



City of Pittsburgh - Smart Streetlights

RFI No. 2017-001

March 31, 2017



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March 31, 2017

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Re: Smart Streetlights RFI , RFI NO. 2017-001

Dear Mr. Simpson,

Deloitte Consulting LLP^[1] is pleased to submit for your consideration our response to the Smart Streetlights RFI. Deloitte is a leader in delivering innovative Smart City solutions to cities and municipalities both in the United States and globally. Additionally, we have a long-standing history serving all levels of government across the Commonwealth of Pennsylvania. Our global experience and perspective coupled with our local understanding and presence position us as a highly qualified choice to partner with the City of Pittsburgh (the City) in its future Smart City endeavors.

We applaud the City for your continued dedication to delivering innovative technology solutions to Pittsburgh residents and businesses. By seeking ideas from the marketplace, the City shows ongoing commitment to developing solutions that will further improve City services and operations. We believe that the innovative solutions we have developed for our clients, and our ability to facilitate and/or lead the design, development and implementation of these solutions can drive significant value and produce measureable and enduring results for the City.

We acknowledge that all responses may be considered public information in accordance with the Commonwealth of Pennsylvania Right to Know Laws. In addition, as required by the RFI, Art Stephens, Managing Director, has a relationship with Samuel Ashbaugh, Chief Financial Officer, and Lee Haller, Acting Director, Department of Innovation and Performance as a result of a recent information technology review conducted at the City of Pittsburgh

We look forward to the opportunity to work with the City of Pittsburgh and welcome the prospect of further discussing our response. We would be pleased to provide additional information if needed. Should you have any questions, please contact me at 717-651-6242 or jorampulla@deloitte.com.

Very truly yours,

By:
John Rampulla
Managing Director, Deloitte Consulting LLP

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Response

Our Solution

Deloitte's global Smart City experience includes strategic ideation, program management, mobility solutions, and design and implementation of Internet of Things (IoT) platforms. Given these capabilities and the specific list of assets provided in the RFI, we believe the following approaches will be of particular interest to the City of Pittsburgh.

1. The Responsive City

The Responsive City solution started as an integrated system for administrative and maintenance activities. Built on SAP technologies, it tracks and manages back-office tasks and improves coordination for faster responses and preventative maintenance, while also engaging citizens in the identification and resolution of issues through mobile applications on personal devices. It leverages social networks (such as Facebook and Twitter) and interfaces with a city's call or response center(s) (see Figure 1).

