

Project No. 7020

505.338.0988



leeengineering.com



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Albuquerque, NM 87113



# **CITYWIDE ON-CALL**

## Traffic Engineering

Submitted for the City of Albuquerque  
April 1, 2020



**LEE ENGINEERING**

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**ToC**



ARIZONA  
TEXAS  
NEW MEXICO  
OKLAHOMA

April 1, 2020

Manh Tran, PE  
Project Manager  
Traffic Engineering/Municipal Development

Re: Citywide On-Call Traffic Engineering (Project No. 7020)

Dear Mr. Tran,

Traffic Engineering On-Calls are the mechanism for which the City of Albuquerque can efficiently transform City needs into City improvements; thereby increasing the customer service levels and improving the overall quality of life of our 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. We are prepared to service the City of Albuquerque as the prime consultant on this critical On-Call. 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 COA 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 traffic on-call contracts through multiple agencies and numerous back-to-back selections illustrates an understanding of our 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 City of Albuquerque and New Mexico communities.

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](mailto:pbarricklow@lee-eng.com), if you have any questions.

Sincerely,

A handwritten signature in blue ink, appearing to read 'P. Barricklow', with a stylized flourish at the end.

Paul Barricklow, PE, PTOE  
Principal

# I. GENERAL INFORMATION

## 1. COMPANY BACKGROUND AND INFORMATION

**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, Oklahoma.

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 505.338.0988

 [leeengineering.com](http://leeengineering.com)

## 2. COMPANY EMPLOYEE INFORMATION

**Company-wide, Lee Engineering employs 42 professionals throughout New Mexico, Arizona, Oklahoma and Texas.** We are comprised of five Principal Engineers, eight Project Managers, five Project Engineers, seven Engineering Designers, five Technicians, three Administrative employees, and nine interns. The table below highlights the team we have assembled who will be directly working with the City to execute the tasks of this on-call project.

TEAM MEMBER & TITLE	TECHNICAL DISCIPLINE	REGISTRATIONS
Paul Barricklow, PE, PTOE   Principal	Traffic & Transportation Engineering	PE #17744; PTOE #1885
Jonathon Kruse, PE   Project Engineer	Traffic & Transportation Engineering	PE #25017; PTOE #4773
Mike Cynecki, PE, PTOE   Project Manager	Traffic & Transportation Engineering	PE #18477 (AZ); PTOE #3795
Kelly Parma, PE, PTOE   Project Manager	Traffic & Transportation Engineering	PE #88603 (TX); PTOE #2136
John Prowse	ITS/Fiber Design Support	
John DiRuggiero	GIS Data Support	

