Vendor offers to furnish to the City and County of Denver the materials, supplies, products or services requested in accordance with the specifications and subject to the Terms and Conditions described herein.

VENDOR SIGN HERE

Company Name: ________________________________________________________________ PRINT

By: ____________________________________________________________ PRINT

Signature: _________________________________________________________ SIGNATURE

Date: ________________________________ ________________________________ XX/XX/XX

Signature constitutes acceptance of all Terms and Conditions listed on this form and all documents attached.
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A. INTRODUCTION

A.1 EXECUTIVE SUMMARY

Smart city solutions have the opportunity to improve environmental quality and safety, promote economic development and equity, and enhance people’s life standards. Each day there are new advances in real-time technology and design for transportation, water, energy, communications and other city-wide systems.

Spurred on by the U.S. Department of Transportation’s Smart City Challenge, Denver is seeking new and better ways to deploy technology and use data to improve services for our residents, businesses, and visitors.

The Denver Smart City Program is eliminating silos, optimizing city operations, and addressing some of our biggest challenges—crime, traffic congestion, vehicle crashes, air pollution, safety, and economic inequality. By working smarter for all, we’re building Denver’s future today.

Through federal and local funding, as well as industry, public, private, and community partnerships, the Denver Smart City Program is working to address many of Denver’s challenges. Denver Smart City values everyone in Denver and believes the convergence of technology and innovation creates an opportunity to fully realize the city as a platform to co-develop solutions across the city. Denver Smart City is working to ensure residents receive immediate, complete access to city services in a manner that is mobile, affordable and environmentally sustainable.

We are looking for business partners who will contribute to the Denver Smart City goal of using data to make our city better. We are committed to this vision and are dedicating our best and brightest resources to:

- **Embrace** emerging smart industry standards as they develop
- **Co-design** architecture to support multi-vendor interoperability
- **Maintain** local control and ownership of City and County of Denver data
- **Leverage, Collaborate and Contribute** to open source community innovation and the exchange of knowledge

We hope to partner with the business community, through this strategic on-call services RFP, to develop innovative solutions for the challenges confronting our community every day.
A.2 OVERVIEW OF REQUESTED SERVICES

WHAT WE ARE LOOKING FOR

The City and County of Denver’s General Services Purchasing Division - is seeking contractors who can provide professional services to assist in the planning, development, operation and execution of Denver Smart City projects. This shall include: technology development and deployment, data analysis, and strategic development and planning that focus on sustainability, mobility, access, resilience, and transparency. We want on-call expertise across three disciplines:

- Information & Communication Technology (ICT)
- Intelligent Transportation Systems (ITS)
- Business Intelligence (BI)

The City intends to enter into contracts with multiple contractors. Once under contract, they shall respond to task orders for project assignment. These services are authorized by the Mayor’s Office, Department of Public Works, Department of Public and Environmental Health, and Technology Services. Our commitment to generating participation from small, local, minority-owned, women-owned, and veteran-owned businesses is genuine.

WHO SHOULD RESPOND?

This RFP is open to any vendor who would like to apply - seriously. Denver is getting smarter and needs you. Are you a large national or international firm who is already working with cities to deliver services better and faster? We need you! Are you a leading firm in your industry who has been working on complex projects for years? We need you!! Are you a niche firm who knows you can bring value to Denver? We need you!!! We are looking for those who appreciate the innovative technology and paradigm shift smart city solutions bring to complex city problems. We invite you to become an integral part of Denver Smart City.

We are creating this Denver Smart City Agile Business Services RFP to bring in our most talented partners at every level. We want to develop a pool of talent from a mix of classes: One-Stop Comprehensive, Industry Specific, and Innovative/Niche Capability Firms. You will be measured against those in your classification, so we have structured the responses to reflect and honor the amount of time you have is directly proportional to the size of your firm. We are encouraging all sizes and skills with those who care about city building and have already had success delivering complex solutions and projects. We recognize the power of building partnerships with you to build a stronger and smarter community. Together.

HOW DOES THIS WORK?

The RFP will create a talented pool of firms to help Denver Smart City provide value to our residents through projects and initiatives. When a need arises, Denver city staff will develop a task order with one (or more) firms selected that are a part of the on-calls, which will have funding attached to this specific effort. We designed this RFP with engagement and outreach in mind and we don’t want to waste anyone’s time or efforts.
A.3 PROGRAM BACKGROUND

WHO WE ARE

The City & County of Denver is a great place to work, live, and play. This is evident by a population growth of 15,000 residents annually, which is a boon for economic development and job growth but also presents challenges such as traffic congestion, air quality and equity issues, and affordable housing shortages. Denver knows that complex 21st century problems need innovative 21st century solutions.

Denver Smart City looks to develop groundbreaking technology solutions in government operations that aren’t just aspirational. We want to improve the quality of life of Denver residents and our greater Colorado Community. In a nutshell: we are about using data to address the real problems residents face.
A.4 CURRENT ENVIRONMENT

WHERE WE ARE FOCUSING OUR ATTENTION

Safety
**Problem:** Denver’s streets are not as safe as they should be.
**Solution:** Imagine receiving automatic alerts from your vehicle about obstacles and dangers in your path. Denver is taking a data-driven approach to reducing transportation-related accidents and injuries. Smart technologies like autonomous vehicles, and ITS such as road sensors, wireless communications, and signal timing help to safely transport more people in a finite system.

Congestion
**Problem:** Denver’s population continues to grow by approximately 15,000 residents annually. This growth is great news for our city’s economic development; the downside of this tremendous growth: traffic.
**Solution:** Denver is using data collection to get residents and visitors from place to place smoothly and efficiently. The data collected by the city will be used to maximize the entire grid, understand traffic patterns, and inform infrastructure needs. Denver will collect data from thousands of sensors to gain a better understanding of our city’s overall traffic habits. Data will come from our traffic management center, weather sensors, the police department, universities, and sensors on buses, rail, roads and signals.

Equity
**Problem:** Partially due to a 30% increase in cost of living since 2010, 24% of Denver’s residents live near or below the poverty rate and have limited mobility options.
**Solution:** In partnership with Human Services, Denver Smart City focuses on delivering safe and accessible transportation, connecting services to our most vulnerable populations. Through collecting vehicle volumes, bicyclist and pedestrian counts and other data, we look to identify patterns ensuring appropriate multimodal solutions are deployed to provide a safe environment and access to city services.

Air Quality and Health
**Problem:** The Denver metropolitan area is a moderate ozone nonattainment area, and nearly 1 in 10 Denver residents are living with asthma. Some Denver children experience higher rates of asthma than other children due to inequitable exposure to air pollution, impacting their wellbeing and future opportunities.
**Solution:** Fortunately, electric vehicles reduce air pollution and greenhouse gas emissions. Denver is examining the potential for electric vehicle charging corridors throughout the city that ensure all communities, including low-income and multi-family housing, have access to charging infrastructure. In addition, we are working with our local start-ups to create a citywide, real-time, hyper-local air quality monitoring system that will empower communities, families, and schools to protect children’s respiratory health.

Photos taken by Photovoice participants in Spring 2018, who live and work adjacent to Federal Boulevard.
HOW WE ARE GOING TO DO THIS

Denver Smart City has developed a strategy around four focus areas:

#1: Healthy People & Places develops partnerships, infrastructure, networks and programs to foster profound change for a sustainable city.

Denver is reducing air pollution, limiting greenhouse gas emissions, and improving our environment to protect public health and prioritize environmental sustainability. Information from Electric Vehicles (EVs) can be used to maximize an entire utility grid, understand traffic and charging patterns, and inform infrastructure needs. Denver is leveraging EVs to simultaneously improve mobility and the environment. An example of an effort under this portfolio is a $1.9 million grant from the U.S. Department of Energy hopes to accelerate the adoption of plug-in electric vehicles (EVs) in shared mobility applications with public and private entities. Four city partners include: Denver, New York City, Portland, and Seattle. In Denver, we’ve partnered with the General Motors Maven Program to provide EVs to drivers of ride sourcing programs like Uber and Lyft. Maven provides EV rentals that cover insurance and maintenance costs.

WHAT MAYOR MICHAEL B. HANCOCK IS SAYING:

"Without local air-quality data paired with increased awareness and advocacy, children and their families will continue to develop chronic lung disease, miss school and work, struggle with increased healthcare costs, and experience decreased income-earning and career opportunities."

— Michael B. Hancock, Mayor of Denver, CO

7
#2: Connected Mobility integrates technology with the built environment to improve safety and to provide flexible, affordable and accessible multi-modal options for everyone.

Smart technologies like road sensors, DSRC, and connected vehicles hold the opportunity to safely fit more people into a finite transportation system. Denver Smart City’s connected system includes four values to ensuring flexibility and choice in this emerging industry: keeping local control of data, focusing on open source/open software, implementing based on Federal standards, and developing interoperability. With over $13 million in connected vehicle efforts through “living labs” and congestion mitigation efforts, Denver will be one of the leading cities pushing forward connected vehicle and infrastructure technology, which will ultimately improve congestion, air quality, and safety for Denver’s residents and businesses.

Denver also needs to provide convenient and centralized access to multiple transportation options and information throughout the city. Mobility freedom connects communities and neighborhoods with safe and convenient access to education, healthy food, entertainment, housing, and jobs. A first mile last mile pilot shuttle looks to show a clear and easy way to connect workers with their jobs.

#3: IOT Platform & Data Management will integrate IoT with the built environment, connecting data sets for safety, mobility, transportation, freight and weather in one place, allowing for predictive analytics and timely decision-making with an emphasis on safety and security. Early on, Denver identified the need for a comprehensive solution to connect multiple systems and data from across city departments. Our solution was our Enterprise Data Management (EDM) system, which is the foundation for a holistic approach to gathering, interpreting, and acting on data from across the city. The EDM is being constructed to support Denver Smart City portfolios and projects. Built for integration and interoperability, the IoT platform will compile data at rest, such as geospatial and land use data, along with data in motion, such real-time data on transportation, environmental health, and weather. With an emphasis on safety and security, the EDM drives smarter decision-making, emphasizing safety and security.

Through data aggregation stage, data intelligence, and system operability, the EDM system will be tuned into a wide range of data from sensors of various types across the city and to gain a better understanding of the overall operations and services at work in our communities.

#4: Innovative Pilots and Partnerships pull the best and brightest, implementing the most innovative ideas.

Denver Smart City challenges the status quo on how projects are developed and delivered, integrating an experimental spirit to take calculated risks while exploring possibilities to bring the best and brightest ideas,
projects, and collaboration to Denver. We have embraced a unique opportunity to install, understand, and evaluate several smart technologies in special “living labs” around the city.

One living lab focuses on understanding the connecting vehicle and detection technology at 29th Avenue and Federal Boulevard. We have harnessed and relayed data from the area, employing the data discovered from this integration in ways that will ultimately improve transportation, reduce congestion and move people to their destinations quickly and safely. The primary goal, and first step of this $1 million effort, is to establish links between vehicles on the road (utilizing their existing on-board equipment) and roadside infrastructure (traffic signals) that will feed information into a city Enterprise Data Management (EDM) system and our traffic management center, thereby informing our development of policies and programs that help protect individuals.

**ADDITIONAL INSIGHTS**

**Funding**

Denver Smart City efforts are funded through General Funds, Capital Improvement Funds, and Grants- both Federal and State.

**Coverage of Denver Smart City**

- [Denver Digs Deep on Smart City Development and Implementation](#)
- [Smart City Efforts Large And Small Take Shape In Denver](#)
- [Smart City Program Two Living Labs Resident Platforms and IOT indicate Denver’s Assertive Move Toward Smart](#)
- [Denver’s smart city dreams start with smart data management](#)

**Team**

Denver Smart City is a multi-departmental program within the City & County of Denver. The cross functional teams represent four primary departments- Mayor’s Office, Department of Public Works, Denver Department of Public Health & Environment and Technology Services- and closely collaborate with other departments such as Human Services and Department of Safety.

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A.1 RFP SCHEDULE

The table below shows the preliminary RFP Schedule. Dates are subject to change. Any changes will be posted in an addendum that can be found on the RFP website, Bidnet.

