

Reports to the 2017 General Assembly



January 13, 2017
State of Vermont
Agency of Administration
Department of Buildings and General Services

Christopher Cole
Commissioner

Department of Buildings and General Services
Office of the Commissioner
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Agency of Administration

January 13, 2017

The Honorable Members of the
2017 General Assembly
State House
115 State Street
Montpelier, VT 05633

Dear Members:

A compilation of reports due to the General Assembly from the Department of Buildings and General Services can be found on our website under Commissioner's Office; Forms and Publications; Legislative Reports. For your convenience, I have attached the link [2017 Reports to the General Assembly](#). You will find a list of those reports in the Table of Contents, along with reference to the legislation requiring the reports. Some of the reports were prepared working in conjunction with other Departments.

Should you have any questions concerning these reports, please feel free to contact me at the above number or by email: chris.cole@vermont.gov.

Sincerely,



Christopher Cole
Commissioner

cc: Electronic Filing – Legislative Council
Department of Libraries



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TAB 1

MEMORANDUM

TO: General Assembly

FROM: Michael J. Obuchowski, Commissioner *MJO*

DATE: October 25, 2016

SUBJECT: UVM Feasibility Study

Sec. 7. 2015 Acts and Resolves No. 26, Sec. 9 is amended to read:

Sec. 9. UNIVERSITY OF VERMONT

(d) On or before January 15, 2017, the Commissioner of Buildings and General Services shall conduct a feasibility study to evaluate the potential uses of the land and building at 195 Colchester Avenue in Burlington, provided that any use shall be consistent with existing deed covenants.

Please see the email exchange between Secretary Justin Johnson, Agency of Administration and Commissioner Michael J. Obuchowski, Department of Buildings and General Services dated July 1, 2016 regarding the feasibility study of 195 Colchester Avenue in Burlington, Vermont.



Email exchange between Secretary Johnson and Commissioner Obuchowski:

Commissioner Obuchowski: *In regards to the legislative mandate in the 2016 capital budget adjustment act to evaluate the feasibility of 195 Colchester Ave as a site for the Health Department functions now hosted at 108 Cherry Street my findings are that the site is not feasible due to the lack of parking and construction height restrictions. I hope you can support these findings and the quiet claim deed transfer of the Colchester Ave property to UVM on an accelerated schedule.*

Additionally, I would ask for your support of a replacement feasibility study to determine if a suitable site for the relocation of the Health Department exists in the greater Burlington area.

Thanks for your consideration.

Secretary Johnson: *Obie: I agree with your finding.*

Commissioner Obuchowski: *Transfer title soon? Next week?*

Secretary Johnson: *Yes, I don't see any reason to delay.*

Commissioner Obuchowski: *Thank you.*

STATE OF VERMONT
AGENCY OF ADMINISTRATION
DIVISION OF STATE BUILDINGS
MONTPELIER

PROPERTY SUMMARY

BURLINGTON

CHITTENDEN COUNTY

NAME: HEALTH DEPARTMENT LABORATORY

LOCATION: 115 COLCHESTER AVENUE

195

RECORDING DATE	Recorded (Book, Page)	TRANSACTION (Bought From/Sold By)	ACREAGE INVOLVED (±)	TOTAL ACRES OF PARCEL (±)
8 DEC 51	138, 535	UNIV. OF VT & STATE AGRICULTURAL COLLEGE TO STATE OF VT	+ 1.38 A	+ 1.38 A

WARRANTY DEED

Know All Men By These Presents that we, UNIVERSITY OF VERMONT AND STATE AGRICULTURAL COLLEGE, an educational corporation of the State of Vermont, with principal office at Burlington, in the County of Chittenden and State of Vermont, Grantor, in the consideration of one dollar paid to our satisfaction by THE STATE OF VERMONT, a sovereign State of the United States of America, Grantee, by these presents, do freely give, grant, sell, convey and confirm unto the said Grantee, THE STATE OF VERMONT, forever until the same shall cease to be used solely for State health purposes, a certain piece of land in Burlington, in the County of Chittenden and State of Vermont, described as follows, viz:

A lot of land lying at the southwesterly intersection of Colchester Avenue and East Avenue and bounded by a line running as follows: Beginning at a point in the southerly line of Colchester Avenue two hundred feet westerly of the intersection of the southerly line of Colchester Avenue with the westerly line of East Avenue; thence running southerly in a line parallel with the westerly line of East Avenue three hundred feet; thence running easterly in a line parallel with the southerly line of Colchester Avenue two hundred feet; thence running northerly in the westerly line of East Avenue three hundred feet; thence running westerly in the southerly line of Colchester Avenue two hundred feet to the point of beginning.

Being a part of the lot conveyed to University of Vermont and State Agricultural College by Mary Fletcher Hospital by warranty deed dated March 29, 1950, and recorded in Volume 136, Page 344, of the Land Records of the City of Burlington.

To have and to hold said granted premises, with all the privileges and appurtenances thereof, to the said Grantee, THE STATE OF VERMONT, to its own use and behoof forever,

until the same shall cease to be used solely for state health purposes.

And we, the University of Vermont and State Agricultural College, for ourself and our successors and assigns, do covenant with the said State of Vermont that until the ensealing of these presents, we are the sole owner of the premises and have good right and title to convey the same in manner aforesaid; that they are free from every encumbrance, except the restrictions and limitations in the aforesaid deed from Mary Fletcher Hospital, and we hereby engage to warrant and defend the same against all lawful claims whatever, except as aforesaid.

In witness whereof, we have caused these presents to be signed by William S. Carlson, our president and duly authorized agent, and our corporate seal to be hereunto affixed, this 21st day of August, 1950.

UNIVERSITY OF VERMONT AND (L.S.)
STATE AGRICULTURAL COLLEGE

BY William S. Carlson
President and duly authorized
agent

IN PRESENCE OF:

Anna C. Smith

Ronald Masberg

UNIVERSITY OF VERMONT AND
STATE AGRICULTURAL COLLEGE

to

STATE OF VERMONT

WARRANTY DEED

CITY CLERK'S OFFICE

BURLINGTON, VT

Received *Dec. 8, 1951* at *9:40*
for Record *A.M.*

And recorded in Vol. *138* on Page *535*

of *Warranty Deeds*

Attest *[Signature]*
City Clerk

LISMAN & LISMAN
ATTORNEYS AT LAW
BURLINGTON, VERMONT

QUIT CLAIM DEED

KNOW ALL PERSONS BY THESE PRESENTS THAT the **STATE OF VERMONT**, by and through the **Department of Buildings & General Services**, GRANTOR, in the consideration of Ten and More Dollars paid to its full satisfaction by the **UNIVERSITY OF VERMONT AND STATE AGRICULTURAL COLLEGE**, an instrumentality of the State of Vermont with its principal place of business in Burlington, Vermont, GRANTEE, by these presents does hereby REMISE, RELEASE AND FOREVER QUIT CLAIM unto the said GRANTEE, **UNIVERSITY OF VERMONT AND STATE AGRICULTURAL COLLEGE**, and its successors and assigns forever, certain land and premises in the City of Burlington, County of Chittenden and State of Vermont, described as follows, viz:

Being all and the same lands and premises conveyed to the State of Vermont by Warranty Deed of the University of Vermont and State Agricultural College dated August 21, 1950, and recorded on December 8, 1951, in Volume 138 at Page 535 of the City of Burlington Land Records, including the building and improvements located thereon, and being more particularly described therein as follows:

“A lot of land lying at the southwesterly intersection of Colchester Avenue and East Avenue and bounded by a line running as follows: Beginning at a point in the southerly line of Colchester Avenue two hundred feet westerly of the intersection of the southerly line of Colchester Avenue with the westerly line of East Avenue; thence running southerly in a line parallel with the westerly line of East Avenue three hundred feet; thence running easterly in a line parallel with the southerly line of Colchester Avenue two hundred feet; thence running northerly in the westerly line of East Avenue three hundred feet; thence running westerly in the southerly line of Colchester two hundred feet to the point of beginning.

Being a part of the lot conveyed to University of Vermont and State Agricultural College by Mary Fletcher Hospital by Warranty deed dated March 29, 1950, and recorded in Volume 136, Page 344, of the Land Records of the city of Burlington.”

The lands and premises conveyed hereby are subject to restrictive covenants contained in the Warranty Deed from Mary Fletcher Hospital to the University of Vermont and State Agricultural College dated March 29, 1950, and recorded on July 17, 1950, in Volume 136 at Page 344 of the City of Burlington Land Records, except as partially released and

modified by Quit Claim of Mary Fletcher Hospital to the State of Vermont dated August 30, 1950, and recorded on December 8, 1951, in Volume 130 at Page 367 of the City of Burlington Land Records.

Said lands and premises are subject to and benefitted by an easement granted by the State of Vermont to New England Telephone and Telegraph Company dated July 18, 1986, and recorded on August 5, 1986, in Volume 341 at Page 231 of the City of Burlington Land Records, and assigned to Telephone Operating Company of Vermont, LLC, by Assignment of Easements dated March 31, 2008, and recorded on April 11, 2008, in Volume 1031 at Page 284 of the City of Burlington Land Records.

Said lands and premises have an address of 195 Colchester Avenue (formerly 115 Colchester Avenue), Burlington, Vermont, and include the building and all improvements located thereon.

The University of Vermont State and Agricultural College accepts this Quit Claim Deed in satisfaction of the reversion clause contained in its Warranty Deed to the State of Vermont dated August 21, 1950, and recorded in Volume 138 at Page 535 of the City of Burlington Land Records, which reversion clause shall be of no further legal force or effect. By accepting this Quit Claim Deed, Grantee acknowledges and agrees that the land and premises is conveyed "AS IS" and that Grantee assumes any and all responsibility for the condition of the land and premises at time of this conveyance.

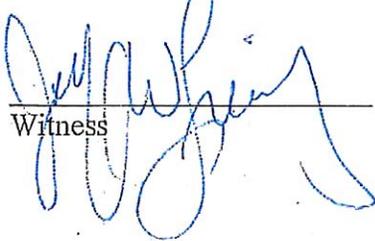
Reference is hereby made to the aforementioned instruments, the records thereof and references therein contained, and their respective records and references, in further aid of this description.

TO HAVE AND TO HOLD all right, title and interest to said granted premises, to the said GRANTEE, **UNIVERSITY OF VERMONT AND STATE AGRICULTURAL COLLEGE**, and its successors and assigns forever.

AND FURTHERMORE the **STATE OF VERMONT**, by and through the **Department of Buildings & General Services**, the said GRANTOR, for itself, successors and assigns, does covenant with the said GRANTEE, **UNIVERSITY OF VERMONT AND STATE AGRICULTURAL COLLEGE**, and its successors and assigns, that from and after the ensealing of these presents, GRANTOR will have and claim no right in the granted premises.

IN WITNESS WHEREOF, the **STATE OF VERMONT**, by and through the **Department of Buildings & General Services**, has caused this Quit Claim Deed to be executed this 8th day of July, 2016.

IN THE PRESENCE OF: STATE OF VERMONT, DEPARTMENT OF BUILDINGS AND GENERAL SERVICES



Witness

By: Michael J Obuchowski

Michael J. Obuchowski
Its duly authorized agent

STATE OF VERMONT
WASHINGTON COUNTY, SS.

At Montpelier in said County and State, this 8th day of July, 2016, before me personally appeared Michael J. Obuchowski, Commissioner of Buildings and General Services and duly authorized agent of the **State of Vermont, Department of Buildings and General Services**, and he acknowledged this instrument, by him signed and sealed, to be his free act and deed and the free act and deed of the **State of Vermont, Department of Buildings and General Services**.

Before me: Tudley Brunseau

Notary Public
My Commission Expires: 2/10/19

TAB 2

Title: Report to the Senate Committee on Institutions and the House Committee on Corrections and Institutions on the evaluation of opportunities for the future development of a biomass heat plant located at the Vermont Technical College Campus in Randolph.

Date: December 1, 2016

Statutory Language

Sec. 22. VERMONT AGRICULTURE AND ENVIRONMENTAL LABORATORY; BIOMASS FACILITY

(a) The Commissioner of Buildings and General Services shall evaluate opportunities for the future development of biomass facilities to support the Vermont Agriculture and Environmental laboratory in Randolph if the Commissioner determines that it is in the best interest of the State. The Commissioner shall ensure that all opportunities are consistent with the State Agency Energy Plan.

(b) On or before December 1, 2016, the Commissioner shall report back to the House Committee on Corrections and Institutions and the Senate Committee on Institutions on the findings of the evaluation described in subsection (a) of this section.

Introduction

The Department of Buildings and General Services (BGS) has evaluated two approaches for the development of a shared biomass heat plant facility at the Vermont Technical College in Randolph. The biomass heat plan would serve both the Vermont Technical College (VTC) campus buildings that are currently heated with the central boiler plant and the future Vermont Agriculture and Environmental Laboratory (VAEL). The two preliminary studies that provide the basis for the findings presented within this report are included as appendices.

Feasibility Study

The first study performed by Smith, Alvarez and Sienkiewicz Architects and L.N. Consulting Inc., provides a financial analysis for the construction of a VTC owned and operated biomass heat plant to be constructed at their existing boiler plant as an attached building. BGS would purchase the heat consumed by the VAEL building from VTC. This study determined that the most viable option was to install one biomass boiler that would handle 90% of the load and the existing VTC oil boilers would serve as back-up and supplementary heat during peak demand and shoulder seasons.

By switching to wood-chips and reducing the amount of oil burned, VTC would see an estimated savings of \$431,567 per year when operating the woodchip boiler. The total estimated cost of the boiler plant is \$4,504,500. The return on investment based upon the first year savings is approximately 10 percent.

This study assumes a price of \$50 per ton for wood chips and \$3.00 per gallon for #4 fuel oil.