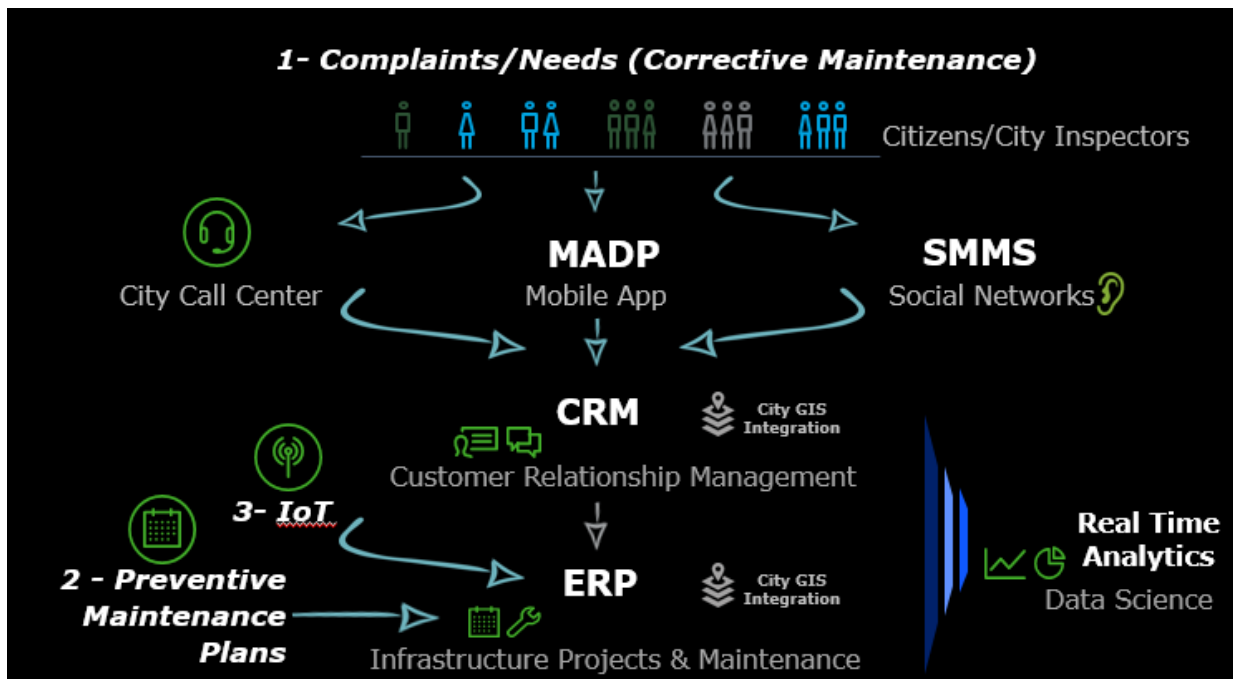


Figure 1 Responsive City Solution Architecture

Inputs from citizens can be coupled with LPWAN-enabled (low-power wide area network) IoT sensor technology and advanced analytics to support everything from disaster preparedness to predictive maintenance and capital planning. Additionally, the Responsive City solution helps streamline back-end operations and procurement tasks, and enhances work order processing and vendor management activities. Deloitte worked with the City of Buenos Aires to implement technology to assist with multiple mission-essential activities, including the needs outlined below:

- **Smart Lighting:** In addition to replacing existing street lights with LED lights every street light in Buenos Aires was fitted with an antenna that linked to a dashboard system within the City

government. Real-time data is now provided to the City, giving officials more control over lighting and maintenance operations, and providing critical insights into what is happening during power outages and in instances of vandalism. Resident satisfaction has improved considerably, maintenance costs have decreased and the City is cleaner and brighter than ever.

- **Program Design and Management.** We can bring proven methodologies to the City as accelerators and help City officials and key stakeholders assess and determine the most appropriate solutions for Pittsburgh based on asset reuse as a primary criteria. We can then provide the expertise to manage the design, development and implementation of these solutions to include coordinating and collaborating with the broad set of ecosystem partners required to enable your vision.

Lighting equipped with sensors in Pittsburgh can increase cost savings from the transition to Smart Streetlights, while ensuring access to parks and public spaces for all citizens, reducing urban inequality and improving safety across Pittsburgh’s neighborhoods.

2. Public Transit-As-A-Platform.

This framework integrates existing public transportation assets with sensor technology to improve the transit experience and increase ridership, while also gathering key data for improving city services and reducing costs. This solution leverages existing assets such as street light poles, public buses and bus shelters by equipping them with sensor technology.