## 3. LOCATION OF SERVICES PERFORMED

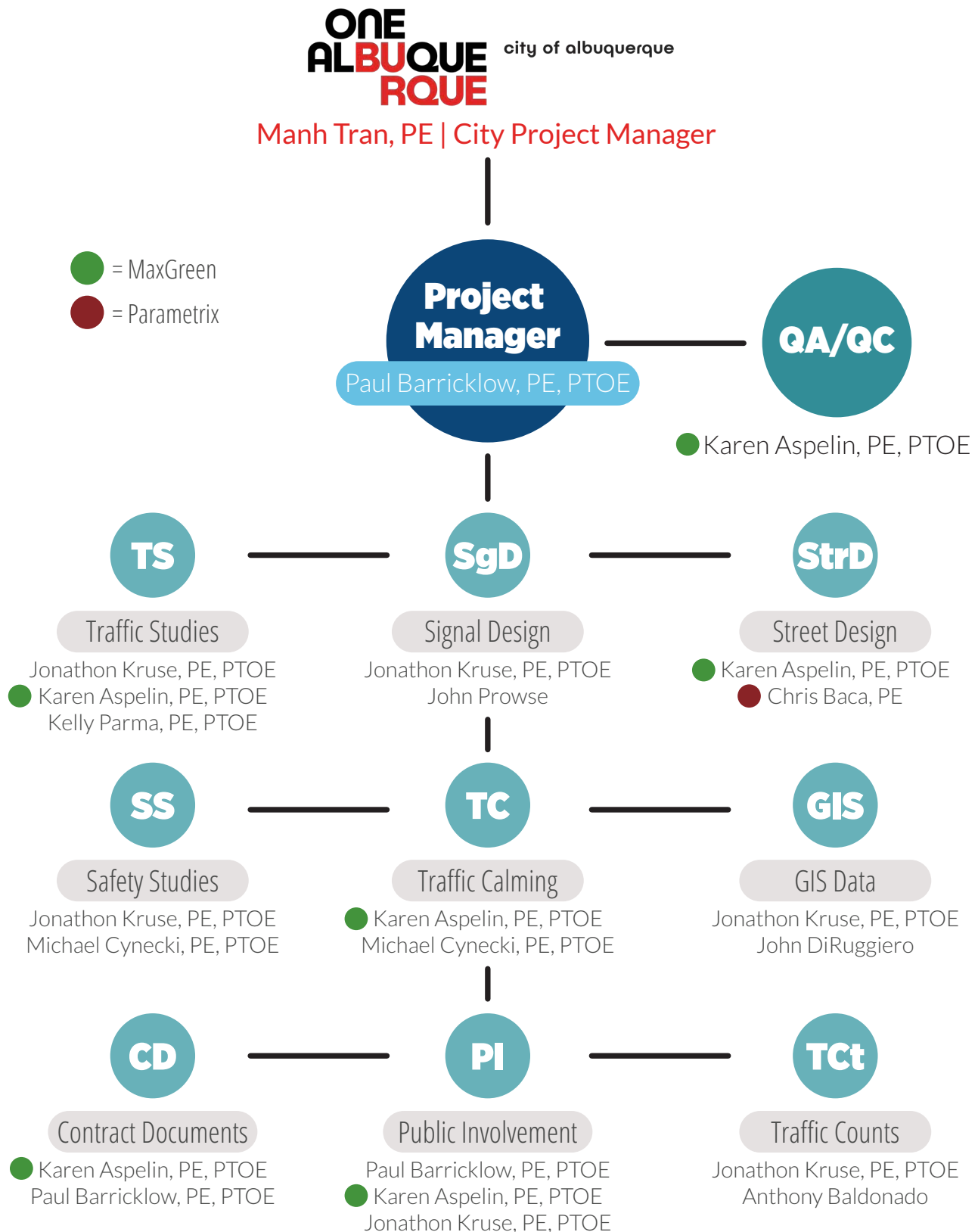
Lee Engineering's Albuquerque office will be responsible for projects associated with this City of Albuquerque contract. Each member of our Albuquerque staff has extensive experience working with the City of Albuquerque and is well versed with City, State, and Federal procedures. For specialty cases, 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.

Over 90% of our Professional Engineers have earned their Professional Traffic Operations Engineer certification (PTOE).



## II. PROJECT TEAM MEMBERS

### 1. ORGANIZATIONAL MANAGEMENT STRUCTURE





## 2. SUBCONSULTANT INFORMATION



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. Our Albuquerque office 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.

Each of our team members was specifically chosen for their experience and history working with the City of Albuquerque.



### 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.

#### 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

#### MEMBERSHIPS/AFFILIATIONS

Mountain ITE District, President  
New Mexico ITE, Past-President

#### PROJECT ROLE AND EXPERTISE

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

#### RELEVANT PROJECT EXPERIENCE

##### **Downtown Speed Zone Signal Timing, City of Albuquerque**

Stemming from a critical project need, Lee Engineering was contacted to provide an updated signal timing plan for the Downtown grid network following the hurried implementation of 25 mph speed limits within a new safety zone. Lee Engineering's Project Manager, Paul Barricklow, discussed the challenges of the project with City staff to include deliverables within a month and the need for implementation assistance and fine-tuning. Lee Engineering chose to use Tru-Traffic, an alternative software program to the standard Synchro software, which allowed for bi-directional progression band analysis without an intense volume analysis. Following a plan review with the Traffic Engineering Division, Lee Engineering and City Staff remotely entered the signal timing plans and completed field observations and fine-tuning.