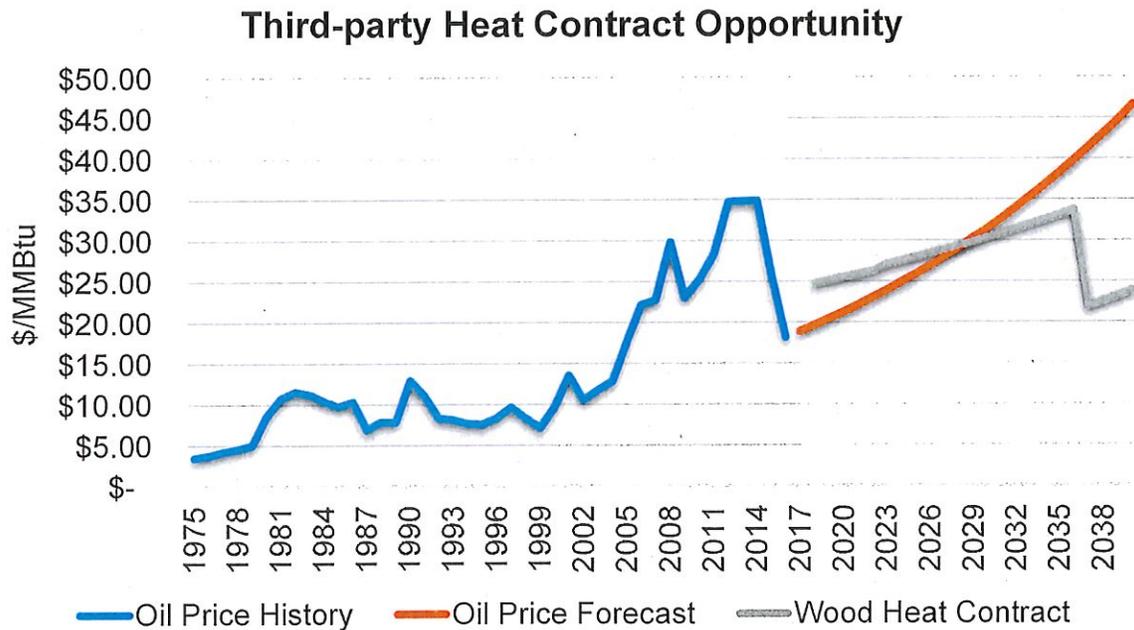
Life Cycle Cost Analysis and Third Party Financing

The second study performed by the Biomass Energy Resource Center (BERC) utilized the heat load and construction cost numbers provided in the first study to determine whether a third party financed, owned and operated model would be a viable alternative rather than VTC financing, owning and operating the heat plant. A life cycle cost analysis was modelled to demonstrate the long term capital costs that a third party would incur and therefore structure a price per MMBtu accordingly.

In this model both VTC and BGS would purchase heat from a third party entity. This study demonstrates a \$267,420 annual debt service that would be paid over a 20 year period. At year twenty-one the debt would be repaid and the savings would increase by that amount annually. Exhibit A demonstrates a year one negative cost savings using the extremely low cost of oil on the market today. Around year twelve of the wood heat contract the projected cost to heat with oil and the cost to buy heat from a third party become equal and at year twenty-one the third party contract model demonstrates a 50% savings over oil. It is important to note that this model is conservative relative to the first year oil price forecast. If the model were to utilize a historical trend and avoid the peaks and valleys the first year oil price would be greater than the wood heat contract and VTC would realize a positive savings from year one.

This model assumes the price of woodchips at year one to be \$60 per ton with a 2.75% general inflation rate and the cost of #4 fuel oil at year one to be \$2.33 with a 4% general inflation rate.

Exhibit A:

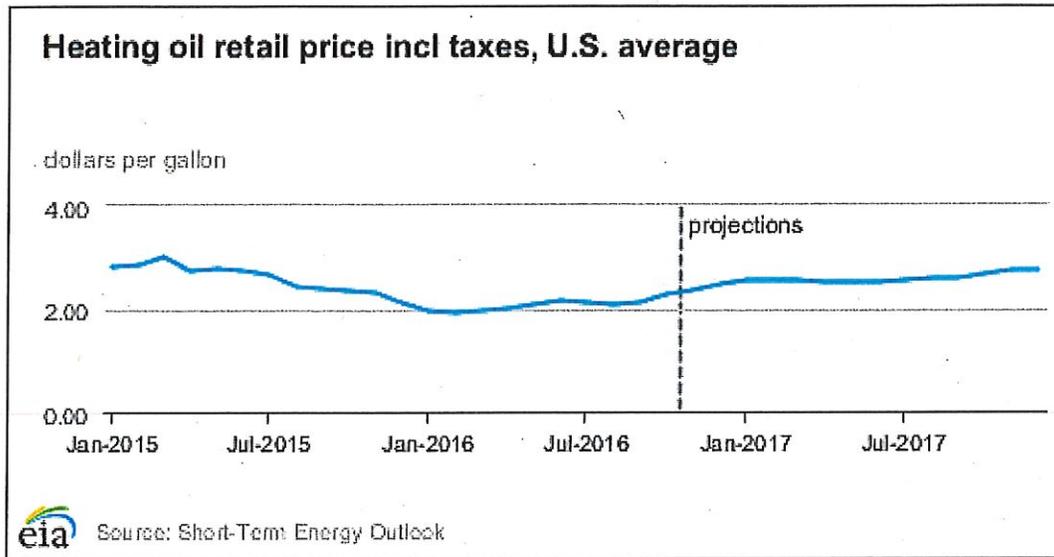


Oil Pricing

Both studies were performed in calendar year 2015 when oil was more expensive. The Rack price for #4 fuel out of Albany New York including delivery mark-up was \$1.74 per gallon as of November 23, 2016.

The United State Energy Information Administration Short-Term Energy Outlook predicts a \$0.41 per gallon increase in the national average heating oil retail price by December 2017.

Exhibit B:



Findings

BGS, VTC, BERG and Vermont Energy Investment Corporation (VEIC) held several meetings to discuss the outcome of each analysis and to identify potential funding opportunities. Other Vermont State Government entities and non-government organizations participated in some of these meetings, including the Treasurer's Office, the Public Service Department, Vermont Economic Development Authority and Vermont Municipal Bond Bank.

Based on the results of the first analysis VTC determined that the construction of a new shared biomass heat plant, while forward thinking and in the right circumstances is a worthy investment, is not a viable option given the current economic and financial environment in which they are operating. VTC cannot accept financing for the construction of a new heat plant when they are aware of other areas of their operations that would provide potentially greater short-term and long-term benefits to the College and the Community they serve if those areas received investments of this magnitude.

When considering the third party financing model VTC determined that entering into a twenty year contract would carry too much risk if unforeseeable circumstances created a situation in which the heat was no longer consumed at the VTC campus and the debt fell to the greater Vermont State Colleges System. VTC is confident in the success of their programs but believes that the most financially responsible approach is to continue their trajectory and gain even firmer financial ground before considering an investment of this nature in the future.

Future Opportunities and Planning

The BGS Energy Office and VTC have submitted data and pricing information associated with this project to the USDA Forest Service. The Biomass Coordinator of the USDA Forest Service Northeastern Area State and Private Forestry is conducting a third study to provide further analysis of the financial benefits of a biomass heat plant at the Vermont Technical College. This study will detail how available Federal support would affect the model. This analysis can help inform future policy and decision making.

Appendix:

- 1) Wood Chip Heat Plant Feasibility Study
- 2) Biomass Energy Resource Center Life Cycle Cost Analysis



LIFE CYCLE COST ANALYSIS

(compared to operating existing fossil fuel system)

Staff Member Conducting Analysis: Adam Sherman Facility Name: VT BGS Laboratory & VTC Campus Scenario: Central Steam Plant Serving both Lab & VTC

Assumptions

Total Project Cost	\$4,018,232
Percentage cost share	0%
Financing, annual interest rate	3.00%
Finance term (years)	20
Current fuel	Heating Oil
Current fuel units	Gallon
Current fuel price per unit	\$2.33
Annual units, current fuel	238,600
Wood fuel option being evaluated	Green Woodchips
Year 1 wood price per unit	\$60
Wood fuel portion of annual heat load	95%
General annual inflation rate	2.75%
Discount rate	4.25%
Fossil Fuel Inflation (w/ gen'l inflation)	4.00%
Wood Inflation (w/ gen'l inflation)	2.75%
Ann. Wood O&M cost, yr 1	\$20,288
Major repairs (annualized)	\$9,035
Estimated Boiler Life	30
Estimated Building Life	100

Capital Cost

Wood Boiler(s) Ml	14.3	\$1,434,115
Stack, Breaching & PM emission control		\$30,000
System Controls		\$15,000
Wood Fuel Storage		\$200,000
Heat Distribution Network/Piping		\$150,000
Interconnect to Boiler Room		\$15,000
Building to house wood fuel and boiler		\$550,000
Mechanical		\$50,000
Electrical		\$50,000
Thermal Storage Tanks/Buffer		\$50,000
Other		\$50,000
Total capital		\$3,044,115
Contingency	10%	\$304,411.50
GC markup	12%	\$365,294
Design Fees	10%	\$304,411
Grand Total		\$4,018,232

Calculated Values

Financed amount	\$4,018,232
Value of cost share	\$0
Annual wood use, if 100% wood (tons)	3,538,871
Wood & back-up fuel system: Annual MMBtu	25,400
Annual fuel wood use Tons	3,362
Annual back-up fuel use Gallon	11,925
First year fuel cost savings (%)	59%
First year fuel cost savings (\$)	\$341,774
Simple payback (years)	11.76
Total 30-Year Cost, fossil fuel system	16,065,606
Total 30-Year Cost, wood system	9,938,763

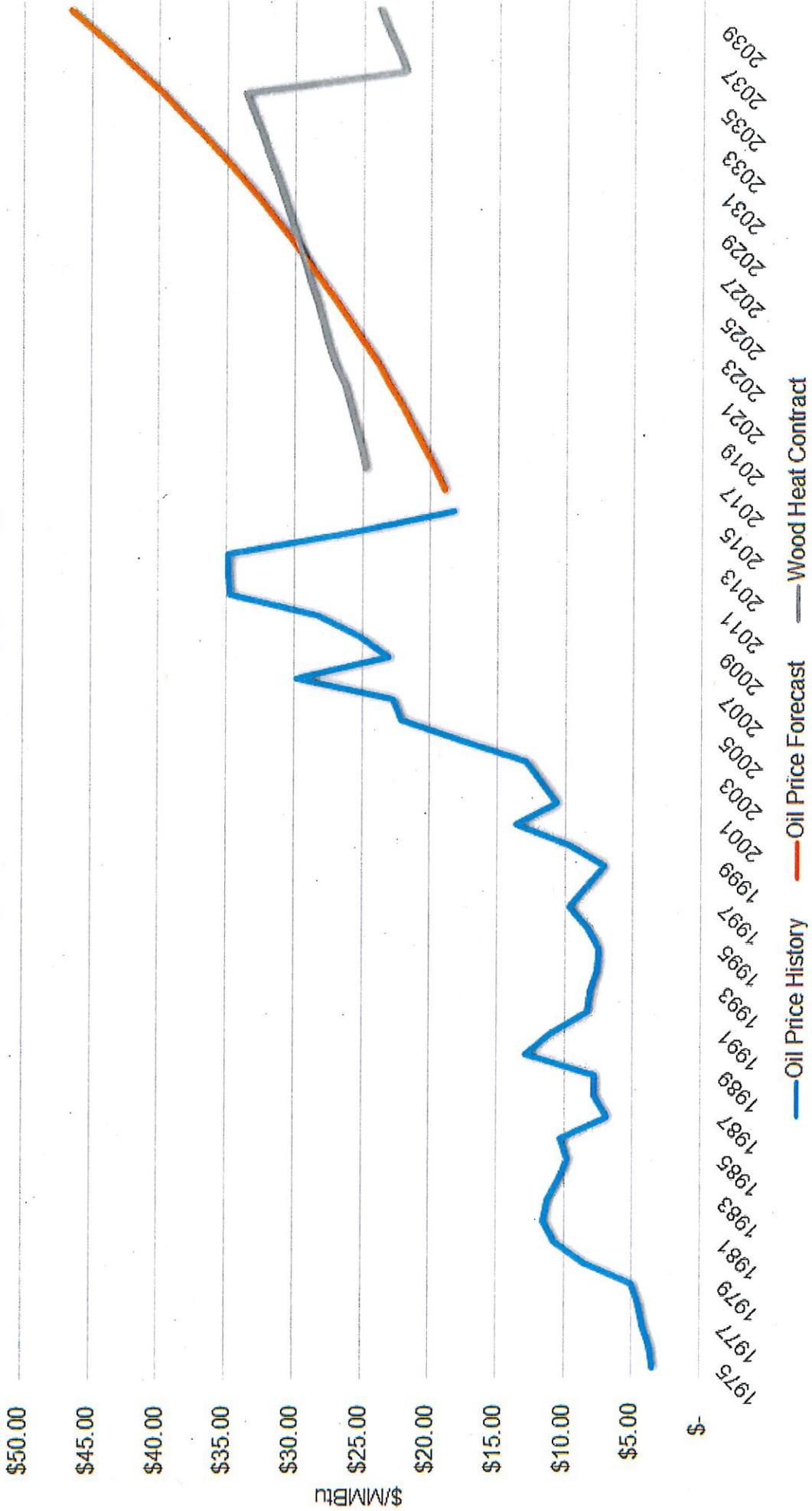
Project Financing

Capital Borrowed	\$ 4,018,231.75
Annual Interest Rate	3.0%
Term (years)	20
Monthly Payments	\$ 22,285.02
Yearly Payments	\$ 267,420.20

LIFE CYCLE COST ANALYSIS

Inflation Calculator Yr.	Fossil Fuel Total Annual Cost	Debt Service	Wood fuel system (with back-up fossil fuel system)			Total 30-Year Cost	Cost per MMBtu Biomass	Cost per MMBtu Biomass w/ third party profit	Cost per MMBtu Oil
			Wood Cost	Fossil Fuel Cost	Incremental Annualized O&M Major Repairs				
0	\$555,705	\$0	\$0	\$0	\$0	0	\$0.00	\$0.00	
1	\$677,933	\$267,420	\$207,263	\$28,897	\$9,293	533,709	\$21.01	\$18.91	
2	\$801,051	\$267,420	\$212,963	\$30,953	\$9,539	527,973	\$21.31	\$19.66	
3	\$925,093	\$267,420	\$218,819	\$22,009	\$10,071	519,304	\$21.63	\$20.45	
4	\$1,050,066	\$267,420	\$224,837	\$22,505	\$10,347	510,446	\$21.95	\$21.27	
5	\$1,176,076	\$267,420	\$231,020	\$23,005	\$10,632	501,288	\$22.28	\$22.12	
6	\$1,303,144	\$267,420	\$237,373	\$23,487	\$10,924	491,845	\$22.62	\$23.00	
7	\$1,431,270	\$267,420	\$243,900	\$23,931	\$11,225	482,156	\$22.97	\$23.92	
8	\$1,560,452	\$267,420	\$250,608	\$24,343	\$11,533	472,241	\$23.33	\$24.88	
9	\$1,690,690	\$267,420	\$257,499	\$24,714	\$11,851	462,132	\$23.70	\$25.88	
10	\$1,821,984	\$267,420	\$264,581	\$25,053	\$12,177	451,861	\$24.08	\$26.91	
11	\$1,954,334	\$267,420	\$271,857	\$25,363	\$12,511	441,454	\$24.47	\$27.99	
12	\$2,087,740	\$267,420	\$279,333	\$25,634	\$12,855	430,934	\$24.88	\$29.11	
13	\$2,222,202	\$267,420	\$287,014	\$25,880	\$13,209	420,324	\$25.29	\$30.27	
14	\$2,357,720	\$267,420	\$294,907	\$26,100	\$13,572	409,647	\$25.72	\$31.48	
15	\$2,494,294	\$267,420	\$303,017	\$26,290	\$13,945	398,917	\$26.16	\$32.74	
16	\$2,631,924	\$267,420	\$311,350	\$26,451	\$14,329	388,147	\$26.62	\$34.05	
17	\$2,770,609	\$267,420	\$319,912	\$26,588	\$14,723	377,341	\$27.08	\$35.41	
18	\$2,910,349	\$267,420	\$328,710	\$26,698	\$15,128	366,504	\$27.57	\$36.83	
19	\$3,051,144	\$267,420	\$337,749	\$26,788	\$15,544	355,641	\$28.06	\$38.30	
20	\$3,193,004	\$267,420	\$347,037	\$26,858	\$15,971	344,757	\$28.57	\$39.83	
21	\$3,335,929	\$0	\$356,581	\$26,908	\$16,411	333,851	\$29.09	\$41.41	
22	\$3,480,019	\$0	\$366,387	\$26,943	\$16,854	322,921	\$29.61	\$43.09	
23	\$3,625,274	\$0	\$376,463	\$26,968	\$17,301	311,974	\$30.14	\$44.81	
24	\$3,771,694	\$0	\$386,815	\$26,983	\$17,752	301,017	\$30.68	\$46.50	
25	\$3,919,279	\$0	\$397,453	\$26,998	\$18,207	290,051	\$31.23	\$48.27	
26	\$4,068,029	\$0	\$408,383	\$27,003	\$18,666	279,074	\$31.79	\$50.00	
27	\$4,217,944	\$0	\$419,613	\$27,008	\$19,128	268,087	\$32.36	\$51.77	
28	\$4,369,024	\$0	\$431,152	\$26,998	\$19,594	257,091	\$32.94	\$53.59	
29	\$4,521,269	\$0	\$443,009	\$26,983	\$20,063	246,084	\$33.53	\$55.45	
30	\$4,674,679	\$0	\$455,192	\$26,963	\$20,535	235,067	\$34.13	\$57.36	
Totals	\$32,413,348	\$0	\$9,470,795	\$1,620,667	\$52,565	\$17,816,632	\$27.07	\$28.89	

