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Costa Mesa, CA 92626

February 21, 2019

Katie Knickel
Public Works Program Coordinator
City of Rialto
128 N Willow Ave,
Rialto, CA 92376

Dear Ms. Knickel:

International Business Machines (IBM) is pleased to respond to the City of Rialto's Request for Proposals (RFP) for the Data Analytics, Logistics, Surveillance, Innovation, and Incubator Center (DALSIIC) and Traffic Management Center (TMC). IBM is a recognized leader in providing technology transformation to organizations like the City of Rialto. IBM helps governments, cities, non-profits, private companies, and many others around the world provide for and protect their citizens with solutions spanning a wide range of responsibilities, including public safety, health and life science, education, transportation, social programs, cyber security, and finance and operations.

As a technology leader, IBM brings a comprehensive portfolio of solutions that includes Data Analytics Platforms, Cloud Data Services, Database Management, Enterprise Content Management, and Integration and Governance on Open Platforms. To elevate its expertise, IBM engaged local industry experts familiar with the city and the region, abreast of factors within the City relevant to the planned Regional DALSIIC/TMC, and skilled to further address the challenges in digital disruption and innovation acceleration. This group of experts will collectively serve with IBM as the IBM DALSIIC/TMC Solutions Team. This Solutions Team reflects immense capabilities and deep, unparalleled expertise and familiarity with the project.

In our RFP response, we have included a high-level solution and plan along with pricing that is based on our experience with similar projects and your requirements. Our Solutions Team also adopted an approach of concerted efforts over a condensed period of time that delivers complete project services in a six-month window. The areas of focus within the plan include the city's location, logistics, acumen for leading P3 projects, and GHG Reduction, efficiency, clean air and congestion management, surveillance, and innovation incubation.

The designed approach also supports the City of Rialto by ensuring that all areas of service enhancements, project management, architectural guidance, consultation services, requirement gatherings, design, implementation, documentation, and trainings support the city's effort in making the DALSIIC/TMC a trusted resource for the region.

We look forward to working with you and your staff on this most important effort.

Sincerely,

A handwritten signature in black ink, appearing to read "P. Legendre".

Patrick Legendre
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IBM PROPOSAL TO

City of Rialto

Data Analytics, Logistics, Surveillance,
Innovation & Incubator Center (DALSIIC)

&

Traffic Signal Communication System (TSCS)

Request for Proposal # 19-061

WORK PROPOSAL

Prepared for the City of Rialto

By IBM Corporation
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February 21, 2019



Table of Contents

Executive Summary.....	1
Section A: Project Understanding.....	6
A.1.1 Familiarity with the City of Rialto	6
A.1.2 Understanding of the Project and Scope of Work	7
A.1.3 Understanding of the City's Expectations.....	10
A.1.4 Development of a data analytics center framework	11
A.1.5 Development of a traffic management center master plan.....	12
A.1.6 Critical Issues	12
Section B: Scope of Work	16
DALSIIC Tasks	17
B.1.1 Feasibility Study/Demonstration and Business Plan	17
B.1.2 Maximize Route Operations	18
B.1.3 Governance and Ownership.....	20
B.1.4 Business Operations	23
B.1.5 Marketing and PR Strategy Plan	27
B.1.6 Infrastructure Land & Building	29
B.1.7 Facility & Set-up of Pilot/Showcase Location in Rialto	30
B.1.8 Ideal Pricing.....	31
B.1.9 System Integration	32
TSCS Tasks.....	36
B.2.1 Existing Traffic System.....	36
B.2.2 Master Communication/System Engineering Plan	38
B.2.3 Strategic Deployment Plan.....	39
Project Management.....	39
Section C: Staff Qualifications	42
Section D: Firm Qualifications.....	61
City of Lancaster Project.....	61
I-80 Integrated Corridor Management (ICM)	62
Traffic Control System (TCS) Subsystem.....	62
MTC I-880 Device Maintenance and Operation in Oakland	64
Expertise with TMC Upgrades	65
Section E: Project Schedule	66
Section F: Letter of Support	75
Disclosure Statement	77
Attachments A-D.....	78

Table of Figures

Figure 1: Example DALSIIC Benefits.....	2
Figure 2: DALSIIC Data Framework	11
Figure 3: Cost of Traffic Congestion	13
Figure 4: Phase I Overview.....	16
Figure 5: Phase II Overview.....	17
Figure 6: Financing Structure.....	22
Figure 7: DALSIIC/TMC Marketing/PR Strategy.....	23
Figure 8: DALSIIC/TMC Marketing/PR Strategy.....	24
Figure 9: DALSIIC/TMC Marketing/PR Strategy.....	27
Figure 10: Example Site Plan	38
Figure 11: The IBM Project Management Approach.....	40
Figure 12: City of Lancaster Development Screenshot	61
Figure 13: ICM Screenshot.....	62
Figure 14: MTC Screenshot.....	64
Figure 15: Project Management Tasks	66

Executive Summary

Introduction

International Business Machines, herein referred to as IBM, was founded in 1911. Throughout the span of a century, IBM evolved from a small business that made scales, time clocks, and tabulating machines to a globally integrated enterprise with more than 400,000 employees and a strong vision for the future. IBM is now recognized as one of the world's leading innovators in technology. Over the past 100 years, millions of employees along with our clients, customers, and business partners all over the globe helped IBM make the world work better. Our company continually reinvents itself to meet new challenges and address customer's needs.

IBM has the experience to successfully deliver. Our solutions continue the tradition of drawing inspiration from learning and insights across thousands of city engagements around the world. IBM provides cross-agency capabilities using various data streams and services found in legacy city environments today. Combining world-class business, industry and technology expertise, IBM provides the integrated solutions that help visionary leaders achieve their objectives. Drawing on thousands of client engagements and proven strength across the breadth of city operations, IBM offers the premiere experience that today's challenges demand.

This Request for Proposal (RFP) response focuses on the City of Rialto, herein referred to as "Rialto", and plans related to the Data Analytics, Logistics, Surveillance, Innovation, and Incubator Center (DALSIIC) and Traffic Signal Communication System (TSCS), also referred to as the Traffic Management Center (TMC).

To deliver the best solution to Rialto, IBM has partnered with experts in California that uniquely understand the needs of Rialto. IBM is pleased to work with Luvicent Advisors and Irvine Global Consulting (IGC), supported by SCAG and ESRI (see Letters of Commitment) to deliver the best solution to Rialto. This partnership will work cohesively as one team and throughout this proposal references to the "IBM Team", "IBM", and/or "Solutions Team" are encompassing of the capabilities offered by IBM, Luvicent, and IGC.

Our understanding of your goals

Cities throughout the world are taking advantage of evolutionary enhancements in technology to modernize and improve their operations center platforms. Like Rialto, many cities have a fragmented and dated infrastructure supporting this critical function. Just upgrading these systems is not delivering what is required in our digitalized world.

Rialto is embracing emerging technologies to enhance transportation operations. IBM can partner with you to achieve your desired outcomes. As new requirements evolve, it is in the City's best interest to obtain a Data Analytics, Logistics, Surveillance, Innovation and Incubator Center (DALSIIC) that will drive the future of transport innovation over the next decade and beyond. IBM is proposing to become your partner to deliver on this vision.

Maximize transportation network capacity and efficiency

As with all cities, your ability to expand the network's physical capacity is limited. Continually increasing demand, both passenger and freight, can outstrip available funding, restricting your ability

to add new physical infrastructure. There is a point at which adding physical capacity can detrimentally impact existing infrastructure as well as the area's economic activity.

This creates a challenge. How can you squeeze additional system capacity without increasing the network's physical and financial footprint? The DALSIIC should maximize the capacity of your transportation network's existing physical infrastructure. To achieve this, the platform should:

- Display a dashboard view of the entire network that allows you to drill down to specific routes.
- Deliver a coordinated device control framework to enable system-wide active traffic management.
- Provide system oversight including fleet-level metrics along with schedule and stop-specific details.
- Has the ability to predict network events and optimize city-wide operations.

The DALSIIC should help drive real business benefits measured by KPI's, examples include:

Figure 1: Example DALSIIC Benefits



Minimize the impact of incidents

When your transportation network is operating at or near capacity, any minor disruption to the traffic flow can have far-reaching impacts. Something as minor as a disabled service vehicle can bring peak-hour flows to a screeching halt on the affected route while degrading performance throughout the terminal. Preventing and quickly mitigating incidents counters this degradation, keeping traffic moving as smoothly as possible and maximizing network capacity.

The new DALSIIC/TMC platform should provide the tools to help you prevent, manage and mitigate these events. By establishing system-wide, real-time monitoring and supplementing with a proactive management approach, the solution should help minimize incident impacts by:

- Implementing advanced, predictive analytics coupled with a traffic optimization control plan engine.
- Automating incident detection and response plan implementation.
- Disseminating accurate and timely information to travelers.

Protect existing and future infrastructure investments

As a transportation professional, your current network is the result of substantial infrastructure and organizational investments over many years. While you must implement ongoing improvements to optimally maintain/improve system operations, effective utilization of investments made, is essential.

Just as importantly, responsible stewardship of public resources demands your future investments are protected as well. That requires that future system improvements integrate with current infrastructure—and do so in an agnostic, vendor-neutral manner. By assuring open integration, Rialto can seek the optimal solution for each particular enhancement or upgrade while retaining operational integrity, integration and flexibility throughout the overall DALSIIC platform.

The new system should provide the ability to leverage existing investments while protecting your agency's future options. It accomplishes this by:

- Creating an open, vendor-agnostic data platform.
- Serving as the communication hub between data systems and field devices.
- Establishing a single view of truth to allow public and private sector collaboration.

Rialto is taking a measured approach to DALSIIC implementation. This first phase needs to deliver:

- A requirements document that is not only concise but that will allow Rialto to conduct industry research for appropriate solutions. The requirements need to take into account the City's known requirements and those unknown requirements that are leading practices which can improve transportation operations.
- A preliminary solution design that can be used as the framework to evaluate current market offerings. This framework needs to be practical and flexible. What is required today will not necessarily be what is required tomorrow.

As a result, we believe that it is critical that the consultant selected not only bring the experience and skills to collect known requirements and build solution design, but they will need to bring expertise in data platforms and the trends in how these systems are being utilized to drive improved business outcomes across the world. To do this the consultant selected needs a global view and hands-on expertise and is willing to work with Rialto through the lifecycle of this program.

Our Approach is driven by Global Leading Practices and a Team of Experienced Consultants

IBM's approach is driven by a proven methodology and a team of consultants who understand how to transform operation centers, leverage the latest technology and implement new systems in an environment like Rialto. Our Smarter Cities Transportation Global Competency Center will bring to Rialto the latest in worldwide trends and the practical knowledge in how best to implement the new transportation data platforms.

The Solutions Team will work with Rialto to develop system requirements and a preliminary solution that accomplish the following objectives:

- Establish a geospatial Common Operating Picture (COP)
- Integrate disparate sources of information into the COP environment in real time
- Understand the data and project and evaluate the possible consequences that may flow from them, using a variety of tools provided as part of an integrated product
- Collaborate with stakeholders by sharing the COP and by interactively planning and implementing incident responses

- Evaluate the potential impacts of man-made or natural events by transitioning seamlessly back and forth from a comprehensive “live state” COP to a “what if” COP that is capable of integrating multiple third-party simulations.

Our approach is measured and utilizes IBM’s leading design thinking methodology to drive the requirements gathering and solution design. Rialto will benefit from an innovative solution and delivery team that can provide:

- A mature system design which meets your current needs as well as serving as a technology platform for future innovations.
- The experience of operating Transportation Management Centers globally (both freight and passenger), and through our understanding of the Transport network ensuring the system meets the needs of Rialto operators, customers, and researchers.
- A solution that can be easily expanded to support the growth of future operations.
- A proven partnering model where IBM has successfully implemented on large Transport and Smarter Cities projects globally.

The method to be applied for this project will be based on the IBM Package Selection and Implementation Delivery Process (PSI). The method is adapted to meet individual client’s approach and plans. Our approach aligns to your milestones but leverages our tools and techniques that are designed to reduce time to value:

- **Step 1:** Project Initiation
- **Step 2:** Business Assessment (Requirements & Data Collection)
- **Step 3:** Plan & Outline (Analysis & Preliminary Solution Design)
- **Step 4:** Project Close

The deliverables will be documents that articulate the practical and future looking requirements and a preliminary solution that can be used for system implementation, communication and internal change management purposes within Rialto. We will also articulate the benefits of the preliminary solution design to Rialto.

Why Choose IBM and its Solutions Team?

At IBM the team is excited and passionate about partnerships that allow us to help build a Smarter Planet. The opportunity to assist Rialto in its role as a critical infrastructure provider is a huge opportunity for us to improve the lives of the City and its visitors.

Our proposal highlights the strengths of what the IBM Solutions Team can bring to The City of Rialto:

- **Local representation.** Core members of Solutions Team are based in California. This includes key members of integrated account management. This local knowledge is key as we help enable better services with Rialto.
- **Strong ties with Local Universities and Colleges.** The Solutions Team will engage local education systems to deliver our solution to Rialto. This includes professors from the University of California system and California State (described in further detail in this proposal).
- **Connection with the Global Community.** The Solutions Team is integrated into the larger IBM community. With clients in all forms of transportation, logistics and services we have a very deep pool of solutions that can be accessed quickly and efficiently.
- **Regional Support.** Approaching the project with a local focus and regional capacity, the IBM Solutions Team has coordinated support efforts from the Southern California Association of Governments (SCAG) and Esri (See Letters of Commitment).

IBM's vision in creating operational data platforms really extends beyond the traditional system of combining camera feeds and sensors. With our ability to collect, integrate, understand and correlate virtually any data type, the data platform can provide the information required to operate, optimize the operations. Not a central repository, but a flexible set of data connections, the data platform allows users the ability to connect to and consume, analyze and report on the most critical aspects of their operations. Providing current and even predicted situational awareness the platform can be tailored to each group of users.

A Longer-term goal of an Ecosystem of Operations Centers

It is IBM's vision to continue to help build these centers with other clients. Policing, Freight, Cities and others, continue to build out these capabilities. As they come online, there is increased value of connecting components together. Freight with traffic for example. This expanding connectivity allows for even further traffic awareness and interdependencies. The opportunity to share components even becomes possible, allowing say, predicted wild fire, to be understood and factored in to moment-by-moment decision-making.

It's IBM's position to be able to help in the creation and potentially the sharing of these capabilities. We believe these can be created by one organization and then shared via cloud to others who may benefit. It is this community ecosystem that could really transform how The City of Rialto interacts with other constituents that we feel could really add lasting value for the Public and Private Partnership in general.

IBM and its Solutions Team's expertise in social media can provide a valuable feedback loop as to what clients and users are saying about your services. The unique ability to layer in real-time social media sentiment into the operations teams can provided timely, context aware feedback.

The opportunity to incorporate curated City of Rialto Operational data through to partners and clients could be utilized to change the way Rialto interact with its clients and residents. Using the ubiquity of mobile communications and the power of individualized marketing could enable The City of Rialto to provide targeted information to each customer that is both relevant and timely.

Proven Experience

We have the experience to successfully deliver. Our Smarter Cities Transportation practice continues the tradition of drawing inspiration from learning and insights across thousands of engagements around the world. Leading consulting and analyst organizations around the world have rated us based on our performance:

- IBM ranked #1 among **Smart City suppliers**. (Navigant Research)
- The breadth and depth of capability in software and services, infrastructure services, along with the ability to analyze and integrate the information and provide executive dashboards and citizen interaction is unmatched in the market. (Forrester)
- IBM leads the way as a "game changer" in the **Smart City Market**, based on client engagements and integrated solutions combining state-of-the-art hardware, software and services. (F&S)

As new requirements evolve, it is in Rialto's best interest to obtain a platform that will drive the future of transport innovation over the next decade and beyond. IBM can help build this platform. By partnering with Rialto, IBM will develop a truly transformational solution that makes the best use of all available data and is evolving to support the current and future needs of Rialto. If selected, IBM will supply an experienced consulting team who has specific local knowledge working closely with selected national specialists with experience in delivering significant global transportation solutions.

Section A: Project Understanding

The firm's proposal adequately demonstrates a unique understanding of the Project and the Scope of Work, including familiarity with the City of Rialto and the development of data analytics center framework and traffic management center master plan.

Note: Firms should not simply restate the information contained in this RFP; this evaluation criterion requires that the proposal identify "critical issues" to the Project, identify an approach to resolving any critical issues, and otherwise provide additional information regarding the Project, which supports the firm's ability to perform if selected.

A.1.1 Familiarity with the City of Rialto

The Solutions Team has identified factors within Rialto relevant to the planned Regional DALSIIC/TMC project to convey its familiarity with the city and the region. The areas of focus include the city's Location, Community, Logistics; Acumen for Leading Public Private Partnership (P3) Projects; and Greenhouse Gas (GHG) Reduction, Efficiency, Clean Air and Congestion Reduction, Partnerships and Long-term Investments.

- **Location** – The proposed DALSIIC/TMC will be located in the City of Rialto, a city in San Bernardino County that is 22.34 square miles, headed by Mayor Robertson and the five-member council, and home to 103,000 residents. Rialto has become a major distribution hub for many large multinational corporations including Amazon, Under Armor, Smart & Final, and Monster Energy Drinks which maintain distribution centers in the north end of Rialto. The city is uniquely positioned as a key thoroughfare for commerce and is often referred to as the Jewel of the Inland Empire.
- **Community Engagement** – Over three hundred residents and businesses participated in Rialto's Institute of Progress over the past four years and thousands of its residents engage regularly in city-sponsored events. The level of engagement in the city ensures that the voices of stakeholders are heard when projects, large and small, are developed.
- **Logistics in Rialto (Ground)** – The most efficient route for trucks to access Rialto businesses is through Riverside Avenue. Heavy congestion causes some trucks to use less direct routes such as Pepper or Cedar Avenue. There is an estimated 3,200 daily truck traffic in Rialto; San Bernardino County is also responsible for the movement of large capacity freight in that it absorbs 3.2 million heavy truck miles per day a figure not far behind Los Angeles at 3.4 million heavy truck miles per day.
- **Regional/National Logistics (Air and Ground)** – Ontario International Airport is the most significant airport in the region and has the heaviest influence on transportation. The airport consists of two parallel runways, 96,000 square feet of cargo space to support all cargo, airline belly cargo, and air mail. Twelve major air freight carriers utilize Ontario International Airport as their regional transportation hub; including Empire Airways, UPS, FedEx, DHL, and Ameriflight. The San Bernardino International Airport, located to the east of Rialto, has potential for expanded heavy cargo movement within the next 5 to 10 years. Currently, it has cargo flights coming in from Custom Air Transport, Heavy Lift, and Kitty Hawk. Additionally, the Southern California Logistics Airport located in Victorville (roughly 40 miles northeast of Rialto) has grown in national significance with regards to freight movement with two intercontinental runways, and a 15,050-foot runway which allows the heaviest of aircraft direct, non-stop access to any destination in the world. The Inland Empire houses some of the most frequently used and most critical points of intermodal transportation in the country.

- **Experience Leading Public-Private Partnership Projects** – The City’s Renaissance Rialto Project, a fifteen-hundred-acre master plan of acres along the 210 Freeway that includes the redevelopment Rialto Municipal Airport, was recognized as the best public-private partnership in the region for 2017 by the Inland Empire Economic Partnership. In addition, in 2016 the U.S. Department of Transportation designated the Inland Empire Region as a ‘Beyond Transportation Innovation Hub’ as a result of the City of Rialto’s application to the Department and its design concept P3 Project that included CSUSB’s Leonard Transportation Center, Esri, area businesses and industry experts. Additional City of Rialto P3 projects that have received state and federal recognition include Water P3, BDP, and the first grant issued for police body cameras.
- **GHG Reduction, Efficiency, Clean Air and Congestion Reduction** – According to Rialto’s Renaissance Specific Plan Final Environmental Impact Report (Final EIR), governments cannot exceed the SCAQMD maximum daily threshold significance criteria. CalEnviro Screen 3.0 ranks Rialto as having census tracts among 10% worst in the state, which means its residents are experiencing higher pollution burden related to environmental, health, and socioeconomic indicators.
- **Partnerships** – In addition to partnerships with local schools, the Solutions Team also has partnered with groups like Esri and Southern California Association of Governments (SCAG). See Section F: Letter of Support for letters from these organizations pledging their partnership.
- **Long-Term Investment** – The Solutions Team is here to provide quality deliverables, strategies, and operational plans to ensure the successful deployment of a DALSIIC/TMC. With this in mind, the Solutions Team intends to invest in the City of Rialto by seeing our plans through to implementation; regardless of the required timeframe and with the permission of Rialto.

A.1.2 Understanding of the Project and Scope of Work

The Solutions Team recognizes that the rapid proliferation of big data and new technologies will transform and disrupt traditional policy making and planning within Rialto, across the Inland Empire, Southern California, and the State of California. To this end, Rialto has decided to take a proactive approach to the paradigm shift and to ensure continued growth and success of Rialto and communities in the Inland Empire and design and construct a regional DALSIIC and TMC. The DALSIIC/TMC will be a facility for incubating innovation and innovators, developing regional and commercial data driven systems capable of monitoring activity and generating revenue for local government while advancing safety, and creating economic and environmental opportunities for area residents.

Area/Regional Challenges Addressed by the DALSIIC/TMC:

- Truck Congestion Fee Management and Cost Reduction – While freight trucks only represent 7% of total vehicles nationally, they constitute approximately 18% of total congestion cost. In Southern California, the total annual cost of truck congestion was reported to be \$22.6B, nearly 70% of total congestion costs due to the prominence of shipping within the area. In 2014, the average freight truck experienced nearly 51 hours of delay and consumed about 16 gallons of excess diesel for a total congestion cost of \$4,827.
- Transportation and Logistics – Metropolitan Planning Organizations (MPOs), the California Department of Transportation (Caltrans) presented four possible scenarios for setting the 2019 SPMTs for California. These four possible scenarios were to estimate the number of fatalities and serious injuries for motorized and non-motorized traffic for years 2016 to 2020. The estimates were based on: (1) a trend line, (2) a flat line, (3) match the reduction objectives set in the California Strategic Highway Safety Plan (SHSP), and (4) targeting zero fatalities by 2030. The DALSIIC/TMC will support regional efforts in reaching its 2030 target of zero fatalities.

- **Regional Economic Strategy** – The DALSIIC/TMC can serve as the regional forum for cooperative decision making by local government elected officials and its primary responsibilities in fulfillment of federal and state requirements. This includes the support for regional development of the Regional Transportation Plan and Sustainable Communities Strategy; the Federal Transportation Improvement Program; transportation-related portions of local air quality management plans; and intergovernmental review of regionally significant development projects.

The DALSIIC/TMC facility will also increase the region's access to the success of the transportation and logistics sectors. In addition, the DALSIIC/TMC will leverage cutting-edge, diverse and effective security and surveillance technologies that will minimize cyber threats and safety breaches that are merited by the evolution of highly sophisticated crimes. Further, the DALSIIC/TMC will invest in innovative idea and technologies that address social and economic disparities and environmental ills. The DALSIIC/TMC will change the way Rialto and the Inland Empire manage logistics, goods, and people movement and improve the quality of life for residents.

The Solutions Team is comprised of experts who have worked alongside the original visionaries of the DALSIIC and have adopted the TMC planned strategies offered by Southern California Association of Governments and the City of Rialto. This Solutions Team brings valuable insight, familiarity, knowledge, and understanding to the short and long-term objectives of the DALSIIC/TMC which are:

- Improve data collection, analysis, and usage of diverse applications that make City of Rialto and other local governments more efficient.
- Advance the City of Rialto and local government in adopting efficient and supportive data driven tools and applications that support sustainable communities and local planning and development activities.
- Manage traffic flow, with a focus on local truck and vehicle traffic.
- Use data analytics and predictive analytics to advance efficiencies in logistics, surveillance and innovation.
- Promote data-driven decision making, government transparency.

In addition, the vision for the DALSIIC/TMC includes:

- Being a resource center of goods and people movement, data analytics, innovation and surveillance technology development for the city, the region, and the state.
- Increasing the availability of civic data and information to reduce costs and improve the efficiency of public services.
- Championing fairness and social equity in the deployment of new technologies within the region.
- Stimulating a wider conversation among public agencies in the Inland Empire, cities partnering along the Agua Mansa Corridor, and among planners across the world on the future of cities.
- Modeling best practices and adopt practices capable of supporting data-driven cities.
- Supporting business growth, and positive social, environmental, and economic outcomes.

Southern California Association of Government's (SCAG) Regional Council helped members of the Solutions Team advance the DALSIIC/TMC framework by guiding early interactions with other regional stakeholders that explored opportunities to leverage data and technology. These interactions centered on driving sustainable development of the region's economy, communities, and environment. Team members showcased the Regional DALSIIC and its initial objectives at the CSUSB Surveillance and Security Conference in Palm Springs in the Spring of 2108.

