the deployment of an ITS along the District's interstates to monitor and improve incident clearance time and travel time and the *implementation of the ATMS.* Both systems utilize SunGuide® software to manage these devices and traffic signals. Statewide AAM Needs Plan, FDOT District 4: this Plan addressed the costs and requirements of Active Arterial Management (AAM) throughout the State of Florida, broken up by District. Metric coordinated with the State and appropriate maintaining agencies to identify the needs of each Agency and provided high level recommendations to support the implementation of the Plan. Regional metropolitan areas were focal points and areas of emphasis, although recommendations were also provided for rural and suburban arterial roadways. Active Arterial Management TMC Operations "Palm Beach Living Laboratory" (Palm Beach and Broward Counties), FDOT District 4: District 4 started a TSM&O "Living Lab" within Palm Beach County which was the leading edge of AAM at the time. The Palm Beach Living Laboratory was developed and operated by Metric staff. Beginning in October 2012 with a deployment of CCTVs and travel time collection devices over a fiber optic network, the Living Lab allowed operators and timing engineers to cohesively identify and rectify the causes of congestion in real time. In addition, to facilitate the operational efficiency of the projects roadway limits, operators supplemented maintenance efforts by aiding County technicians in detecting malfunctions within both the ITS and signal systems ranging from traffic signals in flash to disruptions in communications. The *interagency coordination* associated with this initiative was vital to the success of the nation's first true AAM Program. Following the success of the Living Laboratory, Metric identified and created device and Emergency Management locations for both Palm Beach and Broward counties for integration into District 4's SunGuide®. *This project was awarded the Davis (Prudential) Productivity Award for its contribution in providing a cost savings to the taxpayers of Florida and increased efficiency for Palm Beach's roadways.*

16. Staff Experience:

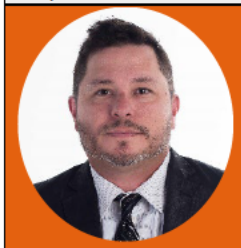
Firm employed by	metric		
Name	Jonathan Katz, PE	Years of relevant experience with this employer	7
Title	ITS Engineer	Years of relevant experience with other employer(s)	0
Degree(s) / Years / Specialization		B.S. / 2016 / Civil Engineering	
Active registration number / state / expiration date		PE #91110 / FL / Exp. 2/28/2025	
Year registered	2021	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities.		Systems Analyst, System Engineering Design	

Experience dates	Experience and qualifications relevant to the proposed contract
	Mr. Katz has gathered experience **creating ITS/TSM&O Master Plans**, assisting with **design of ITS and signing projects,** performing various types of traffic studies, and **creating Systems Engineering documents for a wide range of projects**, including express lanes and Transit Signal Priority projects.
02/20 – Present	**I-4 FRAME System Manager, FDOT District 7, Tampa, FL** – *ITS Engineer:* Metric was awarded this project ***to implement CV technology*** connecting the Downtown Tampa area to western portions of Orlando. The I-4 FRAME project deployed an advanced Integrated Corridor Management (ICM) system consisting of next generation traffic incident management, work zone traffic management, road weather alerts, back-of-queue warning, and speed harmonization message systems such as vehicle-to-infrastructure (V2I) via approximately ***700 RSUs with DSRC radios and Cellular Vehicle-to-Everything (C-V2X) capabilities.*** The project is designed and implemented using the System Manager Approach to ensure design consistency as well as seamless integration with District 1, District 5, District 7, Florida's Turnpike Enterprise, and numerous local agencies. The I-4 FRAME project covers 77 miles of I-4, 122 miles of other limited-access routes, and signalized arterial roadways with a total of 491 traffic signals. The final products to be submitted include ***Systems Engineering Analysis and associated documentation,*** the complete design for each corridor and all signalized intersections within them, and the selection, ***integration, testing and verification of all CV devices.***
01/20 – 01/24	**ATMS Design-Build, FDOT District 7, Tampa, FL** – *ITS Engineer:* This citywide ATMS project consists of the upgrade of 402 signals to expand the City's existing ATMS. The project includes ***design, construction, and installation of the next generation traffic management system that connects vehicles and people to the transportation system*** to optimize traffic flow, and improve mobility, reliability, resiliency, and safety. This includes the design and install a fiber optic communications system, Closed Circuit Television (CCTV) traffic cameras, Microwave Vehicle Detection System (MVDS), Flood Sensors, Dedicated Short Range Communication (DSRC) radios/Roadside Units (RSU), traffic signal controllers and cabinets, Uninterruptible Power Supplies (UPS), traffic signal software, predicative analytics, Software, Servers, and Workstations for TMC staff.
11/17 – 11/21	**I-75 On- and Off-System F.R.A.M.E. (Florida's Regional Advanced Mobility Elements), FDOT District 5** – *Project Manager:* Metric represented the FDOT District 5 ITS as the Systems Manager for the I-75 F.R.A.M.E. ***Connected Vehicles (CV)*** project which assists in the advancement of the Multimodal Integrated Corridor Management (MMICM) plan. As the Systems Manager, Metric was responsible for a majority of project activities, with the exception of construction, to include ***conducting a Systems Engineering Analysis and creation of the appropriate Systems Engineering documentation,*** review of the Regional ITS Architecture (RITSA) and creation of a Project ITS Architecture (PITSA), coordinating, testing and providing documentation on

	the various technologies to include Roadside Units (RSUs) communicating via either Dedicated Short Range Communications (DSRC) or Connected Vehicle to Everything (CV2X), vehicular On-board Units (OBUs) as well as emulated OBUs (mobile devices and/or tablets) to ensure device interoperability. This project was in line with the USDOT goals and contributed to increased safety, reliability and mobility needs using advanced CV technologies. Metric staff was responsible for integrating these devices to multiple signal controllers with the goal of verifying the various CV-related applications: Signal Phase & Timing (SPaT), Automated Traffic Signal Performance Measures (ATSPM), MAP messages, Traveler Information Messages (TIM), Basic Safety Messages (BSM), Emergency Vehicle Protocol (EVP), Transit Signal Priority (TSP) and others related to pedestrian safety. Metric staff *created detailed test plans and conducted extensive testing in both the lab and field environments with equipment provided by several CV vendors.* As a result of the testing, reports were generated to guide the System Manager in their decision-making process for the *development of the CV specifications* and eventual decision-making on the F.R.A.M.E., SR 434, and PedSafe projects and any other future CV deployments. Metric was also responsible for *configuring, integrating, and testing all CV devices into the FDOT ITS network.*
01/17 – 01/22	CV Readiness Study & Implementation Plan, Florida's Turnpike Enterprise (FTE), Orlando, FL - *ITS Engineer:* Metric was tasked with conducting a *CV Readiness Assessment* for the FTE under Metric's DW Continuing Services ITS Consultant contract. With the FTE's interest in deploying CV technology on its roadway infrastructure, they requested the assistance of the Metric staff to help them prepare for future CV deployments. As a part of this task, *the Metric staff researched and documented the current state of CV technology within the industry and conducted various internal hardware, software and storage needs, security, and staffing proficiency assessments as well as roadway infrastructure evaluations as it pertains to the readiness of FTE to deploy CV technology.* All these tasks aided in the development of a short and long-term *CV Technical Implementation Plan* for FTE. Metric worked with FTE on the identification of key stakeholders and interviewed and worked with the various agencies to identify and document current initiatives, lessons learned, use cases, expected benefits, and more. *This assessment was conducted at a national and statewide level.*
07/17 – 06/18	ITS Master Plan, River to Sea (R2C) Transportation Planning Organization (TPO), Daytona Beach, FL - *ITS Engineer:* Metric provided professional services to provide guidance to the TPO for making rational, outcome-driven decisions relating to investment in ITS projects and strategies. The targeted outcome was an integrated and coordinated, multi-agency ITS system that maximizes the safety and efficiency of the multi-modal transportation system. The *ITS Master Plan* built on efforts completed in a previous of the ITS Master Plan and the existing FDOT District 5 ITS Master Plan. The ITS Master Plan determined ITS mobility and safety needs, identified applicable ITS strategies, developed alternative project concepts, and developed concept requirements to determine the value of each alternative, *updated the regional ITS architecture* as needed to accommodate Volusia and Flagler County, and recommended high value alternatives for development (utilizing Transportation System Management and Operations (TSM&O) principles) based on cost and benefit, to provide a prioritized list of projects sufficiently defined to submit to FDOT for programming in the Department's 5-year Work Program.

16. Staff Experience:

Firm employed by	iteris		
Name	Jeffrey Kyle Tackett	Years of relevant experience with this employer	9
Title	Software Development & Network Operations	Years of relevant experience with other employer(s)	20
Degree(s) / Years / Specialization		N/A	
Active registration number / state / expiration date		N/A	
Year registered	N/A	Discipline	N/A
Contract role(s) / brief description of responsibilities.		ITS Network Operations/Asset Management Coordination	

Experience dates	Experience and qualifications relevant to the proposed contract
	Mr. Tackett has been with the firm since 2016. He has over 20 years of experience working in the fields of **Telecommunications, Datacenter Management, Network Operations**, and with various Internet Service Providers. Mr. Tackett's time as a network engineer, focusing on the technical aspects of the industry, served to make him an exceptional engineer. His extensive technical knowledge paired with social capabilities and an extremely well-developed ability to work in a project-driven atmosphere has allowed Mr. Tackett to make an effective transition from network engineer to sales engineer, to well-rounded, and successful, technical executive. His certifications include: **CCNA (06/2000), CCNP (08/2002), Redstone RX (10/2000), CompTIA Security+ (4/2021)**
06/16 – Ongoing	**Maintenance Management Systems Lead, VDOT Statewide Operations Program, VA -** *Software Developer:* ***Design, develop, and implement asset management and network operations systems, tools***, processes, and reports to support day-to-day network operations, and to provide situational awareness to Iteris and VDOT entities. Interface with management/representatives from VDOT, subcontractors, partners, and vendors to enable continuous improvement in policies and procedures. Maintain and improve Iteris/VDOT monitoring systems, including Icinga, Cacti, and a significant number of custom-developed SNMP and ICMP applications. Support systems used in ***ITS maintenance, traffic ops center, and signal operations*** on a daily basis.
07/14 – 06/16	**Serco North America, VDOT Statewide Operations Program, VA -** *Network Operations Center (NOC) Manager:* Responsible for managing activities of NOC Operators and Engineers, including ***personnel development, training***, and mentoring. Used and developed custom and pre-built reports to monitor and direct the activities of the NOC, ensuring compliance with any defined SLA/KPI's, and customer/company expectations, and interfaced with management/representatives from subcontractors, partners, and vendors to enable ***continuous improvement in NOC policies and procedures***. Performed standard monitoring, notification, and trouble ticket routing duties of a NOC Engineer and developed relationship with customer ITS contacts to protect Serco interests in scorecard review and avoid potential SLA penalties. Additionally, used technical knowledge and experience to resolve infrastructure issues, assist with upgrades/replacements, and to develop tools/resources for troubleshooting.
06/12 – 06/14	**Telaprise – Telecommunications Specialist -** *Telecommunications Audit Specialist:* Focused on identifying solution specs and ***assessing probable cost (estimates)*** for services/solutions to ensure efficient negotiations with telecommunications providers. Handled negotiations with telecommunications providers, based on industry knowledge, to ensure proper pricing and solution design for new and existing contracts. This included in-depth reviews of ***system engineering plans*** and financial documentation to ensure telecommunications solutions were not only priced properly but performed properly after implementation. Performed project management and asset management duties for identified solutions.

16. Staff Experience.

Firm employed by	ARCADIS		
Name	Tait Karlson, PE, PTOE	Years of relevant experience with this employer	>1
Title	Traffic and ITS Design Engineering Lead	Years of relevant experience with other employer(s)	20
Degree(s) / Years / Specialization		MS / 2005 / Transportation Engineering, University of Florida BS / 2001 / Civil Engineering, University of Florida	
Active registration number / state / expiration date		PE.0040438 / LA / 09/30/2024; PTOE 3091 / USA / Exp. 07/20/2026	
Year registered	2016	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities.		System Design (System Engineering Design Plans)	

Experience dates	Experience and qualifications relevant to the proposed contract
	Mr. Karlson has served as the overall Project Manager (PM) for ITS projects. His responsibilities have included establishing and administering controls to ensure the quality of deliverables, monitoring the project status, developing and maintaining a detailed project work plan and schedule and providing status reports. Tait brings 5 years of project management experience (out of 20 years) working directly for MDOT ITS. Tait has experience with a variety of ITS projects from concept through construction as well as analyzing the data retrieved from the devices. He has supported the development of **System Engineering Analysis (SEA), ITS designs, final contract plans, and cost estimates** as well as provided construction administration support. Tait remains committed to delivering these important projects to MOOT and the people of Mississippi.
06/22 – 03/24	**I-10 Widening, Harrison & Hancock Counties, MDOT, MS** - *Transportation Engineer:* Developed Phase A field inspection plans and Phase B roadway final plans for the widening of 12 miles of I-10 from four to six lanes in Harrison and Hancock Counties. Gresham Smith also provided ITS design plans for this project, including a *Systems Engineering Analysis (SEA)* report.
06/23 – 05/24	**2020 ITS, WA #2: Meridian, ITS Phase B, MDOT, Meridian, MS** - *Project Manager:* Services include Phase B ITS design along I-59/I-20 through the city of Meridian, MS. In addition, services include a *Systems Engineering Analysis,* specifications update, and a communications design for the Traffic Signals.
06/17 – 09/22	**Michael Baker Int. – CEI for US 49 from Florence to Scale Area, MDOT, MS** - *Project Manager:* Responsible for coordinating the effort to provide *ITS construction inspection services, review of plans and equipment submittals, on-site support for the inspection of the installation and testing of the equipment*, and documentation of work.
04/18 – 12/19	**2016 ITS IDIQ WA#2 – ITS Standard Road Construction Specification Revisions, MDOT, MS** - *Project Manager:* Responsible for leading the effort of reviewing and updating MOOT's *standard ITS construction specifications*, the ITS Specs developed as Special Provisions, and the ITS Notice-to-Bidders to match current industry standards and MDOT's current needs.
06/18 – 09/18	**2016 ITS WA #3, I-20 Bridge, Replacement (Bridge No. 44.9B), MDOT, Jackson, MS** - *Transportation Engineer:* Led and coordinated the design effort; including *field investigation, equipment layout, communications design*, and power analysis; and wrote specifications and notice-to-bidders.
09/18 – 10/18	**2016 ITS WA #4, I-20 Vicksburg Bridge Rehab (Bridge No. 0.1), MDOT, Vicksburg, MS** - *Transportation Engineer:* Led and coordinated the design effort; including field investigation, equipment layout, communications design, and power analysis; and wrote specifications and notice-to-bidders.
11/18 – 01/19	**MDOT, 2016 ITS WA #5, I-55 from Copiah County Line to Byram ITS, MDOT, Hinds County, MS** - *Transportation Engineer:* Led and coordinated the design effort; including field investigation, equipment layout, communications design, and power analysis; and wrote specifications and notice-to-bidders.

03/20 – 12/20	2018 TRD WA#1: SR601/Canal Road North Phase A, MDOT, Gulfport, MS - *Project Manager:* Provided Phase A design services to develop lighting and ITS plans for the proposed interchange at SR 601 (Canal Road) and I-10 in Harrison County.
07/16 – 10/17	2015 ITS WA #5: Tupelo Cell Tower and ITS Field Device Deployment, MDOT, Tupelo, MS – *Supervisor:* Responsible for developing the alternatives, the final design, cost estimates, and the specifications for this project.
07/16 – 10/17	MDOT, On-Call ITS Services, WO#1 – Tupelo Tower Construction Administration Support, MDOT, Tupelo, MS - *Transportation Engineer:* Coordinated and organized equipment submittals and responses. He also reviewed several of the submittals, comparing them against specifications and project needs.
12/18 – 01/20	Town of Smyrna ITS Phases 3-5, Smyrna, TN - *Transportation Engineer: Led the design to expand the Town's ITS system*, integrating signal controller communication and CCTV camera installations.
10/14 – 03/19	TMC Operations, ALDOT, Birmingham, Huntsville, Montgomery, & Tuscaloosa, AL - *Transportation Engineer: Developed database tools for the performance measures data for the Regional Traffic Management Centers*. The tools are used to gather, summarize, and archive the large amounts of data that the centers create each month, providing support for the data analysis of the performance measures.

16. Staff Experience:

Firm employed by	ARCADIS		
Name	Sarath Gorthy, PE	Years of relevant experience with this employer	1
Title	ITS/Traffic Project Engineer	Years of relevant experience with other employer(s)	6
Degree(s) / Years / Specialization		MS / 2017 / Civil Engineering, Clemson University BS / 2015 / Civil Engineering, Birla Institute of Technology and Science	
Active registration number / state / expiration date		PE.139993 / TX / 12/2024	
Year registered	2021	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities.		System Design (System Engineering Design Plans)	

Experience dates	Experience and qualifications relevant to the proposed contract
	Mr. Gorthy's experience encompasses large array of projects with various state DOTs. His areas of expertise in ITS system engineering design includes **ITS master plan, ITS planning, communication system design, alternative analysis, feasibility studies, CAV deployment, SWZ/queue detection** as well as performing **ITS design for over 7 ITS deployments in Texas, Georgia, and North Carolina.** Sarath has also led the design of ITS projects under TxDOT. He has immense experience in using MicroStation, preparing cost estimates and design specs as well as designing traffic signal system, lighting, and tolling systems.
03/23 – Ongoing	**San Antonio ITS Master Implementation Plan, TxDOT, San Antonio, TX.** Traffic/*ITS Engineer*: Developing an ITS Master Plan for the TxDOT San Antonio district as part of TxDOT's Transportation Systems Management and Operations (TSMO) program. The ITS Master Plan focuses on developing ITS strategies that conform to regional plans and objectives. High level cost estimates for system design and implementation are provided for each project. Key ITS strategies and projects for implementation include system expansion of *communication network, traffic management, traveler information, wrong way driving, integrated corridor management, incident detection and response, SWZ technology, traffic signal optimization, and vehicle to infrastructure (V2I) deployments leveraging C-V2X technology*.
04/24 – Ongoing	**I-10 Widening Construction Management At Risk (CMAR), LA 415 to I-10/I-12 Split, LADOTD, Baton Rouge, LA -** Traffic/*ITS Engineer:* Working on providing an engineering assessment on the effectiveness of the *ITS Smart Workzone* queue detection system along the construction project limits on I-10 eastbound from LA-77 to I-110 in Baton Rouge. Performance metrics includes real-time and historic data for speed, density, and volume and their sensitivity of incidents reported on RITIS.
12/23 – 05/24	**Pharr ITS Master Implementation Plan, TxDOT, Pharr, TX -** Traffic/*ITS Engineer*: *Developing an ITS Master Plan for the TxDOT Pharr district* as part of TxDOT's Transportation Systems Management and Operations (TSMO) program. Key ITS projects include system expansion of communication network and traffic management.
06/21 – 01/22	**Houston METRO Shuttle of the Future, City of Houston, Houston, TX -** *Deputy PM:* Worked on coordination between sub-consultants for deployment of a Mid-Size Level 4 Autonomous and Zero Emission Shuttle Bus Deployment in Downtown Houston. Prepared Data Management Plan (DMP), Quarterly Reports, Project Management Plan (PMP), budget and invoices.
06/23 – Ongoing	**ITS Design along I-37, TxDOT, Corpus Christi, TX -** Traffic/*ITS Design Engineer: Designed the ITS and electrical elements along I-37 between SH 358 and SH 286 using MicroStation.* Provided fiber optic cable along the entire corridor, including fiber optic cable connection and electrical conduit to each existing and new ITS devices. ITS devices include CCTV, DMS, ITS communication and HUB.

01/20 – 02/22	**ITS Design along US 59, TxDOT, Laredo, TX -** Traffic/*ITS Design Engineer: Designed ITS elements along US 59, between I-35 and US 59 BUS. Designed ITS communication, Electrical Services, and ITS devices, including CCTV, Radar, Wrong Way Driver Detection (WWDD), Travel Time Sign and Dynamic Message Sign (DMS), using MicroStation and GeoPAK*.
02/21 – 02/22	**ITS Design along I-20 at US 84 interchange, TxDOT, Roscoe, TX -** *Traffic/ITS Design Engineer: Designed ITS elements along I-20 and US 84 for an 8-mile corridor*. Designed ITS communication and fiber, Electrical Services and ITS devices, including CCTV, DMS, etc. using MicroStation and GeoPAK. Computed quantities and cost estimate.
07/22 – 03/23	**Signal Design along SH4, TxDOT, Pharr Dist., TX -** *Traffic/ITS Design Engineer:* Upgraded existing traffic signals at 6 intersections using OpenRoads. Designed signals and ADA compliant pedestrian equipment, presence and advance radar detection, signs, PTZ camera, electrical service, and controller.
05/20 – 12/20	**I-635 LBJ Design-Build, TxDOT, Dallas, TX -** *Traffic/ITS Design Engineer: Designed temporary and proposed signals to accommodate the full reconstruction and widening of 11-mile corridor on I-635 from US 75 to I-30, using MicroStation*. Designed signals and ADA compliant pedestrian equipment, presence and advance radar detection, signs, VIVDS camera, CCTV camera, antenna/radio, electrical service, and controller.
09/23 – 04/24	**Lighting Design at I-55 at Brookway Blvd Roundabout, MDOT, Lincoln County, MS -** *Traffic/ITS Design Engineer: Designed the lighting and electrical elements*, which included replacing the existing high mast, safety, and continuous lighting. Performed photometrics using AGI-32 and developing plan set and lighting standards using Microstation.

16. Staff Experience

PERSONNEL RESUMES

SYSTEM IMPLEMENTATION SUPPORT PROFESSIONALS

16. Staff Experience:

Firm employed by	iteris			Meets MPR No. 7
Name	David Register		Years of relevant experience with this employer	17
Title	Senior ITS Engineer		Years of relevant experience with other employer(s)	13
Degree(s) / Years / Specialization			BA / 1985 / Area Studies	
Active registration number / state / expiration date			N/A	
Year registered	N/A	Discipline	N/A	
Contract role(s) / brief description of responsibilities.			CAV System Implementation Support Subject Matter Expert (SME)	

Experience dates	Experience and qualifications relevant to the proposed contract
	As an **ITS and CAV applications specialist**, Mr. Register has a broad range of experience spanning design, deployment, operations and maintenance. He is **currently completing deployment of a smart mobility corridor** for Rutgers University involving the deployment, integration, and **operation of CAV with local traffic signal systems.** He participated in **developing an ITS network architecture to support research and operational needs.** He is also **leading a CAV corridor deployment in the City of Baltimore** which also involves ITS communications and traffic signal integration. He recently supported development of a CAV readiness assessment model for VDOT and is supporting ITS Master Planning in the Philippines. His experience also includes ITS communications to support BRT/ transit operations.
5/20 – Ongoing	**Smart Mobility Test Ground (SMTG) Corridor for Rutgers U./Middlesex Co. NJ/ NJDOT – New Brunswick, NJ** - *ITS Design Manager:* Mr. Register is managing the design of field sites, *ITS network architecture*, field installation, operations, and maintenance for *deployment of CAV and advance sensors* such as LiDAR along urban arterials and nearby highways, providing Rutgers with a real-world environment for application testing and development as well as supporting Middlesex County's Traffic Engineering staff. The SMTG includes *implementation of LiDAR, V2X/RSU, CCTV, and other sensors* and it includes coordinating provision of SPaT/MAP data from County signal system controllers and delivery of high data volumes to County's "Data City" Control Center. Mr. Register is *knowledgeable with policies relating to CAV and provided development support for SMART and Safer Street grants*.
02/22 – Ongoing	**CAV Smart Mobility Environment for Morgan State University – City of Baltimore, MD** - *ITS Design Manager:* Mr. Register *led the design* and deployment of two field sites, *ITS network architecture*, and field installation for *deployment of CAV and advance sensors on a major arterial* near the university. The work included implementation of LiDAR, V2X/RSU, CCTV, and other sensors. Includes coordinating provision *of SPaT/MAP data* from City of Baltimore signal system controllers and *delivery of high data volumes* to the university's National Transportation Center (NTC) lab. This work also includes testing the integration approach for on-board units installed on university shuttles and providing operations and maintenance support. Five additional sites are currently in the scoping stage.
6/22 – 07/2023	**SunRunner Bus Rapid Transit (BRT) / Pinellas Suncoast Transit Authority (PSTA) – St. Petersburg, FL** – *Project Manager:* Provided the *ITS design elements* of the PSTA's new BRT system recently deployed to serve the Tampa-St. Petersburg area of Florida. This project involved *design and integration tasks spanning traffic signals, ATMS* (City of St. Petersburg and Tampa), transit control systems to include development of specifications, requirements, and design documents. Mr. Register led development of requirements for integration of BRT AVL functions and local ATMS to support Transit Signal Priority (TSP) functions.
10/20 – 11/2021	**CAV Readiness Framework for VDOT – Richmond VA** – *Subject Matter Expert:* Supported VDOT prepare for the *impending roll out of CAVs to determine the need to adapt VDOT's standards and practices for roadway and ITS designs* and related

	maintenance and operations. He led tasks related to the *development of a CAV readiness assessment tool for VDOT* that examined capability maturity across the state of Virginia to support investment planning for CAV implementation. The maturity assessment scope included infrastructure, personnel, VDOT business processes, and technologies required to support *CAV deployment and operations.*
11/12 – 09/2018	**Connected Vehicle Testbed, VDOT and Virginia Tech Transportation Institute (VTTI) – I-66, I-495, US 29, US 50, VTTI Smart Road – Northern Virginia and Virginia Tech** – ITS Design *Manager:* Mr. Register led the *design and deployment of CAV equipment* (RSUs) for VDOT and VTTI. Scope included nearly 50 sites along interstates and highways *with integration to VDOT network using dark fiber on a dedicated network to enable access by remote researchers* to ensure VDOT *network security*. He was also responsible for the selection of network equipment that would support remote SNMP requirements compatible with RSU technology. Mr. Register subsequently managed operations and maintenance support for the deployed units for VDOT.

16. Staff Experience.

Firm employed by	ARCADIS		Meets MPR No. 8
Name	Michael McNeely	Years of relevant experience with this employer	8
Title	Senior Software Developer	Years of relevant experience with other employer(s)	<1
Degree(s) / Years / Specialization		BS / 2016 / Computer Science, University of Guelph	
Active registration number / state / expiration date		N/A	
Year registered	N/A	Discipline	N/A
Contract role(s) / brief description of responsibilities.		Implementation Support (IV&V), Transportation Data & Performance Measures	

Experience dates	Experience and qualifications relevant to the proposed contract
	Mr. McNeely has more than 8 years of experience as a Software Developer and working with **Advanced Traveler Information Systems (ATIS).** As a software development team lead at Arcadis, he has been involved in the design, architecture, and implementation of highly scalable and available websites. He is also proficient, knowledgeable, and experienced in the following areas of expertise in C#, ASP.NET, MVC, JS/jQuery and CSS.
06/23 – Ongoing	**Arcadis Travel-IQ, Multiple Clients, Multiple Locations** - *Senior Software Developer:* Arcadis is the prime contractor for the development, deployment, and operation of over 20 traveler information system systems for clients across North America and globally. Involved in the full software development life cycle for all Travel-IQ deployments, from discovery and planning to leading the design and implementation, and finally continuous improvement and maintenance. Overseen the customization of website functionality, evaluation and management of website performance, and the development and maintenance of website content for individual clients. Led the data integration for over 15 of the Travel-IQ/511 deployments.
04/16 – 06/23	**Florida 511 Advanced Traveler Information System (ATIS), Florida Department of Transportation, Tallahassee, FL** - *Senior Software Developer*: Arcadis provided the detailed design and development of a statewide 511 Advanced Traveler Information System (*ATIS*) website for the state of Florida. Mr. McNeely also supported the design and development of the database warehouse that drives the IVR.
04/16 – 06/23	**511NY Travel Information System, New York State Department of Transportation (NYSDOT), Albany, NY** - *Senior Software Developer:* Arcadis rehosted NYSDOT's 511 system on Arcadis' hosting environment and redeveloped the system to provide a full range of functions including 511ny.org website, IVR, Mobile App, Transit Trip Planner, and statewide email, SMS travel alerts and integration *with NYSDOT GIS data management systems.*
04/16 – 06/23	**Bridgeport Operations, Connecticut Department of Transportation, Newington, CT** - *Senior Software Developer:* Arcadis provided systems engineering services and incident management planning and coordination services.
12/20 – 06/23	**511 Alberta, Alberta Transportation, Edmonton, AB** - *Senior Software Developer:* Delivered the *SaaS* hosted Alberta province-wide 511 system including a fully responsive website, Integrated Public *511*, Event Entry, Winter Road Condition Reporting, integrated IVR, and native mobile application. Integration of Snowplow tracking data, road weather information system sensor data, and images. Additional enhancements include the mobile wildlife reporting, carrier training module, and integration to the My Alberta Digital ID authentication system.
03/13 – 01/16	**Ozmos, Multiple Clients, Toronto, ON** - *Co-Founder:* Developed a product customization platform that allows e-commerce sites to engage with users and help automate the customization process. Uses the play framework with Scala, Akka, JavaScript, and MongoDB.

16. Staff Experience:

Firm employed by	ARCADIS		Meets MPR No. 10
Name	Geoff Knapp, PE	Years of relevant experience with this employer	15
Title	ATIS Product Manager	Years of relevant experience with other employer(s)	10
Degree(s) / Years / Specialization		M.A.Sc. / 1999 / Civil Engineering, University of Waterloo B.A.Sc. / 1997 / Civil Engineering, University of Waterloo	
Active registration number / state / expiration date		PE. 100184852 / Ontario / Exp. 12/2024 PE. 46187 / British Columbia / Exp. 12/2024	
Year registered	2013	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities.		Implementation Support (System Development / Updates)	

Experience dates	Experience and qualifications relevant to the proposed contract
	Mr. Knapp is a practicing Professional Engineer with more than 25 years of experience in transportation engineering consulting, focusing on **ITS systems deployment and implementation for ATMS and ATIS**. A strong advocate of the **Systems Engineering** process, he has led been involved in all phases of ITS projects, from **feasibility analysis and concept development, through design deployment, and testing and integration**, and ultimately **operations.** Mr. Knapp excels at providing valuable insight and best practices into ITS operations, technology testing and evaluations, and defining and developing needs-based solutions for clients. Geoff is also expert with **ITS Systems Engineering** and has been the **lead instructor for related Systems Engineering training sessions frequently** on behalf of Transport Canada.
03/23 – Ongoing	**Arcadis Travel-IQ (ATIS), Multiple Clients, Multiple Locations** – *Product Manager: Manages large-scale operational 511 deployments for the New York, Alaska, and the provinces of Saskatchewan, Manitoba, and Prince Edward Island*, and actively *supports product enhancements and updates for 20 other 511/ATIS systems* in the U.S., Canada, Europe and South Africa. Geoff has *managed the design and implementation a number of API interfaces* (e.g. external event data sources, snow plow/school bus AVL data, bridge height and other infrastructure related restrictions) to support *deployment and integration of Travel-IQ product and client specific enhancements* (e.g. Track My Plow, mobile app audio alerts for bridge heights, seasonal load restrictions, and vulnerable road users).
09/99 – 08/13	**Advanced Traffic Management Systems (ATMS), Multiple Clients, Multiple Locations** – *ATMS Product Manager:* Successfully contributed to, and helped manage, the *design, implementation, integration, training, and operations of ATMS solutions* for approximately 20 clients, including Connecticut Department of Transportation, Niagara International Transportation Technology Coalition, Ministry of Transportation of Ontario, British Columbia Ministry of Transportation and Infrastructure, South African National Roads Agency, and Ma'atz (Israel). Across the various ATMS projects, Geoff has *experience with practically all ATMS field device technologies*, including intrusive and non-intrusive detection technologies, DMS/VMS, CCTV and video management systems, Lane Controls Signs, Variable Speed Limit Signs, RWIS, conventional and coordinated ramp metering, tunnel SCADA and safety systems, and *C2C communications for interagency data sharing and coordination*. For a number of these deployments, Geoff *lead the development of the Test Methodologies and Plans, and was directly involved in FAT, SIT and SAT testing activities*. He was also responsible for *developing ATMS functional requirements and specifications* to support system procurements by the Regional Municipalities of York, Waterloo, Durham, and VicRoads in Australia.
03/09 – 03/10	**Traveler Information Architecture for Ontario, Ministry of Transportation of Ontario (MTO), Toronto, ON** - *Project Manager and Technical Lead:* Geoff managed the effort to develop the reference framework to guide the program for MTO's *strategy*

	plan of developing and deploying ATIS systems and services in Ontario. The framework was documented using Turbo (RAD-IT) and following the established process for developing Regional and Project ITS Architectures.
09/16 – 06/17	Strategy for Traveler Information Services / Strategy for Active Traffic Management, City of Toronto, Toronto, ON – *ITS Engineer / Project Manager:* These two separate projects focused on developing strategic plans to help guide the City's ATIS and ATMS programs, respectively. Each followed a similar approach of *engaging stakeholders* to define the City's needs and objectives, a *best practice reviews* via jurisdictional scans and industry outreach, and an independent assessment to identify and define strategic projects and initiatives that best met the City's needs. Project/initiative definitions *identified what needs were addressed, relevant technologies and standards, functional requirements and operational concepts, preliminary system designs and deployment plans, and stakeholder roles and responsibilities*.
10/15 – 12/19	ITS Services on Retainer, MTO, Toronto, ON – *ITS Engineer / Assignment Project Manager:* This engagement provided the Ministry with professional services related to their overall ITS program. Geoff directly contributed to over 15 individual assignments. Assignments that Geoff led as the SME include field *testing and evaluation of the accuracy of Bluetooth technologies* to differentiate between General Purpose and High Occupancy Lane travel times, *comprehensive test plans and methodologies for evaluating accuracy of Vehicle Occupancy Detection technologies and systems, comprehensive test plans for evaluating the accuracy of location-ing data from Mobile Applications for potential use in HOT Lane applications*, and the *overall testing and evaluation program for the Ministry's Rural ITS Testbed*, which included deployment of multiple Bluetooth travel-time products, wildlife detection, and solar and wind power alternatives.
03/17 – 12/19	Highway 427 HOT Lanes Owner's Engineer, MTO, Toronto, ON – *ITS Engineer / Assignment Project Manager:* This engagement provided engineering services for MTO's planned first deployment of price-managed HOT lanes on Highway 427. Geoff led the *development of a Concept of Operations*, which included development of 4 focused *Best Practice/Jurisdictional Scan White Papers* and over 10 workshops to reach consensus on key operational and technical design considerations. Geoff contributed to the *development of performance-based specifications for lane side and back-office toll systems and devices*.
12/09 – 03/11	MATRIX Integrated Traffic Data Management System, Municipality of Durham, Durham, ON – *Project Manager:* Geoff *managed the design and development of the integrated solution to manage all traffic related data* for the Region, input and import collision data, and processing of data to generate AADT and PSI estimates. Geoff was responsible for gathering and documenting system requirements, *oversaw the integration*, and *led the system acceptance testing* activities.
02/20 – 03/23	Smart Mobility and CAV Retainer, MTO, Toronto, ON – *Project Manager:* This retainer engagement provided *professional services related to the Ministry's Smart Mobility and CAV program* and focused mainly of supporting the establishment an Innovation Corridor Testbed on the QEW (a multi-lane high volume commuter freeway). Assignments included a *preliminary feasibility study, stakeholder and industry outreach, technology and best practice reviews, assessment of CV use cases*, and *development of a framework to guide the establishment and operations of the QEW Innovation Corridor*.
06/19 – 06/20	Codes and Standards Roadmap for CAVs, CSA Group, Toronto, ON – *Project Manager:* Geoff managed stakeholder and industry engagement activities and *led research effort to identify the current landscape of policies, regulations, and standards relating to Connected and Automated Vehicles (CAVs)* within Canada and the North American Automotive Industry. Geoff was the primary author of *report documenting findings, identification of gaps, and recommendations for a guiding roadmap* for the CSA Group to develop a CAV Code of Standards.

16. Staff Experience:

Firm employed by	iteris		Meets MPR No. 12
Name	Simon Illingworth, CSM	Years of relevant experience with this employer	8
Title	Software Development Lead	Years of relevant experience with other employer(s)	24
Degree(s) / Years / Specialization		Computer Electronics Engineering / 1987 / Software Development and Management, Mohawk College	
Active registration number / state / expiration date		#42456 / FL / N/A	
Year registered	2008	Discipline	Certified ScrumMaster™ (CSM)
Contract role(s) / brief description of responsibilities.		Geographic Information Systems (GIS) Specialist, IV&V Subject Matter Expert (SME)	

Experience dates	Experience and qualifications relevant to the proposed contract
	Mr. Illingworth serves as a Director, Software Development for Iteris' Mobility Consulting Solutions and has been with the firm since 2016. He has 24 years of experience in the **development and software verification of innovative map-based mobile, web, and tablet solutions** with Swift (Universal iOS & tvOS), Node.js, Loopback, Java and Kotlin (Android), HTML5/CSS3, JavaScript, jQuery, MySQL, PostgreSQL, Mongo, Ajax, AngularJS, and Bootstrap. He has extensive experience with GEO servers and has designed and developed various transportation, transit and GIS APIs, data feeds, and data portals. Mr. Illingworth has **extensive experience managing products, projects and teams.**
06/22 – Ongoing	**Next Generation Data Portal Fusion Engine and 511 Website – Virginia Department of Transportation (VDOT), VA** – *Software Development Lead*: Mr. Illingworth is leading the *development, software/data verification, deployment and upgrade procedures of a new data portal & data management fusion engine and 511 map website application for VDOT that will be SOC 2 compliant,* leverages the latest technology and design, while significantly increasing flexibility and usability. As part of this effort, Mr. Illingworth is heavily involved with the creation, management, generation and ingestion of various GEO servers, APIs and data feeds including WFS, TMDD, WZDx, GeoRSS, GeoJSON, XML, GTFS, VDOT's *GIS Route and TMC Network.*
11/22 – 01/24	**Multi-Client Multi-Language Conversational 511 Upgrade – MTC (San Francisco Bay area), SCDOT, MDT, SDDOT, NDDOT and WYDOT** - *Software Development Lead*: Led rewrite and testing of Iteris' 511 solution to be an AWS-based conversational 511 IVR system that supports multiple languages. For MTC, we support English, Spanish, Mandarin and Cantonese. Instead of callers needing to navigate a menu, the new system operates like Alexa, where the caller asks questions. For example, what is the traffic between two locations. In addition, this *project required the design, creation and management of various transportation and transit APIs.*
07/18 – 12/20	**Next Generation Map-Centric Conditions Reporting System and ATIS/511 System Generation the Montana Department of Transportation (MDT) and South Dakota Department of Transportation (SDDOT)** - *Software Development Lead*: Mr. Illingworth led the development and validation of a next generation *cloud-based Map-centric Conditions Reporting System*, data fusion and management engine, APIs, website, mobile apps and IVR for MDT and SDDOT in order to support desktop browsers, mobile phones, tablets, 511 callers and third-party data consumers. The goals of the project are to improve usability and accessibility for both operations staff and the general public.
07/18 – 12/19	**Second Generation 511 Mobile Applications - Georgia Department of Transportation (GDOT) and South Carolina Department of Transportation (SCDOT)** - *Software Development Lead*: Mr. Illingworth led the *development and testing of new mobile applications* for GDOT and SCDOT that leverage the latest mapping technology and design, while significantly increasing performance and usability. The goals of the project are to improve the design, usability, and daily relevance.

