

October 1, 2019

TRAFFIC ENGINEERING ON-CALL PROPOSAL

for NTMP Traffic Calming Program
Project No. 8050.00

Submitted for the City of Albuquerque



LEE ENGINEERING



8220 San Pedro Dr. NE, Ste. 150
Albuquerque, NM 87113



(505) 338-0988



www.leeengineering.com

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ARIZONA
TEXAS
NEW MEXICO
OKLAHOMA

October 1, 2019

Amanda Herrera, PE
Project Manager
Traffic Engineering/Municipal Development

Re: Traffic Engineering On-Call for NTMP Traffic Calming Program (8050.00)

Dear Ms. Herrera,

Traffic Engineering On-Calls are the mechanism for which the City of Albuquerque can efficiently turn City needs into City improvements; thereby increasing the customer service levels and improving the overall quality of life of the community. They provide direction to the administration and answers to citizens. Lee Engineering understands that on-call traffic engineering projects are time sensitive and require tailored solutions which result in an increase in safety and efficiency for all users.

Our technical expertise and municipal experience have established our value to the City on projects both large and small, and we are prepared to prime this critical On-Call. Through sound practices and quality study development and reports, we will give the Traffic Engineering Division the foresight of traffic needs in preparation for public concerns. Lee Engineering has assembled a comprehensive team, including Parametrix and MaxGreen Transportation Engineers as sub-consultants on an as-needed basis.

For over a decade, Lee Engineering has been providing expert traffic and transportation engineering services to the City of Albuquerque on numerous projects, gaining a practical, in-depth understanding of the various needs of the City. This experience began with the multi-phased, ongoing Signal System Expansion, where efforts in GIS have saved the City thousands of dollars and signal re-timing plans are saving city roadway users hundreds of hours in travel time and stop reductions. Additionally, Lee Engineering has completed numerous small studies through DMD On-Call task assignments to include signal warrants, speed studies, stop control studies, and cut-through studies.

In addition to these CABQ projects, Lee Engineering also holds multiple on-call contracts with the City of Albuquerque-City Council Services and Traffic Engineering, as well as agencies such as the New Mexico Department of Transportation, Bernalillo County, City of Las Cruces, City of Rio Rancho, and Mid-Region Council of Governments. Our experience with On-Call contracts through multiple agencies and numerous back-to-back selections illustrates our understanding of the client's needs and commitment to provide expert, responsive, and effective engineering solutions.

Because Lee Engineering is a specialized engineering firm, each of our technical staff has focused their career in traffic and transportation. Each member of our Albuquerque staff has extensive experience working directly with the City of Albuquerque and are well versed with City, State, and Federal procedures. As Project

Manager, I have over 18 years of experience in traffic and transportation and have built quality relationships with the Albuquerque and New Mexico community.

Our qualifications include examples of our elevated level of traffic and transportation expertise, quality products, and history of superior client service. Our long-standing reputation with New Mexico and its communities demonstrates the dedication we have to our clients. We trust this proposal fully conveys our qualifications for the City of Albuquerque's On-Call project. We are committed to growing our outstanding relationship with the City of Albuquerque and are confident that we will exceed your expectations.

Please feel free to contact me at (505) 338-0988, or pbarricklow@lee-eng.com, if you have any questions.

Sincerely,



Paul Barricklow, PE, PTOE
Principal

I. GENERAL INFORMATION

LEE ENGINEERING

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8220 San Pedro Dr. NE, Ste. 150
Albuquerque, NM 87113



(505) 338-0988



www.leeengineering.com

Jim Lee, PhD, PE, PTOE, established Lee Engineering in 1988.

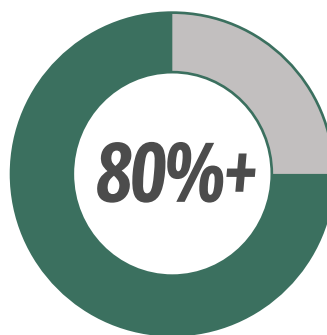
Dr. Lee was motivated to create a firm specializing in traffic engineering after experiencing dissatisfaction with the traffic engineering knowledge offered by general consultants while working as a public sector traffic engineer. According to Dr. Lee, firms that offer traffic engineering as one of many services are unlikely to provide the level of knowledge and experience needed for our increasingly complex traffic situations.

Lee Engineering was formed to provide specialty traffic engineering service to clients and has become the go-to traffic and transportation engineering firm across the Southwest and beyond with offices in Albuquerque & Las Cruces, New Mexico; Phoenix, Arizona; Dallas, El Paso and San Antonio, Texas; and, Oklahoma City and Tulsa, Oklahoma.

Company-wide, Lee Engineering employs 44 professionals throughout New Mexico, Arizona, Texas, and Oklahoma.

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We are comprised of five Principal Engineers, eight Project Managers, six Project Engineers, 8 Engineering Designers, five technicians, three administrative employees, and nine interns. The table below highlights our Albuquerque engineers who will be directly working with the City for this on-call project.



**Over 80% of
our Professional
Engineers (PE)
are registered
Professional
Traffic Operations
Engineers (PTOE).**

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Lee Engineering's Albuquerque office will be responsible for projects associated with this City of Albuquerque contract. Each member of our Albuquerque staff has extensive experience working with the City of Albuquerque and is well versed with City, State, and Federal procedures. For specialty cases, Lee Engineering employs professional engineers with highly concentrated and unique experience in each of our offices and will utilize their expertise on an as needed basis.

