

## Millinocket Benchmarking Report Summer 2020

### Background and Methods

This report evaluates the electric and fuel oil consumption of buildings operated by the Town of Millinocket and the Millinocket School District. This is done using the EPA Energy Star Portfolio Manager tool and energy bills from May 2019 to June 2020. Buildings include the fire station, public works department garage, Granite Street Elementary, Stearns middle and high school, municipal airport, wastewater treatment plant, and municipal building. Depending on property type, an Energy Star score or a weather normalized source EUI<sup>1</sup> was calculated. Steps as outlined can be taken to improve energy efficiency and reduce costs within these buildings. Looking forward, the town of Millinocket can lead by example, illustrating the cost reduction benefits of energy efficiency measures.

### Millinocket Fire Department

222 Aroostook Avenue, built 1939

- Annual Energy Cost:  
Electric: \$5,841.67<sup>2</sup>  
Fuel Oil: \$6,195.38
- Performance: This property performed above average with a weather normalized source EUI of 87.5, 29.94% lower than median. Energy consumption peaks October through March.
- Recommendation: Insulate brick externally for greater efficiency. Estimated cost for project ranges \$21,410-\$38,736.<sup>3</sup>

### Millinocket Municipal Building

197 Penobscot Avenue, built ~1950

- Annual Energy Cost: \$25,438.31  
Electric: \$17,525 11,683.33  
Fuel Oil: \$7,913.31
- Performance: This property performed with an Energy Star score of 68. This is above the median, however does not qualify for Energy Star certification<sup>4</sup>.
- Recommendation: Insulate brick externally for greater efficiency. Estimated cost for project ranges \$7,094-\$12,836.

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<sup>1</sup> "Source Energy Use is the total amount of raw fuel that is required to operate your property. Source EUI (Energy Use Intensity) is Source Energy divided by the property's Gross Floor Area. In addition to what the property consumes on-site, source energy includes losses that take place during generation, transmission, and distribution of the energy, thereby enabling a complete assessment of energy consumption resulting from building operations" (Energy Star Portfolio Manager).

<sup>2</sup> Electricity bills are combined for fire department and Municipal buildings. To estimate efficiency scores, 75% of electric consumption is attributed to the municipal building and 25% to the fire department.

<sup>3</sup> Basic external insulation estimated \$1.73/ft<sup>2</sup> and higher end estimated \$3.13/ft<sup>2</sup>

<sup>4</sup> EPA Energy Star scores range of 1-100, 1 being least efficient and 100 being most efficient. A score of 50 is the median and a score of 75 or higher is eligible for an Energy Star certification.

## **Public Works Department**

20 Cedar Street, built ~1960

- Annual Energy Cost: \$10,821.47  
Electric: \$4,842.6  
Fuel Oil: \$5,978.47
- Performance: This property performed above average with a weather normalized source EUI of 23.5, 73.73 lower than median. A new waste oil furnace improves efficiency. However, the portfolio manager tool does not provide garages as a specific property type so this EUI is compared as a generic building.
- Recommendation: Despite improvements in efficiency and potential gains from LED lighting, the metal frame and age of building make it questionable to make improvements. A combined public works department for Millinocket, East Millinocket, and Medway or in town a combined public works, fire, and police department would reduce redundancy and increase efficiency.

## **Granite Street Elementary**

191 Granite Street, built 1954

- Annual Fuel Oil Cost: \$55,290<sup>5</sup>
- Performance: This property performed above average in the 95th percentile with an Energy Star score of 95.
- Recommendation: Granite Street Elementary has undergone extensive renovations including new insulated roofing and 2 new boilers installed in 2013, seeing great savings in fuel efficiency. This excellent performance qualifies this property for an Energy Star certification.

## **Stearns Jr. Sr. High School**

199 State Street, built 1963

- Annual Fuel Oil Cost: \$139,365
- Performance: This property performed in the 99th percentile with an Energy Star score of 99.
- Recommendation: Stearns Jr. Sr. High School was renovated in 2012 to have a new 1.5 million dollar heating system converting from steam heat to hot water and moving from #5 fuel to #2. Two new high efficiency boilers were installed along with half the building's unit ventilators. These projects contribute to the property's excellent performance and qualifies it for an Energy Star certification.

