RFI 2017-0001 Smart Streetlights

Questions and Answers

1. The RFI reads specific to vendors / manufacturers. Would the City consider responses from independent Engineering/Consulting firms on design and approach solutions (i.e. Master Planning)?

Answer: Yes, the City will consider ideas from any group with the proven capacity to execute them.

If the response to Question #1 is yes, then the following are additional questions:

A. Who is currently contracted for the Traffic Management Pilot Project?

Answer: The City does not have a Traffic Management Pilot Project. Carnegie Mellon University is currently testing it's Surtrac (Rapid Flow) technology in limited corridors of the city. The City does not contract or otherwise manage the pilot program.

B. What engineering firms are currently supporting the City with planning on the technology side?

Answer: No engineering firms are currently supporting the City with planning on the technology side. The City Department of Public Works has a number of on-call engineering firms for design and construction, and contracts others on an as-needed basis.

C. Does the City have an infrastructure map of the communication architecture to assist respondents in solutions using the current infrastructure?

Answer: Not at this time.

D. Is there spare fiber already deployed or accessible that would help the responders understand lease conditions or other positive / negative cost factors?

Answer: Not at this time.

2. Would the City consider extending the due date from April 3, 2017, to April 7 or 10?

Answer:

3. In general, 1 page would be considered front page only. All page dividers and everything they are listing would count as a page as these responses could get lengthy but I did not want to misspeak for the group as you will be using all of this information to help create an RFP. Let me know your response at your convenience.

Answer: Ten pages of single sided informational text is preferred. Page dividers will not count towards the informational page count.

4. Is low voltage preferred over IP-enabled (Ethernet) individual LEDs?

Answer: The City is not establishing preferences for particular technical solutions to LED streetlight and Smart City deployment in this RFI. That would happen in a subsequent RFP. If you have a technology in mind that you believe will work in the given application, please propose it and fully explain why you think it is a good solution.

5. What make/model LEDs are in use today (the 4,500 pilot units and/or otherwise)?

Answer: The City installed Cree (formerly BetaLED, a division of Ruud Lighting) LED luminaires. The luminaires are equivalent to a 200-watt high pressure sodium luminaire with a Type II short distribution, 4300 Kelvin color temperature, and a B2-U1-BUG rating. They were installed in neighborhood business districts.

6. Is there a management or operations software/system/platform in place that is managing the pilot LEDs? If yes, what system?

Answer: No.

7. Is there a preference to use the same make/model LEDs as the pilot did?

Answer: No.

8. Has there been any feedback/lessons learned from the pilot that can be shared?

Answer: Cobrahead (non decorative) fixtures in business districts will need to be changed out during program.

9. Are there specific requirements around individual (or group) management of LEDs (such as power on/off, dimming, timers, etc.)?

Answer: The City is operating under the assumption that, in order to obtain the maximum energy savings, the LED streetlight deployment will be centrally managed through a system-wide network and that full, individual control of all LED luminaires' brightness will be exposed to City workers through a protocol, API, secure client, etc.

10. Can information be provided regarding the city's IT infrastructure (fiber, copper, routers, switches) and its proximity to the streetlights under consideration for LED replacement?

Answer: Not at this time.

11. Does the city have a fiber optic infrastructure map that can be provided (one that also identifies proximity of relevant lighting locations)?

Answer: Not at this time.

12. The link provided (https://data.wprdc.org/dataset/pittsburgh-city-facilities1) does not appear to be functioning. Can this information be provided?

Answer: This was a typo. The correct URL is:

https://data.wprdc.org/dataset/pittsburgh-city-facilities

13. Are there labor/union/training requirements in place for a non-city employee to install/replace the street lighting in question?

Answer: The City plans to use its own crews to install any new street lights.

14. Is there any existing infrastructure that will/should be leveraged? This can include local low/line/high voltage power, IT infrastructure (fiber, copper, routers, switches, wireless), or other proprietary systems. If yes to any, please provide details on each (with distances from street lights in question where appropriate).

Answer: We look forward to exploring the use of existing infrastructure toward project outcomes as we move along in this process. At the current time specifics as to these assets are not available.

15. Is there a requirement or preference for supporting IT infrastructure components (compute, storage, other) to be on premise, hosted, or cloud?

Answer: The City has strong on-premises IT infrastructure, and there are significant fundamental advantages to leveraging it. Furthermore, data ownership will be a critical consideration. That said, all ideas will be considered at this stage, including cloud or managed IT solutions if they offer outstanding security, availability, extensibility, etc.

16. Are as a service (OpEx) consumption models of interest?

Answer: There are long-term hazards in converting City capital and essential infrastructure such as streetlights into operational expenditures through private-partner SaaS, IaaS, PaaS or other models. However, such evaluation is the intended result rather than the basis of this RFI, so any funding concepts will be considered at this stage.

17. Are there specific security parameters (encryption for example) required for wired, wireless (and other) IT network traffic as related to this project?

Answer: Any and all proposals for backhaul or other networking solutions should include an aggressive encryption standard (preferable backed by emerging international standards) and a general information security strategy.