TEAM MEMBER & TITLE

TECHNICAL DISCIPLINE

REGISTRATIONS

Paul Barricklow, PE, PTOE | Principal

Traffic & Transportation Engineering

PE #17744; PTOE #1885

Christopher Sobie, PE | Project Engineer

Traffic & Transportation Engineering

PE #25655

Jonathon Kruse, PE | Project Engineer

Traffic & Transportation Engineering

PE #25017

Mike Cynecki, PE, PTOE | Project Manager

Traffic & Transportation Engineering

PE #18477 (AZ); PTOE #3795

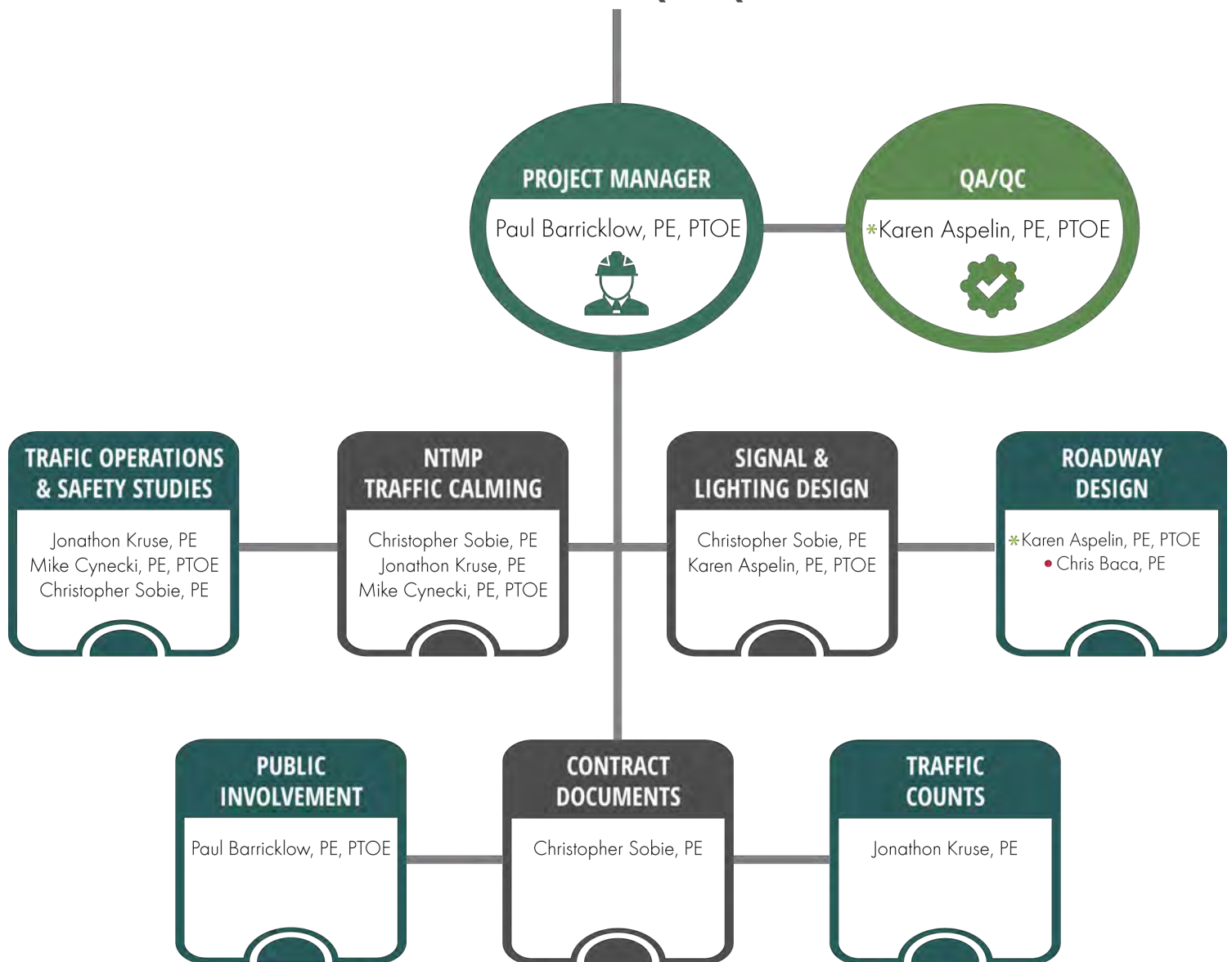
II. PROJECT TEAM MEMBERS

1. ORGANIZATIONAL MANAGEMENT STRUCTURE

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AMANDA HERRERA, PE
CITY OF ALBUQUERQUE



* MaxGreen Transportation Engineers

● Parametrix

II. PROJECT TEAM MEMBERS

2. SUBCONSULTANT INFORMATION

Parametrix

Parametrix is a 100-percent employee-owned firm dedicated to providing high-quality, client-oriented engineering, planning, and environmental consulting services to a diverse range of clients and industries. Established in 1969, Parametrix currently has 13 offices across six western states and approximately 500 employees. The Albuquerque office of Parametrix was established in 2002. Parametrix has provided on-call engineering services to the City of Albuquerque for many years and has completed 50+ on-call tasks for the City since 2010. They have also assisted the City complete many stand-alone projects.



MaxGreen is a signal timing term, but the company name also acknowledges the importance of our environment when developing solutions. MaxGreen provides expertise in transportation planning, traffic engineering, and intelligent transportation systems (ITS) studies and design, as well as pedestrian and bicycle facilities design.



II. PROJECT TEAM MEMBERS

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3. QUALIFICATIONS OF PROJECT TEAM MEMBERS



PAUL BARRICKLOW, PE, PTOE | PROJECT MANAGER

Mr. Barricklow's atypical combination of management and engineering education combined with his hands-on experience make him uniquely qualified for complex traffic engineering and transportation planning projects. As the founding member of Lee Engineering's Albuquerque office, Mr. Barricklow has served New Mexico communities for over 12 years. His areas of expertise include traffic operations studies, signal design, signal timing, safe routes to school studies, ITS design, and advanced traffic modeling.

Mr. Barricklow has managed the Traffic Signal Systems Expansion Projects for over a decade, facilitated unique traffic engineering initiatives to include Automated Traffic Signal Performance Measure (ATSPM) implementations on Coors Boulevard and Central Boulevard, and has also supported greater roadway efforts throughout the City, while partnered with other firms, to include University Bikeways, Osuna Road Expansions, and Westside Boulevard. Within each of these projects, Mr. Barricklow participated in the public involvement process, coordinated with DRC, and completed construction phases service support.

