



City of Fenton, MO
Comprehensive Energy & Infrastructure Solutions
Energy Performance Update – Year 1

October 14, 2021



Project Update – Year 1 Energy Performance Project Savings

RsMO 8.231 Energy Performance Contracting Program

2019 - Trane was competitively selected through RFP process and completed comprehensive energy and infrastructure upgrades for city buildings including: City Hall, Community Development, Public Works and RiverChase.

Project Goals:

- Address Capital Infrastructure needs - old, failing and inefficient HVAC equipment and building controls, tighten building envelope and convert any non-LED lamps to LEDs.
- Improve overall comfort and efficiency of buildings, modernize controls platform for staff to address and monitor issues remotely.
- Maximize available utility incentives \$53,017 Ameren / \$3,000 Spire = \$56,000 Total!

Main upgrades included:

- New HVAC equipment at all facilities
- New web-based integrated building automation controls platform with system scheduling/equipment optimization at all facilities
- Comprehensive Building Envelope Improvements – gaps, cracks, holes – new storefronts
- New high-efficiency LED lighting – interior, exterior and street lights (RiverChase /Gravois Bluffs Blvd.)

Project Update – Year 1 Energy Performance Project Savings

Energy Performance Process:

Step 1: Build a Building Model

- Trane has developed the leading design and analysis software program for building energy modeling called Trane Air Conditioning Economics TRACE™
- Inputs data on how facilities use energy pre-project.
- Overlays with Energy Conservation Measure's (ECMs) selected (efficiencies, hours of operation, set-point parameters, etc.).
- Program generates impact to energy and maintenance savings used for guarantee.
- Buildings are comprised of dynamic systems, and when a single change is made to a system, others may be affected.

Step 2: Guaranteed Measurement

- Trane uses **International Performance Measurement and Verification Protocol (IPMVP) for confirming benefits of installed ECMs.**
- Measure by ECM in units of energy consumed(KwH/Therms) / utility rates; equipment submittal data, building performance trendline data and watt measurements.
- Communicate back to stakeholders/administration/taxpayers yearly impact w/formal report.

TRACE™ meets the requirements for simulation software set by ASHRAE Standard 90.1-2004-2010 and the LEED Green Building Rating System. It is among the U.S. Department of Energy's approved building modeling software packages.

Also recognized by the U.S. Internal Revenue Service as a Tax Deduction Qualified Software, TRACE™ calculates energy and power cost savings that meet federal tax incentive requirements for commercial buildings.

Project Update – Year 1 Energy Performance Project Savings

City of Fenton MO ENERGY SAVINGS SUMMARY

November 1st 2020 through October 31st 2021

Contract Guarantee Units

kWh 681,253
kW 0
Therms 20,456

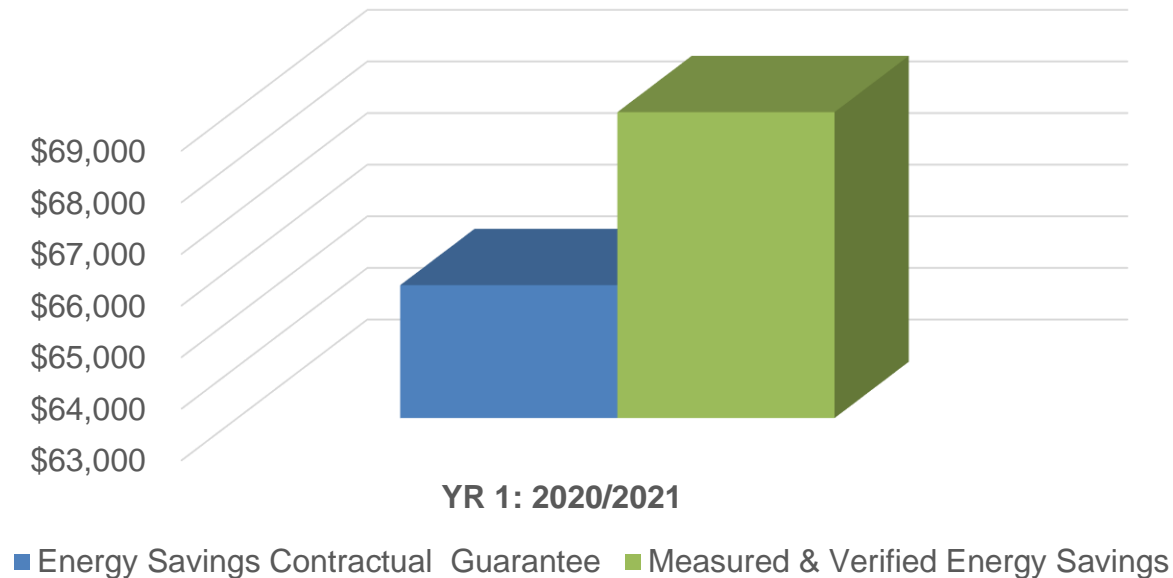
Year 1 Guarantee Information

Guaranteed Savings \$85,575
Annual Escalation % 3%
Excess/Shortfall \$3,352
Operational Savings \$23,003