The DALSIIC/TMC scope includes:

- **Research and Development (R&D)** – Adopting a technical approach that is supported by R&D that creates reviewing current data initiatives and tools within the context of big and open data for assessed use with advancing innovation, and targeted industries of transportation, logistics, and surveillance. Use data to demonstrate the feasibility of the City of Rialto and the DALSIIC at effectively supporting the region in efficiency and in advancing innovation. The DALSIIC/TM will address some of the Region's most pressing R&D challenges in extracting knowledge and insights from large, complex collections of digital data, to foster multi-sector collaborations among academia, industry, non-profits, community economic development administrators and local governments.
- **Design, Development (in accordance with emerging and City of Rialto targeted Industries), Governance and Ownership, and Cost Pricing** - Determine and define the appropriate role the City of Rialto and its DALSIIC will play in addressing the challenges and opportunities that big data, open data, and new technologies provide.
- **Traffic Management Fee Pricing** – Developing a plan for maximizing Route Operations for businesses that address the issue of traffic congestion is particularly note-worthy when the shipping industry is taken into account. Not only do nearly 80% of California communities rely solely on trucking to transport goods, but the transportation industry provided nearly a million jobs in 2011. A large portion of this is achieved through over 400 Southern California-based trucking companies with 50 or more trucks, and 14 with 1,000 or more trucks. A considerable amount more are provided through companies technically registered in other states but operating in the region. Walmart's shipping subsidiary, for example, is established in Arkansas, but has a multitude of distribution centers throughout Southern California. Given that congestion is an increasing issue, as well as the fact that the national value of shipments via truck is expected to nearly double in 2040 (from \$11.1B to \$21.5B), it is imperative that steps are taken to reduce the cost of transportation, ensure movement of goods is efficient as possible, while reducing greenhouse gas emissions.
- **Facility Governance, Financing, and Operations** – Designing an operations model that facilitates Rialto's capacity to a) add value and accelerate the adoption of innovative policies and programs across the region; designing a pilot DALSIIC/TMC that will serve in performing commercial testing, showcasing demonstration platforms, and testing 'mock' pricing models while also performing data aggregation and predictive analytics to showcase the possibilities of the DALSIIC and build case-studies of its use and benefits. The pilot DALSIIC/TMC will be presented in part of the design plan's Phase II – Strategies with identified spacing, costs, and planned outputs.
- **Traffic Management Planning** - Businesses in the area, especially large-scale warehouses and industrial centers continuously send trucks to the port of Los Angeles through the 10 freeway/Riverside Avenue interchange. This route is preferred because of the immediacy to the I-10 which is almost a direct path to the ports. Unfortunately, because many companies share this mode of thinking, the traffic build up along the I-10 Riverside interchange can cause hours of delay and significantly affect the economic benefits of the companies in the region.
- **Data Supported Solutions (DSS)** - The DALSIIC/TMC will serve in establishing Spokes to Advance Data Supported Solutions (DSS Spokes) focused on topics of specific interest to the City of Rialto and the region. Each spoke will build upon the capabilities and strengths of said region and offer approaches and solutions. Each DSS Spoke will be supported by the DALSIIC/TMC in that the center will maintain the role of carrying out and performing the primary research and the deployment of industry experts to take on a convening and coordinating roll for the DSS Spoke — with each spoke maintaining its narrowly defined goal-driven scope. The set of activities managed by a DSS Spoke (and its deployed industry experts) would ensure that progress is made toward providing solutions in the chosen topic area, including, for example, gathering important stakeholders via forums, meetings, workshops, etc.; engaging with end users and solution providers via competitions, community challenges, etc.; and forming multi -

disciplinary teams to tackle questions no single field can solve alone. The regional DALSIIC/TMC Solutions Team will provide general guidance to the DSS Spokes and assist the DSS Spokes in coordinating with the DALSIIC/TMC network, other DSS Spokes, and the broader innovation ecosystem of data aggregation and analytics occurring on site.

A.1.3 Understanding of the City's Expectations

The primary expectation of the City is to ensure the following: clearly defined goals, clearly defined objectives, optimal strategies, clearly defined project key performance indicators (KPIs), and deliverables that are completed on schedule. Each of the above will be integrated into all sub-contractor (engineers, construction firms, consultants, industry experts) plans. IBM will foster close relationships with project partners, maintain effective communication at all times with the City and proactively address all problems to minimize risk.

The City of Rialto expectations also include:

- (1) Use of Effective consultants** – The City of Rialto will benefit from the use of a team of experts with the capacity to leverage additional resources to expand city investment. The Solutions Team will be required to coordinate with the Climate Adaptation Plan project team in assimilating and aggregating information and data gathering from that project and incorporate into the DALSIIC/TMC. Furthermore, The Solutions Team will develop an effective scope of work that enables the City of Rialto to utilize the information in its operations, in deploying fee-based traffic management through city streets, monitor climate change impacts, re-evaluate climate-change strategies, and improve decisions on policy, programs, and projects. Activities are based on previously established and/or innovative methods, approaches, and metrics
- (2) Creation of a Short- and Long-Range Planning Tool (S/LRPT)** - The city requires that the Solutions Team possess management and planning capabilities that develop a robust technology platform for community planning, data sharing, collaboration, and community engagement. The LRPT will serve to efficiently and effectively foster growth in Rialto using data that adapts with emerging trends in demographics, technology, community priorities, changing attitudes, and political realities. The DALSIIC/TMC plans will provide the underpinning for land use decisions, help craft a vision on how the City of Rialto can grow, shape its future, and remain synchronized with the needs and desires of its citizens.

The S/LRPT will utilize the Solutions Team's existing data/analytical approaches, the latest available version of the IBM Watson (or similar technology), and other available web platform technologies in the market. The S/LRPT will feature immediate planning support for general plan updates. The LRPT will support the DALSIIC/TMC's centralized data-sharing hub and supportive planning applications for local jurisdictions, while supporting the implementation of Rialto's regional planning goals. By adopting the use of LRPT's the development of new planning initiatives, the team anticipates Rialto will have increased control over short and long-term implementation benchmarks

Rialto's DALSIIC will use cutting-edge technology, conduct advanced data collection, and perform meaningful data analyses. The DALSIIC will give access to a modern and comprehensive Regional Data Platform (RDP) that serves as a clearinghouse of both public and private sector demographic, land use, transportation, greenhouse gas reductions, and public opinion data. It will feature real-time updates, integrated applications, data standardization, and use-friendly interfaces and applications. Overall, the RDP will include, but not be limited to:

- Traffic Signal System Master Communication Support.

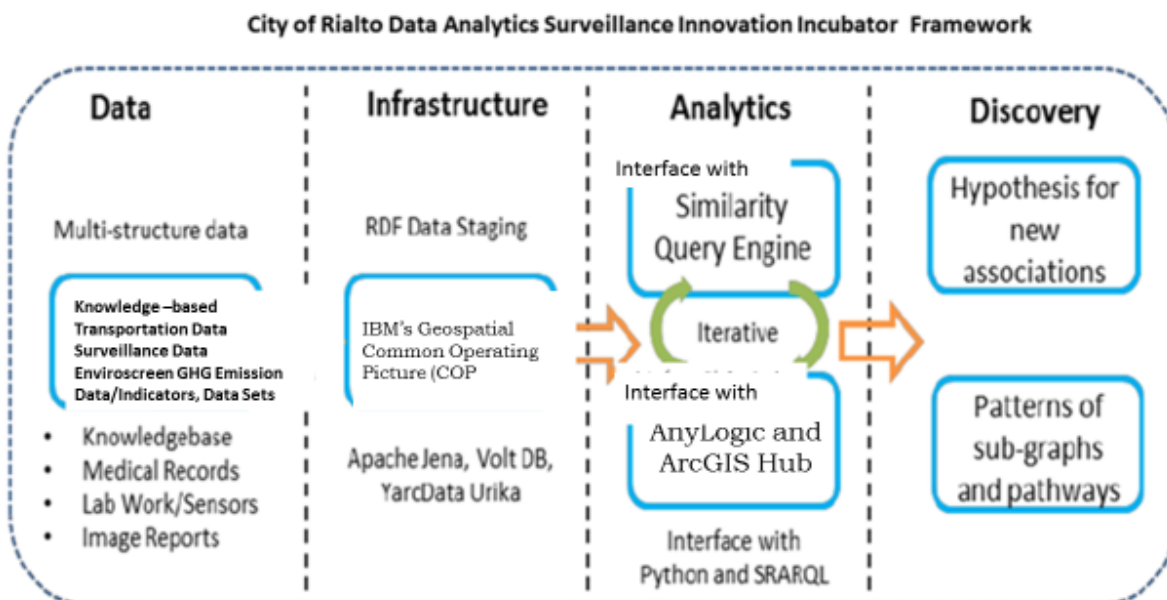
- Fostering collaboration between City of Rialto, local jurisdictions, stakeholders, the general public, and local communities by making data used for decision-making more transparent and broadly available.
- Serving as a primary regional data resource to support regional and local Planning.
- Providing forward-thinking dashboards and innovative tools to end-users to improve and enhance work flows.
- Allow City of Rialto's Data Analytics Solutions Team to facilitate access to data necessary for local decision making by monitoring traffic, land development trends, housing and economic growth, and air quality conditions.

A.1.4 Development of a data analytics center framework

To support jurisdictions in this endeavor, the Solutions Team will work with stakeholders to collect, clean, and standardized data. These datasets will include information on existing land use, general plan land use, zoning, and specific plan land use. The experts trained and skilled to operate within the DALSIIC/TMC will utilize relevant datasets to forecast neighborhood-level population, households, and employment throughout the region. This data is also valuable in assessing and measuring the impacts of land use patterns on mobility, public health, the economy, and our Southern California environment.

The Solutions Team vision in creating operational data platforms and its frameworks extends beyond the traditional system of combining camera feeds and sensors. The team will serve in designing a framework capable of collecting, integrating, understanding and correlating virtually any data type. The data platform will serve in providing information required to operate, optimize and define a core component of the business operations. The framework will reflect a flexible set of data connections that allows users the ability to connect to and consume, analyze and report on the most critical aspects of their operations, providing current and even predicted situational awareness.

Figure 2: DALSIIC Data Framework



A.1.5 Development of a traffic management center master plan

Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS) - a long-range regional plan and policy document that promotes efficient and sustainable growth to improve the quality of life for the residents in the City of Rialto and the region. The Solutions Team will adopt strategies that encourage sustainable growth. According to RTP/SCS 2014 Local Implementation Survey 80% of jurisdictions undergoing an update have included policies that encourage infill development, 70% include strategies that address complete communities and concentrating destinations, while 59% include policies that help facilitate transit-oriented development. 53% are including strategies that address all four of these focus areas.

Our team will assist in development of a TMC Master Plan. This plan will identify the needs, costs, and benefits of technology deployments on the Street and Artery System, including ramp for the freeways, arterial signal coordination, incident management, and traveler information. This effort is required to be coordinated with every agency such as Caltrans as well as the Metropolitan Planning Organizations (MPOs). This TMC Master Plan can include the financial plan and a developed methodology to extrapolate costs and benefits of ITS-related projects for the city and to develop an approach to evaluate the validity of deployment criteria for modeling based on inputs from various data sources including the ITMS, TASAS, and traffic operation system databases.

The team will evaluate innovative technologies such as Active Traffic Management (ATM) or deployment of innovative devices for example Variable Advisory Speed Signs (VASS) and Freeway Information Signs along the arteries as well as traditional ITS systems for the TMC. We will conduct Network security assessment and study to ensure security is designed in and maintained for the TMC and communication networks.

Below are sample technologies components that may be evaluated for development of a TMC Master Plan:

- Communication Network and Equipment - such as routers, switches, and firewalls.
- Fiber Optic Equipment.
- TMC Equipment.
- TCS Equipment – identify all supporting equipment to enable control of the TCS field controllers from various City locations.
- TMC (ATM) Application Servers – cloud based or on premise with no communication conflicts between the existing systems interfaces and the enhancements to be suggested.
- PC Workstations – These are standard PCs running the windows operating system and a typical windows browser such as IE8 or higher. Other special COTS software or licensing as needed.
- Remote Workstations

A.1.6 Critical Issues

Based on the Solutions Team's experience, critical issues have been identified *that may be encountered*. The Solutions Team also identifies an approach to resolving potential critical issues and the steps that will be taken to ensure the issues do not affect the successful delivery of the project. To that end, the issues identified below may have an impact on project short- and long-term impact. Thus, the IBM Solutions Team had identified solutions that address air quality, quality of

living, safety, movement of goods and services, and efficiency: Note: The lack of efficiency in business movements causes billions of dollars wasted on employee time and gas mileage (US Treasury); and the City of Rialto's potential impacting factors include:

- Housing- 19.2% living below the poverty line
- Homelessness- 1,224 homeless in Rialto (estimate)
- Street Conditions- California ranks the second worst state in terms of ratio

In addition, more than 112 accidents per year occur along the I -10/ Riverside Avenue Exchange. Safety issues occur due to current lack of smooth transition along the interchange and this congestion causes traffic accidents. These accidents not only cause great safety concerns but also economic issues as some of these accidents damage the surrounding roads.

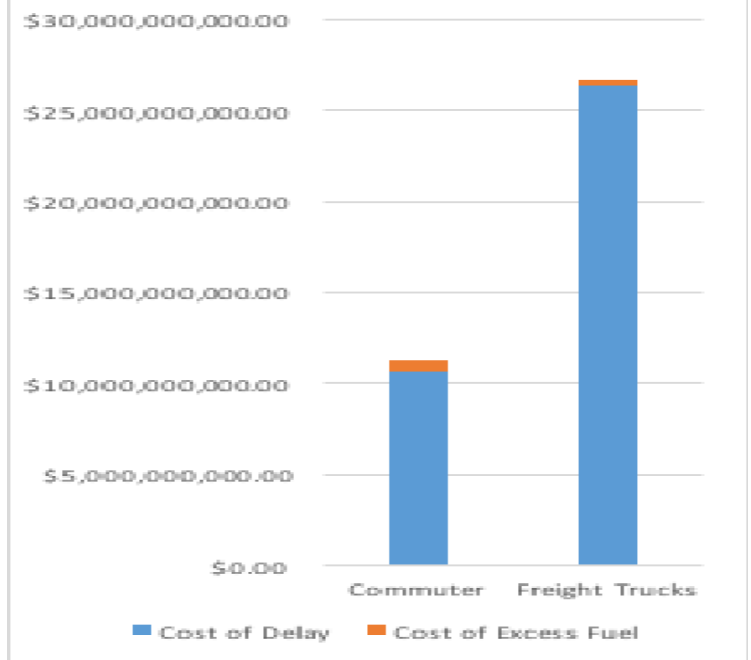
The Inland Empire was recently designated as a hub for intermodal transit. Yet, the infrastructure in the area is not improving fast enough to keep costs down and meet the current demands to accommodate the projected growth. Airports and rail stations now populate the region yet, the highways and interchanges aren't sufficient to handle the truck loads. As a result of faulty

interchange, the intermodal transit in the area is inefficient. As these and other transportation deficiencies worsen and infrastructure failures become more common, the ability of transportation providers to offer efficient and cost-effective service deteriorates, damaging not only their own companies' bottom lines, but those of the shippers and the people they serve. Caltrans has already gone as far as to define the region as one of great promise and has already labeled more than five streets in the Inland Empire as places that need increased infrastructure and supportive measures.

Once the infrastructure is improved to the level necessary, true intermodal transportation connecting trucks, trains, ports, and airplanes can be accomplished with efficiency. In addition, the State of California's Governor's Office of Planning and Research 2018, Annual Planning Survey (APS) indicates that the majority of jurisdictions in the region have not completed a comprehensive update to their general plan since 2004 due to a lack of resources. Note: In 2017, a total of 348 of the 540 cities and counties (64%) in California completed the Annual Planning Survey.

While cities struggle to plan for growth, Rialto remains a dynamically changing environment; the coming decades will bring on new challenges with significant demographic shifts of more aging seniors, more ethnic diversity, and changing household structures. Data driven and guided growth, that fosters efficiency and cost savings, will be in high demand for the region. Rialto, with its DALSIIC/TMC will lead the way as a pioneering city demonstrating how data driven decisions can foster cost savings and efficiency in Land Use, Housing, Circulation, Active Transportation Plan, Elements that include climate change and GHG emissions, Open Space, Safety, Water, Conservation, and Air Quality.

Figure 3: Cost of Traffic Congestion
Cost of Southern California Congestion - 2014



Risk Analysis and Mitigation Strategies: The Solutions Team shall perform a thorough risk analysis in coordination with Rialto in identifying risks to the project stemming from potential critical issues. The Risk Analysis shall rank risks according to severity and likelihood of occurrence. The Team will use their extensive experience in addressing risk and will identify and adopt strategies necessary for avoiding, mitigating, or transferring risks and proposing contingency strategies for any risks that cannot be eliminated in this manner.

- **The potential for the designed plans to have a greater impact within select industries (i.e. transportation) over other industries of focus (innovation incubation).** The IBM Team has a well-developed risk management system that is routinely applied to projects of this nature. We follow a structured approach to identify risks and avoid, minimize or manage those risks. The status of risks is regularly monitored throughout the project and the threat level is continually reassessed as the project proceeds, with some risks passing and the threat level of others changing as system development and integration proceed. The risk monitoring process also includes triggers that identify risks that materialize and lead to the implementation of guidelines in the management and mitigation plans.

By selecting the IBM Team, project sponsors minimize risk associated with implementing this unique project. Perhaps the most important differentiator that separates the IBM Team from peers is associated with risk management. We have the most experience with implementing the regional data driven system (we designed and deployed it in many systems globally similar to these project requirements). We know the region and the key stakeholders, and we have vast experience with implementing data-driven traffic/transportation management centers worldwide.

- **How well qualified the individual, team, or organization selected to deploy implementation strategies will impact targeted outcome.** The IBM Team is experienced in providing professional software development, system engineering, and system integration services and assisting public clients in delivering a full operational integrated system. We are experienced in working with public communities, with project stakeholders, and with client groups. We are experienced in developing custom-built complex systems. Software development, system integration, and consulting projects call for our core skills, experience, and commitment.

The IBM Team believes strongly in open and continuous communication within our team and with our client; it is through this approach that we achieve our “no surprises” philosophy and ensure the best practices approach. As you can see from our organizational chart, our team collaborates on several tasks throughout the project, ensuring consistency in understanding and deliverables.

We also use proven project management tools and techniques to plan and monitor all phases of the work, minimize risk, and achieve successful project/task completion on schedule and within budget, conforming to your expectations. The following details our proposed approach for the addressing the required work, outlining the activities and time table.

- **The extent that the proposed deployment plans and activities suggest and explore creative, original, or potentially transformative concepts are dependent upon the city’s access to additional resources.** The DALSIIC project will involve the deployment of several new and innovative technologies including Big Data and Cloud technology. The IBM Team approach to validating this new technology is to build upon our solid experience in similar projects that have been recently implemented in North America while maintaining a full flexibility associated with unique characteristics of this project. As the project name implies, this is an integrated project, meaning that the implementation and operational strategies will include fleet management and arterial traffic signal system functioning cohesively as a single data platform. All of these elements operating in a single system will contribute to an overall reduction in congestion and collisions along the corridor.

The IBM Team is expert in the deployment of Regional Data Management in particular Integrated data center Projects. We have or are implementing many projects worldwide using data platform concepts in the past worldwide and in the United States. We understand the required technologies and methodologies, how they work, and most importantly, which ones will be supported by the stakeholders. Our design will be based on our direct knowledge of real-world deployments; therefore, the City's risk will be minimized by selecting the IBM Team.

- **Training and/or educating related external groups such as end users, area residents, local governments is needed for maximum benefit of the BSS Spokes, after project deployment.** Building and enhancing key stakeholder consensus will be critical to the success of this project. For this project to become successful, it will need a system integrator team that understands the institutional impediments of the key stakeholder group, has past working relationships with key stakeholders in the region, and can demonstrate the DALSIIC improvements that benefit the local traffic in cities and agencies, as well as improving fleet operations for commercial freight businesses.

The IBM Team senior staff members have worked with virtually every agency responsible for transportation and transit services in the region and will be available throughout the entire project to assist our management consultants and staff to provide technical assistance and promote the public information process. We will assist your staff in stakeholder involvement, input, and consensus at the Technical Advisory Committee (TAC), City Council Meeting, and one-on-one meetings to ensure that there is a strong comfort level with all stakeholders.

- **Correlation between the effect of broader impacts and the resources provided to implement projects.** Many of the arterials are complex multi-modal transportation facilities that serve transit, freight, and passenger vehicles. Recurring congestion at the levels currently experienced creates significant economic impacts. When incidents occur, such as the tanker truck explosion, the impacts are severe. The operational issues run from daily, significant congestion and routine incidents, to major, even catastrophic, events. The DALSIIC platform will allow better management and improved operations in the full spectrum of conditions that occur in this corridor. It is critical to get continuous reliable data from all the systems and tools available as efficiently and effectively as possible. Integrating data from these and other systems within the region will provide the best flexibility to deal with a wide range of operational issues and the most effective means to maximize day-to-day management and operations of traffic flow within the region.
- **Local representation.** Core members of IBM team are based in California. This includes key members of integrated account management. This local knowledge is key as we help enable better services with The City of Rialto. Strong ties with Local Universities and Colleges. The same IBM team continues to work to develop training and skills in the areas of systems, analytics, data management and other relevant skills. This reinvestment by IBM supports our growth and our clients like The City of Rialto in your ability to attract and retain talent.
- **Connection with the Global Community.** The Local IBM Team is integrated into the larger IBM community. With clients in all forms of transportation, logistics and services we have a very deep pool of solutions that can be accessed quickly and efficiently.

Section B: Scope of Work

Appendix B Proposed approach to the Project including the expected time commitment of key personnel, technical approach to the Project, and the emphasis placed on individual tasks.

Note: As this RFP has identified a General Scope of Work, evaluation criteria requires that the proposal identify a detailed scope of work to successfully implement PROGRAM. The detailed scope of work must be identical to the format in which the Cost Proposal has been submitted – each sub-task must be identified in the firm's separately sealed Cost Proposal with a corresponding fee proposal.

The sections below outline the activities, deliverables, and goals of this DALSIIC/TMC effort. As mentioned in Section A of this proposal, the Solutions Team recommends a phased approach to this effort. Example activities for both Phase I and Phase II efforts are outlined in the graphics below:

Figure 4: Phase I Overview

City of Rialto's Regional - Data Analytics Logistics Surveillance Innovation Incubator Center



A paradigm shift, driving the future of Logistics, Surveillance and Innovation with Data

PROJECT OVERARCHING ACTIVITIES – PHASE I

- Establish a geospatial Common Operating Picture (COP)
- Integrate disparate sources of information (data) into the COP environment in real time
- Collaborate with stakeholders by sharing the COP and by interactively planning and implementing incident responses
- Adopt mature system design meeting Rialto's current needs with technology platform for region/future innovations
- Ensure the Transport network system meets the needs of Rialto operators, customers, and researchers.
- Use proven partnering Transport and Smarter Cities models that has been successfully implemented on a large scale

MISSION

STUDIES AND PLANS

1. Feasibility Study
2. Governance/Ownership Plan
3. Marketing/ PR Strategy Plan
4. Business Operations Plan
5. Infrastructure, Land and Building Plans
6. Ideal Pricing Plan

DALSIIC/TMC Demo:

1. Maximize Route
2. Facility and Set-up/Pilot
3. Systems Integration

Figure 5: Phase II Overview

City of Rialto's Regional - Data Analytics Logistics Surveillance Innovation Incubator Center



A paradigm shift, driving the future of Logistics, Surveillance and Innovation with Data

PROJECT OVERARCHING ACTIVITIES – PHASE II

- Showcase DALSIIC/TMC Capabilities
- Implement plans for integration of the DALSIIC and the TMC
- Incubate Innovations in Technologies
- Implement Transportation and GHG Emission Strategies
- Evaluate potential impacts of events transitioning seamlessly back and forth from a “live state” COP to a “what if” COP capable of integrating multiple third-party simulations
- Pilot solutions that can be expanded to support the growth and efficiency of future operations.

MISSION

STUDIES AND PLANS

1. Feasibility Study
2. Governance/Ownership Plan
3. Marketing/ PR Strategy Plan
4. Business Operations Plan
5. Infrastructure, Land and Building Plans
6. Ideal Pricing Plan

DALSIIC/TMC Demo:

1. Maximize Route Strategy
2. Facility and Set-up/Pilot
3. Systems Integration

DALSIIC Tasks

B.1.1 Feasibility Study/Demonstration and Business Plan

For the Feasibility Study Demonstration Business Plan - The Solutions Team will provide Rialto with a study that accurately assesses the capacity of the DALSIIC/TMC in meeting citizen's needs, providing leaders with input, and a two-way engagement platform. The study will also assess how the operational model of the center can/will demonstrate how aspirations become initiatives. The study will also convey the feasibility of the initiatives in becoming Data Supported Solutions (DSS) used by the City of Rialto and other local governments. The tasks within this section include:

Task 1.1 Research and Development – For this capacity, the Solutions Team will engage area stakeholders, SCAG, and Esri in Strategy Sessions on the feasibility of Rialto's DALSIIC/TMC in:

- a) meeting Rialto residents and citizen's needs;
- b) providing leaders with input; and
- c) a two-way engagement platform

The Solutions Team will also assess IT Resources Accessible and available to the City of Rialto and its department's current use of Open Data with expanded coordination with IBM and Esri in increasing access. With increased access, the Solutions Team will define a pathway for creating a possible Data Supported Solutions (DSS) list. This Aspirations List is designed for use by Industry Experts to make it an actual initiative, once the list has been prioritized (using project provided and established data driven surveys). Once it becomes an initiative, the plan will require Rialto to deploy a team of data specialists to work on the initiative to the point wherein it becomes a successful DSS-Spoke.

Task 1.2 Prepare Draft Feasibility Study – To prepare the draft feasibility study, the design will require use of the DSS Aspiration List and Strategy Session findings. The DSS initiatives are also ranked (High, Medium, and Low) in order to ensure the study gives sincere attention and hours to those ranking the highest.

Task 1.3 Prepare Draft Business Demonstration Plan – This plan will detail the step by step process in which the City can form DSS Aspirations to the point where they are Initiatives. The creation of the initiatives will be facilitated by Esri ArcGIS Hub and Solutions Team coordinated industry experts. The goal of this effort is to define a ‘pathway’ on how each initiative can become a sustained focus for the DALSIIC/TMC. Those that are selected to be a sustained focus within the Center will be categorized as a Sustained Planning Opportunity Keeping Environmental and Economic Efficiency (Spoke). All Spokes will be represented by a Data Set that receives constant and continuous updates with the process showcased in the Demo Business Plan using (ArcGIS and AnyLogic).