RELEVANT PROJECT EXPERIENCE

Signal System Expansion (Multiple Phases), City of Albuquerque

Downtown Speed Zone Signal Timing, City of Albuquerque

Coors Boulevard ATSPMs, City of Albuquerque

Central Avenue ATSPMs, City of Albuquerque

Zuni Road Improvements, City of Albuquerque

CHRISTOPHER SOBIE, PE | PROJECT ENGINEER

Mr. Sobie has diverse knowledge in several facets of transportation and ITS engineering. He has one year experience working for a public agency and three years of experience working for the private sector. Christopher is skilled in traffic operation studies and assessments, signal design, traffic impact analysis, signal timing, advanced traffic modeling, roadway/intersection safety, bicycle and pedestrian planning, and crash data analysis. Mr. Sobie has also worked on project scoping, budgeting, field review, and report compilation. Mr. Sobie's experience includes time working closely with professionals from both private and public entities. He also currently serves as the Vice President of the New Mexico Institute of Transportation Engineers.

RELEVANT PROJECT EXPERIENCE

Zuni Road Design - ATSPM and DSRC Infrastructure, City of Albuquerque

Automated Traffic Signal Performance Measures Coors Blvd, City of Albuquerque

98th and Dennis Chavez Signal Design, City of Albuquerque

Lead and Coal Traffic Study, City of Albuquerque

Westside Boulevard Improvements, City of Albuquerque, NM

Chile Line Road Traffic Calming, Santa Fe, NM

PROFESSIONAL REGISTRATIONS

PE, New Mexico | #17744

PTOE | #1885

Safe Routes to Schools National Course
Instructor Trained

League of American Bicyclists Instructor

EDUCATION

MBA | University of Texas, San Antonio

BS, Civil Engineering | University of Texas,
San Antonio

PROJECT ROLE AND EXPERTISE

Management, Traffic Studies, Street
Lighting Design, Multimodal Design, Public
Meetings and Involvement, Safety Studies



PROFESSIONAL REGISTRATIONS

PE, New Mexico | #25655

EDUCATION

M. Eng., Civil Engineering | Northern
Arizona University

BS, Civil Engineering | Northern Arizona
University

PROJECT ROLE AND EXPERTISE

Traffic Operations and Safety Studies,
Signal and Lighting Design, Traffic Impact
Analysis, Bike and Pedestrian Studies,
Microsimulation, Corridor Management

II. PROJECT TEAM MEMBERS

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3. QUALIFICATIONS OF TEAM MEMBERS, cont.



PROFESSIONAL REGISTRATIONS

PE, New Mexico | #25017

EDUCATION

MBA | University of New Mexico
BS, Civil Engineering | New Mexico
Institute of Mining and Technology

PROJECT ROLE AND EXPERTISE

Traffic Operations and Safety Studies,
Signal and Lighting Design, Traffic Counts,
GIS, Fiberoptic Cable Networking,
Warrant Analysis, Data Collection

JONATHON KRUSE, PE | PROJECT ENGINEER

Mr. Kruse has diverse knowledge and hands on experience in Traffic Engineering Studies, Traffic Analysis, Safety Analysis, ITS Design, Fiber Optic Cable Splicing Design, Traffic Signal Design, and Permanent Automatic Traffic Recorders. He is skilled in GIS mapping and maintains active knowledge of fiber optic networking and technologies. He has gathered many miles of GIS roadway data for mapping infrastructure and has used GIS data for network troubleshooting and planning. Mr. Kruse has also conducted many different types of traffic studies for a wide range of purposes and has worked on multiple federally funded projects and privately funded projects. His traffic engineering study expertise ranges from small single intersection studies to traffic impact analyses for housing and commercial developments to large policy-driven master-plan studies.

RELEVANT PROJECT EXPERIENCE

Central Ave. Pedestrian Hybrid Beacon Warrant Analysis, Bernalillo County
City of Hobbs Pedestrian Hybrid Beacon Design, City of Hobbs
Multimodal Connectivity Study, Village of Los Ranchos, Albuquerque, NM
Rhode Island Stop Warrant Study, City of Albuquerque,
I-40 Fiber Design, NMDOT, Bernalillo and Cibola County, NM
Bernalillo County Fire Station 35 Access Improvements, Bernalillo County



PROFESSIONAL REGISTRATIONS

PE, Arizona | #18477
PTOE | #3795

EDUCATION

M. Eng., Civil Engineering | Wayne State
University
BS, Civil Engineering | Wayne State
University

PROJECT ROLE AND EXPERTISE

Traffic Operations and Safety Studies,
Signal and Lighting Design, Traffic Impact
Analysis, Bike and Pedestrian Studies,
Traffic Data Analysis

MICHAEL J. CYNECKI, PE, PTOE | PROJECT ENGINEER

Mike Cynecki is Lee Engineering's bicycle and pedestrian aficionado with over 39 years of experience in traffic operations and safety. Mr. Cynecki joined Lee Engineering after a 26-year municipal career with the Phoenix Street Transportation Department. Here, he managed the Traffic Signal Section for four years and the Traffic Investigative Services Section (Field Investigators, School Safety Section, Neighborhood Traffic Management Section, and Traffic Safety Section) for 22 years. Mr. Cynecki oversaw the installation of the first nine pedestrian hybrid beacons (HAWKS) in Phoenix and the first two Rectangular Rapid Flashing Beacons (RRFBs) in Arizona for improved pedestrian safety. Mike has been heavily involved in the Transportation Research Board (TRB) for three decades, and was a past Chair of the Pedestrian Committee and also served as the Section Chair for six years which oversaw the activities of the Pedestrian, Bicycle, and Motorcycle Committees.

RELEVANT PROJECT EXPERIENCE

Arizona Implementation of AASHTO U.S. Bicycle Route System, ADOT
PAG Road Safety Assessments, Pima County, AZ
MAG Road Safety Assessments, Maricopa County, AZ
San Tan Ranches Access Study, San Tan Valley, AZ
24th Street Pre-design and Feasibility Study. Phoenix, AZ
MAG Safe Routes to School Studies, Cities of Avondale and Surprise, AZ

II. PROJECT TEAM MEMBERS

3. QUALIFICATIONS OF TEAM MEMBERS, cont.



PROFESSIONAL REGISTRATIONS

PE, New Mexico | #13293
PTOE | #155

EDUCATION

MS, Civil Engineering, Texas A&M University
BS, Civil Engineering, University of Virginia

PROJECT ROLE AND EXPERTISE

Quality control for project deliverables, Transportation Planning, Traffic Engineering Studies and Design, Pedestrian/Bicycle Studies and Design, Corridor Analysis, Traffic Calming, Traffic Impact Studies.