Year	Verified Energy Savings		Deviation from Guarantee		Cost Savings	
Phase	Electrical Energy (kWh)	Natural Gas (therms)	Electrical Energy (kWh)	Natural Gas (therms)	Cost Savings	Excess/Shortfall
Year 1	701,313	20,595	40,060	139	\$68,927	\$3,352
Year 2						
Total	701,313	20,595	40,060	139	\$68,927	\$3,352

Project Update – Year 1 Energy Performance Project Savings

City of Fenton Energy Performance Contract Annual M&V Energy Savings \$



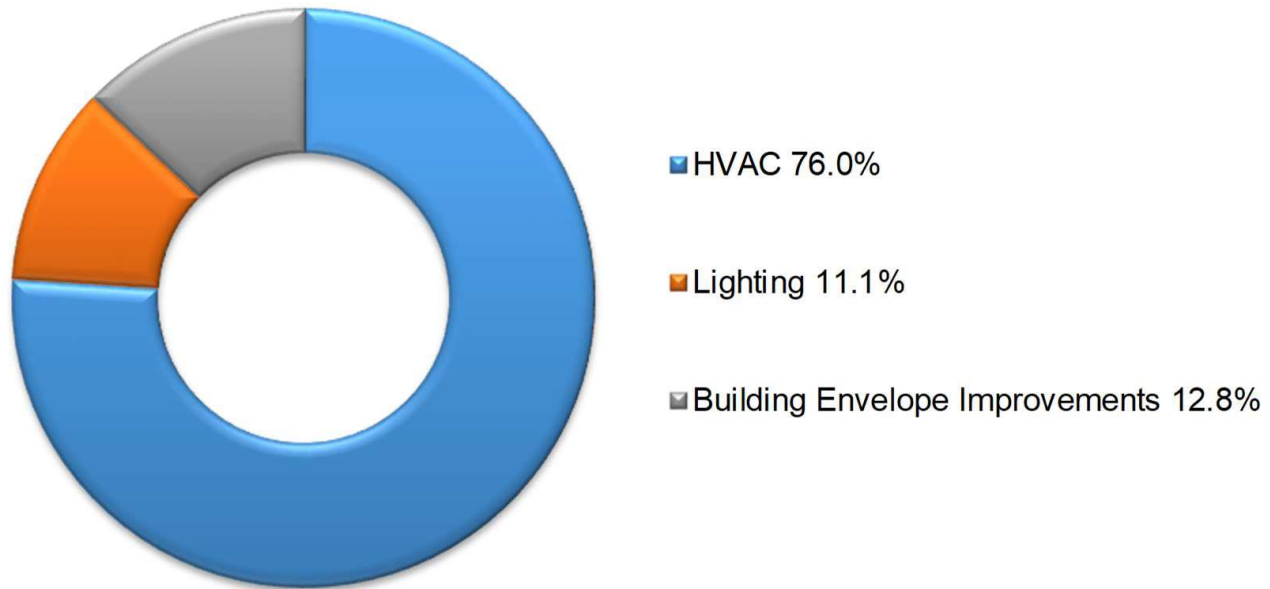
Project performance to date:

2020 – 2021: Year 1 measured and verified energy savings: **\$68,927K (+3K over contractual guarantee)**

Monitored and verified by Trane Energy Engineers using units of energy (KwH/Therms) / utility rates; equipment submittal data, building performance trendline data and watt measurements.

Project Update – Year 1 Energy Performance Project Savings

Verified Cost Savings % by ECM



Project Update – Year 1 Energy Performance Project Savings

Environmental Impact of Savings

Reduced
CO₂
emissions



Miles driven
by average
passenger
vehicle



Carbon
sequestered by
acres of forest
for
one year



606 metric tons

1,522,939 miles

743 acres

CO₂ emissions reduction based on project energy savings converted utilizing
<https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>

Energy Savings Totals for Project

Electric
Savings



Natural Gas
Savings



701,313 kWh

20,595 therms