#### ADDITIONAL PROJECT EXPERIENCE

##### **Signal System Expansion (Multiple Phases), City of Albuquerque**

##### **Coors Boulevard ATSPMs, City of Albuquerque**

##### **Central Avenue ATSPMs, City of Albuquerque**

##### **Zuni Road Improvements, City of Albuquerque**





### PROFESSIONAL REGISTRATIONS

PE, New Mexico | #25017

PTOE | #4773

### 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, Fiber Optic 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  
Central Ave Automated Traffic Signal Performance Metrics (ATSPMs), City of Albuquerque

City of Frisco Automated Traffic Signal Performance Metrics (ATSPMs), City of Frisco, Texas

Phase XVII Interconnect Design, City of Albuquerque

Major Corridor Signal Timings Update, City of Albuquerque



### 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, Traffic Impact Analysis, Bike and Pedestrian Studies, Traffic Data Analysis, Traffic Signal Design

### MICHAEL J. CYNECKI, PE, PTOE | PROJECT MANAGER

Mike Cynecki is Lee Engineering's bicycle and pedestrian aficionado with over 40 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. There, 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

MAG Road Safety Assessments, Maricopa County, AZ

PAG Road Safety Assessments, Pima County, AZ

ADOT Evaluation of Pedestrian Hybrid Beacons (Research study)"

MAG Safe Routes to School Studies, Cities of Avondale and Surprise, AZ

San Tan Ranches Access Study, San Tan Valley, AZ

24th Street Pre-design and Feasibility Study. Phoenix, AZ



## KELLY PARMA, PE, PTOE | PROJECT MANAGER

Mr. Parma is a Senior Project Manager in Dallas with over 22 years of traffic engineering and transportation planning experience. He also served as Chair of ITE Traffic Engineering Council Committee TENC-97-12, Survey of Speed Zoning Practices. Mr. Parma has extensive knowledge of computer simulation programs including HCS and Synchro.

Mr. Parma's project experience includes the development of arterial/network signal system timing plans for more than 650 signals in the DFW area, traffic signal designs for over 150 locations, over 175 miles of interstate signing designs, and speed zones for over 140 miles of roadway. He has also performed traffic impact studies for over 200 projects. He has performed traffic operation evaluations on various roadways in the DFW area and has worked directly on transportation projects with more than 20 municipalities in DFW.

### PROFESSIONAL REGISTRATIONS

PE, Texas | #88603

PTOE | #2136

### EDUCATION

MS, Civil Engineering, Texas A&M University

BS, Civil Engineering, Texas A&M University

### PROJECT ROLE AND EXPERTISE

Signal Timing, Signal Design, Traffic Studies, Transportation Planning,

### RELEVANT PROJECT EXPERIENCE

NCTCOG Thoroughfare Assessment Program, NCTCOG, Texas

Evergreen Traffic Engineering Projects, TxDOT, Texas

FM1709 Signal System Evaluation and Timing, Southlake, Texas

Multiple On-Call Contracts, City of North Richland Hills, Texas

City of Arlington Signal Timing, City of Arlington, Texas



## JOHN PROWSE | SIGNAL/ITS DESIGN SUPPORT

Mr. Prowse has over 30 years of experience in the traffic management and technology business. For 15 years, he worked with the City of Phoenix where he was responsible for traffic signal operations, signal timing/coordination and represented the City in traffic signal litigation cases. Mr. Prowse has led the design of various projects, including the EPIC2 border crossing project. He was responsible for coordination between multiple federal and state agencies in an international border crossing system. Mr. Prowse is especially experienced in fiber optic communications systems. He has designed communication systems utilizing other medias including wireless, copper, and leased line for low and high bandwidth.

### PROFESSIONAL REGISTRATIONS

N/A

### EDUCATION

Traffic Engineering, Arizona State Univ.

GIS/Video Imagery, Arizona State Univ.

### PROJECT ROLE AND EXPERTISE

ITS Design, Fiber Design, Signal Design, Signal Controller Programming Expert

### RELEVANT PROJECT EXPERIENCE

ADOT Loop 101 and 202 Design Build Projects

ADOT Phoenix Freeway Management System Phase 6A

ADOT EPIC2 Border Crossing Project

ADOT Traffic Operations Center to DPS Fiber Interconnect

Phoenix Region AzTech Initiative SMART Corridors.



### 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 a licensed PE in New Mexico since 1996, and has many years of experience with quality control/quality assurance (QC/QA) work.