KAREN ASPELIN, PE, PTOE | QA/QC (MaxGreen)

Karen Aspelin, PE, PTOE, is the Principal of MaxGreen Transportation Engineers, LLC. She specializes in transportation planning, traffic engineering studies and design, and the study and design of pedestrian and bicycle facilities. Karen has also produced dozens of traffic impact studies, corridor studies, and other transportation studies including intersection safety, traffic calming, speed, and gap studies. She has arranged and led many public involvement meetings and has conducted dozens of property owner interviews.

Ms. Aspelin has over 25 years of experience in the industry and has worked on projects with the City since 1995. Her work with the City has ranged from large roadway design projects to plans for bicycle facilities. Karen has also assisted the City on several traffic on-call contracts. She has been licensed as a professional engineer in New Mexico since 1996, and she has many years of experience with quality control/quality assurance (QC/QA) work.

RELEVANT PROJECT EXPERIENCE

Silver Avenue-14th Street Bicycle Boulevard Extension, City of Albuquerque
Dept. of Municipal Development Transportation On-Call, City of Albuquerque
City of Albuquerque Council Services On-Call



PROFESSIONAL REGISTRATIONS

PE, New Mexico | #12133

EDUCATION

BS, Civil Engineering | University of New Mexico

PROJECT ROLE AND EXPERTISE

Transportation Planning and Analysis, Corridor Studies, Geometric Design, Highway and Roadway Design, Signal and Lighting Design, Traffic Control Planning

CHRIS BACA, PE | PROJECT ENGINEER (Parametrix)

Chris has 30 years of experience, including numerous roadway, street, and traffic projects and on-call contracts with the City of Albuquerque and other agencies. His expertise lies in transportation planning and analysis; location/environmental corridor studies; geometric design; highway and roadway design; signal and lighting design; and construction phasing and traffic control planning. His involvement on projects ranges from the initial scoping and corridor/environmental evaluation to the analysis of design alternatives and the preparation of preliminary and final design plans. He also manages consensus building aspects related to public involvement. Examples of Chris' experience with City of Albuquerque projects include managing and/or directing several Citywide On-Call Engineering Services contracts; Irving Boulevard Planning and Design, Phases 1 and 2; Paradise Boulevard Improvements; Montañito Transit Center; and the Coors Corridor Study. He has also managed on-call contracts with the NMDOT and MRCOG that included projects in the Albuquerque area.

RELEVANT PROJECT EXPERIENCE

On-Call Engineering Services (Multiple Contracts), City of Albuquerque
Irving Boulevard Planning and Design, Phases 1 and 2, City of Albuquerque
Paradise Boulevard Improvements, City of Albuquerque
Coors Boulevard Corridor Study, City of Albuquerque

II. PROJECT TEAM MEMBERS

4. UNIQUE TEAM KNOWLEDGE

With over 12 years of providing traffic engineering services to the City of Albuquerque, our Project Team has developed intimate knowledge of city processes and procedures.

- Our Team is so versed with COA's network, operations, personnel, and policies that Michael Riordan once jested Lee Engineering should be eligible for PERA.
- Lee Engineering has provided COA with multiple phases of signal timing coordination plans, including downtown, and has designed traffic signal interconnect networks to over three hundred signalized intersections within the metro area.
- Mr. Barricklow has been managing COA projects for over 10 years and has developed a close relationship with the City's Project Managers and an in-depth understanding of City needs and goals.
- Mr. Barricklow's Safe Routes to School training, League of American Bicyclist Certified Instructor accreditation, and project experience on the pedestrian-centric design project on Conceptual Design for Central Avenue and Unser Boulevard Intersection provides proven traffic engineering expertise and complete streetscape design, advancing COA's multi-modal initiatives.
- Mr. Sobie has worked with Automated Traffic Signal Performance Measures (ATSPM) for four years and attended the first and second ATSPM workshops held by the Utah Department of Transportation. His work includes the first implementation of ATSPM in New Mexico, and three additional deployments in various states.
- Mr. Sobie has a working relationship with COA's traffic engineers which includes access to the City's central system and making signal timing changes in Centracs as needed.
- Mr. Kruse has authored countless safety studies within the AMPA.
- Mr. Kruse has designed hundreds of miles of fiber optic cable networks and numerous traffic signals throughout the AMPA.
- LEE has completed over 100 turning movement counts within the AMPA using the Miovision video system, which provides shared web access to regional agencies such as MRCOG.
- Michael Cynecki has nearly 30 years of municipal experience with 26 of those being the Traffic Engineer for the City of Phoenix. Specific to this RFP, Mr. Cynecki ran Phoenix's Neighborhood Traffic Management Program for 22 years.
- LEE has become well versed in hosting public meetings, as well as conducting workshops for various agencies and the general public.

III. RESPONDENT EXPERIENCE

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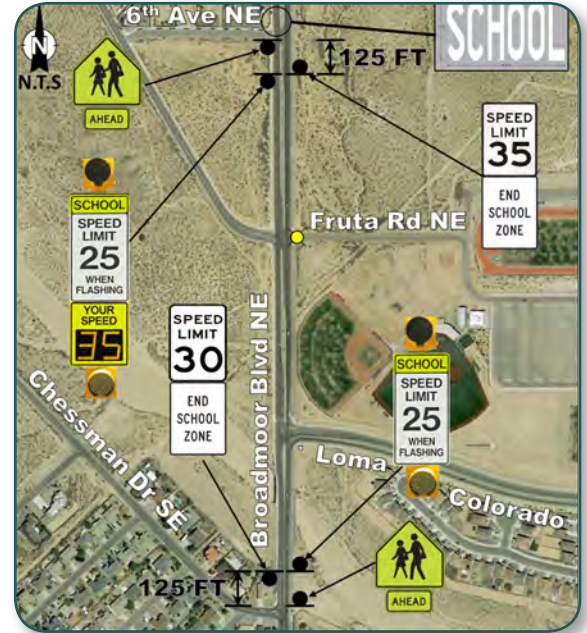
1. PREVIOUS RELEVANT EXPERIENCE

