

Facility Improvement Program Town of Shirley



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ABM Building Solutions

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Activities to Date

- ✓ Utility Analysis
- ✓ RFQ Selection
- ✓ Data Logging
- ✓ Asset Inventory
- ✓ Construction Budget
- ✓ IGA Development
- ✓ Funding & Financing Analysis
- ✓ Performance Guarantees
- ✓ Final Scope Selection
- Board of Selectman Meeting
- Special Town Meeting
- Contract Documents



Town of Shirley Goals

- **Budget Neutral Solution**
- **20% Energy Reduction**
- **Building Envelope and Insulation – Town Offices, Police Department, Library**
- **Controls Upgrade**
- **Lighting Upgrades including Street Lighting**
- **Central Air-Conditioning in Senior Center**
- **Fuel Switch, Oil to Gas - War Memorial, Fire Department, Senior Center**

Benefits

- No Increase in Tax Payer Burden
- Reduction in Energy Consumption (20% Goal)
- Increased Comfort Levels
- Reduction in Reactive Maintenance
- Tighter Budgetary Control
- Increased Safety on Town Roads Through Street Lighting Retrofits

Utility Analysis

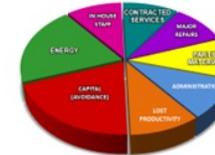


FISCAL POTENTIAL WORKSHEET

for

Town of Shirley

Capital Costs	\$	687,427
Rebates/Down Payments	\$	112,981
Net Financed Amount	\$	574,446
Interest Rate		3.50%