12/16 – 11/17	Second Generation 511 Mobile Application – Virginia Department of Transportation (VDOT) – VA - *Software Development Lead*: Mr. Illingworth is leading the technical design, development and software verification of a year-long project to redevelop VDOT's aging mobile applications with a new look and greatly expanded functionality for the 2017 multimodal commuter. He *developed requirements*, user stories and refined user interface and user experience.
12/10 – 05/16	Ten43 Technologies, Development and Management – Lake Mary, FL - *Software Developer*: Designed, architected, and developed six native iPhone and iPad apps, Android apps, Swift tvOS app and associated server API. Created UI/UX design mockups and wire frames with InVision, OmniGraffle and Balsamiq. Conceived and developed Advanced 911, an iPhone app and an Android app that allows users to instant message, send photos and their location to 9-1-1 centers running the call taker app. *App uses GPS* to determine which 9-1-1 centers are available for their location. Four levels of redundancy helps ensure the user gets the help they need. App *utilizes GPS, mapping, SMS, XMPP instant messaging, Google APIs, GeoNames,* Settings and Facebook Connect. Developed web version of Advanced 911 for mobile, tablet, and desktop users. This version allows users to get the help they need without having to download an app. Manage scope, strategy, schedule, reporting, prioritization, problem resolution, and quality. Introduced and manage Agile Scrum process as a Scrum Master with development, QA, and management. Presented solution and direction to federal and local government directly, at conferences, and via the web. Responsible for the vision, business model, and design of iOS, Web & Windows desktop solution. Researched market requirements, customer pain, competitors, and various pricing models to put together a business case and go to market strategy for the solution.
11/13 – 11/14	Developed iPad/iPhone apps for ArdentMC, Rosslyn, VA – *Software* Developer: App is a cloud-based situational awareness collaboration solution allowing users to *communicate with first responders and stakeholders.* Added ability to create, update and plot incidents along with associated images. Import and display map layers (KML, KMZ, *GeoRSS*), images, MS Word, and PDF documents. Added integrated camera support so that photos could be taken and uploaded to the server. Implemented messaging between users. Utilized caching to reduce the network bandwidth requirement. Wrote a PhoneGap app using AngularJS, the Ionic Framework, RequireJS, HTML5, CSS3, and Grunt. App communicates with a server via a JSON RESTful interface. Wrote controllers, directives, services, HTML pages and the associated CSS.
05/05 – 12/10	Public Safety Suite – 9-1-1 CAD/RMS/Jail/Mobile, SunGard Public Sector, Lake Mary, FL - *Senior Product Manager*: Responsible for *SunGard Public Sector's mobile, field reporting (incident, arrest, crash, citation, field interview reports), RMS, 9-1-1 CAD, AVL, NCIC/NLETS and case management solutions.* Planned product roadmaps by working closely with customers, product management, sales, marketing, development, customer service and account management, and through competitive analysis. Using the Agile Scrum process, managed the on and offshore development, QA and documentation efforts to ensure product releases delivered on time and within budget. Built credibility, established rapport, and maintained communication with stakeholders at multiple levels, including those external to the organization. Introduced the SaaS model for my product suite to increase the available market, customer base and reoccurring revenue. Presented products and direction to management and to customers directly, at conferences, and via the web. Managed product life cycle from idea generation through end-of-life. Wrote business and functional requirements and user stories for my products. Created and maintained business plans, sales kits, marketing material, pricing, and presentations for responsible products.

16. Staff Experience.

Firm employed by	ARCADIS		
Name	Jonathan Darton, SP, ITCP, BCOMM	Years of relevant experience with this employer	21
Title	Sr. Practice Lead, System Engineering	Years of relevant experience with other employer(s)	2
Degree(s) / Years / Specialization		BS / 2002 / Computer Information Systems, Mount Allison University	
Active registration number / state / expiration date		Information Technology Certified Professional (ITCP) Information System Professional (I.S.P.)	
Year registered	N/A	Discipline	N/A
Contract role(s) / brief description of responsibilities.		Implementation Support (IT Applications Support)	

Experience dates	Experience and qualifications relevant to the proposed contract
	Mr. Darton has 20+ years of experience in the areas of Intelligent System design, development, and implementation. Jonathan has been actively engaged with stakeholders for many **ITS, TMC and systems related projects including ATMS, ATIS, VDS, Data Acquisition, and Data Warehousing systems**. Jonathan manages the Canada West Intelligent Systems Solutions team which provides service to clients throughout Canada and internationally. He holds the ***Information System Professional (ISP) and ITCP designations from Canada's Institute of Information Technology Professionals*** and is currently serving as ***Co-chair of the ITS Canada ATMS Technical Committee***.
05/18 – Ongoing	**Louisiana 511/ATIS, LADOTD, LA** – *Mobile Technology Product Lead:* ***Designed and developed Louisiana statewide 511 ATIS***. The system includes a responsive website, natural-language interactive voice response (IVR) system, door-to-door personalized routes, travel times and incident alerts via email or text, iOS and Android mobile apps, and third-party (external) data services.
01/15 – 01/18	**Intelligent Video Distribution System (iVDS), FDOT and Ontario Ministry of Transportation (MTO), Pompano Beach, FL** – *Product Lead:* Delivered iVDS to ***monitor traffic conditions and roadway events in real-time using live video streams from numerous CCTV Cameras*** located throughout a roadway network. The system supports multiple video streams and connects to WOWZA servers for digitization, compression, and distribution. Responsible for the ***application architecture, design and development, technology selection and the overall development management***.
02/15 – 11/17	**511 NY Services, New York State Department of Transportation, NY** – *Mobile Technology Product Lead:* IBI Group is the prime contractor for the ***development, deployment, and operation of the 511NY traveler information system for the entire state of New York.*** The system includes a ***public website, mobile website, IVR, mobile app, and API data services***. Mobile apps have been deployed for the traveling public and also to support online and offline road status damage assessments managed by NSDOT district staff.
03/16 – 12/18	**Wisconsin 511, Wisconsin Department of Transportation, WI** – *Mobile Technology Product Lead:* Responsible for the detailed ***redesign and development of a statewide 511 website for the state of Wisconsin***. The 511 website components included a public facing website, ***web administration portal, event reporting system, C2C interface with client systems, database to drive the 511 website***, and ***IVR***.
05/14 – 04/20	**MassDOT 511, Massachusetts Department of Transportation, MA** – *Mobile Technology Product Lead:* Responsible for the ***development, deployment, and operation of the mass511.com traveler information system*** for the entire State of Massachusetts. The system includes a public responsive website and IVR.

16. Staff Experience:

Firm employed by	iteris		Meets MPR No. 9
Name	Dwight Shank	Years of relevant experience with this employer	26
Title	Senior Engineer	Years of relevant experience with other employer(s)	17
Degree(s) / Years / Specialization		BS / 1981/ Physics, Summa Cum Laude, Bridgewater College	
Active registration number / state / expiration date		N/A	
Year registered	N/A	Discipline	N/A
Contract role(s) / brief description of responsibilities.		ITS System Integration Subject Matter Expert (SME)	

Experience dates	Experience and qualifications relevant to the proposed contract
	Mr. Shank serves as a Senior Engineer for Iteris' Consulting Solutions and has been with the firm since 1998. He is currently taking roles as a **Systems Engineer for Intelligent Transportation Systems (ITS) projects** supporting Virginia Department of Transportation (VDOT), integrated corridor projects including Connected Vehicle components for Rutgers University as well as supporting **Connected Vehicle hardware** internal to Iteris. Mr. Shank has extensive experience in **ITS engineering and management including freeway management, corridor integration, system development, system acquisition, communications design, and software development.** His project experience includes the development of software systems for the Michigan Intelligent Transportation Systems Center in Detroit, and communication design for VDOT.
11/98 – 06/02	**System Integration and Evaluation Support contract for the Minnesota Transportation Operations and Communications Centers, MnDOT – St. Paul, MN** - *Project Manager:* Provided system development and evaluation consulting to the MnDOT Office of Advanced Transportation Systems in the *software development, system implementation, and testing of Traffic Operations and Communications Centers* jointly operated by Minnesota Department of Transportation and Minnesota State Patrol.
10/21 – Ongoing	**Smart Mobility Test Ground, Rutgers University – New Brunswick, NJ** – *System Engineer:* Managed *the deployment and integration* of equipment to support research into use of new technology in traffic operations. The equipment used includes LiDAR sensors, Connected Vehicle Roadside Units (RSUs) and Onboard Units (OBUs), and edge processors along with cameras, traffic signal controllers, networking, and center resources. Responsibilities also included *system diagnostics, troubleshooting, and testing of the deployed system.*
06/98 – 04/03	**Michigan Department of Transportation (MDOT) Intelligent Transportation System Center Development Project – Detroit, MI** - *Lead Engineer:* Mr. Shank supported development, testing, and initial operations of the traffic management center. Responsible for variable message sign control software, ramp metering control software, and *system control software in the control center.* On the 2070 field controller platform, responsible for *development of portions of NTCIP communication software* and ramp metering software.
11/19 – 12/23	**Traveler Alert System, Minnesota Department of Transportation – Statewide in Minnesota** - *System Engineer*: Managed development of services to provide alerts to motorists on Minnesota roadways. Using *Automated Vehicle Location (AVL) data* for state maintenance vehicles, the *system provides alerts on roadside dynamic message signs (DMSs) and smartphone apps.* This project began in November 2019 and completed in 2023.
04/13 – 04/14	**I-66 Active Traffic Management Implementation, VDOT – Fairfax, VA** - Mr. Shank served as communication designer for augmentation of existing Ethernet over fiber networks to support deployment of Active Traffic Management (ATM) components along one of the nations most congested freeway segments. In addition to traditional *ITS components including CCTV, DMS, and*

	traffic sensors, this deployment *included video obstacle detection* along shoulder-running sections. This project began in April 2013 and completed in June 2014.
04/06 – 04/09	Nebraska Department of Resources (NDOR) System Manager – Omaha, NE - *Lead Engineer*: Mr. Shank supported the acquisition and *deployment of District Operations Center software in a statewide* context in Nebraska, with initial deployment in Omaha starting in 2006 and completed in 2009. This project included requirements development, RFP development, software vendor selection, software vendor management, and testing review.
07/17 – 11/18	PTC Connected Vehicle Work Zone Pilot – Harrisburg, PA - *Lead Engineer and software developer:* Deployed a *pilot project equipping PTC maintenance vehicles with Connected Vehicle Onboard Units (OBUs)*. The OBUs transmit vehicle-to-vehicle messages to other equipped vehicles and *vehicle-to-infrastructure messages* to remote servers. The remote servers then alert smartphone users to the location of construction vehicles along the roadway, enhancing typical information provided to travelers.
11/12 – 09/18	Connected Vehicle Testbed, VDOT – Cities of Blacksburg and Fairfax, VA - *System Engineer and integration engineer:* Deployed Connected Vehicle infrastructure to support ongoing research into *Connected Vehicle hardware and applications*. In this role, Mr. Shank has led the integration of Roadside Equipment (RSEs) with existing and enhanced communication infrastructure to provide connectivity between the RSEs, Onboard Equipment (OBEs) and remote operation centers. Mr. Shank has also consulted on selection of Connected Vehicle applications. He was responsible for *management and operations, system diagnostic and troubleshooting, system testing, and maintenance of the deployed equipment.*
10/12 – 06/14	Grand Rapids DMS Installations, MDOT – Grand Rapids, MI - *Lead Engineer:* Mr. Shank supported the *system design, deployment, integration, and initial operations* for additional dynamic message signs near Grand Rapids, MI on a Design/Build project. Integration includes communication using commercial wireless and legacy fiber Ethernet devices and *coordination with statewide ATMS software* still under development.
07/22 – Ongoing	BlueSpectra and VantageArgus Technical Support – Iteris Corporate in support of customers nationwide – *System Engineer:* Mr. Shank takes on detailed analysis and implementation roles in support of customers who deploy and operate the Iteris BlueSpectra combination Connected Vehicle Roadside Unit (RSU) and Bluetooth reader for traffic volume and travel time applications. Mr. Shank has analyzed data traffic related to implementation of standard CV messages, traffic signal controller outputs, and other Ethernet traffic traversing CV wireless paths, local wired connections, and customer field networks. Mr. Shank has collaborated with Traffic Engineers, Information Technology specialists with Iteris and customers, component integrators, and software developers to *perform technical support relating to management and operations, system diagnostic and troubleshooting, system testing, and maintenance.*
04/01 – 04/04	Central Artery/Tunnel Integrated Project Control System Claims Analysis – Boston, MA - *Project Manager and Lead Engineer:* Mr. Shank supported the Central Artery/Tunnel project office in defense of a claim for equitable adjustment made by the implementation contract of an *integrated ITS and facility control system.* He was responsible for reviewing of software requirements, analyzing software development process and products (briefing materials and mediation statements), and generation of recommendations regarding claim merit.

16. Staff Experience:

Firm employed by	metric			Meets MPR No. 11
Name	Wilfredo Vargas		Years of relevant experience with this employer	5
Title	Senior Network Engineer I		Years of relevant experience with other employer(s)	16
Degree(s) / Years / Specialization			BS / 2004 / Computer Information Systems, Excelsior College of New York	
Active registration number / state / expiration date			N/A	
Year registered	N/A	Discipline	N/A	
Contract role(s) / brief description of responsibilities.			Information Technology (IT) Specialist	

Experience dates	Experience and qualifications relevant to the proposed contract
	Mr. Vargas is a Senior Network Engineer and brings years of systems and network systems experience to the Team. His experience includes **ITS systems engineering processes and ITS network design**. Prior to working with Metric, Mr. Vargas worked for Florida's Turnpike Enterprise, providing various IT and Systems Administration needs and before that retired from the US Army after more than 20 years of Network and Communications support. He is proficient in various **systems and software (database, web applications, network security and virtual server environments)**, making him a great asset to the team.
02/18 – Ongoing	**Task Work Order under TSM&O Studies and Design Services – General Technology Services SunRail Operations, FDOT District 5, Orlando, FL -** *IT Specialist:* Provided a link between schedule data, real-time vehicle location data, and customer-facing applications. The work consisted of gathering information from the Ansaldo STS OCC Oracle database at a *configurable interval and storing this data in the SDI database*. This data combined with GTFS data and other configuration data to send data to the Wi-Tronix train tracking system via the Wi-Tronix Data Consumer each time schedule changed. At a configurable interval, the SDI software pulled real-time locomotive location data from the *Wi-Tronix Web Service and stored this information in the SDI database.* The SDI software uses a prediction algorithm to generate real-time arrival and departure predictions. The SunRail.com system extracted location and next arrival time data from the SDI. The SDI triggered pre-recorded audio and visual announcements to play at stations via the Assembled Announcement System (AAS) based on the triggering of trip wires within the Wi-Tronix system. Metric obtained full administrative access to all SunRail networked systems and subsystems, as well as all relevant system documentation, configurations, connections, and settings. *Additionally, created a detailed architecture diagram depicting the physical and logical attributes of all systems/subsystem components and created backups of all system configurations.* Also, provided a recommendations narrative for security and networking, in line with established frameworks and industry best practices as well as evaluation of licensing, Data storage, disaster recovery, and other considerations in line with best-practice standards, as identified.
01/20 – Ongoing	**ATMS Design-Build, FDOT District 7, Tampa, FL** – *IT Specialist:* This citywide ATMS project consists of the upgrade of 402 signals to expand the City's existing ATMS. The project includes design, construction, and installation of a next generation traffic management system that connects vehicles and people to the transportation system to optimize traffic flow, and improve mobility, reliability, resiliency, and safety. This includes the *design and installation of a fiber optic communications system, CCTV traffic cameras, MVDS, Flood Sensors, traffic signal controllers and cabinets, Uninterruptible Power Supplies (UPS), traffic signal software, predictive analytics, software, servers, and workstations for TMC staff.*
11/19 - Ongoing	**General Engineering Consultant (GEC) Support Services, FDOT District 5, Orlando, FL** – *IT Specialist:* Duties include or have included IT architecture development, system maintenance, plans review, network security, and system administration. Metric also provides staff such as: Senior Network Security Administrator, Senior Systems Administrator, *GIS Specialist/Web Developer*,

	and an ITS Project Manager. Metric's in-house IT support includes or has included *network security and system administration* tasks in the areas of server administration for both physical and virtual environments and oversight of all data center equipment. These tasks include *troubleshooting, repair, and enhancements to all Transportation System Management & Operations (TSM&O) IT systems and software applications* along with other IT related tasks, as needed. *Metric staff also serves as the primary network security administrator for the client's network to design and implement the network security architecture, implement security policies and procedures, configure, and maintain security applications such as firewalls and SSL VPNs* and provide the client with a plan to keep the network secure from cyberattacks as well as internal attacks. Metric's Senior Network Security Administrator also performs a dual role as an IT Project Manager, providing project management and support services for IT program management, budgeting, and procurement.
11/19 – Ongoing	General Systems Consulting Services Central Florida Expressway Authority (CFX), FL – *IT Specialist:* Comprehensive support and guidance relative to the management and operation of all of CFX's computer, network, and communications systems for both internal IT and ITS systems. Supports network and security engineering and operations. Services also include the assistance in planning of future toll collection technology, CAV technologies, interoperability with other toll collection and external agencies, as well as smart phone technology and applications. Metric also *provides general IT support services in the form of Datacenter migration, IT/Network Assessments and Implementation, and IT virtual environment (ITVE) design and implementation. Wilfredo serves as a Senior Network Engineer on this contract.*
09/17 - Ongoing	Continuing Services Contract (CSC) ICM - Freeway/Arterial Operations, FDOT District 5, Orlando, FL – *IT Specialist:* The FDOT ICM project seeks to improve overall operations and mobility in the Central Florida area; specifically, through the operation and management of the Regional TMC and associated programs on both the freeway and arterial systems. Metric functions as an extension of the Department's resources, providing professional services for a wide range of engineering, technical, management and administrative services to assist with numerous TSM&O projects within the work program. The current ICM footprint covers nine Freeways and 12 Arterials within Counties/Cities with 452 traffic signals in six jurisdictions (City of Maitland, City of Orlando, City of Winter Park, Seminole County, Orange County, and Osceola County). *TSM&O strategies are being utilized and synthesized by our RTMC staff as they integrate the operations of freeway and arterials to improve the travel time reliability of existing transportation network (arterials and freeways).*
11/17 – 11/21	I-75 On- and Off-System F.R.A.M.E. (Florida's Regional Advanced Mobility Elements), FDOT District 5, Orlando, FL – *IT Specialist:* As the Systems Manager, Metric was responsible for a majority of *project activities including the development of ITS design plans*. Metric was also responsible for *conducting a Systems Engineering Analysis and creation of the appropriate Systems Engineering documentation,* coordinating, testing and providing documentation on the various technologies to include *Roadside Units (RSUs) communicating via either Dedicated Short Range Communications (DSRC) or Connected Vehicle to Everything (CV2X),* vehicular On-board Units (OBUs) as well as emulated OBUs (mobile devices and/or tablets) to ensure device interoperability. Metric staff was responsible for integrating these devices to multiple signal controllers with the goal of verifying the various CV-related applications: Signal Phase & Timing (SPaT), Automated Traffic Signal Performance Measures (ATSPM), MAP messages, Traveler Information Messages (TIM), Basic Safety Messages (BSM), Emergency Vehicle Protocol (EVP), Transit Signal Priority (TSP) and others related to pedestrian safety. Metric staff *created detailed test plans and conducted extensive testing in both the lab and field environments with equipment provided by several CV vendors.*

16. Staff Experience.

Firm employed by	ARCADIS		
Name	Neena Soans, PMP	Years of relevant experience with this employer	14
Title	Sr. ITS Practice Lead	Years of relevant experience with other employer(s)	10
Degree(s) / Years / Specialization		BS / 2000 / Applied Science, University of Toronto	
Active registration number / state / expiration date		N/A	
Year registered	N/A	Discipline	N/A
Contract role(s) / brief description of responsibilities.		Implementation Support (System Development / Updates)	

Experience dates	Experience and qualifications relevant to the proposed contract
	Ms. Soans has 23 years of Intelligent Transportation Systems (ITS) **software planning, specification, design, development, deployment and operations experience**, and 17 years of program and product development experience. She leads Arcadis Intelligent Solutions practice in Florida. Her areas of expertise include ITS Asset Management Systems, Traffic Management Systems, **Video Management Systems (VDS)**, Dynamic Pricing Systems, **Advanced Traveler Information Systems (ATIS)**, **Data Fusion Systems**, and Performance Measurement/Business Intelligence. She has become increasingly involved in transit information and signal priority systems, and the integration and synthesis of intelligent solutions targeting integrated corridor management and multi-modal transportation network optimization.
10/22 – Ongoing	**Next Generation Statewide Express Lanes Software (NG SELS), Florida Department of Transportation (FDOT) Central Office, Statewide, FL** - *Project Manager:* Responsible for the design, development, and maintenance of the NG SELS that replaced the existing express lanes software statewide. NG SELS was able to determine dynamic toll amounts based on current traffic conditions and communicate tolls and messages among Regional Transportation Management Centers and across express lanes facilities. Responsible for managing the messages posted to toll and lane status signs, the various toll modes, and toll transactions sent to Florida's Turnpike Enterprise.
11/14 – Ongoing	**ITS Software Integration and Maintenance Services, FDOT, District 4, FL** – *Project Manager:* Responsibilities includes the advancement, integration, support, and maintenance of all FDOT District 4 ITS software systems, includes the SunGuide, Advanced Traffic Management System Software, the ELS Software, the inSERVICE (service patrol) application that dispatched and monitored Road Rangers, and MIMS. As part of the contract extension for the statewide data integration and *Video Aggregation System (DIVAS), this project deployed the Intelligent Video Distribution System (iVDS) platform, which aggregates and disseminates live video from the Department's 4,000 traffic cameras.* Customized Data Fusion System (DFS), which ingests real-time data from the State's eleven traffic management centers and various external data sources was also deployed to supply normalized information products to internal and external stakeholders and agency partners.
02/17 – Ongoing	**ITS Software Integration and Maintenance Services, FDOT, District 5, FL** - *Project Manager:* Responsibilities includes the specification, design, implementation, and support of ITS software for FDOT District 5, which to date has included the inSERVICE (service patrol) application that dispatched and monitored Road Rangers, and the MIMS. *This project also deployed the Intelligent Video Distribution System (iVDS) platform, which aggregates and disseminates live video from the Department's 4,000 traffic cameras.*
01/20 – 12/22	**PedSafe/Greenway Software Development Package, FDOT, District 5, FL** - *Project Manager:* Responsible for the design and development of Certification Authentication and Verification/Mobile Application component of this project which focuses on leveraging technology, data, and software that improved safety and increased options for all roadway users. The new features in the enhanced mobile application provided motorists with audible warnings for school zones, curve speeds, congestion ahead, and

	more. Another component of this project, the Route, and Mode Choice Engine has implemented OpenTripPlanner as the core routing engine to power a regional multi-modal trip planner embedded in kiosks throughout University of Central Florida campus.
05/18 – Ongoing	Signalized Intersection Inventory Application (SIIA) App, FDOT, District 5, FL - *Project Manager:* Responsible for the design and development of the SIIA app. The SIIA app is a progressive web app that streamlined the inventorying of all assets at a traffic intersection with bi-directional data transfer between the SIIA app and Maintenance and Inventory Management System (MIMS). The App allowed users to define the intersection geometry, approaches, lane configurations, and all assets associated with the intersection.
08/18 – Ongoing	Mackinac Bridge New Toll Collection System, Mackinac Bridge Authority (MBA), MI - *Technical Lead*: Arcadis was commissioned to deploy a new toll system for the MBA in northern Michigan Central to the project was the transition from the legacy system to the Arcadis toll system, which the team executed seamlessly to made sure service was not interrupted for motorists or operators. Managed the implementation (and ongoing support) of Arcadis asset management system used to manage the inventory and maintenance of toll system hardware.
11/18 – Ongoing	I-595 Pricing System Implementation Oversight Services, FDOT, District 4, FL - *Project Manager:* Pricing System software, includes the generation of system business rules, charging policy, and functional requirements, the functional design specification, detailed software design and prototyping, development, factory acceptance testing, and system acceptance testing.
01/11 – 18/16	Express Lanes System (ELS) Software Specification, Design, and Development, FDOT, District 4, FL - *Project Manager:* Responsible for the specification, design and development of the Dynamic Pricing Software that utilized and managed all FDOT District 4 operated express lanes systems. The software incorporated dynamic (traffic density and travel time based) pricing and supported both segment and trip-based charging. The software was responsible for toll amount calculation based on real-time traffic data, and the management of all express lanes document management system.
10/07 – 04/16	LogicTree/FDOT Central Office Florida's Advanced Traveller Information System, Information Dissemination Subsystem and Video Distribution Subsystem Development, FL - *Deputy Project Manager:* Supported the design, development and integration of the Data Fusion Subsystem, Information Dissemination Subsystem (Primary Website, Personalized Routes and Email Alerts) and Video/Image Aggregation Subsystem. These subsystems aggregate the camera images, traffic flow and incident data received from Traffic Management Centres throughout the state and deliver that information to the public via a public website and push technology email alerts.
06/07 – Ongoing	Asset Management Software Maintenance and Support, FDOT, District 3, District 4 and District 5, FL - *Project Manager:* Provided the software maintenance and support services contract for the many instances of the Maintenance and Inventory Management System software platform deployed for the Florida Department of Transportation (FDOT) District 3, District 4 and District 5, I-595 Express LLC (Concessionaire), the Central Florida Expressway Authority, Mackinac Bridge Authority (MBA), the Georgia State Road and Tollway Authority (SRTA), the Massachusetts Department of Transportation (MassDOT), the Michigan Department of Transportation (MDOT), and the Connecticut Department of Transportation (CTDOT).

16. Staff Experience.

Firm employed by	ARCADIS		
Name	Cristina Birjega	Years of relevant experience with this employer	23
Title	Associate Sr. Software Developer	Years of relevant experience with other employer(s)	7
Degree(s) / Years / Specialization		BSc / 1993 / Electrical Engineering - Robotics, University of Craiova	
Active registration number / state / expiration date		N/A	
Year registered	N/A	Discipline	N/A
Contract role(s) / brief description of responsibilities.		Implementation Support (System Development / Updates)	

Experience dates	Experience and qualifications relevant to the proposed contract
	Ms. Birjega has over 20 years of extensive involvement in Intelligent Systems. She specializes in design and development of user interfaces of real-time software applications, software development life cycle and business analysis and integration particularly in intelligent transportation systems and real time transit solutions. She has served as Software Developer and Key Team Members to numerous FDOT projects Her design and development experience includes express lanes and toll collection software, ***CAV, mobile, ATMS, iVDS applications, and other ITS elements.***
01/15 – 01/18	**Intelligent Video Distribution System (iVDS), FDOT and Ontario Ministry of Transportation (MTO), Pompano Beach, FL –** *Software Developer:* Deployed iVDS to ***monitor traffic conditions and roadway events in real-time using live video streams from numerous CCTV Cameras*** located throughout a roadway network. The system supports multiple video streams and connects to WOWZA servers for digitization, compression, and distribution. Responsible for the ***application architecture, design and development, technology selection and the overall development management.***
10/22 – 10/23	**Next Generation Statewide Express Lanes Software (NG SELS), Florida Department of Transportation (FDOT), Tallahassee, Florida FL) –** *Senior Software Developer:* Responsible for the ***design, development, and maintenance of the NG SELS*** which will replace the existing express lanes software statewide. NG SELS will be able to determine dynamic toll amounts based on current traffic conditions and communicate tolls and messages among RTMCs and across express lanes facilities. It will also be responsible for managing the messages posted to toll and lane status signs, the various toll modes, and toll transactions sent to Florida's Turnpike Enterprise
01/20 – 12/22	**PedSafe/Greenway Software Development Package, FDOT District 5, FL –** *Software Developer:* Responsible for the ***design and development of Connected and Autonomous Vehicles (CAV)/Mobile Application*** component of this project which focuses on ***leveraging technology, data, and software*** to improve safety and increase options for all roadway users. The new features in the enhanced mobile application will provide motorists with audible warnings for school zones, curve speeds, congestion ahead, and more. Another component of this project, the Route and Mode Choice Engine (RMCE), has implemented OpenTripPlanner as the core routing engine to power a regional multi-modal trip planner embedded in kiosks throughout University of Central Florida (UCF) campus
11/14 – Ongoing	**Software Integration and Maintenance Services, FDOT District 4, FL –** *Software Development Support:* Responsible for the support and maintenance of all FDOT D4 software systems, including ***ATMS applications and ATIS websites, including the Interagency Video Distribution System (iVDS),*** the Maintenance and Inventory Management System (MIMS), and www.fdotd4traffic.com. Other developed software applications includes the SIRV Application, which allows SIRV managers to file complicated forms about vehicle inspections and severe incidents directly from their laptop in the field, the Advanced Device And Performance moniTor (ADAPT) system, which displays real time information about devices and incident

	management performance, inSERVICE, designed to facilitate the dispatching and tracking of Road Rangers by TMC operations and management and the Data Analysis and Reporting Tool (DART), which provides an information portal to various sources of *ITS data collected by the SunGuide ATMS software*.
01/15 – 01/17	I-95 Express Lanes System (ELS v2), FDOT District 4, FL – *Software Developer:* The Express Lanes (or Dynamic Pricing) Systems consist of one or more (in some cases reversible) High Occupancy Toll Segments, each possessing one or more travel lanes. The system controls the various Toll Amount and Lane Status Signs associated with the facility and dynamically calculates Segment and Trip Toll Amounts. Responsible for the *system architecture, technology selection and the overall application design, development, and integration.*
01/10 – 06/13	Bahamas Paradise Island Toll Bridge, Bahamas – *Software Developer:* Provided consulting advice and *design, development, and integration of new system enhancements for the toll system and peripherals*. This included replacement of the lane and toll customer service and billing systems. Provided the design, operation advice, *training, and commissioning of the replacement system*. Responsible for the *design and development of the Account Management application and the reporting interface.*
06/12 – 10/14	Royal Toll Management and Highway Traffic Management System Supply (GMR Projects Private Limited), India – *Software Developer:* Awarded the *construction and operations of highway projects in India*. As part of this development GMR required a Toll and Traffic Management Systems for each of the four project highways. Responsible for the *design and development of the system application.*

16. Staff Experience:

Firm employed by	ARCADIS		Meet MPR Nos. 9
Name	Jeffery Jones, IMSA II	Years of relevant experience with this employer	11
Title	ITS Supervisor / Sr. ITS Technician	Years of relevant experience with other employer(s)	11
Degree(s) / Years / Specialization		Electrical Engineering Coursework / 2005 / University of New Orleans Electrical Engineering Coursework / 2005 / Delgado Community College	
Active registration number / state / expiration date		N/A	
Year registered	N/A	Discipline	N/A
Contract role(s) / brief description of responsibilities.		Implementation Support (System Integration, IV&V, Construction Technical Support)	

Experience dates	Experience and qualifications relevant to the proposed contract
	Mr. Jones has over 20 years of experience designing, integrating, and maintaining information systems in the transportation industry. He has experience with **complex intelligent transportation systems (ITS) networks that include wireless MESH, fiber optics, and copper.** He has a thorough knowledge of WIFI, Cell Networks and Dedicated Short Range Communication (DSRC) systems and standards. He has certified **technical trainings on ITS assets and systems such as COHU, Axis, Daktronics, ISS RTMS Traffic Detector, Trafficware/Naztec TS1 and TS2 Traffic Controller, Econolite Autoscope** and others. He is IMSA II certified and is a licensed electrical contractor. These and others are listed in Section 20 of this proposal.
12/19 – Ongoing	**ITS Management, Operations, and Maintenance Engineering & Inspection (ME&I) IDIQ Contract – Program Management (PM) and Maintenance Management System (MMS) Task Orders, LADOTD, Statewide** - *Field Manager / Project Manager:* Responsible for *program and project management, maintenance, and related services for the DOTD ITS maintenance program.* Responsible for managing the routine maintenance of CCTV camera, Dynamic Message Sign (DMS), vehicle detector (VD) and ramp meter sites, and responsive/emergency maintenance of CCTV camera and DMS sites located throughout the state of Louisiana. Developed Traffic Control Plans (TCP) and worked with the LADOTD project manager to determine safety class and critical level assignments for all ITS sites. Performed training for and installation of the maintenance management system (MMS). Worked on the development of performance measures reports, ITS Maintenance Plan, Program Management Plan (PMP) and Health and Safety Plan (HASP) for the project. Developed procedures and checklists for the performance of maintenance activities at ITS sites. Performed site inspections, validation and quality control checks for maintenance activities performed under the contract.
12/19 – Ongoing	**ITS Management, Operations, and Maintenance Engineering & Inspection (ME&I) IDIQ Contract - Routine Maintenance Task Orders – CCTV Camera, DMS, VD, and Ramp Meter, LADOTD, Statewide, LA** - *Field Manager / Project Manager:* Responsible for providing *routine maintenance of statewide ITS sites including, CCTV cameras, DMS, VD, and ramp meters.* Routine maintenance activities typically include inspecting site equipment, changing air filters, vacuuming dust out of a cabinet, cleaning CCTV domes, cleaning DMS face plates, and cleaning cooling fans, as well as record keeping. Responsibilities also include development of detailed checklist by device type; integration of checklist with MMS software; standardized reporting; development of routine maintenance scheduler; and coordination with statewide traffic management center (TMC), regional TMCs, and DOTD districts before, during, and after all routine maintenance activities.
12/19 – Ongoing	**ITS Management, Operations, and Maintenance Engineering & Inspection (ME&I) IDIQ Contract - Responsive Maintenance Task Orders – CCTV Camera and DMS, LADOTD, Statewide, LA** - *Field Manager / Project Manager:* Responsible for providing *responsive maintenance of statewide ITS sites including CCTV camera and DMS.* Responsive or emergency maintenance occurs

	in response to malfunctioning or faulty components that prevent the normal operations of ITS devices. Also responsible for tracking a responsive maintenance ticket to see that the work is done within the defined response time based on a site location.
08/16 –12/19	ITS Maintenance Retainer Contract – PM and MMS, LADOTD, Statewide - *Field Manager / Project Manager:* Responsible for *program and project management, maintenance, and related services for the LADOTD ITS maintenance program.* Responsible for managing the routine maintenance of CCTV camera, DMS, VD and ramp meter sites, and responsive/emergency maintenance of CCTV camera and DMS sites located throughout the state of Louisiana. Developed TCP and worked with the LADOTD project manager to determine safety class and critical level assignments for all ITS sites. Performed training for and installation of the MMS. Worked on the development of performance measures reports, ITS Maintenance Plan, PMP and HASP for the project. Developed procedures and checklists for the performance of maintenance activities at ITS sites. Performed site inspections, validation and quality control checks for maintenance activities performed under the contract.
08/16 –12/19	ITS Maintenance Retainer - Routine Maintenance Task Orders – CCTV Camera, DMS, VD, and Ramp Meter, LADOTD; Statewide, LA - *Field Manager / Project Manager:* Responsible for providing *routine maintenance of statewide ITS sites including, CCTV cameras, DMS, VD, and ramp meters.* Routine maintenance activities typically include inspecting site equipment, changing air filters, vacuuming dust out of a cabinet, cleaning CCTV domes, cleaning DMS face plates, and cleaning cooling fans, as well as record keeping. Responsibilities also include development of detailed checklist by device type; integration of checklist with MMS software; standardized reporting; development of routine maintenance scheduler; and coordination with statewide TMC, regional TMCs, and DOTD districts before, during, and after all routine maintenance activities.
08/16 – 12/19	ITS Maintenance Retainer Responsive Maintenance Task Orders – CCTV Camera and DMS, LADOTD; Statewide, LA - *Field Manager / Project Manager:* Responsible for providing *responsive maintenance of statewide ITS sites including CCTV camera and DMS.* Responsive or emergency maintenance occurs in response to malfunctioning or faulty components that prevent the normal operations of ITS devices. Also responsible for tracking a responsive maintenance ticket to see that the work is done within the defined response time based on a site location.
06/13 – 08/16	ITS Maintenance Retainer Contract - Program Management and Maintenance Management System, LADOTD, Statewide, LA - *Project Manager:* Responsible for developing, implementing, and managing ITS maintenance plan, policies, standards, procedures, and guidelines. Responsibilities also included deployment planning, installation, configuration validation, data migration support and ongoing update to database, training, and annual MMS software support. Arcadis was *awarded the first-ever ITS maintenance contract* to establish a program to systematically provide routine and responsive maintenance for the LADOTD's statewide ITS infrastructure, totaling more than 500 sites statewide.
08/13 – 08/16	ITS Maintenance Retainer - Responsive Maintenance Task Orders, LADOTD, Statewide, LA - *Field Manager / Project Manager:* Responsible for providing responsive *maintenance of statewide ITS sites.* Responsive maintenance involves the repair or replacement of any reported failed or malfunctioned equipment. Emergency maintenance is responsive maintenance that requires immediate repair, such as sites requiring traveler information, or incidents and events.
02/19 – 08/21	CE&I for US 190 ITS Deployment, LADOTD, West Baton Rouge, Pointe Coupee, and Landry Parishes, LA - *Project Manager:* Provided *project management and QA/QC services to LADOTD on ITS expansion project* that included the installation of approximately 48 miles of fiber optic communications cable, the interconnection of four traffic signals onto the LADOTD communications network, and the installation of two communications HUB buildings.