Third-party Heat Contract Opportunity



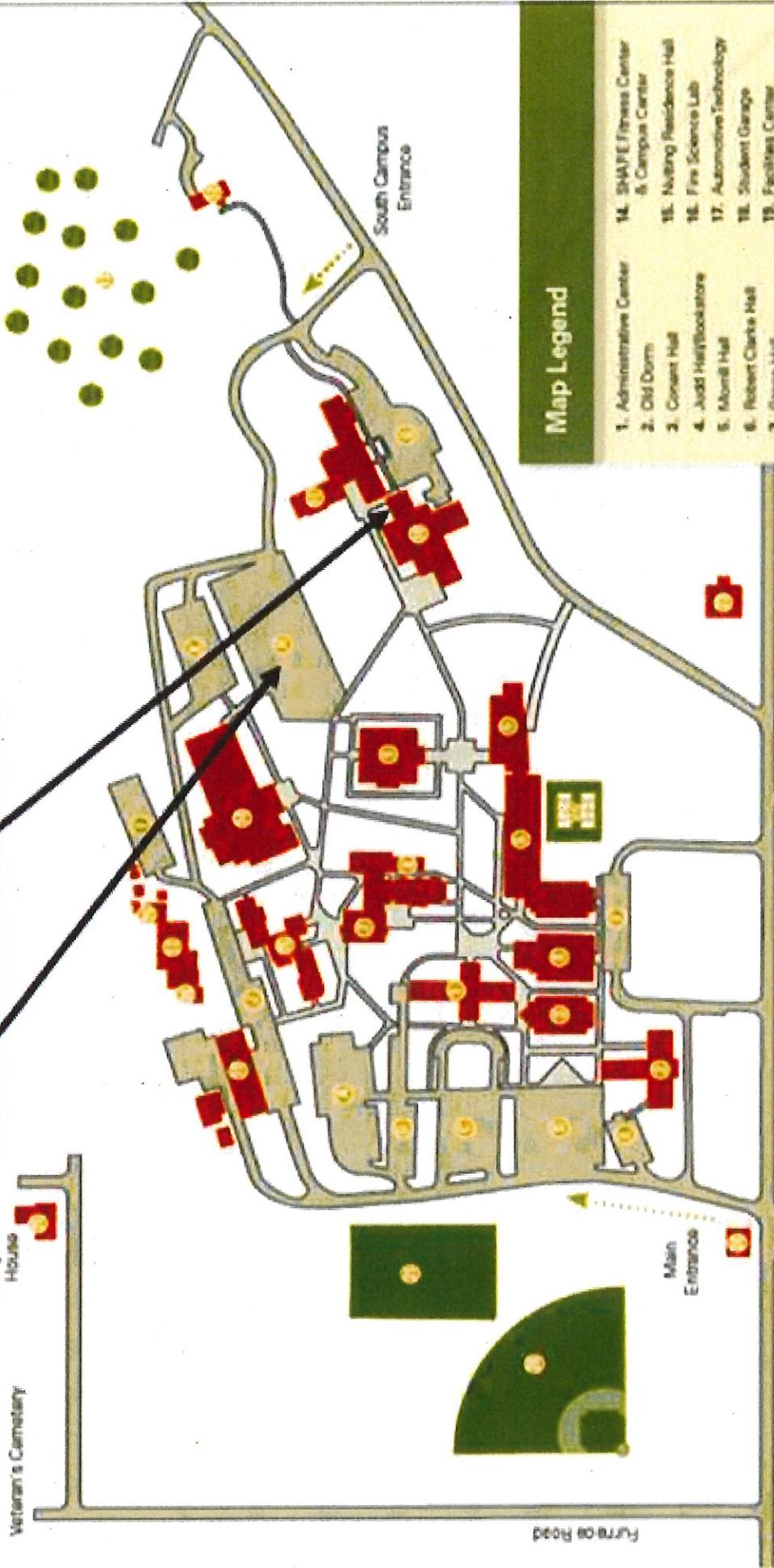
V E R M O N T

C A L C O L L E G E

Morey Dining hall #10
Parking H lot

Veteran's Cemetery

Langewin House



Furrow Road

Main Entrance

South Campus Entrance

Main St.

To South Campus Entrance

To Farm

I-89

To 100
To 100
To 100

To Catamount Campus — Diesel Power Technology,
Construction Management Practices, Center for
Sustainable Practices Lab

Map Legend

- 1. Administrative Center
- 2. Old Dorm
- 3. Connet Hall
- 4. Judd Haysbookstore
- 5. Merrill Hall
- 6. Robert Clarke Hall
- 7. Green Hall
- 8. Greenhouse
- 9. Harness Library
- 10. Morey Residence Hall & Dining Room
- 11. Kuesan Residence Hall
- 12. Private Residence
- 13. Orchard
- 14. SHAPE/Fitness Center & Campus Center
- 15. Nubling Residence Hall
- 16. Fire Science Lab
- 17. Automotive Technology
- 18. Student Garage
- 19. Facilities Center
- 20. Baseball Diamond
- 21. Athletics Field
- 22. Tennis Courts
- 23. Red Schoolhouse
- 24. Allen House
- 25. Langewin House
- A-K Parking

VERMONT

Randolph Center Campus Map

Administrative Center Key Offices

Monthly Space Heating Demand

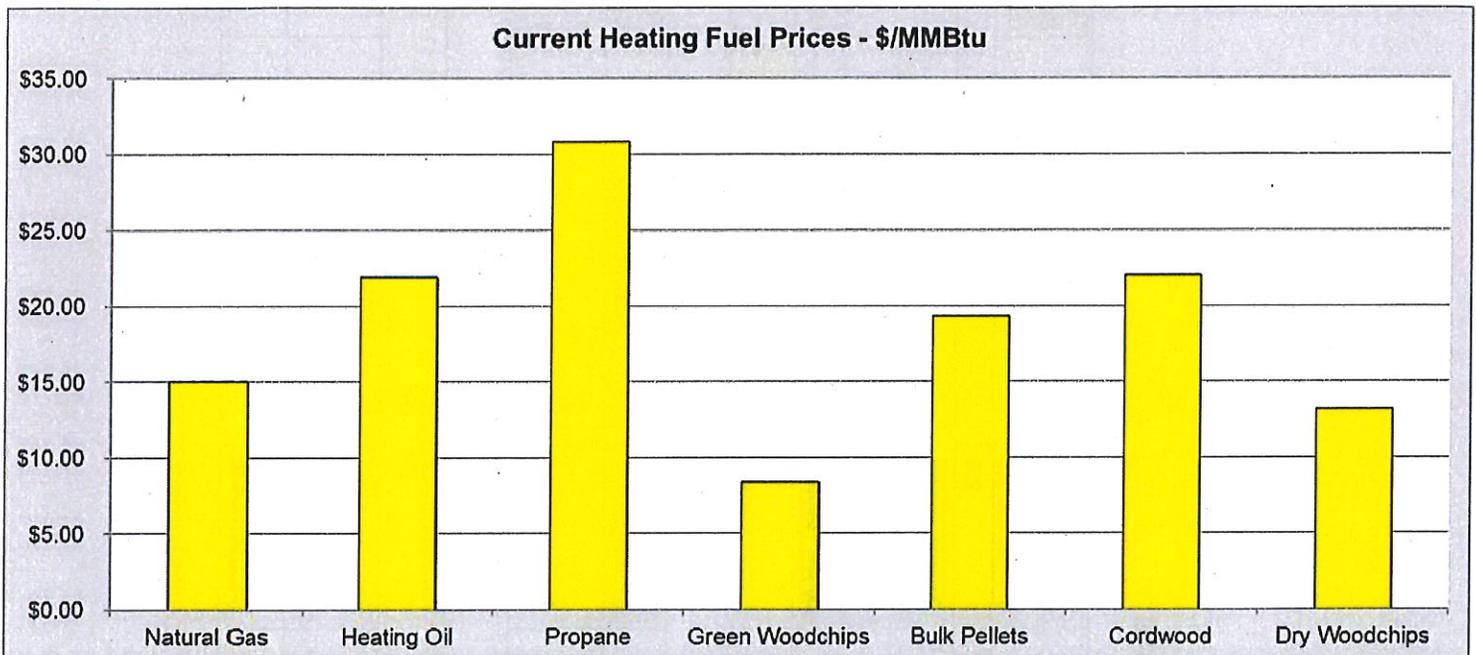
■ DHW MMBtu ■ Space Heating MMBtu





Fuel Characterization Sheet

Fuel Type	Unit	Cost per Unit	Btu per Unit (dry)	Moisture Content	MMBtu per Unit (wet)	Cost per MMBtu Delivered	Average Seasonal Efficiency	MMBtu per Unit After Combustion	Cost per MMBtu After Combustion
Electricity (resistance)	kWh	\$0.14	3,412	0%	0.003	\$41.03	99%	0.003	\$41.45
Natural Gas	CCF	\$1.39	102,800	0%	0.103	\$13.52	90%	0.093	\$15.02
Heating Oil	Gallon	\$2.33	142,000	0%	0.142	\$16.41	75%	0.107	\$21.88
Propane	Gallon	\$2.41	92,000	0%	0.092	\$26.20	85%	0.078	\$30.82
Green Woodchips	Ton	\$60	16,500,000	42%	9.570	\$6.27	75%	7.18	\$8.36
Bulk Pellets	Ton	\$240	16,500,000	6%	15.510	\$15.47	80%	12.41	\$19.34
Cordwood	Cord	\$250	22,500,000	28%	16.200	\$15.43	70%	11.34	\$22.05
Dry Woodchips	Ton	\$125	16,500,000	28%	11.880	\$10.52	80%	9.50	\$13.15





Operating & Maintenance Costs

Item	Staff Pay	Peak Season Hours/day	Off season Hours per Day	Total Heating Season Time (Hours)	Yearly Staff Time
Staff Time	\$35.00	2.0	0.50	288	\$10,062.50

Item	Rate (\$/kWh)	System Size (MMBH)	Peak Season Usage per Month per MMBH (kWh)	Number of Peak Months	Off Season Usage per month per MMBH (kWh)	Number of Off Season Months	Total Annual Usage (kWh)	Yearly Cost
Electric Consumption	\$0.135	14.3	850	2	667	3	53,062	\$7,163.42

Item	System Size (MMBH)	Annual Cost per MMBH	Building Maintenance	Total Annual Cost
Routine Parts, Repairs and Service*	14.3	\$206.50	\$101.03	\$3,062.48
Total Annualized O&M Cost				\$20,288.40

* Includes hired service work

Item	System Size (MMBH)	Cost Ratio **	System Cost	Calculated Major Repairs Budget	Annual Major Repairs
Annualized Major Repairs	14.3	0.0063	\$1,434,114.96	\$9,034.92	\$9,034.92

CASH FLOW ANALYSIS

Year	Annual Cash Flow	Cumulative Cash Flow
1	\$44,224	\$44,224
2	\$59,657	\$103,881
3	\$75,789	\$179,670
4	\$92,650	\$272,320
5	\$110,272	\$382,592
6	\$128,687	\$511,279
7	\$147,930	\$659,209
8	\$168,036	\$827,246
9	\$189,042	\$1,016,288
10	\$210,987	\$1,227,275
11	\$233,912	\$1,461,187
12	\$257,857	\$1,719,044
13	\$282,868	\$2,001,912
14	\$308,988	\$2,310,900
15	\$336,267	\$2,647,167
16	\$364,753	\$3,011,920
17	\$394,497	\$3,406,417
18	\$425,554	\$3,831,971
19	\$457,979	\$4,289,951
20	\$491,831	\$4,781,782
21	\$794,590	\$5,576,371
22	\$831,479	\$6,407,850
23	\$869,983	\$7,277,833
24	\$910,172	\$8,188,006
25	\$952,117	\$9,140,123
26	\$995,893	\$10,136,016
27	\$1,041,575	\$11,177,591
28	\$1,089,246	\$12,266,836
29	\$1,138,988	\$13,405,825
30	\$1,190,891	\$14,596,715

FUEL COST SAVINGS ANALYSIS

Year	Fuel Cost: Heating Oil Only	Fuel Cost: Wood & Heating Oil	Annual Fuel Savings
1	\$577,933	\$236,160	\$341,774
2	\$601,051	\$243,015	\$358,035
3	\$625,093	\$250,074	\$375,019
4	\$650,096	\$257,341	\$392,755
5	\$676,100	\$264,825	\$411,276
6	\$703,144	\$272,530	\$430,614
7	\$731,270	\$280,464	\$450,806
8	\$760,521	\$288,634	\$471,887
9	\$790,941	\$297,046	\$493,895
10	\$822,579	\$305,710	\$516,870
11	\$855,482	\$314,631	\$540,852
12	\$889,702	\$323,818	\$565,884
13	\$925,290	\$333,279	\$592,011
14	\$962,301	\$343,022	\$619,279
15	\$1,000,793	\$353,057	\$647,737
16	\$1,040,825	\$363,391	\$677,434
17	\$1,082,458	\$374,035	\$708,423
18	\$1,125,756	\$384,998	\$740,759
19	\$1,170,787	\$396,289	\$774,498
20	\$1,217,618	\$407,918	\$809,700
21	\$1,266,323	\$419,897	\$846,426
22	\$1,316,976	\$432,236	\$884,740
23	\$1,369,655	\$444,945	\$924,709
24	\$1,424,441	\$458,037	\$966,404
25	\$1,481,419	\$471,524	\$1,009,895
26	\$1,540,675	\$485,416	\$1,055,259
27	\$1,602,302	\$499,728	\$1,102,574
28	\$1,666,394	\$514,472	\$1,151,922
29	\$1,733,050	\$529,662	\$1,203,389
30	\$1,802,372	\$545,311	\$1,257,062