RIO RANCHO HIGH SCHOOL SAFETY ANALYSIS, CITY OF RIO RANCHO, NM

CONTACT: Leonard Rivera | 505-896-8773

YEAR SERVICE PROVIDED: 2018

The City of Rio Rancho solicited a proposal from Lee Engineering to perform a safety analysis for the intersection of Broadmoor Blvd and Fruta Rd to mitigate safety concerns due to traffic entering and exiting Rio Rancho High School. **Paul Barricklow** and **Christopher Sobie** were responsible for the scope of this project which included a kick off meeting and field visit with high school representatives, research and alternative analysis including effectiveness evaluation and cost estimates, and final report. The final recommendation included a combination of traffic calming strategies, operation changes, and Intelligent Transportation System (ITS) solutions. This project was completed in April 2018 and the City of Rio Rancho implemented Lee Engineering's recommendations in November 2018.



CENTRAL AVE PEDESTRIAN HYBRID BEACON ANALYSIS, BERNALILLO COUNTY, NM

CONTACT: Vincent H. Bartholdi | 505-848-1572

YEAR SERVICE PROVIDED: 2019

Lee Engineering was contracted by Bernalillo County to conduct a Pedestrian Hybrid Beacon warrant analysis for Central Ave between Texas Street and Utah Street in Albuquerque, NM. This location was of particular importance because of two high-volume bus stops at Texas St and surrounding pedestrian generators. Per the MUTCD, Lee Engineering collected turning movement counts and pedestrian volumes at both intersections to perform the analysis. **Jonathon Kruse** was responsible for the data collection, field review, analysis, and report. He also performed a special analysis to determine the best possible location for the pedestrian hybrid beacon based on pedestrian volumes and proximity to pedestrian generators and attractions.

LEE ENGINEERING APPROACHED THESE PROJECTS, AS IT DOES EVERY PROJECT - WITH AN OPEN MIND AND READINESS TO UTILIZE UNIQUE TECHNICAL KNOWLEDGE AND EXPERIENCE.

TECHNIQUES INCLUDED HIGHLY SPECIFIC DATA ANALYSIS PER NON-COMMONPLACE PARTS OF THE MUTCD COUPLED WITH EXTENSIVE DATA COLLECTION AND SITE REVIEWS.

III. RESPONDENT EXPERIENCE

1. RELEVANT EXPERIENCE, cont.

AUTOMATED TRAFFIC SIGNAL PERFORMANCE MEASURES, CITY OF ALBUQUERQUE, NM

CONTACT: Debbie Bauman | 505-768-3649

YEAR SERVICE PROVIDED: 2017 - Present

Lee Engineering worked with the City of Albuquerque to implement Automated Traffic Signal Performance Measures (ATSPM) to monitor and manage 23 intersections on Coors Blvd in 2017. **Christopher Sobie** and **Paul Barricklow** were responsible for the primary functions of ATSPM on Coors Blvd. corridor including monitoring and changing signal timing to accommodate population and development growth, updating all signal timing parameters throughout the corridor, and responding to and providing feedback for citizen complaints. The before and after studies resulted in an average of 31% reduction of intersection delay in addition to more than 50 seconds in directional travel time savings recorded independently via Albuquerque's Bluetooth travel time system. Lee Engineering is also in the process of using ATSPM to retime Central Blvd to accommodate Albuquerque Rapid Transit signal timing. Future ATSPM projects for the City of Albuquerque include the corridors of Alameda Blvd., east Central Blvd., and Zuni Rd.



PAG ROAD SAFETY ASSESSMENTS, PIMA COUNTY, AZ

CONTACT: Gabe Thum | 520-495-1476

YEAR SERVICE PROVIDED: 2015 - 2018

As Project Manager, **Michael Cynecki** served on four formal Road Safety Assessments (RSA) in Pima County as part of an independent, multidisciplinary team. One segment consisted of four rural, signalized high risk intersections within a 2.3 mile roadway segment, the second RSA was a 2-mile segment including two signalized intersections. The third RSA was to evaluate an innovative new traffic control concept developed by a major city in the PAG region. The 4th RSA was a half-mile segment that involved two jurisdictions and included a busy signalized intersection. The RSA team looked for potential safety hazards that may affect any type of road user and recommended measures to mitigate those safety issues. This project was funded and managed by the Pima Association of Governments.

WESTSIDE BLVD. IMPROVEMENTS GOLF COURSE ROAD TO NM 528, CITY OF ALBUQUERQUE

CONTACT: Debbie Bauman | 505-768-3649

YEAR SERVICE PROVIDED: 2017 - Present

Lee Engineering subcontracted to TYLin International to complete the traffic engineering portion of the Westside Boulevard Improvement Project in Albuquerque, NM. The scope for this project included performing traffic counts, conducting an access management evaluation, performing a capacity analysis, recommending vehicular, pedestrian, and bicycle intersection improvements, conducting a safety analysis, and completing the traffic signal design, ITS design, and street lighting design. Key team members for this project include **Jonathon Kruse**, who performed the traffic counts cut-through study, access management evaluation, ITS design, and traffic signal design, **Christopher Sobie**, who completed the capacity analysis, improvement recommendations, and street lighting design, and **Paul Barricklow**, who managed the project, conducted public meetings, and provided input and guidance throughout.



III. RESPONDENT EXPERIENCE

2. PROJECT MANAGER CITY EXPERIENCE

Through his long history of working with the City of Albuquerque, Project Manager, Paul Barricklow, has had the opportunity to learn and apply COA procedures extensively.

Beginning in 2007, Mr. Barricklow took over the Signal System Expansion project and led LEE through Phases IX – XVII, as well as meeting critical needs of the federally funded Signal System Phase ARRA project. Mr. Barricklow managed the PS&E, design of over 100 miles of single-mode fiber optic cable, 11 DMS signs, over 200 CCTV Cameras, 27 traffic count stations, as well as multiple phases of signal coordination and timing for major corridors in Albuquerque. All expansion projects were completed through the Traffic Engineering Division, coordinated with NMDOT for Federal Funding, and completed within the DRC process.