16. Staff Experience:

Firm employed by	ARCADIS			Meet MPR No. 8
Name	Nicholas O'Hara		Years of relevant experience with this employer	8
Title	Senior Software Developer		Years of relevant experience with other employer(s)	<1
Degree(s) / Years / Specialization			BS / 2015 / Computer Engineering, University of Waterloo, Waterloo, ON	
Active registration number / state / expiration date			N/A	
Year registered	N/A	Discipline	N/A	
Contract role(s) / brief description of responsibilities.			Implementation Support (System Development / Updates)	

Experience dates	Experience and qualifications relevant to the proposed contract
	Mr. O'Hara has over 8 years of experience working on software within the ITS industry. As a software development team lead at Arcadis, Nick has been involved in the design, architecture, and implementation of highly scalable and available websites. His **expertise has been crucial to the success of 511 projects** in Alberta, Alaska, Connecticut, New York, Nova Scotia, Manitoba, Ontario, and Saskatchewan. Nick specializes in, and has proficient knowledge and experience in, the following areas of software development expertise: **C#, ASP.NET MVC and .NET 7 (Core), AWS Platform, Database Design (MSSQL and PostgreSQL).**
01/17 – 05/24	**CTRoads, CTDOT, Connecticut –** Project *Team Lead & Software Developer:* Managed the delivery of "CTroads" ***511 system*** for Connecticut DOT's Traffic Operations and Management. Involved in all processes of design and discovery for the CTRoads system. Taking an active role in the architecture of the system as well as requirements gathering and ensuring that feature implementation exceeds client expectations.
05/19 – 05/24	**Arcadis Travel-IQ, Various Clients and Locations -** *Senior Software Developer:* Mr. O'Hara has been involved in the full software development life cycle for all Travel-IQ deployments, from discovery and planning to leading the design and implementation, and finally continuous improvement and maintenance. Overseen the ***customization of website functionality, evaluation and management of website performance, and the development and maintenance of website content*** for individual clients. Supports the cloud hosting and server management for ***Travel-IQ/511 systems*** and is active in the custom design and deployment of the Data Broker tool to support data integration and sharing.
05/15 – 05/19	**Arcadis Travel-IQ, Various Clients and Locations -** *Software Developer:* Mr. O'Hara has been involved in the software development life cycle for all Travel-IQ deployments. Implemented website functionality, and the development and maintenance of website content for individual clients. Supported the cloud hosting and server management for ***Travel-IQ/511 systems.***

16. Staff Experience:

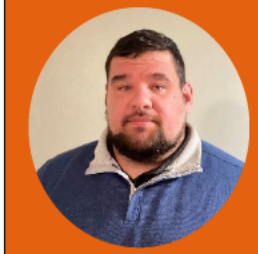
Firm employed by	ARCADIS		
Name	Anthony Moore, PE	Years of relevant experience with this employer	6
Title	Senior ITS/Traffic Engineer	Years of relevant experience with other employer(s)	29
Degree(s) / Years / Specialization		BS / 1994 / Civil Engineering, University of Missouri	
Active registration number / state / expiration date		PE.0037887 / LA / Exp. 09/30/2025	
Year registered	2013	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities.		Implementation Support (IV&V, Construction Technical Support)	

Experience dates	Experience and qualifications relevant to the proposed contract
	Mr. Moore is a Senior Traffic and ITS Engineer and has extensive experience in traffic and ITS engineering, design, signal timing development and deployment, and Intelligent Transportation System (ITS) design. He has more than 27 years of experience in the fields of traffic and safety analysis, signal design, and ITS design. As an ITS CE&I Engineer, his focus has been safety, maintaining **DOTD construction standards, specifications, and procedures** during construction with an eye toward future maintenance of constructed components. He has successfully worked on projects at the Louisiana Department of Transportation and Development (LADOTD), Florida DOT, Missouri DOT, Kansas DOT, Texas DOT, City of Kansas City, Missouri, City of Olathe, City of Gainesville, Florida, and Lee County, Florida. Other certifications include: ATSSA TCS, TCT, Flagger. **Mr. Moore has completed LADOTD Traffic Engineering Process and Report Training.**
04/19 – 12/19	**Traffic Signal Design IDIQ - US 90 Traffic Signal Timing Upgrades/LADOTD, Lafayette Parish, LA** - *Senior Traffic Engineer:* Responsible for project tasks involving ***traffic data collection*** and analysis, ***traffic signal inventory***, peak period determination and observations, ***warrant analysis***, travel time runs, ***traffic signal timing analysis*** using Synchro 10 software, and development of updated TSI forms following latest LADOTD standards.
02/19 – 08/21	**US 190 ITS Deployment, LADOTD, West Baton Rouge, Pointe Coupee and Landry Parishes, LA** - *Project Engineer:* Provide project Management and QA/QC services to LADOTD on ITS expansion project that includes the installation of approximately 48 miles of fiber optic communications cable, the **interconnection of four traffic signals onto the LADOTD communications network**, and the installation of two communications HUB buildings. As Project Engineer, responsibilities include overseeing all aspects of construction and inspection including providing engineering support for ***software testing, component testing, system acceptance testing, and system upgrades*** to the contractor during construction. Duties include monitoring and documenting ***DOTD standards and procedures***.
02/16 – 08/17	**Lake Charles ITS Phase 2, LADOTD; Calcasieu Parish, LA** - *Project Engineer:* Provide construction management services to LADOTD on ITS expansion project in the Lake Charles metropolitan area. The ITS expansion project includes the installation of ***fiber optic communications cable***, Dynamic Message Signs and Closed-Circuit Television cameras on I-10. As Project Engineer, responsibilities include overseeing all aspects of construction and inspection including providing engineering support and quality control to the contractor during construction, and overseeing ***software testing, component testing, system acceptance testing, and system upgrades*** for the project.
08/21 – Ongoing	**I-10 US 61 to Laplace ITS Deployment, LADOTD, Ascension, St. James and St. John the Baptist Parishes, LA** - *Project Engineer:* Provide Project Management and QA/QC services to LADOTD on ITS expansion project that includes the installation of approximately 23 miles of fiber optic communications cable and conduit and the installation of ten Closed Circuit television

	cameras including four that will be solar powered. As Project Engineer, responsibilities include overseeing all aspects of construction and inspection including providing engineering support and quality control oversight to the contractor during construction, directing field inspectors, and maintaining project documentation required by LADOTD, including RFIs and shop drawings. Duties include *software testing, component testing, system acceptance testing, and system upgrades* for the project.
10/19 – 08/21	CE&I for Alexandria ITS Deployment Phase 3, LADOTD, Rapides Parish, LA - *Project Engineer/ Manager:* Provide construction management services to LADOTD on ITS expansion project in the Alexandria metropolitan area. The *ITS expansion project* includes the installation of fiber optic communications cable, Dynamic Message Signs and Closed-Circuit Television cameras on US 71, US 165, and LA 28. As Project Engineer, responsibilities include overseeing all aspects of construction and inspection including *providing engineering support to the contractor during construction*, directing field inspectors, and maintaining project documentation required by LADOTD.
10/16 – 08/17	CE&I for I-10 Bonnet Carre Emergency Crossing, LADOTD, St. John and St. Charles Parishes, LA - *Project Engineer/ Manager:* Provide construction management services to LADOTD on ITS repair project in St. John and St. Charles Parishes. The ITS expansion project includes the installation of fiber optic communications cable, one Dynamic Message Sign, and the repair of two emergency crossing gates on the elevated section of I-10 near the Bonnet Carre spillway. As Project Engineer, responsibilities include *overseeing all aspects of construction and inspection including providing engineering support and quality control oversight* to the contractor during construction, directing field inspectors, and maintaining project documentation required by LADOTD.
12/15 – 10/16	CE&I for New Orleans Hospitality Zone, LADOTD, Orleans Parish, LA - *Project Engineer/ Manager:* Provide construction management services to LADOTD on ITS expansion project in the New Orleans metropolitan area. The ITS expansion project includes the installation of Ramp Metering signals on 6 freeway entrance ramps to US 90B, *fiber optic communications cable, and Closed-Circuit Television cameras*. As Project Engineer, responsibilities include overseeing all aspects of construction and inspection including providing engineering support and quality control oversight to the contractor during construction, directing field inspectors, and maintaining project documentation required by LADOTD.
03/13 – 8/15	CE&I for Weigh In Motion, LADOTD, Jefferson and Orleans Parish, LA - *Project Engineer/ Manager:* Provide construction management services to LADOTD on statewide weigh in motion upgrade project. The weigh in motion project includes the installation of fiber optic communications cable, Dynamic Message Signs, Closed Circuit Television cameras, and weigh in motion scales on I-10, I-12, and I-20. As Project Engineer, responsibilities include overseeing all aspects of construction and inspection including providing engineering support to the contractor during construction, *directing field inspectors, and maintaining project documentation required by LADOTD.*
06/14 – 11/15	CE&I for Dynamic Message Sign (DMS) Ladder Statewide, LADOTD, Statewide, LA - *Project Engineer/ Manager:* Provide construction management services to LADOTD on DMS Ladder project to install new DMSs and ladder/walkway systems on existing DMS poles. As Project Engineer, responsibilities include *overseeing all aspects of construction and inspection* including providing engineering support to the contractor during construction, directing field inspectors, and maintaining project documentation required by LADOTD.

16. Staff Experience

Firm employed by	ARCADIS		Meets MPR No. 9
Name	Cody Lemoine	Years of relevant experience with this employer	5
Title	Sr. ITS Technician/Field Manager	Years of relevant experience with other employer(s)	5
Degree(s) / Years / Specialization		N/A	
Active registration number / state / expiration date		N/A	
Year registered	N/A	Discipline	N/A
Contract role(s) / brief description of responsibilities.		System Integration, Construction Technical Support	

Experience dates	Experience and qualifications relevant to the proposed contract
	Mr. Lemoine has 10 years of experience in designing, integrating, and maintaining information systems in the transportation industry. He has **experience with complex Intelligent Transportation System (ITS) networks** that include wireless MESH, fiber optics, and copper. He has a thorough knowledge of wireless fidelity, cell networks and dedicated short range communication systems and standards. He is certified through Fiber Optics of America as a Fiber Optic Technician and Fiber Optic Design. He has certified technical trainings on ITS assets and systems such as COHU, Axis, Daktronics, ISS RTMS Traffic Detector, Trafficware/Naztec , Econolite Autoscope and others. These certifications and others are listed in Section 20 of this proposal. He also has experience as Lead Inspector and Senior Inspector on several Louisiana Department of Transportation and Development (LADOTD) Construction Engineering and Inspection (CE&I) projects
08/16 – Ongoing	**ITS Maintenance, Engineering, and Inspection (ME&I) Retainer Contract - Program Management (PM) and Maintenance Management System (MMS), LADOTD, Statewide LA** – *Senior ITS Technician/Field Manager*: Responsible for program and project management, maintenance, and *related services for the LADOTD ITS maintenance program*. Managed the routine maintenance of Closed-Circuit Television (CCTV) camera, *document management system (DMS), VD and ramp meter sites*, and responsive/emergency maintenance of CCTV camera and DMS sites located throughout the state of Louisiana. Developed Transmission Control Protocols and worked with the LADOTD Project Manager and determined safety class and critical level assignments for all ITS sites. Performed training for and installation of the MMS. Worked on the development of performance measures reports, ITS Maintenance Plan, PM Plan and Health and Safety Plan for the project. Developed procedures and checklists for the performance of maintenance activities at ITS sites. Performed site inspections, validation, and quality control checks for maintenance activities performed under the contract.
08/16 – Ongoing	**ITS ME&I - Retainer Routine Maintenance Task Orders – CCTV Camera, DMS, VD, and Ramp Meter, LADOTD, Statewide, LA** – *Senior ITS Technician/Field Manager*: Responsible for providing *routine maintenance of statewide ITS sites* including, CCTV cameras, DMS, VD, and ramp meters. Routine maintenance activities typically include inspected site equipment, changed air filters, vacuumed dust out of a cabinet, cleaned CCTV domes, cleaned DMS face plates, and cleaned cooling fans, as well as record keeping. Responsibilities also include development of detailed checklist by device type; integration of checklist with MMS software; standardized reporting; development of routine maintenance scheduler; and coordination with TMCs, and DOTD districts before, during, and after all routine maintenance.
08/16 – Ongoing	**ITS ME&I - Retainer Responsive Maintenance Task Orders – CCTV Camera and DMS, LADOTD, Statewide, LA** – *Senior ITS Technician/Field Manager:* Responsible for *providing responsive maintenance of statewide ITS sites* including CCTV camera and DMS. Responsive or emergency maintenance occurs in response to malfunctioning or faulty components that prevented the normal operations of *ITS* devices. Also responsible for tracking a responsive maintenance ticket to see that the work is done within the defined response time based on a site location.

16. Staff Experience

05/13 – 08/16	*ITS* Maintenance Retainer Contract – PM and MMS TOs, LADOTD, Statewide, LA – *Senior ITS Technician/Field Manager:* Responsible for maintenance and related services for the LADOTD *ITS* maintenance program. *Managed the routine maintenance of CCTV camera, DMS,* VD, and ramp meter sites, and responsive/emergency maintenance of CCTV camera and DMS sites located throughout the state of Louisiana. *Performed training for and installation of the MMS.* Developed procedures and checklists for the performance of maintenance activities at *ITS* sites. Performed site inspections, validation, and quality control checks for maintenance activities performed under the contract.
08/13 – 08/16	*ITS* Maintenance Retainer Routine Maintenance Task Orders – CCTV Camera, DMS, VD, and Ramp Meter, LADOTD, Statewide, LA – *Senior ITS Technician/Field Manager:* Responsible for providing routine maintenance of statewide ITS sites including CCTV cameras, DMS, VD, and ramp meters. Routine maintenance activities typically include inspected site equipment, changed air filters, vacuumed dust out of a cabinet, cleaned CCTV domes, cleaned DMS face plates, and cleaned cooling fans, as well as record keeping. Responsibilities also include development of detailed checklist by device type; *integration of checklist with MMS software;* standardized reporting; development of routine maintenance scheduler; and coordination with statewide TMC, regional TMCs, and DOTD districts before, during, and after all routine maintenance activities.
08/13 – 08/16	ITS Maintenance Retainer Responsive Maintenance Task Orders – CCTV Camera, LADOTD, Statewide, LA – *Senior ITS Technician/Field Manager*: Responsible for providing responsive maintenance of statewide ITS sites including CCTV camera and DMS. Responsible for responsive and emergency maintenance of ITS sites in Louisiana. Responsive maintenance involved the repair or replacement of any reported failed or malfunctioning equipment. Emergency maintenance is responsive maintenance that required immediate repair, such as sites requiring traveler information or incidents, and events.
01/22 – Ongoing	ITS Maintenance Retainer Contract, Alabama Department of Transportation (ALDOT), Statewide, AL – *Field Supervisor:* Responsible for *overseeing ITS and Communications related activities*. Provided extensive fiber optic and wireless network design for approximately 400 ITS sites in Birmingham, most of which did not have existing communications before the project began. Worked directly with ALDOT ITS and Communications personnel that developed individual networks for the seven HUB buildings that effectively divided the network into separate subnets to help minimize the traffic impact of the nearly 900 IP addressable devices including switches, radios, cameras, radar detection, traffic signal controllers, and DMSs. Helped develop and implement the first 811 utility locate program in the East Central Region that has completed more than 300 fiber optic cable located in 14 months.
08/21 – Ongoing	CE&I for I-10 US 61 to Laplace ITS Deployment, Ascension, St. James, St. John the Baptist Parishes, LA – *Senior Inspector:* Provided field inspection and investigation services to LADOTD on *ITS expansion project* that includes the installation of approximately 23 miles of fiber optic communications cable and conduit and the installation of 10 CCTV cameras including four that will be solar powered. *Oversight all aspects of CE&I including provided support and quality control* to the contractor during construction, directed field inspectors, and maintained project documentation required by LADOTD, included Daily Work Reports, tested materials submittals, daily temporary traffic control, and daily pay items.
10/19 – 08/21	CE&I for Alexandria ITS Deployment Phase 3, LADOTD, Rapides Parish, LA – *Lead Inspector:* Provided *construction management services* to LADOTD on ITS expansion project in the Alexandria metropolitan area that included installation of fiber optic communications cable, DMSs and CCTV cameras on US 71, US 165, and LA 28. Responsibilities include overseeing all aspects of CE&I including provided engineering support to the contractor during construction, directed field inspectors, and maintained project documentation required by LADOTD.

16. Staff Experience:

Firm employed by	ARCADIS		
Name	Anthony Jackson, IMSA III	Years of relevant experience with this employer	4
Title	Lead ITS Technician/Inspector	Years of relevant experience with other employer(s)	19
Degree(s) / Years / Specialization		Pre-Civil Engineering Coursework / 2016 – Ongoing / Baton Rouge Community College	
Active registration number / state / expiration date		N/A	
Year registered	N/A	Discipline	N/A
Contract role(s) / brief description of responsibilities		Implementation Support (IV&V)	

Experience dates	Experience and qualifications relevant to the proposed contract
	Mr. Jackson has 23 years of experience in field inspection and investigation, testing/QA, and construction inspection and testing of structural components on **LADOTD ITS CE&I projects**. He has 19 years of experience working on ITS and traffic signal projects including construction, inspection, system integration and maintaining traffic signal and ITS systems in the transportation industry. He has experience with complex intelligent transportation system (ITS), and Traffic Signalizations. He has a thorough knowledge of LADOTD standards and specification. He has certified technical trainings on ITS assets and systems such as COHU, Axis, Daktronics, ISS RTMS Traffic Detector, Trafficware TS2, and Econolite Autoscope and others. He also has certifications as an **IMSA Level III Traffic Signal Technician, and Traffic Signal Inspector for Advance Technologies**.
08/16 – Ongoing	**ITS Maintenance, Engineering, and Inspection (ME&I) Retainer Contract Program Management (PM) and Maintenance Management System (MMS), LADOTD, Statewide -** *Senior ITS Technician:* Responsible for assisting in the routine maintenance of CCTV camera, Dynamic Message Sign (DMS), vehicle detector (VD) and ramp meter sites, and responsive/emergency maintenance of CCTV camera and DMS sites located throughout the state of Louisiana. Developed Traffic Control Plans (TCP) and worked with the LADOTD project manager to determine safety class and critical level assignments for all ITS sites. Performed *training for and installation of the maintenance management system (MMS)*. Worked on the *development of performance measures reports*, ITS Maintenance Plan, Program Management Plan (PMP) and Health and Safety Plan (HASP) for the project. Developed procedures and checklists for the performance of maintenance activities at ITS sites. Performed site inspections, validation and quality control checks for maintenance activities performed under the contract.
08/16 – Ongoing	**ITS Maintenance, Engineering, and Inspection (ME&I) Retainer Routine Maintenance Task Orders – CCTV Camera, DMS, VD, and Ramp Meter, LADOTD; Statewide, LA -** *Senior ITS Technician:* Responsible for assisting in routine maintenance activities that include inspecting site equipment, changing air filters, vacuuming dust out of a cabinet, cleaning CCTV domes, cleaning DMS face plates, and cleaning cooling fans, as well as record keeping. Responsibilities also include development of detailed checklist by device type; *integration of checklist with MMS software*; standardized reporting; development of routine maintenance scheduler; and coordination with statewide traffic management center (TMC), regional TMCs, and DOTD districts before, during, and after all routine maintenance activities.
08/16 – Ongoing	**ITS Maintenance, Engineering, and Inspection (ME&I) Retainer Responsive Maintenance Task Orders – CCTV Camera and DMS, LADOTD; Statewide, LA -** *Senior ITS Technician:* Responsible for assisting in responsive or emergency maintenance that occurs in response to malfunctioning or faulty components that prevent the normal operations of ITS devices. Also responsible for tracking a responsive maintenance ticket to see that the work is done within the defined response time based on a site location.

05/13 – 08/16	ITS Maintenance Retainer Contract – Program Management and Maintenance Management System, LADOTD, Statewide, LA - *Senior ITS Technician:* Premier duties were to integrate, troubleshoot, and perform preventative maintenance, on CCTV Cameras, DMS, VD, and Ramp Meters. *Performs QA/QC checks* after any work is performed on the routine and responsive maintenance. The site visits for quality control on maintenance activities to secure thoroughness of work against maintenance procedure. It also allows the inspection of the TCP installation, and usability for current roadway geometrical conditions.
08/21 – Ongoing	CE&I for I-10 US 61 to Laplace ITS Deployment, LADOTD, Ascension, St. James, St. John the Baptist Parishes, LA - *Senior Technician/Lead Inspector:* Provide field inspection and investigation services to LADOTD on ITS expansion project that includes the installation of approximately 23 miles of fiber optic communications cable and conduit and the installation of ten Closed Circuit television cameras including four that will be solar powered. Responsibilities include *overseeing all aspects of construction and inspection* including providing support and *quality control oversight to the contractor during construction*, *directing field inspectors*, and *maintaining project documentation* required by LADOTD, including Daily Work Reports, *materials testing submittals*, daily temporary traffic control, and daily pay item field diaries.
02/19 – 08/21	CE&I for US 190 ITS Deployment, LADOTD, West Baton Rouge, Pointe Coupee, and Landry Parishes, LA - *Senior Technician/Inspector:* Provide field inspection and investigation services to LADOTD on ITS expansion project that includes the installation of approximately 48 miles of fiber optic communications cable, the interconnection of four traffic signals onto the LADOTD communications network, and the installation of two communications HUB buildings. Responsibilities include overseeing all aspects of construction and inspection including providing engineering support to the contractor during construction, directing field inspectors, and maintaining project documentation required by LADOTD.
10/19 – 08/21	CE&I for Alexandria ITS Deployment Phase 3, LADOTD, Rapides Parish, LA - *Project Technician:* Provide construction management services to LADOTD on ITS expansion project in the Alexandria metropolitan area. The ITS expansion project includes the installation of fiber optic communications cable, Dynamic Message Signs and Closed-Circuit Television cameras on US 71, US 165, and LA 28. Responsibilities include overseeing all aspects of *construction and inspection* including providing engineering support to the contractor during construction, directing field inspectors, and maintaining project documentation required by LADOTD.
06/15 – 12/15	LADOTD District 04 Controller Upgrade Traffic Signalization and Related Work, Bienville, Bossier, Caddo, Claiborne, Desoto, Red River, Webster, Jefferson, Orleans, St. Bernard, St. Charles Parishes, Baton Rouge, LA - *Project Manager/Sr. Technician:* Participated in planning and bidding to obtain contracts for projects. Acting Traffic Control Supervisor on the project and coordinated work schedule with LADOTD. Served as Lead Technician on project and approved partial estimates and change orders. Responsible for programming ATC controllers, and installing GPS in the controller cabinets. Maintain proper traffic control by coordinating the shutdowns of major and minor signalized intersection with state and local police departments.

16. Staff Experience

PERSONNEL RESUMES

TRANSPORTATION DATA & PERFORMANCE MEASURES

16. Staff Experience:

Firm employed by	ARCADIS		
Name	Joshua Chatelain	Years of relevant experience with this employer	17
Title	Geographic Information Systems (GIS) Analyst	Years of relevant experience with other employer(s)	7
Degree(s) / Years / Specialization		BS / 2002 / Geography, University of New Orleans	
Active registration number / state / expiration date		N/A	
Year registered	N/A	Discipline	N/A
Contract role(s) / brief description of responsibilities.		Transportation Data & Performance Measures	

Experience dates	Experience and qualifications relevant to the proposed contract
	Mr. Chatelain has more than 23 years of experience using GIS for planning and analysis in the environmental and transportation engineering fields. He is experienced in performing infrastructure mapping and assessment, transportation planning and analysis, data acquisition, environmental analysis, field survey oversight, and **providing GIS support for Intelligent Transport System (ITS) projects.** He has an experience with Environmental Systems Research Institute (ESRI) Aeronautical Reconnaissance Coverage GIS (ArcGIS) application stack and data driven applications include. ArcMap, ArcCatalog, ArcGIS Pro, ArcInfo, ESRI Roads and Highways, Event Editor, ArcGIS Data Reviewer, ArcGIS Workflow Manager, ArcGIS 3D Analyst, ArcGIS Spatial Analyst, ArcGIS Geostatistical Analyst, ArcGIS Network Analyst, Production Mapping, ArcPad, ArcGIS Collector, Field Maps, ArcGIS Model Builder, ArcGIS Online/Portal, ArcGIS Enterprise, ArcGIS Web App Builder, Experience Builder, Enterprise Databases, ArcSpatial Database Engine, Python, Arcade, ArcGIS Server, and Structured Query Language Server Management Studio.
06/18 – 10/19	**ITS System Design & Integration IDIQ - I-10 Queue Warning Systems Engineering Analysis, LADOTD, Baton Rouge, LA** – *Probe Data and GIS Analyst:* Developed the first of its kind *ITS Systems Engineering Analysis* involved the evaluation of a Queue Warning system on I-10 eastbound from LA 77 to I-110. The analysis required processing and evaluation of traffic probe data as well as *LADOTD's crash data using GIS and electronic dashboarding tools* to identify existing traffic conditions. Prepared maps and visualizations of geospatial and project data.
05/18 – 12/18	**ITS System Design & Integration IDIQ – 511 Advanced Traveler Information System (ATIS) Integration Support Services TO, LADOTD, Baton Rouge, LA** – *GIS Analyst*: **Provided system integration and Independent Verification & Validation (IV&V) services to assist LADOTD migrate from an existing Advanced Traveler Information System (ATIS) 511 system that was launched in 2005 to a brand-new system with a significant number of upgrades.** *Mr. Chatelain assisted with the database, mobile app, and Waze integration support allowing the project team to accurately verify and validate critical functionalities of the completed system.* **Our attention to detail and disciplined approach in providing the technical expertise relating to system requirements and project submittals allowed LADOTD to successfully complete the project on-time and within budget.**
11/14 – 05/15	**ITS System Design & Integration IDIQ - Advanced Transportation Management System (ATMS) Support TO, LADOTD, Baton Rouge, LA** – *Probe Data and GIS Analyst:* Mr. Chatelain assisted with the INRIX data integration support and provided *independent evaluation of how data can be properly integrated with DOTD's ATMS system.* Other support activities also included providing *comprehensive analysis of INRIX data and data applications, troubleshooting INRIX data integration issues with the ATMS, reviewing necessary INRIX documentation, and providing technical advisory to DOTD during various stages of data integration process.*

16. Staff Experience:

01/21 – Ongoing	LADOA General Services Staff Augmentation Contract, LADOTD, Statewide, LA - *GIS Configuration Engineer:* Responsible for supporting the GIS/Mapping (Section 21) in continuing development of the DOTD Enterprise GIS Program. Worked to improve business process workflows and provided training and oversight to staff members. Developed extract, transform, load processes, scripts, and geoprocessing tools that generated transportation data products and accomplish Section 21 goals. *Stood up web mapping applications serving data as web feature services (WFS) and web mapping services (WMS) for stakeholders to utilize in visualizing and maintaining geospatial data*. Worked with Section 21, Highway Safety Section, and CARTS (LSU Center for Analytics & Research in Transportation Safety) focus groups to design and develop a linear referenced enterprise Intersections data model to meet the needs of various stakeholders at DOTD. Established database schemas, datasets, tables, and methodologies that supported Intersections data migration and development, and demonstrated Intersection Program goals and concepts to stakeholders across the agency. *Developed an Intersection and Intersection Leg data model to conform department data to MIRE 2.0 standards including fundamental data elements (FDEs), while managing data using enterprise geodatabases for error correction and quality control.*
06/13 - ongoing	ITS Maintenance Retainer Contract – Program Management and Maintenance Management System, LADOTD; Statewide, LA – Contract No. 4400002500, 4400007102 – *GIS Analyst:* Responsible for *development and management of GIS and transportation databases. Conducted various types of analysis and impact calculations. Produced relevant maps, figures, and exhibits for reporting* and project meetings. Arcadis was awarded the first-ever ITS maintenance contract to establish a program to systematically provide routine and responsive maintenance for the Louisiana Department of Transportation & Development's statewide ITS infrastructure. Such infrastructure includes CCTV cameras, DMS, radar vehicle detectors, and ramp meters, totaling more than 500 sites statewide.
01/07 – 01/10	El Camino (LA 6) Corridor Widening - Environmental Assessment, Louisiana Department of Transportation & Development (LADOTD), Natchitoches Parish, LA – *GIS Analyst:* Performed analysis, mapping, and data development as part of the Environmental Assessment for the corridor. Conducted windshield surveys and gathered Global Positioning System data in the field that identified and mapped important features to be analyzed in the assessment. Assisted ecologist in identifying wetland areas within the project area. Developed and prepared maps and exhibited visualizing environmental data for permitting and reporting.
01/14 – 01/18	Retainer Contract for an Enterprise Linear Referencing System (LRS) System Development, LADOTD, Statewide, LA – *GIS Analyst:* Responsible for the implementation of an Enterprise LRS using ESRI Roads & Highways. Participated in discovery meetings, development of existing conditions report, development of initial R&H database model and implementation of a Statewide Enterprise LRS. Local point of contact and Associate Project Manager for the retainer contract.
01/10 – 01/11	City-Parish Enterprise LRS System Development, City of Baton Rouge/Parish of East Baton Rouge, Baton Rouge, LA – *GIS Analyst:* Responsible for the implementation of an Enterprise LRS using Geomedia and Oracle Spatial. Conducted business requirements and needs assessment, designed, built, and implemented parish wide LRS.

16. Staff Experience.

Firm employed by	ARCADIS			Meets MPR No. 11
Name	Drew Knott		Years of relevant experience with this employer	17
Title	Principle Software Developer		Years of relevant experience with other employer(s)	4
Degree(s) / Years / Specialization			BS / 2002 / Computer Engineering, Virginia Polytechnic Institute and State University	
Active registration number / state / expiration date			N/A	
Year registered	N/A	Discipline	N/A	
Contract role(s) / brief description of responsibilities.			Transportation Data & Performance Measures	

Experience dates	Experience and qualifications relevant to the proposed contract
	Mr. Knott has 20+ years of experience with **database administration, software development, enterprise information technology administration and management, computer network management, data modelling, and machine learning**. He has developed support applications and data models for a wide variety of uses including transportation, process optimization, and air quality monitoring and reporting. His **database experience includes Microsoft SQL Server 7-2016, Oracle 8-11g, PostgreSQL, InfluxDB, MySQL, and several NoSQL database systems**. Mr. Knott's **software development experience includes applications written in .NET, C/C++, Perl, Python, LUA, ASP, PHP, XSLT, Go, Rust, and Java.** He has experience in using a wide variety of machine learning techniques including Naïve Bayesian, neural networks, genetic algorithms, and SVM systems. He has several years of experience in **SQL and/or Oracle databases, and programming languages such as Java, JavaScript, C#, VB.NET, XML, JSON.**
03/17 – 05/17	**Intelligent Transportation System (ITS) Maintenance Retainer Contract, LADOTD, Statewide, LA** – *Software Engineer:* Responsible for ***designing and developing a web portal*** to host electronic dashboards. The dashboards summarized performance measures for closed-circuit television cameras, Dynamic Message Signs (DMSs), vehicle detectors, and ramp meter sites located throughout the state.
04/10 – Ongoing	**Regional Traffic Operations Program, Georgia Department of Transportation (GDOT), Atlanta, GA** – *Software Engineer*: Developed a ***web application based on Microsoft MVC*** to provide issue tracking for traffic assets in the state of Georgia. This application is used by GDOT, GDOT's contractors, as well as the public to ***report issues with traffic signals*** and other road network assets.
07/14 – Ongoing	**Cobb Crash Data, Cobb County Department of Transportation (DOT), Cobb County, GA** – *System Architect:* Developed a system based on ArcGIS Desktop 10.2 that manages crash data for the County. ***System design included a spatial database, import tools, query tools, geocoding tools, and export/reporting tools.*** The geocoding tool used several advanced, machine learning techniques in text processing to handle situations where a road has many names.
01/10 – 01/15	**T2 Analytics, City of Zeist, Netherlands** – *System Architect & Lead Developer:* Developed a system to harvest, store, analyze, and report on a ***very large dataset for traffic and road incident analysis. Datasets exceeding one billion records*** were collected, stored, and processed using a highly optimized process scaled across several machines.
02/16 – Ongoing	**Maintenance Rating Program, GDOT, Statewide, GA** – *System Architect & Lead Developer:* Designed a statistical model to perform random state-wide sampling of the road network to determine levels of service for 18 different asset classes. ***Designed a mobile application to perform the collection and a web application*** to report the results in real time.
02/16 – Ongoing	**Maintenance Engineering and Inspection Program, GDOT, Statewide, GA** – *System Architect & Lead Developer:* Developed an application to manage contract packages for statewide maintenance in Georgia. ***Application currently manages more than $400 million in contract dollars and provides business intelligence*** to help guide future spend.

03/17 – 08/17	Cobb County Corridor Performance Reporting, Cobb County DOT, Cobb County, GA – *System Architect & Lead Developer: Developed an application to manage contract packages* for statewide maintenance in Georgia. Application currently manages more than $400 million in contract dollars and provides business intelligence to help guide future spend.
05/17 – 08/17	Dynamic Message Board Upgrades, Cobb County DOT, Cobb County, GA – *System Architect:* Consulted with Cobb County DOT to select a vendor for full *matrix DMS* and implement the necessary *ITS Architecture* to support displaying real-time traffic in a schematic map. *Developed the controller software* to comply with National Transportation Communications ITS Protocol standards to communicate with the DMS and display the current real-time traffic from BlueTOAD devices owned by the DOT.

16. Staff Experience:

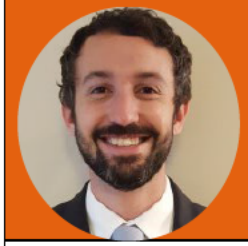
Firm employed by	iteris		Meets MPR No.12
Name	Tyler Normile, CSM	Years of relevant experience with this employer	7
Title	Software Developer IV	Years of relevant experience with other employer(s)	12
Degree(s) / Years / Specialization		BS Computer Information Systems PennWest 2013	
Active registration number / state / expiration date		CSM 000797683	
Year registered	2018	Discipline	Certified ScrumMaster® (CSM)
Contract role(s) / brief description of responsibilities.		Geographic Information Systems (GIS) Specialist	

Experience dates	Experience and qualifications relevant to the proposed contract
	Mr. Normile serves as a Software Development IV for Iteris' Mobility Consulting Solutions and has been with the firm since September 2017. He has over 11 years of experience working in the fields of **software development, databases (database management systems), networking and systems administration.** Mr. Normile has extensive experience in developing and managing applications that are part of a core business product, especially those with GEO servers and GIS enabled products. Has proven experience in implementing new applications to run in parallel to existing systems.
10/17 – 07/22	**South Dakota 511 Ingest Lead, South Dakota Department of Transportation (SDDOT) – Statewide, SD** – *Software Developer:* Mr. Normile managed all aspects of data ingest of road conditions, incidents, construction and weather for normalization and dissemination over 511 web, mobile, IVR, My511 and social media channels. As a team member, he also supported the release of an *upgraded Iteris Roadway Data Management System with GIS capabilities.*
09/17 – 09/22	**Virginia 511 Data Ingest Lead, Virginia Department of Transportation (VDOT) – Statewide, VA** - *Software Developer:* Mr. Normile led management and development of all data ingests used within the *state 511 program.* This involved developing new features within existing applications and consuming *API data including WFS enabled feeds*, incidents, events, line and area-based road conditions, travel times, DMS, transit and Waze events. Mr. Normile was also *responsible for producing GIS based feeds* (geojson) and other API endpoints used by Iteris web and mobile apps, IVR, My511 alerts, social media channels and third parties.
12/17 – 09/22	**Virginia 511 Truck Parking, Virginia Department of Transportation (VDOT) – Statewide, VA** - *Software Developer:* Mr. Normile *developed a process to record and distribute truck parking information in real-time* for determining which truck-eligible rest areas have available parking. The data was also uploaded in real-time to the Park My Truck Mobile application.
01/18 – 09/22	**Metropolitan Transportation Commission (MTC) Lead – San Francisco Bay Area, CA** - *Software Developer:* Mr. Normile supported all operations and maintenance aspects of the MTC511 service. This includes leading a project to enhance the MTC road network by *utilizing GIS mapping software to create roadway geometry for 9 previously uncovered roadways,* enabling usage with the MTC511 service. Additionally, Mr. Normile *developed a low-cost interactive mapping tool* that enabled stakeholders the ability to review existing, future and updated routes using *a MapBox basemap.*
10/18 – 03/19	**South Carolina 511 HERE Transition, South Carolina Department of Transportation (SCDOT) – Statewide, SC** - *Software Developer:* Mr. Normile supported the data ingest and dissemination aspects of the SC511 service. He supported the transition from Inrix to HERE for traffic related data such as travel times and congestions, in addition to relating congestion locations to descriptive landmarks for use over all 511 dissemination channels. He supported the 511 websites' *mapping transition from*

	Inrix to OpenStreetMap, while utilizing a HERE traffic speeds layer. Alongside other internal data sources, the upgraded solution *helped to uncover advanced performance measures to enable improved traffic management and user satisfaction.*
09/17 – 03/19	South Carolina 511 Traffic Tiles Map server, South Carolina Department of Transportation (SCDOT) – Statewide, SC - *Software Developer:* Mr. Normile *managed map server operations* for producing traffic tiles used by the 511-website from raw speed detector data sourced from Inrix. The map server *utilized a Postgres/PostGIS database* for maintaining the underlying road segments and correlating normalized speed data. He also oversaw development and deployment of quarterly road network updates.
09/17 – 09/21	Georgia 511 Traffic Tiles Map Server, Georgia Department of Transportation (GDOT) – Statewide, GA - *Software Developer:* Mr. Normile managed map server operations for producing traffic tiles used by the 511-website from DOT and BlueTOAD speed detectors. The *GEO map server* utilized a Postgres/PostGIS database for maintaining the underlying road segments and correlating normalized speed data. He also oversaw development and deployment of road network changes or detector addition/removals.
09/18 – 12/19	South Carolina / Georgia Evacuation Layer Map Server, SCDOT / GDOT – Statewide, SC / GA - *Software Developer:* Mr. Normile *managed map server operations for producing an evacuation routes map layer* for state 511 websites. The map server *utilized a Postgres/PostGIS database* for maintaining the underlying road segments and alternative paths for each route identified for *evacuation purposes.*
03/19 – 07/19	Real Time Transit Sync System, Metropolitan Transportation Commission (MTC) – San Francisco Bay Area, CA - *Software Developer:* Mr. Normile *developed a system to update real time transit information in support of 20+ transit agencies and 30k+ transit stops.* The system utilizes Amazon Polly to *generate professional sounding text-to-speech audio files* for all supported agencies' routes, directions and stops. The systems real time data is supported in English and Spanish.