### RELEVANT PROJECT EXPERIENCE

Silver Ave.-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; Montaño 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

## 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 joked 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 12 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. 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.
- Mr. Parma has extensive experience with computer simulation programs such as Synchro and HCS, and has completed traffic signal designs for over 150 locations.
- Mr. Prowse has over 15 years of public sector experience with transportation departments, and 30+ years of ITS and Fiber design experience.
- Lee Engineering was recently awarded the Albuquerque Traffic Engineering On-Call for NTMP Traffic Calming Program.





## III. RESPONDENT EXPERIENCE

### 1. PREVIOUS RELEVANT EXPERIENCE

#### 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. This project illustrates Lee's expertise in Traffic Counts(multimodal), traffic studies, and resulted in signal design.



#### 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** was responsible for the scope of this project which included a kickoff 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.

This project focused on traffic calming designs within a school zone resulting from the traffic study.



#### 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. **Paul Barricklow** was 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.



## TRAFFIC SIGNAL & INTERCONNECT INVENTORY, CITY OF ALBUQUERQUE, NM

**CONTACT:** Tim Brown (Original PM, Mathew Yannoni) | 505-250-2587

**YEAR SERVICE PROVIDED:** 2008 - Present

Lee Engineering was charged with creating a GIS inventory of all City of Albuquerque traffic signals and communications infrastructure. Each conduit, pull box, vault, pole, DMS, CCTV camera, and all cabinets were GPS located and geo-located in ESRI ArcPad and ArcView. The City of Albuquerque and Lee Engineering shared their efforts with the MRCOG ITS subcommittee. Building upon the committee's GIS unified database structure, entities throughout the region have established similar inventories. Overall, the total initial inventory includes 600 traffic signals, 113 school beacons, and 120 miles of communications cable. LEE supplemented the data with OSP Insight and a fiber optic and copper networking inventory software and connection management system. This project directly resulted in reducing OneCall tickets sent to the City resulting in hundreds of thousands of dollars in savings for the City. *The COA Traffic Engineering Staff received an award from the Mayor for saving the city time and money.* Since 2008, Lee Engineering has provided project-based updates to the City's GIS database as new infrastructure comes on-line. Lee Engineering continues to collect GIS Data for the Cities of Albuquerque and Rio Rancho, as well as the NMDOT GIS Bureau.

## ZUNI ROAD IMPROVEMENTS - WASHINGTON TO CENTRAL AVE., CITY OF ALBUQUERQUE, NM

**CONTACT:** Debbie Bauman | 505-768-3649

**YEAR SERVICE PROVIDED:** 2018-2019

In a first-of-its-kind project in the State of New Mexico, Lee Engineering contracted with the City of Albuquerque to design a pedestrian & bicycle safety information system for Zuni Road. Design included a connected vehicle system, Signal Phase and Timing (SPAT) broadcast, specialized pedestrian & bicycle detection, and a safety, informational & navigational application tailored towards pedestrians. Systems for this project were designed to have minimal construction impact to the surrounding communities with new infrastructure utilizing existing conduits and retrofitting existing cabinets & poles.



## 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 Westside Boulevard and the I-25 and Balloon Fiesta Ramp Analyses.

## IV. TECHNICAL APPROACH

### 1. UNDERSTANDING OF PROJECT SCOPE

Communication between the Lee Engineering Team and the City's Project Manager, Manh Tran, 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 safety 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: traffic studies, traffic counts, signal designs, traffic calming designs, GIS data gathering and input, public meetings, safety studies, street designs, construction contract document preparation, and other engineering duties.

#### TRAFFIC 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 Highway Safety Manual. Based on these principals, LEE is able to calculate predicted base crash incident rates and compare them to predicted rates under proposed mitigation scenarios.

#### TRAFFIC COUNTS

A thorough data collection 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. In addition to the video recorded turning movement counts, we also provide ADT counts to include volume, speed, and class. These additional statistics add value to traffic calming and warrant studies.

#### 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 finer design aspects such as pedestrian phasing requirements, nontraditional 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. **Lee Engineering's hands-on in-the-cabinet experience adds value to City projects** by training and working with traffic signal technicians from design to signal turn-on.