Task 1.4 Provide Rialto with Final Draft of Feasibility Study and Business Plan - The Project’s Final Draft and Final Feasibility Study and Business Plan will be provided to the City of Rialto. The Demonstration of the plan will be most readily showcased under Maximum Route Operations for Business. The Solutions Team, using ArcGIS and Any Logic, and open data will incorporate findings in the study to support the demonstration, which will be inclusive of transponders use and capacity to capture the number of trips in and out of the region and charge accordingly, capacity to offset GHG emissions and reduce cost for street repairs, and ways to aggregate data to better move trucks in and out of the area.

Deliverables

- Draft Feasibility Study
- Draft Business Demonstration Plan (Supported by 2.0)
- Data Supported Solutions (DSS) List
- Data Sets approved to be Spokes List (Esri)
- Final Presentation of Feasibility Study and Business Demonstration Plan

B.1.2 Maximize Route Operations

For the Maximize Route Operations task, the Solutions Team will work with the City of Rialto in exploring a route maximizing strategy. The tasks to accomplish the creation of this plan includes:

Task 2.1: Creating simulation models- For this capacity, the Solutions team will utilize AnyLogic Software to create a simulation model of traffic congestion further understanding condition to help create a better solution. This will include:

- Obtaining AnyLogic Software for Simulation Model
- Collection of data available to the City of Rialto, Esri ArcGIS and open data
- Collection of truck schedule from businesses

Task 2.2: Strategize possible solution - To prepare for possible solution, the Solutions Team will utilize information collected in the Feasibility Study (1.0) and simulation model to create the best possible solution. To strategize and prepare the best possible solutions, the Solutions Team will:

- Work with City Department Heads (Planning and Public Works) to obtain needed truck traffic data

- Host strategy meetings with industry experts to define which data sets will provide the best possible options and solutions
- Meeting with business leader regarding “fee comfort” budget
- List of Possible Solutions

Task 2.3: Preparing for Business Demonstration Plan - To prepare the draft for business demonstration plan, the Solutions Team will need to use data sets for ‘maximizing route operations. To this end, the Team will meet with the City in defining desired output of the demonstration. This plan will serve detailing the step by step process business and operational plan for maximize route of operation. These steps include

- Step 1: Fact Finding
- Step 2: Traffic Congestion Projection
- Step 3: Cost Effectiveness Study and Projection
- Step 4: Exploring possible alternative

Task 2.4: Provide the Final Draft – The Solutions Team using ArcGIS, AnyLogic, and open data will incorporate findings to support the demonstration, which will provide traffic congestion fee models in the capacity to offset GHG emissions and reduce cost for street repairs, and ways to aggregate data to better move trucks in and out of the area. In coordination with Task 1.0, the Team will facilitate the demonstration project and will provide a business (operational) demonstration of how the City can use the strategic approach in meeting the DALSIIC/TMC objectives.

Task 2.5 Present/Submit (with Demo using AnyLogic/ArcGis HUB Software)

This presentation will showcase:

Optimized routes with ideal departure times - The design plan will identify strategic ways in which the DALSIIC/TMC can assist trucks in finding the quickest or shortest route with limited inner-city traffic fee-management costs as well as routes with fewer bike-lanes or children street crossings. Depending on the identified priority provided by the business participating/using DALSIIC/TMC, routing data will be designed to assist with coordinating efforts with Rialto traffic signals, as well as accumulate any number of cost values such as distance, time, slope, or other flow attributes (including support between just two stop locations or a sequence of many stops in the best order).

Find closest facilities – The designed plan will define how the DALSIIC/TMC will be able to assist local and regional trucks carrying freight in measuring the cost of traveling between incidents and facilities to determine which are nearest to one other. Support will also convey how many facilities to find, whether the direction of travel is toward or away, and other constraints like search cutoff thresholds.

Solve multi-vehicle and truck routing problems - Given a set of work locations and a fleet of vehicles, the Solutions Team will determine what stops should be serviced by each route and in what sequence the stops should be visited. The solution will minimize the overall operating cost for the entire fleet while considering the City of Rialto’s congestion fee-pricing model/agreement (once activated).

Perform Location Allocation – Within these efforts, the Solutions Team will coordinate efforts with Esri in integrating its peak time travel, low congestion fee pricing costs with a location allocation tool – that finds the best route with low costs. This designed approach will serve in keeping costs low and accessibility high, for maximizing profit and high-quality service. The analysis takes into account facilities that provide goods and services, and where those goods and services are consumed.

Generate service areas – These will serve and support the City of Rialto gathering data through a network service area (identified in defined plan) that can be reached from specified locations within a given travel time or travel distance. Once service areas are created, the City of Rialto will be able to use them to identify how much land, how many people, or how much of anything else is within the neighborhood or region.

Create origin destination matrices – the designed support provided will afford the City of Rialto to ascertain the origin destination in order to assess if a congestion cost fee is applicable or not. This cost matrix will provide a table or diagram that will assist with least-cost paths along the Rialto defined network from many origins to many destinations, that come through Rialto (or the region). The cost values and benefits to the truck/vehicle will reflect the network distance, not the straight-line distance.

Deliverables:

- Creating Simulation Model
- Cost Effectiveness Study
- List of Possible Solutions using ArcGIS Hub and Any Logic
- Final Presentation of Business Demonstration Plan

B.1.3 Governance and Ownership

To be successful in this endeavor, the Solutions Team and partnering Industry Experts will need to develop the Regional Data Platform through shared standards and a robust framework for multi-sector collaboration. In addition, Solutions Team must define a governance structure and potential risks for each piece of the project prior to initiating development. The Solutions Team will work with stakeholders in creating a culture of Innovation and on use cases that provide jurisdictions with informational resources related to future growth and development.

Creating a culture of innovation within the governance structure will encourage risk-taking and builds capacity for the City of Rialto to make big leaps forward in how they deliver services, develop policy, and ultimately govern. In this capacity, the DALSIIC will demonstrate local governments' ability to create a P3 that fosters GHG emission reduction, government efficiency in planning and development, and positive social change that improve the lives of area residents. For this component, the Solutions Team will create a Governance and Ownership Committee of Industry Experts. This committee will support the Solutions Team in focusing on:

Outward Facing DALSIIC/TMC

For the development of an outward facing DALSIIC/TMC, the Solutions Team will focus on the design facility that includes access points, user terminals, and high-speed internet. Efforts will also support the deployment of tools used and designed by Esri GIS tools such as Tapestry, ArcGIS that enable users to conduct research. To ensure the governance structure proposed offers a new and innovative way forward, the Team will facilitate interactive workshops with IBM's team lead, SCAG, and Esri's industry experts to ascertain their input and insights to increase the design for user effectiveness.

P3 Ownership Model

The Solutions Team will support various types of P3s, with varying degrees of complexity and risk allocation. The broadest distinction among P3 project types will be considered for the DALSIIC/TMC and capital improvements (building something new) and for operations or maintenance services. The

Solutions Team will present the pros and cons for each of the following P3 models, highlight when Rialto continues to own the underlying asset and when the private sector actually assumes ownership (for a fixed period or indefinitely), and opportunities the City of Rialto can consider if additional funding or resources are needed to effectively operate or maintain the core services being made available within the DALSIIC/TMC. The Solutions Team will address:

P3s for capital improvements- wherein the City of Rialto would pay a private contractor to design and build **(DB)** the DALSIIC/TMC. In this approach, the private sector can assume some of the risk involved with the project by agreeing to maintain and/or operate the asset for a period of time in exchange for performance-based payments.

Design-build-operate-maintain (DBOM) structure, wherein the private contractor staffs the facility, performs routine maintenance and delivers needed technology upgrades during the life of the contract. In this approach, the City of Rialto will have the capacity to partner with the private sector for operation **(DBO)** or maintenance **(DBM)** functions on their own.

Design-build-finance-maintain (DBFM) – wherein, the private sector can assume more risk (and generally higher potential returns) by financing the project directly, in addition to taking on any, or all, of the previously discussed functions.

Availability payment (AP P3) model, wherein the City of Rialto agrees to make fixed payments to the private partner in exchange for making the DALSIIC/TMC “available” at a specified standard of performance. These standards might include quality of construction, cleanliness or response times to maintenance requests.

Partnership for Data Aggregation and Analysis, Operations and Maintenance

The City of Rialto can enter into a P3 for Operations and Maintenance with a partner knowledgeable in data aggregation and analysis. In this instance, the City of Rialto can partner with the private sector to provide operation and maintenance (O&M) services only. In this model approach, the private sector might make investments in O&M efficiencies, taking on a greater share of the financial risk but increasing the potential for cost savings and a higher return on investment. For the governance and ownership plan, the pros and cons of entering into an Operations and Maintenance agreement will be presented. In addition, the Solutions Team will identify the top local and regional partners that can be considered for each type of P3 models being considered

Meaningful Engagement of Tenants – one source of revenue for the DALSIIC/TMC will be tenants capable of adding value to the overall services of the center. In this capacity, the team will work to secure Form 940's (a form required by the EDA for proof of jobs being created in a region or on a project). The form will be used to add value in securing financing and grants, and it will increase the value-add of services being provided. A list of ideal tenants will be created and possible benefits the tenants will receive by co-locating in the DALSIIC/TMC will also be created.

Financing Infrastructure

Together, *loans and bonds* form the largest categories of infrastructure finance, mirroring the broader fixed income markets: global debt markets are the deepest capital markets in the world. The planned benefit for the approach being used by the IBM Solutions Team will incorporate:

The City's benefits of being in/having Opportunity Zone(s)

Use of New Market Tax Credits (to assist with development: Phase II)

Public Private Partnerships and Use of Industry Experts and shared investments

Efforts in accessing Grant Funds – State, Federal, and Private

Possible use of Debt instruments (that can be structured to have long-term maturities that extend over the life of long-term assets including private markets (such as private-placement debt) or public markets through registered corporate and government bonds.

Furthermore, financiers of infrastructure projects will be encouraged to take advantage of Rialto's location and possible favorable effect in debt markets (i.e. meeting the demands and preferences of certain investors such as pension funds and insurance companies thereby broadening the appeal of infrastructure finance to a larger potential pool of capital)

The Solutions Team will provide the pros and cons for the DALSIIC/TMC financing options as it relates to:

- Hybrid Instruments (Bonds, Loans, Listed, Unlisted)
- Equity Financing
- Infrastructure project financing
- Project debt financing
- Project mezzanine finance
- Project equity finance
- Balance sheet (or reserve funds) financing
- Debt Instruments

Figure 6: Financing Structure

Modes Infrastructure Finance Instruments				Market Vehicles
Asset Category	Instrument	Infrastructure Project	Corporate Balance Sheet / Other Entities	Capital Pool
Fixed Income	Bonds	Project Bonds	Corporate Bonds, Green Bonds	Bond Indices, Bond Funds, ETFs
		Municipal, Sub- sovereign		
		Green Bonds	Subordinated Bonds	
	Loans	Direct/Co-Investment lending to Infrastructure project, Syndicated Project Loans	Direct/Co-investment lending to infrastructure corporate	Debt Funds (GPs)
			Syndicated Loans, Securitized Loans (ABS), CLOs	Loan Indices, Loan Funds
Mixed	Hybrid	Subordinated Loans/Bonds, Mezzanine Finance	Subordinated Bonds, Convertible Bonds, Preferred Stock	Mezzanine Debt Funds (GPs), Hybrid Debt Funds

Equity	Listed	YieldCos	Listed infrastructure & utilities stocks, Closed- end Funds, REITs, IITs, MLPs	Listed Infrastructure Equity Funds, Indices, trusts, ETFs
	Unlisted	Direct/Co-Investment in infrastructure project equity, PPP	Direct/Co-Investment in infrastructure corporate equity	Unlisted Infrastructure Funds

Governance and Ownership Plan – This plan will be prepared and reflect four focus areas 1) Culture of Innovation Create by City of Rialto P3's 2) Meaningful Engagement of Tenants (including signed Letters of Intents and Form 940's), Financing Infrastructure pros and cons; and 4) Inclusive Procurement.

Deliverables:

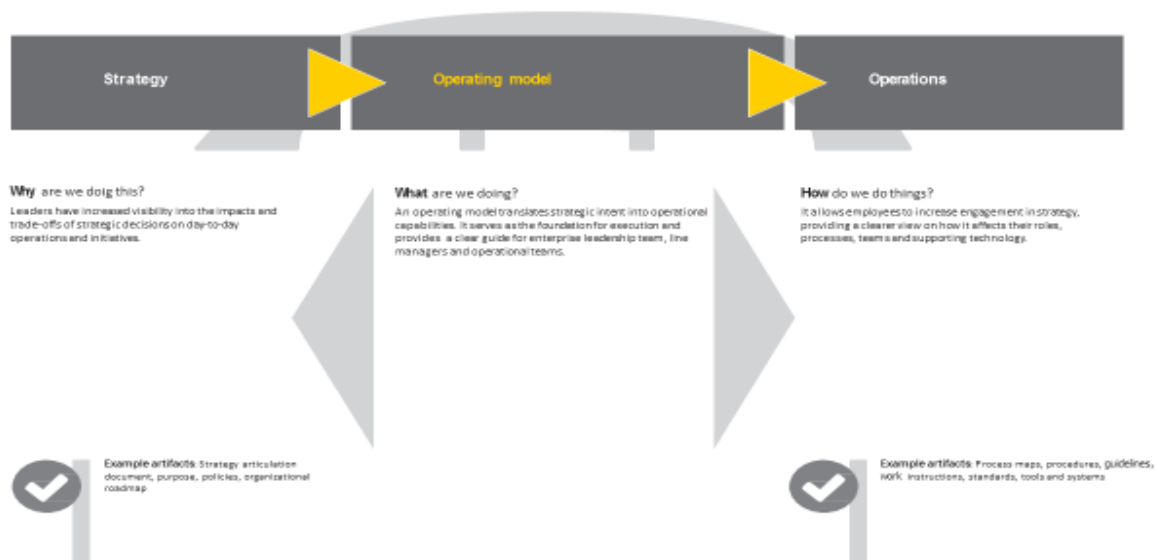
- Tenant agreement guidelines, Letters of Intent (Form 940's)
- Governance and Ownership Plan

B.1.4 Business Operations

Task 4.1 Business Operations Coordination

The Solutions Team shall be required to update and maintain a Coordination Plan for developing the business operations plan. This plan will outline coordination activities needed for each element of the Project Work Program, the Solutions Team, and project partners. The Solutions Team shall be responsible for coordinating all project activities outlined in the plan to ensure that all work elements are completed on time and budget. The Solutions Team will also submit a sample Project Coordination Plan with their application and identify a file-sharing system that will be used to track meeting materials, progress reports, and other project deliverables.

Figure 7: DALSIIC/TMC Marketing/PR Strategy



Strategy: The Solutions Team shall prepare and host a kick-off meeting at Rialto City Hall. The meeting shall discuss the Project Management Plan, key project deliverables, requirements of the contract, and any potential challenges and issues. The kick-off meeting shall occur within 10 days of receiving the Notice to Proceed. Weekly Project Meetings: The Solutions Team shall meet four times each month, to assure an aggressive approach to the project, to discuss project activities, coordinate project deliverables, and review the project budget. All meetings except the Kick-Off Meeting will happen in person or remotely via video conferencing, to be determined in consultation with IBM. All agendas will be provided a minimum of 48 hours ahead of the meeting to allow and partnering Industry Experts time to review and provide input.

Upon the completion of major project deliverables, the consultant shall host wrap up meetings to discuss how to launch the next phase of the project. These are expected to occur at the completion of each Task. The Solutions Team shall prepare agendas, presentations, meeting minutes, and any other meeting material for each meeting, as deemed appropriate by the Solutions Team. IBM will also provide a summary of follow up work items identified at each meeting within 24 hours of the meeting.

Task 4.2: Operating Model that identify and effectively communicates research-based “Transportation and Training Models and Methods that Work” for the Region and are appropriate for national consideration. The plan will address: Core Elements and Other Leading Elements of operation models.

Figure 8: DALSIIC/TMC Marketing/PR Strategy



A detailed operations model will be created and delivered to the City of Rialto using this approach.

4.3 Operations Plan – The operations plan will serve in ensuring each area of the model is thoroughly defined with a way forward. This includes the coordination and engagement of Industry Experts in leveraging the City’s investment. It also includes strategies to take advantage of the projects proposed location being in an ‘Opportunity Zone’ and capitalizing on the benefits therein. These benefits will be enhanced with New Market Tax Credits (NMTC) that will made available to

the project through the Solutions Team coordinated efforts with the regions Community Economic Development Corporation (Arroyo Valley) in defining a way forward for Phase II DALSIIC/TMC development (that could reach millions in cost savings).

Sustainability/Leveraging- The IBM DALSIIC/TMC's sustainability strategy was designed to ensure the City of Rialto is able to provide pilot demonstrations of its DALSIIC/TMC as the center is being constructed. To this end, the IBM Solutions Team has agreed to continue its efforts beyond the required deliverables. The extended effort will continue beyond project delivery of deliverables, valued at \$90,064. This investment by the Team supports the City of Rialto's expectations in engaging consultants and partners willing to invest and/or leverage the City of Rialto's investment. The Team's leveraged investment includes:

Leveraging the City of Rialto's Investment as Follows:	Value Added Leveraging of Rialto's Investment
Project Mid-Level Talent/Interns Hours Valued at \$22.00 per hour	
Arroyo Valley Community Economic Development Corporation - Pilot Site in Rialto: 12 Months x 2 Days week; 52 weeks	\$18,304.00
California State University San Bernardino Interns (2) at 40 hrs./month: 6 Months	\$5,280.00
University of California Riverside Interns (1) at 20 hrs./month	\$2,640.00
Randall Lewis Foundation/SCAG Intern (1) 6 Months 120 hrs./month	\$15,840.00
Senior Level Management Hours Valued at \$150.00 and \$275 per hour	
ESRI ArcGIS Hub Solutions Team (2-3 Members) at 140 hrs.	\$21,000.00
Luvicent (and Management Level Industry Experts) at 10 hrs. /12 Months	\$18,000.00
IBM (Beyond Initial Product Delivery) Consultation at 60 hours*	\$16,500.00
Total In-kind Commitment to Project Sustainability	\$97,564.00

*\$275 per hour

Leveraging its efforts, IBM Solutions Team has partnered with the following leading industry experts:

Southern California Association of Governments (SCAG)

ESRI

San Bernardino Community College District (SBCCD)

Arroyo Valley Community Economic Development Corporation

California State University San Bernardino (CSUSB) – Department of Policy and Government Management (Dr. Roman/Dr. McWeeney)

University of Riverside (UCR) - Professor Dr. Thuy Pham

CSUN Environmental Specialist: Dr. Kim Kirner

San Bernardino County Superintendent of Schools – Vice President

Each will serve in elevating investments, tax credits, design, functionality and the feasibility in which the project moves forward.

Further, the Operational plan will ensure it defines ways in which the DALSIIC/TMC will/can:

- Host regional “*Transportation Models that Work*” symposiums that advance the conversation surrounding the future of the transportation system and workforce training in the region, with an emphasis on the Inland Empire
- Perform an evaluation of promising practices in transportation (ongoing), research new technologies in transportation, and provide detailed assessment of anticipated impacts (ongoing)
- Showcase findings and planned framework with city, SCAG, Esri and key stakeholders
- Present research and assessments at select regional and national conferences (ongoing);
- Assess benefits of investing in new infrastructure and modern production and distribution in the region, including the expansion and strengthening of networks and corridors supporting the region’s seaports and airports (ongoing);
- Identify and pass legislation that advances promising transportation strategies, such as the use of complementary economic relationships between cities, to accelerate transportation management legislation and other models;
- Coordinate ongoing evaluation to produce updates to select. probing questions, such as: How will the DALSIIC/TMC move in the foreseeable future? How will Rialto citizens commute to work? How does the proposed transportation model correspond with SCAG’s;
- Create an ‘examination toolbox’ database of items requiring assessment as a result of research and evaluation;
- Provide ongoing assessment of possible solutions and planned approaches to the issues identified in the examination toolbox
- Ensure the assessment of items being examined include cost-benefit analysis for all possible solutions identified and that plans are feasible, given topographic constraints (ongoing);
- Perform outreach to engage residents in focus group participation to determine the citizenry buy-in for all planned approaches (ongoing);
- Share the findings with the relevant research program offices of the Department of Transportation (DoT), and ensure possible solutions/planned approaches are complete (quarterly);
- Perform ‘Mock Deployment/Operational Analysis’ by local government (cities), to be planned after examinations and assessments shows favorable outcomes;
- Share deployment findings with elected officials, local stakeholders, and other megaregions, and bring to scale many of the issues and potential solutions that may be parallel in scope in other regions that can be solved at the local government level.
- Engage an e3p3 evaluation and research team of industry experts (p3s) that commit to 1-3 years in guiding leaders, practitioners and other industry experts in assisting with project

mission and objectives; and in providing the city with bi-monthly progress reports and planned solutions feasibility reports that highlight cost/benefits of proposed approaches.

Deliverables:

- Business Operations Coordination Plan
- Operating Model
- Operations Plan
- Planned Approach Progress Report
- Solutions feasibility report

B.1.5 Marketing and PR Strategy Plan

Rialto's DALSIIC/TMC designed approach for integration will follow a Scenario Planning Model (SPM). The SPM is a comprehensive web-based land use planning tool for scenario development, modeling analysis, and data management for performing marketing and Public Relationship (Branding) strategies. The SPM allows for a marketing plan to adopt strategies that will favorably address key marketing and PR targeted benefits. Target Marketing- By focusing on what is the most conducive and effective way to ensure use of the DALSIIC-TMC the solutions Team will market the adopted diverse strategies that is effective in engaging businesses, local government and their departments and residents.

Different campaigns and or discount options will be explored and presented to the city. Geographic Target Marketing strategies will be induced on how to engage the departments within Rialto and other cities will also be explored with highlights of the benefits of using or accessing the DALSIIC/TMC. These benefits will be specifically delineated to engage Police Departments, Fire Departments, Ambulance Services, Planning, Economic Development, Public Works, highway patrol, county public health and land/economic development.

The ultimate plan is to coordinate efforts with the City/Region's marketing Industry Expert to facilitate a plan that provides specific deliverables using the following plan

Figure 9: DALSIIC/TMC Marketing/PR Strategy

DALSIIC/TMC Main Planning Stages for Marketing/Pubic Relations	
Component	Description
Mission statement	A meaningful statement of the purpose and direction of the business
Corporate objectives	The overall business objectives that shape the marketing plan
Marketing audit	Assesses the situation of marketing in the business – the products, resources, distribution methods, market shares, competitors etc
Market analysis	The markets the business is in (and targeting) – size , structure, growth
SWOT analysis	An assessment of the firm's current position, showing the strengths & weaknesses (internal factors) and opportunities and threats (external factors)
Marketing objectives and strategies	What the marketing function wants to achieve (consistent with corporate objectives) and how it intends to do it (e.g. Ansoff, Porter)
Marketing budget	Usually a detailed budget for the next year and an outline budget for the next 2-3 years
Action plan	The detailed implementation plan

Solutions Team

Task 5.1 Project Marketing Mission Statement and Objective – This task is to outline Rialto’s DALSIIC/TMC expectations for the DALSIIC/TMC’s mission and objectives that afford the City of Rialto to effectively engage area businesses and other stakeholders in participation and use of the DALSIIC/TMC and its marketed direction and purpose. This information will include Rialto’s objectives as a city in serving the city and the region, which will be used as a general guideline. The information collected during this effort will be related to ensuring the overall purpose supports the centers use of specific datasets, data management and processing workflows, and data analytics (commonly used or needed by partnering Industry Experts and local jurisdictions in their respective planning processes). This task will also help to identify any regional performance metrics that can be linked to the purpose and direction of the DALSIIC/TMC.

Task 5.2 Marketing Audit/Analysis– The Solutions Team will do a marketing audit and analysis on what data is available and needed for local general plan updates that can be included in the messaging used to convey how the DALSIIC/TMC can advance plans within local government. The Solutions Team will also conduct three (3) outreach survey/audits. Survey/Marketing Audit 1 is expected to cover Rialto’s planning programs, resources, current IT environment and data infrastructure system, common planning processes, interdepartmental data needs, as well as data and metrics that can be used for performance messaging of Rialto’s DALSIIC/TMC regional transportation plans and sustainable communities’ strategies. Survey/Marketing Audit 2 will target Rialto’s distribution methods possible, product, target market as well as access to existing analysis tools/models that are available for use in the LRPT project to convey long-term impact messaging. Survey/Marketing Audit 3 will address size, structure and growth potential. This will be supported by data management policy and procedures being used that can be directed and/or supported by Rialto’s DALSIIC/TMC or current IT environment and data infrastructure system to create messaging for local and regional impact. The City of Rialto’s staff/division heads will participate in the Survey/Marketing Audit to convey their desired use of the DALSIIC/TMC.