16. Staff Experience.

Firm employed by	ARCADIS		
Name	Matthew Glasser, PE	Years of relevant experience with this employer	1
Title	Mobility Data Expert	Years of relevant experience with other employer(s)	10
Degree(s) / Years / Specialization		BS / 2010 / Civil Engineering, Georgia Institute of Technology	
Active registration number / state / expiration date		PE.041510 / GA / Exp. 12/2024	
Year registered	2016	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities.		Transportation Data & Performance Measures	

Experience dates	Experience and qualifications relevant to the proposed contract
	Mr. Glasser is a transportation data expert with more than 10 years of experience in ITS, traffic engineering and transportation planning. He leverages best practices with proven innovative methods through a project's lifecycle. He specializes in institutionalizing performance management through data-driven transportation and signal analytics. As GDOT's former Small and Medium-Sized Enterprises Traffic Data analytics **Subject Matter Expert and current Regional Integrated Transportation Information System (RITIS)** user group co-chair, he is uniquely suited to maximize LADOTD's use of RITIS to understand roadway performance intricacies as well as depict a concise and visually compelling success story for the program. Mr. Glasser also has extensive knowledge of ITS and Traffic Signal maintenance, standards, and guidelines; Emergency and Special Event Operations; and Traffic Incident Management and Traffic Management Centers (TMC) Management.
12/19 – 04/22	**Assistant State Traffic Engineer, GDOT, Atlanta, GA –** *Assistant Office Head*: Administrator of GDOT's interstate operations programs with supervisory responsibility for the Office of Traffic Operations' ITS, *Advanced Traffic Management System (ATMS), 511*, TMC floor operations, Coordinated Highway Assistance and Maintenance Program, Statewide Traffic Incident Management Services, and administrative services. *Managed the development and delivery of GDOT's new ATMS platform, including contractual negotiations. Proposed and developed a comprehensive interagency third-party data acquisition, management, and governance program, thereby saving an estimated $5 million/year in direct agency costs through more efficient resource sharing.* Prepared and managed TMC operations floor transition from in-person to off-site during COVID, thereby allowing GDOT to be one of the first agencies in the country to provide its services entirely from a remote setting. Oversaw the pilot, study, and procurement of stranded motorist location platform, which reduced the time to find motorist by 20 minutes on average and won the ITS GA 2021 Small Project of Significance Award. Reviewed, edited, and revised standards, policies, and guidance related to ITS technologies, data governance, TMC operations, incident management, and express lane operations.
12/14 – 03/17	**Assistant State ITS Engineer, GDOT, Atlanta, GA –** *Supervisor of GDOT's ITS Design/Operations/Maintenance Team and Consultant Contracts*: Authored and managed GDOT's ITS comprehensive maintenance contract, which serviced more than 3,000 devices throughout Georgia and received the 2016 ITS America Best of ITS Award. Led the scoping and contract negotiations to incorporate newly installed and critical ITS infrastructure for the managed lane system, including a new emergency maintenance incentive program. Authored and managed Road Weather Information System (RWIS) deployment program, which won the 2015 ITS GA Innovation: Outside the Box Award. *Led team of engineers to develop a five-year strategic vision*, which was used to steer resources towards needed projects and program development. Oversaw pilot study to determine appropriateness of integrated corridor management, which included a strategic ITS expansion plan and methodology development for optimal DMS placement. *Reviewed and edited GDOT ITS policy, specifications, and design guidelines*. Provided QA/QC for all proposed and designed ITS deployments to verify adherence to national and state standards.

10/22 – 06/23	Regional Synchronization Performance Analysis Support, Orange County Transportation Authority (OCTA), Orange County, CA – *Project Manager and Technical Lead:* Responsible for evaluating the needs and recommending tailored enhancements for arterial performance management key performance indicators (KPIs). Conducted national survey of metrics, provided an educational seminar for stakeholders, and *hosted a series of design-thinking workshops* to identify highly impactful data sources that could be shared between OCTA and all 34 stakeholder agencies in order to develop program goals and gauge success. *Provided insights into best practices for data collection methodology, data limitation and viability, and available resources to expedite integration.* Led technical support team to write and *successfully acquire a 2022 grant for a cloud-based transit signal priority system*, expand its data collection program, and retire its manually collected floating car program. Utilized knowledge of national trends, data quality control measures, and best practices to deliver contractual needs on a compressed schedule.
09/22 – Ongoing	SR 400 Express Lanes, GDOT, Atlanta, GA – *Technical Lead:* Subject Matter Expert for traffic management and operations. Demonstrated coordination skills in bridging the gap between design and operations teams, ensuring smooth collaboration throughout the project lifecycle. Provided comprehensive operations and maintenance support, ensuring continuous functionality of implemented solutions. Developed traffic management plan utilizing advanced modeling, traffic analysis, and performance management techniques. Managed project schedule to identify milestone impacts and ensure timely delivery. Allocated and managed personnel resources to ensure on-time delivery, accurate cost estimates, and appropriate scopes of work. *Developed design and operations alternatives to optimize the utilization of existing GDOT data and infrastructure, thereby reducing project costs by >$6M and reducing the risk for GDOT.*
03/17 – 12/19	Regional Traffic Operations Program (RTOP) Manager, GDOT, Atlanta, GA – *Program Manager:* Administered RTOP, an active traffic management program that operates more than 1,900 traffic signals and associated ITS devices. Developed master planning document, and managed initiative to modernize the RTOP concept of operations into a statewide arterial concept of operations. *Utilized Automated Traffic Signal Performance Measures (ATSPMs) and probe data analytics to monitor real-time operations, identify anomalies, and improve measured deficiencies. Proposed, evaluated, and executed plan to transition the state to vehicle probe data, thereby bringing speed and travel time metrics to an additional 10,000 directional miles of roadways at annual cost savings of over 97% per mile.* Proposed and assisted with the initial public-private partnership procurement for a statewide fiber and wireless communication expansion. Led software development initiative creating a platform to ingest multiple data streams to generate regional KPI reports. Won 2020 National Operations Center of Excellence Data Management and Overall Winner awards.
01/23 – Ongoing	Joint Agency Data Acquisition and Management Support, GDOT, Statewide, GA - *Project Manager and Technical Lead:* Supported Atlanta Regional Commission (ARC) and GDOT's joint effort to consolidate and standardize third-party data evaluation, acquisition, and management practices. Led a team in researching current practices and analyzing commonalities among data providers. Developed comprehensive specifications to streamline data evaluation processes and ensure accuracy and consistency. *Created a best-value evaluation approach that allowed agency members to rapidly and consistently evaluate over 15 datasets to optimize data acquisition by minimizing costs while maximizing data quality.* Developed standards for third-party interagency data sharing, use, and licensing. Established guidance for third-party data implementation and transition processes. Successfully engaged and managed stakeholders from nine teams, fostered effective collaboration and ensured the agencies' data gaps and overlaps were captured. Coordinated with vendors and national experts to leverage their expertise and facilitate seamless data solution integration.

16. Staff Experience

Firm employed by	ARCADIS		
Name	Dibya Maheswari	Years of relevant experience with this employer	6
Title	Senior Management Consultant	Years of relevant experience with other employer(s)	5
Degree(s) / Years / Specialization		BE/ 2013 / Civil Engineering, Anna University	
Active registration number / state / expiration date		N/A	
Year registered	N/A	Discipline	N/A
Contract role(s) / brief description of responsibilities.		Transportation Data & Performance Measures	

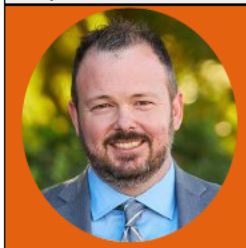
Experience dates	Experience and qualifications relevant to the proposed contract
	Ms. Maheswari is a Senior Digital Consultant with experience in Data Engineering, Data Visualization, Data Management, Product Development, Product Consulting, Project Management, and Digital Consulting. As a Digital Consultant, she helps clients solve project issues through **data analytics and data visualization with a focus on User Experience/User Interface. Using power apps, she builds interactive Power Business Intelligence dashboards, power apps, and power automate solutions** for a variety of client projects. Additionally, with the onset of COVID-19 in 2020, led the development and implementation as an owner and developer of Arcadis' Client Experience (CX) 360 product — an immersive experience where clients can hold virtual, public meetings, trainings, and seminars from anywhere. It is a safe and sustainable approach to connecting with everyone. She **developed various prototypes using CX Portal** to identify feasibility and viability in offering this interface. Ms. Maheswari also engaged in product research, product development, and implementation of key CX 360 capabilities.
04/23 – Ongoing	**Workload Portal, Georgia Department of Transportation, Atlanta, GA** – *Power Platform Developer:* The Ecology department were looking for a solution to optimize staff and resource allocation. The existing process was excel-based and phone-based and required time leading to a lot of manual errors in the process. ***Developed an interactive Workload Dashboard and designed a robust data management system.*** The developed dashboard empowered team leads to simplify the allocation of staff for new projects and provided insights into ongoing project workloads. As a result, decision-making became more informed and resource distribution more efficient. The integration of feedback and Frequently Asked Questions modules enhanced user engagement and support. These interactive elements made sure that user requirements and concerns were promptly addressed, contributed to an overall streamlined and effective system. The ***interactive Workload Dashboard provided a comprehensive tool*** not only meeting the Ecology Department's allocation needs but also enriched user experience and support.
07/23 – Ongoing	**Regional Traffic Operations Program, Alabama Department of Transportation, Statewide, AL** – *Power Platform Developer:* The client's objective was to gain valuable insights into ***regional traffic performance measures, prompted the development of a tailored dashboard and reporting tool.*** This solution provided a robust platform to access and analyze data, provided the client with meaningful traffic insights. By generated detailed reports on regional traffic performance measures, the solution aimed at empowering the client to extract actionable insights. The reported functionality further facilitated customized data retrieval, allowed different stakeholders to download reports specific to desired regions and timeframes.

16. Staff Experience

06/20 – 06/20	FM 1960 Access Study, Texas Department of Transportation, Houston, TX – *Product Developer:* The aim was to establish an innovative virtual immersive public platform for hosted public meetings, prompted the creation of an interactive portal. The platform developed introduced a dynamic way for public engagement, led to a significant increase in participation compared to traditional methods. The *developed virtual immersive public platform exceeded expectations* that provided an engaging and interactive experience. Through its graphical interfaces, it offered a unique and immersive environment for conducting public meetings. As a result, the portal witnessed a surge in public involvement, surpassed the level achieved through traditional approach in the past.
02/23 – Ongoing	Program Portal, California High Speed Rail, Fresno, CA – *Power Platform Developer:* Engaged in the development of an integrated digital solution tailored to the client's construction management package. This multifaceted solution encompassed the *creation of more than nine applications, spanning departments such as utilities, quality, planning, construction, structures, and more.* Additionally, the deliverables encompassed two interactive dashboards and a suited of automated workflows strategically designed to streamline and automated critical processes. The accomplished outcome transcended expectations, offered a cohesive and *interconnected suite of tools*. The diverse applications addressed different operational aspects, while the dashboards provided real-time insights and visualizations for informed decision-making. Furthermore, the integration of automated workflows significantly optimized various processes, led to *increased efficiency and productivity.* Ultimately, this effort introduced a transformative paradigm shift, enriched the operational landscape across the client's construction management domains.
07/20 – 07/20	Public Meeting Portal, Nassau County Department of Public Works, Nassau County, FL – *Product Developer:* Provided an innovative platform for public participation, leveraged the capabilities of *Arcadis's CX360 platform, developed a dynamic digital space* to host the public meeting. The outcome was a substantial sixfold surge in public meeting participation, indicative of the solution's success in addressing the initial challenge. Attendees were empowered to engage in real-time discussions and received prompt answers to their queries, thereby elevated the overall meeting experience by seamlessly integrated live interactive chat feature.
01/21 – Ongoing	Educational and Community Engagement Portal Development, NYC's Financial District (FiDi), New York City, NY – P*roduct Developer:* The Seaport FiDi wanted to *develop an interactive and educational online portal,* centered around climate change and resilience planning. With the adept utilization of Arcadis's CX 360 platform, *developed an interactive website* to cater precisely to the client's needs. This dynamic platform not only encapsulated vital climate change information but also featured engaging interactive components, fostered public involvement, and understood climate change matters. Additionally, the *portal served as a central repository* for public meeting updates and alerts that made sure timely communication. The success of this initiative remains evident as the client continued to rely on this platform, considered it a primary destination for their online presence. The developed portal's ability to seamlessly marry education, engagement, and real-time updates highlights its ongoing significance in supporting the client's objectives.

16. Staff Experience:

Firm employed by	metric		
Name	John Battle Jr., PMP	Years of relevant experience with this employer	20
Title	Traffic Operations Section Leader	Years of relevant experience with other employer(s)	0
Degree(s) / Years / Specialization		AS / 2003 / Computer Animation , Full Sail University	
Active registration number / state / expiration date		Project Management Professional #3159484 / FL / Exp. 11/2024	
Year registered	2021	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities.		Geographic Information Systems (GIS) Specialist	

Experience dates	Experience and qualifications relevant to the proposed contract
	Mr. Battle has over 20 years of experience (all of which are with Metric) and currently serves as a Traffic Operations Project Manager, where he has completed hundreds of traffic studies and analyses. **He also has experience in managing a GEO server and developing GIS applications.** Additionally, he served as the Data Collection Manager for 12 years (before his promotion to Traffic Operations Project Manager), overseeing the data collection team and all data collection activities. During that time, he oversaw the data collection on every Metric project, amounting to over 10,000 locations Statewide. Mr. Battle is a task lead on many traffic contracts and provides Traffic Operations design support to all of Metric's design projects throughout the State as a Lead Designer. He is experienced in all aspects of traffic design and the data collection needed to complete a wide variety of traffic studies and designs.
02/20 – Ongoing	**I-4 FRAME System Manager, FDOT District 7, FL** – *Project Manager:* Metric was awarded this project to *implement CV technology* connecting the Downtown Tampa area to western portions of Orlando. The I-4 FRAME project deployed an advanced Integrated Corridor Management (ICM) system consisting of next generation traffic incident management, work zone traffic management, road weather alerts, back-of-queue warning, and speed harmonization message systems such as vehicle-to-infrastructure (V2I) via approximately 700 RSUs with DSRC radios and Cellular Vehicle-to-Everything (C-V2X) capabilities. The project is *designed and implemented using the System Manager Approach to ensure design consistency as well as seamless integration* with District 1, District 5, District 7, Florida's Turnpike Enterprise, and numerous local agencies. The I-4 FRAME project covers 77 miles of I-4, 122 miles of other limited-access routes, and signalized arterial roadways with a total of 491 traffic signals. The final products to be submitted include *Systems Engineering Analysis and associated documentation,* the complete design for each corridor and all signalized intersections within them, and the selection, *integration, testing and verification of all CV devices.*
01/21 – Ongoing	**Professional Design Services for ATMS, (2021 – 2024), Manatee County, FL** – *Project Manager*: This project includes provisions for county wide Advanced Transportation Management Systems (ATMS) and includes project management and data collection. It also involves the review of the data to create preliminary and final designs that include *network design and cost opinions for the ATMS features that are in the project.* The design is for fiber-optic based communication infrastructure and a variety of ATMS devices like Advance Traffic Controllers (ATC) replacement, Advance Vehicular Detection Systems (ADS), BlueTooth based Travel-Time Devices (BT), Arterial Dynamic Message Signs (ADMS), Closed Circuit Television (CCTV), traffic volume monitoring sites using Microwave Vehicle Detection System (MVDS) and Dynamic Trail Blazing Signs (DTBS). The goal of this project is to achieve greater network efficiency/ring structure, best connectivity, and network-communication redundancy.
05/21 – Ongoing	**Transportation System Management & Operation (TSM&O) Engineering Analysis and Minor Design – Continuing (2021 – 2026), FDOT District 7, FL** – *Project Manager*: Metric was awarded this contract to provide a range of engineering, planning and technical services to establish and support the Transportation System Management and Operations (TSM&O) program within FDOT District

	7. The objective of this contract is to maximize efficiency of transportation systems by focusing on mobility outcomes, such as travel time reliability. There will be a *performance driven approach for solving arterial congestion and traffic problems in which Intelligent Transportation Systems (ITS) is utilized to locate and correct congestion causes in real-time.* Task Work Orders will be assigned by District 7 related to technical support, strategic planning, studies and conceptual plans, deployment of ITS components and public involvement. Other activities that are included with this effort *include reviewing and developing plans and specifications for design or design-build contracts to install TSM&O field devices;* reviewing project requirements and hardware configuration analysis; developing proper sequencing, cost estimating, scheduling and coordination of ITS projects; *performing system engineering analyses;* reviewing the utilization of systems devices hardware and software; and coordinating and assisting the TSM&O/ITS Program Office.
09/17 - Ongoing	**Continuing Services Contract (CSC) for Integrated Corridor Management (ICM) - Freeway/Arterial – Operations (2017 – 2021) (2021 – 2026), FDOT District 5, FL:** The FDOT ICM project seeks to improve overall operations and mobility in the Central Florida area; specifically, through the operation and management of the Regional Traffic Management Center (RTMC) and associated programs on both the freeway and arterial systems. Metric functions as an extension of the Department's resources, providing professional services for a wide range of engineering, technical, management and administrative services to assist with numerous TSM&O projects within the work program. General work elements include RTMC staffing and operations for both freeways and arterials, project management, integration, *TIM/first responder coordination, and public information assistance*. The current ICM footprint covers nine Freeways and 12 Arterials within Counties/Cities with 452 traffic signals in six jurisdictions (City of Maitland, City of Orlando, City of Winter Park, Seminole County, Orange County, and Osceola County). TSM&O strategies are being utilized and synthesized by our RTMC staff as they integrate the operations of freeway and arterials to improve the travel time reliability of existing transportation network (arterials and freeways). *Metric has held this contract for two consecutive terms including (2017 – 2021) (2021 – 2026).*
11/17 – 11/21	**I-75 On- and Off-System F.R.A.M.E. (Florida's Regional Advanced Mobility Elements), FDOT District 5:** Metric represented the FDOT District 5 ITS as the Systems Manager for the I-75 F.R.A.M.E. Connected Vehicles (CV) project which assists in the advancement of the Multimodal Integrated Corridor Management (MMICM) plan. As the Systems Manager, Metric was responsible for a majority of project activities, with the exception of construction, to include *conducting a Systems Engineering Analysis and creation of the appropriate Systems Engineering documentation,* review of the Regional ITS Architecture (RITSA) and creation of a Project ITS Architecture (PITSA), coordinating, testing and providing documentation on the various technologies to include *Roadside Units (RSUs) communicating via either Dedicated Short Range Communications (DSRC) or Connected Vehicle to Everything (CV2X),* vehicular On-board Units (OBUs) as well as emulated OBUs (mobile devices and/or tablets) to ensure device interoperability. This project was in line with the USDOT goals and contributed to increased safety, reliability and mobility needs using advanced CV technologies. Metric staff was responsible for integrating these devices to multiple signal controllers with the goal of verifying the various CV-related applications: Signal Phase & Timing (SPaT), Automated Traffic Signal Performance Measures (ATSPM), MAP messages, Traveler Information Messages (TIM), Basic Safety Messages (BSM), Emergency Vehicle Protocol (EVP), Transit Signal Priority (TSP) and others related to pedestrian safety. Metric staff created detailed test plans and conducted extensive testing in both the lab and field environments with equipment provided by several CV vendors. As a result of the testing, reports were generated to guide the System Manager in their decision-making process for the *development of the CV specifications* and eventual decision-making on the F.R.A.M.E., SR 434, and PedSafe projects and any other future CV deployments. Metric was also responsible for *configuring, integrating, and testing all CV devices into the FDOT ITS network.*

16. Staff Experience:

Firm employed by	ARCADIS		
Name	Weimin Jin, PhD	Years of relevant experience with this employer	3
Title	ITS/Traffic Engineer	Years of relevant experience with other employer(s)	5
Degree(s) / Years / Specialization		PhD / 2021 / Civil Engineering – Transportation Systems, Clemson University MS / 2015 / Transportation Planning and Management, Tongji University BS / 2012 / Transportation, Southwest Jiaotong University	
Active registration number / state / expiration date		N/A	
Year registered	N/A	Discipline	N/A
Contract role(s) / brief description of responsibilities.		Transportation Data & Performance Measures	

Experience dates	Experience and qualifications relevant to the proposed contract
	Dr. Weimin Jin has diverse experience in Intelligent Transportation Systems (ITS) and traffic engineering, **connected and *automated vehicle technologies, connected intersections, traffic safety and operations, adaptive signal control technologies, qualitative and quantitative data analysis, statistical analysis*** and machine learning, risk analysis, research and and traffic and robot simulation. He demonstrated outstanding expertise in various state of the art software such as RAD-IT, SET-IT, Synchro, HCS, VISSIM, Webots, Microstation, and **ArcGIS**. He also demonstrated his expertise in data analytics tools such as Python and R.
08/22 – Ongoing	**Texas Department of Transportation (TxDOT) San Antonio ITS Master Plan, TxDOT, SA District, TX -** *ITS Engineer:* This project aims to identify ITS applications to mitigate transportation problems, develop short and long term ITS implementation plans, and assess the impact of ITS projects on the transportation system. Mainly responsible for existing ITS infrastructure evaluation, ITS needs analysis and develop preliminary recommendations including ***Geographic Information System (GIS)*** maps.
09/21 – Ongoing	**TxDOT Pharr ITS Master Plan, TxDOT, Pharr District, TX -** *ITS Engineer:* This project aims to provide a comprehensive assessment of current ITS inventory, planned ITS projects, ITS needs, and ITS strategies for the next five years. Mainly responsible for existing safety and congestion analysis and ITS needs analysis including ***GIS mapping***.
07/21 – Ongoing	**ITS Program Management and Operations, Louisiana Department of Transportation and Development (LADOTD), Statewide, LA -** *ITS Engineer:* The purpose of this project is to perform routine and responsive maintenance engineering and inspection activities to maintain the lowest possible device downtime and the highest level of service for LADOTD and the traveling public. Primary responsibilities included assisting the development and documentation of the LADOTD statewide ITS maintenance plan, which provides a framework for managing the LADOTD's ITS infrastructure. Also, responsible for helping the development and documentation of the "ITS Management Operations and Maintenance Engineering and Inspection" program management plan emphasizing ***data management systems***.
08/22 – Ongoing	**National Electric Vehicle Infrastructure Plan for the Mississippi Department of Transportation (MDOT), MDOT, Statewide, MS -** *Project Engineer:* The project's objectives are to provide the roadmap the MDOT intends to follow in administration of Mississippi's portions of the federal National Electric Vehicle Infrastructure Formula Program funding. Primary responsibilities included feasibility analysis using ***GIS*** and developing existing and future conditions analysis and developing Electric Vehicle charging infrastructure deployment and implementation.
09/21 – Ongoing	**TxDOT Corpus Christi District Transportation Systems Management and Operations (TSMO) Program Plan Development, TxDOT, Corpus Christi District, TX -** *ITS Engineer:* Mainly responsible for assisting the evaluation of Capability Maturity

	Framework (CMF) assessment for Corpus Christi and development of improvement actions for specific TSMO program areas, including traffic incident management, roadway weather management, work zone management, and traffic signal management.
09/21 – Ongoing	TxDOT Pharr District TSMO Program Plan Development, TxDOT, Pharr District, TX - *ITS Engineer:* Responsible for assisting the development of the Transportation System Management Operations TSMO program plan for the TxDOT Pharr District, including leadership engagement and CMF assessment, which develops an in-depth understanding of current and future transportation needs and identifies the district's best practices using *GIS*.
09/21 – Ongoing	TxDOT Laredo District TSMO Program Plan Development, TxDOT, Laredo District, TX - *ITS Engineer:* The purpose of this project is to analyze TxDOT- Laredo District's existing transportation and operations programs, plans, and processes to develop an in-depth understanding of current and future transportation needs and to identify the district's existing best practices. Primary responsibilities included assisting the development of the TSMO program plan.
01/18 – 05/21	Adaptive Signal System Safety Impacts, South Carolina Department of Transportation, Statewide, SC - *Principal Research Assistant:* Primary responsibilities included developing comprehensive guidelines that focus on the future deployment of adaptive traffic signal control systems across South Carolina and *creating statistical methods that evaluate the safety and operational impacts* of the adaptive traffic signal control systems.
01/19 – 08/21	Risk-based Freeway Merging and Lane-changing Decisions for Autonomous Vehicles in Mixed Traffic Streams, Clemson University, Clemson, SC - *Principal Research Assistant:* Primary responsibilities included applying statistical risk models, robot simulators, and microscopic traffic simulators to execute experiments that *produce data-driven decision algorithms* and test the effectiveness of autonomous vehicle freeway merging and lane-changing applications. Developed safe and operationally efficient merging and lane-changing decision-making frameworks for autonomous vehicles that will operate in mixed traffic streams.

Section 17

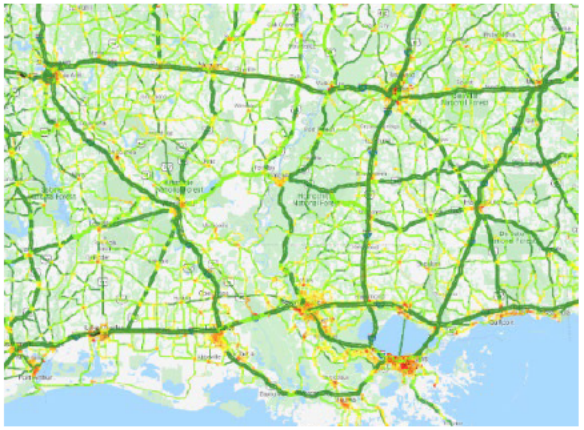
17. Firm Experience:

Firm name	ARCADIS	Past Performance Evaluation Discipline(s)*	ITS, Planning, Traffic
Project name	ITS System Design & Integration IDIQ - Real-Time Traffic Data Services SE Analysis Task Order (TO)	Firm responsibility (prime or sub?)	Prime
Project number	4400008172 / H.012847.1	Owner's name	Louisiana Department of Transportation and Development (LADOTD)
Project location	Statewide, LA	Owner's Project Manager	Carryn Sollie
Owner's address, phone, email	1212 East Hwy Dr, Baton Rouge, LA 70802 - (225) 379-2518 – Carryn.Sollie@la.gov		
Services commenced by this firm (mm/yy)	04/17	Total consultant contract cost ($1,000's)	$38
Services completed by this firm (mm/yy)	06/17	Cost of consultant services provided by this firm ($1,000's)	$38

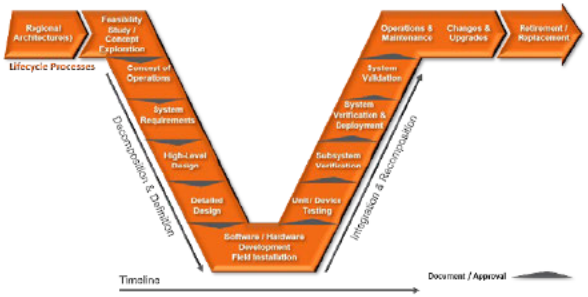
Describe the project including the firm's role and members involved. (Highlight members to be used in this proposal.)

Firm Members Involved: Paul Hsu, Akhil Chauhan, Joshua Chatelain

Arcadis assisted LADOTD to plan its transition from ***legacy roadway sensor infrastructure to traffic probe data service using the System Engineering Analysis (SEA)*** approach that involved comprehensive stakeholder coordination and developing a SEA document for the real-time traffic data services. Arcadis developed the Concept of Operations to determine how the real-time traffic data will be utilized by the department to achieve traffic management goals. Additionally, the SEA included the development of projects' physical architecture, high-level system requirements, procurement options, alternative analysis configurations, and applicable ITS standards. The SEA was conducted following the ***FHWA's systems engineering approach outlined in the "V" diagram*** to guide the project development process and provided the groundwork for the ensuing system procurement and implementation.



Real-Time Traffic Probe Data Map



Systems Engineering "V" Diagram

A major understaking of this project was to evaluate subscription-based data services which included ***real-time traffic data, historical data, and data analytics tools;*** and to determine a suitable procurement method for LADOTD to purchase the data service. In keeping with Arcadis' data-driven approach, we used stakeholder meetings and ***coordinated traffic data vendors' demonstrations*** to summarize the current landscape of traffic data services for LADOTD. The results of the meetings and demonstrations were used as inputs for the SEA.

Innovative approach and expertise applied for this project includes the following:

- **Technology assessments and alternative analysis** – Detailed assessment of LADOTD's legacy roadway sensors were conducted to determine its cost of ownership. The Arcadis team successfully ***cultivated support for the probe data technology by demonstrating significant cost savings in major program areas such as operations, maintenance, and data management (storage and distribution).***
- **Detailed system requirements and constraints** – A set of requirements and constraints were provided as part of the SEA. These are ***critical inputs that can save considerable effort when preparing a Request for Proposal (RFP),*** the next stage of procurement process.

Strategies for Success

- Exhaustive knowledge of DOTD's data needs
- Cultivated support for probe data technology
- Painstaking market research and vendor demos
- Informative stakeholder education
- Detailed documentation of probe data service requirements

17. Firm Experience:

Firm name	ARCADIS	Past Performance Evaluation Discipline(s)*	ITS, Planning
Project name	ITS System Design & Integration IDIQ - VDMS Replacement SEA Task Order (TO)	Firm responsibility (prime or sub?)	Prime
Project number	4400008172 / H.01384.1	Owner's name	Louisiana Department of Transportation and Development (LADOTD)
Project location	Statewide, LA	Owner's Project Manager	Rosalinda Deville
Owner's address, phone, email	1212 East Hwy Dr, Room 204-S, Baton Rouge, LA 70802 – (225) 379-2523 - Rosalinda.DeVille@la.gov		
Services commenced by this firm (mm/yy)	04/18	Total consultant contract cost ($1,000's)	$48
Services completed by this firm (mm/yy)	02/20	Cost of consultant services provided by this firm ($1,000's)	$48

Describe the project including the firm's role and members involved. (Highlight members to be used in this proposal.)

Firm Members Involved: Paul Hsu, Akhil Chauhan

The current Video Distribution Management System (VDMS) which manages and distributes all of LADOTD's 400+ CCTV camera video streams is currently at its end of life. Increased demands for CCTV camera video streams has also resulted in additional requirements for the VDMS since it was first installed in late 2013; consequently, a replacement will be required to provide the necessary system upgrades.

Arcadis was tasked to apply the ***Systems Engineering Analysis (SEA)*** method to evaluate various options that can overcome all of the following challenges:

1. **Identify a replacement option that meets existing needs**
2. **Explore technologies capable of addressing new additional needs and growing demands**
3. **Compile all of the research to determine the most suitable and economical solution**

LADOTD Statewide TMC Traffic Videol

LADOTD VDMS Servers

Five different systems and three different hosting solutions were evaluated to gain insight on available technology. In addition, Arcadis developed a list of needs and system requirements that was used to ***compare the different products across several categories in detail.*** This process produced a list of core functional elements for each of the products, which were combined to ***develop alternative concepts.*** The selected concept consisted of a hybrid system which combined the benefits from the local and cloud hosting solutions and represents the ***most value*** for LADOTD.

Strategies for Success

- Exhaustive knowledge of the existing system
- Painstaking market research and vendor demos
- Attentive stakeholder outreach and involvement
- Detailed documentation of system requirements
- Listening to client's needs

Major highlights for this project include:

- **First of its kind Systems Engineering Analysis** – Utilizing Arcadis' project experience with a similar Georgia DOT video distribution system deployment and depth of staff expertise with LADOTD's original VDMS deployment, ***Arcadis completed the first SEA ever conducted for LADOTD's VDMS.***
- **Stakeholder and project beneficiary meetings** – Arcadis conducted ***multiple outreach meetings with project stakeholders to engage them in the discussion of project needs and strategies to improve the existing system.*** Information gathered from these meetings are synthesized into system requirements and constraints for the subsequent system procurement project.
- **Leveraging enhanced ITS architecture tools** - The latest ***Architecture Reference for Cooperative & Intelligent Transportation (ARC-IT) tools were utilized to develop the ITS physical architecture and system diagrams.***

17. Firm Experience:

Firm name	ARCADIS	Past Performance Evaluation Discipline(s)*	ITS, Data Collection
Project name	ITS System Design & Integration IDIQ – 511 ATIS Integration Support Services Task Order (TO)	Firm responsibility (prime or sub?)	Prime
Project number	4400008172 / H.011334.6	Owner's name	Louisiana Department of Transportation and Development (LADOTD)
Project location	Statewide, LA	Owner's Project Manager	Carryn Sollie
Owner's address, phone, email	1212 East Hwy Dr, Baton Rouge, LA 70802 - (225) 379-2518 – Carryn.Sollie@la.gov		
Services commenced by this firm (mm/yy)	05/18	Total consultant contract cost ($1,000's)	$99
Services completed by this firm (mm/yy)	12/18	Cost of consultant services provided by this firm ($1,000's)	$99

Describe the project including the firm's role and members involved. (Highlight members to be used in this proposal.)

Firm Members Involved: Paul Hsu, Akhil Chauhan, Joshua Chatelain

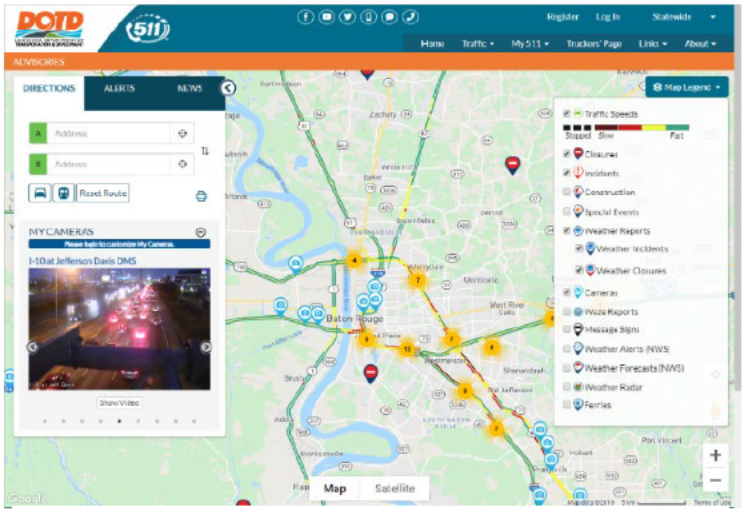
Arcadis assisted LADOTD to migrate from an existing 511 ATIS system that was launched in 2005 to a brand-new system with a significant number of upgrades.

This project represents a critical step forward in LADOTD's traffic operations program. The newly implemented ATIS allowed LADOTD to provide accurate and timely traveler information to the traveling public while improving safety and mobility for Louisiana's roadways.

Due to the project's highly complex and technological nature, Arcadis provided engineering expertise and technical support throughout the project implementation process. Our other responsibilities included ***contractor submittal reviews, request for information (RFI) tracking and support, scope/design/configuration changes technical support, software deployment support, and system acceptance testing (SAT) support*** for every ATIS component.

Our ***attention to detail*** and ***disciplined approach in providing the technical expertise*** relating to system requirements and project submittals allowed LADOTD to successfully ***complete the project on-time and within budget.*** Key services for the project consisted of the following:

- **Project Management** – Arcadis staff were actively engaged in every project implementation meeting including kick-off meeting, system design meetings, bi-weekly project progress meetings, and weekly installation meetings during the system's active installation period. We also provided ***project schedule support in tracking all system implementation action items*** and notified the LADOTD project manager of upcoming and critical deadlines.
- **System Integration** – Leveraging our team's exhaustive knowledge of the existing system and 511 ATIS technology, Arcadis assisted in the implementation of the new 511 ATIS to enhance system integration with other systems in use by LADOTD and the ITS section including ***website, mobile apps, phone system, ferry information, ATMS, Waze, and database.***
- **Independent Verification & Validation (IV&V)** – Arcadis ***developed system test plans for multiple 511 ATIS sub-systems including the mobile app and the website interfaces***. We also provided critical support for the ***final system acceptance testing to verify all functionalities of the system were implemented as designed***.



LADOTD's New 511 ATIS Website

Strategies for Success

- Conducted independent project schedule reviews
- Alerted DOTD PM of critical path action items
- Developed 511 ATIS sub-system test plans
- Conducted 511 ATIS sub-system testing
- Performed final system acceptance testing
- Attended all project implementation meetings
- Reviewed all document deliverables within 3 days
- Completed all action items within tight timelines
- Assisted DOTD PM with unplanned/out-of-scope tasks
- Provided meticulous project documentations and action items tracking

17. Firm Experience:

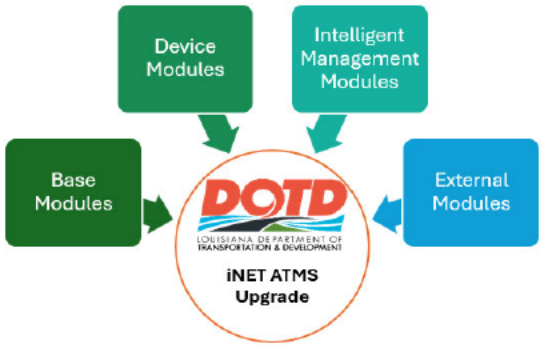
Firm name	ARCADIS	Past Performance Evaluation Discipline(s)*	ITS, Data Collection
Project name	**ITS System Design & Integration IDIQ** - ATMS iNET Enhancement Support Task Order (TO)	Firm responsibility (prime or sub?)	Prime
Project number	4400008172 / H.013848.1	Owner's name	Louisiana Department of Transportation and Development (LADOTD)
Project location	Statewide, Louisiana	Owner's Project Manager	Carryn Sollie
Owner's address, phone, email	1212 East Hwy Dr, Baton Rouge, LA 70802 - (225) 379-2518 – Carryn.Sollie@la.gov		
Services commenced by this firm (mm/yy)	04/20	Total consultant contract cost ($1,000's)	$151
Services completed by this firm (mm/yy)	08/21	Cost of consultant services provided by this firm ($1,000's)	$151

Firm Members Involved: Akhil Chauhan, Paul Hsu, Joshua Chatelain

Arcadis provided technical support services to LADOTD during and after the ATMS Upgrade project. Additionally, Arcadis helped DOTD to ***integrate the new INRIX probe data services acquired by DOTD with the ATMS to improve incident detection and travel time information dissemination***.