Simple Payback
 (based on owner's investment
 and year 1 fuel savings)

11.8 years

Simple Payback

11.8 years

List of Key Assumptions for Financial Analysis

Project Configuration

Co-locate new woodchip steam boiler system at VTC central heating plant
 Install woodchip-fired steam boiler to serve 80% of peak combined load for State Lab & VTC campus
 Keep VTC oil boilers as peaking and back-up capacity
 No new oil boilers installed/replaced as part of this project (to be replaced in years ahead)

Energy Load

VTC campus space connected	430,000	Square feet
State Lab space connected	37,000	Square feet
Combined Square feet	467,000	Square feet
Vermont Technical College Central Steam Plant	220,000	Gallons of Oil/yr
New State Laboratory	18,000	Gallons of Oil/yr
Combined	238,000	Gallons of Oil/yr
Annual Heat Load	25,400	MMBtu

Boiler Sizing

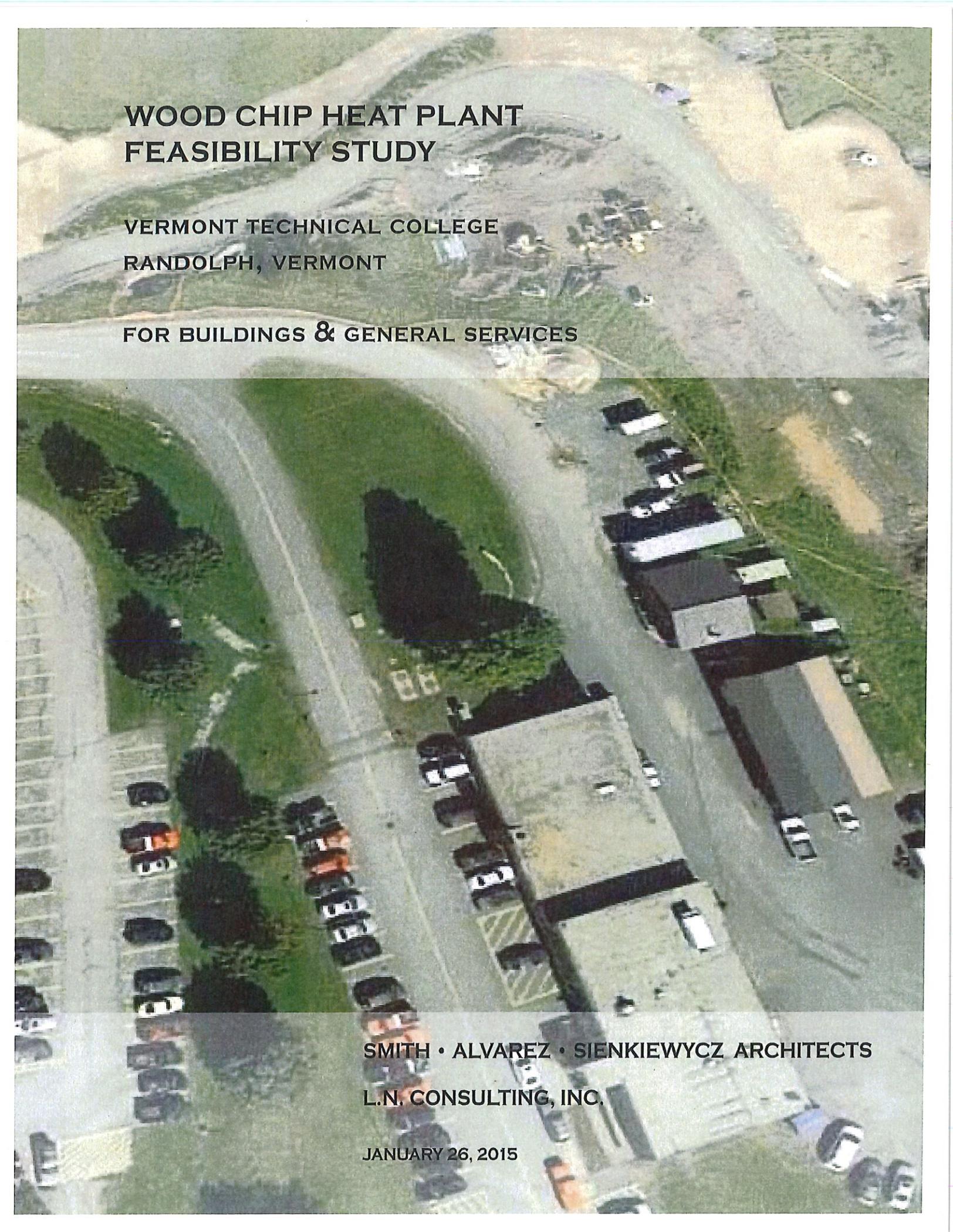
Peak boiler capacity for VTC campus load	11.00	MMBtu/hr
Peak boiler capacity for Sate Lab load	3.00	MMBtu/hr
Combined	14.00	MMBtu/hr

Financial

Project Finance Term	20	Years
Fixed Interest Rate	3.00%	
Percent of capital costs covered with grants	0%	
Portion of capital costs financed	100%	
Capital cost estimate	\$ 4,018,232	
Annual debt service payments	\$ 267,420	

Operational

Year 1 - Heating oil price	\$2.33	per gallon
Year 1 - Heating oil price	\$21.88	per MMBtu (after combustion)
Year 1 - Wood chip price	\$60.00	per green ton
Year 1 - Wood chip price	\$8.36	per MMBtu (after combustion)
Assumed price escalation rate - Oil	4.00%	
Assumed price escalation rate - Wood chips	2.75%	
General inflation rate	2.75%	
Year 1 - O&M costs	\$20,846	

An aerial photograph of a campus area, likely Vermont Technical College in Randolph, Vermont. The image shows several large, multi-story buildings with flat roofs, interspersed with parking lots filled with cars. There are also some green spaces and trees. The text is overlaid on the top portion of the image.

WOOD CHIP HEAT PLANT FEASIBILITY STUDY

**VERMONT TECHNICAL COLLEGE
RANDOLPH, VERMONT**

FOR BUILDINGS & GENERAL SERVICES

SMITH • ALVAREZ • SIENKIEWYCZ ARCHITECTS

L.N. CONSULTING, INC.

JANUARY 26, 2015

SMITH
ALVAREZ
SIENKIEWYCZ
ARCHITECTS

January 26, 2015

Buildings & General Services
2 Governor Aiken Avenue
Montpelier, VT 05633

Attn: Sandy Vitzthum

Re: Wood Chip Heat Plant Feasibility Study
Vermont Technical College

Dear Sandy:

The following report studies the feasibility of adding a wood chip heat and cogeneration plant to the existing boiler plant on the Vermont Technical College Campus in Randolph Center, Vermont. The Study includes a Conceptual Design Site Plan and Building Plan, a narrative that outlines civil/site observations, a report that sizes and evaluates the mechanical and electrical systems, Opinion of Probable Construction Costs for single boiler and two boiler options and Financial Analysis prepared by Daniel Edson.

Please let us know if you need further information.

Sincerely,


Marty Sienkiewicz

MS/mb

Enclosures

0562-LTR SV Report 012615

117 St. Paul Street

3rd Floor

Burlington, VT 05401

P: 802.863.2227

F: 802.863.0093

info@sasarchitects.com

BREN ALVAREZ

MARTY SIENKIEWYCZ

STEPHEN SMITH III



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Civil/Site Conceptual Narrative
Vermont Technical College Biomass Facility
Prepared by: Michael J. Burke, P.E.
Krebs & Lansing Consulting Engineers, Inc.
January 14, 2015

Our submittal includes a conceptual plan for civil/site improvements for a proposed biomass heating facility at Vermont Technical College. The following is a brief description of civil/site related design elements;

Building Site

The building site is located on the northeast corner of the campus and will be connected to the existing heating plant facilities center. Grades on the site range from 5% to 10%. Ledge will likely be encountered 3 to 5 feet below ground surface. Previous excavations have found the ledge to be fractured and dig-able with conventional excavation equipment.

Access Truck Circulation and Unloading

The facility will be accessed via the main entrance. The entrance to the proposed biomass facility will be constructed to VTRANS B-71 Standard with approach grades less than 8% and parking lot grades less than 3%. A retaining wall will be necessary to maintain grade access to the chip hoppers.

Given the potentially heavy loads of the delivery trucks, gravel depths will be 24" with ground stabilization fabric and pavement thickness will be 4".

Corner sight distances at the intersection and turning radii will be adequate for the largest tractor trailer delivery truck (WB67).

Waterlines/Water Supply

A 1" waterline supplied from the existing heating plant will serve the biomass facility. The line will be used for domestic use and equipment wash down. Fire protection sprinklers are not proposed. The increase in water use may trigger the need to amend the Wastewater Systems and Potable Water Supply permit.

Wastewater Disposal

No wastewater disposal system will be required for the biomass facility. Wastewater disposal facilities are available in the existing heating plant facilities center.

Electric and Communications

Electric service for the biomass facility is supplied by a pad mounted transformer at the north end of the building within the location of the proposed expansion. The transformer is fed via the primary voltage grid from the west and north. The telecommunications for the biomass building enters the north end of the building and sweeps west. In order to accommodate the proposed expansion the primary and secondary feeds and telecommunications will be require relocation. A new pad mounted transformer will be provided.

Civil/Site Conceptual Narrative
Vermont Technical College Biomass Facility
Prepared by: Michael J. Burke, P.E.
Krebs & Lansing Consulting Engineers, Inc

Steam Lines

New steam/heating lines are not proposed. It is assumed the steam from the biomass facility will be piped to the existing heating plant piping.

Stormwater Management

The proposed biomass facility will require a Stormwater Discharge permit because the proposed facility will result in more than 5,000 SF of new impervious surface.

The stormwater collection, treatment and detention system will be installed in conformance with the Vermont Stormwater Management Manual. These standards include water quality, groundwater recharge, channel protection and overbank flood protection.

Water quality treatment will occur in the permanent pools of the detention ponds and grass line swales designed in the project. Groundwater recharge will also occur in the swales. Channel protection will be achieved by providing outlet structures in the ponds so that 12 hours of stormwater detention are provided during 1 year, 24 hour storm event. Overbank flood protection will be provided by sizing the ponds and outlet structures to maintain post development peak flows below pre development levels for the 10 year, 24 hour storm event.

Erosion Protection and Sediment Control

The grading plan has been designed to balance cuts and fills on the site. Grading has been designed to maintain existing drainage patterns. All erosion control measures will be installed prior to any earth disturbance.

A combination of permanent and temporary erosion control measures are proposed to protect the nearby watercourses:

Permanent Erosion Controls

- 1.) All stormwater runoff from the site will be directed to stormwater detention ponds. By collecting and detaining stormwater runoff on site the potential for erosion is greatly minimized.
- 2.) The plan provides for establishment of permanent vegetation on all areas not otherwise covered with driveways, buildings or related infrastructure. Stormwater outfalls will be provided with riprap level spreader pads to prevent concentrated flows and erosion at the outfall.
- 3.) Drainage swales with slopes greater than 5% will be provided with a stone lining. Stone lining will minimize erosion potential from the runoff produced upstream of the site.

Civil/Site Conceptual Narrative
Vermont Technical College Biomass Facility
Prepared by: Michael J. Burke, P.E.
Krebs & Lansing Consulting Engineers, Inc

Temporary Erosion Control Measures

- 1.) Before any work commences, all clearing limits and areas not to be disturbed will be clearly marked and delineated with barrier fencing or flagging.
- 2.) Before any work commences, all erosion control shown on the plan or as ordered by the Engineer shall be installed.
- 3.) As work begins, stabilized construction entrances must be constructed.
- 4.) As work begins, trees shall be cut, stumps removed within the defined clearing limits, stumps and wood debris shall be disposed of off-site in an approved landfill. Any damaged erosion control or barrier fence shall be replaced immediately.
- 5.) As work begins, topsoil in disturbed areas shall be stripped and stockpiled. Topsoil stockpiles shall be enclosed in continuous silt fence containment at the toe of the stock pile.
- 6.) As work commences, erosion control measures shall be inspected weekly or after a rainfall event producing a stormwater discharge, and maintained continuously until permanent vegetation is established in the disturbed watershed.
- 7.) As work commences, disturbed areas will be topsoiled, seeded, and mulched immediately after finish grades are achieved
- 8.) As work commences, the stabilized construction entrance will be maintained as often as is needed.
- 9.) As work commences, dust shall be controlled with the timely application of calcium chloride or water on all roadways or disturbed areas until vegetation has been established.
- 10.) As work commences, removal of sediment shall be disposed of on site in a stable upland area with a sediment barrier perimeter.

The permanent and temporary erosion control measures incorporated into the design of the Biomass Facility project are in conformance with design guidance provided by the Vermont Department of Environmental Conservation Standards and Specifications for Erosion Prevention and Sediment Control and should mitigate the potential of flooding and erosion by using grass and stone lined swales, sheet flow over vegetated terrain, and the establishment of permanent vegetation to ensure no untreated stormwater runoff leaves the site.

**Civil/Site Conceptual Narrative
Vermont Technical College Biomass Facility
Prepared by: Michael J. Burke, P.E.
Krebs & Lansing Consulting Engineers, Inc**

Permit Opinion

It is our understanding that the Biomass Facility may be subject to local and state permit requirements including but not limited to:

- Local Site Plan Approval.
- State of Vermont Permit for Potable Water Supply and Wastewater Disposal Systems, for increase water use.
- State of Vermont Stormwater General Permit 3-9015 for Stormwater Runoff from New Development and Redevelopment.
- Act 250 Review, including review of impacts on wetlands, archeology, rare plants, endangered species, forests and agricultural soils, air quality and aesthetics.
- Act 248 Review, for electrical generation feeding back into the grid.

January 26, 2015

Marty Sienkiewicz
SAS Architects
117 St. Paul St., Third Floor
Burlington, VT 05401

Re: Vermont Technical College: Biomass/Cogeneration Power Plant Feasibility Study:

Introduction:

L.N. Consulting has been retained to complete a simple economic evaluation of a biomass steam production plant and a steam turbine electrical generation system. The biomass simple economic evaluation is based on utilizing a single woodchip boiler. The cogeneration simple economic evaluation is based on utilizing a single steam turbine coupled with a 3-phase electrical generator, and supporting electrical switchgear.

