



Stantec

Energy Assessment Report

Rochester–Genesee Regional Transportation Authority



**Prepared for
Rochester-Genesee Regional Transportation Authority**

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Section 1 - EXECUTIVE SUMMARY

Stantec was hired by the RGRTA to perform an energy assessment of the facilities on the campus located at 1372 East Main Street in Rochester, NY. The goal of this energy audit was to identify the opportunities for improving the energy efficiency of the following facilities located on the campus: Service Building, Administration Building, and the Operations Building. In addition, the assessment needed to include associated costs and payback periods associated with recommended upgrades.

The assessment has been based on Stantec’s Sustainable Design Process. This process is based on the simple premise that passive systems are more efficient and should be designed to optimum levels in lieu of active energy consuming systems. As such, the scope of work included an energy assessment of the major building systems, including:

- Building Envelopes: roof, walls, doors, and glazing systems
- Mechanical Systems: heating, cooling, ventilation, refrigeration, and control systems
- Electrical Systems: lighting, controls, motors, and miscellaneous plug loads

The process started with Stantec Engineers and Architects verifying existing facility drawings. In addition, they reviewed the 2007 Parrone Engineering Report that provided an operational condition assessment on much of the same equipment. With this data in hand the same personnel performed field evaluations, interviews and observations on campus. Upon completion the data was compiled into an energy model using the Department of Energy’s whole building energy simulation software package eQUEST. The constructed computer models were verified for accuracy using existing utility data. The accuracy of these models is within ±6% of the actual consumption data. With the proposed Energy Conservation Measures implemented, the overall results for the campus are as follows:

ENERGY CONSERVATION MEASURE (ECM's) SUMMARY										
No.	Description	Applicable Building			Cost	Annual Savings			Years Payback	Recommend*
		Service	Admin.	Ops.		mmBtu	Dollars	CO ₂		
1	Glazing	na	X	na	\$96,000	397	\$2,176	53,136	44.1	Yes
2	Man Doors	X	X	X	\$52,500	53	\$420	2,350	125.0	No
3	Overhead Doors	X	na	X	\$20,400	525	\$163	62,267	125.2	No
4	Ceiling Insulation	X	na	na	\$473	0	\$0	35	-	No
5	Bridge Insulation	na	X	na	\$12,000	161	\$1,194	14,087	10.1	Yes
6	Roofs	X	X	X	\$2,479,287	14	\$637	15,199	3892.1	No
7	Lighting Efficiency	X	X	X	\$184,944	309	\$10,019	160,576	18.5	Yes
8	Lighting Controls	X	X	X	\$31,632	2,182	\$8,813	743,047	3.6	Yes
9	Skylights / Daylighting	na	na	X	\$1,263,000	436	\$10,767	181,244	117.3	No
10	Transformers	X	X	X	\$86,226	32	\$950	10,235	90.8	No
11	Motor Efficiency	X	X	X	\$35,032	105	\$2,415	35,300	14.5	Yes
12	Radiant Heating System Efficiency	X	na	na	\$52,000	224	\$1,664	26,243	31.3	No
13	Gas Fired Air Curtain Efficiency and Controls	X	na	na	\$120,000	1,415	\$1,306	-3,133	91.9	No
14	Unit Heater Efficiency	X	na	na	\$54,280	483	\$3,613	58,428	15.0	Yes
15	OA Reset on Boilers and Chillers	na	X	na	\$3,000	10	\$147	-2,210	20.4	No
16	Chiller Efficiency	na	X	na	\$61,200	44	\$860	8,523	71.2	No
17	Heat Recovery	X	na	X	\$2,047,200	11,496	\$105,232	1,166,121	19.5	Yes
18	Boiler Efficiency	na	X	X	\$260,840	4,048	\$27,707	457,037	9.4	Yes
19	Replace Electric Unit Heaters and Coils	na	na	X	\$15,555	-28	\$1,520	28,769	10.2	Yes
20	Pavement Ice Control System OA Controls	X	na	na	\$7,500	1,133	\$8,228	134,007	0.9	Yes
21	HVAC Controls (Occupied/Unoccupied)	X	X	X	\$25,241	1,491	\$11,984	190,466	2.1	Yes
22	RTU HVAC-1 EER Upgrade	na	na	X	\$19,000	24	\$510	7,615	37.3	No
23	Electric Unit Heater Conversion	na	X	na	\$2,975	3	-\$25	-4,102	-	No
TOTAL					\$6,930,285		\$200,300		34.6	

* An Extended Summary, including recommendations based on all attributes, is included in Appendix F