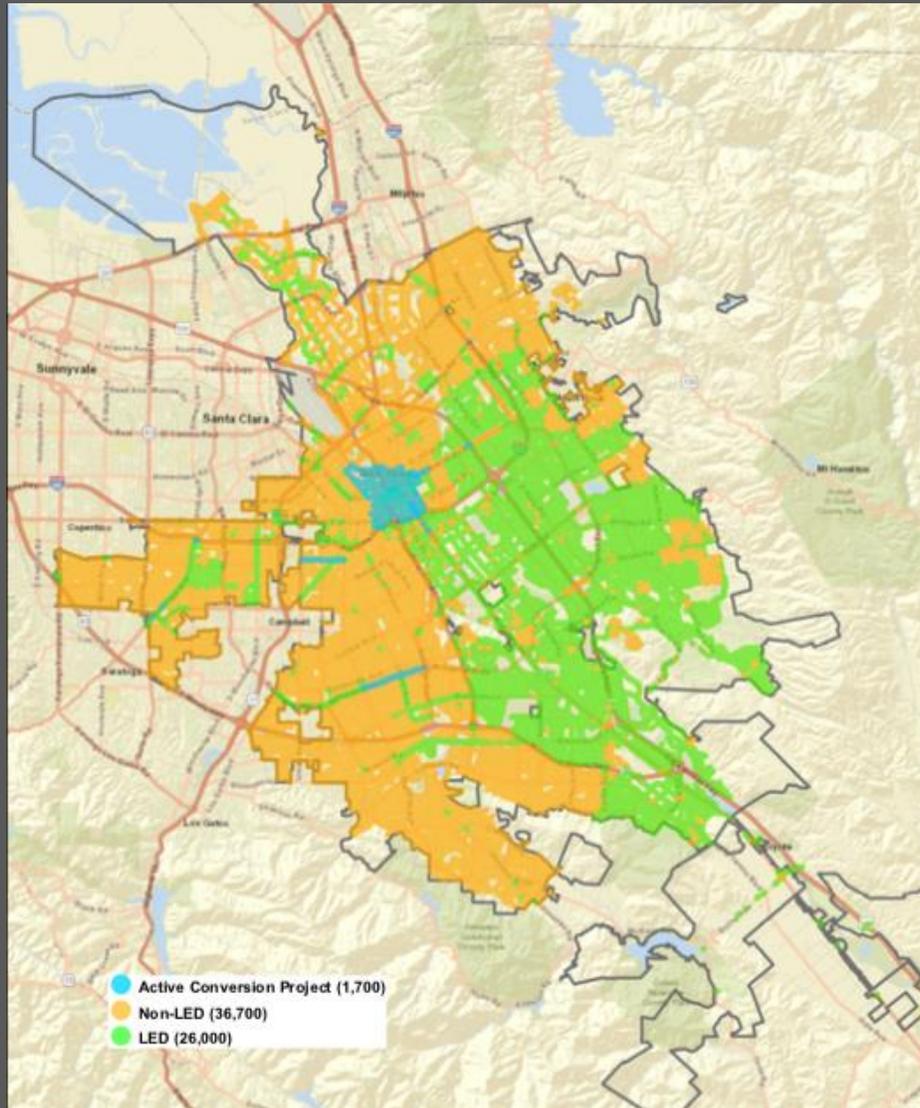


Smart Cities & Service Improvement Committee

LED Streetlight Conversion Update

Current San Jose Streetlight Footprint



The City's LPS lights are very energy-efficient, making the benefits and ROI for converting them to LED relatively less attractive

Streetlight Type	Number in City
LED	26,000
Low Pressure Sodium (LPS)	29,600
High Pressure Sodium (HPS)	3,800
Other (e.g. underpass, pedestrian overcrossing, and ornamentals)	5,000
Total Streetlights	64,400

Note: Another 1,700 streetlights – 1,300 HPS streetlights in the Downtown and 400 LSP streetlights on major arterial streets – are being planned for conversion with Parking and Traffic CIP funding in 2018 and 2019.