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>RFP AVAILABLE</td>
<td>9:00 AM, Wednesday, 10/31/18</td>
</tr>
<tr>
<td>Pre-Bid and Q&amp;A Webinar</td>
<td>11:00 AM, Wednesday, 11/07/18</td>
</tr>
<tr>
<td>“HOW TO RESPOND TO THIS RFP?” Workshop</td>
<td>12:15 AM, Wednesday, 11/07/18</td>
</tr>
<tr>
<td>RFP QUESTIONS DEADLINE</td>
<td>8:00 AM, Wednesday, 11/21/18</td>
</tr>
<tr>
<td>OFFICE HOURS</td>
<td>8:00 AM – 12:00 PM, Thursday, 12/06/18</td>
</tr>
<tr>
<td>LETTERS OF INTENT TO APPLY DUE</td>
<td>10:00 AM, Friday, 12/07/18</td>
</tr>
<tr>
<td>PROPOSAL SUBMISSION DEADLINE</td>
<td>1:00 PM, Friday 12/21/18</td>
</tr>
<tr>
<td>INTERVIEWS (AS APPLICABLE)</td>
<td>Wednesday - Wednesday, 1/09-1/16/19</td>
</tr>
</tbody>
</table>

**Pre-Bid Meeting and Q&A Conference Call:** This is an opportunity to hear a high-level overview of the RFP, walk through the requirements, and ask any preliminary questions. Response to questions addressed at the pre-bid conference are non-binding and all requests must be formally made via the Question Repository. This is a teleconference hosted event. [JOIN SKYPE MEETING](#)

**“How to Respond to this RFP?” Workshop:** This is an opportunity to receive information regarding submitting a successful proposal for consideration; no additional information about the project will be provided or discussed. This is a teleconference hosted event. [JOIN SKYPE MEETING](#)

**Letter of Intent to Apply:** Submitted or via email; proposers must provide the RFP Contact the completed Letter of Intent to Apply stating the competition pool they will participate in.

**Office Hours:** This is an opportunity to ask questions about the required forms and about how to submit your proposal; no additional information about the project or content of the RFP will be provided. Office Hours will be hosted at the Wellington Webb Building at 201 West Colfax Avenue Denver Colorado 80203 or by phone. **Appointment is required.**

**Proposal Submission Deadline:** Submitted via the City’s Supplier Portal, via hard copy, or via email; proposals must be received prior to the deadline.

**Interviews:** If applicable, interviews may be conducted with finalists. Interview schedules will be determined as necessary.
A.2 AUTHORIZED RFP CONTACT PERSON

With the release of this RFP, all communications must be directed in writing via email to the contact person below. Phone communications are discouraged.

Janell Schafer, Janell.Schafer@denvergov.org
720-913-8109
General Services Purchasing Division

No other City employee, consultant, or contractor is empowered to speak for the City with respect to this RFP. All outreach regarding this RFP to any other personnel of the City and County of Denver may result in immediate disqualification.

A.3 QUESTIONS AND INQUIRIES

Please submit questions via the Question Repository.

This will ensure questions are answered in a timely manner. Answers to questions shall be released in accordance to the Schedule of Events. Questions submitted via any other format may not be answered.

A.4 ADDENDA

The City may choose to modify this RFP before the Proposal due date by issuing an addendum via the Rocky Mountain Supplier Portal. All addenda shall become part of the requirements for this RFP. Proposal Due Date Extension requests made to the Authorized RFP Contact shall be accepted. However, unless the City issues a written addendum to this RFP which extends the Proposal Due Date and Time for all Proposers, the Proposal Due Date and Time specified above shall remain in effect.

A.5 PROPOSAL SUBMISSION METHODS

Proposals for each competition/pool must be submitted in the required format and received by the Authorized Agency Person via one of the following 3 methods:

1. RFP PORTAL: Uploaded via www.rockymountainbidsystem.com
2. EMAIL: Janell.Schafer@denvergov.org
3. HARD COPY: Eight (8) hard copies in addition to a USB flash drive with proposal uploaded. Must be delivered and time stamped to the RFP contact’s provided address

Proposals received after the Proposal Due Date and Time via any method are late and shall not be accepted. The City and County of Denver bears no responsibility for the cost of preparing a response to this solicitation. Clearly label proposal submissions whether electronic or paper with the name of the Proposer and the Competition Pool of Application.

RFP Portal Submissions: Registration with BidNet® is available at NO CHARGE and allows proposers access to view governmental bids posted on BidNet®; they offer an additional notification service option with an associated fee. It is the responsibility of the proposer/contractor to evaluate and select the service option of their choice.
B. SCOPE OF WORK

B.1 WHAT WE ARE LOOKING FOR

The Denver Smart City Program seeks to establish versatile multiple on-call contracts that enable the City and County of Denver to partner with businesses across multiple disciplines that will provide services for projects. This additional supplemental expertise will enhance the delivery, quality, and longevity of publicly owned goods.

The goals of this RFP are to:

- Establish a series of on-call contracts that will allow the City of and County of Denver to promote a competitive and agile procurement environment, ensuring the highest quality of services delivered to the city, at a fair price
- Seize opportunities to partner with a variety of firms that employ vision, innovation, accountability, and effective utilization of resources in Smart City projects across three Class Disciplines: Information & Communication Technology (ICT), Intelligent Transportation Systems (ITS), and Business Intelligence.
- Open the municipal government procurement marketplace with opportunities for firms of all backgrounds, size, and demographics.

B.2 CLASS DISCIPLINES AND COMPETENCIES OVERVIEW

The purpose of this solicitation is to establish a competitive contractor pool of primary contracts which include expertise that fall under the disciplines of Information Communication Technology, Intelligent Transportation Systems, and Business Intelligences. Class Disciplines are provided as a guide for proposers so that they may better understand the expertise desired for this RFP across the three (3) competition pools.

We are looking for capabilities within each discipline, which we have defined as “Core Competencies”. In an emerging industry, we don’t know what the future will hold and as such the roles and positions outlined in the Class Disciplines are based on what we currently have identified as needed. The job titles may be different (your firm might call positions something else) but the competencies needed for these complex projects are the consistent expectation.

Appendix A contains detailed descriptions of the core competencies within each discipline. Proposers should refer to this document as a resource for answering the proposal questions and responding to the project scenarios found in Appendix B Project Scenarios. Appendix B Project Scenarios references the types of work that may be performed under this on-call contract.

DISCIPLINE CLASS ONE: ICT-INFORMATION AND COMMUNICATION TECHNOLOGY services are about a unified and integrated approach of infrastructure to facilitate access, storage, transmission, manipulation, retrieval and reception of information.
DISCIPLINE CLASS TWO: ITS- INTELLIGENT TRANSPORTATION SYSTEMS - “combines high technology and improvements in information systems, communication, sensors, controllers and advanced mathematical methods with the conventional world of transportation infrastructure.”

DISCIPLINE CLASS THREE: BUSINESS INTELLIGENCE acknowledges that technical, hardware and software skills are not the only elements needed for a smart city. With the emerging field of smart cities, strategic thinkers and storytellers are essential for what is needed to make Denver smarter — from a big picture perspective to details such as initiation, project delivery and public engagement. A holistic view, along with these specific skills, will ensure sustainability of smart city solutions over time for Denver and the region.

Overlap of core competencies exists across all three disciplines. As such, the following table outlines the core competencies and indicates whether they are Optional (O) or Required (R) in each discipline category of response.

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1 Yangxin Lin; Ping Wang; Meng Ma, “Intelligent Transportation System(ITS): Concept, Challenge and Opportunity”, IEEE, 5/26/2017
B.3 COMPETITION POOLS OVERVIEW

The successful contractors shall furnish services that fall under ICT, ITS, and BI to supplement Denver Smart City projects under the umbrella of the four Smart City Focus Areas (defined in Section A). Each proposal pool is being treated as a separate solicitation. Proposal Respondents have the option of submitting a proposal response to one of the following competition pools:

**ONE-STOP COMPREHENSIVE CAPABILITY FIRMS (COMBINED ITS, ICT & BI DISCIPLINES)**: The city intends to award successful proposers in this Competition Pool. Proposers must respond to requirements for **all three** disciplines of service categories.

**INDUSTRY-SPECIFIC CAPABILITY FIRMS (ICT, ITS, OR BI)**: The City intends to award successful proposers in this Competition Pool. Proposers will be responding to requirements for **one** of the disciplines of service category.

**INNOVATIVE/NICHE CAPABILITY FIRMS (FOCUSED AND NARROW SPECIALIZATION THROUGHOUT ICT, ITS, AND/OR BI)**: The City intends to award successful proposers in this Competition Pool. Proposers will be responding to **one to three** scenarios within **any** of the discipline service categories.

A vendor may not be awarded more than one contract as the prime but may still participate in City of Denver contracts that other vendors are the prime. E.g., Firm A is the proposer and receives a contract in Competition Pool 3. Firm A **cannot** be the primary awardee in any other competition pool, but Firm A **can be** a subcontractor on task orders to an awardee in Competition Pool 1 and Competition Pool 2.

The City and County of Denver may determine, in its sole discretion, based on the Proposer’s demonstrated capability and the best interest of the City, in which pool of services the Proposer will be awarded a contract. Proposers will not be awarded a contract in more than one pool.

The On-Call Contract Agreement(s) awarded pursuant to this solicitation may be subject to Minority and Women Owned Business Enterprises (M/S/WBE) participation requirements by federal or state authorities. Depending on the scope of work and the availability of M/S/WBEs to perform such work, agencies may set M/S/WBE participation goals on an individual task order issued pursuant to such agreement. If M/S/WBE participation goals are established for an individual task order and/or project due to funding source and goals are assessed
either prime contractors who are M/S/WBE's will be awarded the task order and/or project or other contractors will be required to submit a completed M/S/WBE utilization plan proposal unless a waiver is obtained.

B.4 COMPETITION POOL #1: ONE-STOP COMPREHENSIVE CAPABILITY FIRM (COMBINED ITS, ICT & BI)

The One-Stop Comprehensive Services proposal competition pool is designed to be an agile and coordinated approach to contracting with a business entity capable of deploying resources in response to task orders from a network of different city agencies across multiple projects seamlessly along a continuum of service categories.

The One-Stop Comprehensive Services Firm(s) selected under this RFP will be expected to collaborate with city agency personnel as well as other contractors by focusing on a fully coordinated strategy for successful project delivery.

Specifically, this RFP is seeking One-Stop Comprehensive Capability Firms that:

a. Provide services across the ICT, ITS, and BI Discipline Categories and expertise in all competency areas
b. Demonstrated expertise with complex projects

Comprehensive Capability Firms may provide management, coordination, and oversight on Denver Smart City projects under the direction of city agency personnel; this includes close collaboration with the Mayor’s Office, Technology Services, Public Works, Department of Public Health and Environment and other city agencies and community partners specific to project service delivery.

Comprehensive Capability Firms must demonstrate the capacity to manage large amounts of complex city-owned data and resources. This includes, but is not limited to, working with various city agencies as well as other external service providers in an effort to continually improve Denver Smart City Program development.

Proposers to this competition pool should use the “Technical Response Package A: Comprehensive Capability Firm Competition Pool#1” to respond to the proposal. Responses require project scenario completion across all disciplines.

B.5 COMPETITION POOL #2: INDUSTRY-SPECIFIC CAPABILITY FIRMS (ICT, ITS, OR BI)

The industry-specific proposal competition pool is designed to be an agile and coordinated approach to contracting with a business entity with specialized industry expertise that can deploy services in response to task orders from a network of different city agencies across multiple projects seamlessly.

The firms selected under this RFP will be expected to collaborate with city agency personnel as well as other contractors by focusing on a fully coordinated strategy for successful project delivery.

Specifically, this RFP is seeking industry specific service firms that:

a. Are highly skilled and experienced in either the ICT, ITS, or BI Discipline;

b. expertise in the required core competencies of the selected discipline;

c. expertise in the optional core competencies for the selected discipline are highly encouraged

d. Demonstrated expertise with complex projects
In addition, an ICT, ITS, or BI industry-specific firm will provide management, coordination, and oversight of the partnership of agencies that comprise cross-functional teams from Denver Smart City; this includes close collaboration with the Mayor’s Office, Technology Services, Public Works, Department of Public Health and Environment and other city agencies and community partners specific to project service delivery.

Proposers to this competition pool should use the “Technical Response Package B: Industry Capability Firm Competition Pool#2” to respond to the proposal. Responses require project scenario completion of any 2 Disciplines.

B.6 COMPETITION POOL #3: INNOVATIVE/NICHE CAPABILITY FIRMS (FOCUSED AND NARROW SPECIALIZATION WITHIN ICT, ITS, AND/OR BI)

The Innovative/Niche Small Capability Firm proposal model is designed to be an agile and coordinated approach to contracting with a business entity that offers unique, highly-specialized supplemental, boutique, and/or niche capabilities and services. This proposal model is designed for inclusivity and allows for highly skilled and specialized firms to compete as prime contractors on an even playing field. Competing in this competition pool and receiving an award shall not limit a firm from subcontracting opportunities on other city contracts. Proposers that feel that they have relevant skills and capabilities that the proposal team missed may submit an alternative proposal in this competition pool for services not otherwise identified.