## TRAFFIC CALMING DESIGNS



LEE has the vision and experience to recognize 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 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, we have 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.

## GIS DATA GATHERING AND INPUT

Geographic Information Systems (GIS) inventory plays an important part in managing a city's resources. It is necessary these systems be functional and accurate. For inventorying traffic signal equipment, this requires detailed knowledge of signal design, signal equipment and field experience. As designers of traffic signals and Intelligent Transportation Systems (ITS), LEE has exceptional knowledge and experience in this realm. **LEE has mapped hundreds of traffic signals for the City of Albuquerque**

**totaling nearly one thousand miles of traffic signal and ITS telemetry.** LEE created the city's Traffic Signal GIS database and maintains this database in support of city initiatives and projects.

## AUTOMATED TRAFFIC SIGNAL PERFORMANCE MEASURES (ATSPMs)

Lee Engineering is committed to using the most efficient and feasible tools available to support City operations. As such, we are agnostic to advanced traffic management systems (ATMS), signal performance measures, (SPMs), and detection platforms and work diligently to develop and optimize results in any situation. Our staff has been trained by attending UDOT ATSPM workshops and participates in ongoing monthly developer conference calls. **Lee Engineering has worked with multiple municipal agencies in New Mexico, Colorado, and Texas to implement ATSPM software** as well as signal timing optimization using performance metrics. With our comprehensive signal systems knowledge base, we go above and beyond basic ATSPM platform installation using performance metrics to make responsive, measurable improvements to traffic signal coordination and timing.

Lee Engineering's complete ATSPM service approach enables operators to enhance system monitoring and improve system performance through data-based measures. Our clients receive the training and support they need to be able to make informed decisions based on actionable data allowing them to make real-time improvements.

## PUBLIC MEETINGS

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

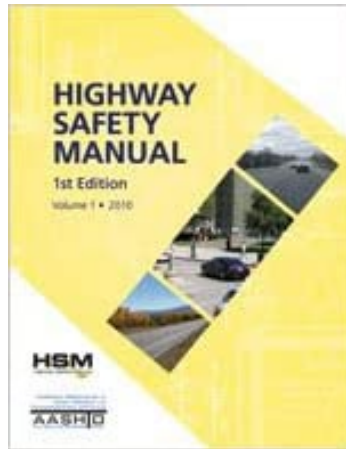
**LEE can apply a wide variety of alternative outreach methods** including surveys, newspaper advertisements, website postings, formal presentations and displays, large format question and answer sessions, small group sessions, workshops and design charrettes. More in depth and personal out-reach programs, 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. LEE is able to provide bilingual representatives to ensure the voice of all citizens are heard throughout the facilitation process.



## SAFETY STUDIES

LEE is at the forefront of safety analysis, which means that we understand the use and application of the 2010 Highway Safety Manual (HSM). Each of our engineers is skilled in calculating predicted crash rates based on existing conditions, identifying problem areas, and then assessing the effectiveness of potential mitigation by applying crash modification factors to predict crash rate reduction. **We are not afraid to think outside the box and are willing to investigate innovative solutions** for any given problem.

A prime example of this can be found in our pedestrian/bicycle safety analysis of the protected-permitted left-turn at Paseo del Norte and I-25 SB for the NMDOT where we concluded a flashing yellow arrow could be used to eliminate permitted left-turn/pedestrian conflicts without sacrificing the operational benefit of running a permitted left-turn phase. LEE is not afraid to recommend proper, even if not always initially popular, mitigation measures such as the road diet recommended for the US-82 Lovington RSA. The road diet stemmed from a pedestrian/bicycle safety perspective while still operating under capacity. Members of the public and the local newspaper had some resistance to this concept, but LEE offered support in the form of attending a public meeting where the benefits of a road diet were discussed. Ultimately, concerns of the public were assuaged, and this road diet is currently in the being constructed.