A major undertaking of this project was to ***manage the system down-time during the system upgrade acitivities***. Because ATMS is a mission ciritical software for DOTD TMCs in the state to perform traffic and incident management acitivities, the project team were meticulous in ***tracking the day-to-day project schedule and minimizing technical issues during the upgrade process.*** Our peristence to follow the ***Critical Path Method (CPM) schedule*** helped to complete the project with minimal interruptions to TMC operations.

Our attention to detail and disciplined approach in providing the technical expertise relating to ***Independent Verification & Validation (IV&V) and system acceptance testing*** allowed LADOTD to successfully complete the project on time and within budget. Key services for the project consisted of the following:



- **Project Management** – Actively engaged in every project implementation meeting including kick-off meeting, project upgrade meetings, bi-weekly project status meetings, and weekly installation meetings during the system's active installation period. Also, provided project schedule support in ***tracking all system implementation action items and notified the LADOTD project manager of upcoming and critical deadlines.***
- **ATMS iNET Upgrade Implementation Support** – Leveraging our team's extensive knowledge of the existing system and ATMS software, Arcadis assisted in the deployment of the ***ATMS software module upgrades including the implementation of new Intelligent Management Modules such as AID and Travel Times.*** Arcadis also provided technical support after the implementation to ***verify proper functionality of the upgraded modules.*** Arcadis participated in implementation discussions, training, testing activities, and helped develop checklist to ensure that all field devices, DOTD systems, and external systems/applications are fully integrated/operational in the final production environment.
- **INRIX Data Integration Support** – Arcadis provided technical support services to DOTD relating to the integration of INRIX data with ATMS. In addition to participating in INRIX product demos, training activities, and meeting discussions relating to ATMS integration, Arcadis ***provided independent evaluation of how data can be properly integrated with DOTD's ATMS system.*** Other support activities also included providing comprehensive ***analysis of INRIX data and data applications, troubleshooting INRIX data integration issues with the ATMS, reviewing necessary INRIX documentation, and providing technical advisory to DOTD during various stages of data integration process.***

Strategies for Success

- Exhaustive knowledge of DOTD's ATMS platform and INRIX probe data service
- Rigorous tracking of project status meetings, schedule reviews, and quality control to minimize delay
- Accelerated document reviews and comments for ATMS upgrade deliverables
- Detailed documentation of quality control and checklist items

17. Firm Experience:

Firm name	ARCADIS	Past Performance Evaluation Discipline(s)*	ITS, Planning, Data Collection
Project name	ITS System Design & Integration IDIQ - CAV Technology Team Support Task Orders (TOs)	Firm responsibility (prime or sub?)	Prime
Project number	4400008172 / H.012845.1	Owner's name	Louisiana Department of Transportation and Development (LADOTD)
Project location	Statewide, LA	Owner's Project Manager	Rosalinda Deville / Stephen Glascock
Owner's address, phone, email	1212 East Hwy Dr, Baton Rouge, LA 70802 - (225) 379-2523 - Rosalinda.DeVille@la.gov		
Services commenced by this firm (mm/yy)	05/17	Total consultant contract cost ($1,000's)	$600
Services completed by this firm (mm/yy)	06/21	Cost of consultant services provided by this firm ($1,000's)	$350

Describe the project including the firm's role and members involved. (Highlight members to be used in this proposal.)

Firm Members Involved: Akhil Chauhan, Paul Hsu

Arcadis provided technical support services to LADOTD's multidisciplinary CAV Technology Team (30 members across 25 sections) to stay informed of the leading edge CAV technology developments. **Key objectives** of these TOs: **1)** Develop and maintain a working knowledge of advancements in CAV technology, **2)** Monitor and share industry activity with DOTD CAV Technology Team members, **3)** Determine state and local transportation agency roles in supporting CAV technology, **4)** Formulate DOTD policy, **5)** Advise local governments of what we believe their roles and responsibilities are, and **6)** Identify suitable CAV applications for use within DOTD. **Key Task Orders:**

- **Statewide CAV Strategic Plan for LADOTD** – Development of a ***framework for planning, design, and implementation of CAV technologies*** formalized as ***Louisiana's first Statewide CAV Strategic Plan.*** Developed CAV Action Plan that includes timeline for CAV application deployments in next 5 years.
- **Autonomous Commercial Motor Vehicles (ACMV) Policy** – Proposed policy document outlines requirements and operating constraints for ***safe operations of ACMVs*** in the state. The policy covers individual ACMVs as well as ACMVs in platooning. Scope also included developing necessary permits to implement the ACMV policy.
- **CAV Technology Team Support:** ***Facilitated a total of 8 workshops and 8 web meetings spanning over a period of 3.5 years*** that covered topics including ***key CAV impacts & considerations, policy and planning, digital infrastructure and data, freight.*** Each workshop was designed to develop a specific competency for LADOTD and through interactive exercises and brainstorming sessions, aimed to better understand and potentially provide CAV technology solutions to address its needs. The web meetings covered topics ranging from machine vision and road markings, CAV legislative landscape, to connected freight, to security in CV deployments; and provided an opportunity to continue the conversation with the CAV Tech Team in between scheduled workshops. Data-driven Continuous Improvement Approach – surveys were conducted after every workshop to determine if any workshop activities needed improvement. The ***feedbacks were used to refine the path forward and focus on CAV topics & most relevant needs of the CAV Tech Team.***
- **Monthly Newsletter** – Even though not part of a TO scope, Arcadis started and continues to distribute a ***monthly newsletter (7+ years & 80+ newsletters) that aims to track the CAV industry by capturing relevant news and current events.*** The newsletter includes hand-picked and well-curated topics covering latest CAV developments at the federal, state and regional, international, research, and industry level.

CAV Technology Team Meetings/Workshops

Strategies for Success

- Distributing monthly CAV newsletters to team members for important updates
- Engaged the team members with interesting team activities
- Arranged CAV technology experts for wider variety of topics
- Conducted well prepared team discussions with thoughtful and tailored questions
- Provided the most relevant information to LADOTD
- Conducted online surveys to receive feedbacks and make improvements

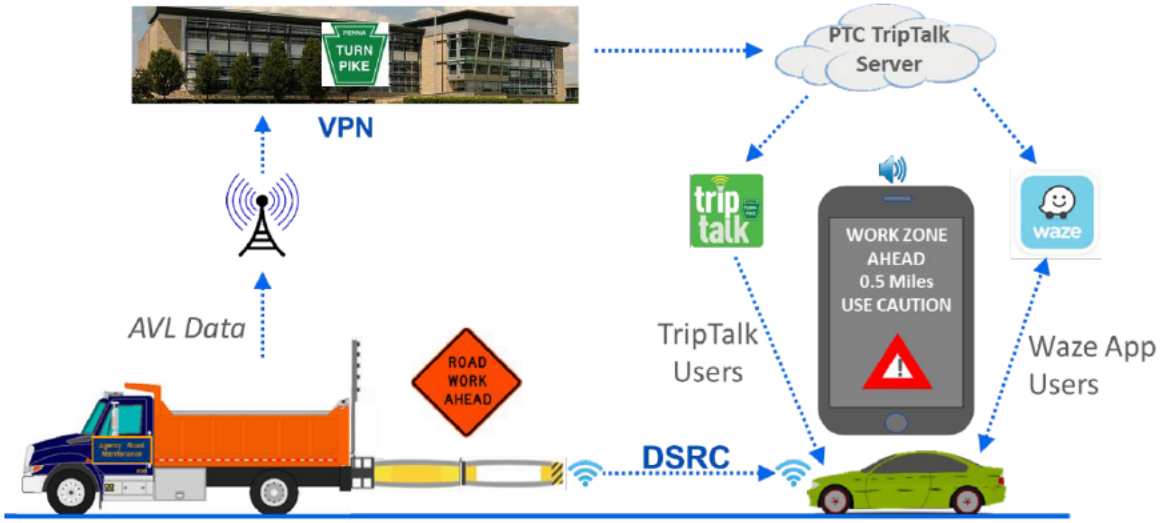
17. Firm Experience:

Firm name	iteris	Past Performance Evaluation Discipline(s)*	ITS, Planning, Data Collection
Project name	Connected Vehicle (CV) Work Zone Pilot Deployment Project and Statewide CAV Strategic Plan	Firm responsibility (prime or sub?)	Sub
Project number	04097	Owner's name	Pennsylvania Turnpike Commission
Project location	Pennsylvania	Owner's Project Manager	Mike Pack
Owner's address, phone, email	700 S. Eisenhower Boulevard, Middletown, PA 17057 - (717) 831-7659 - mpack@paturnpike.com		
Services commenced by this firm (mm/yy)	12/17	Total consultant contract cost ($1,000's)	$221
Services completed by this firm (mm/yy)	12/18	Cost of consultant services provided by this firm ($1,000's)	$221

Describe the project including the firm's role and members involved. (Highlight members to be used in this proposal.)

Firm Members Involved: Dwight Shank, David Register, Cliff Heise

Iteris developed a Connected Vehicle (CV) Work Zone Pilot Deployment for the Pennsylvania Turnpike Commission (PTC). The project's objective was to ***provide warning messages directly to vehicles approaching a mobile or stationary work zone environment*** using wireless 5.9 GHz Dedicated Short Range Communication (DSRC) technology as well as through the Waze traveler information platform using wide area wireless communication.



Iteris led all technical development and systems engineering including:

- **Concept of Operations**
- **Requirements**
- **System Design**
- **System Build and Integration**
- **System Acceptance Testing**
- **Evaluation Plan development**
- **Metrics-based Operations Evaluation**
- **On-board Unit (OBU) Software development**

This project demonstrated our team's success in ***designing and building CV applications.*** In addition, our work demonstrated our understanding of CV technology and provided valuable 'lessons learned' to the PTC about how this technology fits in their broader ITS. Finally, it also showed how this type of technology can be leveraged for agency applications, such as work zone and traffic management activities.

Project Highlights

- Provided Systems Engineering and detailed technical development to evaluate suitable system configurations
- Facilitated end-to-end system build and integration
- Performed System Verification and Validation to check all functionalities against requirements
- Conducted metrics-based operations evaluation

17. Firm Experience:

Firm name	iteris	Past Performance Evaluation Discipline(s)*	ITS, Planning
Project name	Connected Vehicle to Infrastructure (V2I) Cybersecurity Project	Firm responsibility (prime or sub?)	Prime
Project number	DTFH61-12-D-00043-T-5001	Owner's name	Federal Highway Administration
Project location	Nationwide	Owner's Project Manager	Edward Fok
Owner's address, phone, email	201 Mission St., Ste. 1700, San Francisco, CA 94105 - (415) 744-0113 - edward.fok@dot.gov		
Services commenced by this firm (mm/yy)	09/14	Total consultant contract cost ($1,000's)	$150
Services completed by this firm (mm/yy)	11/15	Cost of consultant services provided by this firm ($1,000's)	$150

Describe the project including the firm's role and members involved. (Highlight members to be used in this proposal.)

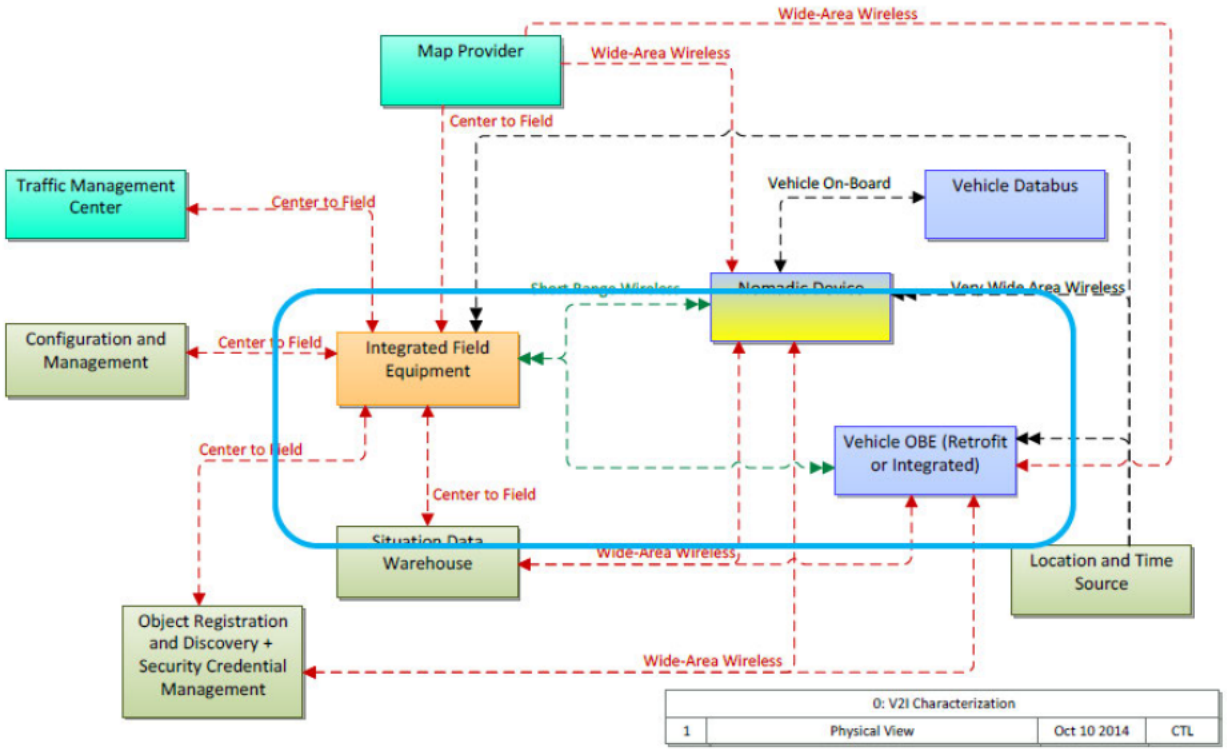
Firm Members Involved: David Binkley, Tom Lusco

The ***Connected Vehicle-to-Infrastructure (V2I) Cybersecurity project*** was led by Iteris under an FHWA Operations IDIQ contract. The purpose of the project was to analyze:

- **The needs/requirements that are unique to V2I and/or not already covered by current ITS cybersecurity processes.**
- **The risks of failure (e.g. cars crashing into each other, denial of service attacks, and misdirecting drivers).**
- **Alignment with Vehicle-to-Vehicle (V2V) applications and technologies.**

The project developed concepts and materials that can be used to ***deploy secure V2I connected vehicle applications.*** It analyzed early deployment applications using FIPS-199 and NIST 800-53 standards and developed a recommended set of device security classes, each with their own recommended set of security controls and requirements. These controls and requirements are necessary to achieve secure systems for applications requiring varying levels of security.

The final report identified the overall objectives of ***enabling V2I communication, identified potential and known attacks on the current V2I architecture, and developed a threat definition framework.***



V2I Information Flow Diagram

Project Highlights

- Developed a threat definition framework including the threat model, threat matrix, and traceability matrix.
- Provided needs and requirements to implement a security hardened V2I system.

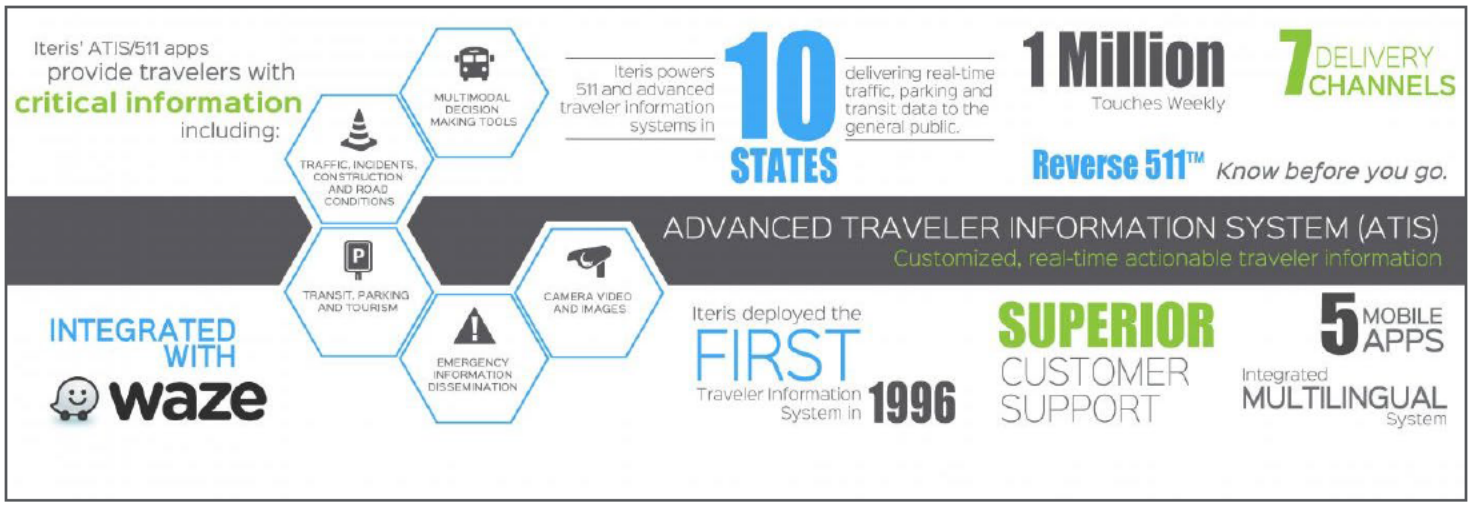
17. Firm Experience:

Firm name	iteris	Past Performance Evaluation Discipline(s)*	ITS, Data Collection
Project name	South Carolina Statewide 511 Advanced Traveler Information System (ATIS) Deployment	Firm responsibility (prime or sub?)	Prime
Project number	10411	Owner's name	South Carolina Department of Transportation (SCDOT)
Project location	South Carolina	Owner's Project Manager	Tisha Dickerson
Owner's address, phone, email	955 Park St, Columbia, SC 29201 - (803) 737-1165 - dickersoTM@scdot.org		
Services commenced by this firm (mm/yy)	09/17	Total consultant contract cost ($1,000's)	$1,060
Services completed by this firm (mm/yy)	03/19	Cost of consultant services provided by this firm ($1,000's)	$1,060

Describe the project including the firm's role and members involved. (Highlight members to be used in this proposal.)

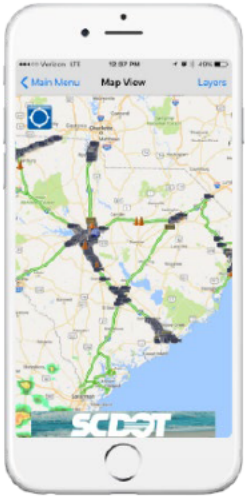
Firm Members Involved: Simon Illingworth, Tyler Normile

The South Carolina Department of Transportation (SCDOT) desired a comprehensive 511 Advanced Traveler Information System (ATIS) solution that would provide the most accurate traffic data to South Carolina travelers. ***The system integrates data from multiple sources, incorporates camera data from over 600 cameras***, and delivers information within a flexible environment designed to accommodate rapidly changing technologies and evolving methods of information dissemination. Under the three-year contract, ***Iteris provided the comprehensive upgrade of SCDOT's "Next Generation" 511 Traveler Information System***.



Under the terms of the engagement, Iteris led a team of highly qualified partners experienced in the delivery of ATIS. The 511 ATIS was implemented in phases and included the following new features and enhancements:

- **Improved voice recognition software**
- **Easy-to-use systems navigation with additional functionality**
- **Email alerts that deliver personalized, real-time traffic information**
- **Mobile applications for iOS and Android platforms**
- **Improved 511 website with additional features**



Project Highlights

- Developed a flexible solution that is scalable
- Integration with 3rd party app including Waze
- Provided ATIS Implementation in multiple phases
- Traveler information data integration
- Developed website, mobile app, and voice recognition software
- Managed map server operations and utilized GIS database for maintaining the underlying road segments
- Oversaw development and deployment of quarterly road network updates

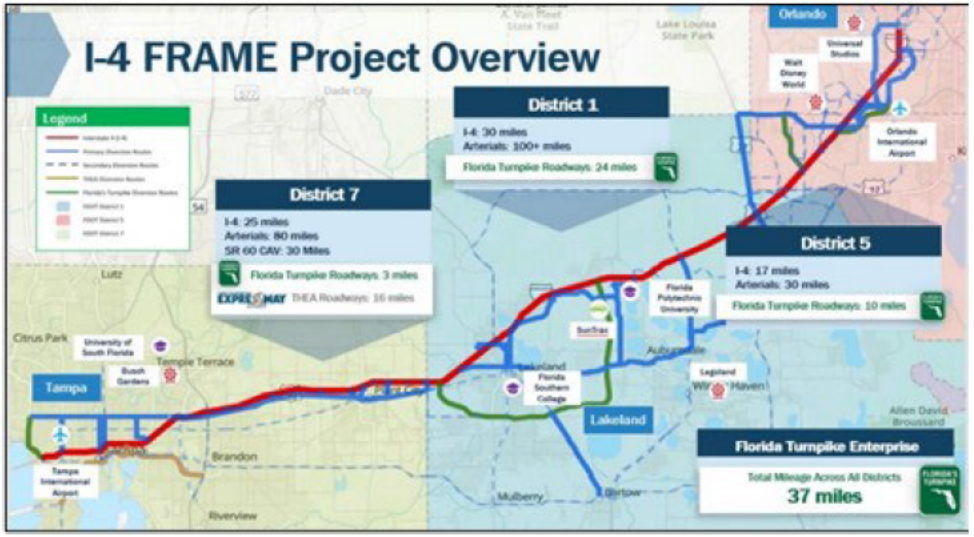
17. Firm Experience:

Firm name	metric	Past Performance Evaluation Discipline(s)*	ITS, Planning, Traffic
Project name	I-4 FRAME (Florida's Regional Advanced Mobility Elements) System Manager	Firm responsibility (prime or sub?)	Prime
Project number	445362-1-32-01	Owner's name	Florida Department of Transportation (FDOT) District 7
Project location	FDOT District 7 (Tampa), FL	Owner's Project Manager	Ronald Chin
Owner's address, phone, email	11201 N. McKinley Dr., Tampa, FL 33612 - (813) 975-4216 - Ronald.Chin@dot.state.fl.us		
Services commenced by this firm (mm/yy)	02/20	Total consultant contract cost ($1,000's)	$3,713
Services completed by this firm (mm/yy)	Ongoing	Cost of consultant services provided by this firm ($1,000's)	$2,107

Describe the project including the firm's role and members involved. (Highlight members to be used in this proposal.)

Firm Members Involved: Jessica Knox, Johnathan Katz, Demetrius Lewis

Metric was awarded this Systems Manager project to ***implement connected vehicle (CV) technology connecting the Downtown Tampa area to western portions of Orlando.*** The I-4 FRAME project is deploying an advanced Integrated Corridor Management (ICM) system consisting of next generation traffic incident management, work zone traffic management, road weather alerts, back-of-queue warning, and speed harmonization message systems such as ***vehicle-to-infrastructure (V2I) via approximately 550 road side units (RSUs) with dedicated short range communication (DSRC) radios and Cellular Vehicle-to-Everything (C-V2X) capabilities.*** The I-4 FRAME project covers 72 miles of I-4, over 275 miles of other limited-access routes, and signalized arterial roadways with a total of 411 traffic signals. The project is designed and implemented using the System Manager Approach to ensure design consistency as well as seamless integration with District 1 (Lakeland), District 5 (Orlando), District 7 (Tampa), Florida's Turnpike Enterprise (FTE), and numerous local agencies. As Systems Manager, Metric is responsible for:



- Preparing all ***Systems Engineering related documentation*** (***SEA***, Systems Engineering Management Plan (SEMP), Project ITS Architecture (PITSA) development and Regional ITS Architecture (RITSA) updates, Stakeholder Meetings, and Requirements Traceability Verification Matrix (RTVM)).
- The complete design of the project (***ITS plans, Network and Communications Design, Structural Design, Maintenance of Traffic (MOT), cross-sections, etc***).
- ***Specifications Development including Technical Special Provisions and Modified Special Provisions.***
- Preparation of ***Construction Cost Estimates*** and Long-Range Estimate
- Selecting and assisting FDOT with Procurement Specifications and Support for all CV devices.
- Permitting and registration of all RSUs with the Federal Communications Commission (FCC).
- ***Configuration and Integration of all devices.***
- ***Subsystem and System Testing***, to include development of all Project related Test Plans.

Project Highlights

- Connected Vehicle Design and Implementation
- ITS Planning and Design
- System Engineering Analysis (SEA)
- ITS Architecture
- Owner support during ITS system deployments, upgrades, and/or replacement
- System integration services
- Independent verification and Validation (IV&V)
- Strategic Implementation Planning Services

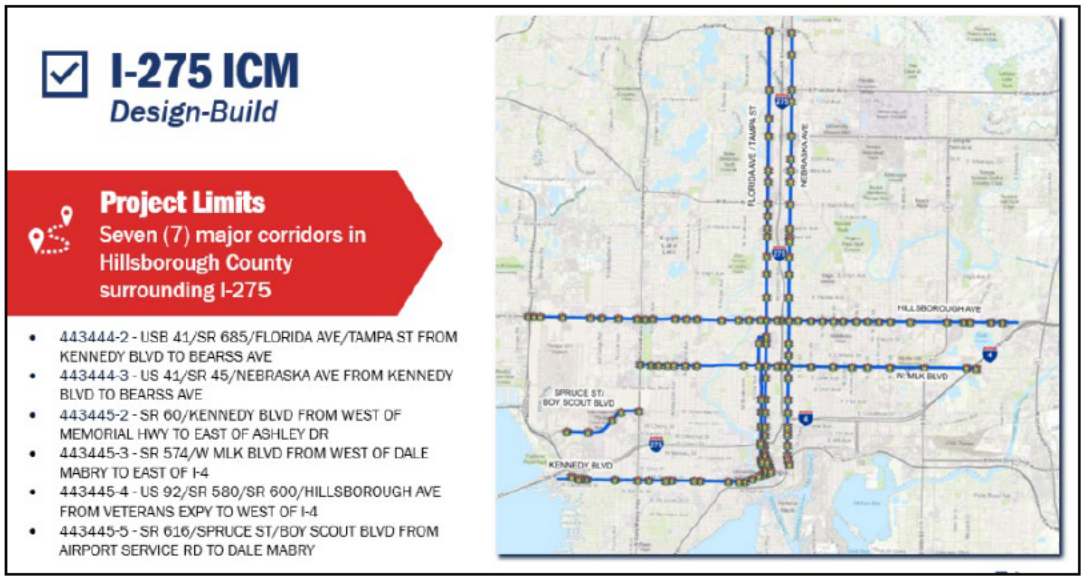
17. Firm Experience:

Firm name	metric	Past Performance Evaluation Discipline(s)*	ITS, Planning, Traffic
Project name	I-275 Integrated Corridor Management Design Build	Firm responsibility (prime or sub?)	Prime
Project number	443444-2-52-01, 443444-3-52-01, 443445-2-52-01, 443445-3-52-01, 443445-4-52-01, 443445-5-52-01	Owner's name	Florida Department of Transportation (FDOT) District 7
Project location	Tampa, FL	Owner's Project Manager	Edward Albritton
Owner's address, phone, email	11201 N. McKinley Dr., Tampa, FL 33612 - N/A - Edward.Albritton@dot.state.fl.us		
Services commenced by this firm (mm/yy)	07/22	Total consultant contract cost ($1,000's)	$875
Services completed by this firm (mm/yy)	Ongoing	Cost of consultant services provided by this firm ($1,000's)	$875

Describe the project including the firm's role and members involved. (Highlight members to be used in this proposal.)

Firm Members Involved: Dale Cody, Rolando Ramirez, Renata Leach, Jessica Knox, Johnathan Katz

Metric are partnered with HSD (Lead Contractor) to deliver an Integrated Corridor Management (ICM) system along I-275 which will lay the groundwork in preparation for FDOT District 7's Tampa Bay NEXT projects. Our team is responsible for the ***Systems Engineering analysis and documentation, complete design, permitting, and construction of an ICM system*** that will serve to improve current operations by connecting existing infrastructure with a cohesive transportation communication system. Our solution includes the ***installation and integration of Fiber Optic Communications, Signal and ITS cabinets, Traffic Signal Controllers, Closed Circuit Television Cameras, Blank-out signs, Dynamic Travel Time Signs, Video Detection Systems, Road Side Units, Bluetooth®, Network Communications, Central Signal System Upgrades, Transit Signal Priority integration, ICM Decision Support System compatibility, Cyber Security Software and Hardware System, and Grounding and Surge Protection Devices along the six project corridors.***



Project Highlights

- Conducted System Engineering Analysis (SEA)
- Developed ITS Design Plans, Summary Of Estimated Quantities, and Construction Cost Estimates
- Provided Technical Support During ITS System Deployments, Upgrades, and/or Replacement

The ICM system will ultimately benefit the traveling public during current and future construction by limiting and reducing potential impacts. This project will also be ***completed on accelerated schedule timelines***, including the expeditated completion of three partial corridors in an effort to launch the Tampa Bay NEXT projects. Additional supporting services for this project includes structures, survey, geotechnical, environmental, utility coordination, and more. A summary of Metric's services includes:

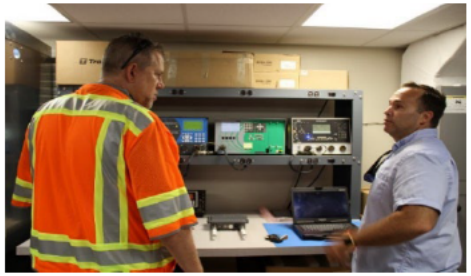
- **Preparing all system engineering related documentation** (SEA, SEMP, PITSA development and RITSA updates, Stakeholder Meetings, and creation of the RTVM).
- **Provided complete ITS design of the project** (ITS plans, Network and Communications Design, Structural Design, MOT, cross-sections, etc).
- **Developed specifications including Technical Special Provisions and Modified Special Provisions.**
- **Prepared construction cost estimates, long-range estimate & permitting and registration of all RSUs with the FCC.**

17. Firm Experience:

Firm name	metric	Past Performance Evaluation Discipline(s)*	ITS, Planning, Traffic
Project name	I-75 On- and Off-System FRAME (Florida's Regional Advanced Mobility Elements)	Firm responsibility (prime or sub?)	Prime
Project number	440900-1 & 440900-2	Owner's name	Florida Department of Transportation (FDOT) District 5
Project location	FDOT District 5 (Orlando), FL	Owner's Project Manager	Jeremy Dilmore, PE
Owner's address, phone, email	719 S. Woodland Blvd., DeLand, FL 32720 - (386) 943-5360 - Jeremy.Dilmore@dot.state.fl.us		
Services commenced by this firm (mm/yy)	11/17	Total consultant contract cost ($1,000's)	$2,584
Services completed by this firm (mm/yy)	11/21	Cost of consultant services provided by this firm ($1,000's)	$2,584

Describe the project including the firm's role and members involved. (Highlight members to be used in this proposal.)

Firm Members Involved: Dale Cody, PE, PTOE, Rolando Ramirez, PE, Jonathan Katz, PE, Demetrius Lewis



As Systems Manager for the I-75 FRAME project, Metric was responsible for ***coordinating, testing, and providing documentation*** on the various ITS technologies to include Roadside Units (RSUs), vehicular On-board Units (OBUs) as well as emulated OBUs (mobile devices and/or tablets) to ensure device interoperability. This project was in line with the USDOT goals and contributed to ***increased safety, reliability and mobility needs using advanced CV technologies***. Metric staff was responsible for integrating these devices to multiple signal controllers with the goal of verifying the various CV-related applications: ***Signal Phase & Timing (SPaT), Automated Traffic Signal Performance Measures (ATSPM), MAP messages, Traveler Information Messages (TIM), Basic Safety Messages (BSM), Emergency Vehicle Protocol (EVP), Transit Signal Priority (TSP)*** and others related to pedestrian safety. Metric staff conducted extensive testing in both the lab and field environments with equipment provided by several CV vendors. Reports were generated to guide the System Manager in their decision-making process for the development of the CV specifications and eventual decision-making on the F.R.A.M.E., SR 434, PedSafe projects, and any other future CV deployments. Metric was also responsible for ***configuring, integrating, and testing all CV devices into the FDOT ITS network***.

A summary of Metric's services includes the following:

- **Prepared all System Engineering related documentation (SEA,** SEMP, PITSA development and RITSA updates, Stakeholder Meetings, and creation of the RTVM).
- **Provided complete ITS design of the project** (ITS plans, network and communications design, structural design, Maintenance of Traffic, cross-sections, etc.).
- **Specifications Development including Technical Special Provisions and Modified Special Provisions.**
- **Preparation of Construction Cost Estimates and Long-Range Estimate.**
- **Completed required permitting and registrations of all RSUs with the FCC.**
- **Performed configuration and integration of all devices.**
- **Performed subsystem and system testing.**
- **Developed documentation of all project related test plans.**

Project Highlights

- Connected Vehicle Design and Implementation
- ITS Planning and Design
- System Engineering Analysis (SEA)
- Regional ITS Architecture Updates
- Owner Support During ITS system Deployments, Upgrades, and/or Replacement
- System Integration Services
- Independent Verification and Validation
- Strategic Implementation Planning Services

17. Firm Experience:

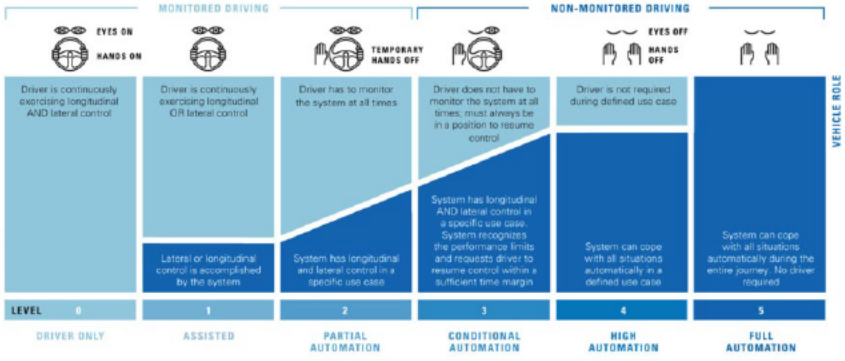
Firm name	VENABLE LLP	Past Performance Evaluation Discipline(s)*	ITS, Planning
Project name	Federal AV Regulatory Compliance Counseling	Firm responsibility (prime or sub?)	Prime
Project number	153913	Owner's name	Autonomous Vehicle Industry Association
Project location	Nationwide, U.S.	Owner's Project Manager	Ariel Wolf, David Bonelli
Owner's address, phone, email	600 Massachusetts Ave NW, Washington, D.C. 20001 – (202) 344-4013 - aswolf@venable.com		
Services commenced by this firm (mm/yy)	01/21	Total consultant contract cost ($1,000's)	$1,000
Services completed by this firm (mm/yy)	Ongoing	Cost of consultant services provided by this firm ($1,000's)	$600

Describe the project including the firm's role and members involved. (Highlight members to be used in this proposal.)

Firm Members Involved: Ariel Wolf, David Bonelli, Venable Autonomous and Connected Mobility (ACM) Group

ACM Group ***counsels clients on compliance with federal general orders requiring autonomous vehicle (AV) incident reporting and civil investigations related to potential defects in automated driving system (ADS) equipment.*** The Standing General Order (SGO) issued by the National Highway Traffic Safety Administration (NHTSA) requires AV developers to report on incidents when automated driving systems (ADS) are engaged. The frequency of reporting is determined by the severity of the incident. Venable engaged with the Agency on behalf of several clients on the initial terms and scope of the SGO. Venable counsels AV companies on details of reporting and interactions with agency related to their incidents. Venable advises companies on compliance with SGO in relation to state AV reporting.

ADAS vs ADS: AV Technology



VENABLE LLP

Venable also ***works with clients on federal investigations related to potential ADS defects.*** These federal investigations are important as agency matters of first impression, and thus were precedent setting, for potential motor vehicle equipment defects in autonomous vehicle systems, specifically ADS equipment related to unexpected vehicle immobilizations. The matters are critically sensitive for clients as they expand new operations across the country.

The investigations involve separate submissions of written responses to tens of questions and several document requests resulting in production of thousands of pages of material. ***Venable drafts, reviews, and edits written responses to questions, related narrative materials, confidentiality requests, and privilege logs for documents for these investigations***. We review documents for responsiveness, privilege, and confidentiality. We manage document productions for investigations, including all redactions and submissions to the Agency. ***We advise clients on legal strategies and engagements with the Agency.***

Project Highlights

- Drafted investigation responses on AV technology compliance issues
- Developed regulatory comments for submission to USDOT
- **Conducted meetings with White House and DOT officials on federal AV reporting requirements**
- Administered filing response to federal officials
- Managed document reviews on AV procedures, response plans and confidential business materials

17. Firm Experience:

Firm name	VENABLE LLP	Past Performance Evaluation Discipline(s)*	ITS, Planning
Project name	**Federal and State Autonomous Vehicle Policy Counseling**	Firm responsibility (prime or sub?)	Prime
Project number	133317	Owner's name	Autonomous Vehicle Industry Association (AVIA)
Project location	Nationwide, U.S.	Owner's Project Manager	Ariel Wolf, General Counsel
Owner's address, phone, email	600 Massachusetts Ave NW, Washington, D.C. 20001 – (202) 344-4013 - aswolf@venable.com		
Services commenced by this firm (mm/yy)	01/16	Total consultant contract cost ($1,000's)	$2,000
Services completed by this firm (mm/yy)	Ongoing	Cost of consultant services provided by this firm ($1,000's)	$2,000

Describe the project including the firm's role and members involved. (Highlight members to be used in this proposal.)