Assumptions:

Boiler Efficiency (Averaged from VTC annual test report):	86%
Energy Density of #4 Fuel Oil:	145,600 btu/gallon
Energy Density of green Woodchips:	8,600,000 btu/ton
Cost of #4 Fuel Oil:	\$3 per gallon
Cost of Woodchips:	\$50 per ton

Biomass Economic Evaluation:

The proposed biomass plant consists of chip storage and delivery area, traversing augers for delivery of the chips to the conveyor, conveyors, and a single woodchip combustor boiler. Boiler flue gasses would be exhausted through a vertical stack outside of the building utilizing an induced draft fan which would draw the flue gasses through an electrostatic precipitator for removal of particulates. The proposed pricing of the system includes all of the aforementioned equipment as well as the required controls, control panels, electrical feeds, and ash removal dumpsters to provide a fully functioning system. The proposed woodchip boiler would produce 50 psi steam and would be tied into the existing 12" steam header that is currently fed from the existing oil fired boilers. Steam is distributed from the boiler facility to the campus through the steam distribution system which leaves the boiler plant through the tunnel on the west side of the building. In order to accommodate the extension of the existing boiler plant building, the relocation of the two existing underground oil tanks is included in the cost estimate of MEP items. Included in the price is the relocation of the existing electrical infrastructure located on the north wall of the building and the existing underground electrical services that require relocation due to the addition.



The size of the proposed woodchip boiler is based upon analysis of the existing boiler plant fuel usage. It has been sized in order to meet approximately 90% of the peak load with 10% of the load supplemented by the existing boilers. The data developed is based on the fuel usage provided by VTC from the past four heating seasons. Using the monthly fuel deliveries we determined a monthly average fuel use per day. Based upon heating degree days (HDD) on record for the associated year, we compared daily HDDs for each day to the average HDDs to determine a percentage of usage daily. By using this information we are able to determine peak usage in fuel oil on a daily basis and the associated required boiler horsepower to meet the heat load. Supplementary daily fuel usage information provided from VTC provided additional information for reference. Along with the existing peak requirement for boiler horsepower, we utilized the proposed peak heat load of the Lab Facility, 3,000,000 btu, provided by the Lab mechanical designers and added that requirement to determine the worst case scenario for required boiler horsepower.

At the maximum yearly peak in January 2014, the required boiler horsepower for the campus was approximately 415 hp. Understanding that this was not the coldest winter on record in the past 25 years, we have added a safety factor to the boiler size, taken 90% load and determined that the most appropriate size boiler would be a 400 HP boiler.

Based upon the yearly fuel usage data developed, the reduced operational cost of the woodchip boiler plant was determined. In order to generate this number, ninety percent of the yearly fuel used was converted to the equivalent mass of woodchips. The remaining ten percent fuel oil cost was added to the total woodchip cost. Using this number we determined the total savings for each year versus the cost of continuing to operate the existing oil fired boilers. These totals include the additional oil usage for the proposed lab building. The yearly savings for the woodchip boiler is estimated at \$450,567. From the yearly savings we subtracted a yearly operational cost of \$19,000, which includes the maintenance of the existing boiler plant as well as the new. This results in a net savings of \$431,567 per year when operating the woodchip boiler. The total cost estimated for the boiler plant is \$4,504,500. The return on investment based upon these yearly savings is approximately 10 percent. The total estimated cost of MEP items is approximately \$2,568,830.

We have also investigated the option of providing a two boiler system. The intent with a two boiler system would be to increase boiler run times by having additional modulation due to smaller boiler sizes. The proposed system would consist of (2) 200 HP boilers. This option would require additional space for the extra boiler and would increase the overall cost of the project significantly. The total cost estimated for the two boiler option boiler plant is \$5,159,000. Assuming an approximate savings of an additional 10,000 gallons of oil per year, the return on investment for this option is 4 percent. We do not believe this to be an adequate return on investment and would not recommend pursuing the two boiler option.

Steam Turbine Electrical Generator Economic Evaluation

The economic evaluation is based upon utilizing a wood chip steam boiler, which will produce 250 psig steam for a proposed steam turbine electric generator, which in turn will produce 50



psig steam for building heating. The turbo-electric generation system size was developed to accommodate the average facility heating load.

The economic analysis is based on the installation of a simple cogeneration system that utilizes a steam turbine coupled to a 3-phase generator to produce power based on the medium pressure steam requirements of the facility. Currently, the existing facility does not utilize a central chilled water system, so the operation of the proposed steam turbo-generator was limited to the heating season only. The proposed cogeneration system would be configured with a single steam turbine electric generator. Utilizing steam cogeneration would require additional space for the turbine and generator within the proposed building.

The economic evaluation for the generator is based upon the same heating degree day comparison used for sizing of the woodchip boiler. From the daily steam usage data generated, we were able to find the most effective generator size. When steam generation is above the maximum capacity of the generator, the generator produces the maximum output. When steam generation is less than required for the generator a correction was applied to the generator output. Based upon manufacturer literature regarding percentage output of the generator versus percent mass flow rate through the generator, we developed a correction formula that produced electrical output based upon steam generation per day. Plugging in different generator sizes to the formula allowed us to determine a generator size with the maximum yearly output of kWh available. From this data we determined the most effectively sized unit would be 45 kW generator. A generator this size would produce approximately 7,266 kWh annually. At a payback from the utility of \$0.12/kWh the total annual generation revenue is \$871.92. With a yearly payback of this size, the cost of the generator and turbine, as well as the additional infrastructure required, make the time period of payback beyond the expected equipment lifetime. Payback expected on the magnitude of over 100 years. In this application the use of a steam turbine cogeneration system is not cost effective and not recommended.

Sincerely,
L.N. Consulting, Inc.

Derek Siegler

WOOD CHIP HEAT PLANT FEASIBILITY STUDY
VERMONT TECHNICAL COLLEGE

OPINION OF PROBABLE CONSTRUCTION COSTS – SINGLE BOILER OPTION
1/26/2015

GENERAL CONDITIONS:	\$ 256,000	
SITE WORK:	363,100	(1)
BUILDING:	543,000	(2)
MECHANICAL:	2,292,125	(3)
ELECTRICAL:	<u>213,455</u>	
SUBTOTAL:	\$ 3,667,680	
ESTIMATING CONTINGENCY - 10%:	366,800	
GC MARK UP - 10%:	403,450	
BOND - 1.5%:	<u>66,570</u>	
TOTAL ESTIMATED CONSTRUCTION COST:	\$ 4,504,500	(4)

- (1) Site work costs are estimated by Krebs & Lansing and site electric costs by LN Consulting; their detailed estimates follow.
- (2) Building costs are based on historic records of similar projects and a recent cost estimate done for a similar project at Lyndon State College. The numbers have been adjusted to reflect a 2015 construction start.
- (3) MEP costs are estimated by L.N. Consulting; their detailed cost estimate follows.
- (4) This estimate is for construction costs only and does not include any money for soft costs including permit fees, architectural & engineering fees, owner's contingency, furniture, fixtures & equipment expenses, or asbestos testing or abatement.

Conceptual Cost Opinion Civil/Site Improvements
VTC Biomass Facility
Prepared by: Michael J. Burke, P.E.
Krebs & Lansing Consulting Engineers, Inc.
January 14, 2015

Description	Units	Unit Price	Extension
General Conditions	Estimate	Estimate	\$ 13,000.00
Erosion Control	Estimate	\$1,500.00	\$ 1,500.00
Clearing & Grubbing	0.5 Acres	\$5,000.00/Acre	\$ 2,500.00
Cut Offsite Disposal	800 CY	\$15.00/CY	\$ 12,000.00
Ground Stabilization Fabric	2,000 SY	\$2.50/SY	\$ 5,000.00
Crushed Gravel Subbase	1,400 CY	\$22.00/CY	\$ 30,800.00
4" Thick Pavement	327 Tons	\$110.00/ton	\$ 36,000.00
8" Concrete Apron	2,900 SF	\$9.25/SF	\$ 27,000.00
Guardrail	150 LF	\$20.00/LF	\$ 3,000.00
Drainage Stone	500 CY	\$24.00/CY	\$ 12,000.00
Adjust Existing Catch Basins	4 Each	\$1,500.00/Each	\$ 6,000.00
Stormwater Basins	1 Each	\$15,000.00/Each	\$ 15,000.00
Reinforced Concrete Retaining Wall	125 CY	\$450.00/CY	\$ 56,250.00
Relocate Buried Oil Tanks	Estimate	Estimate	\$ 50,000.00
Underdrain	150 LF	\$22.00/LF	\$ 3,300.00
Silt Fence	500 LF	\$2.50/LF	\$ 1,250.00
Top Soil/Onsite	150 CY	\$25.00/cy	\$ 3,750.00
Seed & Mulch	12,000 SF	\$0.15/SF	\$ 1,800.00
		Subtotal	\$ 280,150.00
		Contractor Markup 8%	\$ 22,412.00
		Bond @ 1%	\$ 3,026.00
		Total Conceptual Cost Opinion	\$ 305,588.00

Exceptions

- 1) The conceptual cost opinion for civil/site improvements does not include any site work related to the building, generator or extension of primary electric lines.
- 2) The conceptual cost opinion for civil/site improvements does not include potential mitigation fees and expenses for archeological, rare plants or wetland disturbances and permit related fees.
- 3) The conceptual cost opinion assumes water, sewer and power will be extended from the existing boiler room. The cost opinion assumes ledge, if encountered, can be dug with a conventional excavator.
- 4) The conceptual cost opinion for civil/site improvements must be revised when plans are finalized.

Vermont Technical College Biomass Facility - Schematic Mechanical and Electrical Systems Budget
1/15/2015

	Unit Cost	Qty	Cost
Division 25			
Woodchip Boiler with Valves, Blowdown System, Wood Loading, Ash Collection, ESP, Dumpsters	\$1,500,000.00	1	\$1,500,000.00
Breaching	\$1,000.00	140	\$140,000.00
Steam & Condensate Piping (In Building)	\$400.00	200	\$80,000.00
Chemical Treatment System & Piping	\$25,000.00	1	\$25,000.00
Feed Water Piping	\$150.00	75	\$11,250.00
Boiler Combustion MAU	\$38,000.00	1	\$38,000.00
Boiler Room Exhaust Fan	\$20,000.00	1	\$20,000.00
Electrical Room Exhaust	\$2,500.00	1	\$2,500.00
Unit Heaters	\$8,500.00	2	\$17,000.00
Boiler Controls	\$40,000.00	1	\$40,000.00
HVAC Controls	\$25,000.00	1	\$25,000.00
Compressed Air System & Piping	\$35,000.00	1	\$35,000.00
Flue Gas Monitoring	\$65,000.00	1	\$65,000.00
Boiler Relief Piping	\$10,000.00	1	\$10,000.00
Building Drainage & Venting	\$40,000.00	1	\$40,000.00
Boiler Boil Out	\$5,000.00	1	\$5,000.00
Relocation of Fuel Oil Tanks, New supply piping	\$15,000.00	2	\$30,000.00
Subtotal			\$2,083,750.00
Division 26			
Electrical Demolition	\$40,000.00	1	\$40,000.00
Electrical Devices and Equipment Circuits	\$8.00	2700	\$21,600.00
Refeed Existing Electrical Equipment	\$20,000.00	1	\$20,000.00
Reroute/Replace Telecom Service to Building	\$25,000.00	1	\$25,000.00
Control Conduit	\$12,500.00	1	\$12,500.00
Primary Feeder from Grid to Transformer	\$150.00	170	\$25,500.00
Secondary Feeder from Transformer to Electric Room	\$150.00	100	\$15,000.00
MCC	\$65,000.00	1	\$65,000.00
Lighting	\$3.50	2700	\$9,450.00
Subtotal			\$194,050.00
Division 26 Site			
Primary Feeder Boiler Plant (5" conduit w/ 5" spare)	\$75.00	140	\$10,500.00
Secondary Feeder Boiler Plant ((4) 4" conduit w/ 4" spare)	\$100.00	80	\$8,000.00
Transformer and Pad	\$25,000.00	1	\$25,000.00
Future Generator Conduit	\$100.00	140	\$14,000.00
Subtotal			\$57,500.00
Division 25 & 26 Total			\$2,335,300.00
MEP Contingency		10%	\$233,530.00
Total			\$2,568,830.00

WOOD CHIP HEAT PLANT FEASIBILITY STUDY
VERMONT TECHNICAL COLLEGE

OPINION OF PROBABLE CONSTRUCTION COSTS – TWO BOILER OPTION
1/26/2015

GENERAL CONDITIONS:	\$ 300,000	
SITE WORK:	363,000	(1)
BUILDING:	760,000	(2)
MECHANICAL:	2,558,000	(3)
ELECTRICAL:	<u>220,000</u>	
SUBTOTAL:	\$ 4,201,000	
ESTIMATING CONTINGENCY - 10%:	420,000	
GC MARK UP - 10%:	462,000	
BOND - 1.5%:	<u>76,000</u>	
TOTAL ESTIMATED CONSTRUCTION COST:	\$ 5,159,000	(4)

- (1) Site work costs are estimated by Krebs & Lansing and site electric costs by LN Consulting; their detailed estimates follow.
- (2) Building costs are based on historic records of similar projects and a recent cost estimate done for a similar project at Lyndon State College. The numbers have been adjusted to reflect a 2015 construction start.
- (3) MEP costs are estimated by L.N. Consulting; their detailed cost estimate follows.
- (4) This estimate is for construction costs only and does not include any money for soft costs including permit fees, architectural & engineering fees, owner's contingency, furniture, fixtures & equipment expenses, or asbestos testing or abatement.

Financial Metrics:

This financial analysis takes into consideration the proposed one boiler wood chip heat plant with an estimated project cost of \$4,504,500.00, an estimated annual savings of \$450,567 less the annual operational cost of \$19,000 and a project lifespan of 30 years.

Simple payback Period: **10.4 years**

This the number of years it would take for the estimated annual savings accrued to equal the project cost.

Lifetime Return on Investment: **187.4%**

This metrics is used to measure the profitability of this investment. It is expressed as a percentage or ratio of net savings achieved over 30 years to project cost.

Internal Rate of Return: **8.83%**

This represents the discount rate that would be used to make the net present value of all cash flows equal to zero.

Net Present value: **\$3,954,799**

This represents the profitability of the project over its lifetime considering the future value of cash flow using a 3% discount rate.

The total financial savings over the lifetime of the project would be \$12,946,889 and roughly 46,372 metric tons of carbon emissions equivalent would be abated.

These calculations are based on a unit price of \$3.00/gallon for oil. Recent volatility in oil prices makes it difficult to predict prices over the lifespan of this heat plant. The US Energy Information Administration (EIA) projects prices will not drop drastically further, and 2016 will be slightly more expensive than current prices. The discount rate used for these calculations is derived from the Vermont Public Service Department's recommended discount rate used in the State screening tools to evaluate projects considered for energy efficiency utility incentives.