Task 5.3 Marketing SWOT Analysis (Focus: Staying Relevant Plan) The Solutions Team will, in coordination with Rialto and SCAG, engage regional entities and councils of government to participate in ‘staying relevant dialogues’ and coordinate with jurisdictional stakeholders to seek to understand and collect information on how to get ahead and stay ahead as a regional leader. This effort will be supported by marketing efforts with 20/20 Network and will use marketing strategies that will include:

- Identification and marketing of local data needs for current and long-range planning activities.
- Promotion of the DALSIIC/TMC’s Datasets that could benefit regional standardization, including elevated security protections.
- Promotion of benefits of typical workflows at local jurisdictions that the DALSIIC/TMC can enhance in support of:
 - Local data collection and updating
 - Data-oriented decision-making processes for current planning,
 - Long range planning and day-to-day operations
 - Analytical needs in planning (e.g. for analyzing and monitoring the progress and performance of adopted general plans),
 - metrics for evaluating the performance of regional transportation plans and sustainable communities’ strategies
 - Feedback on Long-Range Planning Goals

These highlights in marketing tools to stay relevant will include promotion of:

- The DALSIIC/TMC's datasets that will be made available as web services and updated online through transaction-based editing by the Solutions Team
- DALSIIC/TMC's access to a list of regionally significant datasets that will be standardized and shared through Rialto's DALSIIC/TMC GIS Open Data Portal
- DALSIIC/TMC's data-driven analytics and insights for web applications

Task 5.4 Marketing Strategies, Budget and Work Plan – Using elements of the Business Operations Plan, the Solutions Team will also include a Project Business Operations Marketing Work Plan that will support marketing and PR efforts. The Plan will include:

- What the marketing functions want to achieve
- How it intends to do it
- 1 Year Budget for Marketing and 3 Year Budget for Marketing
- A detailed implementation plan

The Solutions Team implementation plan will market features in the enhanced SPM that allow users to update and revise data online. The plan will also define ways to highlight the feature an intuitive interface for two-way data updates that enables both Rialto's site-operators and partnering Industry Experts and local jurisdiction staff to perform editing on cloud-based data using a web-based application. Specifically, the marketing will promote the center's capacity to enable users to update data attributes for Rialto's DALSIIC/TMC land use and zoning information, with edits carried over directly to Rialto's DALSIIC/TMC enterprise geodatabase or synched to the geodatabase on a regular update schedule, with web-enabled datasets will be designed to be updated and maintained by local jurisdictions or other sources. Marketing will also promote how the DALSIIC/TMC will protect data being obtained/used that is unique to each jurisdiction.

Deliverables:

- DALSIIC/TMC's Mission Statement and Objective
- Marketing Audit/Analysis for DALSIIC/TMC
- Marketing SWOT Analysis (Strategies for Staying Relevant)
- Marketing Strategies, Budget and Work Plan

B.1.6 Infrastructure Land & Building

This task will start with a thorough analysis of the site. We will help identify costs and risks with any site/land that is under consideration.

Careful site analysis includes assessment of a host of factors:

- Physical characteristics such as location, size, topography, drainage, geology, environmental, supportive infrastructure, easements and rights-of-way, and accessibility
- Regulatory issues such as zoning, platting, land use restrictions, driveway/traffic restrictions, emergency services requirements, landscape ordinances, special use permits, and development overlay districts
- Financing concerns such as clearing titles, access to capital, ratios of equity to debt, availability of bridge funding, investments in remediation, and relative cost of land as a ratio of total project cost
- Communication and Power access such access to fast internet and power grid

- Risk mitigation through early detection of project hazards that could indicate a need to change direction

If needed, the Solutions Team can assist with securing funding for the site acquisition whether it is through a political process such as a bond election or an early elimination of development constraints. The Solutions Team will assist in reviewing codes, design standards, and operational standards. We will participate in the discussion of the best practices with respect to facility conceptual design, space planning, building construction, and physical security, as well as mechanical, electrical, plumbing, and fire protection. We will participate in discussions about the facility operations, maintenance, and procedures. We will help bring best practices to ensure that you are doing everything possible to keep it that way.

Following appropriate codes and standards would seem to be an obvious direction when designing new or upgrading an existing TMC and data center. TMC and Data Center design and infrastructure standards can range from national codes (required), like those of the NFPA, local codes (required), like the Energy Conservation Construction Code, and performance standards like the Uptime Institute's Tier Standard (optional). Green certifications, such as LEED, Green Globes, and Energy Star are also considered optional. We will help to provide the required codes and standards for the TMC and Data Center.

Deliverables:

- Draft Land and Building Evaluation available for Rialto comment(s)
- Final Land and Building Evaluation

B.1.7 Facility & Set-up of Pilot/Showcase Location in Rialto

The Facility & Step of Pilot Testing Procedures will be conducted to demonstrate the functionality of the TMC and data center systems. This setup is based on the assumption all the server, software and communication systems are cloud based. We will verify the proper operation of the servers, TMC software and communication to selected field devices. The procedure will be based on test cases that will be defined as part of the System Functional Requirements document.

Major features/functions to be tested include:

- Security – Verify user credentials and access privileges.
- Map – Verify display of devices on Map and map manipulation including zoom, panning, layer and layer display.
- CCTV Camera – Verify Individual CCTV Cameras can be viewed (pan, tilt, and zoom functions if available).
- Multiple Message Signs – Verify multiple signs in the system can be controlled at a time.
- VDS – Verify VDS are collecting data and assigned to a speed and occupancy data. Also verify VDS can be configured and assigned to a station.
- VASS – Verify an individual VASS message can be composed, scheduled, and sent to a sign.
- TCS – Verify traffic controller statuses can be viewed and sent a timing plan.
- Events – Verify events can be created, monitored, updated, and terminated.
- Alerts – Verify a list of pertinent alerts is displayed in the alert window.
- Logging – Verify new or modified subsystems are properly logging errors and faults as well as the status to their respective field devices.

- Reporting – Verify the system is capable of generating reports of both historical and current field device statuses

All test cases of the System Testing Procedures will be documented. Discovered failures and reason for failures will be documented and necessary actions to correct the failures will be taken.

Deliverables:

- System Evaluation Document (Draft and Final)
- Coordination with City of Rialto and Project Team
- Procurement, configuration, installation, and testing of required hardware and software

B.1.8 Ideal Pricing

Task 8.1 Fact Finding – The Solutions Team will introduce the various aspects of congestion pricing including Income or Fee -Based Equity Impacts in Congestion Pricing. The primers are intended to lay out the underlying rationale for congestion pricing and some of the technical issues associated with its implementation in a manner that is accessible to non-specialists in the field. The plan will require research to assess the most effective ways to address pricing when it comes to:

- Congestion Pricing
- Non-Toll Pricing
- Technology-driven Congestion Pricing
- Technologies that Complement Congestion Pricing
- Transit and Congestion Pricing
- Economics: Pricing, Demand, and Economic Efficiency

Task 8.2 Value Pricing – The Solutions Team will first serve in evaluating how value pricing can contribute to reducing congestion, improving air quality, and enhancing transportation revenues. The team will also gather data to present pricing strategies and value pricing, along with a variety of other congestion management approaches, can improve travel conditions in the region, and provide associated economic, and public health benefits. The analysis will evaluate various value pricing strategies to determine how they can help meet regional goals. The Solutions Team will identify strategies and specific implementation actions that could be pursued over the long-term.

Task 8.3 Transportation Demand Pricing – There has been success in managing transportation demand, reducing congestion and providing additional choices to travelers through an approach known as value pricing, which led us to conduct the Express Travel Choices Study to evaluate these approaches to see if and how they might work in our region. This approach will serve in considering many pricing options that will be evaluated in detail. This will include the results of the on-site interviews performed by Team Members (CSUSB) to ascertain what pricing model would make sense and what benefits would be warranted in return for their sustained participation in a congestion fee pricing model. Options that will be considered will include:

- A network of express lanes, which connects and expands express lanes already in place or in progress and can accommodate ever-growing inter-county travel
- Corridors in areas where there is dense, mixed-use development and transit capacity

Findings from this first phase will be incorporated into the final proposed Pricing Plans, including a regional network of express lanes and the long-term transition to a mileage-based user fee system. The objective of this second phase of the Congestion Free Pricing Travel Choices Pricing Study is to

develop a concept of operations for a regional network of transportation traveling in/through Rialto and the integration with the DALSIIC/TMC project that addresses the operating, design, and policy issues of a regional system. This pricing project will provide and serve as a valuable solution on adopted strategies in addressing congestion management

Deliverables – Ideal Pricing Plan and Strategies

B.1.9 System Integration

IGC will develop the System Integration and Deployment Plan guidelines for this project. The plan shall define the activities necessary to integrate the IT systems, network and ITS (Intelligent Transportation System) components with TMC to meet all needed functional and performance requirements. The plan will also describe the sequence in which the parts of the system are integrated and deployed. This System Integration Plan is especially important to the City of Rialto as the TMC will have multiple different integrations at multiple locations.

This Systems Integration Plan will be a guideline for the city to help select a System Integrator. The final System Integration document will be provided to the City of Rialto in the implementation stage for approval by the selected System Integrator.

Specific System Integration Plan guidelines presented in this section are:

1. Approach for System Integration Tasks
2. Integration Frequency
3. Prioritization of Integration Frequencies
4. Deployment Approach
5. Training
6. Roles and Responsibilities

The System Integration Plan will detail task-based integration processes that will involve various subsystems. System integration will involve the use of a building block approach starting with elements combined into components which are then combined into subsystems and then into a final single system umbrella. At each stage, testing will occur.

The System Integration Plan shall clearly describe the following phases:

- Field Subsystem Integration
- City Department Subsystem Integration
- Communications Subsystem Integration
- End-to-End System Integration

The installation and integration of all ITS field devices must be reviewed and all ITS field components must be inspected to ensure that the devices are installed according to the city plans and specifications. The integration plan shall define the integration of each field sub-system.

Performance checks of the installed devices against the detailed component design shall be done. Tests should include functional tests of each component/sub-system, acceptance tests of each sub-

system System Engineering Management Plan and system tests of the ITS system. Consideration should be given to include a bench testing of each item prior to installation.

Our proposed open data platform for the DALSIIC will allow Rialto to collaborate with other organizations and to capture and integrate all current and future forms of structured and unstructured data to provide traffic management data from disparate sources to achieve network-wide visibility, with the following benefits:

- Improve traffic flow through timely decision support by leveraging historical and real-time traffic data to predict traffic and incidents in advance and share data across organizational boundaries to generate better outcomes through a visibly improved transport system managed by a single system.
- Leverage standards-based integration of traffic and road information capture systems from various technologies and other ITS detection devices; provide built-in capabilities for using weather, social media, and other Internet information; and support the Traffic Management Data Dictionary (TMDD) and DATEX II data format as a standards-based data exchange.
- Establish a solution that can become your core Advanced Transportation Management System (ATMS) for supporting the City and multiple agency TMCs.
- Create a flexible solution that is based on Service Oriented Architecture principles and best practices, providing the flexibility to aggregate data from multiple agencies and devices to identify and measure traffic data to provide a single system of engagement for situational awareness across transportation networks and improve incident response and the prediction of traffic performance.
- Establish a flexible technology platform that will follow current and future architectural standards for National ITS, CVRIA, and Connected Vehicles, allowing the City to easily incorporate future innovations.

The following steps describe the logical flow of data through the system:

- **Data Ingestion.** Data enters the system and becomes part of the managed data lake through adaptors that are either based upon Extract-Transform-Load (ETL) or real time messaging concepts. It is expected that most sources will be distinct from the system and that the data will be received via these adaptors into storage that may be in the cloud or on premises or a hybrid mix of the two. Data sources can be managed via APIs exposed to the application sandbox and using data lake maintenance tools. The key task of data ingestion is to receive data into a “loading zone,” where it can be handled by the appropriate ETL or messaging service for delivery into a more permanent zone within the data lake. As part of this, the data may simply be moved for loading, or it may need to be processed to be made fit for loading into a repository to be made usable for downstream applications. This step is vital as it allows the information governance infrastructure to become aware of the data to ensure that it can be managed as it moves among the repositories and is requested for use by the applications. The system will not limit the adaptors or the possible methods of loading or transformation, but will provide flexible methods for manipulating the data, including the creation and application of data quality rules based on business policies to ensure the data meets needed levels of quality to support the applications.
- **Data Storage.** Data comes to the managed hybrid cloud data lake from remote sources through the on-premise servers or directly into the data lake, where data is stored and managed. A data lake is a logical concept tying together a flexible collection of data storage technologies with data management and data governance, ensuring that the data contained within the lake is trusted, reliable, and controlled. Where each data repository is hosted is not vital, but rather that a data management architecture – the set of data governance policies that control it – is in place for the data. The data lake is not limited to any one kind of storage mechanism. A key component of data storage today is the relational database, such as IBM's DB2, and within the data lake, databases remain first-class members, with operational stores, data warehouse, and data marts

all used where appropriate. But added to this are storage elements usually referred to as “big data” storage, such as the many capabilities of Hadoop clusters, which support multiple capabilities ranging from “landing zones” for ungoverned data, a “queryable archive” space for outflow from the relational databases, and primary storage for a variety of unstructured and semi-structured data. Within the cloud infrastructure, additional data stores, such as NoSQL databases (Cloudant) and dedicated high-performance analytics-focused relational databases (dashDB) can be created directly by users for short- or long-term use focused on specific projects. An essential nature of the data lake is that the users, via the information governance infrastructure and the development environment, are able to shop for data, deploy that data into these stores, and perform exploratory analytics, without long waits and expense to provision hardware and other support. But via the information governance infrastructure, there are always tracks for what data is being used and where, thus ensuring that decisions made are grounded in solid data.

- **Data Processing.** Data can be processed in a number of ways for different purposes. One aspect discussed above is the need for a flexible and powerful suite of data ingestion capabilities that include both transformation and quality functions. Once data is in the system, it becomes a matter of need and policy for its disposition. For instance, the structure of the data will often determine key repositories, those being relational databases or Hadoop storage. But the needs of downstream applications are also key. For instance, the needs of complex analytics will generally require support by data warehouses and/or data marts to offload from operational data. The ETL infrastructure is key in enabling these to be built. But an advantage of the data lake concept over simply building a central data warehouse is the power to support newly emerging analytics. A simple example is the idea of using social media data, such as Twitter streams, to enhance the existing sets of sensors to find and address issues. Analytics tools can combine sensor data with data contained in the big data pool on a Hadoop cluster to determine potential public impact of problems. Deploying these requests can be done in a number of ways, including use of the appropriate services from the Bluemix catalog. The information governance architecture provides an overall management process and functionality to ensure that data is trusted, can be located by users for different purposes, is kept secure, and can be audited.
- **Data Export.** A key concept of the data lake is to move the analytics to the data, thus giving the flexibility described above in providing for and managing a flexible array of repositories and executing analytics algorithms on the data, via methods such as BigR in IBM BigInsights on the Hadoop cluster and executing analytics algorithms directly inside of dashDB. Data will need to be exported from the system for a number of reasons. High volumes of certain types of data, such as video streams, will never actually land in the data lake, but requests come into the system and will be attached to the appropriate sources for direct access. Landed data can be exported from the managed data lake through ETL and real time messaging concepts, depending upon the request and ultimate target. Lower volumes of data can also be managed by creating applications in application sandbox, pulling data from the data lake into the desired format, such as Comma Separated File (.csv) format, packaged business analytics reports, and other formats and pushing the results to remote systems outside of the data cloud.

The Solutions Team is expert in the deployment of Regional Data Management, in particular Integrated Regional Projects. We have or are implementing many projects worldwide using the data platform concepts worldwide and in the United States. This includes the design and deployment of notable similar systems in New Jersey and Singapore. We understand the required technologies and methodologies, how they work, and most importantly, which ones will be supported by the stakeholders. Our design will be based on our direct knowledge of real-world deployments; therefore, implementation risk will be minimized by selecting the Solutions Team.

The following section describes the detailed activities, deliverables and completion criteria of each of the key stages:

1. **Discovery workshop:** The objective of this stage is to define the scope and requirements of the DALSIIC platform. The work from the RFP will be the starting point and then detailed requirements will be defined.

Expected Activities

The following tasks will be completed:

- Method Adoption Workshop: The objective of the workshop is to understand the proposal/contract, tailor the processes to meet the proposal/contract requirements, select techniques and tools to be used on the project/contract, assess risk, and finalize the project schedule and deliverables.
 - Business requirements definition: This will involve validation of the business requirements for the identified reports and dashboards.
 - Report requirements definitions: This activity will involve validation, categorization and prioritization of reporting requirements.
 - Review and refine the solution architecture from the Supplier scoping engagement based on the business requirements captured and outcomes from the source data analysis.
 - Review and approve the technical infrastructure plan required to support the solution architecture; develop a high-level conceptual data models, identifying the key entities and their relationships.
2. **System Integration Plan:** The objective of this stage is to define the top-level, logical design of the Platform Solution, including the data integration, data repositories, data access and presentation components. It also includes top-level, logical design of the Data Solution by creating a detailed view of the resulting solution from a data, architecture, and technology perspective.

Expected Activities

The following tasks will be completed:

- Define and prepare the data standardization approach
- Design the logical data model to support the transformation of source data into a normalized model and then into subject oriented dimensional models to support reporting and analytical applications.
- Define the logical data integration design by documenting the functional workings of the data integration layer, by creating the source to target mappings at a logical level, along with the business rules for data transformations.
- Define the interface specifications by documenting interface dependency agreements for each in-scope source system.
- Define the ETL architecture and standards to be used. The ETL architecture will detail how and through which stages the data must pass through to be loaded into the platform (e.g. extraction, validation, join, surrogate key generation, error handling etc.)
- Define the ETL logging and reconciliation approach

IGC, our system integration team member, has applied this process on many previous ITS projects, including the ICM80, Smart corridors, and HOV projects. IGC will incorporate existing requirements and design documentation as part of the review. It is understood that this project is reviewing the existing infrastructure and developing new potential concepts to evolve the DALSIIC platform. All

new concepts will be evaluated by adherence, modifications, or additions to the system requirements, maintaining traceability to existing and new requirements for system, and ultimately, if any of the concepts are further developed, provides a basis for system verification and acceptance testing.

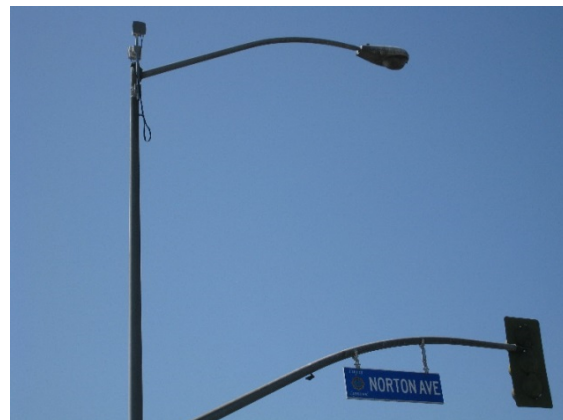
Adherence to a Systems Engineering Process provides a systematic unified method to manage the processes of defining requirements and specifications, developing systems, and integrating these diverse elements into a single system that meets the City's project requirements and performs as needed. In effect, implementing this process serves as the basis for the project Quality Assurance and Control procedures as will be discussed in later sections. The IGC Team has established and used these processes and procedures on similar highly complex projects and finds them invaluable.

Deliverables:

- System Integration Plan
- Implementation Plan
- Procurement Plan

TSCS Tasks

IGC Team staff will approach the evaluation of the current TSCS system based on the tasks as outlined in this section. As discussed previously, the IGC team utilizes the concepts associated with the systems engineering process in the approach to ITS studies for which this project's tasks align very well. In effect, this study and evaluation fits into the "Pre-V" activities associated with the needs assessment and concept selection phases of the systems engineering process. It is understood the Traffic Signal System Master Communication Plan/System Engineering Management Plan is to



be a road map for evolution of TSCS and is not intended to be the full systems engineering concept of operations for this project. Staff on the team have been involved with the design, development, implementation and on-going operations of the TSCS systems since its inception and will bring that understanding to each task of this evaluation. We also bring experience with newer transportation initiatives and technologies such as complementary technologies related to TSCS and Signal Timing to best serve Rialto's need to potentially evolve the systems to enhance the operations and improve the reliability of the TSCS architecture.

B.2.1 Existing Traffic System

IGC will be responsible for providing expert traffic signal control system assistance in migration of legacy traffic signal and communication systems to a newer, more robust, and more reliable platform. We bring extensive experience in design and integration of these existing systems and know the most frequent upgrade paths.

IGC proposes to begin this assessment with a workshop with Rialto staff to review current concerns and gather feedback on observed architectural issues, recent operations, maintenance issues,

associated costs, and obtain information on current goals and objectives for the TSCS program. For example, it is known that the existing wireless security protocol utilizes a sub-optimal security model which was the industry standard at the time of the original deployment. This type of issue would be highlighted as an item for consideration for additional study or possible evaluation in any type of review. The project team will review legacy documentation for the TSCS system to derive the functional requirements and create a basis for prioritization of new concepts to be applied to the system.

The City operates a legacy QuicNet system developed by BiTran Systems, who were acquired by McCain Traffic Systems and are now owned by the SWARCO Group. The City also operates Econolite Aries, a legacy system minimally supported at this time by Econolite. When these systems were deployed, they were based upon serial communication over twisted pairs or other low speed equipment, including spread spectrum. Some of the systems have been upgraded to higher speed communication and Ethernet, but it is probable that legacy equipment continues to exist and operate the way it was designed in the 1980's. It is also possible that many intersection signal controllers could be from this era and that much of the communication system is non-functional or very unreliable.

Deliverables: TSCS Evaluation



B.2.2 Master Communication/System Engineering Plan

Most popular newer field traffic control equipment now operates over Ethernet, normally by providing a field hardened switch in each intersection controller cabinet. Many other field elements common in the signal controller cabinet can be connected to the same switch. Compatibility between field switches and legacy systems is important because many legacy systems will not function under all manufacturer brands and products. It is normally necessary to make sure that the controller is compatible with field elements.

We will conduct a full assessment of the age, condition, topology, and useful life of the existing equipment to determine how to optimize the upgrade path. It is likely that the communication system can be upgraded in a phased and orderly manner while maintaining communication to existing field elements, but this is not always the case. The upgrade plan may determine that migration to a newer intersection traffic control platform is needed. The RFP suggests that traffic responsive or adaptive control would be desired in the future. This would necessitate replacement of intersection controllers and central control software.

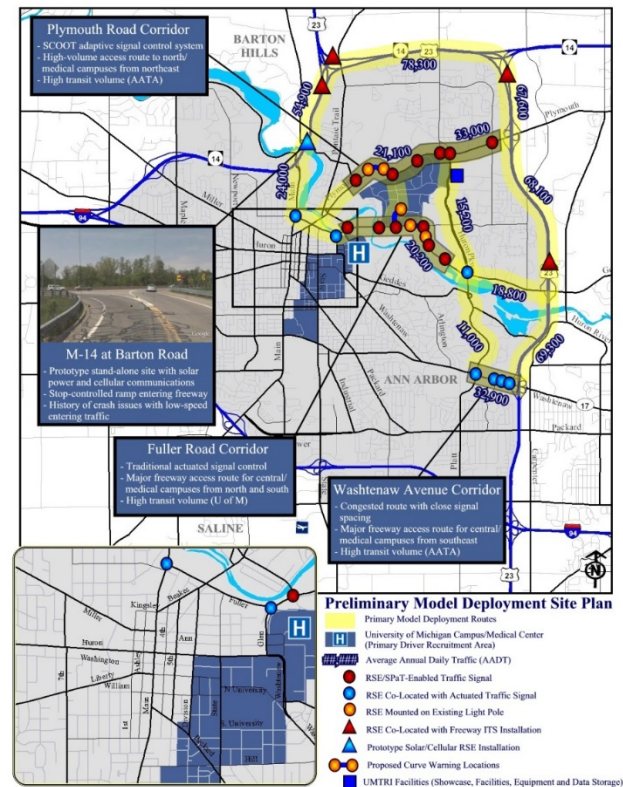
Deployment of CCTV for surveillance and video-based traffic detection can challenge the capacity of the field communication system, if a large number of video images are to be transmitted simultaneously. There can be 5 or more video images generated at each of the 100 signalized intersections, four detecting and processing traffic on each approach and one surveillance camera with PTZ control.

Justification for Change of the existing TSCS Architecture based upon Rialto's identified current needs from the reports developed as part of TSCS Task 1.

Deliverables:

- Description of a "TSCS Concept" based upon the recommended concept developed in this task.
- A description of the System Operational Scenario or how the new concepts will operate in practice and as they deviate from the current TSCS implementation
- Impact Summary to existing TSCS implementations.

Figure 10: Example Site Plan



B.2.3 Strategic Deployment Plan

It is understood that the intent of the Master Plan and SEMP is to deliver a roadmap to guide Rialto as it evaluates the expansion and potential evolution upgrade of the TSCS system and not a fully developed system engineering concept of operations.

The IGC team will conduct a study of the selective areas of the city with respect to the modernization deployment of Traffic Signal Control systems. We will create a deployment plan and report based upon internet review as well as targeted agency telephone interviews, coordinated with City of Rialto, to determine how various intersections and areas of the city can successfully deploy TSCS and paint a comprehensive picture of the current state of TSP, including an evaluation of other transit agency deployments and third-party vendor solutions.



Taking the analysis completed above, IGC will develop alternate TSCS concepts and deployment plans based upon the current state of the industry, anticipated technology shifts tied to emerging concepts such as 5G, dedicated short range communications, and current status of the existing TSCS infrastructure and architecture.

For each developed concept the IGC investigation will include a discussion of:

- Interoperability considerations of new communication standards
- Required changes to the existing system platform
- Integration with existing transit systems
- Interfaces requirements for the traffic control environment, including traffic signal control firmware
- A critical path diagram to show the dependencies of each project
- Sequence of deployment and tasks that can be performed simultaneously
- Research and development of funding strategies for each phase of work
- Impact of these changes on O&M costs
- Integration opportunities with other ITS efforts in the region

Deliverables:

- Master Communication Plan
- Engineering Management Plan with Functional Requirements
- Document Framework (Draft and Final)

Project Management

Our overall approach to managing this project will utilize our Worldwide Project Management Methodology (WWPMM), our corporate standard, founded upon methods, techniques, and best practices shown below in Figure 11. WWPMM is directly aligned with the Project Management Institute Body of Knowledge (PMBOK) method and tailored to the specific needs of the City of Rialto. We have delivered thousands of successful projects for a broad spectrum of complex government, state and local clients using this methodology. Our approach establishes and executes specific

procedures and processes to address the organizational structure of our delivery team, quality control, staffing, and delivery.