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<sup>5</sup> Granite and Stearns cost based on the Governor's Energy Office average fuel oil price for each delivery date [https://www.maine.gov/energy/fuel\\_prices/archives-oil.shtml?id=1698760](https://www.maine.gov/energy/fuel_prices/archives-oil.shtml?id=1698760). Electricity costs not included in report due to avoid conflict of interest

## **Millinocket Municipal Airport**

152 Medway Road

- Annual Energy Cost: \$3,650.47  
Electric: \$1,754.55  
Fuel Oil: \$1,895.92
- Performance: The three buildings analyzed on this property includes two hangars used for storage and workshops and a combined office and welcome center. They earned a source EUI score of 22.4, below average.
- Recommendation: One hangar is newly constructed and efficient. The other is older and could benefit from LED lighting and other tech. Due to the age and size of the office and welcome center, during a site visit energy experts concluded a new build is the only reasonable measure to improve efficiency. Experts also estimated that necessary improvements/renovation costs would be comparable to that of a new build.

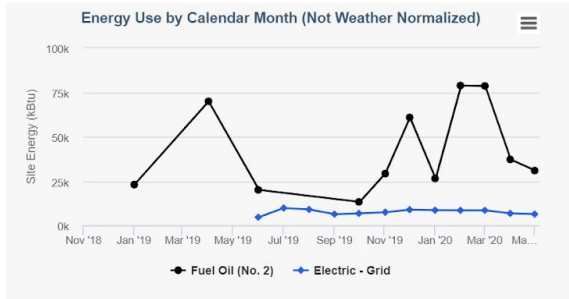
## **Millinocket Wastewater Treatment Plant**

Medway Rd, built 1980

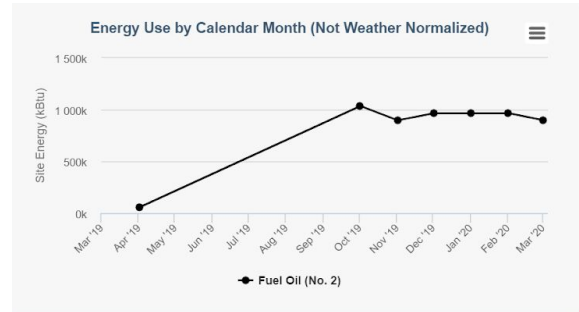
- Annual Energy Cost: \$34,532.74  
Electric: \$31,021.88  
Fuel Oil: \$3,510.86
- Performance: This property performed above average with a source EUI of 84.7, 95.12% lower than median.
- Recommendation: Update bubbler system to improve efficiency.

# Appendix

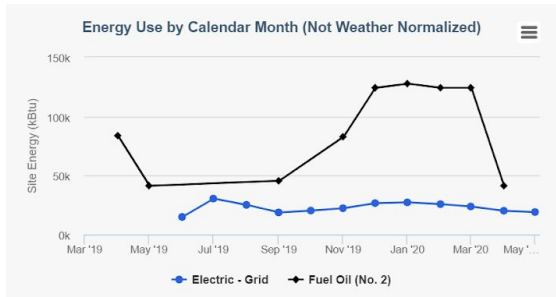
## Fire Department



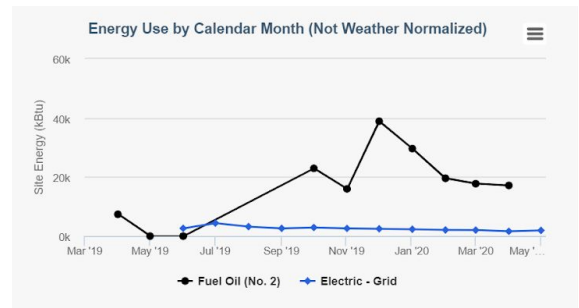
## Stearns Jr. Sr. High School



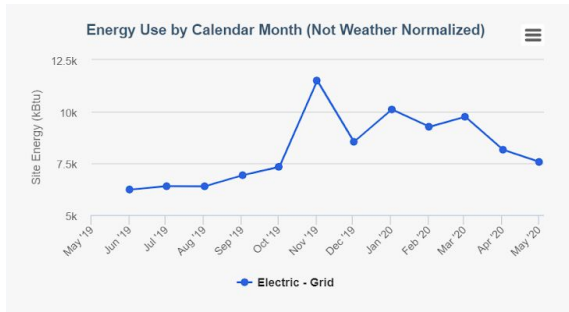
## Municipal Building



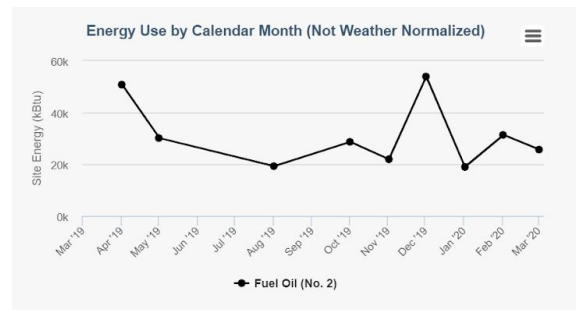
## Municipal Airport



## Public Works Department



## Wastewater Treatment Plant



## Granite Street Elementary