Beyond signal system expansion projects, Mr. Barricklow has facilitated unique traffic engineering initiatives to include Automated Traffic Signal Performance Measure (ATSPM) implementations on Coors Boulevard and Central Boulevard. Additional and ongoing efforts are deploying ATSPM and V2I (vehicle to infrastructure) technology on Zuni Road.

Mr. Barricklow has also supported greater roadway efforts throughout the City, while partnered with other firms, to include University Bikeways, Osuna Road Expansions, and Westside Boulevard. Within each of these projects, Mr. Barricklow participated in the public involvement process, coordinated with DRC, and completed construction phases service support.



IV. TECHNICAL APPROACH

1. UNDERSTANDING OF PROJECT SCOPE

Communication between the Lee Engineering Team and the City's Project Manager, Amanda Herrera, will be conducted through our Project Manager, Paul Barricklow, who will be responsible for the successful completion of all tasks. Specialized personnel, such as signal technicians and pedestrian/bicycle experts, will be called upon on a project-by-project basis as need dictates.

Due to the nature of the project, LEE understands that the tasks required under this project may vary greatly from project to project, and may include, but are not limited to the following: scope preparation, site evaluation, traffic counts and data collection, signal design, traffic operations studies, safety studies, traffic modeling, structural, roadway and intersection design, lighting design, environmental studies, and public involvement.

IV. TECHNICAL APPROACH

1. UNDERSTANDING OF SCOPE, cont.

Traffic and Safety Studies

Utilizing LEE's wealth of experience and knowledge preparing clear, concise, yet comprehensive traffic studies for a wide range of clients, we will provide the City of Albuquerque with a quick responsive team to assess traffic issues and provide the City with a full study scope to complete the desired tasks. Our extensive traffic study experience will provide the City with a wide diversity of traffic study services including but not limited to traffic signal and all-way stop control warrant studies, roundabout feasibility assessments, travel-time delay studies, delay and queue capacity calculations, auxiliary lane needs studies, access management assessments, and spot speed studies.

Our staff is current with best practices for conducting safety studies and road safety audits. This includes the application of the procedures found in the Highway Capacity Manual, 6th Edition and the accompanying FHWA developed IHSDM (Interactive Highway Safety Design Model) software. Based on these principals, LEE is able to calculate predicted base crash incident rates and compare them to predicted rates under proposed mitigation scenarios. We have applied this methodology to several Road Safety Audits conducted for the NMDOT, Village of Los Lunas, City of Gallup and the Ohkay Owingeh Tribal Government in order to provide these agencies with the most beneficial solution for the cost to mitigate identified safety issues. LEE will utilize this valuable experience and expertise and apply it to City of Albuquerque projects.

Traffic Counts

We have found that a strong foundation is key to a successful project. A thorough data collection and data reduction plan is the basis for which a traffic study is built upon. Early in the scoping process, LEE addresses a data collection plan and identifies potential issues to ensure the data collected is indeed the data required for the analysis and that the highest level of accuracy is achieved.

LEE also provides in-house video recorded intersection turning movement counts (TMC's) for our clients. This involves setting up video camera equipment at an intersection or other roadway location for the duration of the desired count. A digital video

recorder records the traffic movements after which the video is uploaded and reduced using Miovision's advanced video analysis software. With the use of this equipment, LEE can provide traditional TMC's, roundabout TMC's, roadway ADT counts, pedestrian/bicycle counts, trip generation studies, gap studies, and origin-destination studies, travel time, and parking studies without delays associated with outsourcing traffic counts. LEE has verified the accuracy of the studies and found them greater than 95% accurate. In addition to the video recorded turning movement counts, we also provide ADT counts with automated traffic recording machines, which provide the benefit of collecting traffic speed.

Signal Design

LEE has years of signal and ITS design experience for many communities within New Mexico, most notably in Albuquerque where LEE has been providing ITS design and planning for the past 9 phases of the Traffic Engineering Department's ITS expansion program. LEE has provided signal designs beyond your standard eight-phase four-legged variety including the design and phasing for the Paseo del Norte/Jefferson Street single point urban interchange.

A Lee Engineering signal design is more than just the placement of signal heads, conduit and wiring. A design from LEE will look at the subtler design aspects such as pedestrian phasing requirements, non-traditional phasing and sequencing if needed, integration of a new signal into the ITS fiber optic network, and equipment upgrades for controllers, conflict monitors and cards.

Traffic Operations and Analysis

LEE's team has many years of experience recommending appropriate roadway infrastructure based on existing traffic demands, projected traffic demand and land use, and safety needs. With over 80% of LEE's PEs registered as Professional Traffic Operations Engineers, we can offer expert completion of origin destination, signal coordination, multi-way and signal warrant analyses, crash analysis and crash modification factors, spot speed studies, congestion assessment, pedestrian/bicycle accommodations, roundabout operations analysis, road diet applications, and access management best practices.



IV. TECHNICAL APPROACH

1. UNDERSTANDING OF SCOPE, cont.

LEE is able to model potential design alternatives to determine their operational merits using software tools such as Synchro, VISTRO, Highway Capacity Software and VISSIM. Modeling software such as VISSIM can provide 3-D conceptualizations of potential design alternatives, which provide an excellent communication tool for policy makers and the public when generating informed opinions about design projects. Finally, with our engineers having first-hand experience within the signal cabinets and having provided signal timing for large portions of the City of Albuquerque, our team knows what works and does not work. We not only provide operations plans, but we can assist in deploying and assessing them in-field.

Street Lighting Design

LEE has the experience and expertise to complete street lighting design using COA standards for typical arterial or residential lighting and has the technical knowledge and software to create customized lighting plans for multi-use trails to arterial corridors. LEE has the engineering know-how and in-depth knowledge of the latest lighting products to provide a cost effective and PNM/COA maintainable design. Utilizing AGI32 illumination software, LEE can design lighting plans to meet luminosity specification not covered by the standards, such as pedestrian pathway lighting. Most importantly, LEE will coordinate with Traffic Engineering Division to ensure design standards and preferences are established early in the project.

