

City of Lawrence Energy Efficiency & Facility Improvement Project

FINAL REPORT
December 19, 2017



Reminder: Project Goals

Improve Energy Efficiency

- Minimize energy wasted with outdated equipment and operation
- Remain a regional leader in energy efficiency

Reduce Costs

- Recapture dollars currently wasted on inefficient operation
- Minimize maintenance expenses on outdated equipment

Upgrade Facilities and Systems

- Replace antiquated or failing equipment
- Select systems with eye toward total life-cycle costs

Support sustainability and GHG reduction goals

- Proposed project saves 3,625 tons of CO₂e, equivalent to:
 - Taking 766 cars off the road each year.
 - Planting 3,431 acres of forest each year.

As a reminder, we embarked on this project 18 months ago to meet the following goals in the City of Lawrence:

Reminder: Project Financials

Project Funded Using Savings Generated

- Estimated annual energy savings of \$450,302
- Estimated annual maintenance savings of \$40,000
- CIP savings of \$1.2M
- Calculated using conservative 3% rate of energy escalation

Addresses Future CIP & Other Infrastructure Projects

- Several projects completed from upcoming CIPs
- Additional priorities addressed that were under CIP threshold or on upcoming CIP

Makes Best Use of Taxpayer Dollars

- Funds already allocated are being used to operate more efficiently

Project Results:

40+ City buildings and facilities improved:

- Heavy mechanical projects (boilers, chillers replaced)
- Light mechanical projects (rooftop AC units replaced)
- Roof replacements
- Building automation & controls
- Lighting retrofits to LEDs
- Building envelope improvements (windows, weatherization)
- Solar PV installed

Addressed many projects on the CIP.

Completed on-time.

No cost increases.

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We are 95% complete with the project.

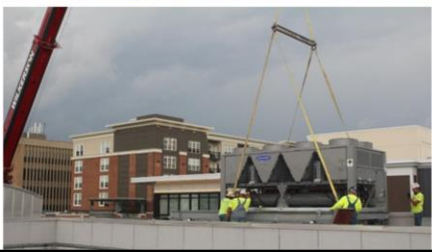
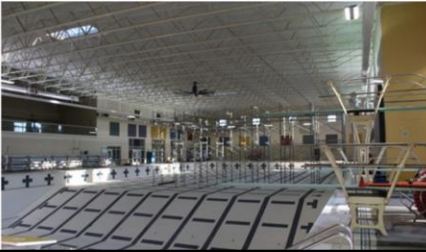
Most of what remains is commissioning, testing and a few punch list items.

We anticipate that 360 energy engineers will complete commissioning by the end of January.

360 will continue commissioning throughout the measurement and verification period to ensure occupant comfort throughout the seasonal changes, and to ensure they are meeting the guaranteed energy savings.

They will also continue to be engaged in assisting with any warranty issues that pop up.

Projects:



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Key projects:

Top left: 100 KW solar photovoltaic system installed at Fire Station #5.

Bottom left: ductwork and HVAC improvements at the indoor aquatic center.

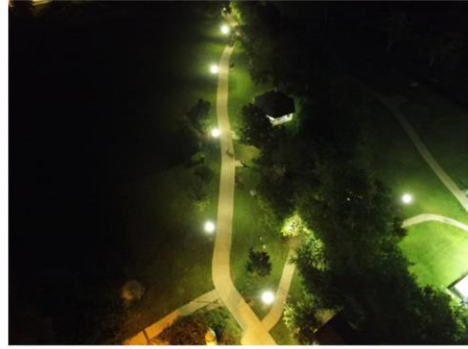
Top right: New windows at City Hall

Bottom right: New chiller at Lawrence Arts Center.

Projects:



Centennial Park: BEFORE lighting retrofit.



Centennial Park: AFTER lighting retrofit.

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- A significant part of the project included retrofitting lights to LEDs citywide.
- This included interior lighting retrofits throughout city buildings, and lighting upgrades throughout our parks and parking lots.
- This did NOT include the Westar-owned streetlights.
- The goal of the lighting portion of the project was not only to save energy and money, but to improve safety and visibility in our public spaces.

Projects:



Community Health Northeast Parking Lot:
BEFORE lighting retrofit.



Community Health Northeast Parking Lot:
AFTER lighting retrofit.

360's Role



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Once construction is complete, all of the projects will be commissioned by 360 so that they perform the way they were designed.

Once all construction is complete, we will enter the Measurement and Verification stage, where the energy usage at all facilities will be monitored by 360 and the City to ensure that the energy savings are meeting the projected savings targets.

This M&V period will last for three years to ensure that the projects are performing as promised.

What's Next?

- 360 Energy Engineers and the City will monitor the annual energy savings for 36 months after project completion.
- Annual reports provided to the City, submitted as documentation for Green Bonds.
- If actual energy savings fall short of the energy savings guarantee, 360 ESCO shall reimburse the City for the full amount of the difference.
- New Sustainability Director and City Staff will share annual reports with the Commission. 9