## 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.

## CONSTRUCTION CONTRACT DOCUMENT PREPARATION

On-call tasks requiring engineering design will require construction contract documents which include estimates, design plans, and specifications. 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 contract book documents are accurate and bid-ready within the approved project schedule.**

## 2. APPROACH TO SERVICES

The team members selected for this on-going contract all 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, our Project Manager, Paul Barricklow, or our Task Managers, will immediately coordinate with Manh Tran to establish project goals from a City of Albuquerque perspective. Lee Engineering will take those established goals and create a work plan including required tasks, person-hours, a schedule, and deliverables for submittal to Mr. Tran. Once a notice-to-proceed is provided by the City, Lee Engineering will mobilize team members to meet the established milestones. Lee Engineering will pro-actively provide Mr. Tran with periodic progress reports documenting task progress, any project challenges, and ensuring that project goals are maintained. 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

In true third party review, 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 for the City of Albuquerque, coupled with her attention to detail, will ensure quality deliverables throughout this contract.

We 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. We 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 which may arise.

## 3. SPECIALIZED PROBLEM SOLVING TECHNIQUES

BASED ON OUR EXPERIENCE WITH SIMILAR PROJECTS IN ALBUQUERQUE, THE FOLLOWING ATTRIBUTES BUILD THE FOUNDATION FOR OUR TEAM'S SPECIALIZED PROBLEM SOLVING:

- LEE's staff of in-house PE's and PTOE's allow for project scheduling flexibility to meet the tightest of schedules. We have a variety of technical specialists in each of the Traffic On-Call's focus areas to call upon based on project needs.
- LEE is already applying complete street concept principles that the City of Albuquerque has identified in their policies. Mike Cynecki is a Bicycle and Pedestrian expert.
- LEE provides extensive experience and innovative solutions for signal timing coordination plans, including single intersections, corridor studies, and grid-network system coordination.
- LEE has the in-field practical experience and "in-the-cabinet" knowledge that can be leveraged for speedy implementation of signal timing alternatives.
- We have become experts in VISSIM, SYNCHRO, CORSIM, HSC, etc through our years of hands-on application.



Our project experience also includes non-traditional operations control such as roundabouts and at-grade rail operations at signals.



## V. COST CONTROL

### 1. TECHNIQUES FOR COST CONTROL AND ESTIMATING

Our Team recognizes that maintaining the project schedule and costs are 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.

#### **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 routinely monitoring work progress. Our Project Manager will oversee staffing commitments, timely deliveries, and product quality. If new issues come to light that could impact a project's scope, schedule, or budget, LEE proactively calls the City of Albuquerque Project Manager and presents these issues so viable solutions and decisions can be made quickly and efficiently.

#### **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 over-shoot 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.

#### **Cost Estimating Techniques**

LEE uses several techniques when developing construction cost estimates. LEE maintains an 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 various projects. Bid item estimating is also compared against pricing data provided by both the COA and NMDOT.

### 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.

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 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.

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

# APPENDIX

## VI. CERTIFICATIONS/ REQUIRED FORMS

- AGREEMENT AND INSURANCE CERTIFICATION
- PAY EQUITY WORKSHEET | PE10-249

City of Albuquerque Capital Implementation Program

## 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 Citywide On-Call Traffic Engineering

Project Number 7020

Date March 27, 2020 Firm Name Lee Engineering, LLC

Signature 

Title Principal

STATE OF NEW MEXICO )

) ss

COUNTY OF BERNALILLO)

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

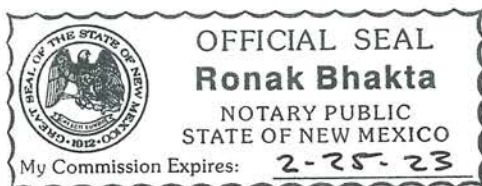
Paul Barricklow

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

27<sup>th</sup> day of March, 20 20

  
(Notary Public)

My commission expires: February 25, 2023



### Pay Equity Reporting Form

**Company name:**

Mailing address line 1:

Mailing address line 2:

City, state, zip code:

Phone:

E-mail address:

FEIN number:

EAN number:

Reporting calendar year:

Lee Engineering, LLC
8220 San Pedro Drive NE
Suite 150
Albuquerque NM 87113
(505) 338-0988
pbaricklow@lee-eng.com
86-0646602
0
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 Baricklow, PE, PTOE / Principal

Name and title, printed

Signature

March 30, 2020

Date

**To be completed by Purchasing:**

Sole Source Doc. #: (if applicable)

Contract Control Number (if available):

PO Number (if available):