Neighborhood Traffic Management Program

LEE has the vision and experience to recognize that land use and urban design is more than just zoning, streets, and sidewalks. It is about the integration of land use choices and urban amenities into a cohesive overall plan that will promote efficient modes of travel without sacrificing business synergy and quality living environments. LEE is extremely knowledgeable in both the City's complete streets policy and its Neighborhood Mitigation Program and will apply these already established City programs along with the latest national level best practice traffic calming and complete streets concepts to provide a more harmonious and livable street network. Additionally, as demonstration of

LEE's in-depth knowledge of traffic calming and neighborhood traffic management programs, LEE has authored several traffic calming and neighborhood traffic management handbooks for communities such as the Village of Los Ranchos in Albuquerque and Las Campanas in Santa Fe.

Public Involvement Programs

LEE will begin each project listening intently to develop comprehensive understanding of the City's needs throughout the project. Whether it is concerned citizens or Council and staff with unique ideas and visions, LEE will first hear the desires from the project stakeholders before acting.

LEE can apply a wide variety of alternative outreach methods including surveys, newspaper advertisements, website postings, formal presentations and displays, large format question and answer sessions, small group sessions, workshops and design charrettes. More in depth and personal out-reach programs, where appropriate, could include contacting individual property owners, neighborhood associations, and community interest groups like to the National Federation for the Blind of NM, GABAC, and BikeABQ. It should be noted that throughout the facilitation process LEE can provide bilingual representatives to ensure the voice of all citizens are heard.

Street Design

LEE's subconsultant Parametrix and MaxGreen Engineers are well-suited to provide planning studies and reports, roadway and intersection improvements, geometric alternative analysis, drainage design and construction contract document preparation to the City for all types of on-call projects. Our extensive planning, design, and construction experience will provide for timely and cost-effective completion of the assigned work tasks.

Parametrix and MaxGreen Engineers completed pre-design, final design, and construction administration services for all aspects of roadway projects for the COA. These projects have included roadway widening and narrowing (road diets), intersection analysis and design, sidewalk improvements, site feasibility studies, parking lot improvements, trail crossings, and pedestrian enhancements.



IV. TECHNICAL APPROACH

1. UNDERSTANDING OF SCOPE, cont.

Construction Contract Document Preparation

On-call tasks requiring engineering design will require construction contract documents which include estimates, design plans, specifications, and contract book documents. LEE and their sub-consultants are well versed in the City of Albuquerque document procedures and will follow the city approved milestone process. This process requires a cursory 30% plan review, 60% DRC review, 90% DRC review, and 100% Final submittal. An engineering estimate will be included with each milestone deliverable to ensure the project remains within budget. LEE and their sub-consultants will work with City staff to ensure that contract book documents are accurate and bid-ready within the approved project schedule.

IV. TECHNICAL APPROACH

2. APPROACH TO SERVICES

The team members selected will have special skill sets uniquely suited to complete any task associated with this on-call contract. The Lee Engineering team is a proactive one, which is ready to start work even on short notice and returns calls and e-mails the day they are received. Once Lee Engineering has received a request for services, Project Manager, Paul Barricklow, will immediately coordinate with Ms. Amanda Herrera to establish project goals from a City of Albuquerque perspective. Lee Engineering will then take those established goals and create a work plan including required tasks, person-hours, schedule, and deliverables for submittal to Ms. Herrera. Once a notice-to-proceed is provided by the City, Lee Engineering will immediately mobilize team members to meet the established milestones. Lee Engineering will proactively provide Ms. Herrera with periodic progress reports documenting task progress, any project challenges, and that project goals are being met. With this proactive and communicative plan, the LEE team will provide this on-call with successful, on-time, and on-budget projects.

Project Management and Quality Assurance/Quality Control Procedures

Project Kick Off

Upon project initiation, LEE will conduct a kickoff meeting to explore solutions and develop project milestones and schedules with COA. Once the scope of work, milestones, and schedules are agreed upon, our Project Manager will distribute assignments with deadlines to the LEE team along with budget requirements.

QA/QC Management

Lee Engineering has assigned Karen Aspelin, PE, PTOE, as the QA/QC manager. Karen's knowledge of the unique needs of traffic engineering on-calls and her extensive experience with processes and standards of municipalities, coupled with her attention to detail, will ensure quality deliverables in true third-party review.

LEE will employ an evaluation process to review plans, data, and technical documents using a QA/QC record sheet. This record sheet will be used to document all major deliverables with dates, review comments, and approval from the QA/QC Manager using a "red/yellow/green" review system. The QA/QC record sheet will have comments by the reviewer shown in red, resolution of the comments noted in yellow, and the Project Manager's approval of comments noted in green. Additionally, client comments on deliverables will be documented in this sheet and reviewed by the Project Manager with proposed resolutions of the comments noted by the consultant and returned to COA with any revised submission. Each week, LEE will hold internal review meetings to evaluate completed tasks, deliverables, and ensure the proposed solutions align with the initial project goals. LEE will also submit progress review/status reports to the City of Albuquerque. These progress reports will help ensure tasks are being completed as expected and help manage productivity, as well as serve as early detection of any issues that may arise.

IV. TECHNICAL APPROACH

3. SPECIALIZED PROBLEM SOLVING TECHNIQUES

Based on our experience with similar projects in Albuquerque and other cities, the following attributes of Lee Engineering build the foundation for our team's specialized problem solving:

- LEE's staff of in-house PEs and PTOEs allow for project scheduling flexibility to meet the tightest of schedules. LEE has a variety of technical specialists to call upon on a project-by-project basis including signal technician, signal operations, and timing expert, Jonathon Kruse, lighting expert, Christopher Sobie, at-grade railroad signalization expert, Paul Barricklow, and pedestrian expert, Michael J. Cynecki.
- LEE is already applying the NTMP techniques and complete street concept principles that the City of Albuquerque has identified in their policies.
- We provide extensive experience and innovative solutions for signal timing coordination plans. From single intersections, corridor studies, or grid-network system coordination, LEE will use its experience in Albuquerque to find the best solution.
- LEE has the in-field practical experience and "in-the-cabinet" knowledge to assess the feasibility of proposed design alternatives from an operations perspective and can help implement signal timing to make alternatives work.
- We have years of experience with traffic operations modeling. We are experts in using Vissim, Vistro, SYNCHRO, CORSIM, HSC, IHSDM, Tru-Traffic, and more.
- Our team has project experience with non-traditional operations control such as roundabouts and queue-cutter signals.