Specifically, this RFP is seeking innovative/niche firms that:

a. Provide services that fill a gap and enhance Smart City Projects in either the ICT, ITS, or BI disciplines
b. Provide services that are complimentary and not duplicative in nature

Proposers to this competition pool should use the “Technical Response Package C: Niche/Innovative Capability Firm Competition Pool#3” to respond to the proposal. Responses require 1-4 project scenarios answered across any disciplines.
C. PROPOSAL INSTRUCTIONS

C.1 TECHNICAL PROPOSAL REQUIREMENTS AND CONTENT

For the technical proposal, proposers must use the Technical response packet for the competition pool they are proposing on. These are attachments labeled by the Competition Pool Title. Please follow all instructions and answer all questions.

We are looking for proposers to submit the following:

✓ Section 1: Proposal Introduction
✓ Section 2: Response to Questions
✓ Section 3: Response to Project Scenarios
✓ Section 4: Firm Experience and References
✓ Section 5: Financial Report
✓ Section 6: Copies of all standard contract forms

Response requirements differ depending on competition pool. Directions and details are provided in each corresponding technical response package.

A pricing proposal will be collected separately and is not required in a proposer’s technical response for evaluation. No reference to pricing should be made in the proposer’s technical response document.

The inclusion of caveats, assumptions, or exceptions to the requirements, in any part of either submission, may result in the Proposer not being considered for award, although the Purchasing Division may waive informalities and minor irregularities in proposals received.

SECTION 1: PROPOSAL INTRODUCTION

This section should include:

Introduction Summary:

An overall introduction to the proposal is required, including a statement of the proposer’s understanding of the needs of the City. The Introduction Summary must indicate the name of the company (and parent company if applicable), the name of the person(s) authorized to represent the Firm in any negotiations, the name(s) of the person(s) authorized to sign any contract that may result, the contact person’s name, mailing or street addresses, phone numbers, website address, and email addresses. It should include a brief narrative highlighting the Firm’s proposal and why it is a desirable business partner for the work described.

Additional Attachment:

A copy of the Proposal Type Letter of Intent
Response to Questions

Your proposal must specifically address each of the questions/issues that are listed below. The quality and detail of your responses will figure significantly in the overall evaluation of your proposal.

Proposers are encouraged to give examples, samples of work etc. and to provide additional information to support your compliance on each point. To standardize the format of all proposals, Proposers are required to respond to all questions in the order given and to list the item number and restate the question prior to giving the answer. Failure to comply with this requirement may result in your proposal being declared non-responsive. All proposal Questions are in Section 3 of the Technical Response Package. Please be concise.

RESPONSES TO PROJECT SCENARIOS

Appendix B contains all Project Scenarios for possible response. Vendors must respond to the scenarios for your competition pool that are indicated in Section 4 of the Technical Response Package for your selected competition pool. Your responses to the scenarios should demonstrate the skills to meet and/or exceed our needs. This section is a critical component of the proposal and your responses should be thorough and demonstrate the expertise outlined in Appendix A.

The Project Scenarios are representative of the type of work to be performed on Denver Smart City projects; they are for evaluation purposes only. By submitting responses to scenarios, your firm is allowing the city to accurately compare knowledge, quality, and approach.

FIRM EXPERIENCE AND REFERENCES

The City and County of Denver considers relevant experience as described in Appendix A. Proposers must demonstrate that they have relevant experience in the discipline category competency areas they are proposing on, which is defined as involvement in small, medium, and large projects.

Proposal Submissions must respond to all response requirements in Section 4 of the Technical Response Package.

FINANCIALS

Attach a copy of the Proposer’s latest audit report or certified financial statement, or a statement as to why no report or statement is available, including what information is available regarding your organization’s financial stability.

Please note: If you have had a contract terminated for default during the past five (5) years, or have been involved in litigation regarding a contract, this fact should be disclosed along with your position on the matter(s). If you have experienced no such terminations for default in the past five (5) years and have not been involved in contract litigation, then you should indicate as such.

STANDARD CONTRACT AND FORMS
You must submit a signed copy of all forms identified below in Section E of this proposal. This includes the following:

- Contract Certification Form
- XO 101 Form
- Colorado Secretary of State Registration
- Addenda (as applicable)
- The signed cover page of this proposal by an authorized representative of the proposing firm

C.2 PRICING PROPOSAL

The “Price Proposal” is the place where you indicate how much you expect to charge for the work you detail in the “Technical Proposal.” Again, please do not put any reference to price in the Technical Proposal; if you do, your entire submission will be thrown out as non-responsive.

Price Proposals will be requested from firms separately outside of the stated Schedule of Events. The Agency RFP Contact request for price proposals will include detailed instructions regarding pricing submission requirements.

Proposers will be asked to provide hourly rates for each of the job title classifications provided and should provide the job title that their organization uses if it is different than the City’s. Proposers will be able to provide additional titles and positions and corresponding hourly rates that were included for consideration in the Technical Response to the RFP.

The remainder of page left intentionally blank
D. BASIS OF AWARD AND EVALUATION

D.1 MINIMUM EVALUATION CRITERIA

All Proposals received by the City will first be reviewed to determine whether the Proposal meets all minimum evaluation criteria identified in the RFP. Minimum criteria are found in the Checklist for Submitting Proposal (Section E).

For a proposal to meet all minimum criteria, a Vendor must unconditionally be able to check each item as ‘Completed’ for Sections A and B and ‘Yes’ for each item in Section D. Minimum evaluation criteria reflect those standards or attributes that the City considers essential to the performance of the contract. A Vendor that does not meet the minimum criteria will be rated “unacceptable”.

D.2 COMPARATIVE EVALUATION CRITERIA

The Agency’s Evaluation Committee will evaluate and rate all remaining Proposals based on the Evaluation Criteria prescribed below. The agency reserves the right to conduct interviews as the Agency deems appropriate.

The Agency’s evaluation committee will review and rate each responsive Proposal with Proposals ranked in order from highest to lowest score. Each Competition Pool will be evaluated separately.

The criteria to be used for the comparative proposal evaluation include but are not limited to:

<table>
<thead>
<tr>
<th>COMPARATIVE EVALUATION CRITERIA</th>
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<tbody>
<tr>
<td>FIRM/TEAM DEMONSTRATED LEVEL OF ORGANIZATIONAL CAPABILITY and QUALIFICATIONS OF PROVIDER</td>
</tr>
<tr>
<td>DEMONSTRATED QUALITY OF SUCCESSFUL RELEVANT EXPERIENCE AND REFERENCES</td>
</tr>
<tr>
<td>DEMONSTRATED QUALITY OF PROPOSED SERVICE APPROACH</td>
</tr>
</tbody>
</table>

*No weighting or relative importance of criteria is intended or implied by this list.*

NOTE: Vendors should not count on interviews and reference checks as an opportunity to provide additional information not contained in the proposal. All information that Vendors wish the selection team to consider during the evaluation process should be included in the originally submitted Proposal.

Price proposals will be evaluated separately from the technical proposals. The evaluation team will not see the price proposals until after the technical evaluations are complete.

D.3 BASIS OF CONTRACT AWARD

All Contracts will be awarded to the responsible Proposers whose proposals are determined to be the most advantageous to the City. When considering price, the City will compare the hourly rates of the labor categories identified in the Price Proposal to industry rates for similar services/qualifications and if necessary negotiate to
establish fair market pricing. Contract awards shall be subject to the timely completion of contract negotiations between the Agency and the Proposer.

Any agreed upon rates will become part of the Contract and will be used as the basis for developing future Task Orders. For specific projects, however, the City reserves the right to require a fixed-fee deliverable based payment structure. The City will consider Proposals to structure payments in a different manner (i.e., time and materials, milestone payments) or another method. The decision to use a fixed-fee, time- and-materials or any other type of payment agreement will be at the sole discretion of the City.

The remainder of page left intentionally blank
E. SAMPLE CONTRACT AND REQUIRED FORMS

E.1 PROPOSAL SUBMISSION CHECKLIST

A checklist is provided to make sure that your proposal is complete. Vendors are strongly advised to read this section in its entirety and complete the checklist to avoid disqualification. Please note that the City will NOT be able to consider proposals that are submitted late or that do not follow these guidelines.

<table>
<thead>
<tr>
<th>CHECKLIST FOR SUBMITTING PROPOSAL</th>
<th>RFP SECTION</th>
<th>COMPLETE (✓)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. REQUIRED ITEMS FOR TECHNICAL PROPOSAL EVAL</strong></td>
<td></td>
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<tr>
<td>Introduction</td>
<td></td>
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<tr>
<td>Response to Questions</td>
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<tr>
<td>Response to Project Scenarios</td>
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<tr>
<td>Firm Experience and References</td>
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<tr>
<td>Financial</td>
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<tr>
<td><strong>B. REQUIRED FORMS</strong></td>
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<tr>
<td>Xo-101 Diversity Form</td>
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<tr>
<td>Contract Certification</td>
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<tr>
<td>Letter of Intent to Apply</td>
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<tr>
<td>Addenda (as applicable)</td>
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<tr>
<td>Proof of Registration with Colorado Sec. of State</td>
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<tr>
<td><strong>FINAL REVIEW</strong></td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>1. Did you submit the proposal before the deadline?</td>
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<tr>
<td>2. Did you submit separate, sealed technical and price proposals, with no price information in the technical proposal?</td>
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<td></td>
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<tr>
<td>3. Did you review, and do you agree to the Contract Terms and Conditions?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Did you complete and submit all required forms?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
E.2 DIVERSITY AND INCLUSIVENESS – EXECUTIVE ORDER #101

Definitions

Diversity: Diversity refers to the extent to which a contractor/consultant has people from diverse background or communities working in its organization at all levels, is committed to providing equal access to business opportunities and achieving diversity in procurement decisions for supplies, equipment, and services, or promotes training and technical assistance to diverse businesses and communities such as mentoring and outreach programs and business engagement opportunities.

Inclusiveness: Inclusiveness, for purposes of Executive Order No. 101, includes the extent to which a contractor/consultant invites values, perspectives and contributions of people from diverse backgrounds and integrates diversity into its hiring and retention policies, training opportunities, and business development methods to provide an equal opportunity for each person to participate, contribute and succeed within the organization’s workplace. Inclusiveness also includes the extent to which businesses have an equal opportunity to compete for new business opportunities and establish new business relationships in the private and public sector.

Requirements

Using the attached form, entitled “Diversity and Inclusiveness in City Solicitations Information Request Form”, please state whether you have a diversity and inclusiveness program for employment and retention, procurement and supply chain activities, or customer service, and provide the additional information requested on the form. The information provided on the Diversity and Inclusiveness in City Solicitations Request Form will provide an opportunity for City contractors/consultants to describe their own diversity and inclusiveness practices. Contractors/Consultants are not expected to conduct intrusive examinations of their employees, managers, or business partners in order to describe diversity and inclusiveness measures. Rather, the City simply seeks a description of the contractor/consultant’s current practices, if any.

Diversity and Inclusiveness information provided by City contractors/consultants in response to City solicitations for services or goods will be collated, analyzed, and made available in reports consistent with City Executive Order No. 101. However, no personally identifiable information provided by or obtained from contractors/consultants will be in such reports.

A completed and signed copy of the “Diversity and Inclusiveness in City Solicitations Request Form” must be included with your bid or RFP response. Failure to include this form will render your bid or RFP non-responsive. The required document is available at:


Proposing vendors are required to fill in and submit this form online as part of their submission.

E.3 CONTRACT CERTIFICATION FORM
Proposers response to proposed terms and conditions included in Section E in addition to “EXHIBIT B: Sample Contract” and Section E.4 “Terms and Conditions” as they shall form the basis for the preparation of a Contractual Agreement covering the subject matter of this RFP. You shall respond in your proposal either that all terms and conditions are acceptable or that some are acceptable, and some are not. Underline or highlight those words, phrases, sentences, paragraphs, etc. that are not satisfactory and note any exceptions by referencing the appropriate article number, a brief explanation and alternative language, if any, and submit same on a separate sheet. Any exceptions will be taken into consideration when evaluating your proposal.

CITY AND COUNTY OF DENVER
DEPARTMENT OF GENERAL SERVICES

Request for Proposal #__________________________________________________________

I, on behalf of the proposer identified below, hereby certify that I have read a copy of “Exhibit A: Sample Contract” attached to the RFP and understand the terms and provisions contained in that contract. I further hereby certify that it is the proposer’s intent to comply with each and every term and provision contained in the sample contract and propose no modifications to the sample contract except as follows:

1)    

2)    

3)    

I understand that the modification stated above, if any, are offered for discussion purposes only and that the City and County of Denver reserves the right to accept, reject or further negotiate any and all proposed modification to the sample contract.