Firm Members Involved: Ariel Wolf, David Bonelli, Venable Autonomous and Connected Mobility (ACM) Group

ACM Group is the premier legal and public policy group for emerging technology. Venable serves as ***general counsel and legal and policy staff to the Autonomous Vehicle Industry Association (AVIA)***, the leading association for the AV industry in the US. We ***advise AVIA on all legal and policy issues affecting the AV industry at the federal, state, and international levels.***

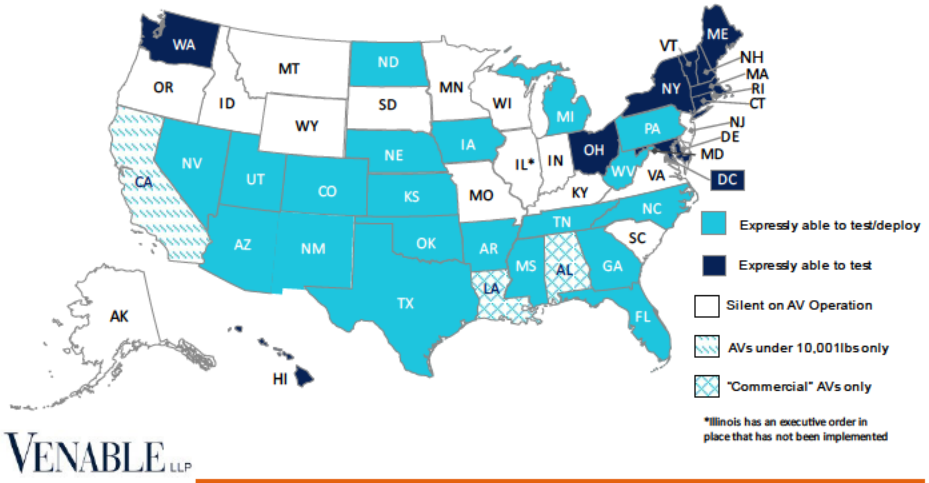
Venable appeared before multiple state legislatures and agencies to testify on behalf of the AV industry on complex ***insurance, workforce, and liability issues***. In the past year, we successfully advocated for the ***passage of AV legislation in Mississippi and South Dakota*** and prevented the enactment of several state bills, including securing a veto from the California governor, that would have effectively banned autonomous trucking.

We have ***testified as a witness in hearings on autonomous vehicle issues before U.S. Congressional House Committees, Energy and Commerce and Transportation and Infrastructure***. We have drafted and submitted comments on several federal regulatory matters implicating AV issues. Under our direction, AVIA has tripled in size and launched new workstreams related to international AV standards development and autonomous delivery.

Venable has ***created several AV legislation resources for AV clients.*** We ***develop and maintain a 50 state autonomous vehicle laws and regulations electronic book***, tracking documents for all federal and state regulatory matters and an AV map, which is used by stakeholder across the country. We have presented as keynote speakers, moderated panel discussions, and administered forums at AV conferences across the country, including the SAE Government/Industry Conference, TRB ARTS Conference, and Florida AV Summit.

Our policy expertise includes ***advocacy in all state legislative and regulatory efforts related to connected, electric and autonomous vehicles. We regularly participate in and present to State government working groups and task forces, including Louisiana***, Washington, Oklahoma, California, Washington D.C. and Texas. We have testified in several states in legislative and administrative proceedings. Our advice and counsel through our trade association, ***AVIA has assisted in securing the enactment of over 30 state laws for testing and deployment of autonomous vehicles.***

U.S. State AV Laws & Regulations



VENABLE LLP

Project Highlights

- Testified at state and federal hearings on AV legislation
- Participated in several state working groups and task forces for implementing AV laws and regulations
- Developed policy principles to advance organization interests
- Drafted presentation materials for stakeholder events
- Created and administered AV panel sessions at nationwide conferences
- Published fact sheets to educate on AV technologies

17. Firm Experience:

Firm name	VENABLE LLP			Past Performance Evaluation Discipline(s)*	ITS, Planning
Project name	**Medium and Heavy Zero Emission Vehicle Coalition**			Firm responsibility (prime or sub?)	Prime
Project number	156097	Owner's name		Ariel Wolf, General Counsel	
Project location	Nationwide, U.S.			Owner's Project Manager	Venable LLP
Owner's address, phone, email	600 Massachusetts Ave NW, Washington, D.C. 20001 – (202) 344-4013 - aswolf@venable.com				
Services commenced by this firm (mm/yy)	02/24	Total consultant contract cost ($1,000's)			$900
Services completed by this firm (mm/yy)	Ongoing	Cost of consultant services provided by this firm ($1,000's)			$500

Describe the project including the firm's role and members involved. (Highlight members to be used in this proposal.)

Firm Members Involved: Ariel Wolf, David Bonelli, Venable Autonomous and Connected Mobility (ACM) Group

In 2024, Venable's Autonomous and Connected Mobility (ACM) group is leading efforts for the founding on the ***country's first trade association focused on accelerating the delivery of nationwide charging infrastructure for medium and heavy duty zero-emission vehicles (ZEVs)***, Powering America's Commercial Transportation. Venable developed the incorporation materials and ***policy charters for the foundation*** and recruited the founding members, including trucking Original Equipment Manufacturers (OEM), utility companies, charging infrastructure developer, trucking fleets and others.

Venable organized initial launch events for the Association, including an engagement featuring speakers and panel ***discussions with White House Administration Climate Policy, Department of Transportation and Department of Enegery officials, as well as the CEO from three largest truck OEMs, Daimler Truck, Volvo Truck and Navistar.*** In six months, Venable has grown the members to over 20 members

Venable established, manages and adminsters several policy committees and subcommittees for the organization. These committees ***address state and federal policy issues related to utility proceedings, incentive programs and regulations related to ZEV charging.*** Venable drafts presentation materials and administers each committee weekly with members. Venable drafts policy positions, regulatory comments, support letters and legislative amendments for proceedings in several states.

Venable conducts advocacy efforts to advance charging and utility infrastructure priorities for the association before public utility commissions and federal agencies. Venable ***develops education materials, including fact sheets, white papers and position papers for industry, government and NGO stakeholder forums.***

Project Highlights

- Launched new Coalition focused on accelerating electric vehicle charging infrastructure for medium and heavy duty trucks
- Managed and administered federal and state policy committee weekly meetings
- Drafted regulatory comments and legislative amendments for utility and transportation proceedings
- Advocated for incentive grant funding for EV charging

17. Firm Experience:

Firm name	Niti	Past Performance Evaluation Discipline(s)*	ITS, Planning
Project name	I-70 Truck Automation Corridor Support Services	Firm responsibility (prime or sub?)	Sub
Project number	N/A	Owner's name	Ohio Department of Transportation (ODOT)
Project location	Ohio	Owner's Project Manager	Andrew Beemer
Owner's address, phone, email	1980 W. Broad Street, Columbus, OH 43223 - (614) 359-2849 - andrew.bremer@drive.ohio.gov		
Services commenced by this firm (mm/yy)	01/21	Total consultant contract cost ($1,000's)	N/A
Services completed by this firm (mm/yy)	09/22	Cost of consultant services provided by this firm ($1,000's)	$120

Describe the project including the firm's role and members involved. (Highlight members to be used in this proposal.)

Firm Members Involved: Jignesh Patel

This project will deploy smart logistics solutions along a stretch of I-70 between Columbus, Ohio and Indianapolis, Indiana. This four-year project will provide freight companies and truck automation vendors an opportunity to deploy partially automated driving technology. The goal of the I-70 Truck Automation Corridor is to hold at least ***three demonstrations that collectively will incorporate each of the truck automation technology*** tracks in "revenue service" (i.e. daily fleet operations) with host fleets and gather information necessary for infrastructure owners and operators to define an "automation ready" roadway: 1. Truck Platooning; 2. Level 2 Automation; 3. Level 4 Automation.

Project Highlights

- Developed Systems Engineering Analysis
- Conduct CAV Deployment Planning
- Provided Systems Integration Services
- Provided Data Management Planning
- Performed System Deployment Planning

Project Activities:

- Worked with FHWA, ODOT and INDOT to ***accelerate truck automation technology adoption*** via revenue service deployments that use real drivers, hauling real freight and operating under real-world conditions.
- Prepare state DOT roadway automation technology-oriented maintenance and operating practices and vehicle technology-oriented regulatory standards to share with other state DOTs and their safety agency partners.
- ***Shared data and field experiences with logistics industry*** to inform truck automation adoption and with FHWA/USDOT and state DOTs for safety and outreach considerations.
- Provided a consistent opportunity with simplified regulations for truck automation vendors and host fleets to showcase and adopt truck automation technologies

The project is divided in three major tasks outline below:

- **Automated Truck Revenue Service Deployment (Task 1)** – Revenue service truck automation deployments involving Ohio and Indiana routes. Match host fleets with truck automation vendors and coordinate with Ohio and Indiana DOTs and other state agencies for deployment on the Interstate System. The major deliverables for this tasks are ***Systems Engineering Management Plan (SEMP), Concept of Operations (ConOps) development, Data Management Plan (DMP) and Functional Requirements for the system.***
- **Outreach, Sustainment, and Scalability (Task 2)** – ***Conduct outreach for user needs to support the deployments*** with data and lessons learned from automation deployments shared with industry, education partners, and the Federal Highway Administration (FHWA). DriveOhio, with its state DOT partners, is committed to sustaining the deployment program as technology adoption increases.
- **Interstate System Automated Audit and Repair (Task 3)** – As routes are defined for each deployment on the Interstate System, ***conduct a road audit to identify road infrastructure needs for automated vehicles***. Summarize road audit findings as inputs to the Ohio and Indiana DOTs' road maintenance guidebooks as the findings relate to AV readiness.

17. Firm Experience:

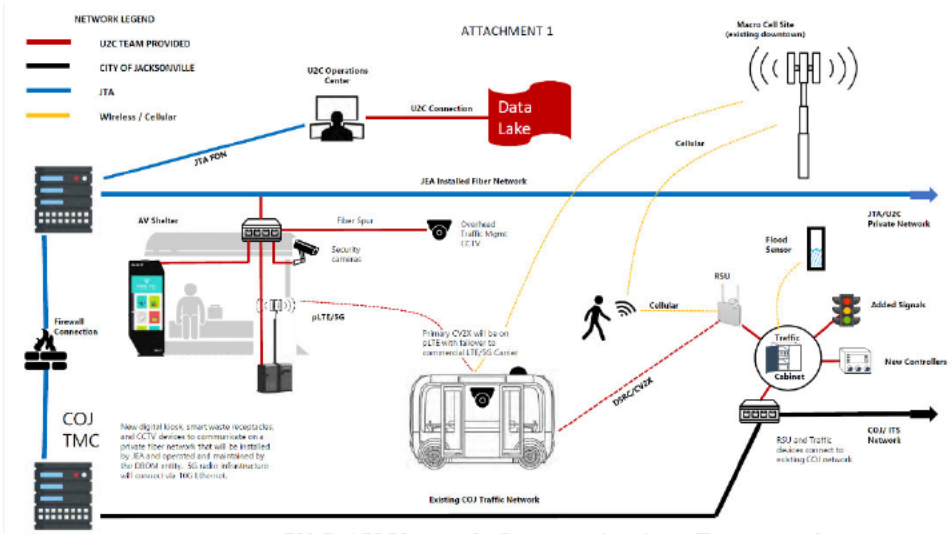
Firm name	Niti	Past Performance Evaluation Discipline(s)*	ITS, Planning, Data Collection
Project name	Ultimate Urban Circulator (U2C) Program Support	Firm responsibility (prime or sub?)	Sub
Project number	N/A	Owner's name	Jacksonville Transportation Authority (JTA)
Project location	Jacksonville, FL	Owner's Project Manager	Nathaniel Ford
Owner's address, phone, email	100 N. Myrtle Avenue, Jacksonville, FL 32204 - 904.598.8727 - nford@jtafla.com		
Services commenced by this firm (mm/yy)	01/19	Total consultant contract cost ($1,000's)	$250
Services completed by this firm (mm/yy)	01/23	Cost of consultant services provided by this firm ($1,000's)	$250

Describe the project including the firm's role and members involved. (Highlight members to be used in this proposal.)

Firm Members Involved: Jignesh Patel, Philippe Gervaise

Niti Systems supported the Jacksonville Transportation Authority (JTA) with the Ultimate Urban Circulator (U2C) program. The ***U2C is a multi-phased program aimed at converting and expanding the automated people mover (Skyway) into a rubber-tire-based an autonomous vehicle (AV) network***.

By transforming the current Skyway, extending the reach within the urban core through the Bay Street Innovation Corridor and expanding beyond into adjacent neighborhoods, U2C supports the vision of a vibrant, revitalized and better-connected Downtown Jacksonville. The U2C deployment is a part of an effort for transformation of the City of Jacksonville. It will ***connect, for the first time, the entire downtown area, including the new developments in the Stadium District and Five Points***.



U2C AV Network Communications Framework

The Niti Systems team supported the project with the ***assessment, recommendations, requirements management and design for various Intelligent Transportation Systems (ITS) components***. Our consultants supported the agency with a design and a blueprint for ITS Architecture for the U2C program. Based on the FTA approved ***Systems Engineering approach***, our consultants helped the agency with ***15% and 30% requirements for various ITS components such as Computer-Aided Dispatch and Automated Vehicle Location (CAD/AVL), Automated Fare Collection (AFC), Automated Passenger Counting (APC), Transit Signal Priority (TSP), Communication System, Surveillance Systems and more for the U2C***.

Project Highlights

- Provided ITS Architecture Definition and Systems Engineering Support
- Provided Project Deployment Planning Services
- Developed Design Documentations and System Requirements for ITS Components

Additionally, in one-of-a-kind ***Connected Autonomous Vehicle (CAV) pilot*** for the JTA Bus Rapid Transit (BRT), Niti Systems helped the agency with development of a technology roadmap, architecture definition, ***systems engineering support*** and planning for their U2C program.

17. Firm Experience:

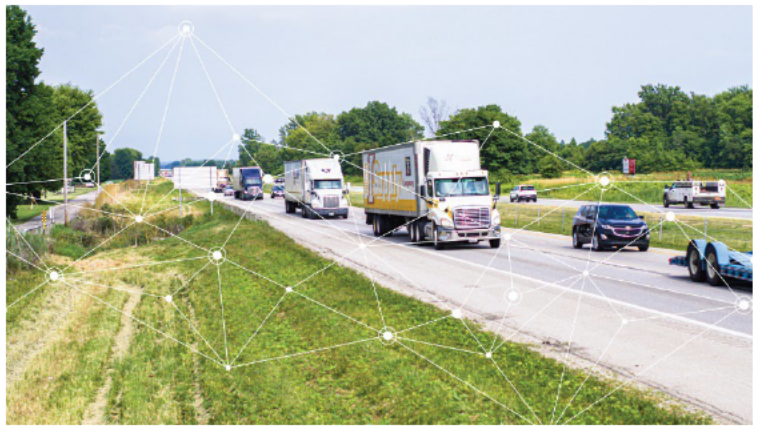
Firm name	Niti	Past Performance Evaluation Discipline(s)*	ITS, Planning
Project name	**Advanced Transportation & Congestion Management Technologies Deployment (ATCMTD) Grant Program**	Firm responsibility (prime or sub?)	Sub
Project number	N/A	Owner's name	Ohio Department of Transportation (ODOT)
Project location	Ohio	Owner's Project Manager	Andrew Beemer
Owner's address, phone, email	1980 W. Broad Street, Columbus, OH 43223 - (614) 359-2849 - andrew.bremer@drive.ohio.gov		
Services commenced by this firm (mm/yy)	01/21	Total consultant contract cost ($1,000's)	N/A
Services completed by this firm (mm/yy)	09/22	Cost of consultant services provided by this firm ($1,000's)	$80

Describe the project including the firm's role and members involved. (Highlight members to be used in this proposal.)

Firm Members Involved: Jignesh Patel, Derrick Whitfield

Niti Systems supported Ohio DOT with its ATCMTD program. The ***ATCMTD Program is a $4.4 million grant awarded*** by the USDOT and FHWA to a team composed of the ODOT, Indiana Department of Transportation (INDOT), and the Transportation Research Center (TRC). The ***grant application focused on the advanced deployments and adoption of truck automation technologies*** by the logistics industry, integrated into daily "revenue service" operations to deliver all types of products across Ohio and Indiana. The program focused on making a section of I-70 between Indianapolis, IN and Columbus, OH the backbone of the project. This stretch of highway is known as the I-70 Truck Automation Corridor.

Offering professional driver training for host fleets and performing an automation audit of I-70, the data the collected provided DOT partners the insights needed to ***ensure these roadways are ready for partially automated vehicles***. The data collected would be shared with USDOT to inform the development of policies and procedures to scale across the United States.



Project Activities Includes:

- Developed and submitted ***comprehensive grant application*** to help ODOT secure funding for innovative transportation projects.
- Coordinated with multiple state DOTs and other partners to align project goals and funding requirements.
- Managed and oversee grant funds to ensure compliance with federal and state regulations.
- Compiled and share data and field experiences with relevant stakeholders, including the USDOT and state DOTs, to demonstrate project outcomes and secure ongoing and future funding.
- Provided detailed reporting and documentation to support the effective use of grant funds and showcase the success of the project to potential future funding sources.

Project Highlights

- Developed Grant Application
- Market Research
- Peer Agency Assessment
- Stakeholder Management
- Systems Engineering
- ATCMTD Planning

Section 18

18. Approach and Methodology:

PROJECT UNDERSTANDING & ARCADIS TEAM

By successfully providing system planning, design, and integration support services on the previous IDIQ contract, we are ***the only team that has direct DOTD experience working on all services listed in this RFQ*** – ATMS, 511 ATIS, CAV, VDMS, and traffic data. Our understanding of this project and DOTD's expectations is based on **(1)** our direct knowledge/experience from working on the previous contract, **(2)** review of this RFQ scope, and **(3)** previous meeting discussions with the ITS Section and DOTD Project Manager (PM). The successful completion of task orders under this IDIQ contract will require an experienced, multidisciplinary team familiar with DOTD's ITS systems and sub-systems that is able to quickly bring industry experts on emerging mobility technologies and trends. From expansion of ITS infrastructure to upgrading its legacy sub-systems, Arcadis has worked as an extension of DOTD's ITS section to provide integral expertise and specialized resources. Our past project experience has provided us the opportunity to develop working relationships with DOTD as well as local and federal stakeholders. This experience enables us to apply our understanding of project needs to develop ***context-based, cost-effective solutions – maximizing return on investment*** for DOTD.

With this comprehensive understanding of project needs and DOTD expectations, we have assembled a deep bench of industry leading firms (**Iteris**, **Metrics**, **Venable**, and **Niti Systems [DBE])** and experienced staff to ***provide sufficient redundancy and deliver multiple task orders simultaneously*** while meeting project schedules, quality of deliverables and managing overall team workload. The team possesses technical expertise to assist DOTD in making sure policy, planning, and infrastructure changes happen systematically and safely to enhance user experience. Paul Hsu will be the Arcadis Team PM, and he brings over 20 years of experience with DOTD ITS system planning, design, and integration support services. Paul will be supported by technical leads and a multidisciplinary team of ITS planners, designers, integrators, software developers, data analysts, GIS professionals, and technicians.

OUR TECHNICAL APPROACH

Project Management and Program Assistance

Arcadis is prepared to assist DOTD in developing scope documents for a wide range of ITS task orders, and recommend additional projects and scopes supporting DOTD's program vision. To scope each project, the Arcadis PM, Paul Hsu, will meet with the DOTD PM to discuss the project background, needs, and goals. He will share the Arcadis Team's experience on similar projects, including systems engineering analyses, software deployments (ATMS, ATIS), video distribution, CAV technologies, data systems, and ITS design. At DOTD's request, Arcadis is prepared to develop the initial scope of services based on the meeting discussions and refine it collaboratively with the DOTD PM to make sure it ***accurately reflects DOTD's available budget and desired outcomes.***

VALUE TO DOTD: *Detailed and collaborative scoping will provide a mutual understanding of tasks and deliverables, and avoid scope revisions, supplemental agreements, and schedule impacts.*

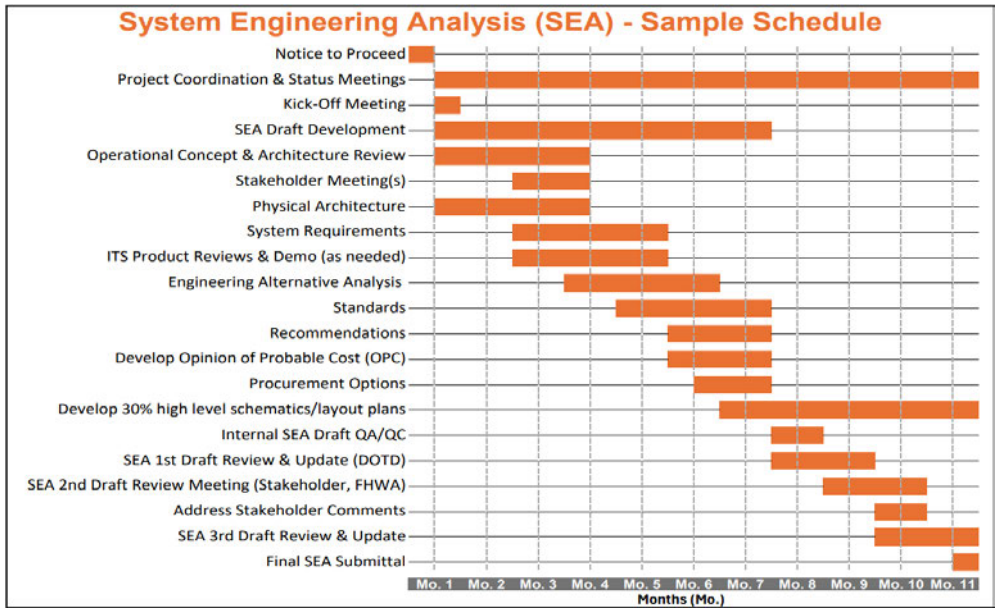
Coordination Meetings and Project Reporting

Upon receipt of each Notice to Proceed, Paul will request a ***task order kick-off meeting*** with the DOTD PM to review project purpose and need, scope, methodologies, communication protocols, schedule, QA/QC plan, risk management, and data needs. Arcadis will schedule biweekly or monthly meetings with the DOTD PM to provide progress updates and will submit monthly progress reports showing schedule and % completion. Additional meetings will be held at project milestones and upon submittal of key deliverables to discuss and resolve comments.

VALUE TO DOTD: *Early and ongoing communication will facilitate adherence to project schedule. Defining clear project needs will lead to cost-effective and efficient project deliverables that helps DOTD achieve project goals.*

System Engineering Analyses (SEA)

A sample schedule for completing a typical SEA project is provided in the figure below. The Arcadis Team is familiar with the federal requirements, and ***each of the 20+ SEA reports Paul has completed in his career have complied with 23CFR 940.11(c) and received FHWA approval***.



Evaluating the most suitable ITS solutions for DOTD and securing FHWA approval will be our top priority for the SEA development work.

1. SEA Kick-Off Meeting - A meeting with the DOTD PM, District, and other relevant stakeholders will be conducted as described in the previous section of our approach. A proposed meeting agenda will be submitted one week prior to the meeting date for the DOTD PM's review and approval.

2. Operational Concept – The operational concept is a stakeholder focused exercise that establishes the existing and desired operational characteristics of ITS. Prior to engaging stakeholders, the Arcadis Team will review relevant ITS architecture documents to understand the project context and identify, gather, and review required data. After identifying project stakeholders with the DOTD PM, stakeholder workshops will be conducted by the Arcadis Team to solicit critical inputs relating to needs, roles, responsibilities, and system interfaces of the various partner agencies. We will also conduct a thorough inventory of any relevant regional systems to identify integration needs and functional requirements. ***Similar to how Arcadis assisted DOTD in successfully completing its multi-disciplined I-10 Queue Warning SEA project, we will also involve our in-house expertise from traffic engineering and safety staff to meet any specific needs of the project.***

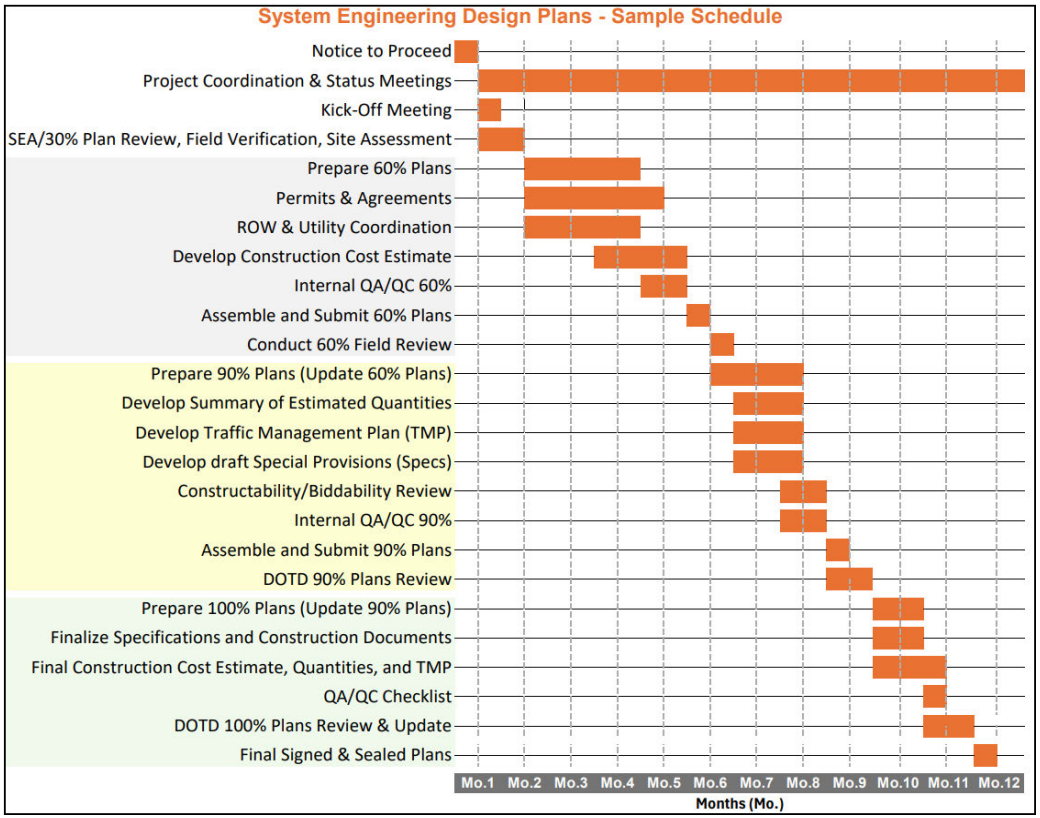
3. Alternative Analysis – With the collected project information and data, including functional requirements identified through stakeholder engagement, an alternative analysis will be performed to outline a number of feasible alternatives with their associated advantages and disadvantages. We will assist DOTD in performing ITS product/system reviews and facilitating vendor demos to evaluate the specific technology further if required. Leveraging our deep understanding of a wide range of ITS technologies and software solutions, we will develop technical evaluation questionnaires to collect objective product information from each vendor. The information from the questionnaires will help answer how the product works and serve a critical role in comparing the major differences between each product. ***The results from this analysis will allow us to document the pros & cons of each evaluated product, along with key considerations for subsequent deployment.*** Opinion of probable cost will be developed for each of the outlined options to provide high-level budgetary information to DOTD for the decision-making process. The conclusion of the alternative analysis will also include our team's recommendation for the most suitable alternative based on the technical facts, budgetary considerations, and how the selected solution will address DOTD's needs.

4. Documentation and Concept Plan Development – For the final report, the Arcadis Team will submit the first draft for DOTD ITS section and PM review. Once DOTD comments have been addressed, a second draft will be distributed to FHWA and other project stakeholders for review. We will conduct follow-up meetings with DOTD and stakeholders to discuss major comments or questions that require resolution. ***We will also work closely with FHWA to address any concerns or questions during the review in order to help expedite the approval process.*** Arcadis will also develop 30% concept plans to show conceptual layout/schematics of the proposed ITS deployment and attach them with the third draft report for final submittal and approval.

VALUE TO DOTD: *Our in-depth experience working with DOTD's ITS staff, regional partner agencies, ITS vendors, and the ITS infrastructure through many SEA projects allows us to be highly effective at reaching goals for a wide range of projects including ATMS, ATIS, VDMS, CAV, and probe data services.*

System Engineering Design Plans

A sample schedule for completing a typical System Engineering Design Plan project is provided in the figure below.



1. System Engineering Design Kick-Off Meeting - The discussion will cover topics noted in previous sections of our approach. Potential risks and constraints that pose challenges for the design and construction will be identified during the kick-off meeting.

2. 30-60% Design Plans - Based on the systems engineering analysis data and the 30% concept plans, design layouts and schematics for the ITS system will begin to be developed. We will ***review any relevant ITS design guidelines, specifications, and special provisions to be used in preparing the design plans***. Additional equipment detail drawings will also be developed during this stage, such as fiber allocation/splicing diagrams, termination details, structural details, foundation details, and electrical service details. We will coordinate with utility companies and begin the application process for any required permits and agreements (ex: railroad, utility, Federal Aviation Administration (FAA), etc.) to expedite the review time frame. ***The utility coordination will include developing a utility conflict table to identify utilities by owner, assess conflicts, and verify point of contact for all utilities within project limits.*** We will begin assessing any existing ITS field and communication equipment that needs to be interconnected to the new design project. Our team will design the electrical system and provide electrical load calculations, conductor sizing, fault protection, grounding systems, and service point coordination. We will ***conduct regular cross-disciplinary coordination to mitigate potential design constraints relating to environmentally sensitive areas, utility relocations, permitting, and geotechnical features for structure foundations.*** Field review (plan in hand) meeting(s) with DOTD will be conducted to help further verify constructability issues with the proposed equipment. Arcadis will begin developing quantities and cost estimates for the 60% submittal so that it will allow DOTD to confirm all needed bid items and any specialized equipment/material that will require additional attention.

3. 90-100% Design Plans – We will incorporate comments from the 60% plan review to develop the 90% plans, along with project specifications and any necessary special provisions. We will meet with DOTD and, if needed, other project stakeholders including FHWA to conduct a final plan review meeting to address any open issue items. For conflict and comment resolution, we will document and store red-lined plan sheets, a comment log matrix, and saved Blue Beam Review sessions. Arcadis will ***comply with DOTD's Engineering Directives and Standards Manual (EDSM) and conduct a constructability/ biddability review to make certain that work requirements are clear, documents are coordinated, and that the ITS design plan documents assist the contractor in bidding, construction, and reduced risk to the project***. We will complete the final plans, specifications, and cost estimates (PS&E) review checklist to verify that all design information is included in 100% design plans.

4. Final Design Plans - During the final PS&E review, Arcadis will complete the checklist to make sure that all bid items and summary of estimated quantities match between each plan set and the quantities spreadsheet. We will ***check that all supporting documents have been submitted and QA/QC has been completed according to DOTD guidelines***. The construction cost estimate report with valid pay items, specifications, and applicable special provisions will also be reviewed during the final QA/QC checklist. Upon final 100% design plans review by DOTD, we will address any final comments and/or questions and proceed to submit final plans.

VALUE TO DOTD: *Our familiarity with DOTD's ITS standard design practices, equipment specifications, and plan development process allows us to reduce design changes and deliver efficient ITS designs that will seamlessly integrate with the existing ITS infrastructure.*

Technical Support During Construction

Review and Approve Contractor Submittals - Cut sheets, shop drawings, product data sheets, and any other necessary documents submitted by the contractor will be reviewed within the specified time requirements. The review evaluates the submittal relative to the construction plans, DOTD Standard Specifications for Roads and Bridges, applicable EDSMs, and all ITS Technical Special Provisions. The submittal review will be performed with an eye toward constructability and maintainability. The submittal documentation process will include a color-coded EXCEL spreadsheet showing submittal number and description, date the submittal was received, date the submittal was returned, status, and the comments included with the returned submittal.

Review and Address RFIs During Construction – Arcadis will document and review all contractor Requests for Information (RFI) within the specified time requirements. The review will include evaluating the RFI relative to the design plans and providing comments that provide clear and concise direction to the contractor. The RFI documentation will include an EXCEL spreadsheet showing RFI number and description, date the RFI was received, date the RFI was returned, and the comments included with the returned RFI.

Project Commission Testing and Integration - Arcadis will provide on-site personnel during ITS component commission testing and system integration. Arcadis will document the testing procedure and confirm that the ITS components are tested and functioning properly as designed.

We will perform on-site inspections relative to the construction plan requirements including component location, installation quality, and hardware installation.

VALUE TO DOTD: *Our extensive DOTD ITS Maintenance Engineering & Inspection (ME&I) and Construction Engineering & Inspection (CE&I) experience will provide the most comprehensive technical support during construction.*

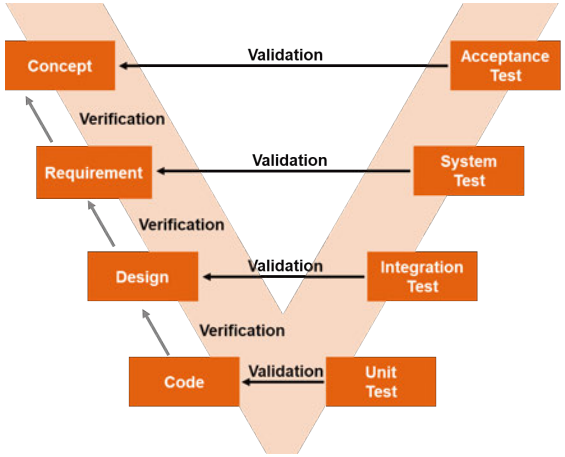
System Development and Integration Services

Leveraging our knowledge from assisting with ***DOTD's current ATIS/511 system integration, iNET ATMS upgrade, and VDMS SEA,*** we will provide complete end-to-end services to support a wide range of DOTD's ITS development and integration needs including ***system integration, troubleshooting, upgrades, firmware updates, system testing, and training.*** In order to respond to a technical support request from the DOTD PM, we will first identify the most experienced staff within the Arcadis Team to help understand the need. Subsequently, the Arcadis Team will hold weekly meetings to discuss the project status and begin to track open ticket items using systems such as JIRA or ServiceNow. For implementation support, we will assist DOTD in reviewing and providing summary reports for project documents that may include a technical proposal, compliance matrix, system architecture, RFIs, system test plans, transition plan, training plan, warranty plan, and phase-out plan. We will also work with DOTD's GIS staff to support GIS data and mapping needs.

VALUE TO DOTD: *We have a team of over 40 software developers who will work with DOTD in an agile and collaborative way to support ATMS, ATIS, and VDMS. We have deployed over 25 ATIS and 10 ATMS throughout North America, including the 511 ATIS in Louisiana.*

Independent Verification and Validation (IV&V)

The Arcadis Team will provide the independent testing necessary to validate the system performance data and assist in the system acceptance testing. We will also review all documentation for the system deployment and/or enhancements to existing systems and provide a formal response within three business days. Detailed reports outlining the assessment, test results/data, and applicable analysis will be developed and submitted to the DOTD PM for review. Arcadis will also schedule meetings with the DOTD PM to review the evaluation report and discuss any questions/comments the PM may have. At the direction of the PM, ***Arcadis will attend meetings with the vendor/contractor to discuss our IV&V assessments. Leveraging our in-house expertise for DOTD's ATIS, ATMS, and VDMS, we will quickly identify and help DOTD address technical issues associated with these ITS subsystems,*** as each plays a critical role in the functionality of the entire ITS infrastructure.



VALUE TO DOTD: *Our PM Paul Hsu has conducted a plethora of IV&V services for DOTD's ATIS, ATMS, and VDMS with timely and effective responses to assist with software upgrades, system testing, and troubleshooting requests.*

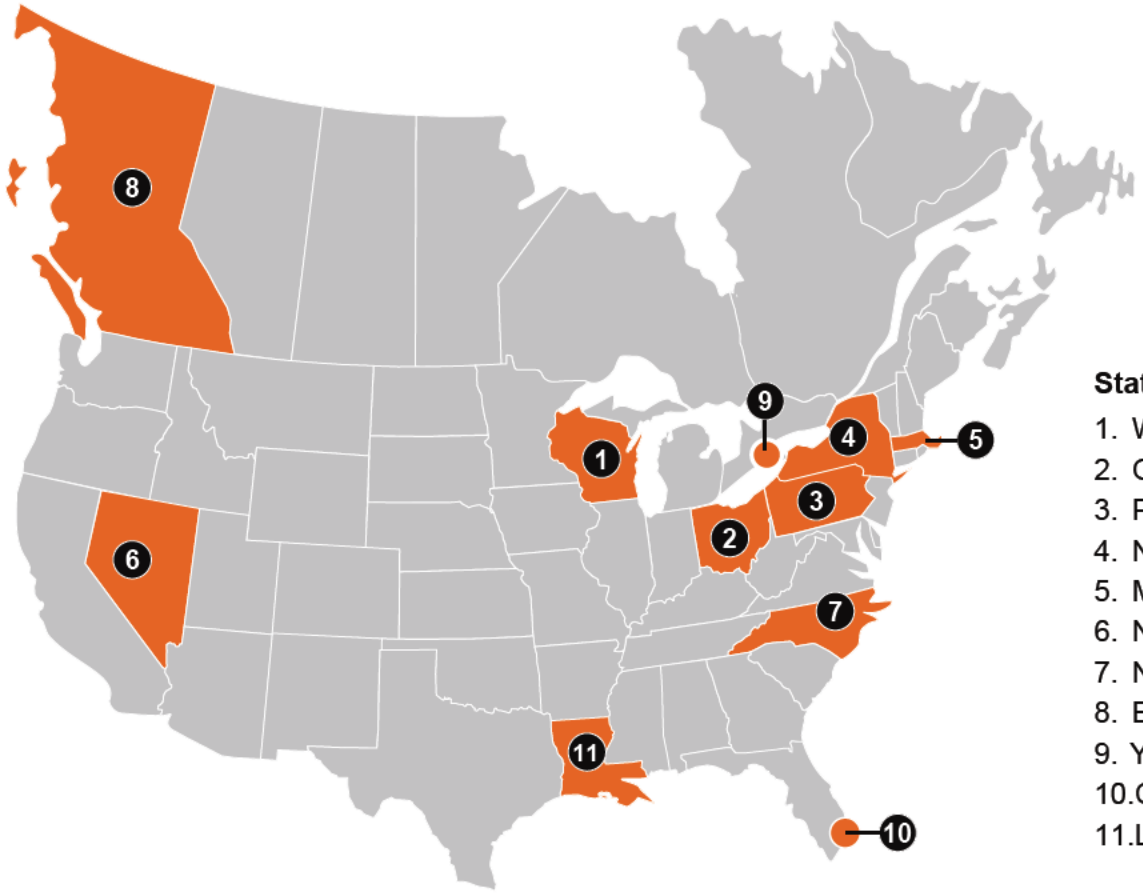
Strategic Implementation Planning Services

The approach for strategic implementation planning should be objective-driven and performance-based. Similar to how we have assisted DOTD in developing its statewide CAV strategic plan and Autonomous Commercial Motor Vehicle (ACMV) policy, we will apply a methodical approach to assess and review the technology (ex: ATMS, ATIS, VDMS, CAV, EV) and develop a strategic framework to meet DOTD's project needs. Through public outreach and stakeholder engagement, we will establish buy-in from DOTD leadership and partner agencies to create mutual project understanding. ***By thinking outside the box, we will help DOTD to identify innovative ideas through lunch and learn opportunities, stakeholder meetings, and strategic visioning workshops to address transportation challenges with ITS technologies.*** We will help DOTD develop a vision and goals that correlate to specific, measurable performance metrics for the purpose of monitoring, evaluating, and reporting. Depending on the type of the project, Arcadis may also follow the Systems Engineering process to develop actionable recommendations and steps to successfully assist DOTD and applicable stakeholders for the subsequent implementation. For grant proposal development work, ***we will coordinate with stakeholders to garner unified support and develop the grant application focusing on advanced deployments***. We will leverage our expert team members who have successfully assisted public agencies in securing over $3.5B in grant funding.