V. COST CONTROL

1. TECHNIQUES FOR COST CONTROL/ESTIMATING

Cost Control and Cost Estimating Techniques

Our Team recognizes that maintaining the project schedule and cost is absolutely crucial to the success of the project. Lee Engineering takes an organized and systematic approach to managing and documenting the Team's progress and work efforts throughout the course of the project to assure adherence to project schedule and cost.

A. Cost Control of Design Process

LEE's budget management philosophy is based on frequent communication, assembling an experienced team of professionals, defining a workable schedule, a budget that is specific and detailed, and monitoring work progress and expenditures. Our project manager will oversee staffing commitments, timely deliveries, and product quality in each of our deliverables. If new issues come to light that could cause changes in a project scope, LEE would proactively call the City of Albuquerque Project Manager and present these issues so any viable solutions on how to proceed can be made quickly and efficiently.

B. Cost Control of Construction Cost

In the early stages of the project development, LEE estimates the construction cost using planning level costs to verify that the design will not go over the budget. These costs are reviewed and fine-tuned with better estimated costs as the design progresses. If it is determined that the cost estimate will exceed available funds, LEE will discuss with the City and evaluate the design to look for alternative construction methods or products that might reduce costs. Additionally, we will incorporate the use of "Bid Alternates"; which allow the flexibility if the "Base Bid" is below the project budget.

C. Cost Estimating Techniques

LEE uses several different techniques when developing construction cost estimates. LEE maintains a fairly in-depth record of past project bid results specifically for traffic related items. Our first resource is to look at recent bid pricing from our past projects, within the past year. This in-house database is critical in estimating the unique items purchased through ITS deployment projects. Bid item estimating is also compared against pricing data provided by both the COA and NMDOT.

V. COST CONTROL

2. PREVIOUS WORK COST COMPARISONS

Bid Award / Final Cost Estimate Comparison

The larger bid amount-cost estimate difference for Zuni Road Improvements was due to the uniqueness of Intelligent Transportation Systems equipment, price fluctuations in networking and Information Technology Equipment, and changes in equipment models in favor of newer more reliable models.

NAME OF PROJECT	DATE OF BID	NO. OF BIDS	FINAL COST ESTIMATE	BID AWARD \$
Zuni Road Improvements - Washington to Central Ave.	Sept. 2019	2	\$2,368,818.87	\$1,960,554.77
ITS - Albuquerque Traffic Management System Phase XVII	Jan. 2017	1	\$2,047,516.00	\$2,194,578.00

With our extensive bidding and on-call agreement proficiency, we help our clients avoid unnecessary contractor markups. We frequently evaluate on-call price agreement bids with non-standard units such as "gallons of paint", "equipment hours" and "labor hours" to ensure your confidence in bid costs, designs and construction services.

Although these project bids listed are for traditional federally funded projects, LEE has unsurpassed experience managing and evaluating on-call bids. We have the skills to compare COA labor-hour cost proposals and on-call price agreement bids with historic unit prices to evaluate on-call construction proposals.



REQUIRED FORMS

AGREEMENT AND INSURANCE CERTIFICATION
PAY EQUITY WORKSHEET PE10-249

Agreement and Insurance Certification

We have reviewed the standard agreement for Engineering or Architectural or Landscape Architectural Services that are required for the project listed below, and hereby certify that we will, if selected for the project, enter into this standard agreement for this project and meet all insurance requirements listed therein.

This Certification is intended for the use of the City of Albuquerque only, in conjunction with the award of the Engineering or Architectural or Landscape Architectural Services Agreement for Project:

Project Name Traffic Engineering On-Call for NTMP Traffic Calming Program

Project Number 8050.00

Date 9/23/2019 Firm Name Lee Engineering, LLC

Signature [Signature]

Title Principal

STATE OF NEW MEXICO)

) ss

COUNTY OF BERNALILLO)

The above Certification was subscribed before me, the undersigned authority, by:

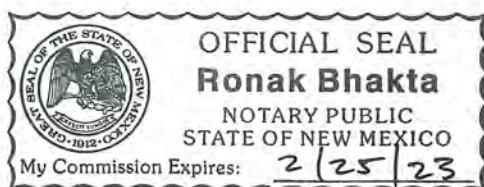
Paul Barricklaw

who swore upon oath that this Certification was signed of free act and deed, on this

23 day of September, 2019

[Signature]
(Notary Public)

My commission expires: February 25, 2023



Pay Equity Reporting Form

Company name:	Lee Engineering, LLC
Mailing address line 1:	8220 San Pedro Drive NE
Mailing address line 2:	Suite 150
City, state, zip code:	Albuquerque NM 87113
Phone:	(505) 338-0988
E-mail address:	pbarricklow@lee-eng.com
FEIN number:	86-0646602
EAN number:	0
Reporting calendar year:	2018

Job Category	No. Females	No. Males	Gap (Absolute %)
1 - Officers and Managers	2	13	15.80%
2 - Professionals	6	13	13.36%
3 - Technicians	3	5	8.34%
4 - Sales Workers	0	0	N/A
5 - Office and Admin. Support	2	1	15.59%
6 - Craft Workers (Skilled)	0	0	N/A
7 - Operatives (Semi-Skilled)	0	0	N/A
8 - Laborers (Unskilled)	0	0	N/A
9 - Service Workers	0	0	N/A

Total # Job Categories With No Employees	5
Total # Female Only Job Categories	0
Total # Male Only Job Categories	0
Total # Females (all categories)	13
Total # Full Time Females	11
Total # Part Time Females	2
Total # Males (all categories)	32
Total # Full Time Males	28
Total # Part Time Males	4
Total # Employees	45
Female % Workforce	28.89%
Male % Workforce	71.11%

Document must be signed by the principal executive of the company:

Paul Barricklow, PE, PTOE / Principal
Name and title, printed


Signature

January 7, 2019
Date

To be completed by Purchasing:

Sole Source Doc. #: (if applicable)

Contract Control Number (if available): _____

PO Number (if available): _____