Effective management of the City of Rialto project requires a strategic partner who can work collaboratively with the City and in a multi-vendor environment. Our priority is to successfully deliver the requested services. We have established a clear governance structure, defined roles, and responsibilities, and identified objectives with performance targets. This lays the foundation for a strong, open relationship with the City of Rialto founded on mutual trust and respect.

Our WWPPM methodology addresses the five core essentials for successful management: Plan, Execute, Measure, Communicate and Report Progress, and Continuous Improvement. A summary of the methodology and how it will be applied is described in Figure 11.

Figure 11: The IBM Project Management Approach

Description
Planning starts now. Our plans will address our overall project organization, schedule, processes, and procedures, reporting mechanisms and the implementation of our proposed project support and technical approaches.
Executing on the project in a timely manner hinges upon the ability to staff the team with qualified personnel. We have expertise in data analytics and the ability to attract, train and retain staff with the best capabilities. IBM will provide the most skilled personnel who are selected and organized into a results-driven project team.
Measuring and accurately reporting performance against the project is essential for achieving quality results. The implementation of a well-defined quality management process with quantitative performance measures focuses the team on those high value activities that are most likely to influence the successful achievement of the overall program.
Communicating & Reporting Progress encompasses planning and setting project direction, decision-making, solving problems, status reporting, and interaction for coordinating and accomplishing tasks. Our Project Manager will work with the City of Rialto to develop a plan for frequent and open communications at all levels with an emphasis on shared decision-making. Our approach to status reporting and communications leverages our experiences on numerous projects which have proven to be highly efficient and effective.
Continuously Improving the overall City of Rialto project is an integral part of our management approach. IBM will regularly assess ongoing performance to identify and implement opportunities to improve operations. IBM will proactively work with the City of Rialto and Project Managers to evaluate and prioritize potential processes to improve systems, reduce cost, or improve the manageability of the project. IBM will focus on efforts to improve the delivery to City of Rialto customers.

The benefit of our approach is increased standardization and efficiencies, which equates to lower cost and higher quality of services. Standardized processes drive consistency across all projects and allows for easy reporting up at the program level. The IBM Project Manager will provide project status to the City of Rialto, as well as to the project stakeholders and IBM Program Executive. The

IBM Project Manager will have responsibility for reporting, escalations, issues, risks, financial, and invoicing.

The tasks of the IBM Project Management team are further outlined in the project schedule. IBM will hold weekly status update meetings with Rialto to provide updates on schedule, deliverables, and costs. Additionally, the IBM Project Management team will ensure the proper monthly invoicing to the client for hours worked. Other meetings needed to present, demonstrate, or deliver results of the outlined tasks will be scheduled on an ad hoc basis. The location, goals, and other deliverables to be completed by the Project Management team will be further outlined in a Statement of Work (SOW) after proposal award. This SOW will be completed with Rialto concurrence and input.

Project Management Tasks/Deliverables:

- Project-Consultant Meetings and Project Management Status Meetings
- IBM, Luvicent, Industry Experts Coordination Meetings with SCAG, ESRI, CSUSB, UCR, AVCEDC, and SBCCD
- Start-Up Kick Off Meeting
- Consultant and City Staff Status Meetings
- DALSIIC Solution Team Meetings and Delivery Excellence Reviews
- Facility Design/Development Meetings with City
- Invoicing & Hours Reporting
- Ensure Project Schedule and Milestones
- Project Audit

Section C: Staff Qualifications

Qualifications of the personnel assigned to manage and provide services related to the Project, including relevant experiences developing a data analytics framework and transportation management strategies of similar characteristics; identify the specific staff assigned to manage the various phases and elements of work associated with the Project.

Note: This evaluation criterion requires that the proposal identify specific experience with the DALSIIC/TMCs. Relevant experience must be demonstrated.

This section outlines the suggested staff to meet the tasks and expectations of this proposal and the City of Rialto.

Project Management: The project manager for this effort is Patrick Legendre, MBA from IBM. Patrick Legendre is a Managing Consultant with over 10 plus years in learning, providing, and managing projects as a student and as a team lead. As Team Lead, Patrick has managed multiple teams ranging from a team size of 3 to 28 consultants. Mr. Legendre's project experience is with varying governmental organizations to include the Federal Emergency Management Agency (FEMA) and USAID. For the past three years, Mr. Legendre has supported the U.S. Air Force in their efforts to create more resilient and innovative bases. The "small cities" that the Air Force manages have implemented a range of Internet of Things (IoT) projects that he has personally overseen. Further, Mr. Legendre continues to support the U.S. Air Force however, an exciting opportunity to direct and utilize his expertise with the City of Rialto and its DALSIIC/TMC will afford Patrick's background and skills from George Washington University in business, data and management be made available to the City of Rialto, upon proposal award.

Mr. Legendre brings skillsets in project management and delivery excellence to this project and will direct the IBM Solutions Team and its significant subject matter experts (outlined in the resumes in this section) to deliver the needed expertise to Rialto.

In addition, Mr. Reza Hosseini is an Executive Director with extensive experience and significant achievement in a dynamic, high technology environment. He has over 32 years of experience in Information Technology Data Management with an emphasis in Transportation and Intelligent Transportation Systems (ITS) over the last nine years. Mr. Hosseini currently holds the position of Principal Technology Director at Irvine Global Consulting, Inc. (IGC) where he is also the company President. Mr. Hossieni helped IGC become a leader in providing state of the art technology for the Traffic and Transportation Agencies.

Mr. Hosseini's functional experience includes consulting, project management, IT management and operations, and engineering. His experience covers a broad range of information technology, such as content and data management, data analytics, enterprise software, and big data. Mr. Hosseini has a demonstrated ability to operate both in large organizations as well as small.

Mr. Hosseini managed all the technical aspects of the I-80 ICM Project from agencies and third-party vendor sides. He developed a road map to utilize the latest software and hardware technology in implementing SMART Corridors. He was a team leader in the development of C2C with Video

Please see both Mr. Legendre and Mr. Hosseini's resume below for more information

Patrick Legendre**Project Manager****Summary**

Mr. Patrick Legendre is a Managing Consultant in the Public Sector, Watson Internet of Things and Supply Chain Management division at IBM. Mr. Legendre's previous client engagements include: business process re-engineering with USAID, standing up a new PMO office, large scale software procurement and requirements gathering with FEMA, and Real Property training development and Internet of Things enablement with the Air Force Civil Engineers. Mr. Legendre joined IBM after graduating with a Master of Business Administration from George Washington University. Before and during his time at George Washington, Mr. Legendre received extensive experience in strategy consulting and data analytics. His strategy consulting experience is in the heavy machinery, healthcare, and oil and gas industries. Mr. Legendre's data analytics experience comes from his educational certifications and experience with supply chain consulting in the automotive industry. Mr. Legendre uses these experiences and his professional communication skills to identify and provide valuable recommendations to clients.

SPECIALIZED SKILLS AND QUALIFICATIONS

- Watson Internet of Things Platforms
- Cognitive Practitioner Badge
- IBM Business Analytics Certificate
- TRIRIGA
- IBM Design Thinking – Practitioner Badge
- Supply Chain Optimization
- IBM Blueworks Live
- Strategy & Operations
- Technology Management

Professional Experience**IBM, United States of America**

Managing Consultant | 07/2015 – Present

- Public Sector, Watson Internet of Things (IoT) and Supply Chain Management (SCM)
- Training Courses include Cognitive Computing, TRIRIGA, IBM Design Thinking, SPSS, and SkySpark Building Analytics

Boutique Strategy Consulting Firm

Strategy Consultant | 06/2014 – 12/2014

- Designed model for Fortune 500 heavy machinery company that used historical competitor pricing data on engine oil to predict future prices; used for business segment with \$250M in annual revenue.
- Developed marketing portfolio for Global 100 healthcare company; report generated \$60,000 in added revenue.
- Created human resources and technology development plan for Fortune 500 oil and gas company based on data from experts and secondary market research.

Teach for America, United States of America

Business & Math Teacher | 05/2011 – 06/2013

- Tracked and analyzed student data, developed student assessments, created daily objective-driven lesson plans for 140 students in grades 9 and 12; all classes met goal of 80% mastery of standards.
- 100% of students passed their Microsoft Office certification exams; best rate in district.
- Delivered Saturday classes with math team; 90% of attendees passed 9th grade Algebra High School Assessment, increasing school-wide pass rate to best in school history.
- Wrote grant proposal resulting in \$10,000 funding to provide laptops to the math department.

IBM Global Services**Air Force Civil Engineer Center (AFCEC)**

USAF Watson IoT Proof of Concept - Phase II | Present

- Project Description: Led development and deployment of occupancy sensors at Maxwell Air Force Base that measure the space utilization within eight buildings at the base, covering 500k+ of square footage.
- Assisted in the design thinking sessions that led to final solution design of an "IoT Command Center" that allows client to dynamically view data in an insightful and visually appealing way.
- Served as deputy project manager for project of 23 IBM consultants. Responsibilities included: managing Other Direct Costs and travel budget of \$160k, managing professional development/performance for team of consulting by degrees employees, and ensured team met project milestones.

Air Force Civil Engineer Directorate (A4C) | 08/2017 – 07/2018

- Project Description: Effectively managed the A4C Asset Management division. Entailed managing the delivery and performance of 11 team members and ensuring they have what is needed to be successful for our client and team.
- Ensured the Air Force, Real Property division, was prepared for 2018 Financial Statement Audit; particularly as it pertained to client's ability to meet Financial Improvement and Audit Readiness (FIAR) goals. Duties included writing financial audit policy, responding to auditor questions, and analyzing financial reports from individual Air Force bases.
- Managed the execution of support agreements/Memorandums of Understanding with various DoD components including the Marines, Army, Defense Threat Reduction Agency, Department of Defense Education Activity, and others.

Air Force Civil Engineers (A4C)

NexGen IT TRIRIGA Training | 10/2016 – 08/2017

- Project Description: Led effort in creating engaging video tutorials on how to use TRIRIGA for the Air Force Civil Engineers.
- Maintained and authored sections of 400+ page NexGen IT Real Property Reference Guide, which trains AFCEC users on TRIRIGA processes for asset management, acquisitions, ingrats/outgrants, asset disposal, and FIAR compliance.
- Coordinated with AFCEC Real Property SMEs to ensure asset management, acquisition, and audit readiness processes were accurately conveyed in TRIRIGA and Reference Guides.
- Mapped and analyzed process changes from ACES-RP migration into NexGen IT system.
- Trained team members in Real Property processes, Camtasia software, and video production efforts.

FEMA

EADIS WO28 - National Flood Insurance Program | 10/2015 – 10/2016

- Project Description: Developed Acquisition Lifecycle Framework documentation (including the creation of an Analysis of Alternatives) for a large-scale software procurement with acquisition budget of \$500 Million.
- Supported the requirements gathering and management process by leading and organizing a Requirements Change Control Board (RCCB); over 1,500 requirements managed and added to Rational ClearQuest Database.
- Led Capital Planning and Investment Control Activities for two technology investment programs; this work includes developing Exhibit 300 submissions and updating Capital Investment Plans and budgeting artifacts.
- Supported program management activities, like weekly EADIS status updates, hours forecasting/budgeting, and the Program Change Request (PCR) process.

USAID

Global Health Supply Chain | 07/2015 – 08/2015

- Project Description: Mapped the end-to-end supply chain processes involved in the delivery of life saving pharmaceuticals to over 50+ countries. Project will distribute more than \$7 Billion in health commodities.
- Coordinated with SMEs and vendors to map various processes throughout the supply chain process, identified areas for improvement, and presented process maps/identified improvements to senior VPs.
- Utilized the Supply Chain Operations Reference (SCOR) framework for process mapping and identifying business needs.
- Proficient in IBM Blueworks Live and Visio software, which this project used for process mapping and collaboration.

Education

M.B.A., Technology Management and Analytics, The George Washington University, 2015

M.S., Educational Leadership, Johns Hopkins University, 2013

B.A., Music Business, DePauw University, 2011

Vincent McCoy

Luvicent Manager

Summary

Luvicent Advisors affords Principal V. McCoy to advance his passions and 18 years of experience in building capacity among local governments and businesses. A frequent attendee of the prestigious Esri Conferences, Mr. McCoy has adopted high level management skill for Improving data collection, analysis processes, usage of diverse applications, data driven tools that support sustainable communities and local planning and development activities. Mr. McCoy's expertise and service as a Professor at CSUSB in Project Management will facilitate the goals and mission of the DALSIIC/TMC.

SPECIALIZED SKILLS AND QUALIFICATIONS

- Center as Executive Director; Chair of NRDC-LG

Management History – Luvicent currently serves in managing multiple federally funded and state funded projects. Management services encompass local governments, non-profits, for-profits and University staff/professors.

Sustainability Expertise – Luvicent has supported the City of Rialto in seeking expansion, development and sustainability from federal and state agencies. The project grant applications sought to seek funding for the City of Rialto's – DALSIIC, Water Reclamation and Transportation planning.

Principal's Experience – Serving as the acting Chair of the NRDC -LG advisory group of Industry Experts, Mr. McCoy serves in convening area experts in working in partnership with large corporations and local government. In addition, the Principal has served as Executive Director for Small Business Development Center with responsibility of building networks and partnerships among area small businesses and needed resources and capital. The last four years, by way of a grant from the California Governor's Office of Business and Economic Development, Mr. McCoy has focused on generating capital for business enterprises through relationships with financial institutions, Certified Development Corporations, non-profit lenders, and community-based organizations. SBDC has eleven Inland Empire cities and both Riverside and San Bernardino Counties under service contracts.

Professional Experience

DALSIIC, City of Rialto, Rialto, CA

Strategist/Concept Developer

- Conducted research and wrote a grant narrative and budget for \$5.4M request to conduct research and develop a plan for tracking logistic traffic along the 210 corridor with a goal of developing methods for revenue generation from the trucking companies. Project combined efforts of Agua Mansa cities of Colton, San Bernardino, Rialto, Riverside, and Bloomington.

BDP Water Reclamation, City of Rialto, Rialto, CA

Grant Writer/Project Liaison

- Conducted research on effluence and met with technology developer (BDP), city staff and researchers to draft a narrative in accordance with RFP and City's requirements for other related projects. Worked with BDP to draft the narrative and submitted the proposal on line.

Caltrans Adaptation Planning Grant, City of Rialto

Grant Writer/Community Outreach

- Reviewed RFP, developed narrative, solicited stakeholder letters of support, and created timeline and budgets for five years. Conducted stakeholder community outreach via in person and online platforms. Submitted application online November 2018.

Education

M.B.A., Finance, Northeastern University

Reza Hosseini

IGC Manager

Summary

Mr. Reza Hosseini is an Executive Director with extensive experience and significant achievement in a dynamic, high technology environment. He has over 32 years of experience in Information Technology Data Management with an emphasis in Transportation and Intelligent Transportation Systems (ITS) over the last nine years. Mr. Hosseini currently holds the position of Principal Technology Director at Irvine Global Consulting, Inc. (IGC) where he is also the company President. Mr. Hosseini helped IGC become a leader in providing state of the art technology for the Traffic and Transportation Agencies.

Mr. Hosseini's functional experience includes consulting, project management, IT management and operations, and engineering. His experience covers a broad range of information technology, such as content and data management, data analytics, enterprise software, and big data. Mr. Hosseini has a demonstrated ability to operate both in large organizations as well as small.

Mr. Hosseini managed all the technical aspects of the I-80 ICM Project from agencies and third-party vendor sides. He developed a road map to utilize the latest software and hardware technology in implementing SMART Corridors. He was a team leader in the development of C2C with Video Integration and a distribution platform. He managed the team to develop Integrated Device Monitoring software for Roadway devices. This product is currently being deployed by MTC to Monitor all Roadway devices on Freeway I-880 in the Bay Area. He is the Technical Project Manager for the I-680 Express Lane dashboard that monitors the revenue, occupancy, and speed of each lane.

SPECIALIZED SKILLS AND QUALIFICATIONS

- Software and System development experience
- Certified Document Imaging Architect (CDIA+), CompTIA
- IBM Content Manager OD and FileNet P8 Certified
- IBM InfoSphere Certified
- Innovative Software Solution Provider Award for City of Boulder, CO

Professional Experience

IGC, Inc.

ICM-880 Cameras, CMS and MVDS devices reload, monitor and maintain, Oakland, CA

Project Manager | Start: 03/2016

- Installed Server and network at Caltrans D4 to deliver technical services primarily focused on fixing the communication and reporting issues with the ICM-880 system and devices based on the priority identified. Configured MVDS devices to be properly installed and functional. Integrated the new MVDS IP addresses to SMART Corridor. Configured the new CCTV encoder and tested to verify they are properly installed and functional. Cost: \$880,000.00.

I-80 ICM Project, Oakland, CA

Project Manager | Start: 06/2014

- Developed and implemented software, hardware and communication system for I-80 ICM. Installed and created C2C between Caltrans D4 and 12 cities and agencies. Tested and brought into production. IGC implemented a fully integrated corridor mobility solution that includes traffic operations systems, adaptive ramp metering, active traffic management, and incident management along I-80 from the Bay Bridge Toll Plaza to the Carquinez Bridge.
- The focus of this project is to integrate proposed and existing system components and develop a system based on Caltrans District 4 ATMS for the I-80 ICM that operates the devices in the corridor in an integrated manner. The system includes: Freeway Management Systems; Corridor-Wide Ramp Metering; Active Traffic Management; Variable Advisory Speed; Incident Management; Arterial Management Systems; Transit Management Systems; Advanced Traveler Information Systems; and Traffic Surveillance and Monitoring Systems. Cost: \$1.7M.

Alameda County Congestion Management East Bay Smart Corridors, Oakland, CA

Technical Coordinator | Start: 03/2014

- Created a complete data management system for real time data captured from different data sources in the I-580 Tri Valley area. This solution has a graphic Web-based user interface that allows users to access information gathered from radars, cameras, other websites such as 511.org, etc., and create reports. Open source IGC has created a test environment for maintenance and error recreation procedure. The solution was implemented in six months. Created a Google Map Interface that displays real-time traffic information provided by the devices, TCS's MVDS's in the East Bay SMART Corridors system, 511.org, Caltrans D4 ATMS, HAR, CMS, and direct feed from CCTV Cameras. Reports are generated from the data stored in the database. Cost: \$295,000.00.

ACTC I-680 HOV Lane Management Dashboard, Oakland, CA

Project Manager | Start: 05/2013

- Developed system to enhance the I-680 Hot lane management system and provide software integration services for desirable customized functionalities. IGC developed high availability system for vulnerability assessment, enabling technology, prototyped GUI, enhanced reporting, a trend analysis dashboard, and a device health management dashboard. Cost: \$218,000.00.

Education

M.S., Electrical Engineering, Columbia University, NY

B.B., Electrical Engineering, University of Bridgeport, CT

James Lou, P.E.

IBM Industry Expert

Summary

Mr. James Lou is a seasoned industry expert with a focus on Intelligent Transportation Systems (ITS) and Smarter Cities. Expertise encompasses products and services in all aspects including field subsystems, core communications networks, advanced control center software applications, and next-generation cloud-based connected vehicles (IoT) systems. He has strong cross-discipline qualifications in computer information systems, telecommunications, and civil engineering; and hands-on experience in system planning, design, deployment, and integration.

Professional Experience

Alcatel-Lucent

Sr. Engineering Director | 2012 – 2014

- Functioned as Technical Director/Chief Engineer on major transportation system integration (SI) projects.

SPECIALIZED SKILLS AND QUALIFICATIONS

- Licensed Professional Engineer (Georgia 29607, Florida 63225, Louisiana 34203, Hawaii 14848)
- BICSI Registered Communications Distribution Designer (RCDD)

- Directed teams of domain engineers in major delivery projects including fiber optic cabling infrastructure, core communications networks, wireless transmission systems, CCTV surveillance systems, Public Announcement systems, Passenger Information Systems, Emergency management systems, access control/instruction detection systems, and integrated control center software applications.
- Served as an expert on ISO Technical Committee 204 (transportation standards body)

Alcatel-Lucent

Global Business Development Director | 2008 – 2012

- Responsible for global transportation/public safety business development activities; directed marketing strategies and new solution development; worked extensively with products, services, solutions, sales, and marketing organizations.
- Developed comprehensive business plans and positioned company as a turn-key system integrator for public safety/transportation industries.
- Established critical partnerships with industry leaders such as IBM, Raytheon, Siemens, Kapsch, Telvent, and TransCore.
- Led business development effort with USDOT, AASHTO, State DOTs, and automakers for the 4G/LTE connected vehicles initiative.
- Developed extensive industry relationships with state DOT's and other transportation/public safety agencies, consulting/engineering firms, software developers, system integrators, EPC's, civil contractors, and subsystem suppliers.

Gresham Smith & Partners

Senior Technical Manager | 2005 – 2008

- Technical and Project Manager on major transportation projects
- Developed and expanded consulting and engineering services to new public sector clients in Southeast U.S.
- Functioned as the firm-wide expert on ITS networking and communications
- Conducted stakeholder analysis for major ITS customers
- Supervised and trained engineers and technical staff
- Presented "Network and Communication Design of an Ethernet Based Metropolitan Area Advanced Traffic Management System" at the 15th ITS World Congress, New York, NY.

Parsons Brinckerhoff

Senior ITS Engineer | 2003 – 2005

- Project Manager and Lead Engineer for multiple ITS/public safety system integration projects
- Provided comprehensive consulting services for major customers such as Florida DOT and Florida Highway Patrol.
- Directed and trained engineering teams
- Led turn-key ITS system integration projects including communications infrastructure, operations and control centers, and software development.
- Published "Network and Communication Design of A Work Zone ITS System" on Transportation Research Record 1910.

TransCore

Senior Transportation Engineer | 1999 – 2002

- Functioned as lead Project Engineer on a variety of ITS projects
- Responsible for technical design of ITS sub systems such as CCTV, video/radar detection systems, digital display systems, and network/communication systems.
- Provided technical consulting services for major ITS customers in Georgia
- Analyzed customer requirements and applied suitable system architecture for transportation projects.
- Published "Forecasting of pavement crack performance with an adaptive filter model" on Transportation Research Record 1699.

IBM Global Services

Global Transportation Expert | 2014 – Present

- Function as cross-brand solution leader for IBM smart transportation TMC/IOC solution including on-premise and SaaS cloud offers.
- Provide strategy consulting on transportation initiatives to global government agencies.
- Work with IBM software, research, services, and sales groups to enable complex transportation management center solutions.
- Function as transportation SME on major Smarter Cities global pursuits and delivery.
- Presented "Next Generation Transportation Management Center with Connected Vehicles" at the IBM InterConnect Conference, Las Vegas, NV

Education

M.S., Computer Information Systems, Kennesaw State University, Kennesaw, GA, 2001

M.S., Civil Engineering, University of South Florida (USF), Tampa, FL, 1999

B.S., Transportation Engineering, Tongji University, Shanghai, China, 1995

SPECIALIZED SKILLS AND QUALIFICATIONS

- System kernel, device drivers, and user applications, in a wide variety of languages including assembly, C, C++, Java, PHP, & SQL
- Windows, Linux, Mac, and Solaris
- Networking, Hosting and Cloud Based system development and maintenance
- Invented a virtual CD-ROM device to store CD-ROM images on large hard drives, which increased the CD-ROM server capacity, enhanced performance, and reduced costs
- Major contributor in analyzing and developing innovative solutions
- Responsible for one of the first commercial uses of embedded Linux in a storage appliance

Daniel Cossack

TMC Solutions Team

Summary

Mr. Daniel Cossack has broad experience across many computer platforms, including Windows, Linux, Mac, and Solaris. He has participated in several projects involving the operating system kernel, device drivers, and user applications, in a wide variety of languages including assembly, C, C++, Java, PHP, & SQL. He has proven success in ITS projects, system requirements and specification, detailed design, system and sub-system validation, verification, development, and implementation. He is experienced in field element design, development, integration, and implementation including Variable/Dynamic Message Signs (DMS/VMS) and Closed-Circuits Television (CCTV). He has professional experience with the majority of the standard network protocols, including NTCIP and NEMA standard protocols.

Mr. Cossack has managed all the software architecture aspects of the ICM-80 Project from agencies and signal timings. He developed a road map to utilize the latest software and hardware technology in implementing SMART Corridors. And he developed system architecture for ITS devices on the I-680 Express lane.

Professional Experience

IGC, Inc.

ICM-880 Cameras, CMS & MVDS Device Reload, Monitor & Maintain, Oakland, CA

System Architect | Start: 03/2016

- Installed Server and network at Caltrans D4 to deliver technical services primarily focused on fixing the communication and reporting issues with the ICM-880 system and devices based on the priority identified. Configured MVDS devices to be properly installed and functional. Integrated the new MVDS IP addresses to SMART Corridor. Configured the new CCTV encoder and tested to verify they are properly installed and functional.

I-80 ICM, Oakland, CA

System Architect | Start: 06/2014

- Developed and implemented software, hardware and communication system for I-80 ICM. Installed and created C2C between Caltrans D4 and 12 cities and agencies. Tested and brought into production. IGC implemented a fully integrated corridor mobility solution that includes traffic operations systems, adaptive ramp metering, active traffic management, and incident management along I-80 from the Bay Bridge Toll Plaza to the Carquinez Bridge. The focus of this project is to integrate proposed and existing system components and develop a system based on Caltrans District 4 ATMS for the I-80 ICM that operates the devices in the corridor in an integrated manner. The system includes: Freeway Management Systems; Corridor-Wide Ramp Metering; Active Traffic Management; Variable Advisory Speed; Incident Management; Arterial Management Systems; Transit Management Systems; Advanced Traveler Information Systems; and Traffic Surveillance and Monitoring Systems.