TAB 3



State of Vermont
Department of Public Safety
45 State Drive
Waterbury, Vermont 05671-1300
<http://dps.vermont.gov/>

State of Vermont
Agency of Administration
Department of Buildings & General Services
November 28, 2016

Bradford State Police Barracks - Proposal

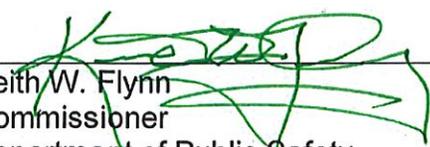
The statutory request:

On or before December 1, 2016, the Commissioners of Buildings and General Services and of Public Safety shall investigate opportunities for the Bradford State Police Barracks, including selling, leasing, or gifting the property, and shall report back with the findings to the House Committee on Corrections and Institutions and the Senate Committee on Institutions.

After exploring various options, the Vermont State Police would like to continue ownership and occupancy of the Bradford Facility. While we have transitioned and merged the leadership of the members assigned to Bradford to the St. Johnsbury office we still have an operational need to keep the Bradford Facility.

After discussions with the Town of Bradford the Vermont State Police would like to explore the option of allowing the Bradford Police Department to move into the Bradford Public Safety Facility. The facility would have adequate room to support both departments and we are confident that an equitable cost sharing agreement can be reached between the Town of Bradford and Building and General Services.

We have set a timeline for discussions regarding the above arrangement to take place during the 2017 calendar year. Lt. Matt Amadon, St. Johnsbury Station Commander will be the point of contact with the Town of Bradford and he will also work with Building and General Services on any agreements regarding this proposal.


Keith W. Flynn
Commissioner
Department of Public Safety

Michael J. Obuchowski 12/1/2016
Michael Obuchowski
Commissioner
Building and General Services



TAB 4

State of Vermont
Agency of Administration
Department of Buildings & General Services
December 1, 2016

Williston Public Safety Field Station; Site Location

The statutory requests:

On or before October 10, 2016, the Commissioner of Buildings and General Services, in consultation with the Commissioner of Public Safety, shall submit a recommendation for a site location for the public safety field station and the equipment storage facility to the Chairs of the House Committee on Corrections and Institutions and the Senate Committee on Institutions based on the evaluation described in subsection (a) of this section. It is the intent of the General Assembly that when evaluating site locations, preference shall be first given to State-owned property located in Chittenden County. (Act 160 of 2016; Section 34, Subsection b)

On or before December 1, 2016, the Commissioner of Buildings and General Services, in consultation with the Commissioner of Public Safety, shall develop a detailed proposal on the site location based on the recommendation described in subsection (a) of this section; provided, however, that the Commissioner shall not proceed without unanimous approval of the site location by the Chairs of the House Committee on Corrections and Institutions and the Senate Committee on Institutions. The proposal shall include programming, size, design, and preliminary cost estimates for either separate or consolidated facilities. (Act 160 of 2016; Section 34, Subsection d)

The responses to our public advertisement for land received on October 13, 2016, indicated in our October 10, 2016 report (copy attached), yielded twelve proposals of available land, ranging from close to the Shelburne Town Line on Route 7 to a few sites in Colchester. Multiple sites in Williston as well as two sites in Richmond were also offered. The list of these sites was shared with the Department of Public Safety and on October 17, 2016, BGS received an email from Captain James Whitcomb indicating the shortlisted sites to pursue further, including the five Williston sites and two sites in Richmond. The Shelburne Road site and the Colchester sites were held back for further evaluation because the distance to the Interstate and access and congestion concerns to the DPS's area of responsibility.

On October 31, 2016; Allen Palmer and Michael Kuhn from BGS and Major William Sheets from DPS visited the seven shortlisted sites for a preliminary evaluation to determine appropriateness, gather additional information from the land owners and to understand potential issues with the various parcels. On November 9, 2016 BGS received an email from Major Sheets requesting we pursue acquiring the 52-acre parcel of land (17 useable acres) located off Route 2A in the Town of Williston. Major Sheets followed this request on November 10, 2016 with a prioritized listing of the seven shortlisted sites offering their rationale for the evaluation of each site (copy attached).



In response to the DPS request, BGS performed a preliminary determination as to the ability to acquire permits for the selected parcel. The parcel is 52-acres in size with approximately 17 acres in the Gateway Zoning District South (GZDS) along Route 2A with the remaining 35 acres in Agricultural Zoning District. The proposed use is permitted in the GZDS, extending approximately 1200 feet West of Route 2A along the entire frontage on Route 2A, but requires a two-level process including a discretionary permit and then an administrative permit. Note: There are specific requirements for Hillside Development within this zoning district regarding buffers, landscaping, site development requirements, and stormwater. It would make sense to also subdivide the property during permitting to separate the agricultural land from the GZDS lands for future considerations regarding disposal of the 35 agricultural acres. The proposed development of this parcel will also require an Act 250 permit.

In accordance with Act 160 of 2016, Section 34, we respectfully request permission to pursue acquiring the 52-acre parcel of land at 3294 St George Road (Route 2A) in Williston, VT for the development of a new Williston Public Safety Field Station. The preliminary size of the main building is proposed to be approximately 20,000 gross square feet main building, including the Public Safety Answering Point. There will also be an approximately 13,500 gross square feet garage building. The preliminary project cost estimate for this consolidated facility is approximately \$7,750,000, with \$250,000 received in the Acts of 2016 and the balance of \$7,500,000 spread out over the next two years. We also request permission to hire a consultant to pursue a more detailed program and feasibility study for the development of this consolidated facility on the proposed parcel.

Respectfully Submitted

Michael J. Obuchowski

Michael J. Obuchowski, Commissioner of Buildings & General Services

Keith W. Flynn

Keith W. Flynn, Commissioner of Public Safety

Vermont State Police Williston Barracks land options

On October 31, 2016 Buildings and General Services and the Vermont State Police completed a site search of the most viable options in response to the land search query to replace our existing Vermont State Police Williston Barracks/Public Safety Answering Point in the areas of Exit 11 (Richmond) and Exit 12 (Williston).

We elected not to visit parcels that were available off Exit 16 in Colchester, reserving the right to explore those only if viable options in the Exit 11 or 12 area did not meet our needs. This is based upon the fact that the towns that we provide law enforcement services to are generally located well south of exit 16 and the congestion in this area inhibits our ability to quickly respond to emergency calls for service.

We visited seven parcels on 10/31/16 with the following rankings.

1. 17 useable acres (part of a 52 acre parcel) located off Route 2A (3294 St. George Road) in the Town of Williston. This parcel is listed by Greg Dirmaier of JL Davis Realty, with an asking price of \$1,695,000. This location is located above our current office just above Hurricane Lane. There is approximately 700 feet of gradually graded road frontage, and the parcel is situated to allow for a barracks to be built that is clearly visible to the public with safe and easy access. It is perfectly located for our members to more quickly respond to the north, south and west and it is above the interstate congestion that plagues us at our current location. This is far and away our number one choice and has everything that we would require for a state of the art public safety facility.
2. The Reap property includes 8-10 acres and is located off U.S. Route 2 in the Town of Richmond. This parcel would need its own curb cut access point that might prove difficult as a shared driveway will not work. The land is suitable to build and while power is not an issue the town sewer has not yet been extended to this location. We have been told that this would be a possibility but the owners are unsure of the timeline. The owners have not yet listed a price and they might be unwilling to sell the entire lot. The other primary concern is the lack of ingress/egress from the north in the event of flooding at Exit 11. If town sewer extended to this location in the near future this would be our best second option.
3. Finney Crossing: This area is located on U.S. Route 2 east of Taft Corners and is a planned mixed residential/commercial area. While access would be easy and power, water, and sewer are all on site there are concerns related to traffic congestion at Taft Corners with delays in getting access to the interstate. The anticipated price point would be approximately 4 million for 8-10 usable acres, which is well above what we will likely recoup when we sell our existing property.
4. There is a large parcel of land available directly behind our existing barracks, located at 4964 Williston Road in Williston. We would look to purchase 8-10 acres at this location for an undetermined price. While the land has many positives there are serious traffic congestion issues similar to our current location. While there are plans for a bypass road to be installed within five years or so and that would provide relief we would need to ensure that the road was going to be built. The landowner also advised that at some point where the larger parcel is further developed an access road would be created that would connect Route 2 to the parcel.

5. The next parcel was 8.87 acres located on Marshall Avenue in Williston at the South Burlington Town line. This is an exceptional shovel ready parcel priced at approximately two million but it is too far away from the interstate and in a congested traffic area that would cause both the VSP and the public issues when responding to emergency calls.
6. There is an 8-10 acre parcel located at 6226 Williston Road that is not an area that we would consider viable for a number of reasons. There is significant traffic congestion in the area and it would not allow for easy access to any of our patrol areas. It is also directly in the final flight path to the Burlington airport and the noise would create concerns in our dispatch facility.
7. There is a parcel located off Kenyon Road in the Town of Richmond. While not far away from Exit 11 this is currently a gravel pit located on a steep dirt road. There are numerous reasons why this site is not a viable choice at this time, to include the incline of the road, the fact that it is on a dirt road, it is not visible to the public and it has no town water or sewer.



Department of Buildings & General Services
Office of the Commissioner

2 Governor Aiken Ave.
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**State of Vermont
Agency of Administration
Department of Buildings & General Services
October 10, 2016**

Williston Public Safety Field Station; Site Location

The statutory request:

On or before October 10, 2016, the Commissioner of Buildings and General Services, in consultation with the Commissioner of Public Safety, shall submit a recommendation for a site location for the public safety field station and the equipment storage facility to the Chairs of the House Committee on Corrections and Institutions and the Senate Committee on Institutions based on the evaluation described in subsection (a) of this section. It is the intent of the General Assembly that when evaluating site locations, preference shall be first given to State-owned property located in Chittenden County. (Act 160 of 2016; Section 34, Subsection b)

In accordance with Act 160 of 2016, Section 34, we developed a preliminary program for the facility to assist in determining the size of the site necessary to support the Williston Public Safety Field Station (WPSFS) mission. We also reached out to VTrans and ANR to identify State-owned property in Chittenden County that may be available for the location of a new WPSFS. VTrans responded indicating there were four potential sites they knew of that could be available. The sites are: 1) a site one on the corner of Redmond Rd and Mountain View Rd in Williston, 2) a site off the River Rd in Essex, 3) a site on the North side of St George Rd (Exit 12) in Williston on the West side of I 89 and 4) was a site on Severance Road in Colchester.

On August 8, 2016, Mike Kuhn and Allen Palmer from BGS met Major William Sheets and Captain James Whitcomb from the Vermont State Police and Roger Barry, a private contractor representing AOT at the Exit 11 rest area in Richmond for the purpose of touring potential AOT owned sites for a new barracks in the Williston area. We traveled to the two Williston sites and the Essex site. We did not visit the Colchester site, because Major Sheets indicated it did not meet their requirements for access to their area of responsibility.

After visiting the three sites, an evaluation of the development and permitting potential was performed. The Williston Redmond Road site was found that the use is not permitted in their zoning district. The Essex site off of River Road is a Conditional Use in their zoning district, but the need for substantial infrastructure improvements and access accommodations would be difficult and expensive at best. Additionally, it was determined that the site had been identified as a deer yard which would require additional expenses due to mitigation requirements for our State Land Use Permit. The only one that remained a possibility was the Williston site on St George Rd next to I-89.



On September 7, 2016, Mike Kuhn and Allen Palmer met with representatives from VTrans to discuss the possibility of co-locating the WPSFS with their proposed Park & Ride on the land mentioned above near Exit 12. It was at this meeting that VTrans informed us that they did not actually own the land in question and were in the process of trying to acquire it, but only the portion necessary for their Park and Ride. It turns out that there is not enough room on the parcel to site both the P&R and a new PSFS. According to our search, there are no State-owned properties suitable to host the new Public Safety Field Station.

Allen relayed this information to Major Sheets and he requested that we begin advertising for land. On or around September 26, 2016, an ad was placed in the Burlington Free Press and Seven Days requesting proposals for 8-10 acres of land within 2 miles of exits 11, 12, 13, or 16. At that time, the ad was also placed on the BGS Electronic Bulletin Board.

Replies are due by 3:00 on Thursday October 13th. At which time we will begin evaluating the developability of the proposed sites. Depending on the number of proposals received, we will provide an update on our progress and site recommendation on or before December 1, 2016 per legislative direction.

Respectfully Submitted

Michael J. Obuchowski

Michael J. Obuchowski, Commissioner of Buildings & General Services

Keith W. Flynn

Keith W. Flynn, Commissioner of Public Safety

TAB 5



State of Vermont
Agency of Administration
Office of the Secretary
Pavilion Office Building
109 State Street
Montpelier, VT 05609-0201
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[phone] 802-828-3322
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Justin Johnson, Secretary

MEMORANDUM

TO: House and Senate Committees on Government Operations and on Appropriations, House Committee on Corrections and Institutions, and Senate Committee on Institutions.

FROM: Justin Johnson, Secretary, Agency of Administration
Michael Obuchowski, Commissioner, Dept of Buildings and General Services *MJO*

DATE: September 30, 2016

RE: Purchasing and Contracting Report

In accordance with Acts of 2016, No. 172 Section E.100.4 (the "Act"), the Secretary of Administration and the Commissioner of the Department of Buildings and General Services hereby submit this plan for the State's purchasing and contracting services that will result in improved State services and increased financial savings.



PURCHASING AND CONTRACTING REPORT
Agency of Administration

Submitted by: Justin Johnson, Secretary of Administration, and
Michael Obuchowski, Commissioner of BGS

Date: September 30, 2016

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1. EXECUTIVE SUMMARY:

In accordance with Acts of 2016, No. 172 Section E.100.4 (the "Act"), the Secretary of Administration and the Commissioner of the Department of Buildings and General Services hereby submit this plan for the State's purchasing and contracting services that will result in improved State services and increased financial savings. We recommend moving forward with consolidation of more of the State's procurement responsibilities within the Office of Purchasing & Contracting (OPC) and elevating the OPC to be a direct report to the Secretary of Administration. It is achievable and serves the following purposes:

- Provides an enterprise approach to acquisition of services as well as commodities
- General potential cost savings through eliminating redundancies
- Leverages statewide spending on services as well as commodities
- Increases transparency and accountability in State procurement and contracting
- Decreases risks associated with failed contracts, protests and legal action
- Creates efficiencies through streamlined operations and processes
- Effectively leverages existing procurement and contracting expertise
- Positions the State for next generation integrated e-procurement systems

Procurement Reform or Reengineering is not a new concept. In the past few years, an increasing number of states have reformed or reengineered their procurement systems to improve efficiencies, increase transparency, ensure an open and fair procurement process, maximize the buying power of the state and generate savings.

