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Elizabeth Enterprise

Smart Cities Requirements

Edgewater Connections has been engaged by Mirvac to undertake a review of the smart cities requirements required under the DCP for the Elizabeth Enterprise Project.

Below we have included an explanation of the rationale behind our proposed solutions based on our experience on previous projects as well as a brief outline of the proposed solution for each area.

PO1 - Implement multi-function poles

- Endeavour Energy will not permit smart poles to be connected to their network as they are not on their approved parts list. Therefore, if multi-function poles were to be utilised throughout the entire estate they would need to be supplied by council owned switchboards which would require their own conduits and cables to reticulate the estate. This creates challenges for fitting all services in the footpath and creates a large ongoing maintenance regime for council.
- Therefore, we propose to utilise standard Endeavour Energy equipment (columns, outreaches, and luminaires) for lighting along all public roadways and only utilise multifunction poles inside the key open space located at the two amenity nodes, as well as along the pedestrian cycle path that connects the two amenity nodes.
- Current options being considered for locations where MFPs will be installed include:
    - Shreder Shuffle https://au.schreder.com/en/products/shuffle-smart-multifunctional-column
        - Sleek design with most components contained within the column
        - Can support Wi-Fi, CCTV, speakers, general lighting, spot lighting, charging points
    - MFP Systems https://mfpsystems.com.au/products/multifunction-poles/
        - Australian made
        - Have different brackets and outreaches to accommodate a range of additional services

PO4 – Embed smart Technologies

We are proposing to install the following solutions in the key open space located at the two amenity nodes. We have proposed a potential vendor that is currently being considered for each category of device.

Wi-Fi

- Wi-Fi coverage of the open space areas can be achieved by incorporating public Wi-Fi access points on the multifunction poles proposed in the open space areas.
- Most Wi-Fi providers can provide design services and manage the ongoing installation to install it remains safe and secure.
- Current options being considered for where Wi-Fi will be installed include:
    - OneWiFi https://www.onewifi.com.au/wifi/#int-1
        - Can offer design services of Wi-Fi access point locations to ensure even coverage.

        - Provide configuration and ongoing management of ICT backend software.

Smart Lighting

- Smart lighting control can be achieved using a smart control module fitted to each luminaire which allows independent operation and dimming of each luminaire and identification of faulty luminaires.
- Most lighting control nodes operate as a mesh network where each light communicates with the next to maximise the reach of the network.
- Current options being considered for where Smart Lighting control will be installed include:
    - Zhaga https://www.lighting.philips.com/main/support/support/faqs/industry-standards/what-is-zhaga
        - Zhaga is a new standard being adopted by most road lighting manufacturers
        - Zhaga allows for control of each induvial luminaire and allows luminaires to mesh together
        - Identification of faults
        - Zhaga fitting often have an auxiliary port that can be used for other sensors
    - OneWiFi Smart Lighting control https://www.onewifi.com.au/smart/#sec-3
        - Individual control of each luminaire
        - Identification of faults
        - Can integrate with other sensors

CCTV

- CCTV can be utilised for two main purposes: security and analytics. CCTV provides a security deterrent by recording activity around critical areas and high value assets such as digital displays.
- To get the most out of installed CCTV it is important that it can process the video to provide analytics such as:
    - Record utilisation and patronage of open areas
    - Provide detail of number of people entering and entering parks
- Current options being considered for where CCTV will be installed include:
    - EyeQ Solutions
        - Integrated solution for cameras, storage, ict, etc
        - Can be integrated with OneWiFi
        - Can provide full design of camera layout

Smart Bins

- Smart bins allow the council to track in real time the capacity of a bin and allow for pickups to be scheduled as needed.
- These devices are typically low powered and battery operated, with the battery lasting for several years before requiring replacement, allowing for flexible position of the bins
- Current options being considered for where Smart Bins will be installed include:
    - Smartsensor Technologies SmartWaste sensor https://www.smartsensor.com.au/sensors/smartwaste/
        - Battery powered, allows flexibility in bin location as mains power is not required to every bin location

        - Battery lasts for a few years depending on poling rate, reduces operational expenditure for council on ongoing maintenance
        - Reports back bin capacity through low powered cellular network at specified poling interval. Battery life can be increased or decreased depending on poling rate

Smart Furniture

- Smart furniture can include, signage, charging ports, internet connectivity.
- On previous projects in was determined that smart furniture with GPOs were preferred over USB ports as they are less prone to damage, and should last longer, however options exist for both
- Wi-Fi built into the furniture would not be required as the park would already be covered with a public Wi-Fi network.
- Currently we do not have any specifics products to recommend but there are several suitable solutions on the market.

Digital Display Screen

- Digital display screens provide the community with real time information from all the other smart sensors as well as providing a council to deliver other messaging and announcements.
- A key component of the digital display is to ensure that it is protect form vandals, and this would be done with CCTV coverage to ensure the location is covered.
- The digital kiosk also needs to be network connected for live updates, and appropriately IP rated for outdoor use
- Current options being considered for where Digital Display Screens will be installed include:
    - OnDigital Group Outdoor LCD Kiosk https://www.onqdigitalgroup.com.au/products/outdoor-lcd-kiosks
        - IP65
        - Anti-reflective glass
        - Vandal proof
        - Sunlight readable
        - Network connectable
    - CV Media Signage Outdoor Digital Kiosk https://cvmediasignage.com.au/outdoor-digital-kiosks/
    - OneWiFi Digital Signage https://www.onewifi.com.au/smart/#sec-8

Weather Monitoring

- Weather monitoring provides real time information on current weather and environmental conditions and can be provided through a central hub that connects multiple sensors into one data source.
- Current options being considered for where Weather Monitoring will be installed include:
    - Libelium Smart Cities Pro Module https://development.libelium.com/smart-cities-pro-sensor-guide/sensors
        - Provides multiple different weather and environment sensors including:
            - Temperature
            - Humidity
            - Pressure
            - Luminosity

        - Particle Matter (Dust)
        - Noise/Sound Level
        - Various Gas Sensors
    - The sensor modules used can be customised to the specifics of the project.
    - The supplied data can be fed back into a central system to then be utilised in other areas such as the digital display screen.
    - Can be integrated with the OneWiFi

Bluetooth Audio

- Bluetooth audio provides park suers with the ability to play their own music in a public space. On previous projects there have been concerns over providing Bluetooth speakers in open space due to the inability to control what sort of media is played over these device.
- The proposed solution was a service where only music from a preapproved collection was available to be played, to ensure that only music from a curated list is able to be broadcast.
- Current options being considered for where Bluetooth Audio will be installed include:
    - Nightlife Media Player
        - Allows songs to be selected from curated list
        - Accessible through an online portal.

If you have any questions please do not hesitate to contact the undersigned.

Yours faithfully,
Edgewater Connections

Nathan Albertini
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