CEEn-2018CPST-014

Santaquin City Irrigation-Water Conservation Study

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Introduction

MATERIAL TO BE COVERED

- Project Tasks and Deliverables
- Design and Analysis
- Discussion of Results
- Conclusions
- Recommendations

Project Tasks and Deliverables

TASKS

- **Analyze Spanish Fork smart meter data**
  - Peak flow reduction
  - Water volume saved
- **Analyze smart meter effect on lawns**

DELIVERABLES

- **Excel statistical analysis**
- **GIS project analyzing greenness of lawns**

Design and Analysis

STATISTICAL ANALYSIS

- Different watering schedules
  - Available in Excel file provided
  - Solve for peak demand reduction
  - Solve for total volume saved
  - Solve for individual residential savings

GREENNESS ANALYSIS

- ArcGIS Pro tool provides qualitative greenness analysis
  - Input NAIP imagery from before and after smart meters
  - Buffer circle to represent each lawn
  - Extract green bands from buffered areas
  - Calculate change in green
  - Reclassify into three categories: less green, no change, and more green
  - Sum pixels in each category

Discussion of Results

STATISTICAL ANALYSIS

With Smart Meters	2017 (thousand gallons)	2018 (thousand gallons)	Water Saved (thousand gallons)
June	37.84	34.85	2.99
July	40.86	36.63	4.23
August	36.42	25.15	11.26
September	18.83	19.02	-0.19
		Total	18.29

Without Smart meters	2017 (thousand gallons)	2018 (thousand gallons)	Water Saved (thousand gallons)
June	37.78	38.93	-1.15
July	39.35	42.44	-3.1
August	35.25	33.86	1.38
September	32.01	27.3	4.71
		Total	1.84

GREENNESS ANALYSIS

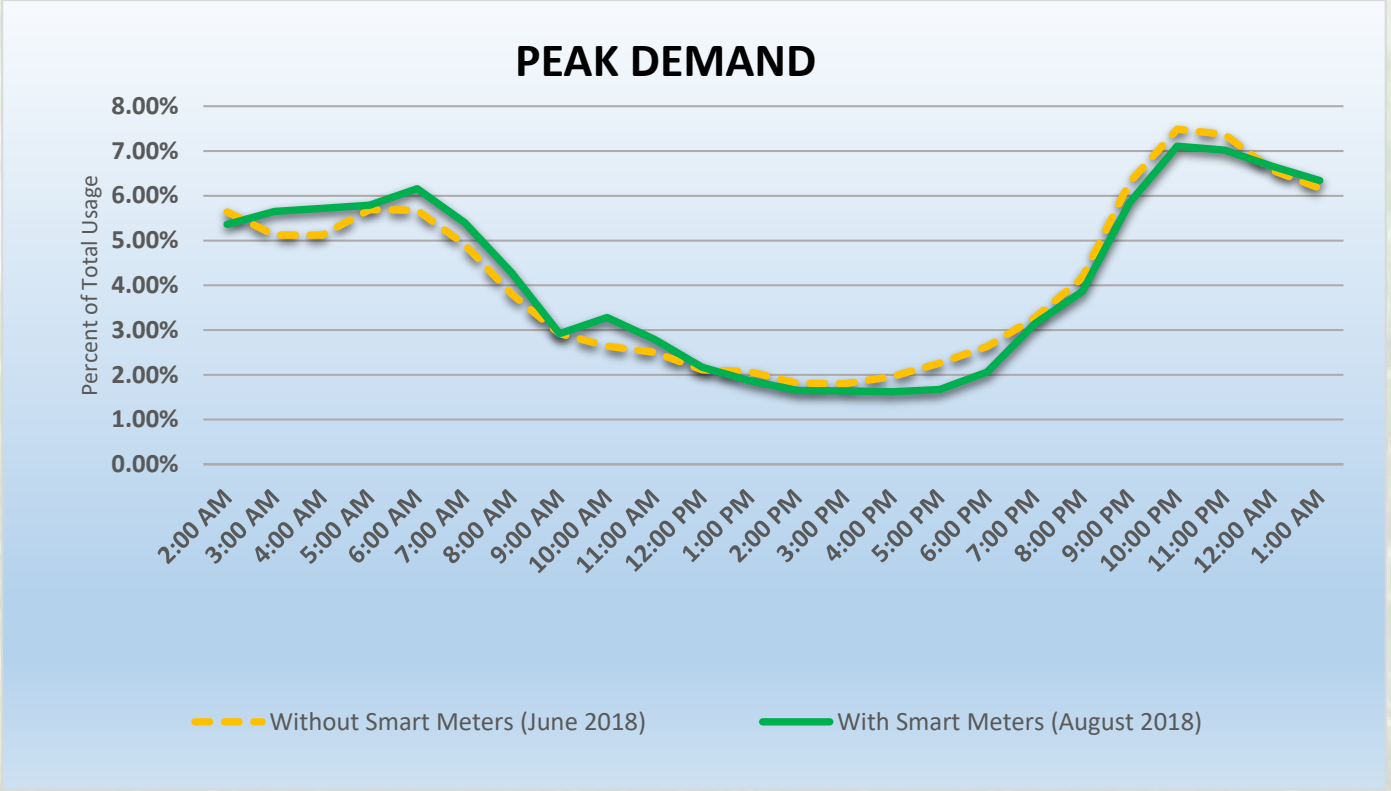
- Results delayed
  - No post smart meter NAIP data available
- Wait until after summer 2019 to perform analysis

Conclusions

PRELIMINARY RESULTS

- Small Spanish Fork peak demand decrease
- Conservation of irrigation water

- Summer data limited
- Aerial imagery limited



Recommendations

PLAN INSTALLATION NEXT YEAR

- Preliminary data is promising
- Additional year yields additional Spanish Fork data
- New imagery for GIS use

INSTALLATION PROCESS

- Focus initial installation in new developments
- Add smart meters as state grants allow
- Target 1⁄4-acre lots