"Smart Cities" Technology Applicable to ANC
8 November 2017

'Smart City' Definition & Characteristics:
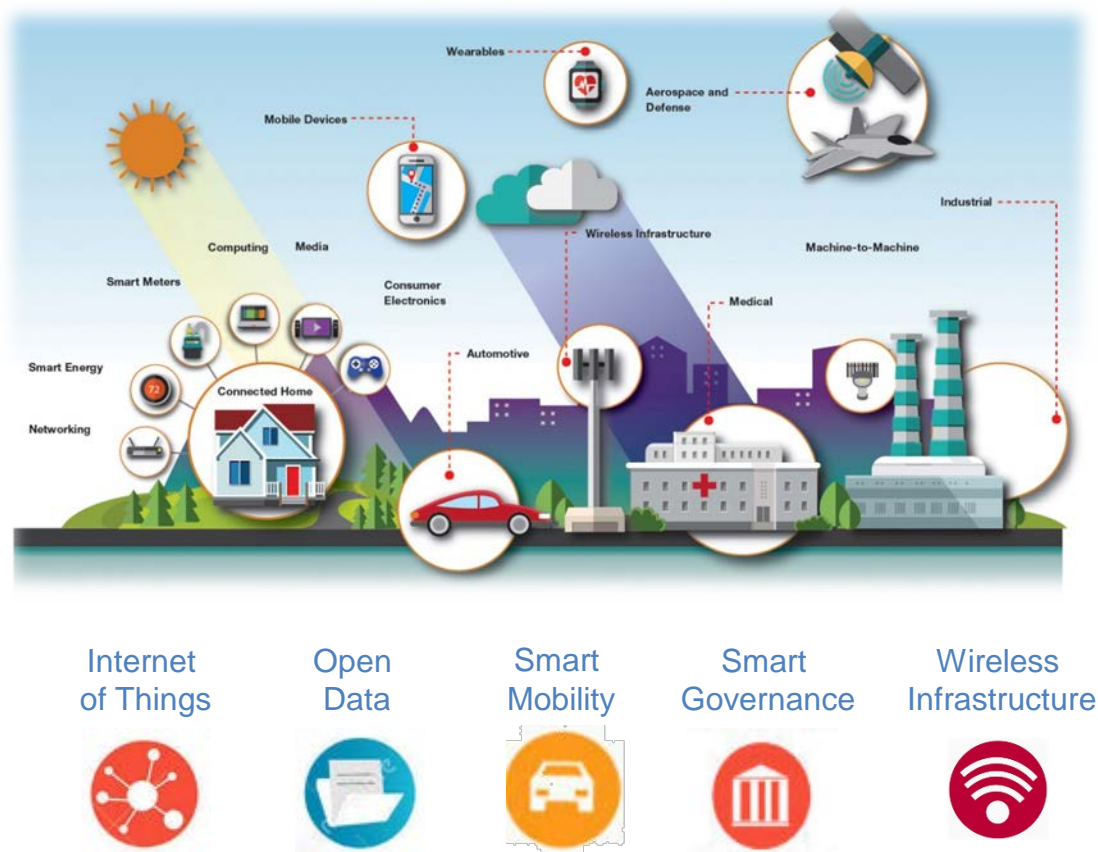
Smart City:

- A smart city is an urban area that uses different types of electronic data collection/sensors to supply information used to manage assets and resources efficiently.

Smart City Characteristics:

- Smart Management
- Sensors / Internet of Things
- Mobility Wi-Fi
- Open Data
- Digital Citizens

ANC "Smart City" Parallels:

- Advanced Transportation Network
- Geofencing (Sensor Alternative)
- GPS Vehicle Tracking
- Office Mobility
- Wi-Fi Access Expansion
- Informational Kiosks

Internet of Things | Open Data | Smart Mobility | Smart Governance | Wireless Infrastructure
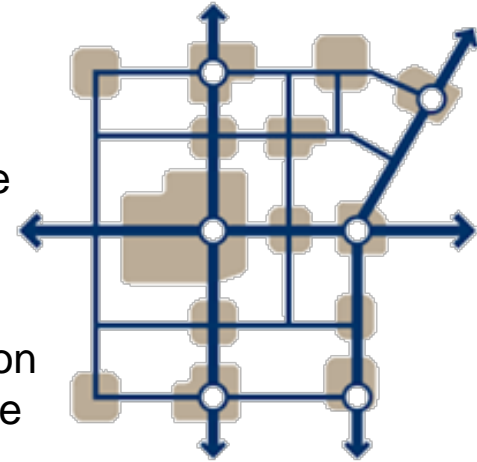
ANC 'Smart City' Capabilities:

Advanced Transportation Network (Routing):

The Challenge: Coordination of cemetery resource movement throughout the cemetery based on 4+ services happening within any given hour with different starting, transfer and end points. Visitor navigation from any starting point within the cemetery to a selected interment(s) within the cemetery.