Alameda County Congestion Management East Bay Smart Corridors, Oakland, CA

System Architect | Start: 03/2014

- Created a complete data management system for real-time data captured from different data sources in the I-580 Tri Valley area. This solution has a graphic Web-based user interface that allows users to access information gathered from radars, cameras, other websites such as 511.org, etc., and create reports. Open source IGC has created a test environment for maintenance and error recreation procedure. The project was implemented in six months. Created a Google Map Interface displaying Real-Time Traffic Information provided by the devices, TCS's MVDS's in the East Bay SMART Corridors system, 511.org, Caltrans D4 ATMS, HAR, CMS, and direct feed from CCTV Cameras. Reports are generated from the data stored in the database.

ACTC I-680 HOV Lane Management Dashboard, Oakland, CA

System Architect | Start: 05/2013

- Developed the system to enhance the I-680 Hot lane management system and provide software integration services for desirable customized functionalities. IGC developed high availability system for vulnerability assessment, enabling technology, prototyped GUI, enhanced reporting, a trend analysis dashboard, and a device health management dashboard.

Education

B.S., Computer Science Engineering, Cal Poly Pomona, CA

Mehran Hadipour**TMC Solutions Team****Summary**

Mr. Mehran Hadipour is an executive with extensive technical and business experience and significant achievement in a dynamic, high technology environment. His functional experience includes marketing, analyst relations, business development, strategy, ATMS and RTMS integration, IT operations consulting, and engineering. His broad technological experience covers data and content management software, business intelligence systems, workflow management software, ATMS and ITS software development and integration, and enterprise software.

SPECIALIZED SKILLS AND QUALIFICATIONS

- Software and system development experience
- IBM WebSphere certified
- Oracle design and QA test development
- Project Management

Mr. Hadipour has managed C2C communications from agencies and third-party vendors on the ICM-80 project. He is a leader of the engineering team for ITS testing and documentation aiming to deliver a fault-free and reliable system, consistent with the specifications, and verifying proper installation and calibration of the ITS devices. He is the author and leader for development of the ITS test plans and sub-system test procedures, along with the required test forms and identification of potential system failures and recovery steps.

Professional Experience**IGC, Inc.****ICM-880 Cameras, CMS and MVDS Devices Reload, Monitor and Maintain, Oakland, CA**

Technical Coordinator | Start: 03/2016

- Installed server and network at Caltrans D4 to deliver technical services primarily focused on fixing the communication and reporting issues with the ICM-880 system and devices based on the priority identified. Configured MVDS devices to be properly installed and functional. Integrated the new MVDS IP addresses to SMART Corridor. Configured the new CCTV encoder and tested to verify they are properly installed and functional. Cost: \$880,000.00.

I-80 ICM Project, Oakland, CA

Technical Coordinator | Start: 06/2014

- Developed and implemented software, hardware and communication system for I-80 ICM. Installed and created C2C between Caltrans D4 and 12 cities and agencies. Tested and brought into production. IGC implemented a fully integrated corridor mobility solution that includes traffic operations systems, adaptive ramp metering, active traffic management, and incident management along I-80 from the Bay Bridge Toll Plaza to the Carquinez Bridge.
- The focus of this project is to integrate proposed and existing system components and develop a system based on Caltrans District 4 ATMS for the I-80 ICM that operates the devices in the corridor in an integrated manner. The system includes: Freeway Management Systems; Corridor-Wide Ramp Metering; Active Traffic Management; Variable Advisory Speed; Incident Management; Arterial Management Systems; Transit Management Systems; Advanced Traveler Information Systems; and Traffic Surveillance and Monitoring Systems. Cost: \$1.7M.

Alameda County Congestion Management East Bay Smart Corridors, Oakland, CA

Deputy Project Manager | Start: 03/2014

- Created a complete data management system for real-time data captured from different data sources in the I-580 Tri Valley area. This solution has a graphic Web-based user interface that allows users to access information gathered from radars, cameras, other websites such as 511.org, etc., and create reports. Open source IGC has created a test environment for maintenance and error recreation procedure. The system was implemented in six months. Create a Google Map Interface displaying Real-Time Traffic Information provided by the devices, TCS's MVDS's in the East Bay SMART Corridors system, 511.org, Caltrans D4 ATMS, HAR, CMS, and direct feed from CCTV Cameras. Reports are generated from the data stored in the database. Cost: \$295,000.00.

ACTC I-680 HOV Lane Management Dashboard, Oakland, CA

Technical Coordinator | Start: 05/2013

- Developed the system to enhance the I-680 Hot lane management system and provide software integration services for desirable customized functionalities. IGC developed the high availability system for vulnerability assessment, enabling technology, prototyped GUI, enhanced reporting, a trend analysis dashboard, and a device health management dashboard. Cost: \$218,000.00.

I-580TRI-Valley Connection to SmartCorridors.com, Pleasanton, CA

Project Manager | Start: 04/2013

- Using AT&T network for video and radars, Mr. Hadipour created a complete data management system for real-time data captured from different data sources in the I-580 Tri Valley area. This solution has a graphic Web-based user interface that allows users to access information gathered from radars, cameras, other websites such as 511.org, etc., and create reports. Open source IGC has created a test environment for maintenance and error recreation procedure. The project took six months to implement. Cost: \$150,000.00.

Education

M.B.A, Project Management, University of Bridgeport, CT

M.S., Computer Engineering, Syracuse University, NY

M.S., Electrical Engineering

Rock Miller

TMC Solutions Team

Summary

Mr. Rock Miller is a registered Civil Engineer and Traffic Engineer in the State of California with more than 40 years of transportation planning, design, and operations experience. Mr. Miller has been a consultant at the senior or principal level with emphasis in traffic engineering, traffic safety, and design for active transportation. He also has public agency experience serving as City Traffic Engineer. He recently completed eight years working as a Senior Principal and Subject Matter Expert for a national firm on projects throughout the U.S. and Canada.

Mr. Miller is a national expert in the traffic design and safety for arterial traffic corridor, walking, urban bicycling, and complete streets infrastructure. He also has extensive experience in preparing traffic impact studies for a wide variety of transportation projects, including interchanges, highway improvements, and private developments. He has performed project work for over 100 agencies in the Southern California region and is widely known for his service as International President of the 15,000-member Institute of Transportation Engineers (ITE) in 2012.

Mr. Miller is a voting member of the National Committee on Uniform Traffic Control Devices (NCUTCD) that drafts and approves policies on behalf of the Federal Highway Administration (FHWA) for use of traffic control devices throughout the U.S., including traffic signal design and timing guidance. Mr. Miller has prepared initial drafts and edited many pending proposals that are

expected to be included in the next version of the U.S. Manual on Uniform Traffic Control Devices (MUTCD).

Mr. Miller brings a combination of unique qualifications and experience in optimizing traffic signal operation through arterial traffic corridors and downtown grids. He is also an expert at assessing and improving pedestrian and bicycle safety along urban bikeways. He has also served as project traffic engineer for a wide variety of projects that involved other aspects of transportation engineering. He has prepared timing plans for over 1,200 intersections for over 20 agencies and has experience in over 8 controller programs, with approximately 25% of all intersections featuring Econolite controllers and central masters. He has extensive experience in traffic responsive features, including phase timing parameters such as Max III, actuated coordination to allow early arterial gap out, and calculation routines that select different timing programs based upon current flows and pre-developed timing plans. Mr. Miller used many of these features while he was the City Traffic Engineer in Costa Mesa. He has worked with signal systems in California, Hawaii, Utah, Georgia, and in Calgary and Edmonton, Alberta.

Professional Experience

IGC, Inc.

Orange County Traffic Signal Synchronization Master Plan

Project Manager/Principal in Charge | 2008

- Led the consultant team for preparation of a study in 2008 that formed the basis for the ongoing OCTA Measure M Traffic Signal Optimization program. The study considered issues such as geographic approach to optimization, multi-agency issues, project eligibility criteria, crossing arterial coordination issues, and strategies for maintaining optimized flow. He developed the CSPI corridor flow evaluation system that continues to be used by OCTA and has been integrated into TruTraffic software as a component of this project. OCTA Project Manager: Ron Keith.

Orange County Traffic Signal TSSP Signal Synchronization Projects

Principal in Charge | 2011 – 2018

- Principal in charge and task director for three TSSP projects that were administered by OCTA through local agencies in Orange County from 2011-2018. The corridors were: MacArthur/Talbert, for the Cities of Santa Ana and Fountain Valley, plus Caltrans; Rancho Santa Margarita Parkway, for Rancho Santa Margarita, Mission Viejo, and Lake Forest; and Bake Parkway, for Lake Forest, Caltrans, and Irvine.
- All projects posed challenges regarding preservation or improvement of crossing arterial flow that were successfully addressed. For the MacArthur project, crossing arterials were adjusted to improve their operation for up to one mile in each direction. The Rancho Santa Margarita project required maintenance of half-cycle operation at local subdivision intersections in Mission Viejo to address resident concerns over cycle delays. The Bake Parkway project experienced schedule and budget issues when new controller foundations triggered unplanned and unfunded ADA issues at street corners. The projects included Econolite control software at many intersections.

SPECIALIZED SKILLS AND QUALIFICATIONS

- Professional Engineer #29493 (Civil), State of California
- Professional Engineer #1139 (Traffic), State of California
- Professional Engineer #11271-PE (Civil), State of Hawaii
- Certified Professional Traffic Operations Engineer #205, Institute of Transportation Engineers
- Voting Member, National Committee on Uniform Traffic Control Devices
- International President, 2012, Institute of Transportation Engineers (ITE)
- Member, Transportation Research Board Bicycle Research Committee
- Member, Association of Pedestrian and Bicycle Professionals
- Member, American Society of Civil Engineers
- Past Section and District President, Institute of Transportation Engineers
- Fellow, Institute of Transportation Engineers
- Awards include: 2018 ITE Western District Lifetime Achievement Award; 2009 APWA Southern California B.E.S.T. Project of the Year, Orange County Traffic Signal Master Plan; 2002 Western ITE Editors Award - In Pavement Flashing Crosswalks – State of the Art

Euclid Street Traffic Signal Synchronization Project

Project Manager | 2005

- Led a project to synchronize traffic signals along Euclid Street from Westminster Boulevard to Chapman Avenue in 2005. The project was implemented approximately one year prior to OCTA's initial effort to coordinate traffic signals along the full length of Euclid Street. The OCTA project ultimately made only minor adjustments to the Garden Grove portion of its project while developing optimization strategies through cities to the north and south. The signals used Econolite controllers, and Mr. Miller was personally responsible for timing parameter implementation. The study identified improvements near SR 22 that were subsequently implemented at the E/B ramp intersection.

Honolulu Traffic Signal Optimization Projects

Project Manager

- Led two projects to optimize traffic signals in Honolulu and throughout the island of Oahu. Traffic conditions were extremely challenging, due to high flows, limited alternate routes, overflowing freeways, challenging (wet) weather conditions, and antiquated equipment. Project implementation led to near term improvements in travel time, throughput, and orderly flow through congested areas. Traffic volumes subsequently increased by as much as 30% due to improved flow conditions, but increased flows resulted in growing delays after 6 – 12 months. Virtually every important route through the City was included in the project phases.

City of Santee Traffic Signal System

Project Manager

- Project manager for installation of an Econolite system and interconnect in Santee, mostly along Mission Gorge Road, the main shopping arterial in the city. The City Traffic Engineer, George Allan, was a loyal Econolite customer from his previous work in the City of Denver. He retained Mr. Miller's firm due to strong Econolite experience coupled with the firm's San Diego office. George subsequently moved to Garden Grove to become the City's Traffic Engineer, where he retained Mr. Miller for continuing signal design and timing work, including the Euclid Street project and work along Harbor Boulevard during the expansion of the Disney Resort for the California Adventure.

Freeway Bottleneck and Analysis Studies, Orange County, CA

Project Manager | Start: 2000

- Supervised and directed studies to analyze freeway congestion patterns on SR 55 and on I-5 for the Orange County Transportation Authority. The analysis uses a software tool developed by UC Berkeley that simulates queueing that can occur for many miles prior to a bottleneck segment. It can show the benefits of properly applied countermeasures. It also can show the limited benefits from investments that do not increase capacity in the bottleneck but allow additional flow into the queue. Rock is currently working with his prior firm to complete an update to the I-5 corridor that includes analysis of weekend traffic conditions.

Herondo Street/Harbor Drive Gateway Park and Cycle Track, Redondo Beach, CA

Project Manager | Start: 2015

- Managed this project to develop a unique, separated bicycle-friendly facility near the coastline between Redondo Beach Pier and Hermosa Beach. The project was opened in June 2015 and now serves over one million bicyclists per year. The project features special traffic signals that provide separate signal indications using overlaps and special phasing for bicyclists. It uses Econolite controllers and software. The project has won more than six technical awards and mentions on Best Bikeway lists. It serves as a model for other facilities.

Education

M.S., Civil Engineering, University of California, Davis, CA, 1976

B.S., Civil Engineering, University of California, Davis, CA, 1973

Sam A. Hout

TMC Solutions Team

Summary

Mr. Sam Hout has more than 30 years of demonstrated success in engineering and construction of civil engineering and infrastructure projects. His diversified experience in both the public and private sectors has positioned him to be an industry leader in the U.S. and around the globe. He melds strong technical acumen and interpersonal skills with excellent communication abilities to effectively relate to all management levels. He retains a high level of enthusiasm on his assignments and projects. Mr. Hout delivers quality projects on time and within budget.

Mr. Hout's strong sense of mentorship drove him to be a part-time instructor for the graduate civil engineering and construction management program at California State University, Long Beach for nearly a decade. He successfully completed several Leadership Perspectives Programs throughout California.

Mr. Hout is Principal in Charge of IGC, Inc. responsible for business and project development of the firm's national and global consulting practice. He was Senior Vice President of CH2MHILL Southern California Transportation. He was the Transportation Practice Leader for Southern California – Stantec. He was Vice President of PBS&J for five years, where he was responsible for business and project development of the firm in the five Pacific States of California, Washington, Oregon, Alaska, and Hawaii. He was Principal/Owner of the Culver Group for four years, where he was responsible for business and project development of the firm in California. He was the Project Director with URS for one year, where he was responsible for the \$800M infrastructure and parking improvements for the Disney California Adventure project. He was the Program Director with the Orange County Transportation Authority for more than 12 years, where he was responsible for the \$3.1B Measure M transportation program in Orange County, CA. And he was the Project Director with Bechtel Power Corporation for more than six years, where he was responsible for the design and construction of complex facility projects, nuclear power plants, and major industrial projects.

Professional Experience**IGC, Inc.****Transportation Planning Measure M Program, Orange County Transportation Authority, Orange County, CA***Program Manager/Director of Design and Construction*

- Responsible for the \$3.1B Measure M improvement projects including freeway, rail, and transit facilities. Managed the design, right-of-way engineering and acquisition, and construction. The projects included funding, master planning, designing, and constructing; light rail (centerline project) and heavy rail (Metrolink); bus transit facilities (maintenance and operations facilities, transit centers, park-and-ride facilities); freeway and highway improvements (all Orange County transportation system); and street and roads improvements. The program was completed on time, within budget, and with no claims.

SPECIALIZED SKILLS AND QUALIFICATIONS

- Professional Engineer Contractor #38256, State of California
- Class A General Engineering Contractor #88683, State of California
- Certifications include: Transit Management; University of California, Irvine, California, 1998; and Bay Area Urban Transit Institute, San Francisco, California – 1987
- Fellow Member and Technical Group Past President, American Society of Civil Engineers

SPECIALIZED SKILLS AND QUALIFICATIONS

- Member, Consulting Engineers and Land Surveyors of California
- Member, Design-Build Institute of America
- Member, Building Industry Association
- Member, Tau Beta Pi Engineering Honor Society
- Member, Chi Epsilon National Civil Engineering Honor Society
- Publications include: Project/Construction Management Manual for Capital Improvement Projects, 1999

Linking Desert Communities, Coachella Valley, CA

Coachella Valley Associated Governments, *Project Executive*

- The CV Link will connect Coachella Valley cities and tribal lands with a safe, continuous, multimodal pathway for pedestrians, bicyclists, and low-speed electric vehicles. CV Link's design will change the landscape of the Coachella Valley with features and forms unprecedented in pathway design. The CV Link Master Plan calls for 52 path miles, 690 permanent jobs, 12 million annual vehicle miles saved, and \$1.47B in economic benefits for the area. The results will include relieved congestion on Highway 111, improved air quality, increased tourist amenities and mobility, community recreation and fitness, and a stimulated economy.

Roadways State Route 91/55/57 PSR, Irvine, CA, Orange County Transportation Authority

- Supervised a comprehensive study on the corridor between SR-55 and SR-57 to determine preliminary design, operational characteristics, and overall feasibility for adding road capacity. Continued improvements for the SR-55 and SR-91 freeway interchange complex are being explored, as well as an evaluation of overall road capacity needs between the two major interchanges.

I-405 Striping, Irvine, CA, Orange County Transportation Authority

Principal in Charge

- Principal in Charge for the design of a continuous access feature along the I-405 freeway. This design will allow commuters to enter and exit at will in the existing HOV lane between the SR-73 toll road and I-5 interchanges. HOV connectors are also being elongated from 50:1 to 115:1 to further help with traffic build up. This approach will increase mobility, reduce traffic, and improve public safety.

Interstate 5 and Valencia Boulevard Interchange, Valencia, CA, Valencia Company/Caltrans District 7

Project Director

- Responsible for the construction of the \$20M Interchange of Valencia Boulevard with I-5. The project replaced the existing two-lane bridge with a new seven-lane bridge, as well as reconstructed all northbound and southbound on and off ramps. Provided leadership to the construction management team that was able to complete construction and close-out the project without claims in just 16 months.

State Route 91 Widening Projects, Orange County, CA, Orange County Transportation Authority

- Responsible for design and construction of 14 miles of freeway reconstruction on SR-91, which included addition of HOV lanes between State Route 55 and the Los Angeles County line; the reconfiguration of the interchange of SR-91 and State Route 57; and the reconstruction and widening of all bridges in that stretch of highway.

Interstate 5/Interstate 405 Interchange, Orange County, CA, Orange County Transportation Authority

Design Director/Project Director.

- Developed this \$113M interchange by providing project and construction management services to make sure the project was completed on time and within budget. The project included the reconfiguration of the freeway to freeway connectors, addition of collector/distributor roads to eliminate weaving problems, and a new interchange at Bake Parkway. Sam received ACSE's Project of the Year Award.

Interstate 5 Reconstruction, Orange County, CA, Orange County Transportation Authority

- Responsible for the design and construction of numerous segments of the 47-mile stretch of I-5 from Pacific Coast Highway in San Juan Capistrano to the Los Angeles/Orange County line. The \$1.9B project was one of the largest and most complex public works projects ever undertaken in Orange County.

Anteater Drive and California Avenue Design-Build, Irvine, CA, University of California*Project Director*

- Led the design and construction team. The project included: a new roadway system along Anteater Drive; the extension of California Avenue; signalized intersections at Culver Drive/Bonita Canyon and Shady Canyon; and signing and striping, curb and gutter, storm drain facilities, bicycle path, landscaping and irrigation, street lighting, and utilities. Design and construction services included the preparation of plans, specifications, and estimates (PS&E). This \$12M project was completed within budget, ahead of schedule, and with no claims.

North Irvine Transportation Mitigation Program, Irvine, CA, City of Irvine*Principal in Charge*

- Principal-in-charge for the independent review of the proposed mitigation measures and cost estimates for 18 projects throughout the City of Irvine as part of the North Irvine Transportation Mitigation program. Projects were located on Jamboree Road, Bake Parkway, Culver Drive, Alton Parkway, Irvine Center Drive, Sand Canyon, Alicia Parkway, and various offramps along Interstate 5 and Interstate 405. These projects were completed under the on-call contract with the City of Irvine on time and within budget. The program constructed more than \$50M of transportation improvements.

Education

M.S., Civil Engineering, California State University, Long Beach, CA, 1983

B.S., Civil Engineering, University of Texas, Arlington, TX, 1980

Thuy Pham**University Partner****Summary**

Ms. Thuy Pham is currently a lecturer and professor at the University of California, Riverside, specializing in Mathematics. She is a Data Analytics, Logistics, Surveillance, Innovation and Incubator Center (DALSIIC) project strategist with the City of Rialto Staff and is a Council Member of the National Resource Development Council for Local Government (NRDC-LG). Ms. Pham also performs research and development services for the NRDC-LG. Research and Development skills and activities, promoted by the NRDC-LG, include:

- Providing leaders with input and real-time solutions
- Two-way engagement platform
- Assessing IT Resources Accessibly and Use of Open Data
- Data Supported Solutions (DSS) savvy
- Aspirations List Facilitate Data driven survey in the ranking of DSS

**SPECIALIZED SKILLS
AND QUALIFICATIONS**

- DALSIIC project strategist with City of Rialto Staff and Council Member of NRDC-LG
- Special interests include: Awayzo film, budgeting, and line producer.

Professional Experience**University of California, Riverside, CA**

Professor | 2016 – Present

- Instructs students in mathematics at the University of California, Riverside.

San Bernardino Valley College, CA

Professor | 2010 – Present

- Instructs students in mathematics at the San Bernardino Valley College.

Education

Ph.D., Mathematics, University of California, Irvine, CA, 2016

Kimberly D. Kirner, Ph.D**University Partner****Summary**

Ms. Kimberly Kirner an Associate Professor at California State University, Northridge, specializing in applied anthropology, with an emphasis on health/wellbeing and environment. She has over ten years of experience in using qualitative and mixed methods to assist clients in program design, program evaluation, needs assessment, and cultural competency.

Professional Experience**California State University, Northridge**

Professor | 2011 – present

- Design and teach advanced courses in qualitative methods, cultural diversity in the United States, environmental justice and health, and applied anthropology
- Service with the Sustainability Institute
- Maintain active research programs

Executive Service Corps of Southern California

Development and Communications Manager | 2010 – 2011

- Procurement and management of approximately \$2M in small grants annually
- Production of grant reports and annual report
- Management of online presence, including multiple newsletters and website

Esri (Environmental Systems Research Institute)

Grant Specialist | 2006 – 2008

- Program design for federal and state funding
- Grant proposal writing
- Management of dozens of clients' fund development needs annually

Industry Experience**City of Rialto, CalVIP Grant Evaluation**

- School-based program paired with summer camps to reduce future gang involvement among elementary and middle school students
- Evaluation used customized age-appropriate surveys, including qualitative questions

Vermont Village Community Development Corporation, SAMHSA CSAT Grant Evaluation

- Community-based program providing substance abuse treatment and mental health services for teens with comorbid disorders
- Evaluation used SAMHSA required instruments combined with intensive TA to solve enrollment and service issues in a neighborhood with historical culturally-based conflicts

Youth Action Project, Americorps Grant Evaluation Design

- Two-part program that trains young workers in workforce skills while employing them to mentor and tutor at-risk students
- Evaluation includes objectives for both populations served and integrates the instruments in a holistic evaluation framework that spans multiple, different grant-funded projects

SPECIALIZED SKILLS AND QUALIFICATIONS

- Program Evaluation
- Backward Design (goal-driven, measurable, data supported program and curriculum design)
- Organizational Analysis
- Mixed Methods (Qualitative + Quantitative)
- Ethnographic and Qualitative Methods
- Cultural and Decision Modeling
- Mental health programs
- Social services programs
- Cultural competency
- For health programs
- Ethnomedicine

City of Perris, CalVIP Grant Evaluation

- Comprehensive school and community-based program in two cities and three school districts to reduce violent behavior among at-risk youth
- Evaluation uses evidence-based instruments to assess outcomes of multiple components individually and collectively

Time for Change Foundation, SAMHSA CSAT Grant Evaluation

- Integrative program for formerly incarcerated women providing substance abuse treatment, mental health services, housing assistance, and workforce training
- Evaluation uses SAMHSA required instruments combined with specialized satisfaction surveys to conform to federal requirements

Education

Ph.D., Cultural Anthropology, University of California, Riverside, CA, 2007

Renee C. Bizer (Luvent Industry Expert)

Arroyo Valley Community Economic Development

Summary

Ms. Renee Bizer is a senior executive known throughout Los Angeles, San Bernardino County and surrounding areas for her innovative approach to meeting the needs of individuals, families and Corporate America. Her expertise in Community Development and compliance provides high quality results and cost-efficient representation to non-profit and for-profit corporations, and cities. She has more than 15 years of experience in banking and community economic development.

Ms. Bizer's expertise encompasses all aspects of banking, supplier diversity, and community economic development. She advises both non-profit and for-profit community on a wide range of issues including: business infrastructure, program and business compliance, affordable housing, place based initiatives, program design, underwriting, strategic plans, CRA management, and tax accounting.

Ms. Bizer is known for her success with place-based initiatives and her passion to assist the faith-based community. She is the co-author of political strategies and faith initiatives adopted by a major lending institution. Renee has assisted with strategic planning, income diversification, community planning and operational compliance measures. Ms. Bizer's career highlights include:

- Regional Manager, Wells Fargo Community Development
- VP Manager - National Affordable Housing
- District Manager - Retail Banking Services
- Corporate Compliance Officer

Ms. Bizer successfully executed a place-based initiative in the City of Compton, creating over 3,700 jobs and two new banking locations. She secured \$2M in unsecured funding for the Lula Washington Dance and Enrichment Center. And she oversaw the bank's participation and commitment to lend, invest and provide quality client service in underserved communities.

Ms. Bizer serves on the Board of the Lula Washington Theater and Friends the Foundation of the California African American Museum.