Company Name: ______________________________________________________________

Authorized Signature: ____________________________________________________________

Name (please print): _____________________________________________________________

Title: ________________________________________________________________________

Date: ________________________________________________________________________

E.4 PROOF OF REGISTRATION WITH COLORADO SECRETARY OF STATE
Successful vendors that are corporations or limited liability companies will be required to furnish a Certificate of Good Standing from the Colorado Secretary of State’s Office, as proof that they are properly registered to do business in the State of Colorado, prior to finalization of award and contracting.

E.5 TERMS AND CONDITIONS

ACCEPTANCE PERIOD

Proposals in response to this RFP shall indicate that they are valid for a period no less than 180 days from the closing date.

ROCKY MOUNTAIN E-PURCHASING (BidNet®):

The City is collaborating with Rocky Mountain E-purchasing System (BidNet®) in the advertisement and facilitation of Formal Bids and Requests for Proposals (RFP) administered by the City's General Services Purchasing Division. Registration with BidNet® is available at NO CHARGE and allows proposers access to view governmental bids posted on BidNet®; they offer an additional notification service option with an associated fee. It is the responsibility of the proposer/contractor to evaluate and select the service option of their choice. The City is not responsible for the actions or lack thereof on the part of the proposer/contractor in regards to their interaction with BidNet®, or any other third-party bid notification service in relation to this Formal Bid/RFP. More information is available at: www.rockymountainbidsystem.com or by calling 1-800-835-4603.

RFP CONDITIONS AND PROVISIONS

This proposal must be signed by a duly authorized official of the proposing company. The completed and signed proposal (together with all required attachments) must be returned to the Department of General Services on or before the time and date of the deadline shown on page one. All participating Vendors, by their signature, agree to comply with all the conditions, requirements and instructions of this RFP as stated or implied herein. Any alteration, erasure or interlineations by the Vendor in this proposal shall constitute cause for rejection by the Manager of General Services. Exceptions or deviations to this proposal must not be added to the proposal pages but must be on vendor's letterhead and accompany proposal. Should the City omit anything from this RFP which is necessary to a clear understanding of the work, or should it appear that various instructions are in conflict, then the Vendor shall secure written instructions from the Manager of General Services at least forty-eight (48) hours prior to the time and date shown in page one. Typographical errors in entering quotations on proposal may result in loss of award of this proposal. All Vendors are required to complete all information requested in this proposal. Failure to do so may result in the disqualification of proposal. The City reserves the right to postpone or cancel this RFP, or reject all proposals, if in its judgment it deems it to be in the best interest of the City to do so. Unit price for each item shall be shown and shall be for the unit of measurement indicated. In case of error in extension of prices, the unit price will govern. The Manager of General Services reserves the right to waive any technical or formal errors or omissions and to reject any and all proposal(s), or to award contract for the items hereon, either in part or whole, if he deems it to be in the best interests of the City to do so. The successful Vendor shall be in complete compliance with all the specifications, terms and conditions of this proposal as outlined above. The City shall have the right to inspect the facilities and equipment of the successful Vendor to insure such compliance. The City shall not be liable for any costs incurred by vendor in the preparation of proposals or for any work performed in connection therein.

GRATUITIES AND KICKBACKS:

It shall be a breach of ethical standards for any person to offer, give, or agree to give any employee or former employee (within six months of termination from City employment), or for any employee or former employee (within six months of termination from City employment) to solicit, demand, accept, or agree to accept from another person, a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, preparation of any part of a program requirement or a purchase request, influencing the content of any specification or procurement standard,
rendering of advice, investigation, auditing, or in any other advisory capacity in any proceeding of application, request for ruling, determination, claim or controversy, or other particular matter, pertaining to any program requirement or a contract or subcontract, or to any solicitation or proposal therefore.

It shall be a breach of ethical standards for any payment, gratuity, or offer of employment to be made by or on behalf of a subcontractor under a contract to the prime vendor or higher tier subcontractor or any person associated therewith, as an inducement for the award of a subcontract or order.

In the event that any gratuities or kickbacks are offered or tendered to any City and County of Denver employee, the proposal shall be disqualified and shall not be reinstated.

**ALTERNATIVE RESPONSES**

It is our intent to solicit proposals that afford the City the most cost efficient, technically responsive proposal for the acquisition of the subject matter of this RFP. However, we recognize that there may be arrangements different from that requested hereunder that would offer additional benefits to the City while satisfying the applicable requirements of this RFP. Accordingly, you may submit alternative proposals for consideration, which offer such additional benefits in addition to the requested baseline proposal. These alternatives will be evaluated in conjunction with the primary (baseline) approach for each proposal.

**NON-COLLUSIVE VENDOR CERTIFICATION**

By the submission of this proposal, the vendor certifies that:

A. The proposal has been arrived at by the vendor independently and has been submitted without collusion with any other vendor.

B. The contents of the proposal have not been communicated by the vendor, nor, to its best knowledge and belief, by any of its employees or agents, to any person not an employee or agent of the vendor or its surety on any bond furnished herewith, and will not be communicated to any such person prior to the official opening of the proposal.

C. No vendor shall submit more than one proposal for this purchase. It shall be the responsibility of each vendor to obtain the prior written permission of the Director of Purchasing before proposal opening in every situation in which the vendor, due to corporate association or other affiliation, may be found to be impermissibly associated with another vendor. Failure to observe this requirement could result in all such affiliated proposals being rejected.

**DISCLOSURE OF CONTENTS OF PROPOSALS**

All proposals become a matter of public record and shall be regarded as Public Records, with the exception of those specific elements in each proposal which are designated by the proposer as Business or Trade Secrets and plainly marked “Trade Secrets”, “Confidential”, “Proprietary”, or “Trade Secret”. Items so marked shall not be disclosed unless disclosure is otherwise required under the Open Records Act. If such items are requested under the Open Records Act, the City will use reasonable efforts to notify the proposer, and it will be the responsibility of the proposer to seek a court order protecting the records, and to defend, indemnify, and hold harmless the City from any claim or action related to the City’s non-disclosure of such information.

**FEDERAL PROVISIONS:**

Where the source of the funds, directly or indirectly for this Purchase Order is the Federal Government, the Vendor agrees to the applicable provisions set out below. The Vendor shall be responsible for determining which terms are applicable to its products and/or services.


**DAVIS-BACON ACT COMPLIANCE** Contractor agrees to comply with the Davis-Bacon Act (40 U.S.C. 3148 to 3148) as supplemented by Department of Labor regulations (29 CFR part 5). ANTI-KICKBACK ACT COMPLIANCE Contractor agrees to comply with the Copeland “Anti-Kickback” Act (18 U.S.C. 874) as supplemented in Department of Labor regulations (29 CFR Part 3).

**Contract Work Hours and Safety Standards** Contractor agrees to comply with sections 102 and 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 327-333), as supplemented by Department of Labor regulations (29 CFR part 5).

**Rights to Inventions Made Under a Contract or Agreement** Contractor agrees to comply with 37 CFR part 401, “Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements,” and any implementing regulations issued by the
awarding agency. CLEAN AIR AND WATER REQUIREMENTS Contractor agrees to comply with all applicable standards, orders, or requirements issued under the Clean Air Act (42 U.S.C. 7401 et. seq.), and the Clean Water Act (33 U.S.C. 1251 et. seq.). Contractor agrees to report each violation of these requirements to the City and understands and agrees that the City will, in turn, report each violation as required to the appropriate EPA regional office. ENERGY CONSERVATION REQUIREMENTS The Contractor agrees to comply with mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act. (42 U.S.C. 6201) NO SUSPENSION OR DEBARMENT Contractor certifies that neither it nor its Principals or any of its subcontractors is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this Agreement by any Federal department or agency. Byrd Anti-Lobbying. If the Maximum Contract Amount exceeds $100,000, the Contractor must complete and submit to the City a required certification form provided by the City certifying that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress in connection with obtaining any Federal contract grant of any other award covered by 31 U.S.C. 1352. Contractor must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award.

TASK ORDER REQUIREMENTS:
Anticipated Projects and Tasks. The City anticipates that tasks will include, but are not limited to, the tasks identified below:
- Specific tasks will be available as projects and are defined and funding becomes available.
- City agencies/programs will initiate projects with consultants.
- When projects are initiated by Denver Smart City agencies, consultants will work directly with the Denver Smart City program staff on project management and approval processes.
- When projects are initiated by a city agency/program rather than the Denver Smart City Program, consultants will notify the Denver Smart City Program and build in project management and/or approval processes. Tasks will be defined as needed, on a project-by-project basis and as funding becomes available.

RATE ADJUSTMENTS
Initial rates will apply until December 31, 2019. Consultant may request a rate adjustment for services provided starting January 1, 2018, and in subsequent years, by submitting a written request for approval to the Agency Executive Director no later than March 1st of the preceding year. The cumulative increase in hourly rates in all years of this Agreement will not exceed the percentage that the Bureau of Labor Statistics Consumer Price Index for All Urban Consumers for Denver-Boulder-Greeley has increased over the 2018 index.

1. Such request is to be accompanied by a justification letter with support documentation. In addition; the City reserves the right to accept, reject, or negotiate the rate adjustments or timing of.
2. In the event that budgets are being capped and/or reduced, and/or City employee pay rates are frozen due to budgetary restraints, no increases will be allowed.

DISADVANTAGED BUSINESS PROGRAMS
M/S/WBE firms responding as primes shall keep all registration and documentation of status up to date. The On-Call Contract Agreement(s) awarded pursuant to this solicitation may be subject to Minority and Women Owned Business Enterprises (M/S/WBE) participation requirements by federal or state authorities.

Depending on the scope of work and the availability of M/S/WBEs to perform such work, federal or state agencies may set DBE or M/S/WBE participation goals on an individual task order issued pursuant to such agreement. If DBE or M/S/WBE participation goals are established for an individual task order, for projects where goals are assessed either prime contractors who are DBE or M/S/WBE's will be awarded the task orders or other contractors will be required to submit a completed DBE or M/S/WBE utilization plan proposal unless a full waiver is obtained.

DBE firms awarded contracts through this proposal who are not registered will have 12 months to submit all registration documentation to the City and County of Denver’s Office of Economic Development for registration.
APPENDIX A CORE COMPETENCIES AND PERSONNEL REQUIREMENTS

This Appendix is a detailed descriptions of the core competencies within each discipline category along with related personnel suggestions. Proposers should refer to this document as a resource for answering the proposal questions and the project scenarios so as to demonstrate their organizational capabilities, experience, and expertise. All of these core competencies fall under the disciplines of Information Communication Technology, Intelligent Transportation Systems, and Business Intelligences to varying degrees. Overlap of core competencies and connections between expertise exists across all three disciplines. As such, we have provided the Graphic on Page 2 to provide a visual structure. The following table outlines the core competencies and indicates whether they are Optional (O) or Required (R) in each discipline category of response.

<table>
<thead>
<tr>
<th>Core Competencies</th>
<th>BI</th>
<th>ICT</th>
<th>ITS</th>
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<tbody>
<tr>
<td>Consulting</td>
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<tr>
<td>Technical Documentation</td>
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<tr>
<td>Social Behavioral</td>
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<tr>
<td>Analysis &amp; Evaluation</td>
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<tr>
<td>Internet of Things (IoT)</td>
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<tr>
<td>Traffic Engineering</td>
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<tr>
<td>Intelligent Systems</td>
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<tr>
<td>Data</td>
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<td></td>
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<tr>
<td>Systems</td>
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<tr>
<td>Infrastructure</td>
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<tr>
<td>Technician</td>
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<tr>
<td>Other</td>
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R = Required
O = Optional
APPENDIX A CORE COMPETENCIES AND PERSONNEL REQUIREMENTS
## Core Competencies and Personnel Requirements

### Consulting

**What we expect:**
- Helps organizations solve issues, create value, and improve the business performance of their clients.
- Provides objective advice, expertise and specialist skills.
- Identifies options for the organizations and suggests recommendations for change, as well as helping with additional resources to implement solutions.
- Performs evaluation of the needs from a broad level and provides guidance on how to set up, train, and manage Subject Matter Experts.
- Coordinates with others to establish priorities, develop work plans, activities and timelines to ensure project goals and deadlines are met.

**Types of tasks:**
- Provides deliverables which could include Smart City Studies, Assessments, Policy, Strategic Planning, Analytics, Communication, Public Engagement, and Marketing Studies.
- Executes on evaluation strategies, including managing external vendors and contractors, incorporating 3rd party data sources, and initiating City-lead data collection efforts.
- Assists in high-level architecture design and execution particularly with regards to trends within a specific application under development and validating design in comparison with industry-wide best practices.
- Reviews business and functional requirements across the entire organization.
- Recommends structures for departments and teams.
- Assists in the creation and updating of Strategic Plans.
- Assists in planning future direction and goals for the organization’s needs.