LED Streetlight Conversion: Background & Timeline

- The “**Innovative LED Streetlight Replacement RFP**” did not provide a viable path forward for LED retrofit
- The streetlight poles are an **invaluable city asset**
- The streetlight poles should be used to lay down a strong foundation for enabling the **San Jose Smart City Vision**



Progress Since Concluding the Innovative LED RFP

- ✓ Benchmarked peer cities on LED retrofits and funding models
- ✓ Re-baselined the LED conversion cost model
- ✓ Organized vendor discussions for smart controllers
- ✓ Developed understanding of the telecom value exchange opportunity for LED conversion and small cell installation
- ✓ Evaluated multiple options with and without smart controllers

Options for LED Streetlight Conversion

	Option 1: Rolling In-house Deployment	Option 2: Rolling Combination Crew Deployment	Option 3: Full Conversion with Smart Controllers
Functionality	LED with basic on/off controls	LED with basic on/off controls	LED with “smart” controllers
Conversion Approach	Reactive deployment only	Combined reactive & proactive zone-based deployment	Proactive zone-based deployment
Installation Crew	Existing in-house only	Combination: In-house & Contractor	Combination: In-house & Contractor
Duration	7 years	4 years	4 years
Estimated Cost	\$16.5 M	\$17.6 M	\$30.2 M

Note: \$1 million in “gap” funding can accelerate the timeframe for full conversion by up to one year

Objectives for LED Streetlight Conversion

Evaluate individual & relative value of the following objectives:

1. Speeding up the overall **time of full conversion**
2. Reducing the **cost of conversion**
3. Establishing a **Smart City foundation**
4. Minimizing the **number of trips** to the streetlight poles

Funding Options for LED Streetlight Conversion

Currently, there is **no source of funding** identified for future LED streetlight conversions

Sources of funding may include:

- ✓ **General Fund**
- ✓ **Capital Improvement Program (CIP)**
- ✓ **General Obligation Bond**
- ✓ Some limited opportunity to leverage **telco agreements**
- ✓ Various **financing models**