SPECIALIZED SKILLS AND QUALIFICATIONS

- New Market Tax Credits
- Project Sustainability and Financing
- Licenses/Certifications:
 - Homeownership Counselor, Neighbor Works
 - Loss Mitigation Counselor, Neighbor Works
 - UCLA Anderson School of Business, Executive/Business Management

Professional Experience

Luvicent, Arroyo Valley Community Economic Development Center

Senior Underwriter | 02/2015 – present

- Manages operation and production and incoming pipeline
- Reviews, examines and underwrites loans to ensure sound business decisions
- Condition for loan documentation to ensure safe and sound business decisions
- Analyze financials to ensure historical trend utilizing tax returns along with financial statements
- Ensure corporate compliance to meet investor guidelines

Arroyo Community Development Corporation

Project Manager | 01/2013 – 02/2015

- Established strategic plan for operation and corporate structure
- Ensured year over year profitability
- Managed department structure and performance matrices
- Managed process improvements through innovation
- Created and implemented corporate policies and procedures
- Prepared and managed corporate budget

Complaint/Compliance Analyst II - Contract Underwriter | 07/2011 – 01/2013

- Identified borrowers and/or major servicer errors, such as non-compliance and policy violations and/or deficiencies, resulting in financial injury as a result of the servicer's foreclosure process
- Interacted with financial institutions, investors, and loan services to identify potential lender/client error
- Prepared written reports detailing findings, to include suggested settlements on behalf of the borrower(s). Performed manual/traditional underwriting with critical decisions regarding mortgage loans. Reports were inclusive of all findings (ECOA, REG B, Rescission dates, etc.).

Wells Fargo, Los Angeles, CA

Vice President/Regional Manager Community Development | 02/2001 – 01/2011

- Conducted ongoing assessments of the bank's performance under the community reinvestment act (CRA).
- Ensured year over profitability through strategic planning and corporate budgets. Designed and implemented innovative products and services for bottom line results.
- Implement program development and training for both internal and external partners. Increased corporate image and visibility through strategic partnerships.
- Performed budget and market Impact studies
- Proven results in community development throughout Los Angeles, Ventura, Santa Barbara, San Bernardino and Riverside Counties

Education

M.S., Community Economic Development, Southern New Hampshire University

B.S., University of La Verne

SPECIALIZED SKILLS AND QUALIFICATIONS

- DE Underwriter/ CHUMS Certified
- Financial Services
- Accounting/ Budgeting
- Senior Management
- CRA Management
- Real Estate Management and Underwriting
- Non-profit Management Compliance
- Project Controls
- Procurement
- Local Regulatory Agencies
- Foundation Management
- DBE Programs
- Pre-Construction Services
- Community Economic Development
- Process Improvements
- Contracts & Grants
- Program Development
- Public Relations

Section D: Firm Qualifications

The sections below outline past clients seeking data driven solutions and experiences that qualify the Solutions Team to deliver on the requirements of this proposal:

City of Lancaster Project

Partnering with City of Lancaster, IBM developed a Client Innovation Platform that uncovers insights to drive decision making. The Lancaster Innovation Platform drives operational insight and efficiency in 4 primary areas: Traffic, Public Safety, City Services and Social Media and provides the City of Lancaster the foundational step towards becoming a Smarter City. Within a 12-week timeframe, IBM ingested and integrated data from 9 different data sources, applied advanced analytics methods to discover insights, and deployed a highly interactive dashboard that visualizes all findings. Some key features include:

Traffic Analytics: Utilizing interactive map dashboarding, IBM not only discovered which specific road segments citizens were speeding on across different MPH thresholds, but also classified the severity of speeding on those road segments. Additionally, IBM overlaid traffic accidents on these road segments uncovering hot spots within Lancaster where speeding and fatalities were taking place.

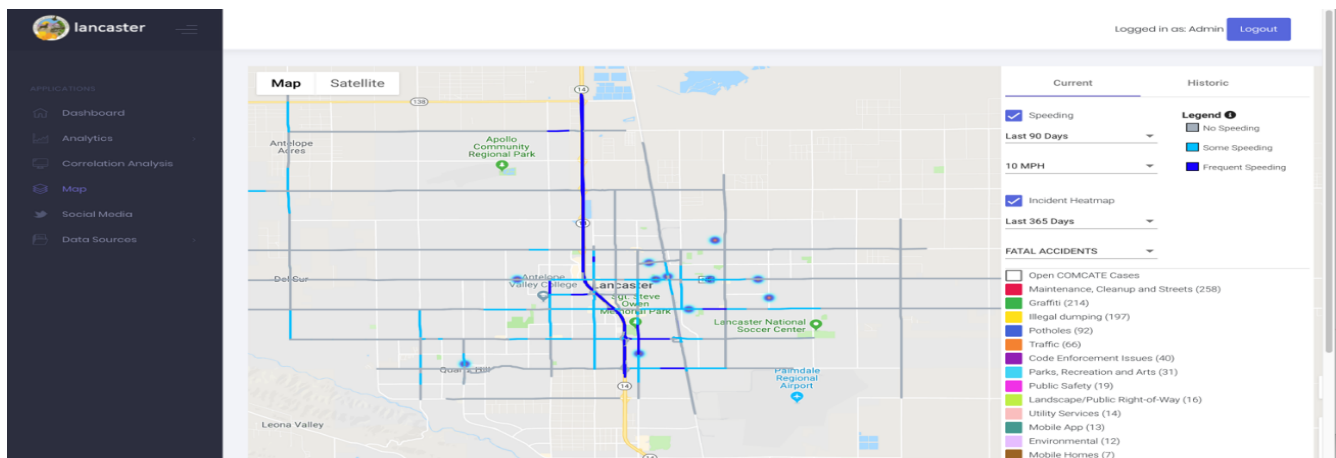
Citizens Engagement Analytics: IBM cultivated a better understanding of code enforcement trends amongst citizens in Lancaster. With interactive heatmapping and geospatial capabilities, Lancaster could now better understand where, how, and when code enforcement violations were taking place. With real time integrations to this Innovation Platform, Lancaster is now able to realize the true policy change effects driven by data science and test different hypothesis for code enforcement violation mitigation.

Crime Analytics: The Lancaster Innovation Platform identified key trends and behaviors across all 38 classifications of crime in the City of Lancaster. Furthermore, the Lancaster Innovation Platform provides insights from a cost operations perspective allowing Lancaster to optimize its cost efficiency for the future.

Social Media Analytics: IBM's Client Innovation Platform leverages different analytic methods such as topic modeling to sentiment analysis across a diverse set of social media platforms (Twitter, Facebook, Instagram, YouTube, Google Plus, etc.). The Innovation Platform removes bots and trolls to provide Lancaster a holistic understanding of its citizens and presence online.

Through all these analytical methods, the City of Lancaster was empowered with previously un-seen operational insight that can drive policy change to make a difference in its citizens' lives for many years to come. Figure 7 below is an example screen from the solution delivered to the City of Lancaster.

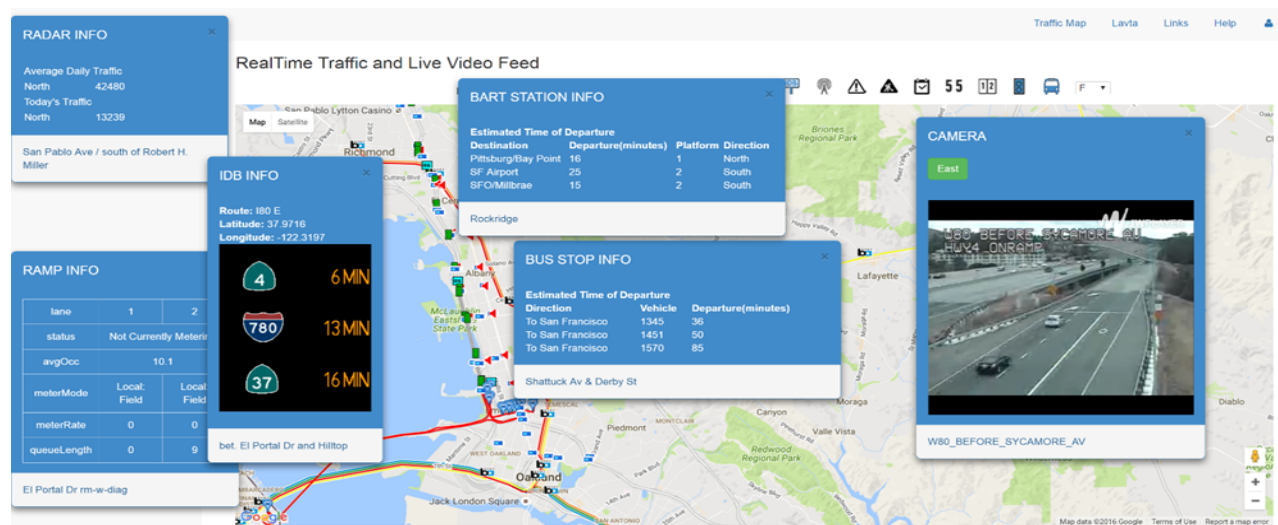
Figure 12: City of Lancaster Development Screenshot



I-80 Integrated Corridor Management (ICM)

The Metropolitan Transportation Commission (MTC) has ranked I-80 as the most congested corridor for the last six consecutive years. The level of congestion and incidents, compounded by unstable traffic speeds and unreliable travel times, contribute to a high incident rate. In order to create a balanced, stable, and reliable traffic flow throughout the corridor, the Alameda County Transportation Commission (ACTC) in collaboration with West Contra Costa Transportation Authority Committee (WCCTAC), Contra Costa Transportation Authority (CCTA), Caltrans, Metropolitan Transportation Commission (MTC), and nine (9) local cities and transit agencies in Alameda and Contra Costa Counties, has developed and is implementing an Integrated Corridor Mobility (ICM) solution along the I-80 corridor.

Figure 13: ICM Screenshot



Traffic Control System (TCS) Subsystem

The Traffic Control System (TCS) allows authorized users to communicate with traffic signal controller in the field to monitor, update, and set parameters for the controller. This includes updating and revising the signal timing plans and settings to a Flush Plan for all traffic signals along a designated alternate route.

IGC procured and install McCain QuicNet Pro version 2.0 server and client software at following locations:

- City of Emeryville (QuicNet Pro Server and Workstation);
- City of Berkeley, Corp yard (QuicNet Pro Server and Workstation);
- City of El Cerrito (QuicNet Pro Server and Workstation);
- City of Richmond, City Hall (QuicNet Pro Server and Workstation);
- City of San Pablo, City Hall (QuicNet Pro Server and Workstation);
- CCC Corp Yard (QuicNet Pro Server and Workstation);

IGC procured and install McCain QuicNet Pro client software (workstation) at following locations:

- City of Berkeley, Transportation office (QuicNet Pro Workstation) – QuicNet Pro workstation will communicate with QuicNet Pro server in City's Corp Yard
- City of Richmond, Corp yard (QuicNet Pro Workstation) – QuicNet Pro workstation will communicate with QuicNet Pro server in the City Hall
- City of Pinole (QuicNet Pro Workstation) – QuicNet Pro workstation will communicate with QuicNet Pro server in CCC's Corp Yard;

- City of Hercules (QuicNet Pro Workstation) – QuicNet Pro workstation will communicate with QuicNet Pro server in CCC's Corp Yard;
- CCC Public Works (QuicNet Pro Workstation) – (See note 1);

Note 1: Currently SIC is terminated at CCC public works. This SIC needs to be re-routed to the Corp Yard for proper communication between the QuicNet Pro server and the field controllers.

Currently, most of cities have McCain Type 170E or McCain Type 2070 controllers, except City of Oakland, that has Naztec Model-2070L controllers.

Each Model 2070L controller has a Model 2070-1E CPU Module with Ethernet port. Master Model 2070L controllers have SINE for communication with slave controllers through SIC. SINE installed as part of project#6 on state intersections consists of Actelis ML 688 or Actelis ML 684. Second Ethernet port of Actelis devices is used for communication with leased line modem or field Ethernet switches when required. Some of Model 170E controllers are configured to communicate with slave controllers over FSK.

New Model 2070L controllers are procured and installed in the field by the Project #6 Contractor. The Contractor also procured and installed necessary firmware of BiTrans firmware compatible with McCain QuicNet Pro on the existing and proposed Model-170E controllers. IGC will verify that the controllers are compatible with each agency's central TCS by coordinating with the Project # 6 contractor through the Systems Manager. For the Cities of Berkeley and Richmond, the TSC controllers are the McCain 2070 controllers with custom 2033 firmware compatible with TSP reporting features. For the other cities, excluding the City of Oakland, the TSC controllers are McCain 170E controllers with 233RV AFAIK firmware compatible with TSP reporting. The City of Oakland has Naztec 2070 controllers.

The McCain QuicNet Pro version 2.0 is compatible with existing firmware in each Model 170E and Model 2070L controller. The IGC configured each QuicNet Pro server and workstation to have full control over the controllers in each city's jurisdiction that has controllers with Bi-trans firmware. IGC also prepared a jurisdictional map in proper format for McCain QuicNet Pro and configure devices to be displayed on the map of each city. McCain QuicNet pro is compatible with ArcGIS, JPEG, and Bitmap files.

IGC procured, configured, and installed necessary server, workstation, switches, firewalls, and other hardware necessary for installing McCain QuicNet Pro.

The McCain QuicNet Pro software is capable of uploading and downloading an intersection's timing parameters to controllers. Each server is configured to have full access to the local traffic signal controllers. Servers will be configured to communicate with other QuicNet Pro servers and Oakland's TCS (Naztec D4 ATMS.now) and Caltrans D4 RTMC Kimley-Horn Integrated Transportation System (KITS) System through C2C communication infrastructure.

Other Projects References

BiTran McCain:

- Visalia: initial system installation
- Lemon Grove: Initial System Installation
- Pomona: Rebuild system
- National City: Convert to Fiberoptic
- Santa Maria: Initial system with fiber communication
- Huntington Beach: Comm System Master Plan

Econolite:

- Santee: Initial system installation
- Irvine: Upgrade Comm System

- Mission Viejo: Upgrade controllers and comm system
- Anaheim: AB3418 protocol demonstration

Regional Programs:

- Orange County Traffic Signal Synchronization Program Master Plan

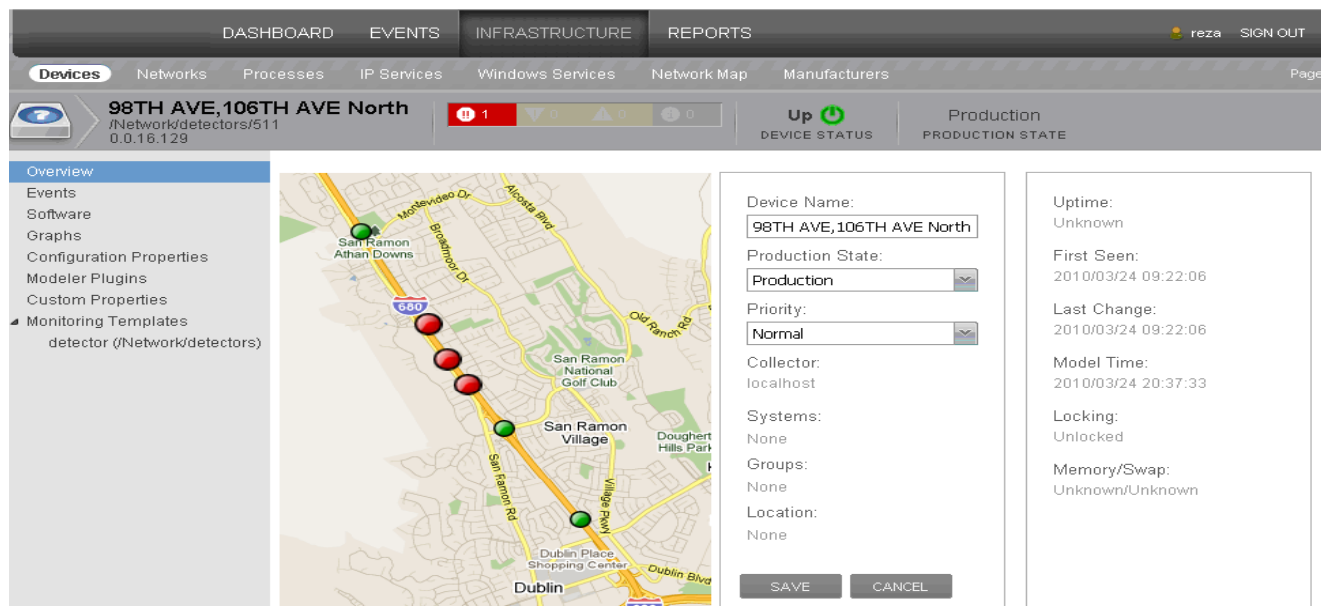
MTC I-880 Device Maintenance and Operation in Oakland

Develop and implement an Integrated Device Management (IDM) System for monitoring the status of the roadway devices within I-880 in the East Bay area and provide a dashboard overview of the devices within MTC and Caltrans District 4. The solution displays the baseline functionality of the system for selected devices within the I-880 region. Integrated Device Management (IDM) Solution facilitates active monitoring and report of devices and network with minimum effort and enables fast repairs and problem resolution of any infrastructure, system, and software or devices. It provides integrated reporting and tracking from the time the problem is reported until its resolution. Our easy to use dashboard reports the overall impact of the failed entity on the system.

IDM solution monitors the health of devices which require with highest availability. As soon as a device or system malfunctions it will send alerts using email or smart phones to the assigned personnel. It collects data and generates reports to be analyzed by management and administrators to ensure all system elements are functioning in optimum mode. The following functions are provided:

1. Independent data collection from devices and systems
2. Integrated ticket tracking workflow with alerts and automatic ticket creation
3. Reporting of device or system repair actions with workflow
4. Assess impact of component failures and set repair priority
5. System Health Reports
6. Use DSRC technology to communicate with devices

Figure 14: MTC Screenshot



Expertise with TMC Upgrades

Our team has designed some of the most advanced TMCs and TMC Upgrades in the industry, which includes a number of award winning TMCs in California. This includes the knowledge to design state-of-the-art video wall/video systems. This experience includes:

- Designed the Caltrans District 12 upgraded TMC including the new video wall and video wall control system.
- Designed the LARTMC systems upgrades including the largest Christie Video wall system in California for the award winning Caltrans District 7/CHP Los Angeles Regional Transportation Management Center (LARTMC).
- Designed TMC upgrades for the New Hampshire Statewide TMC, this includes installation of the largest Barco video wall installation in North America
- Designed a new TMC for Missouri DOT in Kansas City. This includes a new Video wall System.



Los Angeles RTMC

Section E: Project Schedule

This section of the proposal outlines how each of the tasks and sub-tasks identified in Section B: Scope of Work will be carried out in a timely manner. In order to meet the needs of Rialto to aggressively innovate and update to a new DALSIIC/TMC, the Solutions Team has compressed the timeline of tasks to a 24 week/6-month timeframe. IBM, Luvicent, and IGC have separately implemented projects of similar nature under similar timeframes. Specifically, the engagements outlined in Section D: Firm Qualifications all were delivered in 3-month, 6-month, and 12-month periods of performance.

The subsequent pages of this section use a Gant chart format to demonstrate the tasks, sub-tasks, and delivery timeframes for this proposal. Specific dates are not mentioned due to unknown award/start date but instead outline schedule by number of weeks.

The tasks outlined in the table below are Project Management activities that will occur throughout the lifecycle of the project:

Figure 15: Project Management Tasks

Project Management	
1	Project-Consultant Meetings and Project Management Status Meetings
2	IBM, Luvicent, Industry Experts Coordination Meetings with SCAG, ESRI, CSUSB, UCR, AVCEDC, and SBCCD
3	Start-Up Kick Off Meeting
4	Consultant and City Staff Status Meetings
5	DALSIIC Solution Team Meetings and Delivery Excellence Reviews
6	Facility Design/Development Meetings w City
7	Invoicing & Hours Reporting
8	PM Duties - Ensure Project Schedule and Milestones
9	Project Audit

DALSIIC Tasks 1-5, Weeks 1-8 (Weeks 9-24 on subsequent pages)

		Week 1		Week 2		Week 3		Week 4		Week 5		Week 6		Week 7		Week 8					
Task Number	Task/Title	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F
1.0	Feasibility Study/Demonstration Business Plan																				
1.1	Research and Development																				
1.2	Draft Feasibility Study																				
1.3	Draft Demonstration Plan																				
1.4	Final Draft Feasibility Study and Demonstration Plan																				
1.5	Presentation of Demonstration																				
2.0	Maximize Route Operations for Business																				
2.1	Creating simulation model																				
2.2	Strategize possible solution																				
2.3	Preparing for Business Demonstration Plan																				
2.4	Provide the Final Draft																				
2.5	Present/Submit Final Report																				
3.0	Governance and Ownership; Time Commitment																				
3.1	Outward Facing DALSIIC/TMC																				
3.2	P3 Ownership Model																				
3.3	Partnership for Data Aggregation and Analysis, Operations and Maintenance																				
3.4	Meaningful Engagement of Tenants																				
3.5	Financing Infrastructure																				
3.6	Governance and Ownership Plan																				
4.0	Business Operations																				
4.1	Fact Finding																				
4.2	Compile and Analyze Data																				
4.3	Business Operations Coordination																				
4.4	Coordinated Evaluation and Research of New Technologies and Methods																				
4.5	Present/Submit Final Report																				
5.0	Marketing and PR Strategy and Plan																				
5.1	Project Marketing Mission Statement and Objective																				
5.2	Marketing Audit/Analysis																				
5.3	Marketing SWOT Analysis (Focus: Staying Relevant Plan)																				
5.4	Marketing Strategies, Budget, and Work Plan																				
5.5	Project Marketing, PR and Outreach Final Plans																				

DALSIIC Tasks 1-5, Weeks 9-16 (Weeks 17-24 on subsequent page)

		Week 9				Week 10				Week 11				Week 12				Week 13				Week 14				Week 15				Week 16																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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DALSIIC Tasks 1-5, Weeks 17-24

		Week 17		Week 18		Week 19		Week 20		Week 21		Week 22		Week 23		Week 24					
Task Number	Task/Title	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F
1.0	Feasibility Study/Demonstration Business Plan																				
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5.5	Project Marketing, PR and Outreach Final Plans																				

		Weeks 1-8 (For subsequent pages)																															
Task Number	Task/Title	Week 1				Week 2				Week 3				Week 4				Week 5				Week 6				Week 7				Week 8			
		M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T
6.0	Infrastructure Land & Building																																
6.1	Evaluation of existing infrastructure																																
6.2	Facility Activities Focus Meeting (Opportunity Analysis, Concept Creation/Development, Priorities Plan, Space Plan)																																
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6.4	Evaluation of required system and connectivity																																
6.5	Report Generation																																
6.6	Infrastructure Land & Building Summary Approach																																
7.0	Facility & Set-up of Pilot/Showcase Location in Rialto																																
7.1	Facility needs Assessment: Deliverable Facility Needs List																																
7.2	Collect and Study Available, Relevant Design Plans																																
7.3	Present suggested designs for facility (inclusive of aesthetics)																																
7.4	Design of Pilot/Showcase Location in Rialto (Until Building is Constructed)																																
7.5	Design Document																																
7.6	Procurement Plan																																
7.7	Test Plan, Verification Plan																																
7.8	Installation and configuration based on a Cloud Based Solution																																
7.9	Documentation and Reporting																																
7.10	Showcase design, development of planned DALSIIC																																
8.0	Ideal Pricing																																
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8.2	Value Pricing																																
8.3	Transportation Demand																																
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9.0	System Integration																																
9.1	Creation of Existing System As Is Document																																
9.2	Concept Development / Creation of Master Plan																																
9.3	Sytem Integration & System Engineering Plan																																
9.4	High Level Creation of Concept of Operations																																
9.5	System Integration Flow Chart and Demonstration																																

DALSIIC Tasks 6-9, Weeks 9-16 (Weeks 17-24 on subsequent page)

		Week 9			Week 10			Week 11			Week 12			Week 13			Week 14			Week 15			Week 16			
Task Number	Task/Title	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F
6.0	Infrastructure Land & Building																									
6.1	Evaluation of existing infrastructure																									
6.2	Facility Activities Focus Meeting (Opportunity Analysis, Concept Creation/Development, Priorities Plan, Space Plan)																									
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9.3	Sytem Integration & System Engineering Plan																									
9.4	High Level Creation of Concept of Operations																									
9.5	System Integration Flow Chart and Demonstration																									

DALSIIC Tasks 6-9, Weeks 17-24

		Week 17		Week 18		Week 19		Week 20		Week 21		Week 22		Week 23		Week 24					
Task Number	Task/Title	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F
6.0	Infrastructure Land & Building																				
6.1	Evaluation of existing infrastructure																				
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9.0	System Integration																				
9.1	Creation of Existing System As Is Document																				
9.2	Concept Development / Creation of Master Plan																				
9.3	Sytem Integration & System Engineering Plan																				
9.4	High Level Creation of Concept of Operations																				
9.5	System Integration Flow Chart and Demonstration																				

TSCS Tasks, Weeks 1-8

Task Number	Task/Title	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
1.0	Review the Existing traffic signal system	M T W T F	M T W T F	M T W T F	M T W T F	M T W T F	M T W T F	M T W T F	M T W T F
1.1	Establish goals and discovery workshops								
1.2	Prepare draft memorandum / Team review with client								
1.3	Finalize draft								
1.4	Technical memorandum summarizing findings and identifying deficiencies of existing system								
2.0	Prepare a Traffic Signal System Master Communication Plan/System Engineering Management Plan								
2.1	Establish as is state and discovery sessions								
2.2	Prepare draft TSCS Master Plan and System Engineering Management Plan								
2.3	Finalize draft TSCS Master Plan and System Engineering Management Plan								
2.4	A Traffic Signal Communication System (TSCS) Master Plan and the System Engineering Management Plan.								
3.0	Prepare a Strategic Deployment Plan								
3.1	Client meetings and discovery sessions to identify goals								
3.2	Prepare draft strategic deployment playment								
3.3	Team review and finalize draft deployment plan								
3.4	Final Strategic Deployment Plan								

TSCS Tasks, Weeks 9-16

Task Number	Task/Title	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16
1.0	Review the Existing traffic signal system	M T W T F	M T W T F	M T W T F	M T W T F	M T W T F	M T W T F	M T W T F	M T W T F
1.1	Establish goals and discovery workshops								
1.2	Prepare draft memorandum / Team review with client								
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2.0	Prepare a Traffic Signal System Master Communication Plan/System Engineering Management Plan								
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3.1	Client meetings and discovery sessions to identify goals								
3.2	Prepare draft strategic deployment playment								
3.3	Team review and finalize draft deployment plan								
3.4	Final Strategic Deployment Plan								

TSCS Tasks, Weeks 17-24

Task Number	Task/Title	Week 17	Week 18	Week 19	Week 20	Week 21	Week 22	Week 23	Week 24																	
1.0	Review the Existing traffic signal system	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F
1.1	Establish goals and discovery workshops																									
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2.4	A Traffic Signal Communication System (TSCS) Master Plan and the System Engineering Management Plan.																									
3.0	Prepare a Strategic Deployment Plan																									
3.1	Client meetings and discovery sessions to identify goals																									
3.2	Prepare draft strategic deployment playment																									
3.3	Team review and finalize draft deployment plan																									
3.4	Final Strategic Deployment Plan																									

Section F: Letter of Support

The Letter of Support below is from Esri, a leader in GIS technologies, pledging support to our effort and proposal team.