Proforma Cash Flow

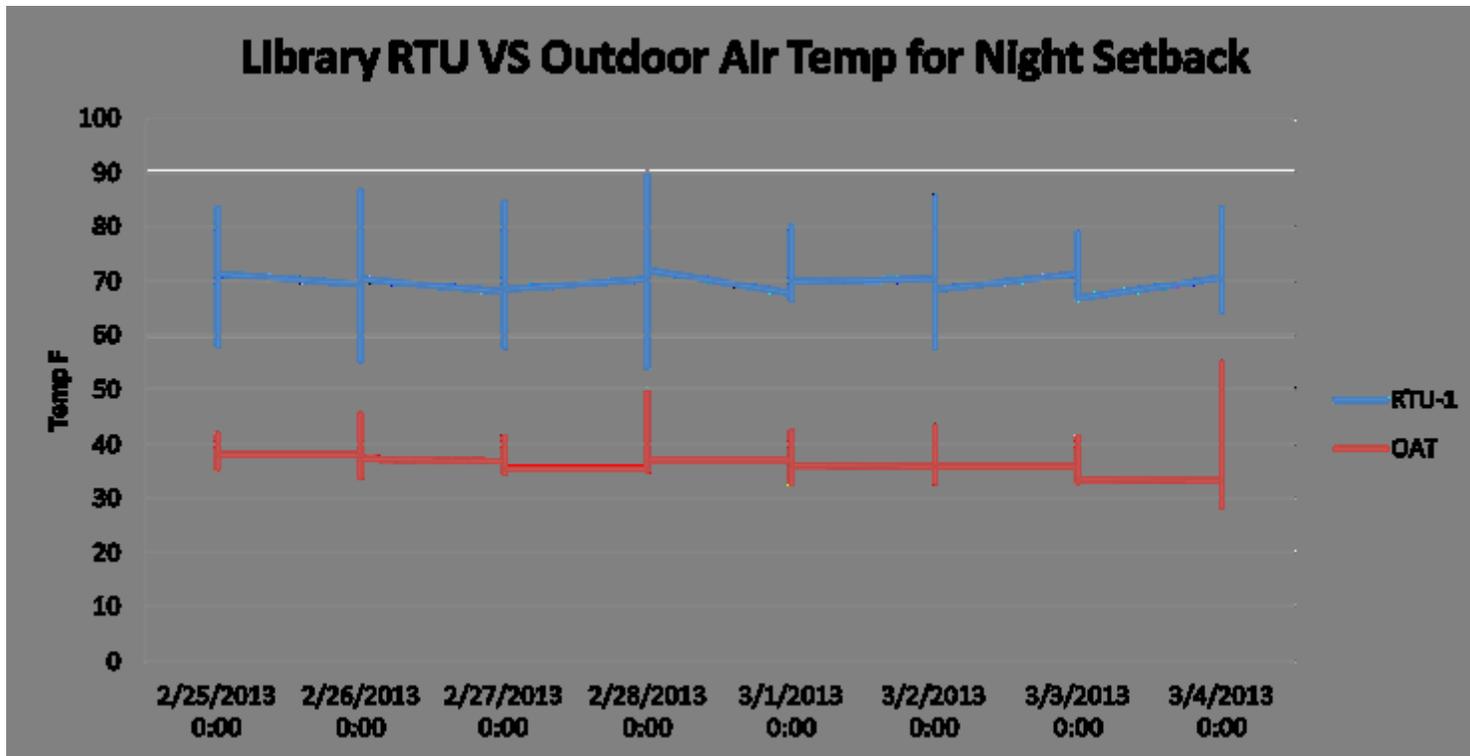
	A	B	C	D	E	F	G	I	J	K	
	Funding Sources					Program Costs					Service
Term	General Fund Reallocation	Sustainable FM	Elective Contributions	Maintenance Reallocation	Total Annual Funding Production	Debt Service	Performance Services	Annual Program Costs	Comprehensive Annual Cash Flow		Service
0	\$ 12,215				\$ 12,215				\$ 12,215		
1	\$ 48,861	\$ -	\$ -	\$ -	\$ 11,508	\$ 49,388	\$ 31,280	\$ 80,668	\$ (20,299)	\$ 23,280	\$ 23,280
2	\$ 50,327	\$ -	\$ -	\$ -	\$ 11,853	\$ 49,388	\$ 32,218	\$ 81,607	\$ (19,427)	\$ 23,978	\$ 23,978
3	\$ 51,837	\$ -	\$ -	\$ -	\$ 12,209	\$ 49,388	\$ 33,185	\$ 82,573	\$ (18,528)	\$ 24,698	\$ 24,698
4	\$ 53,392	\$ -	\$ -	\$ -	\$ 12,575	\$ 49,388	\$ 8,742	\$ 58,130	\$ 7,837		
5	\$ 54,993	\$ -	\$ -	\$ -	\$ 12,952	\$ 49,388	\$ 9,004	\$ 58,392	\$ 9,553		
6	\$ 56,643	\$ -	\$ -	\$ -	\$ 13,341	\$ 49,388	\$ 9,274	\$ 58,663	\$ 11,322		
7	\$ 58,343	\$ -	\$ -	\$ -	\$ 13,741	\$ 49,388	\$ 9,552	\$ 58,941	\$ 13,143		
8	\$ 60,093	\$ -	\$ -	\$ -	\$ 14,153	\$ 49,388	\$ 9,839	\$ 59,227	\$ 15,019		
9	\$ 61,896	\$ -	\$ -	\$ -	\$ 14,578	\$ 49,388	\$ 10,134	\$ 59,523	\$ 16,951		
10	\$ 63,753	\$ -	\$ -	\$ -	\$ 15,015	\$ 49,388	\$ 10,438	\$ 59,827	\$ 18,941		
11	\$ 65,665	\$ -	\$ -	\$ -	\$ 15,466	\$ 49,388	\$ 10,751	\$ 60,140	\$ 20,991		
12	\$ 67,635	\$ -	\$ -	\$ -	\$ 15,930	\$ 49,388	\$ 11,074	\$ 60,462	\$ 23,103		
13	\$ 69,664	\$ -	\$ -	\$ -	\$ 16,408	\$ 49,388	\$ 11,406	\$ 60,794	\$ 25,277		
14	\$ 71,754	\$ -	\$ -	\$ -	\$ 16,900	\$ 49,388	\$ 11,748	\$ 61,137	\$ 27,517		
15	\$ 73,907	\$ -	\$ -	\$ -	\$ 17,407	\$ 49,388	\$ 12,101	\$ 61,489	\$ 29,824		
Totals	\$ 920,977	\$ -	\$ -	\$ -	\$ 214,036	\$ 740,825	\$ 220,747	\$ 961,573	\$ 173,440		

Establishing the Baseline

- Measure All Consumption
- Determine Time of Use
- Create Energy Baseline
- Differentiates Opinion From Fact