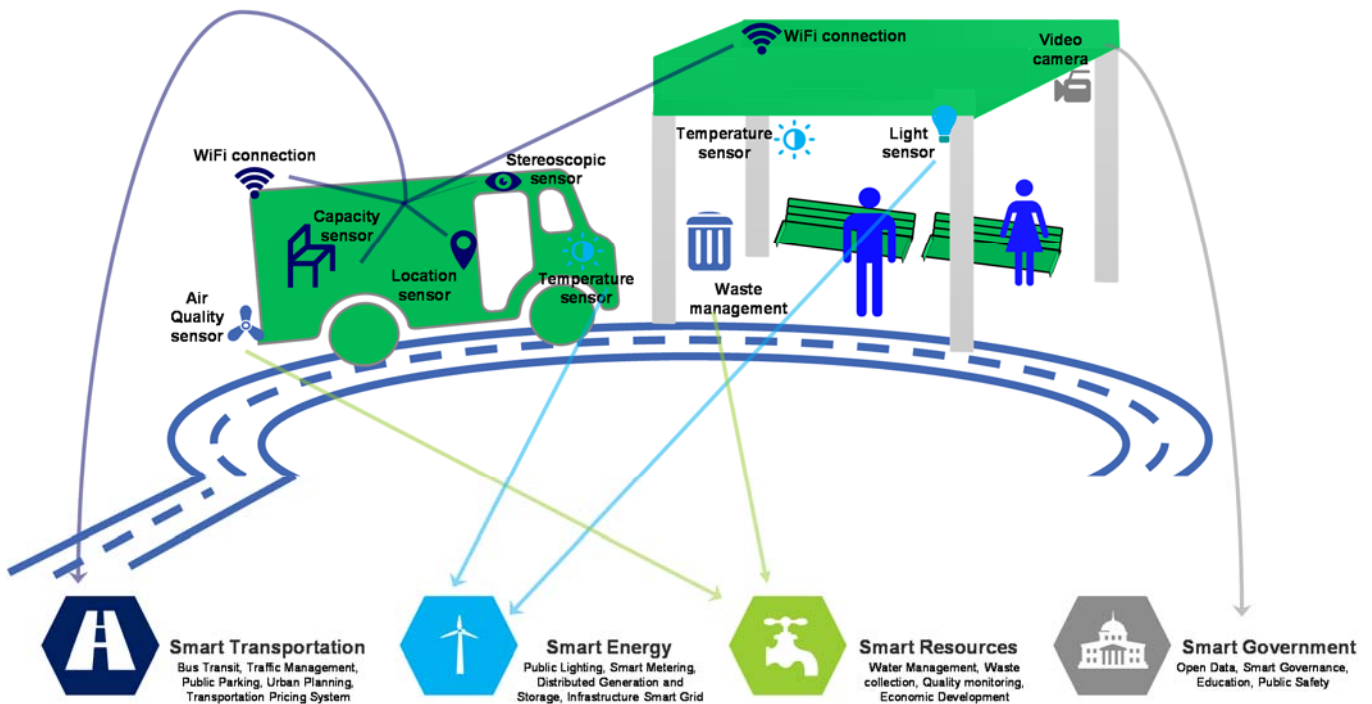


Figure 2 "The Responsive City" – Public Transit-As-A-Platform

We’ve described a few sample use cases from an increasingly broad set of impactful Responsive City use cases. Other use cases include maintenance lifecycle management from requests, scheduling vendors, and execution, verification and materials management for a variety of public space and infrastructure types.

Benefits to the City and Residents

Our solutions allow for greater citizen engagement, promote transparency, and enable the City to operate more efficiently, generating goodwill among citizens and making the City a more attractive place for both residents and businesses.

The Responsive City solution provides the following benefits to the City and its residents:

- Faster and better service provision and response times to residents
- Aggregation of reliable data to make prompt decisions
- Efficient scheduling and execution of maintenance tasks
- Ability to support preventative maintenance of City assets
- Collection of clear, accessible and easy to share information (open data)
- Streamlined administrative processes, including budgeting and expenditure controls and public space permits
- Mobile waste management solutions
- Automated and efficient environmental controls

Partnerships

The Responsive City solution is built on an SAP platform (including HANA). With a worldwide practice of more than 13,200 SAP practitioners in more than 135 countries, we deliver SAP business results faster and better than any other systems integrator or consulting firm in the world. We also hold the highest level of strategic alliance with SAP: Global Partner—Services. We can work with the City and to understand if the City has any existing relationships with SAP and proceed accordingly.

The City might require the collaboration and coordination of a number of additional strategic partners, as any Smart City solution pulls from a vast array of technologies, assets and vendors. Deloitte plays a key integrator role in this domain, with the ability to bring the right entity and people to the mix. We are aligned with more than 45 of the leading companies, including Hitachi and Philips Lighting, to develop services and solutions that help our joint clients create more value.

For example, Deloitte and AT&T are enhancing livability and improving the efficiencies of local governments through the innovative use of today's technology to build "smart cities." The alliance combines Deloitte's experience implementing Smart City technology globally with AT&T's mobility, Cloud, and networking solutions. Together we are helping to make our communities more connected, energy efficient, and healthier.

Additional Information

For more detailed information on our Responsive City solution, please download the Deloitte Responsive City application:

- Appstore: <https://itunes.apple.com/us/app/deloitte-rc-responsive-city/id943007411?mt=8>
- Google Play: https://play.google.com/store/apps/details?id=dtc.dtt.deloitte.deloitteRC&hl=es_419

In addition to the specific solutions discussed herein, we have experience working with cities to develop strategies, roadmaps, and frameworks for assessing and demonstrating the impact of Smart City initiatives. For example:

- **City in Netherlands.** Provided detailed framework for analyzing the impact of various Smart City initiatives underway and a structure for continuing to ideate, innovate and plan for future initiatives to address poverty and mobility issues through the use of Smart technologies

- **Barcelona, Spain.** Developed impact analysis framework using data to measure economic and social impacts of various programs
- **City in Spain.** Defined Smart City vision and strategic plan that goes beyond technology implementation to achieve measurable results for the City and its citizens, such as improved efficiency of service delivery and cost savings

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In the Commonwealth of Pennsylvania, we have offices in Philadelphia, Pittsburgh, Harrisburg, Glen Mills, and Mechanicsburg. We employ over 3,500 Pennsylvania residents and currently have 3,847 alumni from one of 112 Pennsylvania colleges or universities.

Our professionals serve clients across the public and private sectors, providing value through services and solutions in numerous domains including automotive, energy, government, technology, telecommunications, and transportation. Our experience and knowledge in these areas, our history working with cities and states globally, and our expertise in Smart City strategy, implementation and program management enable us to bring the necessary capabilities to the City of Pittsburgh as you seek to enhance the quality of services delivered to both residents and businesses.



IDC named Deloitte a worldwide leader in Smart Cities Consulting Services based on capability and strategy.

IDC MarketScape: Worldwide Smart Cities Consulting Services 2015 Vendor Assessment by Cushing Anderson, August 2015, IDC #258531



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