**Possible Job Titles (for responding to Scenarios ONLY):**

<table>
<thead>
<tr>
<th>Consultant - Principle</th>
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<tbody>
<tr>
<td>- Expertise in strategy, structure, management, analytics, and operations of an organization.</td>
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<tr>
<td>- Experience coaching and mentoring for Smart City Committees, program and project owners.</td>
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<tr>
<td>- Experience with complex innovative programs preferred.</td>
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<tr>
<td>- Expertise in public engagement.</td>
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</table>

<table>
<thead>
<tr>
<th>Consultant - Senior</th>
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<tbody>
<tr>
<td>- Experience with complex innovative programs preferred.</td>
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<tr>
<td>- Expertise in setup, training, and management of subject matter experts.</td>
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<thead>
<tr>
<th>Consultant - Associate</th>
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<tbody>
<tr>
<td>- Experience with drafting documentation, copy edits and review.</td>
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<td>- Skilled in Excel, Word, Outlook, Google Apps, with desired experience using Jira.</td>
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<thead>
<tr>
<th>Consultant - Administrative Assistant</th>
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<tr>
<td>- Experience supporting staff for project managers, such as meeting preparation, set up, documentation, tracking action items and deliverables.</td>
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<tr>
<td>- Experience with tracking invoices, spreadsheets, expenditures.</td>
</tr>
<tr>
<td>- Skilled in Excel, Word, Outlook, Google Apps, with desired experience using Jira.</td>
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</table>

**Technical Documentation**

**What we expect:**
- Provides objective advice, expertise and specialist skills.

**Possible Job Titles (for responding to Scenarios ONLY):**

<table>
<thead>
<tr>
<th>Technical Writer</th>
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<tr>
<td>- Experience producing excellent technical and programmatic documentation including, but not limited to, system engineering documents, federal status reports,</td>
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</table>
### Responsible for technical documentation, editing, user and help manuals for all deliverables to the Smart City Program.
- Performs other writing tasks such as writing about the organization to support the organization’s strategies and goals relative to communications.
- Provides subject matter expertise from technical and visual viewpoints.
- Aides in human-machine interface development and human-centered design.

**Types of tasks:**
- Assists in high-level architecture design and execution particularly with regards to trends within a specific application under development and validating design in comparison with industry-wide best practices.
- Composes information technology informational documents and system user guides.
- Prepares flow charts, graphs and related explanatory materials that may be included in documents or online help systems.
- Translates technical terminology into a narrative more easily understood by an audience that may lack a technical background.
- Writes or drafts special reports, articles or related material on products of a technical or administratively complex nature based on consulting with developers and trainers, research, investigation, analysis, and knowledge of complex or technical products.

### Graphic Designer
- Demonstrated ability to create content for websites, marketing information, and infographics.
- Understands the system or holistic viewpoint.
- Experience with a range of digital tools.
- Strong experience with typography, responsive designs for different devices.
- Strong time management and communications skills.

### Human Interface Designer
- Responsive design experience.
- Adopts multidisciplinary skills and perspectives.
- Experienced in user-centered design.
- Capable of designing for a range of user interfaces.
- Systematic viewpoint with experience in implementing user design from an enterprise view.

### Social/Behavioral Consultant
- Expert knowledge of function-based intervention planning for developing behavior change strategies that focus on reducing problem behavior and increasing more appropriate behavior.
### Analysis & Evaluation

**What we expect:**
- Provides guidance, leadership and overall direction for requirements initiative.
- Facilitates requirements workshops, and developing process flows and use cases.
- Develops and implements best practices for requirements gathering analysis.
- Facilitates the development and implementation of new processes, procedures, and policies.
- Able to help define requirements from business functional users for backend solutions.
- Maps core business processes using a structured methodology and/or business process mapping tool (provided by a consultant) to facilitate projects, programs, and efficiency planning.
- Able to complement an existing team’s work into an end product.
- Establishes methodologies for reviewing and analyzing data from performance studies. Employs industry best practices for data comparison and analysis.
- Leads a program or a projects evaluation and performance measurement functions.

### Business Analyst - Senior
- Experience with requirements elicitation, analysis, and management experience in a software development environment.
- Requires no oversight.
- Possesses full knowledge of all phases of system analysis.
- Skilled in Excel, Word, Outlook, Google Apps, with desired, experience using analytical tools.

### Business Analyst - Associate
- Analytical propensity with strong attention to detail, by demonstrating comfort with data-handling, process mapping, etc.
- Skilled in Excel, Word, Outlook, Google Apps, analytical tools.

### Evaluation Lead (metrics, outcomes)
- Demonstrated strong knowledge of measurement and evaluation best practices, data collection, analysis, and reporting.
- Skilled in Microsoft Excel, R.

### Evaluation Specialist - Statistical Analyst
- Experience of Microsoft Excel, R preferred, technical knowledge of SQL databases.

### Core Competencies and Personnel Requirements

- Works closely with project teams in designing systems and citizen-facing surfaces to be more intuitive and drive desired outcomes.
- Works with UI/UX and system designers to incorporate best practices, A/B tests, and other social or behavioral interventions.
- Expert knowledge of techniques needed to successfully complete effective Functional Behavior Assessments (FBA), function-based interventions, and Behavior Intervention Plans (BIP).
- Exceptional knowledge in the use of assessments and assessment data to inform instruction and prescribe work plans for individuals and groups.
- Expert knowledge in research-based instructional strategies and ability to implement them effectively.
- Demonstrates exceptional skill in the roles of a teacher leader: collaborator, action researcher, reflective practitioner, and learner advocate.
### APPENDIX A  CORE COMPETENCIES AND PERSONNEL REQUIREMENTS

**Types of tasks:**
- Responsible for full evaluation lifecycle knowledge and deployment, including initial design, analysis, and formal documentation and summarizing results.
- Develops requirements and business process documentation.
- Leads and manages projects for assigned initiatives.
- Performs packaged software gap analysis.
- Performs system setup and configuration activities.
- Performs workflow analysis and/or implements workflow automation.
- Designs/prototypes user interfaces.
- Proposes and designs measurement approaches to determine output and outcomes of smart city projects. Techniques could include Before/After studies, A/B Testing, big data analysis, etc.
- Executes on evaluation strategies, including managing external vendors and contractors, incorporating 3rd party data sources, and initiating City-lead data collection efforts.
- Provides written documentation summarizing results, as well as presentable quantitative metrics derived from performance evaluations.
- Experience using data mining tools and data visualization tools.

**INTERNET OF THINGS (IoT)**

**What we expect:**
- Ensures systems are managed and operated in accordance with internal security policies and practices outlined in the security plan.
- Ensures that all users have the requisite security clearances, authorization, and are aware of their security responsibilities before granting access to city systems and services.
- Experience on challenging cutting-edge projects to research, develop, evaluate and integrate Internet of Things (IoT) based algorithms, devices, and systems that deliver cost-effective solutions for city services.
- Collaborates on multi-disciplinary teams with Smart City colleagues in building systems, cybersecurity and connected vehicle technologies.
- Innovative improvements to city services and cost savings leveraged from advanced smart city systems.
- Preferred experience of supporting a large organization of over 1000 devices.
- Strong experience with security directives, policies, publications and regulations.
- Strong experience in creating system security plans.
- Strong experience in network security certifications.
- Strong experience in systems certifications.
- Excellent consulting / relationship management skills.
- Demonstrable knowledge with functional system specification, complex architecture scoping, data management, and resource utilization.
- Able to influence execution across multiple strategic technology initiatives.
### Core Competencies and Personnel Requirements

**APPENDIX A**

<table>
<thead>
<tr>
<th>Role</th>
<th>Responsibilities and Tasks</th>
</tr>
</thead>
</table>
| **IOT Quality Engineer**                                            | - Excellent understanding of operations facing technology and associated security/integration challenges.  
|                                                                    | - Demonstrable experience working on complex programs, projects, and large cross-functional teams.  
|                                                                    | - Excellent understanding of server, networking, storage design, optimization, and integration.  
|                                                                    | - Ability to test end-to-end IOT environment.  
|                                                                    | - Demonstrates ability to read and interpret RF and electrical engineering designs.  
|                                                                    | - Demonstrates transportation system engineering QA/test experience.  
|                                                                    | - Demonstrates an understanding of 3GPP LTE standards for NB-IOT, Bluetooth, Radar, and Wi-Fi.  
| **IOT Wireless Product Strategy Director**                         | - Experience leading product development.  
|                                                                    | - Deep knowledge of the wireless industry.  
|                                                                    | - Deep understanding of Wi-Fi, NR-U, 4G LTE, 5G LTE, Cat-M1, NB-IoT, LoRa, and other relevant wireless technologies.  
|                                                                    | - Demonstrated technical wireless expertise and ability to work closely with engineers during the product lifecycle.  
| **IOT Software Engineer**                                          | - Bring a creative, get-it-done “maker” mentality.  
|                                                                    | - Direct involvement in creation, design, and testing of completely new designs and exciting new features.  
|                                                                    | - Authoring embedded software specifications and validation plans.  
|                                                                    | - Designing, implementing and testing production level software for embedded microcontrollers.  
|                                                                    | - Working with external partners to acquire & maintain specialized software components.  
|                                                                    | - Writing code to enable hardware engineers to debug and validate prototype hardware.  
|                                                                    | - Developing software for testing and validating new product designs.  
| **Responsible for architecting and designing the implementation of IoT devices, defining data flows and integration with current/new systems.** |
| Provide strategic technical direction for the adoption of Denver Smart City services. |
| Implement test methods and procedures to qualify device component and integration capabilities of IOT products and services. |
| Leads strategic development in support of the Denver telecommunications product portfolio, which includes Cellular and Non-Cellular network technologies. |
| Applies expert knowledge of technologies required to enable the Internet of Things (IoT) and business solutions. |

### Types of tasks:
- Develops software for IoT systems, including user interfaces, data analytics, and visualizations.
- Designs and implements test plans in accordance with stated criteria.
- Provides daily, ongoing security oversight of assigned systems.
- Advises users of the security features and procedures used in their systems.
- Supports peers in developing and implementing machine learning, optimization and cyber-physical control of complex systems.
- Defines and implements quality processes, procedures, and policies.
- Initiates, documents and manages appropriate corrective actions.
- Prepares written reports and provides status for management as required.
- Provides vision for how Denver can leverage network solutions to extend our Smart City portfolio.
- Understands industry trends.
### TRAFFIC ENGINEERING

**What we expect:**
- Collaborates with colleagues working across the City’s Public Works and Technology Service teams.
- Has a problem-solving mindset that looks for new solutions to problems.
- Has worked on projects that include: signal timing, ITS design/construction.
- Familiar with ITS communications protocol.
- Provides clear and thorough documentation of activities and projects.

**Types of tasks:**
- Generates technical documentation and plan sets, identifying technical requirements and potential impacts. Produces cost and schedule estimates. Makes recommendations to program team for improvement to project plan based on technical considerations.
- Produces designs and plans for projects. Reviews, with city staff, modifies existing designs to accommodate changes. Conducts site visits to validate design decisions and refine project requirements.
- Conducts site visits and evaluations ahead of deployment or construction. Establishes schedule and resourcing needs for deployment. Oversees or participates in deployments in the field, in coordination with city staff and vendors. Conducts field testing to validate deployment was successful. Manages impacts to the traveling public during installation.
- Establishes evaluation criteria and techniques for evaluation. Conducts studies to collect data on travel time, traffic patterns, or impacts on pedestrians and cyclists. Analyzes data and provide summaries and reports for City staff on project impacts.
- Produces detailed and objective technical documentation throughout the lifecycle of projects, including blockers to progress, mitigation activities, project risks, and milestones, and successes.

### Traffic Engineer – Senior
- Professional Engineer (PE) license is required.
- Professional Traffic Operations Engineer (PTOE) certification is desired.
- Strong understanding of engineering principles and traffic engineering standards and practices.
- Experience reviewing engineering plans, standards, and specifications is desired.
- Experience planning, evaluating, and managing traffic signal timing.
- Experience managing large, complex engineering projects.
- Proven technical writing and communication skills.
- Familiarity with current and emerging best practices in the planning, design, delivery, and operation of Smart Mobility solutions and Multi-Modal Traffic Management Centers.

### Traffic Engineer – Associate
- B.S. or M.S. in Engineering or related fields.
- Understanding of transportation engineering standards, policies, and technical approaches.
- Experience reviewing engineering plans, traffic impact analysis reports, and work orders.
- Experience studying, designing, and evaluating traffic signal timing plans.
- Experience designing transportation infrastructure projects, including evaluating impacts to the right of way, underground infrastructure, and traffic flow.
- Experience installing and deploying ITS equipment, including cameras, sensors, and other technologies that integrate with the functions of the traffic cabinet.