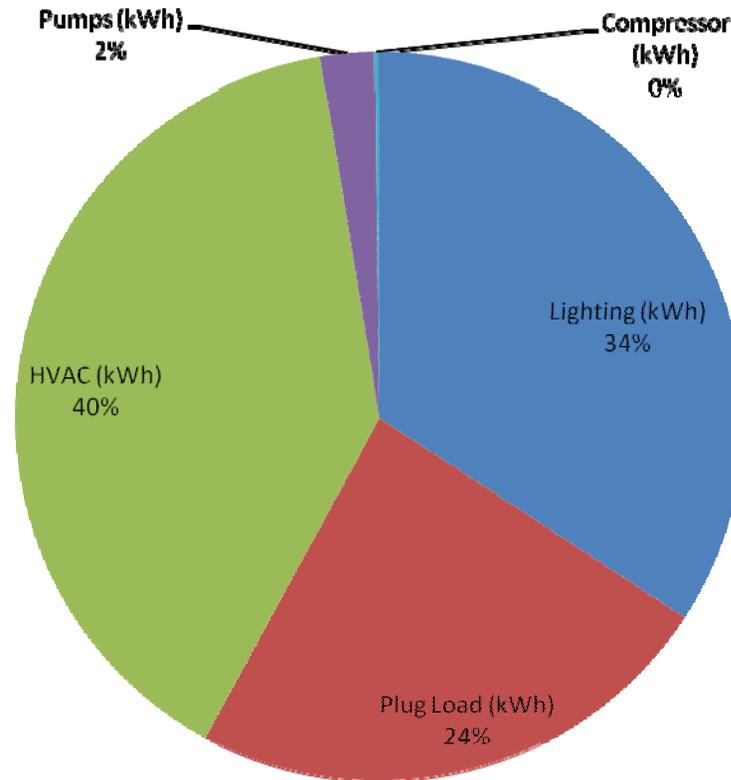


Data Logger Plots



Outdoor Air Temp in 30s, no night setback . The Indoor Temp stays pretty flat at 72 F (Average) showing opportunity for night setback at the library

Electric End Use Plot



- Majority of the consumption is in Lighting and HVAC. ABM focused on these areas to maximize savings.
- Plug load percentage higher due to Police Station Data Center equipment that runs 24/7

Shirley Police Department



Shirley Fire Department



Shirley Senior Center



Shirley Town Offices



Hazen Memorial Library



DPW/Fire



War Memorial



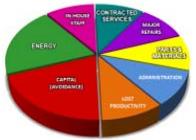
Shirley Town Offices

Technical Solution

- Lighting; retrofit, Occupancy Controls
- Building Envelope, Weatherization
- Ceiling/Roof Insulation
- Controls Upgrade
- Retro-commission AHU's, HVAC equipment, and Air and Water Balance



Financials



Utility Expenditures	\$29,499
Utility Profile	\$2.35 sq. ft.
Targeting	\$1.81 sq. ft.
Annual Energy Savings	\$6,749

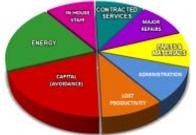
Hazen Memorial Library

Technical Solution

- Lighting; retrofit, Occupancy Controls
- Building Envelope, Weatherization
- Ceiling/Roof Insulation
- Controls Upgrade
- Retro-commission HVAC equipment (5 Roof Top Units)
- Install Catalyst Controls on 4 Roof Top Units



Financials



Utility Expenditures	\$14,590
Utility Profile	\$1.35 sq. ft.
Targeting	\$.88 sq. ft.
Annual Energy Savings	\$5,060

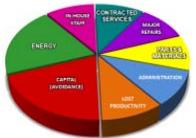
Shirley Police Department

Technical Solution

- Lighting; retrofit, Occupancy Controls
- Building Envelope, Weatherization
- Ceiling/Roof Insulation
- Retro-commission AHU's, HVAC equipment



Financials



Utility Expenditures	\$17,926
Utility Profile	\$3.03 sq. ft.
Targeting	\$2.51 sq. ft.
Annual Energy Savings	\$3,045

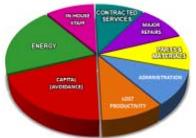
Shirley Fire Department

Technical Solution

- Lighting; retrofit, Occupancy Controls
- Building Envelope, Weatherization
- Retro-commission HVAC equipment
- Boiler Replacement
- Fuel Switch (Oil to Gas)



Financials



Utility Expenditures	\$14,968
Utility Profile	\$2.00 sq. ft.
Targeting	\$1.23sq. ft.
Annual Energy Savings	\$5,712

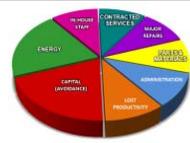
DPW/Fire

Technical Solution

- Lighting; retrofit, Occupancy Controls
- Building Envelope, Weatherization
- Retro-commission HVAC equipment