18. Are there specific security parameters required for IT data in motion and at rest as related to this project?

Answer: All sensitive data must be encrypted per the latest practicable standards at deployment time.

19. Can additional information be provided regarding the statement "responses should present innovative, equitable structures for sharing operational responsibility and technological or financial risk between potential partners and the city"?

Answer: The City will consider any concepts for financing these initiatives, however novel or innovative. Such concepts may involve shared management of and responsibility for costs around hardware and software maintenance, risk around necessary upgrades in response to advances in deployed technology, etc. These proposals will be considered in light of their immediate and long-term potential impact on City expenditures and revenues, with an eye towards responsibly marshalling the shared resources entrusted to the City by the citizens of Pittsburgh.

20. Based on current research can you rank the business drivers behind this initiative in order of priority to the city (public safety, operational efficiencies, cost savings, revenue generation, digital citizen experience)

Answer: As a non-binding guideline, respondents can assume that these objectives have roughly the following priority: cost savings, operational efficiencies, public safety, revenue generation, digital citizen experience.

21. Can you describe in more detail the role of the department of innovation and performance, including members, and alliances across other departments within city government?

Answer: More information on I&P is available on the city website:

http://pittsburghpa.gov/innovation-performance/home

As regards this RFI, the Department of Innovation & Performance is working in collaboration with the Department of Public Works, the Office of Management and Budget, and the Office of the Mayor to issue this RFI and leverage responses to support the technology strategy and other aspects of a potential RFP process for the Smart Streetlight project.

22. Applications such as the four mentioned priorities require significant investment in policy, process, and technology to achieve "smart" outcome in addition to the sensors and infrastructure required to collect data. How will the planning and execution of these initiatives with cross

department involvement be handled to ensure an end to end solution will not meet governmental roadblocks?

Answer: Policy, process, and other institutional constraints on the efficacy of any technology will be considered first and foremost in deciding whether or not to adopt it. A well-designed Smart City technology, like any technology, should take into account its user. In this case users include civil servants and elected officials with concerns beyond technical notions of efficiency, such as equity and citizens' diverse interests.

City departments and the RFI/RFP groups will work together to connect the human and process elements of a new capability with the technology that enables it. Any chosen solution will be specified and implemented in coordination with the relevant departments, facilitated by consistent contact points within the RFI/RFP process with a full understanding of the overarching objectives.

Furthermore, respondents are encouraged to familiarize themselves with relevant City departments, and to tailor proposals to realistic scenarios for how they provide services, with a starting point of the current state. This will help to define a practicable future state, which is the best way to drive necessary change.

23. Will the city be looking to achieve the four main applications in one proposal or will each specific application/use case deployment entertain its own RFP/bid?

Answer: Any combination of target applications will be considered. Respondents' goals should include identifying logical engineering, financial and other synergies between applications to maximize the leverage of this investment by the City.

24. Are there guidelines for the transport and access control aspects of data that will transit this environment? There is some discussion of open extensible architecture, however the evolution from previously “closed” systems introduce risk. Are they any established policies on data and access control governance that are available for review?

Answer: Security guidelines for this type of deployment are an output rather than an input of this RFI process. The City seeks your recommendations and ideas on best practices and their implementation. That said, it is not a given that open architectures introduce more risk by exposing their design to exploitation than they mitigate by exposing their design to accountability.

In discussing security, respondents should clearly distinguish between security models for software and protocol--where security should be a function of design rather than obscurity or other perimeter strategies--and security models for sensitive data. All sensitive data must be encrypted in transit per the latest practicable standards at deployment time.

The systems through which that data transits, however, can and should be open and extensible in their design. That design should use current best practices to aggressively mitigate potential security exploits, for instance through airgapped control systems, separate backhaul data transit protocols, battle-tested authentication implementations, and/or other designs that have been subjected to real world review and attack.

Not only does an open design approach not necessarily have a negative impact on the security of a properly designed system, on the contrary closed system designs can introduce security risks. For instance, they can complicate the deployment of new encryption or design standards, the maintenance of which are critical over the long term

as computing power increases, exploits are discovered and existing standards otherwise lose efficacy.

25. Will the city look to outsource or maintain in-house control of any new infrastructure required to establish “smart” connectivity?

Answer: The City will consider both types of relationship for new network infrastructure, as well as hybrid options, assessing them based on the value of the investment both immediately and over the long term. If respondents have multiple ideas for how this aspect of the deployment could be structured, please feel free to submit multiple responses.

26. What, if any IT solutions currently in use do we need to consider? Should we consider 311 or 911? Are there other solutions the City would be expecting to bring into play, and who would the vendor be?

Answer: At present there are no plans to directly integrate additional City services into this deployment. However, we will consider any such proposals.

27. When considering page count, is one page considered one physical page, or one printed page? In other words, if we submit 10 pages printed on both sides, is that considered 10 pages or 20?

Answer: We'd like ten pages of single sided informational text. Something like a page divider wouldn't count towards the limit.