### INTELLIGENT SYSTEMS

**Systems Analyst - Senior**
## A. Systems Analysis

### What we expect:
- Performs functional and technical requirements gathering, analysis, and creation of requirements documentation.
- Designs solutions to business problems that leverage delivered technical functionality first before considering custom changes and enhancements, considering future product capabilities in those designs.
- Identifies and supports integrations between both internal and external systems.

### Types of tasks:
- Leads and manages projects for assigned initiatives.
- Performs packaged software gap analysis.
- Performs system setup and configuration activities.
- Performs workflow analysis and/or implementing workflow automation.

## B. Machine Learning

### What we expect:
- Understands communication flows from the devices in the field to the network.
- Advises and directs work for big data aggregation and structure.

### Tasks
- Reviews the network.
- Reviews software.
- Develops machine learning algorithms that benefit smart city projects, improve project outcomes, and increase efficiency for City processes.

## DATA

### What we expect:
- Performs full performance level information technology work developing, implementing, and maintaining complex, large-scale business and enterprise data models; designs and builds relational databases; develops and maintains enterprise-wide data architecture, governance, processes

## Systems Analyst - Associate

- Experience working on an integrated technology software system development and/or production support team.
- Experience with complex enterprise systems.
- Technical expertise in modern technologies.

### Machine Learning Developer

- Experience in developing machine learning solutions.
- Is aware of and practices best practices associated with privacy and security of data, including local, state, and federal requirements.
- Is sensitive to bias and discrimination present in data collection, data correlation, or algorithms used to derive insights and the unintended consequences of bias and error in these processes.
- Preferred skills include R, Python, SAS, Big Data, ML tools
- Demonstrated experience using ML algorithms such as BubbleSort, HeapSort, neural networks.

## Data Architect

- Experience data modeling and designing enterprise-class data warehouses or data lakes.
- Experience in database design & development experience.
- Understanding of object-oriented design, re-use, and component-based development.
- Strong teamwork, interpersonal, and communication (oral and written) skills are required.
and tools; and serves as a technical expert to the organization in the use of enterprise and business data systems.

- Models complex city problems, discovers insights and identifies opportunities using statistical, algorithmic, mining, and visualization techniques.
- Works closely with agencies, Denver Smart City members and other stakeholders to turn data into critical information and knowledge that can be used to make sound organizational decisions.

**Types of tasks:**

- Performs analysis and logical design activities such as data modeling, entity-relationship diagramming, CRUD (create, revise, update, and delete) analysis and logical database design.

<table>
<thead>
<tr>
<th>SYSTEMS</th>
<th>Quality Assurance Engineer - Senior</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Systems Analysis</strong></td>
<td><strong>Well-versed in all testing methodologies (white vs. black box test work, system vs. functional).</strong></td>
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<tr>
<td></td>
<td><strong>Possesses a solid understanding of quality assurance as part of the development process.</strong></td>
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<tr>
<td></td>
<td><strong>Is detail oriented and a problem solver.</strong></td>
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<td></td>
<td><strong>Is familiar with the underlying technologies for which the QA analyst is contracted.</strong></td>
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<tr>
<td></td>
<td><strong>Analytical Thinking: Intellectual capacity to break down a problem or situation into its component parts, identifying implications, timeframes and sequences.</strong></td>
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<tr>
<td></td>
<td><strong>Executes/Results Driven.</strong></td>
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<tr>
<td></td>
<td><strong>Demonstrated experience using automated quality assurance tools.</strong></td>
</tr>
</tbody>
</table>

- Ability to work well with business and IT customers.
- Experienced with RAD/Iterative development methodologies.

**Data Scientist**

- Possesses business focus, strong analytical and problem-solving skills and programming knowledge to be able to quickly cycle hypothesis through the discovery phase of the project.
- Demonstrated experience dealing with multiple data platforms, performance management, and scalability.
- Experience building analytical/predictive models, preferably in a business context (marketing, operations, finance, etc.)
- Excellent written and communications skills to report insights and findings in a clear, structured manner are required.
- Demonstrated experience using data streaming, machine learning toolsets like Spark Mlib, Lambda Tier, Mahout or similar toolsets.

**SYSTEMS**

**What we expect:**

- Performs functional and technical requirements gathering, analysis, requirements synthesis, and creation of requirements documentation.
- Designs solutions to business problems that leverage delivered technical functionality first before considering custom changes and enhancements, considering future product capabilities in those designs.
- Acts as formal point of contact/liaison and technical expert between the Technology Services and Agencies/Outside Parties, and is responsible for the communication and coordination with all associated parties.
- Identifies and supports integrations between both internal and external systems.
Types of tasks:
- Leads and manages projects for assigned initiatives.
- Performs packaged software gap analysis.
- Performs system setup and configuration activities.
- Performs workflow analysis and/or implements workflow automation.

What we expect:
- Performs any aspect of Quality Assurance.
- Ensures Software Quality Assurance, QA Program Implementation, Testing, Verification, and Validation to ensure the City and County of Denver's satisfaction with all implemented software.
- Leads testing and support activities related to the implementation of projects.
- Sets and conveys clear goals and monitors progress; Obtains results and adds value to the organization by making timely and sound decisions and influencing others. Holds self-accountable for achieving outcomes.
- Breaks down a problem or situation into its component parts, identifies implications, timeframes and sequences.

Types of tasks:
- Conducts Quality Assurance testing, walkthroughs, reviews, and/or inspections of work products like requirements/user story backlogs, designs, code and documents.
- Documents quality assurance practices.
- Develops and maintains test plans, manual and automated test scripts for user interface, functionality, system and user acceptance testing.
- Reports, tracks and determines the priority of reported bugs.
- Leads User Acceptance Testing (UAT).
- Writes functional specifications, develops appropriate test scenarios and scripts, and analyzes test results.
- Executes regression tests, functional tests, and data tests.

Tasks
- Develops software packages.

Advanced knowledge of Xcel, Word, spreadsheets and presentation tools

Quality Assurance Engineer - Associate
- Experience testing enterprise and end to end systems
- Knowledge of Xcel, Word, spreadsheets and presentation tools.

Software Developer
- Experience developing responsive design applications and applications that are easily integrated into an IOT framework or a web portal.
- Excellent computer science and software development experience.
- The ideal candidate would have experience developing software for IoT devices.
- Experience in connected vehicles desired.
- Expertise with Java and excellent knowledge of Linux operating systems.
- Experience developing in an agile project management framework.

Software Administrator
- Develop and deploy standards, methodologies, and best practices for applications utilization, business process improvement, application interfaces, and report writing.
- Document procedures, applications interfaces, service-level agreements, and other methodologies related to applications systems.
- Develops, coordinates and presents training, including oversight of training materials and user procedures and training curriculum; facilitate training sessions as necessary.
- Develop and maintain user documentation, implementation, and maintenance plans.
- Facilitate the maintenance, support, and upgrade of existing software applications and systems; facilitate and communicate upgrades, enhancements, and changes with vendors and internal customers.
<table>
<thead>
<tr>
<th>Core Competencies and Personnel Requirements</th>
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</thead>
<tbody>
<tr>
<td>- Develops applications.</td>
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<tr>
<td>- Develops interfaces.</td>
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<tr>
<td>- Documents source code.</td>
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<tr>
<td>- Develops open source frameworks.</td>
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<tr>
<td>- Troubleshoot software problems.</td>
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<tr>
<td>- Assist in maintaining a secure information technology environment for software applications.</td>
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<tr>
<td>- Facilitate application security administration, update processes and schedules, notifying users of any potential service interruptions, when required.</td>
</tr>
</tbody>
</table>

Cloud Developer – Azure or Other

- Experience as a software development experience with Microsoft .NET technologies.
- Experience with hands-on RECENT coding experience in Cloud technologies in Azure.
- Microsoft Cloud Certifications preferred.
- Ability to understand the architecture and design of complex software products.
- Strong working knowledge of source code repositories including GIT HUB, BitBucket etc.
- Hands-on experience with CI CD tools like Bamboo, Octopus Deploy, SonarCube etc.
- Strong working knowledge of multiple UNIX and Linux flavors.
- Working knowledge of containerization like Docker etc.
- Working knowledge of environment provisioning using Chef, Puppet etc.
- Expert level knowledge of the MS Azure Cloud technologies including Azure web applications, App Services, Azure Service Fabric, SQL DB, Azure AD, etc. (MUST HAVE RECENT AZURE experience.)

Cloud- Infrastructure Consultant

- An Infrastructure Cloud Consultant can span multiple disciplines, as evident by our different agency environments.
- We are looking for generalists, with expertise in one or more of the following: DevOps, Security, Compute / Storage, Network, Data, Hadoop, Containers, IoT, and Site Reliability Engineering.
## Core Competencies and Personnel Requirements

### INFRASTRUCTURE

**What we expect:**
- Ability to implement system and network architecture plans and configurations in test and production environments.
- Knowledge and expertise of network protocols and network management systems.
- Works directly with business owners and IT resources to implement system and network configuration changes.
- Recommend technical solutions to implement, monitor and manage system and network production environments.

**Types of tasks:**
- Produce technical documentation (i.e. implementation and release notes).
- Provide consulting and technical knowledge in customer and partner engagements, while working with client executives and key technical leaders to deploy Smart City solutions in our Microsoft Azure cloud environment.
- Work closely with Technology and Engineering teams to implement best practices and lessons learned into system and network process methods.
- Onsite system and network installation and administration.
- Demonstrated ability to think strategically about business, product, and technical challenges.
- Deep hands-on experience leading the design, development, and deployment of business software at scale or current hands on technology infrastructure, network, compute, storage, and virtualization experience.
- Proven experience with software development life cycle (SDLC) and agile/iterative methodologies required.
- Experience with IT compliance and risk management requirements (eg. security, privacy, SOX, HIPAA etc.)

### Network Technician

- Network experience as a network engineer required working in a large network with over 100 devices.
- CCNA or CCENT certification preferred.
- Intermediate to advanced knowledge of platforms that monitor, control, configure network components.
- Intermediate to advanced knowledge of data communication network architectures, components, protocols, software, hardware, and problem diagnostic applications.
- Intermediate knowledge of problem, change, capacity, performance, and service level management.
- Working knowledge of data communications network architectures, components, protocols, software, and problem diagnostic applications and hardware to complete complex problem resolution and service requirements.
- Intermediate knowledge of environmental software interfaces, hardware installation, PC/LAN, testing and certification.

### Wireless Technician

- Excels at technical documentation, verbal presentations, and advising on strategic and architectural decisions as part of larger projects and programs.
- Demonstrates an ability to read and interpret RF and electrical engineering designs.
### Core Competencies AND Personnel Requirements

**Systems Architect**
- Background in Computer Sciences or Electrical and Electronics.
- Extensive automotive experience and familiarity with Dedicated Short-Range Communications (DSRC), vehicle computers, electrical systems, sensors, and integrations with third-party devices.
- Experience in connected vehicles desired.
- Experience with network communication protocols, transport protocols, and payload optimization techniques and frameworks.
- Experience in use case modeling and use case design reviews.
- Experience with vehicle architectures, CAN/Automotive Ethernet, diagnostics, embedded device messaging and interoperability of embedded components.

