



MEMORANDUM

ADMINISTRATION

To: Farmers Branch City Council

From: Charles Cox, City Manager

Date: May 28, 2019

Subject: Lessons Learned: Farmers Branch Smart City Pilot Project

Overview: The Farmers Branch Smart City Project was a public-private partnership that consisted of 10 locations concentrated in the Station Area where intelligent nodes, LED lights, photocells and two poles were installed to test the possibility of implementing smart city initiatives in Farmers Branch. With a unanimous Council-authorized budget not to exceed \$65,000, the pilot project ran from December 2018 through February 2019 as a 90-day pilot. The project has currently spent \$49,882 with only removal of the nepsa poles remaining. The project will be completed under the \$65,000 price ceiling authorized by City Council.

Lesson 1 **Intelligent nodes will require infrastructure improvements.**
The 10 CityIQ intelligent nodes by GE had the capability of providing a high definition video feed, pedestrian monitoring, traffic monitoring, parking data, weather information, shot spotter (gunshot triangulation), and Wi-Fi. All of this translates to a very large amount of data moving to and from the intelligent nodes. We currently do not have the physical or cloud-based infrastructure to support a large-scale deployment of intelligent nodes and the data they generate.

Lesson 2: **Installing smart poles cannot be done without cooperation from Oncor and others.**
Installing "smart" infrastructure required many layers of discussion between the City, Oncor, and AT&T. Eight out of ten of the intelligent nodes were mounted in the energized space on poles owned and operated by Oncor. At the time, Oncor didn't have a true policy or pathway for allowing the City to install the nodes or LED lights. This resulted in a delay of six months while we worked with Oncor to establish a policy relationship between organizations for this project. Moving forward, it will be much simpler to discuss installing intelligent nodes and similar initiatives on poles owned by Oncor as a result of the pilot program and the policies that were developed.

Lesson 3:**Our service level is not lacking.**

The intelligent nodes provided high definition video feed, pedestrian monitoring, traffic monitoring, parking data, weather information, shot spotter (gunshot triangulation), and Wi-Fi. During the pilot we had access to all of this data through a partnership between AT&T, Farmers Branch, and Opendatasoft. The nodes produced a plethora of data and Opendatasoft had dashboards that allowed us to visualize the data. With all of this data, it became clear that Farmers Branch's residents, businesses, and guests are not lacking in service and our residents do not have to worry about many of the challenges other cities face; for example, where did a gunshot originate from.

Lesson 4:**Shared poles will not work.**

Two of the intelligent nodes were located on nepsa KitstiK poles in The Grove (City property) with the business case that multiple telecom companies could share one smart pole. This would maximize the City's revenue-generating potential and reduce the number of poles necessary for 5G infrastructure. The telecom companies made it clear that they do not want to share space on a single pole and this business model was proven ineffective. This resulted in nepsa becoming defunct with the KitstiK pole no longer in production.

Lesson 5**Collocation is the pathway forward.**

One of the challenges answered by the pilot was how to approach 5G infrastructure, also known as small cell nodes. The pilot took us in a different direction by helping us develop collocation: our current approach to small cell applications. Collocation is the process where small cell applicants will identify a streetlight that is in a desirable location for a small cell node, Oncor will remove the light and install a meter, the applicant will pay to install a "smart" light pole that can serve as a small cell pole, and will install the light pole with LED lights. The pole and associated maintenance will belong to the applicant and the City will own the light and arms. This creates a dynamic pathway for controlling our streetlights and streetscape aesthetics, implementing smart poles for future use, and adding LED without adding additional costs to the City.

Conclusions:

The Smart City Pilot Project showed the willingness of Farmers Branch to test the feasibility of implementing "smart" city initiatives in Farmers Branch while limiting our overall financial exposure. The lessons we learned created an overall pathway towards small cell implementation and we have valuable experience for implementing smart cities technologies in the future.