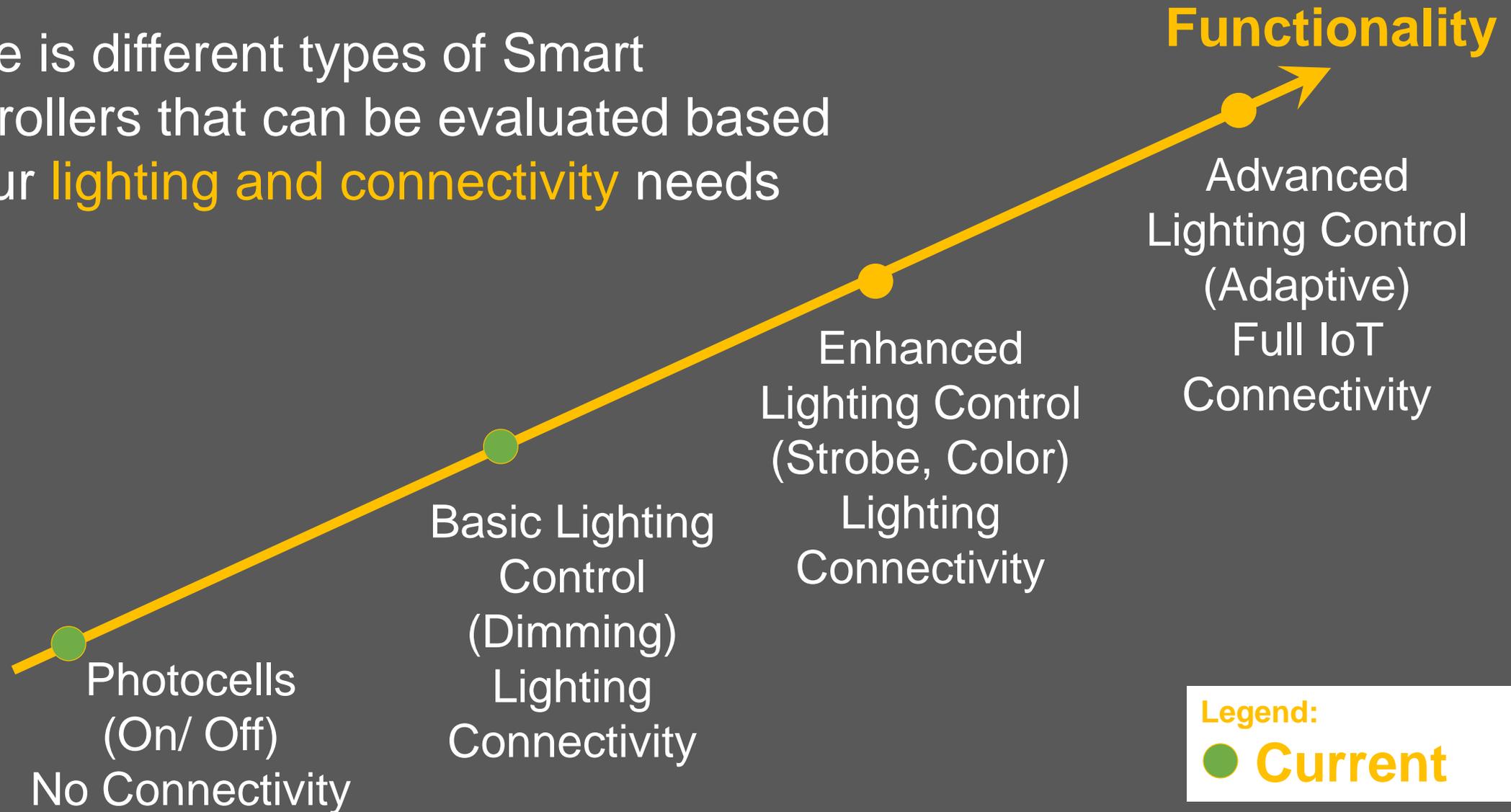
Additional Considerations

Contextual information to be considered:

- **Current policy & design guides** require “adaptive lighting”
- LED streetlights have become more **cost-effective**
- **No new orders** for existing LPS lamps after **July 2019**; **production to cease in 2020**
- Current streetlight controllers becoming **technically outdated**
- **PG&E rebate program** will end in 2018

Types of Smart Controllers

There is different types of Smart Controllers that can be evaluated based on our **lighting and connectivity** needs



Benefits of Smart Controllers as a Smart City Foundation

Smart controllers benefits over using a photo cell:

- **Energy Savings:** Incremental savings possible through “adaptive lighting”
- **Operational Effectiveness:** Potential to better manage the streetlight system and address malfunctions
- **Qualitative Benefits:** Other benefits for public safety and resident experience must be considered
- **Smart City IoT Connectivity Platform:** Almost all Smart City IoT use cases need some form of connectivity

Possible IoT Use Cases for Smart Controllers Connectivity Platform

Public Safety



Mobility



Facilities Management



Environmental

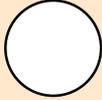
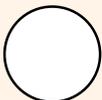
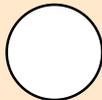
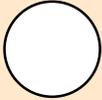


Options for LED Streetlight Conversion

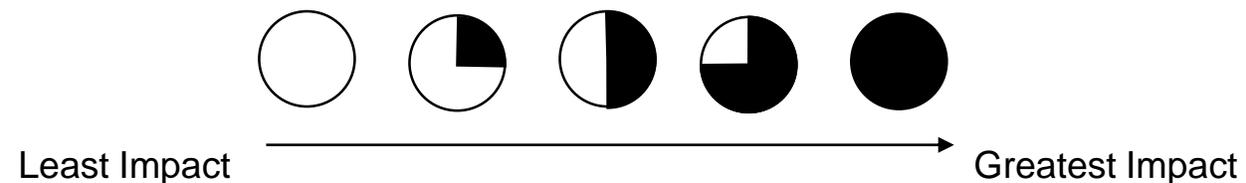
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Summary Comparison of Options

Desired Project Objectives	Option 1	Option 2	Option 3	Gap Funding
Speeding up the Time of Full Conversion				
Reducing the Cost of Conversion (Energy Efficiency Only)				N/A
Establishing a Smart City Foundation				N/A
Minimizing the Number of Trips to the Poles				N/A

Rating Legend



Next Steps

Additional analysis required for LED conversion plan:

1. Incorporate the feedback from the committee on presented options
2. Explore funding options with Finance and Budget for both long term and “gap” funding, if desirable
3. Develop a project work plan and schedule for chosen option
4. Identify specific resources and budget to support the project
5. Update the specifications and design guide for luminaires