VALUE TO DOTD: *We have experience with full lifecycle system deployment including planning, policy, deployment, and training. This comprehensive experience reduces the learning curve for translating your needs into actionable items, and your system would be consistent with USDOT's requirements and national framework.*

Sections 19-21

ARCADIS



The Arcadis Team has accumulated a thorough understanding of ATMS deployment and integration needs from our ATMS installations within the last 10 years.

Statewide/Multi-Region/City

1. Wisconsin ATMS
2. Ohio ATMS
3. Pennsylvania (Turnpike) ATMS
4. New York (NITTEC) ATMS
5. Massachusetts ATMS
6. Nevada ATMS
7. North Carolina ATMS
8. British Columbia ATMS
9. York Region ATMS
10. City of Miami Beach ATMS
11. LADOTD ATMS Upgrade Support

"Arcadis has done an excellent job completing the VDMS Replacement Engineering Project on time and within budget. Their thorough understanding of our existing system was very critical in terms of evaluating the potential solutions and developing a suitable solution to help replace our current system. LaDOTD is satisfied with Arcadis' work especially with their ITS engineers who are very knowledgeable with the systems engineering process and they ***went beyond the scope*** *of the project to make sure that our needs were documented and addressed. Arcadis* ***used an innovative approach*** *and invited five vendors to showcase VDMS products and new technologies to help generate a list of system replacement options…Arcadis provided* ***excellent project management*** *throughout the duration of this project. Arcadis' project manager and project team members demonstrated solid project management and communication skills, provided excellent customer service, and were responsive to open questions and concerns…The* ***Arcadis GIS Team*** *assisted ITS and Parsons with integrating and testing the INRIX Traffic Speed Data to display Travel Times to the state-owned Dynamic Message Signs… Arcadis* ***demonstrated great software configuration and customization*** *support by providing insightful feedback to the ATMS System Integration Plan, ATMS Acceptance Testing Plan, System Architecture Diagram and System Roll-Back Plan…Arcadis has done an excellent job to ensure the completion of the ATMS iNET Enhancement Project on time and within budget. Their* ***thorough understanding of our existing system and business process were very critical*** *in terms of evaluating the new enhanced ATMS solution."*

- Rosalinda Deville, *DOTD Project Manager - ITS System Design IDIQ Contract – ATMS iNET SEA and Enhancements Task Order*

19. Workload:

Firm(s) ALL FIRMS MUST BE REPRESENTED IN THIS TABLE	Past Performance Evaluation Discipline(s) *	Contract Number and State Project Number	Project Name	Remaining Unpaid Balance**
ARCADIS	ITS	4400016811 / H.013868.5	ITS Program Management and Operations	$76,803
		4400016811 / H.013868.6 (A)	ITS Routine Maintenance Engineering and Inspection (ME&I)	$87,991
		4400016811 / H.013868.6 (B)	ITS Responsive/Emergency Maintenance Engineering and Inspection (ME&I)	$39,169
	Environmental	4400009703 / H.000688.2	US 11 Norfolk Southern Railroad	$3,008
		4400007175 / H.011328.2	I-49 South (Ricohoc to Berwick)	$876,959
		4400019338 / Multiple State Project Nos	Rural Bridge Replacement Initiative Phase II	$70,579
		4400009281 / H.009932	US 80 Widening: Vancil Road to Well Road EA	$5,343
		4400024307 / H.015052	I-20: Widening/Ovrly (Vancil Rd-LA 34)	$29,945
		4400025022 / H.015498.5 Recall 102225	Park Road Over Lagoon	$35,000
		4400025022 / Multiple State Project Nos	IJJA Off System Bridge Program – Env. Task Orders	$202,346
	Traffic	4400007175 / H.011328.2	I-49 South (Ricohoc to Berwick)	$105,489
		4400018646 / H.004100.5	I-10: LA 415 to Essen Lane on I-10 and I-12	$323,906
		4400019379 / H.013797	LA 30: EBR PL – I-10	$232,048
		4400024307 / H.015052	I-20: Widening/Ovrly (Vancil Rd-LA 34)	$80,852
		4400023690 / H.015213.5	District 04 Pedestrian Safety Improvements	$34,749
		4400021325 / H.012837.5	I-10 New Orleans Master Plan	$106,363
	Road	4400007175 / H.011328.2	I-49 South (Ricohoc to Berwick)	$288,507
		4400016923 / H.012901.6, H.010634.6	US 90Z (Bodenger Blvd. – Stumpf Blvd.)	$199,957
		4400027361 / H.011220.6, H.012901.6, H.010634.6	US 90 Engineering Support	$289,346
		4400019010 / H.010116.5	LA 1088: Soult and Trinity Roundabouts	$33,307
		4400024084 / H.009300.5	CMAR Contract for Hooper Road Widening (LA 3034 – LA 37)	$12,320
		4400024307 / H.015052	I-20: Widening/Ovrly (Vancil Rd-LA 34)	$38,929
		4400018646 / H.004100.5	I-10: LA 415 to Essen Lane on I-10 and I-12	$595,570
		4400025022 / Multiple State Project Nos	IJJA Off System Bridge Program – Road Task Orders	$116,000
	Bridge	4400025022 / Multiple State Project Nos	IJJA Off System Bridge Program – Bridge Task Orders	$176,876
		4400018646 / H.004100.5	I-10: LA 415 to Essen Lane on I-10 and I-12	$125,383
		4400021325 / H.015193.1	LA 22: Tchefuncte Bridge Feasibility	$139,534
	CE&I/OV	4400025046 / H.013710.6	I-10: US 61 to LaPlace ITS Deployment (CE&I)	$110,519
		4400025665 / H.013482.6	I-10 WBR Queue Warning System	$416,598
	Data Collection	4400021325 / H.012837.5	I-10 New Orleans Master Plan	$18,770

Firm(s) ALL FIRMS MUST BE REPRESENTED IN THIS TABLE	Past Performance Evaluation Discipline(s) *	Contract Number and State Project Number	Project Name	Remaining Unpaid Balance**
metric	OTHER - Emergency Management Services	Contract No. 4400023722	IDIQ Contract for Debris Monitoring Statewide	$26,957

Firm(s) ALL FIRMS MUST BE REPRESENTED IN THIS TABLE	Past Performance Evaluation Discipline(s) *	Contract Number and State Project Number	Project Name	Remaining Unpaid Balance**
iteris®	N/A	N/A	N/A	N/A

Firm(s) ALL FIRMS MUST BE REPRESENTED IN THIS TABLE	Past Performance Evaluation Discipline(s) *	Contract Number and State Project Number	Project Name	Remaining Unpaid Balance**
VENABLE	N/A	N/A	N/A	N/A

Firm(s) ALL FIRMS MUST BE REPRESENTED IN THIS TABLE	Past Performance Evaluation Discipline(s) *	Contract Number and State Project Number	Project Name	Remaining Unpaid Balance**
Niti Systems Consultants	N/A	N/A	N/A	N/A

20. Certifications/Licenses:

If the advertisement requires submission of licenses and/or certificates, include them here. Otherwise, leave this section blank.

STAFF CERTIFICATION CHART SUMMARY	
Names	**Relevant Certification**
ARCADIS	
Paul Hsu, PE *Meets MPR No. 5*	Professional Engineer – LA / PE.0035983 / Exp. 03/2025 – Electrical
Akhil Chauhan, PE, PTOE, PTP, PMP *Meets MPR No. 7*	Professional Engineer – LA / PE.0033703 / Exp. 09/2024 – Civil Professional Traffic Operations Engineer – #2544 / Exp. 11/2026 Professional Transportation Planner – #246 / Exp. 12/2024 Project Management Professional – #144676 / Exp. 08/2026 Traffic Engineering Analysis Process & Report Modules 1, 2, & 3
Douglas Tilt *Meets MPR No. 1*	Professional Engineer – LA / PE.0033502 / Exp. 03/2026 – Civil
Ranzy Whitiker, PE *Meets MPR Nos. 2 & 3*	Professional Engineer – LA / PE.34132 / 03/30/2025 – Electrical
Laura Hartley, PE, PTOE *Meets MPR No. 4*	Professional Engineer – LA / PE.0039030 / Exp. 09/2024 - Civil Professional Traffic Operations Engineer – #4346 / Exp. 11/2025
Jeff Jones, IMSA II *Meets MPR No. 9*	Louisiana Contractors License ATSSA Traffic Control Supervisor Refresher – LA / Exp. 01/2026 ATSSA Renewal IMSA Traffic Signal Technician I – LA / Exp. 08/2024 ATSSA Renewal IMSA Traffic Signal Technician II – LA / Exp. 08/2024 ATSSA Registered Flagger – LA / Exp. 08/2024 NFPA 70E: Standard for Electrical Safety in the Workplace FAA Part 107 SUAS DOT-FAA Remote Pilot CCTV Louisiana Fire Marshal Certification ISS - RTMS Traffic Detector Training Traffic Controller (Naztec TS1 & TS2) and Streetwise Training OSHA 10 Hour Fiber Optic Training Advanced Fiber Optic Training Pelco / Schneider Daktronics Cohu – Installer Econolite - Autoscope Maintenance Operation Axis

20. Certifications/Licenses:

If the advertisement requires submission of licenses and/or certificates, include them here. Otherwise, leave this section blank.

STAFF CERTIFICATION CHART SUMMARY	
Names	**Relevant Certification**
Cody Lemoine *Meets MPR No. 9*	ATSSA Traffic Control Supervisor Refresher – LA State Specific – Exp. 01/2026 ATSSA Registered Flagger – LA / Exp. 08/2024 NFPA 70E: Standard for Electrical Safety in the Workplace ISS - RTMS Traffic Detector Technical Training FAA Part 107 SUAS FAA Suas Crew Resource Management DOT-FAA Remote Pilot LADOTD – Construction, Engineering, and Inspection Module LA State Civil Service – CPTP SCS Cybersecurity WBT FOA Certified Fiber Optic Technician FOA CFOS Certified Fiber Optic Specialist Motorized Mobile Platforms for Construction Daktronics Axis
Tony Jackson, IMSA III	ATSSA Traffic Control Supervisor Refresher – LA / Exp. 01/2026 ATSSA Registered Flagger – LA / Exp. 08/2024 IMSA Traffic Signal Technician III – Exp. 01/2025 Traffic Signal Inspector for Advanced Technologies – Exp. 01/2025 IMSA Traffic Signal Technician I & II IMSA Traffic Signal Inspector for Advanced Technologies – Exp. 01/2025 Daktronics Cohu
Tony Moore, PE, IMSA II	Professional Engineer – LA / PE.0037887 / Exp. 09/2025 – Civil ATSSA Traffic Control Supervisor Refresher – LA State Specific – Exp. 01/2026 ATSSA Registered Flagger – LA / Exp. 08/2027 Traffic Engineering Analysis Process & Report Modules 1, 2, & 3
David Ward, GISP	Certified Geographic Information Systems Professional – GISP 51378 / Exp. 04/2027
Meredith Guidry, EI, RSP	Engineer Intern – LA / EI.0034822 / Exp. 09/2025 – Civil Road Safety Professional – USA / #861 / Exp. 07/2025 Traffic Engineering Analysis Process & Report Modules 1, 2, & 3

20. Certifications/Licenses:

If the advertisement requires submission of licenses and/or certificates, include them here. Otherwise, leave this section blank.

metric	
Dale Cody, PE, PTOE	Professional Engineer – LA / PE.0047766 / Exp. 09/2025 – Civil Professional Traffic Operations Engineer – #1206 / Exp. 11/2024 Traffic Engineering Analysis Process & Report Module 1, 2, & 3
John Battle, PMP	Project Management Professional – #3159484/ Exp. 08/2024
Jessica Knoxx, PE, PTOE	Professional Engineer – LA / PE.0047713 / Exp. 09/2025 – Civil Professional Traffic Operations Engineer – #4353 / Exp. 11/2026 Traffic Engineering Analysis Process & Report Modules 1, 2, & 3
Jonathan Katz, PE	Traffic Engineering Analysis Process & Report Module 1, 2, & 3 - Pending, Scheduled for July 10th & 11th Renewal IMSA/FOA Certified Fiber Optic Tech - #CFOT_127762 / Exp. 01/2026
iteris	
Tom Lusco, CSEP	Certified Systems Engineering Professional (CSEP) #04171 / Exp. 07/30/2026
Niti	
	Disadvantage Business Enterprise (DBE)

LOUISIANA PROFESSIONAL ENGINEERING AND LAND SURVEYING BOARD

As of 5/15/2024 the Louisiana Professional Engineering and Land Surveying Board (LAPELS) has the following information on file:

Cut Here

LOUISIANA PROFESSIONAL ENGINEERING & LAND SURVEYING BOARD (LAPELS)
9643 Brookline Avenue, Suite 121
Baton Rouge, LA 70809
Phone (225) 925-6291
www.lapels.com

Mr. Elun Paul Hsu

License/Certificate Type - Number: PE.0035983

Expiration Date: 03/31/2025

Status: Active

Fold Here

Please be advised that your license must be in "Active" status in order for you to (a) provide or offer to provide engineering or land surveying services in Louisiana or (b) use the words "engineer", "engineering", "land surveyor", "land surveying" or any modification or derivative thereof in your name or in connection with your business or activities in Louisiana. Licensees whose licenses are in "Retired", "Inactive", or "Expired" status are prohibited from engaging in the activities described above in items (a) and (b).

LA R. S. 37:689 requires firms practicing or offering to practice engineering or land surveying in the state of Louisiana to be licensed by the Board prior to offering such services.

Print and keep the following information for your record or verification. The pocket card may also be printed on card stock or laminated to keep with you as license/certificate verification.

Disclaimer
All information provided by LAPELS on this web page, and on its other web pages and internet sites, is made available to provide immediate access for the convenience of interested persons. While LAPELS believes the information to be reliable, human or mechanical error remains a possibility, as does delay in the posting or updating of information. Therefore, LAPELS makes no guarantee as to the accuracy, completeness, timeliness, currency, or correct sequencing of the information. Neither LAPELS, nor any of the sources of the information, shall be responsible for any errors or omissions, or for the use or results obtained from the use of this information. Other specific cautionary notices may be included on other web pages maintained by LAPELS.

LOUISIANA PROFESSIONAL
ENGINEERING & LAND SURVEYING BOARD
(LAPELS)
9643 Brookline Avenue, Suite 121
Baton Rouge, LA 70809
Phone (225) 925-6291
www.lapels.com

Mr. Akhilendra Singh Chauhan

License/Certificate Type - Number	Expiration Date
PE.0033703	09/30/2024

Status: Active

Please be advised that your license must be in "Active" status in order for you to (a) provide or offer to provide engineering or land surveying services in Louisiana or (b) use the words "engineer", "engineering", "land surveyor", "land surveying" or any modification or derivative thereof in your name or in connection with your business or activities in Louisiana. Licensees whose licenses are in "Retired", "Inactive", or "Expired" status are prohibited from engaging in the activities described above in items (a) and (b).

LA R. S. 37:689 requires firms practicing or offering to practice engineering or land surveying in the state of Louisiana to be licensed by the Board prior to offering such services.

Project Management Institute

This is to certify that

Akhilendra S Chauhan

has been formally evaluated for demonstrated experience, knowledge and skills to lead and direct project teams and is hereby bestowed the global credential

Project Management Professional

In testimony whereof, we have subscribed our signatures under the seal of the Institute.

Bob Prieto - Chair, Board of Directors

Mark A. Langley - President and Chief Executive Officer

PMP® Number 1444676

PMP® Original Grant Date 16 August 2011

PMP® Expiration Date 15 August 2014

Project Management Institute

Transportation Professional Certification Board Inc.

certifies that

Akhilendra Singh Chauhan

has met all of the requirements established by the Certification Board to use the title of

PROFESSIONAL TRAFFIC OPERATIONS ENGINEER

Unless withdrawn by the Certification Board this certificate number 2544 issued in Washington, D.C. is subject to the provisions for renewal

November 24, 2008

Steven D. Hofener
Chair

PTOE
PROFESSIONAL TRAFFIC OPERATIONS ENGINEER

Executive Director

Transportation Professional Certification Board Inc.

certifies that

Akhilendra Singh Chauhan

has met all of the requirements established by the Certification Board to use the title of

PROFESSIONAL TRANSPORTATION PLANNER

Unless withdrawn by the Certification Board this certificate number 246 issued in Washington, D.C. is subject to the provisions for renewal

December 1, 2009

Steven D. Hofener
Chair

PTP
PROFESSIONAL TRANSPORTATION PLANNER

Executive Director

Certificate of Completion

presented to

Akhil Chauhan

for completing the

Traffic Engineering Analysis Process & Report
Module 1

Date: June 4, 2018
Location: Baton Rouge, Louisiana

Professional Development Hours (PDHs) Awarded: 4

Authorized Instructor *Authorized Instructor* *Authorized instructor*

DOTD
LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

Certificate of Completion

presented to

Akhil Chauhan

for completing the

Traffic Engineering Analysis Process & Report
Module 2

Date: June 11, 2018
Location: Baton Rouge, Louisiana

Professional Development Hours (PDHs) Awarded: 4

Authorized Instructor *Authorized Instructor* *Authorized instructor*

DOTD
LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

Certificate of Completion

presented to

Akhil Chauhan

for completing the

Traffic Engineering Analysis Process & Report
Module 3

Date: September 10, 2018
Location: Baton Rouge, Louisiana

Professional Development Hours (PDHs) Awarded: 3

Authorized Instructor *Authorized Instructor* *Authorized instructor*

DOTD
LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

LOUISIANA PROFESSIONAL ENGINEERING AND LAND SURVEYING BOARD

As of 5/15/2024 the Louisiana Professional Engineering and Land Surveying Board (LAPELS) has the following information on file:

Cut Here

LOUISIANA PROFESSIONAL ENGINEERING & LAND SURVEYING BOARD (LAPELS)
9643 Brookline Avenue, Suite 121
Baton Rouge, LA 70809
Phone (225) 925-6291
www.lapels.com

Mr. Douglas Patrick Tilt

License/Certificate Type - Number	Expiration Date
PE.0033502	03/31/2026

Status: Active

Fold Here

Please be advised that your license must be in "Active" status in order for you to (a) provide or offer to provide engineering or land surveying services in Louisiana or (b) use the words "engineer", "engineering", "land surveyor", "land surveying" or any modification or derivative thereof in your name or in connection with your business or activities in Louisiana. Licensees whose licenses are in "Retired", "Inactive", or "Expired" status are prohibited from engaging in the activities described above in items (a) and (b).

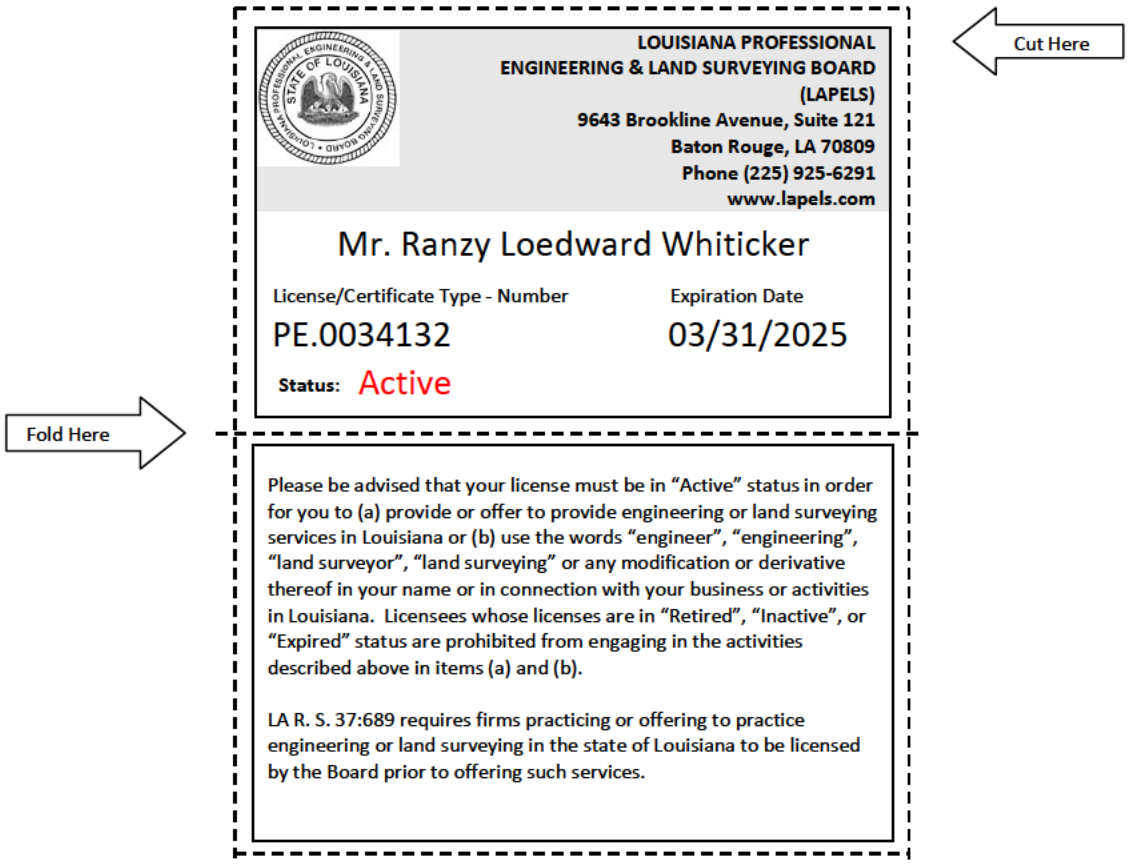
LA R. S. 37:689 requires firms practicing or offering to practice engineering or land surveying in the state of Louisiana to be licensed by the Board prior to offering such services.

Print and keep the following information for your record or verification. The pocket card may also be printed on card stock or laminated to keep with you as license/certificate verification.

Disclaimer
All information provided by LAPELS on this web page, and on its other web pages and internet sites, is made available to provide immediate access for the convenience of interested persons. While LAPELS believes the information to be reliable, human or mechanical error remains a possibility, as does delay in the posting or updating of information. Therefore, LAPELS makes no guarantee as to the accuracy, completeness, timeliness, currency, or correct sequencing of the information. Neither LAPELS, nor any of the sources of the information, shall be responsible for any errors or omissions, or for the use or results obtained from the use of this information. Other specific cautionary notices may be included on other web pages maintained by LAPELS.

LOUISIANA PROFESSIONAL ENGINEERING AND LAND SURVEYING BOARD

As of 5/15/2024 the Louisiana Professional Engineering and Land Surveying Board (LAPELS) has the following information on file:



Print and keep the following information for your record or verification. The pocket card may also be printed on card stock or laminated to keep with you as license/certificate verification.

Disclaimer

All information provided by LAPELS on this web page, and on its other web pages and internet sites, is made available to provide immediate access for the convenience of interested persons. While LAPELS believes the information to be reliable, human or mechanical error remains a possibility, as does delay in the posting or updating of information. Therefore, LAPELS makes no guarantee as to the accuracy, completeness, timeliness, currency, or correct sequencing of the information. Neither LAPELS, nor any of the sources of the information, shall be responsible for any errors or omissions, or for the use or results obtained from the use of this information. Other specific cautionary notices may be included on other web pages maintained by LAPELS.

LOUISIANA PROFESSIONAL
ENGINEERING & LAND SURVEYING BOARD
(LAPELS)
9643 Brookline Avenue, Suite 121
Baton Rouge, LA 70809
Phone (225) 925-6291
www.lapels.com

Ms. Laura Evans Hartley

License/Certificate Type - Number	Expiration Date
PE.0039030	09/30/2024

Status: Active

Please be advised that your license must be in "Active" status in order for you to (a) provide or offer to provide engineering or land surveying services in Louisiana or (b) use the words "engineer", "engineering", "land surveyor", "land surveying" or any modification or derivative thereof in your name or in connection with your business or activities in Louisiana. Licensees whose licenses are in "Retired", "Inactive", or "Expired" status are prohibited from engaging in the activities described above in items (a) and (b).

LA R. S. 37:689 requires firms practicing or offering to practice engineering or land surveying in the state of Louisiana to be licensed by the Board prior to offering such services.

ATSSA TRAINED

PROOF OF TRAINING

THIS CERTIFICATE HEREBY RECOGNIZES THAT

Jeff Jones
has attended
Traffic Control Supervisor Refresher-LA State Specific
Training Course

1/25/2022 to 1/25/2026
Training Valid Through

Director of Training

Baton Rouge, LA
Location

President, CEO

ATSSA provides training and certification but neither constitutes employment by ATSSA.
This certificate provides proof of training, not certification.

ATSSA American Traffic Safety Services Association ATSSA.com

CERTIFIED PUBLIC SAFETY TECHNICIAN
IMSA

Jeff A. Jones
is hereby certified as a
Renewal IMSA Traffic Signal Technician I
by completing all requirements and examination for certification
on 8/23/2021

Valid thru 8/23/2024
Certification #AA_112604

Toby Cummings - Executive Director

ATSSA

AMERICAN TRAFFIC SAFETY SERVICES ASSOCIATION

SLOW

This is to affirm that

JEFF JONES

has satisfied the requirements to be designated as a

REGISTERED FLAGGER

Expiration Date 8-17-24 State Issued in LA

Instructor Signature

Verification available by calling 1-877-8[illegible] or at http://www.flagger.com

---

CERTIFIED PUBLIC SAFETY TECHNICIAN
IMSA

Jeff A. Jones
is hereby certified as a
Renewal IMSA Traffic Signal Field Tech II
by completing all requirements and examination for certification
on 8/23/2021

Valid thru 8/23/2024
Certification #BE_112604

Toby Cummings - Executive Director

Life Safety &
Property Protection License

License Holder:
JEFFERY A. JONES

License Number:
E 17148

Expires On:
7/1/2024

Firm:
ARCADIS U.S. INC

Firm Number:
F 2101

Firm Expiration:
7/1/2024

Issued by Louisiana State Fire Marshal

FAA Aviation Safety

Certificate of Achievement

This is to certify that

Jeffery Alan Jones

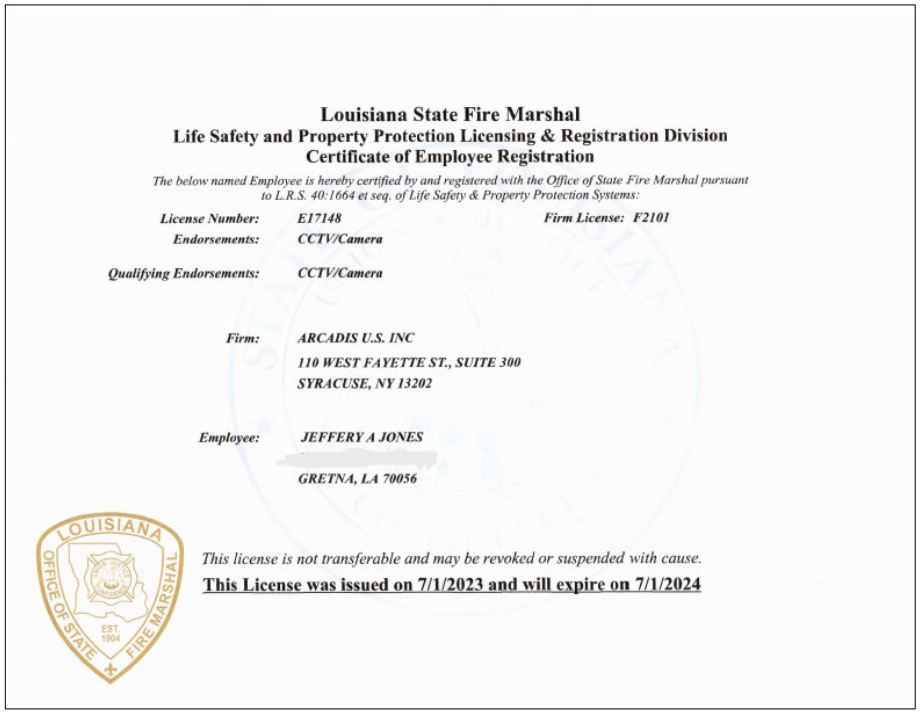
has successfully completed the
FAA Safety Team Aviation Learning Center Online Course

Part 107 Small Uas Recurrent

Course Number ALC-677
Presented by AFS-600 Regulatory Support Division
July 13, 2022

Certificate Number 1277598-20220713-00677

Patricia Mathes, Manager, National FAA Safety Team



Louisiana State Fire Marshal
Life Safety and Property Protection Licensing & Registration Division
Certificate of Employee Registration

The below named Employee is hereby certified by and registered with the Office of State Fire Marshal pursuant to L.R.S. 40:1664 et seq. of Life Safety & Property Protection Systems:

License Number: E17148 *Firm License:* F2101
Endorsements: CCTV/Camera

Qualifying Endorsements: CCTV/Camera

Firm: ARCADIS U.S. INC
110 WEST FAYETTE ST., SUITE 300
SYRACUSE, NY 13202

Employee: JEFFERY A JONES
GRETNA, LA 70056

LOUISIANA OFFICE OF STATE FIRE MARSHAL EST. 1904

This license is not transferable and may be revoked or suspended with cause.
This License was issued on 7/1/2023 and will expire on 7/1/2024

Certificate of Completion

This is to certify that

jeff jones

has completed

NFPA 70E: Standard for Electrical Safety in the Workplace 2017-18

Completion Date 02/22/2019
Course Duration 4.0
Certificate # 000015386460

360training.com

360training.com ♦ 6801 N Capital of Texas Hwy Suite 150 ♦ Austin, TX 78731 ♦ 877.881.2235 ♦ www.360training.com


I UNITED STATES OF AMERICA XI
DEPARTMENT OF TRANSPORTATION • FEDERAL AVIATION ADMINISTRATION
IV NAME
JEFFERY ALAN JONES
V ADDRESS
GRETNA LA 70056-7641
VI NATIONALITY USA
IVa D.O.B.
SEX HEIGHT WEIGHT HAIR EYES
M 72 205 BROWN BROWN
IX HAS BEEN FOUND PROPERLY QUALIFIED TO EXERCISE THE PRIVILEGES OF
II REMOTE PILOT
III CERTIFICATE NUMBER 4411792
X DATE OF ISSUE 30 JUL 2020
XIV
VIII ADMINISTRATOR
U
S
A
S


CERTIFICATE OF ACHIEVEMENT

is hereby granted to

MR. JEFF JONES

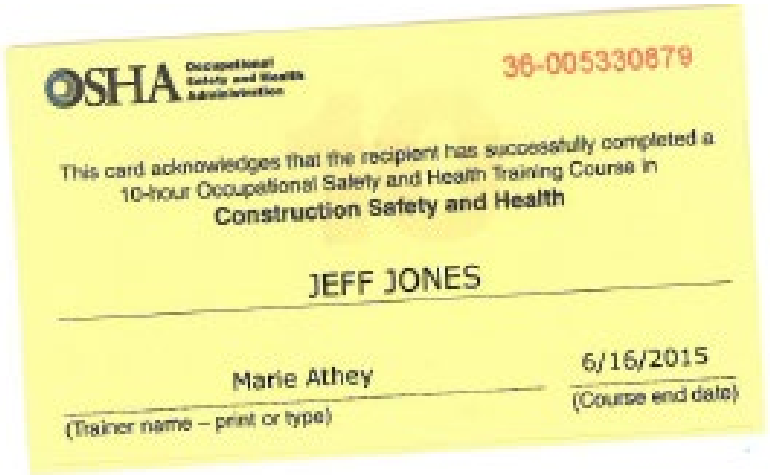
To certify satisfactory completion of the RTMS Traffic Detector Technical Training course as presented by

IMAGE SENSING SYSTEMS, INC.

Andrew Thoms
Sales Engineer Manager

19-Jan-16
Date

ImageSensing systems
Precision decisions.


OSHA Occupational Safety and Health Administration

36-005330879

This card acknowledges that the recipient has successfully completed a 10-hour Occupational Safety and Health Training Course in
Construction Safety and Health

JEFF JONES

Marie Athey
(Trainer name – print or type)

6/16/2015
(Course end date)


Training Certificate

PRESENTED TO

Jeff Jones

for successful completion of a webinar presentation on
Traffic Controller (Naztec TS1 & TS2) and Streetwise Training Course
September 5, 2013
8 PDH's

Michael Trueblood, PE, PTOE
Facilitator

Trafficware UNIVERSITY

LAPELS Continuing Professional Development Provider - CPD.0000281

Certificate of Completion

FIBER INSTRUMENT SALES, INC.

Fiber Optic Training Course

This certifies that

Jeff Jones

has successfully completed the Fiber Instrument Sales, Inc. Fiber Optic Training Course on June 8th , 2011.

BICSI CECs:
RCDD – 6
Installer - 6
Technician – 6
Certified Trainer - 6

John C. Bruno
Training Specialist

PGTI
PELCO GLOBAL TRAINING INSTITUTE

Jeff Jones

Has Successfully Completed the Course Entitled:

Spectra Positioning Systems

2/6/2015

Barbara Morgan
Barbara Morgan
Global Training Director

PELCO
by Schneider Electric

Certificate of Completion

FIBER INSTRUMENT SALES, INC.

Advanced Fiber Optic Training Course

This certifies that

Jeff Jones

has successfully completed the Fiber Instrument Sales, Inc. Advanced Fiber Optic Training Course on June 9th , 2011.

BICSI CECs:
RCDD – 5
Installer - 5
Technician – 5
Certified Trainer - 5

John C. Bruno
Training Specialist

DAKTRONICS

CERTIFICATE OF PARTICIPATION

JEFF JONES

ATTENDED

VANGUARD®

MAINTENANCE TRAINING

ON

FEBRUARY 25, 2014

TYREL HERRLEIN
TECHNICAL TRAINER
TRANSPORTATION BUSINESS UNIT
DAKTRONICS, INC.

DATE: 3/24/2014

Issuance of this certificate does not constitute expressed or implied endorsement, qualification, or endorsement by Daktronics.


Helios
COHU HD
CERTIFICATE
Jeffery Jones
Of ARCADIS US, INC
IS A
Cohu Electronics Certified
Installer
Closed-Circuit Television CCTV
Date Certified: April 13, 2015
William McPheeters Service Manager


Certificate of Completion
THIS ACKNOWLEDGES THAT
Jeff Jones
has successfully completed the six-hour training program entitled:
"Temporary Traffic Control Plan Development Workshop"
Held in Shreveport, Louisiana on May 16, 2014
Conducted by the Wayne State University – Transportation Research Group
as Part of the Federal Highway Administration (FHWA) Work Zone Safety Grant Program (DTFH61-11-RA-00012)
U.S.Department of Transportation
Federal Highway Administration
TAPAN K. DATTA, PH.D., P.E., WORKSHOP LEADER
PROFESSOR, WAYNE STATE UNIVERSITY
WAYNE STATE
College of Engineering


ECONOLITE
Certificate of Achievement
is hereby granted to
Jeff Jones
for satisfactorily completing the necessary requirements for
Autoscope® Training
Instructor
Bill Lietzan
November 18, 2015
Autoscope


ECONOLITE Group, Inc.
Certificate of Achievement
This is to certify that
Jeff Jones
Satisfactorily completed the training course on:
Autoscope® Maintenance and Operation
Instructor:
Freddie Neal
ECONOLITE
aegis its
California Chassis
Safetran

This diploma confirms that

jeff jones

with

Arcadis

has successfully completed the

Axis Communications' Academy
Introduction to networking

on May 30, 2018

James Marcella
Director of Technical Services
Axis Communications, USA

AXIS COMMUNICATIONS

This diploma confirms that

Jeff Jones

with

ARCADIS

has successfully completed the

Axis Communications' Academy
Axis Boot Camp

on this 27th day of February, 2015

Randy Salminen
Educational Services Manager
Axis Communication, USA

AXIS COMMUNICATIONS

Axis Certified Professional.

This verifies that

jeff jones
Name

May 31, 2018
On this date

Has successfully completed Axis recertification test and thereby continues to meet the exacting standards to be qualified as an Axis Certified Professional in network video. The certification is valid for 36 months.