28. (RFP pg. 5) Most of the HPS lamps are at 70, 100, and 150 watt, with some at 250 and 400. What is the watt of LEDs which already replaced and which will be replaced in this phase?

Answer: The LEDs the City previously installed are equivalent to a 200-watt high pressure sodium luminaire.

29. (RFP pg. 5) There are 39,799 in total, mostly HID HPS, with 4,500 already replaced in a pilot with Cree LED luminaries, and another 500-1000 of varying types. Already replaced lights are Smart Light (i.e. do they have dimming option or not) or normal LEDs?

Answer: Approximately 2,000 to 2,500 of the Cree luminaires were provided with dimmable drivers, but their on-off function is controlled only by photocells.

30. (RFP pg. 7) An essential component on which the City seeks detailed information is the traffic control software platforms and algorithms themselves. Traffic control software is standalone or it will integrated with Command and control center?

Answer: This RFI doesn't define specific existing constraints on ideas or solutions. That will be part of the scope of any subsequent RFP. The City will consider any proposals or recommendations.

31. (RFP pg. 7) As mentioned in the RFI some system are currently available e.g .gunshot detection system, Traffic Management etc. Are these systems currently communicating with each other or not?

Answer: No.

32. (RFP pg. 7) The City has already deployed the ShotSpotter gunshot detection system in limited locations, demonstrating the viability of the solution for our public safety services. Apart from the gun shot detection, is there any other such requirement eg unclaimed baggage etc?

Answer: This RFI doesn't define specific existing constraints on ideas or solutions. That will be part of the scope of any subsequent RFP. The City will consider any proposals or recommendations.

33. (RFP pg. 7) Cameras (Smart Surveillance) Is there a need for recording surveillance feeds? For how many months/years is the feed required to be preserved?

Answer: This RFI doesn't define specific existing constraints on ideas or solutions. That will be part of the scope of any subsequent RFP. The City will consider any proposals or recommendations.

34. (RFP pg. 7) Air Quality Sensors. Any previous data on air quality if available shall help understand the kind of monitoring relevant here?

Answer: Previous research on air quality measurement should definitely inform any proposal involving this application.

35. (RFP pg. 6) The City encourages respondents to include examples of any applications they envision, along with how they could interact with a streetlight deployment. Though the City is not committing to the installation of any of these applications on the streetlight network. What are the criteria of selection/rejection of these suggested applications?

Answer: This RFI doesn't define specific existing constraints on ideas or solutions. That will be part of the scope of any subsequent RFP. The City will consider any proposals or recommendations.

36. (RFP pg. 7) The City has already deployed a pilot of the locally-developed adaptive digital traffic control system Surtrac, and may choose to expand this deployment. Would the related API be available to the vendor?

Answer: This relationship will have to be developed with time but we hope that all commercial and academic participants in Pittsburgh's Smart Cities work will eventually share data to improve collective outcomes.

37. (RFP pg. 7) Many other solutions to traffic control may apply as well, subject to legislative or regulatory processes, such as cameras. What are the selection criteria of the cameras - cost, range, weight etc.?

Answer: This RFI doesn't define specific existing constraints on ideas or solutions. That will be part of the scope of any subsequent RFP. The City will consider any proposals or recommendations.

38. (RFP pg. 7) Connected streetlights also present opportunities for direct control in the event of emergencies, illuminating the site of an accident. From where does the Smart Street Light platform will accept the emergency command? Is it from Command & control center, manual command etc.?

Answer: This RFI doesn't define specific existing constraints on ideas or solutions. That will be part of the scope of any subsequent RFP. The City will consider any proposals or recommendations.

39. (RFP pg. 8) The opportunity to deploy large numbers of sensors throughout the city during the streetlight upgrade process could be particularly impactful on this Issue. The sensors will be mounted on the street light poles. Is it that the correct understanding?

Answer: Any sensors would most likely be limited to deployment on the street light poles and/or within the luminaire itself.

40. What are the timelines to complete the solution

Answer: This RFI doesn't define specific existing constraints on ideas or solutions. That will be part of the scope of any subsequent RFP. The City will consider any proposals or recommendations.

41. Need to know the less traffic ruled region of the city for the proper implementation of the solution

Answer: The question isn't clear as written.

42. What is the tentative O&M period?

Answer: This RFI doesn't define specific existing constraints on ideas or solutions. That will be part of the scope of any subsequent RFP. The City will consider any proposals or recommendations.

43. What is the duration of this project? Any phases involved?

Answer: This RFI doesn't define specific existing constraints on ideas or solutions. That will be part of the scope of any subsequent RFP. The City will consider any proposals or recommendations.

44. Using what medium street light will communicate with Platform e.g. 3G/4G/Wifi or any thing else?

Answer: This RFI doesn't define specific existing constraints on ideas or solutions. That will be part of the scope of any subsequent RFP. The City will consider any proposals or recommendations.

45. What is the make and model of gunshot detection system, cameras and other components in the current available system?

Answer: We currently use Shotspotter technology. Other systems vary but specific integration of that architecture is not required in the RFI response.