Vermont law currently only authorizes the OPC, residing within BGS, to centrally manage COMMODITY purchases (fuel, supplies, materials, equipment). Vermont has a decentralized approach to procuring and contracting for services. Each department or agency (referred to together herein as "agency") is in charge of the process of procuring and contracting for services from "cradle-to-grave". This allows, to a great extent, each agency to apply its own individual interpretation of Bulletin 3.5 and style of contracting which may fall short of the "best practices" intended by Bulletin 3.5 to protect the best interests of the State and the taxpayers. Since 2004 the Office of the Auditor of Accounts has produced no fewer than five audit reports, non-audit reports and memoranda addressing agency procurement and contracting practices. Inconsistent State procurement and contracting practices may also make it more difficult for the vendor community to participate in the procurement process. The consolidation of procurement processes at the executive level with clear authority from the Legislature and the Secretary of Administration to set governance, issue policy and actually direct certain agency procurements will facilitate procurements that are more uniform, transparent and efficient; reduce the risk contracts will have inappropriate terms and conditions and payment provisions; and enable the State to take full advantage of its collective purchasing power.

As stated in subsection (b) of the Act, the evaluation shall include recommendations from the Chief Performance Officer, the Director of the Office of Purchasing and Contracting, the Commissioner of Finance and Management and the Attorney General. This Plan was done in consultation with the Chief Performance Officer (Susan Zeller), the Director of the Office of Purchasing and Contracting (Deborah Damore), and the Office of the Attorney General (AAG Jaye Pershing-Johnson), all of whom support this Plan and the recommendations herein.

Additional Comments are provided by the Commissioners of Finance & Management and BGS:

Andy Pallito: *"This move will allow for a more seamless review of contracts, by the Purchasing Division, prior to signature by the Secretary of Administration. Currently the Department of F&M does these reviews, however, they are more appropriately placed within the Purchasing Division";*

Michael Obuchowski: *"I am supportive of the initiative and it should have happened several years ago".*

2. PROBLEM STATEMENT:

The Legislature has given the Commissioner of BGS centralized authority to purchase fuel, supplies, materials and equipment ("goods") as well as certain construction-related services and building custodial services. The Legislature recognized that this central purchasing authority would reduce redundancies, facilitate statewide purchasing and reduce costs. We recommend expanding the role of the OPC to facilitate the procurement of services for all of the same reasons. Further, given the complex nature of procurement and contracting for services, we recommend consolidating all purchasing authority directly within the Office of the Secretary of Administration which issues the State's contracting Bulletin 3.5.

Between 2001 and 2014, executive branch contracts for services increased 180%, from 719 to 2,011. The overall value of contracts for services over this period grew 300%, from \$130.4 million to \$519.7 million.¹ In most cases, services contracts can represent higher risk and/or involve greater dollar spend due to the nature of the service. As an example, the State has made and continues to make considerable investment to replace outdated legacy IT systems with modern technology for health and human services, human resources, public safety, transportation, tax and finance and administration. These contracts are generally for periods greater than one year and present the State with an enormous degree of cost and risk.

Centralized service procurement at the executive level will play a greater role to increase the success rate of these associated contracts and programs. Through common best practice solicitation and award processes, OPC will work with agencies to design and implement procurements and contracts that enable better controls and management over the contract life. The OPC can offer training for best practices in service contract management for the contract and project managers. Increased service contract success equates to a lower cost of government, and increased delivery of intended services to our taxpayers, at economies of scale which often escape us at present.

Currently, in many instances agency program managers are also handling the procurement function. This results in an inefficient allocation of scarce State resources and is problematic for the State from a risk perspective. Centralization permits agency program managers to focus their expertise as subject matter experts on defining the contract requirements for purposes of the procurement and contracting and utilizes the expertise of the OPC to conduct the procurement and ensure that those particular projects or purchases that are high dollar and / or high risk are getting the attention, resources, and expertise needed for the procurement.

3. SOLUTION:

We propose creating a centralized Division of Purchasing & Contracting within the Office of the Secretary of Administration and structured as follows:

- Centralized procurement authority, one voice one mission
- Maintain a Director who is a procurement professional and a classified employee.

¹ From the Auditor of Accounts, report to the Agency of Administration; Sole Source Contracts: Extraordinary Use in Ordinary Times, December 14, 2015; Non-Audit report 15-08, p. 5, citing Workforce Reports by the Department of Human Resources which do not reflect peaks and troughs during this period.

- Central governance (control) over all processes, policies and procedures, models and templates (i.e. model RFP forms and pre-approved contract forms to be used by agencies)
- Standardized forms/templates, process, centralized training, record keeping, centralized review and posting process, standardized bid opening, bid review, contract award and vendor notification processes.
- State agencies are mandated to use statewide contracts for all commodities and for services whenever available.
- Services shall be bid by the OPC; OPC assists with the production of the RFP, reviews the RFP prior to posting and posts the RFP
 - OPC manages RFP public opening with representatives of the agency to ensure proper handling of bids
- OPC reviews all contracts for services; OPC experts will replace Finance & Management Budget Analysts in reviewing contracts prior to Secretary of Administration signature.
 - Elimination of separate database maintained by F&M.
- Adequate staffing within the AGO and OPC to provide the necessary expertise required to handle procurement and contracting issues on an enterprise basis and support the OPC contracting agencies
 -
- Statutory revisions:
 - Commodities: BGS Commissioner currently has authority for commodities in Title 29. We recommend those provisions would be moved from Title 29 into Title 3 into a new section which clarifies the role of the Division of Purchasing and Contracting under the authority of the Secretary of Administration. At the very least, those statutes that reference the Commissioner in Title 29 would need to be changed to the Secretary.
 - Contracts for service: Currently state statutes prescribe very little authority for governance and oversight over procurement processes and contracts for services. That said, the Secretary, under its general authority to oversee the business of the Executive Branch, issues Bulletin 3.5. (In addition, the AGO reviews all contracts for service over \$25,000 to certify the engagement is not contrary to the spirit and intent of the classification plan and merit system principles set out in V.S.A. Title 3, Chapter 14.) We recommend consolidating all procurement authority in Title 3 under the powers and duties of the Secretary with authority to delegate this responsibility to the Director of OPC.

4. BENEFITS ANALYSIS:

Centralization of OPC maximizes opportunities to:

- Achieve cost savings through eliminating redundancies at agency level and improved spend management
- Leverage statewide spending on services as well as commodities
- Consolidating limited resources
- Increase transparency and accountability in State procurement and contracting
- Create efficiencies through streamlined operations and processes
- Position the State for next generation integrated e-procurement systems

- Legislature- or Governor-driven ethics reform and accountability

A. Generates Potential Cost Savings Through Eliminating Redundancies And Improved Spend Management

Centralization will serve to offset procurement infrastructure costs using best practices and forward thinking strategies. OPC will be able to strategically source both goods and services requirements rather than having every agency contract for these requirements independently.

B. Leverages Statewide Spending On Services As Well As Commodities

A centralized OPC permits the State to take advantage of a greater aggregation of volume which leads to more aggressive pricing. This has proven to be the case with commodities and the intent with centralization is to maximize the State's global purchasing power across all goods and services suppliers. This not only results in lower per item costs for goods, but also incentivizes service providers to offer discounts and increase soft benefits (favorable terms and conditions).

Another tool which could be expanded through centralization is cooperative multi-state purchasing of services. Although Vermont is a small state it has the same needs and requirements as larger states. As such, we continually look for opportunities to leverage our spending with cooperative purchasing as one of those options. BGS currently has specific statutory authority to allow cooperative purchasing arrangements for goods. This could be expanded to include services and could maximize options on the national level, northeast, and/or with just one other state, political subdivision and/or school. Other cooperative opportunities include GSA, "piggybacking" on another state's procurement effort, or a pure cooperative whether with one other state or on the national level.

C. Increases Transparency And Accountability In State Procurement And Contracting

Centralization will serve to standardize procurement practices and provide for consistency in messaging, predictability of operations and consistent interpretation and implementation of purchasing and contracting policies and procedures (Bulletin 3.5) which prescribes the manner in which all goods and services are to be procured by State agencies. A central OPC at the executive level will facilitate implementation and administration of the State's priorities and goals, including effective utilization of performance measures, econometric modeling, proper classification of contract employees versus independent contractors and proper coding for tracking and reporting on procurements and contracting.

Standardization will also facilitate relations with the contracting and vendor community. There should be few, if any, deviations in process which are currently found from one agency to the next. Further, there will be consistency in negotiated pricing and terms and conditions among contracts with the same vendor. Vendors can rely on one process and a consistent contracting approach. Examples include RFPs which will all look the same and be issued in a consistent manner; bidders' conferences will be run with a consistent agenda and terms and conditions with a single vendor will not vary by agency.

A central OPC will allow for centralized tracking and reporting on procurements and contracts. BGS is routinely asked by the Legislature about procurement and contracting rules, and statewide

contracts. Currently, BGS can only tell that part of the story relating to the procurement of commodities and BGS contracting for services. A central OPC could report about the number, types, selection processes, size and management of all contracts for services as well as commodities.

Since 2004 the Office of the Auditor of Accounts has issued no fewer than five (5) audit reports, non-audit reports and memoranda addressing agency purchasing and contracting practices, with the most recent two in 2015, Use of Non-Competitive and Non-Standard Contracts Contrary to State and Agency Requirements and Sole Source Contracts: Extraordinary Use in Ordinary Times.² In this report the Auditor noted the high frequency of sole source contracts across the five departments and agencies in the analysis and raised questions about the effectiveness of the State's contract management. The report noted:

In that "the State prescribes to a free and open bidding process that affords all businesses equal access and opportunity to compete for state contracts for goods and services," state officials have a responsibility to the public and to Vermont businesses to make every effort to competitively bid contracts.

The report also noted with approval the Secretary of Administration's determination to centralize reporting on manner of selection to simplify the collection of this information and facilitate monitoring and evaluation of the State's contracting practices. Further the Auditor noted the future implementation of a centralized procurement system (discussed below).

Finally, the intent around relocation of the OPC as a Division of the Office of the Secretary of Administration is to invest OPC guidance with the full force and authority of the SOA, making agency compliance with OPC procurement practices mandatory and measurable as opposed to voluntary and advisory in nature. While each agency will remain responsible for contract compliance, implementation and enforcement, centralization of the OPC will create a single source accountable for procurement practices across State agencies.

D. Decreases Risks Associated With Failed Contracts, Bid Protests And Legal Action

State agency use of non-standard procurement processes and non-standard contracts increases the risk of failed contracts stemming from both the failure to adequately prepare for a procurement and the failure to include appropriate performance requirements, performance-based payment provisions and terms and conditions which adequately address State risks. Further, State agency use of non-standard procurement processes and non-standard contracts increases the risk that bidders protest or threaten to protest vendor selection and potentially challenge a selection through court action. The intent of a central OPC is to reduce these risks, particularly with respect to high risk, high dollar procurements through the use of standardized processes, a single point of contact and expert contract negotiation.

² Keys to Success - Improving Accountability, Contract Management & Fiscal Oversight at the Department of Corrections 2004, Special Review, Vermont State Auditor, May 26, 2004; The Basics of Contract Management in Vermont State Government: Reducing the Risks and Increasing the Benefits of Service Contracts Through Stronger Contract Management and Monitoring, Special Report, Vermont State Auditor, September 8, 2004; Vermont Health Connect: Status of Planned Enhancements, Vermont State Auditor Rpt. No 15-09, November 18, 2015; Sole Source Contracts: Extraordinary Use in Ordinary Times, December 14, 2015, Non-Audit Report 15-08; Agency of Education: Use of Non-Competitive and Non-Standard Contracts Contrary to State and Agency Requirements, Vermont State Auditor, Rpt. No. 15-10, December 17, 2015.

It is often the case that an individual in an agency that has program or project management accountability is tasked with the procurement activity for a specific project. These individuals have the technical acumen for the project (subject matter expertise), but not the procurement and contracting expertise (process / administration expertise). Centralization brings greater expertise on compliance with the process and brings a more focused and consistent application of risk mitigation.

The use of dedicated expert legal counsel will also decrease these risks. The Office of the Attorney General currently has two attorneys focused primarily on the needs and requirements of State procurements and contracts. In addition, there are embedded Assistant Attorneys General at AOT and AHS who have developed expertise in this area. The AGO is responsible for reviewing all contracts over \$25,000 for consistency with applicable law and "as to form" pursuant to Bulletin 3.5. The AGO currently negotiates and reviews complex contracts, including IT contracts, for most Executive Branch agencies, the Office of the Treasurer, the Secretary of State and the E 911 Board. The AGO has also worked in consultation with the Judiciary on procurement and contracting issues. Examples include contracts for the BGS Montpelier Heat Plant, the HR timekeeping system, the Finance and Management budget management system, the Tax Department electronic integrated tax system, and electronic elections and corporations' administration systems for the Secretary of State. Additional services include advice on procurement policy (including Bulletin 3.5), legal and policy interpretation, contract enforcement, advice on the creation and updating of all contract forms and templates, contract disputes, training, and any other legal requirements of the OPC.

In some cases, agencies rely on in-house counsel to assist with procurement and contract issues. Like program staff most in-house counsel are typically hired for their subject matter expertise related to the particular agency mission and not for their expertise in State procurement policies and processes or contract law. In-house counsel called upon to negotiate a contract may agree to terms which the AGO may not approve in accordance with applicable law or Administrative Bulletin. Further, it is the role of the AGO to defend or represent the State in contract disputes resulting in litigation or mediation. Most states that have "centralized" procurement responsibilities have at least one dedicated attorney, and more often than not, a dedicated legal team, who focus solely on the needs and requirements of the procurement / contracting process. In Vermont, the AGO provides the necessary expertise required to handle procurement and contracting issues on an enterprise basis and supports the OPC and contracting agencies. A centralized OPC would facilitate the allocation and prioritization of AGO resources dedicated to this purpose. Because of the importance of the goals of decreased risk of failed contract as well increased efficiencies and improved services. It is important to ensure appropriate AGO resources are available for this purpose.

E. Create Efficiencies Through Streamlined Operations And Processes

The sole purpose of the OPC has historically been statewide procurement of commodities. OPC also routinely provides interpretation and guidance to agencies on procurement activities, and provides outreach and training to agencies on the subject matter of procurement as requested. In many instances, the guidance requested is for procurement for services and the guidance and recommendations for a path forward are around understanding of process, procedures and appropriate documentation.

As discussed above, in many instances the program and technical managers are tasked with the procurement function for a particular project and these program and technical managers have no procurement or contracting knowledge or expertise. Very often these individuals are completely unaware of the existence of Bulletin 3.5, or of OPC and Risk Management as support resources. Centralization would allow the program and technical staff to focus on their subject matter expertise,

manage their program goals, identify program and technical requirements, and partner with OPC as a resource to conduct the procurement utilizing the best means possible. Appropriate allocation of staffing resources should result in better services and better contracting outcomes.

A centralized OPC would become a central repository of procurement and contracting data. Today there are a handful of systems being used across the State for managing agency contracts and purchases. These are stand-alone systems which do not interact with each other. Consequently, any need to compile statewide requirements results in a very protracted and time consuming effort, not to mention an inordinate margin of error inherent to pulling data streams together from disparate systems.