Lars Åberg
Vice President Marketing
Axis Communications

AXIS CERTIFIED PROFESSIONAL

AXIS COMMUNICATIONS


ATSSA
AMERICAN TRAFFIC SAFETY SERVICES ASSOCIATION
SLOW
This is to affirm that
Cody Lemoine
has satisfied the requirements to be designated as a
REGISTERED FLAGGER
Expiration Date 8-17-24
State Issued in LA
Instructor Signature
Verification available by calling 1-877-642-4637 or at http://www.flagger.com


ATSSA TRAINED
PROOF OF TRAINING
THIS CERTIFICATE HEREBY RECOGNIZES THAT
Cody Lemoine
has attended
Traffic Control Supervisor Refresher-LA State Specific
Training Course
1/25/2022 to 1/25/2026
Training Valid Through
Director of Training
Baton Rouge, LA
Location
President, CEO
ATSSA provides training and certification but neither constitutes employment by ATSSA.
This certificate provides proof of training, not certification.
ATSSA American Traffic Safety Services Association ATSSA.com


FAA Aviation Safety
Certificate of Achievement
This is to certify that
Cody Michael Lemoine
has successfully completed the
FAA Safety Team Aviation Learning Center Online Course
Part 107 Small Uas Recurrent
Course Number ALC-677
Presented by AFS-600 Regulatory Support Division
July 18, 2022
Certificate Number 1331437-20220718-00677
Patricia Mathes, Manager, National FAA Safety Team


Certificate of Completion
This is to certify that
Cody Lemoine
has completed
NFPA 70E: Standard for Electrical Safety in the Workplace 2017-18
Completion Date 02/26/2019
Course Duration 4.0
Certificate # 000015360357
360training.com
6801 N Capital of Texas Hwy, Bldg I, Suite 250 • Austin, TX 78731 • 877.661.2235 • www.360training.com

FAA Aviation Safety

Certificate of Achievement

This is to certify that

Cody Michael Lemoine

has successfully completed the FAA Safety Team Aviation Learning Center Online Course

Suas Crew Resource Management

Course Number ALC-704

Presented by Influential Drones & Sundance Media Group

February 28, 2023

Certificate Number 1331437-20230228-00704

Patricia Mathes, Manager, National FAA Safety Team

CERTIFICATE OF ACHIEVEMENT

is hereby granted to

MR. CODY LEMOINE

To certify satisfactory completion of the RTMS Traffic Detector Technical Training course as presented by

IMAGE SENSING SYSTEMS, INC.

19-Jan-16

Andrew Thoms, Sales Engineer Manager — *Date*

ImageSensing systems

Precision decisions.

I UNITED STATES OF AMERICA XI

DEPARTMENT OF TRANSPORTATION • FEDERAL AVIATION ADMINISTRATION

IV NAME

CODY MICHAEL LEMOINE

V ADDRESS [redacted]

VI NATIONALITY	SEX	HEIGHT	WEIGHT	HAIR	EYES
USA	M	73	340	BLACK	HAZEL

IVa D.O.B. [redacted]

IX HAS BEEN FOUND PROPERLY QUALIFIED TO EXERCISE THE PRIVILEGES OF

II REMOTE PILOT

III CERTIFICATE NUMBER 4416213

X DATE OF ISSUE 11 AUG 2020

XIV

VIII ADMINISTRATOR

U A S

DOTD

LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

LTAP

Certificate of Attendance

Local Public Agency Qualification Program
Construction, Engineering, and Inspection Module

PRESENTED BY

Louisiana Department of Transportation and Development
Louisiana Local Technical Assistance Program
And
The Federal Highway Administration

TO CERTIFY THAT

Cody Lemoine

HAS SATISFACTORILY COMPLETED 7 HOURS OF TRAINING

Director of Local Public Agency Program

October 4, 2018
Date

New Orleans, Louisiana
Location

CERTIFICATE

Scan to validate

FOA Certified Fiber Optic Technician

Is awarded to

Cody Lemoine

by

The Fiber Optic Association

Issue Date	Expiration Date	Verify Badge here
June 15, 2023	**June 15, 2026**	**https://bcert.me/sufgziwkt**

CLICKSAFETY

TRAINING. COMPLIANCE. YOUR FUTURE.

certifies that

cody lemoine

has successfully completed

Motorized Mobile Platforms for Construction

and 0.10 CEUs
and 1.00 Contact Hours.
This course was developed and
presented by ClickSafety.com, Inc.

ACCREDITED IACET PROVIDER

I confirm that I personally took the course listed above.

1210055242	08/24/2021	0.75 Hours	
Serial Number	**Completion Date**	**Course Duration**	**Student Signature**

DAKTRONICS

Daktronics

VANGUARD

CERTIFICATE OF PARTICIPATION

CODY LEMOINE

ATTENDED

VANGUARD MAINTENANCE AND SOFTWARE TRAINING

ON: DECEMBER 27, 2018

BRIAN MCGUIRE
TECHNICAL SERVICES
TRANSPORTATION BUSINESS UNIT
DAKTRONICS, INC.

DATE

Issuance of this certificate does not constitute expressed or implied endorsement, qualification, or certification by Daktronics.

This diploma confirms that

Cody Lemoine

with

Detel Wireless

has successfully completed the

Axis Communications' Academy
Axis Boot Camp

on this 27th day of February, 2015

Randy Salminen
Educational Services Manager
Axis Communication, USA

AXIS COMMUNICATIONS

LOUISIANA STATE CIVIL SERVICE

acknowledges that

Cody Michael Lemoine

has successfully completed the training course:

CPTP SCS Cybersecurity WBT

on

February 28, 2022

This document is intended to be used solely for the purpose of documenting the individual's completion of SCS's web-based training:
CPTP SCS Cybersecurity WBT

STATECIVILSERVICE

LOUISIANA PROFESSIONAL
ENGINEERING & LAND SURVEYING BOARD
(LAPELS)
9643 Brookline Avenue, Suite 121
Baton Rouge, LA 70809
Phone (225) 925-6291
www.lapels.com

Mr. Anthony James Moore

License/Certificate Type - Number	Expiration Date
PE.0037887	09/30/2025

Status: Active

Please be advised that your license must be in "Active" status in order for you to (a) provide or offer to provide engineering or land surveying services in Louisiana or (b) use the words "engineer", "engineering", "land surveyor", "land surveying" or any modification or derivative thereof in your name or in connection with your business or activities in Louisiana. Licensees whose licenses are in "Retired", "Inactive", or "Expired" status are prohibited from engaging in the activities described above in items (a) and (b).

LA R. S. 37:689 requires firms practicing or offering to practice engineering or land surveying in the state of Louisiana to be licensed by the Board prior to offering such services.

ATSSA
SAFER ROADS SAVE LIVES

American Traffic Safety Services Association

This is to affirm that

ANTHONY MOORE

has satisfied the requirements to be designated as a

CERTIFIED FLAGGER

Issue Date 8/7/2023
Exp. Date 8/7/2027
State Issued LA

Debbie Purcella
Instructor Name

Debbie Purcella
Instructor Signature

V0000201774

Verify at Flagger.com

ATSSA TRAINED

PROOF OF TRAINING

THIS CERTIFICATE HEREBY RECOGNIZES THAT

Anthony J Moore
has attended
Traffic Control Supervisor Refresher-LA State Specific
Training Course

1/25/2022 to 1/25/2026
Training Valid Through

Director of Training

Baton Rouge, LA
Location

President, CEO

ATSSA provides training and certification but neither constitutes employment by ATSSA.
This certificate provides proof of training, not certification.

ATSSA American Traffic Safety Services Association ATSSA.com

ATSSA TRAINED

PROOF OF TRAINING

THIS CERTIFICATE HEREBY RECOGNIZES THAT

Anthony Jackson
has attended
Traffic Control Supervisor Refresher-LA State Specific
Training Course

1/25/2022 to 1/25/2026
Training Valid Through

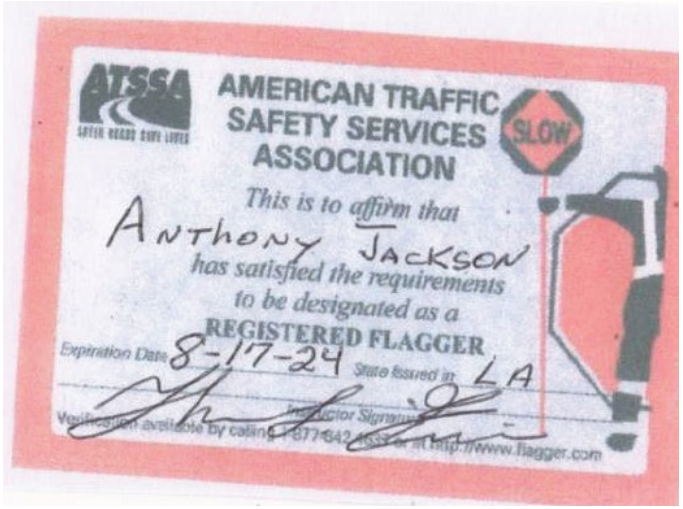
Director of Training

Baton Rouge, LA
Location

President, CEO

ATSSA provides training and certification but neither constitutes employment by ATSSA.
This certificate provides proof of training, not certification.

ATSSA American Traffic Safety Services Association ATSSA.com



CERTIFIED PUBLIC SAFETY TECHNICIAN
IMSA

Anthony Jackson, III
is hereby certified as a

Traffic Signal Inspector for Advanced Technologies
by completing all requirements and examination for certification
on 1/26/2022

Valid thru 1/26/2025
Certification #AT_117627

Toby Cummings, CAE - Executive Director

CERTIFIED PUBLIC SAFETY TECHNICIAN
IMSA

Anthony Jackson, III
is hereby certified as a

Traffic Signal Senior Field Tech Level III
by completing all requirements and examination for certification
on 1/26/2022

Valid thru 1/26/2025
Certification #CE_117627

Toby Cummings, CAE - Executive Director

DAKTRONICS

CERTIFICATE OF PARTICIPATION

ANTHONY JACKSON

ATTENDED

VANGUARD®

MAINTENANCE TRAINING

ON

FEBRUARY 25, 2014

TYREL HERRLEIN
TECHNICAL TRAINER
TRANSPORTATION BUSINESS UNIT
DAKTRONICS, INC.

DATE: 3/24/2014

Issuance of this certificate does not constitute expressed or implied endorsement, qualification, or endorsement by Daktronics.

IMSA

Your Partner in PUBLIC SAFETY

Traffic Signal Program

Be It Known That

Anthony Jackson

is hereby certified as a

Traffic Signal Technician Level I

by completing all requirements and examination

For Certification on this Twenty-sixth day of August, 2013

Valid Thru: 8/26/2016

Certificate Number
AA_106322

Michael T. Voiling - Executive Director

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

NHI
NATIONAL HIGHWAY INSTITUTE

Certificate of Training

ANTHONY JACKSON

has participated in

FHWA-NHI-133121

Traffic Signal Design and Operation

hosted by

LA DOTD/LTRC

Date: *December 13-14, 2016*
Location: *Baton Rouge, LA*

Hours of Instruction: 12

Instructor

Instructor

Local Coordinator

Valerie Briggs, Director
National Highway Institute

Louisiana Roads Scholar Program
A Key To Success

LOCAL TECHNICAL ASSISTANCE PROGRAM
LTAP
Celebrating 25 Years

Certificate of Training

PRESENTED BY

Louisiana Local Technical
Assistance Program

TO CERTIFY THAT

Anthony Jackson

HAS SATISFACTORILY COMPLETED 6 PROFESSIONAL DEVELOPMENT HOURS IN:

Roads Scholar #5(a) – Creating a Safe Work Environment

Director-LTAP

March 25, 2014
Date

Baton Rouge, Louisiana
Location

Prime Firm Name: Arcadis

Page 2 of 10


Helios
COHU
Cohu, Inc. / Electronics Division
CERTIFICATE
Anthony Jackson
Of INTELLIGENT TRANSPORTATION SYSTEMS, LLC
IS A
Cohu Electronics Certified
Technician
Closed-Circuit Television CCTV
Date Certified: January 2, 2014
William McPheeters Service Manager


Helios
COHU HD
CERTIFICATE
Anthony Jackson
Of INTELLIGENT TRANSPORTATION SYSTEMS, LLC
IS A
Cohu Electronics Certified
Installer
Closed-Circuit Television CCTV
Date Certified: January 5, 2015
William McPheeters Service Manager


State of Louisiana
Department of Transportation and Development
Awards this certificate to
Anthony Jackson
for the
Successful Completion of the Requirements
to become an
Authorized Concrete Field Tester
Department Certifying Authority


State of Louisiana
Department of Transportation and Development
Awards this certificate to
Anthony Jackson
for
Successful Completion of the Requirements
for Certification in
Structural Concrete
Inspection
Department Certifying Authority

GIS Certification Institute

This is to certify that The Board of Directors of the GIS Certification Institute,

Upon the recommendation of the Executive Director, has conferred upon

David Ward

the distinction of

Geographic Information Systems Professional

GISP

Certificate Number 51378

Date of Initial Certification 4/25/2005

Date of Expiration 4/25/2027

Jochen Albrecht
GISCI President

GIS CERTIFICATION INSTITUTE

Anthony Spicci, GISP
GISCI Executive Director

Transportation Professional Certification Board, Inc.

certifies that

Meredith Guidry

has met all of the requirements established by the Certification Board to use the title of

Road Safety Professional

unless withdrawn by the Certification Board and subject to the provisions for renewal.
Certificate number 861 issued in Washington, DC, USA

7/13/2022

Deborah Snyder
Chair

ROAD SAFETY PROFESSIONAL

Jeffrey F. Paniati
Executive Director

Certificate of Completion

presented to

Meredith Guidry

for completing the

Traffic Engineering Analysis Process & Report
Module 1

Date: March 10, 2021
Location: Baton Rouge, Louisiana

Professional Development Hours (PDHs) Awarded: 3

Authorized Instructor | *Authorized Instructor* | *Authorized instructor*

DOTD
LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

Certificate of Completion

presented to

Meredith Guidry

for completing the

Traffic Engineering Analysis Process & Report
Module 2

Date: March 10, 2021
Location: Baton Rouge, Louisiana

Professional Development Hours (PDHs) Awarded: 3

Authorized Instructor | *Authorized Instructor* | *Authorized instructor*

DOTD
LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

Certificate of Completion

presented to

Meredith Guidry

for completing the

Traffic Engineering Analysis Process & Report
Module 3

Date: March 11, 2021
Location: Baton Rouge, Louisiana

Professional Development Hours (PDHs) Awarded: 3

Authorized Instructor | *Authorized Instructor* | *Authorized instructor*

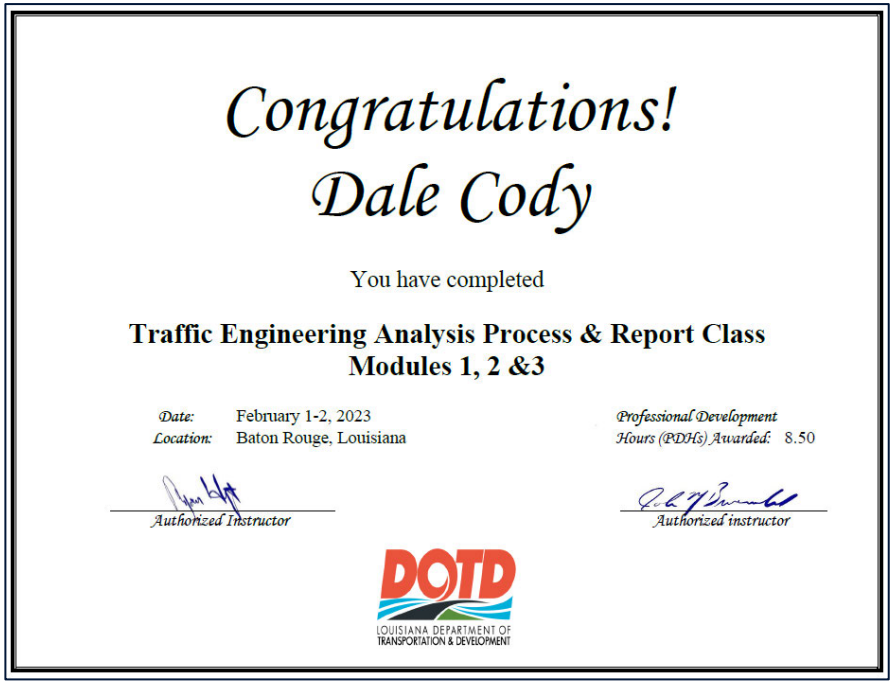
DOTD
LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

Louisiana Professional Engineering
and
Land Surveying Board

Hereby Certifies that
Mr. Dale William Cody
has satisfied the applicable requirements and is therefore licensed as a
Professional Engineer
and hereby entitled to practice engineering in the State of Louisiana.

Baton Rouge, Louisiana · April 13, 2023

License Number PE.0047766



Congratulations!
Dale Cody

You have completed

Traffic Engineering Analysis Process & Report Class
Modules 1, 2 &3

Date: February 1-2, 2023
Location: Baton Rouge, Louisiana

Professional Development Hours (PDHs) Awarded: 8.50

Authorized Instructor

Authorized instructor

DOTD
LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

Transportation Professional Certification Board, Inc.

certifies that

Dale W. Cody

has met all of the requirements established by the Certification Board
to use the title of

PROFESSIONAL TRAFFIC OPERATIONS ENGINEER

Unless withdrawn by the Certification Board, this certificate number 1206
issued in Washington, D.C. will remain valid for three years from
November 19, 2006

Steven D. Hofener
Chair

PROFESSIONAL TRAFFIC OPERATIONS ENGINEER

Executive Director

Project Management Institute

THIS IS TO CERTIFY THAT

John Vincent Battle Jr.

HAS BEEN FORMALLY EVALUATED FOR DEMONSTRATED EXPERIENCE, KNOWLEDGE AND PERFORMANCE IN ACHIEVING AN ORGANIZATIONAL OBJECTIVE THROUGH DEFINING AND OVERSEEING PROJECTS AND RESOURCES AND IS HEREBY BESTOWED THE GLOBAL CREDENTIAL

Project Management Professional (PMP)®

IN TESTIMONY WHEREOF, WE HAVE SUBSCRIBED OUR SIGNATURES UNDER THE SEAL OF THE INSTITUTE

Tony Appleby
Chair, Board of Directors

Sunil Prashara
President and Chief Executive Officer

PROJECT MANAGEMENT INSTITUTE CORPORATE SEAL 1969 NEWTOWN SQUARE

PMP® Number: 3159484
PMP® Original Grant Date: 09 November 2021
PMP® Expiration Date: 08 November 2024

Project Management Institute.

Louisiana Professional Engineering and Land Surveying Board

Hereby Certifies that

Mrs. Jessica Knox

has satisfied the applicable requirements and is therefore licensed as a

Professional Engineer

and hereby entitled to practice engineering in the State of Louisiana.

Baton Rouge, Louisiana · March 30, 2023

License Number PE.0047713

Transportation Professional Certification Board, Inc.

certifies that

Jessica Ashley Renfrow

has met all of the requirements established by the Certification Board to use the title of

Professional Traffic Operations Engineer

unless withdrawn by the Certification Board and subject to the provisions for renewal. Certificate number 4353 issued in Washington, DC, USA

11/20/17

Michael R. Derk
Chair

PTOE PROFESSIONAL TRAFFIC OPERATIONS ENGINEER

Jeffrey F. Paniati
Executive Director

Congratulations!
Jessica Knox

You have completed

Traffic Engineering Analysis Process & Report Class
Modules 1, 2 &3

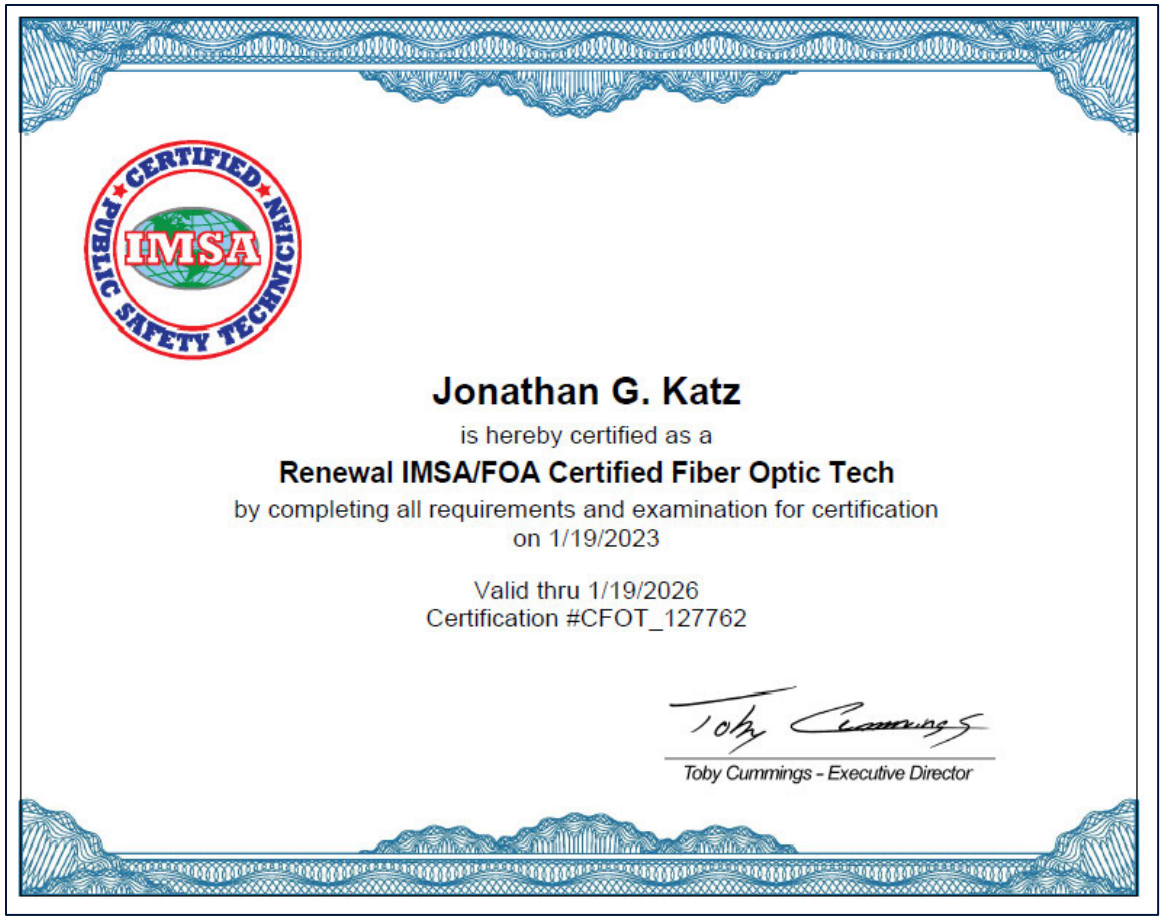
Date: February 1-2, 2023
Location: Baton Rouge, Louisiana

Professional Development Hours (PDHs) Awarded: 8.50

Authorized Instructor

Authorized instructor

DOTD
LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT



CERTIFIED PUBLIC SAFETY TECHNICIAN

IMSA

Jonathan G. Katz

is hereby certified as a

Renewal IMSA/FOA Certified Fiber Optic Tech

by completing all requirements and examination for certification
on 1/19/2023

Valid thru 1/19/2026
Certification #CFOT_127762

Toby Cummings - Executive Director

CERTIFIED

SYSTEMS ENGINEERING PROFESSIONAL

This hereby certifies that

Charles T. Lusco

Has successfully met all prescribed requirements and is designated by the

International Council on Systems Engineering

as a

Certified Systems Engineering Professional

IN TESTIMONY THEREOF, WE HAVE SUBSCRIBED OUR SIGNATURES AS REPRESENTATIVES OF THE CERTIFYING BODY

PRESIDENT OF INCOSE

CERTIFICATION PROGRAM MANAGER

CERTIFICATION NUMBER: **04171**

VALID THROUGH: **July 30, 2026**

THE STATE OF LOUISIANA's Unified Certification PROGRAM

LOUISIANA's on the MOVE! DOTD BUILDS the WAY

UCP SEARCH RESULTS

New Search | Export to Excel

Contractor	**Business Type**	
	Minority Type	**License**
	Phone	**FAX**
Owner	**E-Mail Address**	
Certifying Agency	**Service Type**	
Work Type		
Niti Systems Consultants, Inc.	Minority Business Enterprise	
4521 Bastion Drive		
Roswell, GA 30075	404-509-3055	
Jignesh Patel	jpatel@nitisys.com	
Department of Transportation and Development	ENGINEERING SERVICES	

611420-Computer Training
541613-Marketing
C10-Management
C36-Marketing
C18-System Design
541611-Administrative Management and General Management Consulting Servi
541519-Other Computer Related Services
541512-Computer Systems Design Services
541511-Custom Computer Programming Services

LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

Office of the Secretary
PO Box 94245 | Baton Rouge, LA 70804-9245
PH: 225-379-1200 | FX: 225-379-1851

John Bel Edwards, Governor
Eric Kalivoda, Secretary

June 29, 2023

Niti Systems Consultants, Inc.
Attn: Jignesh Patel
4521 Bastion Drive
Roswell, GA 30075

Dear Jignesh Patel,

The Louisiana Department of Transportation and Development (LADOTD) Compliance Programs Section has received your firm's Disadvantaged Business Enterprise **(DBE)** annual affidavit. Based on the information, which you provided, it has been confirmed that your firm continues to meet the eligibility requirements of our program and remains certified for **only** the following **specific** work categories **that fall under the listed NAICS and/or DOTD Work codes**:

NC541511 – Custom Computer Programming Services
NC541512 – Computer Systems Design Services
NC541519 – Other Computer Related Services
NC541611 – Administrative Management and General Management Consulting Services
NC541613 – Marketing
NC611420 – Computer Training
C10 – Management
C18 – Systems Design
C36 – Marketing

Please note that per the federal regulations, suppliers only receive 60% goal credit towards the materials they provide. Also, note that any contractor performing work in excess of $50,000 with the exception of electrical, mechanical and plumbing requires A Louisiana Contractor's License, which are required to have a license if work is in excess of $10,000. You may contact the State Licensing Board for Contractors at (225) 765-2301 for more information. All participants of the Louisiana Unified Certification Program will recognize your firm's certification. This includes all entities receiving federal transportation funding within the boundaries of our state.

You will be required to submit an annual affidavit with all supporting documents (**Business taxes with all attachments, such as 1098, 1099, K-1's and/or W-2's**) stating your firm continues to meet the eligibility requirements of the program. An email informing you to submit the necessary documentation will be forwarded to you approximately six (6) weeks prior to your anniversary date, **July 31, 2024**. However, should you not receive notification from this office for your annual affidavit; it is your responsibility to contact us. Additionally, you must notify our office immediately regarding any changes, which affect the social and economic disadvantage, size, ownership or control of your firm.

The Louisiana UCP certifying entity reserves the right to withdraw this certification, if at any time, it is determined that the **DBE** certification was knowingly obtained by the submission of false, misleading or incorrect data. The Louisiana UCP certifying entity also reserves the right to request additional information and/or conduct an on-site visit at any time during your certification period.

We are pleased to have you as a participant in the LAUCP and wish you much success.

If you have any questions regarding the content of this letter, contact the LADOTD DBE Certification Unit at (225) 379-1382.

Respectfully,

Rhonda Wallace

Rhonda Wallace
DBE/SBE Programs Manager

Enclosure (Certificate)

LOUISIANA UNIFIED CERTIFICATION PROGRAM

Disadvantaged Business Enterprise Program (DBE)

This is to certify that under Title 49, Part 26 of the Code of Federal Regulations & under the State of Louisiana United Certification Program (LAUCP)

Niti Systems Consultants, Inc.

Is a Certified Disadvantaged Business Enterprise (DBE) in the following specialties:

NC541511, NC541512, NC541519, NC541611, NC541613, NC611420

NOTE: There may be other approved NAICS Codes. The online DBE Directory includes a complete list of approved codes.

Certificate Eligibility: July 2023 to July 2024

This certificate is valid through the above date provided. This firm meets the on-going programmatic standard and fulfills the annual update requirement to remain in good standing as a DBE. This certification is subject to annual verification and suspension or revocation based upon reasonable cause to believe that the firm is ineligible.

Rhonda Wallace

Rhonda Wallace, DBE/SBE Programs Manager

Louisiana Department of Transportation & Development

21. QA/QC Plan:

If the advertisement requires submission of a QA/QC plan, include it here. **Otherwise, leave this section blank. If a QA/QC plan is included in this section and was not required by the advertisement, it will be redacted**.

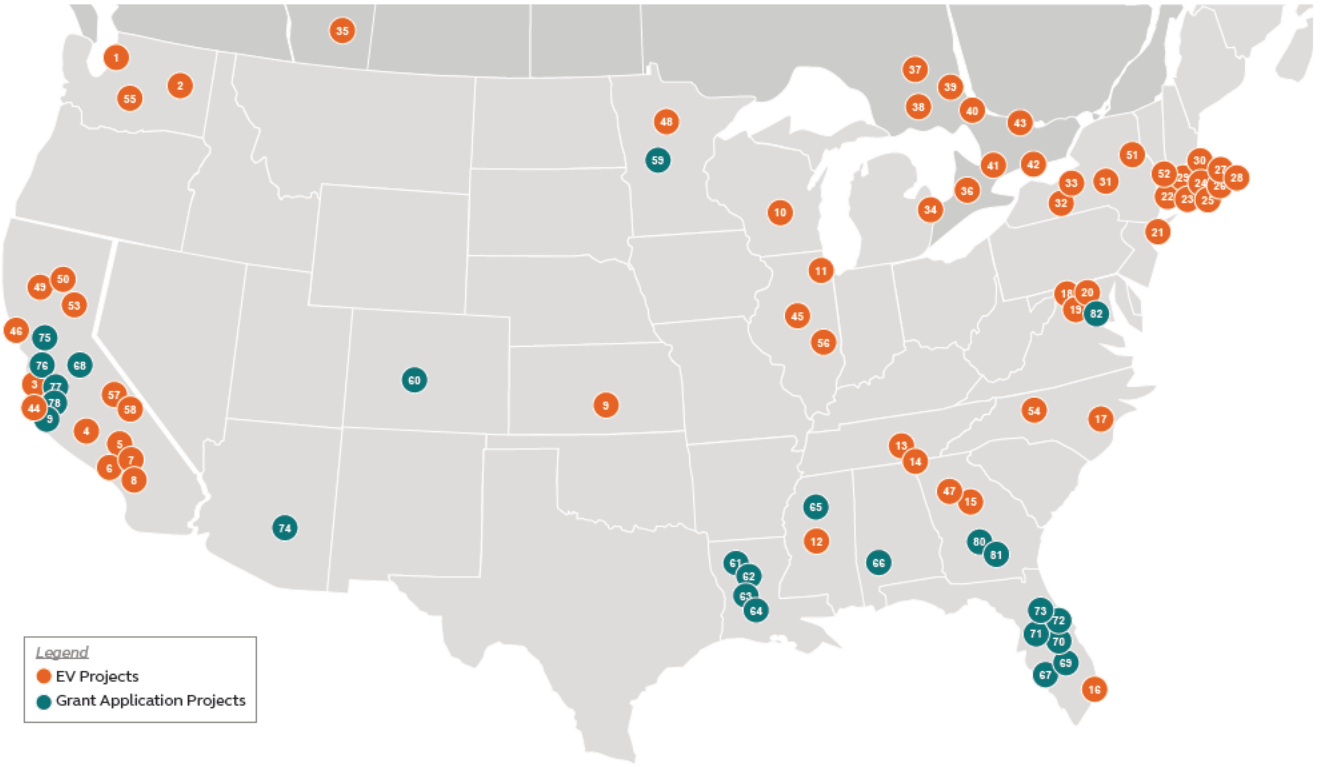
Sections 22-23

ARCADIS

Statistics at a Glance

Arcadis Delivers End-to-End Electrification and Grant Services

10+	Years in the EV space
10+	EVCI Implementation and Grant Support
20+	Master Planning/EV Strategy Completed Across NA
25+	Class 1-8 Fleet Electrification Deployment-Infrastructure Completed Across NA
7,000+	EV Chargers Commissioned Globally
$3.5B+	Successful Grants



1. Operational Implications Study for BEB BRT Sound Transit
2. Moran Station Park & Ride Spokane Transit
3. Fleet Electrification Plan San Jose Water Co
4. High Speed Charging Station D-B Oil & Gas Client
5. EV Charging Station Construction Time & Motion Study Southern CA Power Utility
6. Bus Administration Ops and Maintenance Facility Victor Valley Transit Authority
7. ZEB Rollout Riverside County Transportation Commission
8. Transportation Technology Roadmap Culver City
9. ZEB Fleet Transition Plan Topeka Metro
10. Electrification Support Services Madison
11. Electric Bus Program Implementation Chicago Transit Authority
12. NEVI Program Deployment Plan MDOT
13. Development of CFI Grant Application Metro Nashville DOT
14. Electrification Expansion Plan Chattanooga
15. Regional ZEB Fleet Transition Plan Atlanta
16. Copans Road Garage Design Broward County Transit
17. Pilot Bus Electrification GoRaleigh
18. Technology & Data Analytics District DOT
19. High Speed Charging Station D-B City of Washington DC
20. Medium/Heavy-Duty Vehicle Fleet Electrification Pilot City of Washington DC
21. Electrification Feasibility Study NJ Transit
22. TRANSITGRID Smart Grid Support Services NJ Transit
23. FTA ZEB Transition Plan NJ Transit
24. Bus Garage Modernization Planning to support BEB Deployment NJ Transit
25. Solar Power Feasibility Assessment /Standard Specifications BEB Program NJ Transit
26. FTA Grants Buses & Facilities Grant Program Assistance NJ Transit
27. Statewide Facilities Plan for BEB Deployment CTDOT
28. Waterbury Bus Storage / Maintenance Facility CTDOT
29. Bus Operations and Maintenance Facility Pioneer Valley Transit Authority
30. BEB Maintenance and Storage Facility Cost Estimating services MBTA
31. Schoolbus Fleet Electrification StudiesNYSERDA
32. BEB Power Study Power & Utility Client
33. Feasibility Assessment for Rapid Charging Center Retail Petroleum Client
34. ZEB Fleet Transition Plan Sarnia
35. ZEB Consulting Services Lethbridge Transit
36. Northfield Garage/ZEB Infrastructure Region of Waterloo
37. Street Railway Hamilton
38. EV Charging Strategy Municipal Fleets
39. Transit Fleet Transition Plan Municipal Fleets
40. Transit Demand Study Bruce County
41. MiWay Electrification Facilities Upgrade Mississauga
42. Transit Alternative Fuel Study Peterborough
43. ZEB Modeling Analysis Study OC Transpo
44. Battery Electric Vehicles (BEV) Procurement Support California
45. Fleet Rightsizing & Electrification Plan Illinios
46. Regional Zero-Emission Transition Strategy California
47. Regional Transit Electrification Plan Georgia
48. Transit Fleet Electrification Program Management Minnesota
49. Transportation Electrification and Infrastructure Plan California
50. High Distributed Energy Resources Plan California
51. Make Ready Incentive Program New York
52. Make Ready Incentive Program Connecticut
53. Low Carbon Fuel Standard Program California
54. Duke Energy Carbon Plan and Integrated Resources Plan North Carolina
55. Clean Fuel Standard Program Washington
56. Fleet Electrification Incentive Program Illinois
57. Energy Commission EV Charger Reliability California
58. Maximum Energization Timelines California
59. TIGER GRANT Minnesota Client
60. HMGP Colorado Client
61. SMART LADOTD
62. RAISE LADOTD
63. TIGER LADOTD
64. Reconnecting Communities & Neighborhoods Grant Program LADOTD
65. SMART MDOT
66. ATCMTD ALDOT
67. HMGP Florida Client
68. Cloud-Based Transit Signal Priority Pilot SMART Grant OCTA
69. Traffic Operations ITS General Consultant Services FDOT District 1
70. TWO 8A: Hurricane Resiliency Grant Application FDOT District 1
71. Traffic Operations ITS General Consultant Services FDOT District 1
72. TWO 10: I-75 Connected Vehicle project for the SMART Stage 1 planning grant application (SunCoast FRAME) FDOT District 1
73. I-75 On- and Off-System F.R.A.M.E. (Florida's Regional Advanced Mobility Elements) FDOT District 5
74. City of Phoenix Grant Procurement Support Arizona
75. Leveraging Advanced Adaptive Signal Timing for Freight to Improve Safety, Climate, and Mobility for Everyone California
76. Union Station/Civic Center Transit-Oriented Development California
77. Southeast Gateway Line Transit Corridor California
78. La Brea Avenue Complete Streets Project California
79. North Harbor Transportation System Improvement Project California
80. Together for Safer Roads Grant Writing–North Avenue Corridor Georgia
81. TIGER Grant Writing – MLK Jr. Drive Corridor Improvement Initiative Georgia
82. HMGP/ FMA/ PDM Application Development Washington DC

*"Arcadis has done an **outstanding job** delivering the ITS Maintenance Engineering & Inspection (ME&I) program and has **exceeded my expectations**. Their understanding of our ITS systems and **innovative approach** has resulted in **significant improvements** to program tracking and administration. Arcadis experience with ITS project life-cycle including planning, design, implementation, operations & maintenance has been important to bring the best solution to a problem…Arcadis provided **superior project management** throughout the duration of the project and exceeded my expectations. Arcadis provided the project schedule, weekly and monthly status reports regarding completed and scheduled work in a timely manner. Their invoices are on-time and with almost no errors (invoices are extremely large and complicated). Exceptional performance in communications, cooperation, and follow-up with all stakeholders."*

***- Erik Smith,** DOTD Project Manager, ITS ME&I IDIQ Contract*

22. Sub-consultant information:

If one or more sub-consultants will be used, provide the name, address, point of contact and phone number for each. Otherwise, leave this section blank.

Firm Name (Name must match as registered with Louisiana's Secretary of State)	Address	Point of Contact and email address	Phone Number
ITERIS, INC.	251 Little Falls Drive Wilmington, DE 19808	Dean Gustafson dgustafson@iteris.com	434-242-8181
METRIC ENGINEERING, INC.	13940 SW 136 Street, Suite 200 Miami, FL 33186	Craig Carnes craig.carnes@metriceng.com	904-260-1567
VENABLE LLP	750 E. Pratt Street Suite 900 Baltimore, MD 21201	David Bonelli DMBonelli@Venable.com	202-344-4626
NITI SYSTEMS CONSULTANTS INC.	4521 Bastion Dr. Roswell GA 30075	Jignesh Patel JPatel@NitiSys.com	404-509-3055

(Add rows as needed)

23. Location:

If location is an evaluation criterion for this advertisement and the prime consultant intends to establish a local presence, describe the plan for doing so. **Otherwise, leave this section blank. Any information included in this section will be redacted if not required by the advertisement**.

ARCADIS

*"...The strategic visioning workshop was **very engaging and collaborative**, they used many methods to make the workshop interactive...Arcadis did a great job developing the presentations and provided the presentation slides used during the meetings and workshops. Arcadis **thorough understanding of CAV industry initiatives was very critical** in terms of evaluating the potential CAV Applicability to Louisiana."*
- Rosalinda Deville, DOTD Project Manager - ITS System Design IDIQ Contract – CAV Strategic Business Plan Task Order

Arcadis
6100 Corporate Blvd., Suite 325
Baton Rouge, LA 70808
225 292 1004
www.arcadis.com

www.arcadis.com
Arcadis
Arcadis North America
@ARCADIS_US