**Systems Engineer**
- Demonstrated experience in administrating, designing and planning an enterprise system.
- Plans and coordinates the setup, installation, and configuration of the operating system (including hardware and software), new software releases, and upgrades.
- Monitors, tunes, diagnoses, and resolves complex operating system and bandwidth problems; monitors network performance to determine future requirements.
- Troubleshoots, maintains, and repairs complex problems, typically related to system failures, with servers, hardware, operating systems, security, and data protection. Implements and documents a backup and recovery process and leads capacity planning for a specific data system.
- Demonstrates an understanding of 3GPP LTE standards for NB-IOT, Bluetooth, Radar, and Wi-Fi.
- Experience evaluating, testing, deploying, and maintaining wireless radio technology, preferably in a traffic or field deployment setting. Experience with 802.11 wireless standards and cellular technology.
<table>
<thead>
<tr>
<th>Core Competencies and Personnel Requirements</th>
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<tbody>
<tr>
<td><strong>Storage Engineer</strong></td>
</tr>
<tr>
<td>● Demonstrated experience in administrating, designing and planning an enterprise storage system.</td>
</tr>
<tr>
<td>● Plans and coordinates the setup, installation, and configuration of the operating system (including hardware and software), new software releases, and upgrades.</td>
</tr>
<tr>
<td>● Implements and documents a backup and recovery process and leads capacity planning for a specific data system.</td>
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<tr>
<td>● Plans, configures, installs, and maintains video security and video conferencing systems.</td>
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<tr>
<td>● Implements, monitors, and maintains network security including firewalls, web filtering, and traffic shaping. Plans, coordinates, and implements security measures to protect data, software, and hardware.</td>
</tr>
<tr>
<td>● Develops, tests, and implements complex scripts to automate common functions or network operations.</td>
</tr>
<tr>
<td>● Consults with users to identify existing system problems then evaluates and recommends various software and hardware solutions to meet user needs.</td>
</tr>
<tr>
<td>● Analyzes equipment performance records to determine the need for repair or replacement.</td>
</tr>
<tr>
<td>● Recommends changes to improve systems and network performance, and determines hardware or software requirements related to such changes.</td>
</tr>
</tbody>
</table>

<p>| <strong>Backup Administrator</strong>                    |
| ● Demonstrated experience in administrating, designing and planning an enterprise storage system. |
| ● Consults with users to identify existing system problems then evaluates and recommends various software and hardware solutions to meet user needs. |
| ● Analyzes equipment to determine the need for repair or replacement. Recommends changes to processes. |</p>
<table>
<thead>
<tr>
<th>TECHNITION</th>
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<tbody>
<tr>
<td><strong>A. Signal Technician</strong></td>
<td></td>
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<tr>
<td>What we expect:</td>
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</tr>
<tr>
<td>- Observes all common safety practices associated with tools and equipment, monitoring work environment for safety and hazards, and ensures safety for self and others.</td>
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<tr>
<td>Types of tasks:</td>
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<tr>
<td>- Installs signal controller cabinets, video and data modems, and CCTV and cameras systems and control equipment.</td>
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<thead>
<tr>
<th>Security/Network Engineer</th>
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<tr>
<td>- Strong background in IoT device and network security in an enterprise environment.</td>
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<tr>
<td>- Strong understanding of wireless technologies such as WAVE, DSRC, V2X communication.</td>
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<tr>
<td>- Experience developing protocols in LINUX w/ DSRC</td>
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<tr>
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<td>- Implements, monitors, and maintains network security including firewalls, web filtering, and traffic shaping. Plans, coordinates, and implements security measures to protect data, software, and hardware.</td>
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<table>
<thead>
<tr>
<th>Security/Systems Engineer</th>
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<tbody>
<tr>
<td>- Monitors, tunes, diagnoses, and resolves complex operating system and bandwidth problems; monitors network performance to determine future requirements.</td>
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<tr>
<td>- Troubleshoots, maintains, and repairs complex problems, typically related to security failures, with servers, hardware, operating systems, networks, and data protection.</td>
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<table>
<thead>
<tr>
<th>Traffic Signal Technician</th>
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<tbody>
<tr>
<td>- Experience installing, constructing, maintaining, and repairing traffic signal systems and devices, which includes wiring, conduit, poles, signal heads, controllers, switches, and vehicle detectors under the direction of a supervisor.</td>
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</tr>
<tr>
<td>- Inspects, removes, and repairs signal control and auxiliary equipment such as traffic signal controllers and cabinets vehicle and pedestrian head assemblies, and lighting and circuitry devices and systems.</td>
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<tr>
<td>- Adjusts, repairs, replaces, and modifies electric, electronic, and mechanical components, controllers, relays, switches, fuses, timers, and other related parts and equipment.</td>
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</tbody>
</table>
### Core Competencies and Personnel Requirements

#### Fiber Technician
- Performs software updates for controllers, modems, cameras, and display equipment.

**What we expect:**
- Coordinates repairs with contractors and other City departments to ensure work is properly completed within standards and codes.
- Operates equipment and uses tools, to ensure that they are secure, clean, and in proper working order, which includes maintenance and repair.
- Familiar to OTDR operations and maintenance.

**Types of tasks:**
- Install fiber optic cables, underground conduit lines, junction boxes, and traffic control devices.
- Installs and repairs splice enclosures both underground and within signal infrastructure, including fan out kits and splice enclosures.

#### Computer Technician
- Oversees and provides instruction. Acts as a liaison between the user groups to communicate problems and possible solutions.
- Researches new technologies and procedures to meet the needs of users in various agencies or city-wide. Provides training to user groups on how to identify and prevent problems.
- Creates customized reports from a work tracking system to use in the analysis of hardware or software problems.

**What we expect:**
- Works with other professional IT staff to develop and maintain technical procedures, documentation, and operational instructions and/or project or work order status.

**Types of tasks:**
- Tests in-house or vendor developed software and software upgrades for user requirements and documents errors or discrepancies for corrections.
- Research appropriate to area of expertise.

---

![Image of Denver Smart City](image_url)
The Project Scenarios are representative of the type of work to be performed on Denver Smart City projects. By submitting responses to scenarios, your firm is allowing the city to accurately compare knowledge, quality, and approach.

These are for evaluation purposes only and are fictitious in nature; vendor responses will not be used outside of the evaluation.

## ICT SCENARIOS

### ICT-1: Systems Engineering

**Scenario**
Denver Smart City has a network that is IPv4 but is looking to implement a portion or element of IPv6. This IPv6 element will provide interoperability between various IOT sensors, Connected Vehicle Security Credential Management System (SCMS) and the City & County of Denver network. The solution must conform to the RFC8200 IPv6 standard and will include networking products and services and security guidelines. Technical staff from Public Works and Technology Services need to review and approve the solution.

**Components of Response**
What approach would your firm take for this bridge between IPv4 and IPv6? What technical hurdles would your firm expect to come across, and what would you suggest, based on your firm’s previous experience, should be done to overcome these potential hurdles? What additional tools would your firm use? Please include how long it would take your firm to produce a design have it signed off on to move to production.

### ICT-2: IoT Data Development

**Scenario**
The Denver Smart City Team is working together and with strategic partners to analyze: weather, transportation, air quality data, and Denver neighborhood data including demographic and economic development information.

**Components of Response**
Your firm has two deliverables:

1. Produce a reusable neighborhood model including data input, documented algorithms and data outputs utilizing Microsoft Azure. The model should include a visual dashboard that provides an analysis of the data.
2. Produce a RESTful Public API in JSON format that will provide external entities the ability to receive the data identified above in an industry standard format including the following parameters:

- Starting Date (Month, Day, Year)
- Ending Date (Month, Day, Year)
- Data Type (transportation, demographic, air quality, demographic, all)
- Neighborhood (Denver)

Technical and strategic staff from Public Works, Technology Services and Human Services would need to review and approve the proposed solution. What type of architecture artifacts would you create? What additional tools would you use? How would you establish developer and production instances of the environment, and what policies would you put in place to govern those instances?

Please provide example code for the two (2) deliverables. Please propose a timeframe, project methodology including key milestones, and possible risks to this effort.

### ICT-3: IoT Software Development

**Scenario**
The Denver Smart City Team is looking for lean, agile-ready software development teams to assist with developing an IoT-specific software solution. The team is looking to build an application on Linux-based IoT hardware module running the USDOT-sponsored open source V2I Hub software. Denver has allocated budget and time for eight (8) two-week sprints to support this development. Denver requires that this development be conducted in the open, using open source friendly licensing, and is published to a common repository for community use and upkeep at the conclusion of the project.

**Components of Response**
What would be your firm’s approach and methodology in general? What considerations should the team - internal and external - take based on your firm’s past experience using open source code? Please include specifics related to reviewing and accepting external pull requests and programming and developing for IoT/ITS hardware devices. What do you see as risks to the effort?

### ICT-4: Azure Managed Services

**Scenario**
The Denver Smart City Team is looking for Azure administration to provide support on a Microsoft Azure Commercial instance that processes data at rest and data in motion. This firm manages the Azure environments for both non-production and production environments, user account management, and implement an integration model between both environments.

**Components of Response**
What team would you put together from your firm to ensure Azure is administered appropriately? What methodology would you use? What additional tools would you use? Within a 12-month
Scenario
The Denver Smart City Team is looking for Azure platform development resources to provide services on a Microsoft Azure Commercial instance that utilizes applications, data, and interfaces for Denver Smart City Services.

Components of Response
What team would you put together from your firm to ensure Azure platform development meets the City business needs? What methodology would you use? What additional tools would you use? Within a 12-month timetable, please include what services would you provide within this timeframe, project methodology including key milestones, job titles, costs and possible risks to this effort.

ICT-6: Travel Time and Reliability

Scenario
The Denver Smart City team is looking for a firm to provide data collected by field sensors to a public-facing API. The City has a sensor for travel time and reliability at every intersection along Colorado Boulevard that it would like to provide as a public data stream for third parties, including application developers.

Components of Response
What would you approach be to scope and implement this project, including ingesting and processing the data, provide the data to third parties in a manner that allows them to query the data, user acceptance testing, and establishing a rollout plan for stakeholders? Please describe the team you would put together to complete this project. What milestones would you put in place for this project? What risks should the stakeholders anticipate, and how would you mitigate them?
## ITS SCENARIOS

### ITS-1: Technology Integration Management

#### Scenario
The Denver Smart City team is looking to install a large number of connected vehicle on-board devices (OBUs) to provide dedicated short-range communications (DSRC) connectivity to other vehicles and infrastructure. Your firm is asked to be the prime technical and installation lead for the vehicles, to include working with multiple OBU vendors and different types of City fleet vehicles. In addition, you’re tasked with determining the best approach for integrating the OBU into the vehicle’s data bus for additional vehicle signals like airbag status, brake status, etc. Finally, the installation of these devices must not interfere with any other functionality of the vehicles, including other accessories such as emergency signal lights, telematics devices, or heavy-duty equipment.

#### Components of Response
How would you/your firm approach this project? How would you verify that your proposed solution will work for the city? On your first day working on a task like this, what would your first three questions to the project manager be? How would you handle a situation where mid-way through this project another technology was introduced that also must be incorporated into the fleet vehicles data bus?

### ITS-2: ITS Project Metrics

#### Scenario
The Denver Smart City Team has developed a scope of work for a smart city technology project along Colorado Boulevard with the goal of reducing congestion. The technology makes small changes in the signal timing based on data from a subset of vehicles on the roadway. The project plan currently lacks a methodology for evaluating the impact of the project. The team needs to establish early goals for the expected impacts from the project and develop methodologies to measure those impacts. You are tasked to lead the evaluation phase of this project.

#### Components of Response
What would be your approach to setting up goals from an ITS perspective? What baseline metrics would you set up to measure the outcomes of a project like this? When the team reaches the evaluation stage, what statistical techniques would you deploy to measure the impact of the interventions? What skillsets are necessary to effectively analyze and evaluate the resulting data? What are some lessons-learned from your firm’s previous experience?
ITS-3: ITS Design

Scenario
The Denver Smart City Team is planning an ITS project along Colorado Boulevard with IoT and ITS devices, with one ITS device per intersection. The team is looking for support on the Design phase of this project, to include evaluating wiring, poles, and conduit. The delivered design should create a standard for deployment at each intersection along Colorado Boulevard, and have reusable specifications. This implementation is a non-construction technology deployment.

Components of Response
How would you approach this scenario? How much time should be allocated to this phase of the project? What special considerations you would take to ensure the technology being deployed meets the city’s expectations?

ITS-4: ITS Deployment

Scenario
The Denver Smart City team is ready to deploy the entire corridor of Colorado Boulevard with IoT and ITS devices on traffic signal infrastructure. A design for the deployment is already complete. The effort involves developing a specific scope and delivery schedule, evaluating each intersection for deployment readiness, providing appropriate staff, vehicles, and equipment needed to conduct the deployments, and ensuring the completed system is working as intended. The deployments will require close coordination with the engineers and technicians.

Components of Response
How much time should this phase of the project take? What would you take inventory of or investigate before beginning this deployment? Please describe any lessons learned or identify potential risks for this effort from scope, schedule or other perspectives from your previous industry experience. Please describe what special considerations you would take to ensure the technology being deployed meets the city’s expectations.

ITS-5: Freight planning

Scenario
The Denver Smart City team is looking for assistance strategically engaging freight companies throughout the lifecycle of a two-year project. The project will involve equipping dozens of freight vehicles from multiple companies and 100 intersections with technology to improve freight vehicle travel time. At the outset, the Denver Smart City team needs to develop a strategy for engagement with the companies, conduct initial outreach, and begin collaborative planning on a project deployment which will include route selection, testing of the technology of freight vehicles, and sharing program-related data.
Components of Response
What timeline would you propose for the initial planning steps? What are potential hurdles with equipping private freight vehicles with public sector funding and devices? What are some risks to success from people, process, and technology perspectives? What could be some metrics for success of this specific effort?

ITS-6: Interface Designer

Scenario
The Denver Smart City Team is implementing a project that displays new information to snow plow drivers in the cab of their vehicle during operations in the winter months. The display needs to communicate information about how long the driver will have a green light for the intersection they are approaching, and if they will make it through the intersection at their current speed. Your firm is tasked with designing and developing the interface for the driver. Denver has allocated enough budget and time for two, two-week discovery sprints, and four two-week development cycles.