Financials



Utility Expenditures	\$7,892
Utility Profile	\$.71 sq. ft.
Targeting	\$.59 sq. ft.
Annual Energy Savings	\$1,366

War Memorial Building

Technical Solution

- Lighting; retrofit, Occupancy Controls
- Building Envelope, Weatherization
- Retro-commission HVAC equipment
- Boiler Replacement
- Fuel Switch (Oil to Gas)



Financials



Utility Expenditures	\$10,289
Utility Profile	\$1.31 sq. ft.
Targeting	\$.86 sq. ft.
Annual Energy Savings	\$3,557

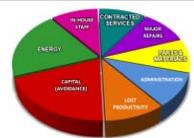
Shirley Senior Center

Technical Solution

- Lighting; retrofit, Occupancy Controls
- Building Envelope, Weatherization
- Retro-commission HVAC equipment
- Fuel Switch (Oil to Gas)
- Install 3 Condensing Units to Complete the Air-Conditioning System



Financials

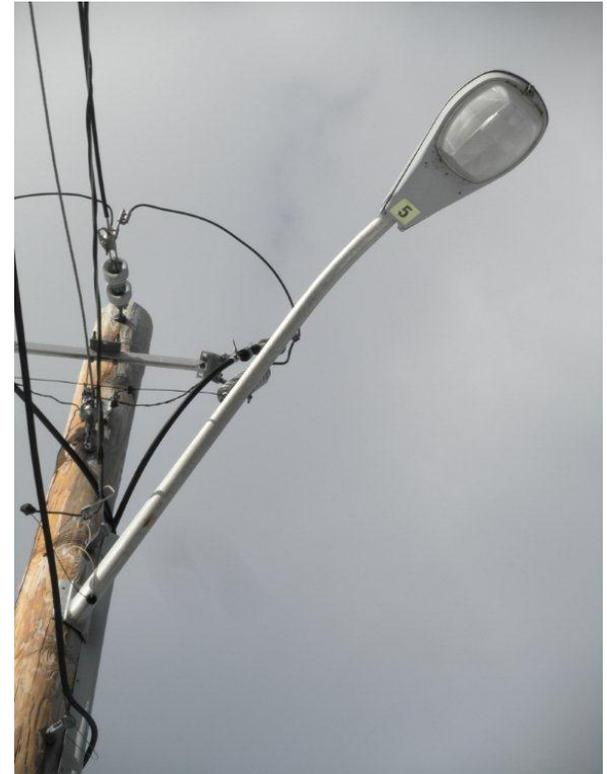


Utility Expenditures	\$7,553
Utility Profile	\$2.30 sq. ft.
Targeting	\$1.18 sq. ft.
Annual Energy Savings	\$3,676

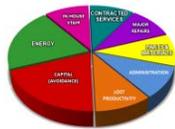
Shirley Street Lights

Technical Solution

- Retrofit 209 Street Lights with LED's



Financials



Annual Energy Savings

\$19,696

Building / Facility	Elec Usage (kWh/yr) [Avg Jan 2011- Dec 2012]	Heating MMBTU/Yr	Total Utility	Benchmark (\$/SF/Yr)	kWh Savings	MMBTU Savings	Annual Savings	New Bench
Town Hall	140,224	771	\$ 29,498.89	\$ 2.35	37,125.40	133.54	\$ 6,749	\$ 1.81
Library	65,480	490	\$ 14,590.42	\$ 1.35	28,531.61	114.69	\$ 5,060	\$ 0.88
Police Station	121,168	274	\$ 17,925.81	\$ 3.03	22,452.13	30.06	\$ 3,045	\$ 2.51
Fire Station	37,754	428	\$ 14,967.99	\$ 2.00	6,455.15	143.68	\$ 5,713	\$ 1.23
DPW/Fire Station	17,126	391	\$ 7,892.00	\$ 0.71	6,026.91	36.86	\$ 1,366	\$ 0.59
War Memorial	28,586	238	\$ 10,288.53	\$ 1.31	4,343.87	146.30	\$ 3,556	\$ 0.86
Senior Center	13,327	214	\$ 7,552.67	\$ 2.30	5,300.58	21.64	\$ 3,676	\$ 1.18
Street Lighting	74,929		\$ 21,135.38		49,971.00		\$ 19,697	
TOTAL	498,593	2,806	\$ 123,851.68		160,206.64	626.78	\$ 48,862	

Total Unit Savings - 26%

Total Dollar Savings - 39%

Process Completion