February 18, 2019



Mr. Robert Eisenbeisz, Director of Public Works

City of Rialto

150 S. Palm Ave.
Rialto, CA 92376

We support the mission of the Rialto Data Analytics, Logistics, Surveillance, Innovation & Incubator Center (DALSIIC) Transportation Management Center (TMC) Solutions Team. Their efforts to work with the City of Rialto in forging the DALSIIC/TMC forward in its capacity to use data aggregation and predictive analytics to address a myriad of challenges facing Rialto and municipal and private organizations in the region surrounding logistics, surveillance and innovation, are applauded.

In support of the Team's effort, led by IBM, Esri will afford its strategic team of experts to assist in creating data-sets supporting our ArcGIS Hub. Our support and resources will enable the team to:

- Improve data collection, analysis, and usage of diverse applications that make City of Rialto and other local governments more efficient
- Advance the City of Rialto and local government in adopting efficient and supportive data driven tools and applications that support sustainable communities and local planning and development activities.
- Manage traffic flow, with a focus on local truck and vehicle traffic
- Support initiative driven, cross departmental and cross-agency collaboration
- Promote data-driven decision making, government transparency.

We look forward to supporting the DALSIIC/TMC Solutions Team in this endeavor

Sincerely,



Mike Sumich

Team Lead | Business Development

Esri



SOUTHERN CALIFORNIA
ASSOCIATION OF GOVERNMENTS
900 Wilshire Blvd., Ste. 1700
Los Angeles, CA 90017
T: (213) 236-1800
www.scag.ca.gov

REGIONAL COUNCIL OFFICERS

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Human Development
Rex Richardson, Long Beach

Energy & Environment
Carmen Ramirez, Oxnard

Transportation
Curt Hagman, San Bernardino County

February 19, 2019

Robert Eisenbeisz
Director of Public Works
City of Rialto
150 S. Palm Avenue
Rialto, CA 92376

Dear Mr. Eisenbeisz:

As Director of Planning for Southern California Association of Government, I support the mission of the Rialto Data Analytics, Logistics, Surveillance, Innovation & Incubator Center's (DALSIIC) Transportation Management Center (TMC) Solutions Team. This group of industry experts, led by IBM, will work with the City of Rialto in moving the DALSIIC/TMC forward in its capacity to use data aggregation and predictive analytics to address a myriad of challenges facing Rialto, other municipalities and private organizations in the region.

To support this effort I will serve on the National Resource Development Council for Local Governments' (NRDC-LG) Council Committee which is being created and will focus on Logistics and Transportation Management for Rialto. Where feasible and appropriate I will also afford access to SCAG's available and supportive resources and help further the City of Rialto's DALSIIC's mission to:

- Improve data collection, analysis, and usage of diverse applications to make the City of Rialto and other local governments more efficient
- Guide the City of Rialto and local governments in adopting efficient data driven tools and applications that support sustainable communities and local planning and development activities
- Manage traffic flow, with a focus on local truck and vehicle traffic
- Use data and predictive analytics to advance efficiencies in logistics, surveillance and innovation
- Promote data-driven decision making and government transparency

I anticipate my almost 30 years in regional planning will be supportive in advancing its efforts and I look forward to working with the IBM DALSIIC/TMC Solutions Team.

Sincerely,

KOME AJISE
Director of Planning

Disclosure Statement

Unless otherwise provided by law, the information in this proposal shall not be duplicated, used or disclosed in whole or in part for any purpose other than to evaluate the proposal, provided that if a contract is awarded to IBM as a result of or in connection with the submission of this proposal, the City of Rialto shall have the right to duplicate, use or disclose the information to the extent provided in the contract. This restriction does not limit the right of the City of Rialto to use information contained in the proposal if it is obtained from another source without restriction.

Please note that:

- *Upon award, IBM will be happy to promptly negotiate mutually acceptable and appropriate terms and conditions with the City of Rialto.*
- *In accordance with RFP, the terms and conditions stated herein are valid for a period of 180 days from the delivery date of this response, unless extended in writing by IBM.*
- *IBM's proposed Professional Services will be provided under:*
 - *The to-be-negotiated terms and conditions of the City of Rialto's Sample Contract in Exhibit E of the RFP, as augmented by IBM's proposed terms exceptions in the Clarifications and Proposed Modifications section.*
- *The terms "partner", "partnership", "partnering" and similar terms as used herein are intended to convey a spirit in which the parties seek mutual benefit, and do not mean a legal relationship of any type, or any responsibility by one party for the other's acts, omissions or liabilities. Any legal relationship between the parties regarding the subject matter of this proposal will exist solely as a result of contractual arrangement, if any, that may be agreed upon by the parties in connection with such subject matter.*
- *The term "ensure", whether capitalized or not, shall mean to exert commercially reasonable efforts designed/intended to ensure.*
- *Should IBM be selected as a successful proposer, IBM looks forward to working closely with the City of Rialto to promptly finalize a contract that is mutually agreeable to the City Rialto and IBM, utilizing the results of the City Rialto's Contract terms negotiation.*

The IBM home page can be found at: <http://www.ibm.com>.



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Attachments A-D

Please see the subsequent pages attached to this proposal for the completed Attachments A, B, C, and D completed by all three companies assuming primary roles in this bid: IBM, Luvicent, and Irvine Global Consulting.



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All Rights Reserved.

ATTACHMENT "A"


NOTE: THIS FORM MUST BE COMPLETED AND INCLUDED INSIDE ENVELOPE #1. "WORK PROPOSAL"

**RIALTO DATA ANALYTICS, LOGISTICS, SURVEILLANCE, INNOVATION & INCUBATOR
CENTER (DALSIIC) PLAN & TRAFFIC MANAGEMENT CENTER (TMC)
PROJECT NO. 190811**

SIGNATURE AUTHORIZATION

PROPOSER: International Business Machines Corporation

- A. I hereby certify that I have the authority to submit this Proposal to the City of Rialto for the above listed individual or company. I certify that I have the authority to bind myself/this company in a contract should I be successful in my proposal.



SIGNATURE

- B. The following information relates to the legal contractor listed above, whether an individual or a company. Place check marks as appropriate:

1. If successful, the contract language should refer to me/my company as:

☐ An individual;

☐ A partnership, Partners' names: _____

☐ A company;

☒ A corporation

2. My tax identification number is: 13-0871985

ADDENDA ACKNOWLEDGMENT:

Acknowledgment of Receipt of any Addenda issued by the City for this RFP is required by including the acknowledgment with your proposal. Failure to acknowledge the Addenda issued may result in your proposal being deemed non-responsive.

In the space provided below, please acknowledge receipt of each Addenda:

Addendum(s) # 1.2.3.4 and Attachments A. B. C. D are

hereby acknowledged.

ATTACHMENT "B"

NOTE: THIS FORM MUST BE COMPLETED AND INCLUDED INSIDE ENVELOPE #1. "WORK PROPOSAL"

REQUESTS FOR PROPOSALS (RFP # 19-061) RIALTO DATA ANALYTICS, LOGISTICS, SURVEILLANCE, INNOVATION & INCUBATOR CENTER (DALSIIC) PLAN & TRAFFIC MANAGEMENT CENTER (TMC)

PROJECT NUMBER 190811

Business Concerns Information

The Proposer shall furnish the following information. Additional sheets may be attached, if necessary.

- (1) Name: INTERNATIONAL BUSINESS MACHINES CORPORATION
- (2) Address: NEW ORCHARD RD, ARMONK, NY 10504
- (3) Phone No.: 719-231-6806 Fax No.: _____
- (4) E-Mail: plegend@us.ibm.com
- (5) Type of Firm: (Check all that apply)
____ Individual ____ Partnership X Corporation
____ Minority Business Enterprise (MBE) ____ Women Business Enterprise (WBE)
____ Small Disadvantaged Business (SDB) ____ Veteran Owned Business
____ Disabled Veteran Owned Business ____ Other
- (6) Business License: X Yes ____ No License Number: IBM assumes that the business is able to verify/confirm that IBM has a license for this city and the # therefor
- (7) Tax Identification Number: 13-0871985
- (8) Number of years as a firm practicing the requested services: Greater than 10 years
- (9) Three (3) projects of this type recently completed:
Type of project: Watson Internet of Things – Smarter Bases Initiative for US Air Force
Contract Amount: \$1.5 Million Date Completed: 12/21/2018
Owner: Joseph Trunzo Phone: 202-591-6276
Type of project: City of Lancaster, CA - Traffic, Public Safety, City Services and Social Media Platforms
Contract Amount: Ongoing Date Completed: Ongoing
Owner: Keith Van Leeuwen Phone: 267-290-2933
Type of project: Driver Safety Platform for Idaho National Labs
Contract Amount: \$500,000+ Date Completed: Ongoing
Owner: Sarah Lightbody Phone: 240-623-4658
- (10) Person who reviewed the RFP for your firm:
Name: Kurt Leopold Date of Review: 2/19/2019

ATTACHMENT "C"

NOTE: THIS FORM MUST BE COMPLETED AND INCLUDED INSIDE ENVELOPE #1. "WORK PROPOSAL"

**REQUESTS FOR PROPOSALS (RFP # 19-061)
RIALTO DATA ANALYTICS, LOGISTICS, SURVEILLANCE, INNOVATION & INCUBATOR
CENTER (DALSIIC) PLAN & TRAFFIC MANAGEMENT CENTER (TMC)**

PROJECT NUMBER 190811

DEBARMENT AND SUSPENSION CERTIFICATION

TITLE 49, CODE OF FEDERAL REGULATIONS, PART 29

The Consultant, under penalty of perjury, certifies that, except as noted below, he/she or any other person associated therewith in the capacity of owner, partner, director, officer, and manager:

- Is not currently under suspension, debarment, voluntary exclusion, or determination of ineligibility by any federal agency;
- Has not been suspended, debarred, voluntarily excluded or determined ineligible by any federal agency within the past 3 years;
- Does not have a proposed debarment pending; and
- Has not been indicted, convicted, or had a civil judgment rendered against it by a court of competent jurisdiction in any matter involving fraud or official misconduct within the past 3 years.


If there are any exceptions to this certification, insert the exceptions in the following space.

Exceptions will not necessarily result in denial of award, but will be considered in determining Proposer responsibility. For any exception noted above, indicate below to whom it applies, initiating agency, and dates of action.

Notes: Providing false information may result in criminal prosecution or administrative sanctions.

Consultant Name: INTERNATIONAL BUSINESS MACHINES COROPORATION

2/19/2019
(Date)


(Signature)

Patrick Legendre, Managing Consultant
(Name & Title)

ATTACHMENT "D"



CITY OF RIALTO
DISCLOSURES REQUIRED BY PERSONS OR ENTITIES
CONTRACTING WITH THE CITY OF RIALTO

Pursuant to Rialto Municipal Code section 2.48.145, all persons or business entities supplying any goods or services to the City of Rialto shall disclose whether such person or entity is related to any officer or employee of the City by blood or marriage within the third degree which would subject such officer or employee to the prohibition of California Government Sections 87100 et. seq., Fair Political Practices Commission Regulation Section 18702, or Government Code Section 1090.

By submitting this proposal, or supplying any goods or services to the City, the undersigned hereby attests under penalty of perjury, personally or on behalf of the entity submitting this proposal or supplying any goods or services to the City, as well the entity's officers, representatives and the undersigned, that it/they have no relationship, as described above, or financial interests, as such term is defined in California Government Section 87100 et. seq., Fair Political Practices Commission Regulation Section 18702, or Government Code Section 1090, with any City of Rialto elected or appointed official or employee, except as specifically disclosed immediately below:

Vendor/Contractor/Consultant: INTERNATIONAL BUSINESS MACHINES CORPORATION

**City of Rialto Official/
Employee Name(s)**

**The nature of the relationship with the
person listed is:**

NONE

By: International Business Machines (IBM)

Name: Patrick Legendre 

Title: Managing Consultant Watson IoT - Public Sector

ATTACHMENT "A"

NOTE: THIS FORM MUST BE COMPLETED AND INCLUDED INSIDE ENVELOPE #1, "WORK PROPOSAL"

**RIALTO DATA ANALYTICS, LOGISTICS, SURVEILLANCE, INNOVATION & INCUBATOR
CENTER (DALSIIC) PLAN & TRAFFIC MANAGEMENT CENTER (TMC)
PROJECT NO. 190811**

SIGNATURE AUTHORIZATION

PROPOSER: _____ Irvine Global Consulring, Inc. _____

- A. I hereby certify that I have the authority to submit this Proposal to the City of Rialto for the above listed individual or company. I certify that I have the authority to bind myself/this company in a contract should I be successful in my proposal.



SIGNATURE

- B. The following information relates to the legal contractor listed above, whether an individual or a company. Place check marks as appropriate:

1. If successful, the contract language should refer to me/my company as:

_____ An individual;

_____ A partnership, Partners' names: _____

_____ A company;

 X A corporation

2. My tax identification number is: 26-4333053

ADDENDA ACKNOWLEDGMENT:

Acknowledgment of Receipt of any Addenda issued by the City for this RFP is required by including the acknowledgment with your proposal. Failure to acknowledge the Addenda issued may result in your proposal being deemed non-responsive.

In the space provided below, please acknowledge receipt of each Addenda:

Addendum(s) # 1,2,3 and 4 is/are hereby acknowledged.

ATTACHMENT "B"

NOTE: THIS FORM MUST BE COMPLETED AND INCLUDED INSIDE ENVELOPE #1, "WORK PROPOSAL"

**REQUESTS FOR PROPOSALS (RFP # 19-061)
IRVINE DATA ANALYTICS, LOGISTICS, SURVEILLANCE, INNOVATION & INCUBATOR
CENTER (DALSIIC) PLAN & TRAFFIC MANAGEMENT CENTER (TMC)**

PROJECT NUMBER 190811

Business Concerns Information

The Proposer shall furnish the following information. Additional sheets may be attached, if necessary.

- (1) Name: _____ Irvine GLocal Consulting, Inc. _____
- (2) Address: _____ 24 Hedgerow, Irvine, CA 92603 _____
- (3) Phone No.: _____ 949 228-8840 _____ Fax No.: _____ 949 854-7284 _____
- (4) E-Mail: _____ brhossini@irvinegc.com _____
- (5) Type of Firm: (Check all that apply)
_____ Individual _____ Partnership ☒ Corporation
_____ Minority Business Enterprise (MBE) _____ Women Business Enterprise (WBE)
_____ Small Disadvantaged Business (SDB) _____ Veteran Owned Business
_____ Disabled Veteran Owned Business _____ Other
- (6) Business License: _____ Yes ☒ No License Number: _____
- (7) Tax Identification Number: _____ 26-4333053 _____
- (8) Number of years as a firm practicing the requested services: _____ 10 _____
- (9) Three (3) projects of this type recently completed:
- Type of project: _____ ICM _____ I-800 _____
- Contract Amount: _____ \$2,200,000.00 _____ Date Completed: _____ 12/31/2018 _____
- Owner: _____ Caltrans _____ Phone: _____ 510-286-4444 _____
- Type of project: _____ CCTV for Traffic Monitoring _____
- Contract Amount: _____ \$280,000 _____ Date Completed: _____ 12/31/2018 _____
- Owner: _____ OCTA _____ Phone: _____ (949) 374-2553 _____
- Type of project: _____ ITS (VDS, TCS, CCTV) Asset Managment in Realtime _____
- Contract Amount: _____ \$350,000 _____ Date Completed: _____ 4/30/2018 _____
- Owner: _____ MTC _____ Phone: _____ (415) 778-6757 _____
- (10) Person who reviewed the RFP for your firm:
- Name: _____ Reza Hosseini _____ Date of Review: _____ 2/04/2019 _____

ATTACHMENT "C"

NOTE: THIS FORM MUST BE COMPLETED AND INCLUDED INSIDE ENVELOPE #1, "WORK PROPOSAL"

**REQUESTS FOR PROPOSALS (RFP # 19-061)
RIALTO DATA ANALYTICS, LOGISTICS, SURVEILLANCE, INNOVATION & INCUBATOR
CENTER (DALSIIC) PLAN & TRAFFIC MANAGEMENT CENTER (TMC)**

PROJECT NUMBER 190811

DEBARMENT AND SUSPENSION CERTIFICATION

TITLE 49, CODE OF FEDERAL REGULATIONS, PART 29

The Consultant, under penalty of perjury, certifies that, except as noted below, he/she or any other person associated therewith in the capacity of owner, partner, director, officer, and manager:

- Is not currently under suspension, debarment, voluntary exclusion, or determination of ineligibility by any federal agency;
- Has not been suspended, debarred, voluntarily excluded or determined ineligible by any federal agency within the past 3 years;
- Does not have a proposed debarment pending; and
- Has not been indicted, convicted, or had a civil judgment rendered against it by a court of competent jurisdiction in any matter involving fraud or official misconduct within the past 3 years.

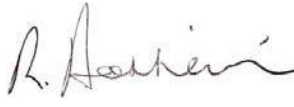
If there are any exceptions to this certification, insert the exceptions in the following space.

Exceptions will not necessarily result in denial of award, but will be considered in determining Proposer responsibility. For any exception noted above, indicate below to whom it applies, initiating agency, and dates of action.

Notes: Providing false information may result in criminal prosecution or administrative sanctions.

Consultant Name: Irvine Global Consulting, Inc.

02/16/2019
(Date)



(Signature)

Reza Hosseini, President
(Name & Title)

ATTACHMENT "D"



CITY OF RIALTO
DISCLOSURES REQUIRED BY PERSONS OR ENTITIES
CONTRACTING WITH THE CITY OF RIALTO

Pursuant to Rialto Municipal Code section 2.48.145, all persons or business entities supplying any goods or services to the City of Rialto shall disclose whether such person or entity is related to any officer or employee of the City by blood or marriage within the third degree which would subject such officer or employee to the prohibition of California Government Sections 87100 et. seq., Fair Political Practices Commission Regulation Section 18702, or Government Code Section 1090.

By submitting this proposal, or supplying any goods or services to the City, the undersigned hereby attests under penalty of perjury, personally or on behalf of the entity submitting this proposal or supplying any goods or services to the City, as well the entity's officers, representatives and the undersigned, that it/they have no relationship, as described above, or financial interests, as such term is defined in California Government Section 87100 et. seq., Fair Political Practices Commission Regulation Section 18702, or Government Code Section 1090, with any City of Rialto elected or appointed official or employee, except as specifically disclosed immediately below:

Vendor/Contractor/Consultant: Irvine Global Consulting, Inc.

**City of Rialto Official/
Employee Name(s)**

**The nature of the relationship with the
person listed is:**

None

By: 

Name: Reza Hosseini

Title: President

ATTACHMENT "A"

NOTE: THIS FORM MUST BE COMPLETED AND INCLUDED INSIDE ENVELOPE #1, "WORK PROPOSAL"

**RIALTO DATA ANALYTICS, LOGISTICS, SURVEILLANCE, INNOVATION & INCUBATOR
CENTER (DALSIIC) PLAN & TRAFFIC MANAGEMENT CENTER (TMC)
PROJECT NO. 190811**

SIGNATURE AUTHORIZATION

PROPOSER: Luvicent Advisors

- A. I hereby certify that I have the authority to submit this Proposal to the City of Rialto for the above listed individual or company. I certify that I have the authority to bind myself/this company in a contract should I be successful in my proposal.



SIGNATURE

- B. The following information relates to the legal contractor listed above, whether an individual or a company. Place check marks as appropriate:

1. If successful, the contract language should refer to me/my company as:

☐ An individual;

☐ A partnership, Partners' names: _____

☒ A company;

☐ A corporation

2. My tax identification number is: 57-1151254

ADDENDA ACKNOWLEDGMENT:

Acknowledgment of Receipt of any Addenda issued by the City for this RFP is required by including the acknowledgment with your proposal. Failure to acknowledge the Addenda issued may result in your proposal being deemed non-responsive.

In the space provided below, please acknowledge receipt of each Addenda:

Addendum(s) # 1-4 is/are hereby acknowledged.

ATTACHMENT "B"

NOTE: THIS FORM MUST BE COMPLETED AND INCLUDED INSIDE ENVELOPE #1, "WORK PROPOSAL"

REQUESTS FOR PROPOSALS (RFP # 19-061) RIALTO DATA ANALYTICS, LOGISTICS, SURVEILLANCE, INNOVATION & INCUBATOR CENTER (DALSIIC) PLAN & TRAFFIC MANAGEMENT CENTER (TMC)

PROJECT NUMBER 190811

Business Concerns Information

The Proposer shall furnish the following information. Additional sheets may be attached, if necessary.

- (1) Name: Luvicecent Advisors
- (2) Address: P.O. Box 661, Ontario, CA 91762
- (3) Phone No.: 760-449-6850 Fax No.: _____
- (4) E-Mail: vincent@luvicecent.com
- (5) Type of Firm: (Check all that apply)
☒ Individual ☐ Partnership ☐ Corporation
☒ Minority Business Enterprise (MBE) ☐ Women Business Enterprise (WBE)
☐ Small Disadvantaged Business (SDB) ☐ Veteran Owned Business
☐ Disabled Veteran Owned Business ☐ Other
- (6) Business License: ☒ Yes ☐ No License Number: BL98-1968
- (7) Tax Identification Number: 57-1151254
- (8) Number of years as a firm practicing the requested services: 2
- (9) Three (3) projects of this type recently completed:
- Type of project: Transit planning
- Contract Amount: 7500 Date Completed: June 2018
- Owner: City of Rialto Phone: _____
- Type of project: _____
- Contract Amount: 10,400 Date Completed: October 2018
- Owner: City of Rialto Phone: _____
- Type of project: Water Reclamation
- Contract Amount: 7500 Date Completed: November 2018
- Owner: City of Rialto Phone: _____
- (10) Person who reviewed the RFP for your firm:
- Name: Vincent McCoy Date of Review: January 29, 2019

ATTACHMENT "C"

NOTE: THIS FORM MUST BE COMPLETED AND INCLUDED INSIDE ENVELOPE #1, "WORK PROPOSAL"

**REQUESTS FOR PROPOSALS (RFP # 19-061)
RIALTO DATA ANALYTICS, LOGISTICS, SURVEILLANCE, INNOVATION & INCUBATOR
CENTER (DALSIIC) PLAN & TRAFFIC MANAGEMENT CENTER (TMC)**

PROJECT NUMBER 190811

DEBARMENT AND SUSPENSION CERTIFICATION

TITLE 49, CODE OF FEDERAL REGULATIONS, PART 29

The Consultant, under penalty of perjury, certifies that, except as noted below, he/she or any other person associated therewith in the capacity of owner, partner, director, officer, and manager:

- Is not currently under suspension, debarment, voluntary exclusion, or determination of ineligibility by any federal agency;
- Has not been suspended, debarred, voluntarily excluded or determined ineligible by any federal agency within the past 3 years;
- Does not have a proposed debarment pending; and
- Has not been indicted, convicted, or had a civil judgment rendered against it by a court of competent jurisdiction in any matter involving fraud or official misconduct within the past 3 years.

If there are any exceptions to this certification, insert the exceptions in the following space.

Exceptions will not necessarily result in denial of award, but will be considered in determining Proposer responsibility. For any exception noted above, indicate below to whom it applies, initiating agency, and dates of action.

Notes: Providing false information may result in criminal prosecution or administrative sanctions.

Consultant Name: Luvicent Advisors

Feb 15, 2019
(Date)


(Signature)

Vincent McCoy, Principal
(Name & Title)

ATTACHMENT "D"



CITY OF RIALTO
DISCLOSURES REQUIRED BY PERSONS OR ENTITIES
CONTRACTING WITH THE CITY OF RIALTO

Pursuant to Rialto Municipal Code section 2.48.145, all persons or business entities supplying any goods or services to the City of Rialto shall disclose whether such person or entity is related to any officer or employee of the City by blood or marriage within the third degree which would subject such officer or employee to the prohibition of California Government Sections 87100 et. seq., Fair Political Practices Commission Regulation Section 18702, or Government Code Section 1090.

By submitting this proposal, or supplying any goods or services to the City, the undersigned hereby attests under penalty of perjury, personally or on behalf of the entity submitting this proposal or supplying any goods or services to the City, as well the entity's officers, representatives and the undersigned, that it/they have no relationship, as described above, or financial interests, as such term is defined in California Government Section 87100 et. seq., Fair Political Practices Commission Regulation Section 18702, or Government Code Section 1090, with any City of Rialto elected or appointed official or employee, except as specifically disclosed immediately below:

Vendor/Contractor/Consultant:	<u>Luvicent Advisors</u>
City of Rialto Official/ Employee Name(s)	The nature of the relationship with the person listed is:
<u>None</u>	

By: Luvicent Advisors

Name: Vincent McCoy

Title: Principal