Components of Response
Describe the process you would use to establish the design. How would you test the effectiveness of the design? What constraints would you anticipate starting on this work? What are elements and lessons learned from a prior project that required a similar approach to this?

BI SCENARIOS

BI-1: Strategic planning

Scenario
A year and a half ago, Denver Smart City was formed and began tactically, building on current efforts in functional areas, such as connected vehicle and electrification efforts. This allowed the team to understand the market and possibilities from a municipal perspective, which is of paramount importance in an emerging industry. This approach was built on the foundation and great work of previous efforts such as Blueprint Denver, the Mobility Action Plan and the 2020 Climate Action plan. The primary departments focused on currently-funded efforts are Public Works, Technology Services, Public Health & Environment, the Mayor's Office. Another department in Denver wants to work on a specific new effort in the smart city space.

Components of Response
Please describe your approach to evaluating if and how this department should be engaged. Based on your firm’s understanding of smart cities best practices nationally or globally, please choose a
department and use case based on a department that should be engaged and/or an outcome that Denver Smart City should be working on. Create a case for why this department and effort needs to be included in Denver Smart City, as if you are working with engaged staff of the current implementation team, to present to the Executive Steering Committee, which is made up of an appointee from each department listed above.

### BI-2: Public engagement:

**Scenario**  
Part of a project’s deployment is around putting out new equipment around highly utilized pedestrian crossings. An intersection that is adjacent to a school in an underrepresented area of Denver has high traffic volumes. Your firm is tasked with developing a public outreach plan to bring the community into the process and generate excitement about a proposed solution. The outreach would occur over a 2-month period, deployment over two weeks and the new equipment will be out for at least a month.

**Components of Response**  
Please explain your approach, including what you would do within this timeframe, key personnel and the hours they would be utilized. Please explain anything innovative you would do. What do you see as a big risk to the effort?

### BI-3: Electrification planning:

**Scenario**  
Many people talk about realizing the benefits of a “smart city” need to include electrification. Your firm is tasked to help the team to develop a two-year strategic plan.

**Components of Response**  
What is your approach? Who should be involved from the private sector and in what manner? What are the questions the city should be asking itself? How should the City think about truly addressing equity disparities in the electrification space? How could your firm assure the plan is both aspirational and reasonable in terms of being able to implement?

### BI-4: Social and Behavioral Science:

**Scenario**  
The Denver Smart City Team is trying to determine how to influence the behavior of parents idling their vehicles near schools while waiting to pick up their children, so that they turn off their vehicles and reduce local emissions. The city has access to hyper-local data on the air quality surrounding the specific school that the parents are traveling to.

**Components of Response**
What steps would you take to formulate a recommendation to the City and school district to influence parent behavior? Please provide an example of an intervention in another community that has worked in a situation like this example describes? What metrics would you use to determine success? If we are not meeting the metrics for success after implementation, how would you determine the cause and what possible next steps would you suggest?

BI- 5: Technical Writing:

Scenario
This is one view of our connected ecosystem (see graphic). There is an opportunity to publish this ecosystem in a nationally-known technical journal that prefers words to graphics. Please turn this graphic into a technical document. Feel free/take liberties to add information based on fact or inference to represent the graphic with words only. The documentation could include examples of knowledge transfer, quality assurance testing, and traceability requirements. The document must meet all federal reporting requirements, including 508 compliances.

Components of Response
In addition to providing example documentation describing the graphic below, please provide a caption for this image that is 508 compliant in the HTML format. Please list examples of the types of documents your firm has produced in the past including documentation and reports that were subsequently used by a federal agency.
BI-6: Graphic design & Communication

Scenario
This is one view of our connected ecosystem (see graphic). There is an opportunity to talk with a community-oriented resident of Denver who wants to understand what we are doing and happens to both use a cane and is transit dependent.

Components of Response
How would you represent/visualize this ecosystem differently? Please use this space to visualize this for us- feel free to add or subtract information based on the specific person above and your knowledge of smart city concepts in general. Please annotate why you made the changes you did.
In looking at the scenarios, your firm believes the Denver Smart City team missed something and you are interested in the Niche/Innovative class - this scenario should be filled out by your firm in the class as the only scenario to which your firm responds.

Note: This Scenario is not available for Response in any other competition pool.

### OPTIONAL ADDITIONAL SCENARIO

**OPT-1: Missed opportunity by Denver Smart City Team**

**Scenario**
Denver Smart City is putting together a smart city showcase in the heart of downtown. All of the equipment has been selected in the connected vehicle, electrification and air quality areas. In the smart city space, you see that your firm performs key services to ensure the successful delivery of a project, either in the integration component or some other aspect; however, **NONE** of the scenarios fit your firm’s impressive and extensive expertise.

**Components of Response**
With the Denver Smart City Showcase, please describe any specifics of your services, what opportunities your service will afford the showcase and what risks Denver Smart City will inadvertently take on in the future without your service(s). Please clearly state how your services give us knowledge, information, flexibility, or choice relating to our connected ecosystem if applicable.

- **Local control of data**
  - Maintain local control of City and County of Denver data sets since this is an emerging industry and the future is not known.

- **Default to Open Source**
  - Leverage open source community innovation to create a system of systems, learning and gaining insights from each other.

- **Standards-based**
  - Conform to established federal standards and emerging smart transportation industry standards, enabling the opportunity for interoperability.

- **Interoperability**
  - Denver works to design architecture to support multi-vendor interoperability to bring in many solutions that fit together as a whole. True collaboration and - between the public and private entities - will improve outcomes key to Denver’s success.
APPENDIX C: PROJECT SCENARIOS

FICTITIOUS SCENARIOS FOR BIDDER EVALUATION:

These two scopes of work are entirely fictitious. You will not be asked to abide by these proposals for future actual work assigned, or held to them for equal or similar work. Other formats and approaches to the actual scenarios in the RFP are perfectly acceptable as well the fictitious scenario responses are just examples. The fictitious scenarios below are similar to the actual scenarios in this RFP.

EXAMPLE SCENARIO #1
A truck was involved in a two-vehicle accident at a busy City intersection. One of the truck’s saddle tanks was punctured, allowing 75-100 gallons of diesel fuel to spill into the gutter and into the City storm sewer catch basin. Denver Fire provided the initial response, applying granular absorbent to contain the diesel in the gutter and to mitigate risk of fire from vapors. You are asked by Denver Department of Public Health and Environment (DDPHE) to mobilize to the accident site after receiving the first call for service with sufficient crew and equipment to begin mitigating the public health and environmental pollution risks presented by the event. Please propose a narrative of your strategy to meet the city’s needs as well as what informs your approach. What is the minimum time you would need? Please also include any possible risks associated with this effort.

EXAMPLE SCENARIO #2
The City and County of Denver was awarded the Super Bowl. You have been asked to create an event management plan that will include the week before the event, the event and the day after the event. The event management plan includes what type of technologies are required to provide wifi coverage for up to 100,000 individuals attending the Super Bowl, required sensors to monitor and address traffic congestion during the event period, communication plan on how all the public safety entities and municipalities including Colorado Department of Transportation and RTD to work together and a security plan before, during and after the event. Please propose a narrative of your strategy to meet the city’s needs as well as what informs your approach. Please also include any possible risks associated with this effort.
EXAMPLE RESPONSE TO SCENARIO 1

Subject: Emergency response to remediate impacted area from a diesel fuel release and fluids from a personal vehicle.
Site Location: The intersection of Colorado Boulevard and Leetsdale Drive; Denver, CO

A key component of High Street Radio (HSR) success is our nationally-known emergency response planning called Radio Response, which is below. Not only has it shortened the time between an emergency being identified to the materials being cleaned up, here it would have the added benefit of communicating with all engaged departments. Key risks for error in this type of emergency response are: securing the area, planning the response holistically and effective communication with all parties involved.

Monday, March 5, 2018
HSR loaded equipment and supplies and mobilized to the site referenced above. The crew guaranteed arrival within 90 minutes and arrived on site approximately one hour from the original call. HSR crew met with the City of Denver Environmental representative to assess the impacted area. The diesel fuel release ran down the gutter approximately 30 feet, which was used in calculation to determine the appropriate response.

HSR staged the necessary equipment, donned the proper persona, protective equipment (PPE), and completed a site-specific health and safety plan. The Denver Police Department supplied traffic control necessary to complete the site work.

Once the roadway was able to re-open, HSR began to remediate the impacted soils for the vehicle fluids. The crew hand excavated the contaminated soil, drumming the waste as required. EHS utilized a PIO meter as a field screening tool to confirm the excavation met the cleanup standards. Once the excavation was complete the crew back-fitted the excavation with bags of top soil carried on the response truck to prevent any safety hazards.

HSR secured the area, updated the City representative, and departed. The foreman rushed the waste profiles with the approved disposal facility, Advanced Chemical Transport (ACT). Based on what HSR had performed for a similar spill near Cherry Creek Reservoir, the waste descriptions include:


<table>
<thead>
<tr>
<th>Title</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consultant- Project</td>
<td>Ensuring project is done on-time, on-budget;</td>
</tr>
<tr>
<td>Manager</td>
<td>from initiation to completion</td>
</tr>
<tr>
<td>Consultant- Project</td>
<td>Present on site during incident</td>
</tr>
<tr>
<td>Supervisor</td>
<td></td>
</tr>
</tbody>
</table>
EXAMPLE RESPONSE TO SCENARIO 2

Subject: Denver Smart City Super Bowl Event Plan
Organization: The Wright Stuff

A key component of The Wright’s Stuff success is our nationally-known smart city event planning for large national events such as the Super Bowl. Our expertise was recently utilized at the New Orleans Super Bowl where we worked local and national resources to address communications, transportation and security issues during this special events, and we have modified that approach to meet Denver’s needs.

Planning is the most significant part of running a successful event. Event management planning includes all activities and issues associated with the event and how you are going to plan for them.

<table>
<thead>
<tr>
<th>Specifics</th>
<th>Key item(s)</th>
<th>Example</th>
<th>Possible Risks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key objectives and measures</td>
<td>X,Y,Z</td>
<td>X,Y,Z</td>
<td>X,Y,Z</td>
</tr>
<tr>
<td>Project plan</td>
<td>X,Y,Z</td>
<td>X,Y,Z</td>
<td>X,Y,Z</td>
</tr>
<tr>
<td>Project budget</td>
<td>X,Y,Z</td>
<td>X,Y,Z</td>
<td>X,Y,Z</td>
</tr>
<tr>
<td>Event schedule</td>
<td>X,Y,Z</td>
<td>X,Y,Z</td>
<td>X,Y,Z</td>
</tr>
<tr>
<td>Venue site plan</td>
<td>X,Y,Z</td>
<td>X,Y,Z</td>
<td>X,Y,Z</td>
</tr>
<tr>
<td>Traffic management plan</td>
<td>X,Y,Z</td>
<td>X,Y,Z</td>
<td>X,Y,Z</td>
</tr>
<tr>
<td>Security plan, including emergency management</td>
<td>X,Y,Z</td>
<td>X,Y,Z</td>
<td>X,Y,Z</td>
</tr>
<tr>
<td>Communication plan</td>
<td>X,Y,Z</td>
<td>X,Y,Z</td>
<td>X,Y,Z</td>
</tr>
</tbody>
</table>

Our firm, The Wright Stuff, would ensure success by clear communication with Denver staff and would include the following roles:

<table>
<thead>
<tr>
<th>Title</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Manager</td>
<td>Provides logistical coordination and project oversight of all tasks.</td>
</tr>
<tr>
<td>Consultant - Principle</td>
<td>Three individuals providing subject manager expertise in the areas of security, transportation and communication.</td>
</tr>
<tr>
<td>Social/Behavior Consultant</td>
<td>One individual providing behavioral analysis of likely human interaction before and during the event.</td>
</tr>
<tr>
<td>Consultant – Administrative Assistant</td>
<td>Assists the project manager.</td>
</tr>
<tr>
<td>Data Scientist</td>
<td>Performs statistical analysis of relative event data.</td>
</tr>
<tr>
<td>Systems Engineer</td>
<td>Ensures the highest level of system reliability.</td>
</tr>
<tr>
<td>Job Title</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Wireless Technician</td>
<td>Provides technical support for wireless networks.</td>
</tr>
<tr>
<td>Security/Network Engineer</td>
<td>Provides technical support and coordination for networks.</td>
</tr>
<tr>
<td>Traffic Engineer - Senior</td>
<td>Provides technical support and coordination for traffic ecosystem.</td>
</tr>
<tr>
<td>Security/Systems Engineer</td>
<td>Provides security and system support for system.</td>
</tr>
<tr>
<td>IOT Security Specialist</td>
<td>Ensures that deployed sensors meet industry security standards.</td>
</tr>
</tbody>
</table>