The Goal: Deconflict routing so procession services don't intersect and ensure a sense of dignity and respect is upheld to conduct services in an environment where it feels like their funeral service is the only service happening at ANC at that given time. Provide accurate directions from anywhere in the cemetery directly to an interment(s).

The Strategy: Maintain the advanced routing network for the coordination and re-routing of funeral processions with the addition of waypoints in the ANC Mapper application. Utilize the network to also provide accurate graveside routing guidance to all ANC interments through the ANC Explorer application.

The Status: (Developed - In Use)

ANC 'Smart City' Capabilities:

Geofencing:

The Challenge: ANC visitors navigate the cemetery and miss lesser known points-of-interest, and are challenged with information drought regarding the other monuments and memorials. Beacons associated with internet-of-thing technology provide a challenge with DoD Information Assurance compliance due to Bluetooth hacking concerns.

The Goal: Provide additional contextual information (text, media) regarding ANC's rich history as visitors navigate the cemetery based on geofencing technology. Geofencing within the ANC Explorer application will provide a secure delivery method and leverage geospatial data investments.

The Strategy: Utilize Geofencing, which is the use of GPS technology to create a virtual geographic boundary, enabling software to trigger a response when a mobile device enters or leaves a particular area. This allows ANC to create geofences around Point-of-Interest within the cemetery to provide contextual information, and media related to the POI.

The Status: Capability present in ANC Mapper to create geofences for use in ANC Explorer, but only one geofence currently exists (Pan Am Memorial).

ANC 'Smart City' Capabilities:

GPS Vehicle Tracking:

The Challenge: Coordination of resources throughout the cemetery requires constant coordination; timing is a delicate balance to keep services on track between the funeral planning, security, tour bus re-rerouting notifications, field crews, chapel services, procession routes, transfer points, and coordination of other cemetery resources.

The Goal: Provide a common operating picture of resource movement throughout the cemetery to increase efficiency and to ensure a sense of dignity and respect is upheld to conduct services in an environment where it feels like their funeral service is the only service happening at ANC at that given time.

The Strategy: Deploy a combination of hardwire and portable GPS tracking devices in various ANC fleet vehicles (Cemetery Representative Cars, Interment Supervisor Vehicles, Tour Busses, Street Cleaners, Backhoes, and other pertinent equipment).

The Status: Proof of concept is completed and the baseline
The baseline capability is present within ANC Mapper, but not fully implemented on ANC Vehicles. Additional coding required in ANC Mapper to differentiate types of vehicles.

ANC 'Smart City' Capabilities:

Office Mobility:

The Challenge: ANC applications were developed to improve the automation of burial services as-well-as chain of custody; some paper processes still exist where documentation and validation is required at the gravesite. These validations (ex. dig slips) are then scanned and stored in ISS, but requires a manual process to complete the task.

The Goal: extend the office automation systems to the gravesites for the efficient completion of all burial services and accountability documentation.

The Strategy: Step one will require the secure fielding of mobility tablets, that utilize the ANC Wi-Fi Network. Step two, automate processes that still require paper documentation and update the requisite web-services for the digital storage of PDF documentation and digital signature to complete the automation processes.

The Status: ANC has developed the Cemetery Support Network for the secure fielding of Wireless devices; devices are currently being secured and fielded to a number of beta test users for field implementation. Change requests will then be submitted for the automation of processes that still require paper in the field.

ANC 'Smart City' Capabilities:

Wi-Fi Accessibility:

The Challenge: Utilization of cellular service for office mobility implementation is challenged by the 8500+ in section tree throughout the cemetery. Coverage in many areas is not conducive to automating paper processes.

The Goal: Expand Wi-Fi coverage utilizing the cemetery support network (CSN) infrastructure as a secure means of extending office mobility. Establish Wi-Fi capabilities to act as a continuity of operations plan for ANC's primary network in-case of network outages.

The Strategy: Provide multiple Service Set Identifiers (SSID's) to provide Wi-Fi services for public devices, government devices, and employee's personal devices. The Wi-Fi and CSN will provide the backbone for office mobility, CCTV deployment, wireless irrigation controls, funeral queuing signs and future cemetery requirements.

The Status: Wi-Fi is currently fielded in the ANC Welcome Center, Administration Building, ANC Services Complex and is currently being installed at the columbarium and amphitheater.

ANC 'Smart City' Capabilities:

Informational Kiosks:

The Challenge: Provide information to visitors in regards to descendent information, as-well-as points of interest throughout the cemetery that is accessible throughout the cemetery.

The Goal: Provide informational kiosks that detail routing directions to interments throughout the cemetery as-well-as information on ANC Point's of Interest so visitors can Honor, Remember, Explorer ANC's rich history.

The Strategy: Field informational kiosks in addition to mobile applications throughout the cemetery (Welcome Center, Administration Building, Columbarium's, Millennium)

The Status: Currently, information kiosks are fielded at the Welcome Center (5), Administration Building (1), and (2) Outdoor kiosks are being planned for the columbarium (1) and Millennium sites (1).

Back-Up