F. Positions The State For Next Generation Integrated E-Procurement Systems

The State is committed to the implementation of a centralized eProcurement system. Electronic processes for procurement are the norm across the country. Centralizing OPC should be thought of as a vital and pivotal "First Step" toward the "Next Step" of eProcurement. The VISION upgrade to 9.2 (the State's financial management system) and the implementation of eProcurement will be made easier and more manageable with the advent of a centralized procurement model today. eProcurement is the natural extension of the centralization process and the transition to eProcurement will only be better and easier with centralization.

- VISION Statewide Financial System upgrade: the RFP ("Request for Proposal") for the VISION Financial System upgrade is under final review. The RFP's expected release date will be October 15, 2016. This RFP focuses on upgrading the current system functionality to a supported version.
- An RFI ("Request for Information") is under development to gather information to explore options and costs for a new system vs. upgrade. The RFI release and response periods will be timed to receive the responses in the same time frame as the upgrade RFP;
- A second RFP for the e-Procurement front end is in development with a projected release date of mid-November 2016;
- Finally, an RFP for additional Project Costing and Project Management module(s) will be developed after the determination of vendor for the primary system is made. Project Costing and Project Management is focused on replacing VTrans' STARS project system and will be primarily utilized by AOT, BGS, ANR, AOA and AHS for construction and IT Projects.

Centralized state purchasing organizations are playing a greater role to increase the success rate of contracts and programs. Through common best practice solicitation and award processes, central purchasing organizations are able to work with agencies to design and implement contracts that enable better controls over the contract life. Increased service contract success equates to a lower cost of government and increased delivery of intended services to our taxpayers.

BGS actively holds 875 contracts of which just over 500 are commodity contracts with the remaining balance being service contracts. The FY 2016 Contracts for Service Stats are identified below:

FY 2016 Contracts for Service Stats, by Range				
% Number Contracts	# Contracts	Contract Value Range	Total Dollars	% Dollars by Range
0.30%	5	\$10 M & Over	\$ 82,600,000.00	24.9%
0.30%	6	\$5 M - <\$10 M	\$ 42,468,878.75	12.8%
1.90%	34	\$1 M - <\$5 M	\$ 64,229,443.55	19.4%
3.30%	60	\$500 K - <\$1 M	\$ 41,765,146.44	12.6%
5.50%	99	\$250 K - <\$500 K	\$ 33,016,540.11	10.0%
13.60%	246	\$100 K - <\$250 K	\$ 37,907,570.72	11.4%
10.10%	182	\$50 K - <\$100 K	\$ 12,401,601.34	3.7%
10.50%	190	\$25 K - <\$50 K	\$ 6,544,841.25	2.0%
54.50%	983	Under \$25 K	\$ 10,387,753.50	3.1%
100.00%	1805	GRAND TOTAL	\$ 331,321,775.66	100.00%

5. ASSUMPTIONS AND CONSTRAINTS:

Even with the new organizational structure, collaboration and communication between OPC and each agency will be key. There will always be a need for the OPC to work directly and continuously with the agencies to timely and effectively source agency needs in the best possible manner at the best possible price.

We are in the process of reinstating the Purchasing Advisory Council (PAC) which is to be composed of agency and OPC personnel. The PAC will provide a forum for discussion of policies and procedures, and make recommendations for the promotion and improved effectiveness of the statewide purchasing function.

This centralization effort will leave the decision to purchase services with each agency, however the purchasing process for all contracts will be conducted through OPC. Further, contract management, compliance and enforcement will remain the responsibility of each agency, but OPC will be available for training with respect to best practices. Agencies may also buy services from contracts Statewide enterprise contracts administered by OPC.

It is foreseeable that certain agencies will resist the structural changes required by this action.

Centralization may also be perceived by some as simply creating hurdles to the way business is currently conducted rather than improving processes and practices. It is with this in mind that the OPC anticipates developing delegation levels, dollar and risk thresholds. Initially, all agencies will have the authority to conduct procurements and enter into contracts for services without the involvement of OPC. Threshold-based delegation(s) will be established to provide progressive increase authority to be achieved through best practices training and certifications.

6. STAKEHOLDER RECOMMENDATIONS

In accordance with subsection (b) of the Act, consideration was given to "interested stakeholders" which includes at least three vendors that regularly contract with the State. Six vendors were contacted and asked a series of questions.

The questions posed included:

- As part of the State's continuing effort to operate in a fair and transparent fashion, we are evaluating electronic procurement systems (web-based) which will not only centralize purchasing across the State, but will provide easy access for vendors and service providers alike.
- Before we embark on such a far reaching endeavor, we thought it prudent to reach out to you for feedback...on how you feel the State conducts itself now in this important area but also how you foresee doing business with us in a more open and accessible web environment.
- How would you characterize your company's ability to conduct business with the State of Vermont under existing practices?
- What hurdles, if any, are you confronted with when trying to acquire state business? Are processes clear? Do you find ambiguity in the system? How seamless of a routine would you say the State currently offers your company in any given bidding process?
- Do you believe you have equal footing (fair and impartial treatment) with other vendors? Would a more open procurement environment, one in which you as a bidder, would have access to general procurement activity, at the touch of a few keystrokes, be of significant value to you?

Overall input received:

- Procurement is perceived as fair and open.
- Standardization across the state is not consistent.
- Concern expressed over their being a consistent "chain of command" to elevate issues to.
- Concern expressed over payment schedules not clearly defined in the contracts. Although the state indicates payment in 30 days; it is more like 60-90 days and in some cases 120 days which causes additional issues.
- One vendor indicated the State would benefit the "perspective of the contractor" on some construction projects when the design and plans were being developed by the state and their designers. If you had a contractor not involved in the project, and wasn't a bidder for the work, they could provide a "contractor perspective"; could save the state time and money. The contractor could point out a couple tweaks that could make it easier for a contractor to bid, which ultimately saves time and money. Otherwise, they are bidding per the "plan", etc.

7. CONCLUSION

A single procurement office at the executive level increases strategic value through leveraged state spend, competition, negotiations, eProcurement solutions, increasing service contract success and creating and sustaining private sector jobs. In accordance with the subsection (c) of the Act, we believe the recommendations for a centralized OPC with elevated stature and improved visibility under the Secretary of Administration:

- (1) Create a mechanism to enforce uniform compliance with State contracting law and procedures;
- (2) Achieve cost efficiencies and service improvement; and
- (3) Facilitate the implementation of e-procurement and contract managements systems.

For these and other reasons presented in this Plan, we recommend moving forward with the consolidation of more of the State's procurement responsibilities within the Office of Purchasing & Contracting (OPC) and elevating the OPC to be a direct report to the Secretary of Administration.

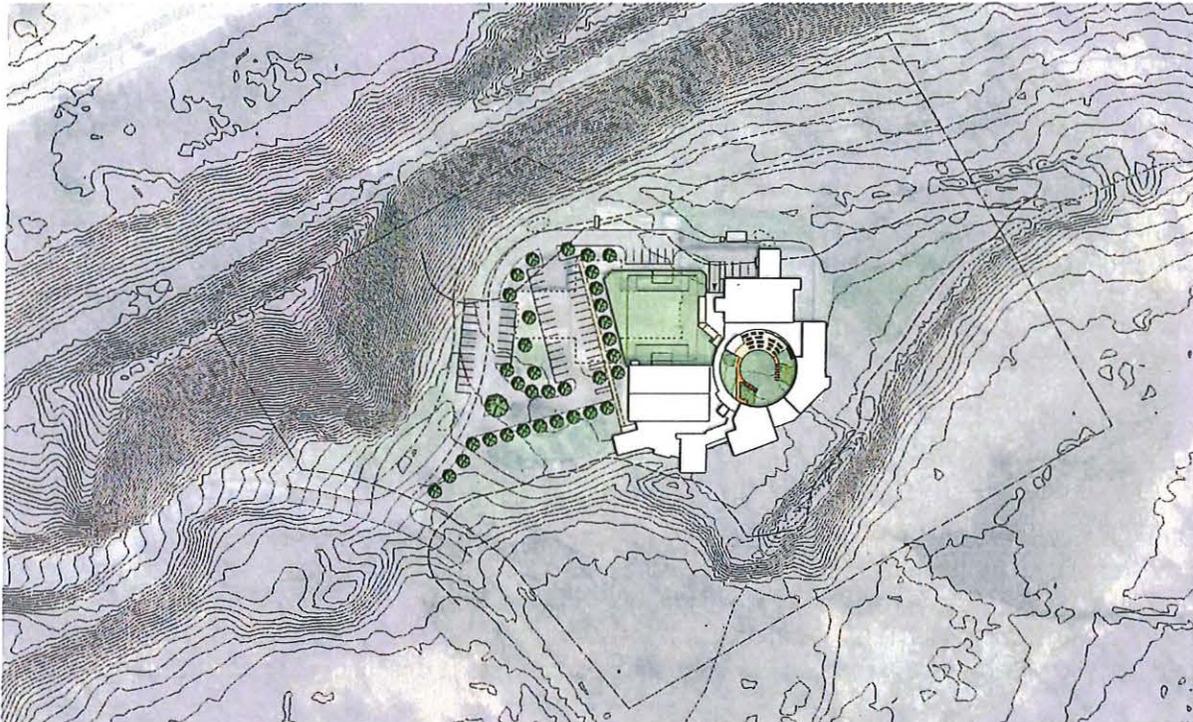
TAB 6

WOODSIDE

Juvenile Rehabilitation Center

12.22.16

Duncan
Wisniewski 
ARCHITECTURE
TREANORHL



EXECUTIVE SUMMARY

Access the full report via this link:

http://bgs.vermont.gov/sites/bgs/files/files/_WS_12.22.16_FeasibilityReport.pdf

INTRODUCTION

Upon seeing the RFP for the Woodside Juvenile Rehabilitation Center (WS) my reaction was, "I am so not interested in doing prison work." This was a shockingly ignorant view. While we were quickly disabused of this notion, I suspect that much of the public still thinks Woodside is a jail for young people.

What is the Woodside Juvenile Rehabilitation Center? Institutions do not always live up to their names; but 'Rehabilitation' is a core value at WS. Juveniles, sometimes severely abused, can become a danger to themselves and others and become enmeshed in the legal system. Woodside's mission is to heal them, not in a jail, but in a secure, therapeutic environment that supports a return to society. This nationwide model is better for the youth, their family and society and is more cost effective than relying on the detention system.

As we understood how important a force for good Woodside is two things stood out:

First, we were impressed with the commitment and compassion exhibited by the staff. We felt this from the director all the way down to staff working in the dayroom or monitoring someone in crisis. Even the two chefs in the kitchen exuded commitment. We heard stories of past residents who entered in dire straits, are now doing well and still regularly check in to say hello to the people who helped them find their way.

Second, it was sobering to see how much the existing facility works against their efforts. The needed program spaces are not available, what exists doesn't work and it feels like a jail. When people are in a jail they act accordingly which undermines the therapeutic elements of the program.

This feasibility study was compressed into a very short time frame. Our goal was to analyze the existing site and building conditions, develop a program, propose a preliminary design and an initial opinion of probable cost. We have successfully developed a design strategy that has flexibility to expand or shrink in response to program and budget needs. The next step would be to develop the site and building in more detail including building structure and systems as a basis for a more detailed cost estimate.

TEAM & PROCESS

Duncan • Wisniewski Architecture (DWA) has practiced since 1985. Our mission largely involves creating places for the less fortunate including affordable housing, homeless shelters, food shelves and other similar programs. Our biggest state job was the Williston Rest Areas on I89. For WS we teamed with TreanorHL (THL), a national firm focusing on justice work including youth rehabilitation centers. We assembled a team of local consultants to address critical portions of the work.

After assembling base information the team from THL joined us for a three day charrette - a concentrated process where client and architects develop ideas in an intense and compressed time frame - in early November to develop the program and sketch designs. At the end of the charrette we agreed on a design direction which was then developed over a course of one month.

EXISTING SITE REVIEW

GENERAL - Located off of Rt. 15 in Essex, across from the old Fort Ethan Allen this is a most challenging site. In theory the 10 acres - 5.4 developed - allow room and flexibility for expansion. Our site analysis and two meetings with ANR and Army Corps representatives quickly identified major factors limiting the developable footprint to barely more than what is there now.

Natural Resources/Wetlands - Much of the site has Class II wetlands which we delineated and verified. These require a 50' buffer which is shown on our site plan and more or less coincides with the existing developed area.

Stormwater - There is no stormwater permit for this site even though its impervious area exceeds 1 acre. Any additions or new construction will require a permitted stormwater treatment system and this will require a section of our developable area to implement.

FLOODPLAIN - WS is a critical facility - verified with ANR - and cannot be built in the 100 or 500 year flood plain. A survey crew has verified that both existing buildings are in the 500 year flood plain and are not in compliance.

UTILITIES - Sufficient site utilities exist on site.

EXISTING BUILDING REVIEW

GENERAL - The main structure was built in 1984 as a juvenile detention center. A gym was added in 1997. The main floor is approximately 12,000 sf with a 6,000 sf second floor. It is a slab on grade/frostwall with structural concrete masonry (CMU) walls, elevated concrete slab, wood exterior walls and wood roof structure.

STRUCTURAL - Our structural engineer has determined that it is structurally sound. However, the many small rooms with structural CMU walls and doors not meeting ADA make it very difficult to change the layout. A new steel beam structure would need to be inserted and this will be very expensive.

MECHANICAL/ELECTRICAL/PLUMBING - Our MEP report indicates that many of the systems are at the end of their life span and will need to be replaced. The ductwork is so enmeshed with the building structure that it will be difficult to remove without modifying the structure. The gym has its own propane powered heating system but is not adequately ventilated or dehumidified which leads to sweating causing slippery floors that have caused injuries. The fire protection system appears to be adequate and code compliant. The electrical systems are generally adequate.

JUSTICE STANDARDS - The Council of Juvenile Correctional Administrators (CJCA) has submitted a report noting that almost everything about the appearance and function of the building works against the treatment model of rehabilitation that WS seeks to implement. These deficiencies create unsafe and non-therapeutic behaviors which then spread through contagion.

BUILDING IMPACT ON PROGRAM FUNCTION - The detailed report includes a long list of how the building works against the therapeutic model. These deficiencies have to do with both inadequate program space and various unsafe conditions as well as the fact that it feels like a detention center which leads to people acting like they are in a jail.

ACCESSIBILITY - Many of the doors are not accessible due to size or clearances - none of the rooms are accessible. Although there is an elevator, the only way to access it is through the dishwashing and kitchen areas which are not secure.

PROGRAM

At present the facility is licensed for 30 beds. The core elements are housing, education, counseling and support areas plus recreation. We started with an idealized program and then honed in on detailed 30 bed and 25 bed programs related to the design concepts.

Existing	25,000 sf
25 Bed	39,000 sf
30 Bed	46,000 sf

The program is larger than expected because the existing facility is so inadequate. Many of the program elements do not even have space. The staff are sleeping in storage closets (one

infamously known as the Batcave). You go through other rooms to get to classrooms which causes disruption and can compromise confidential counseling or legal conversations. There is no secure medical intake area.

DESIGN STRATEGY

RENOVATION FEASIBILITY - Can the existing building be renovated and added to in a manner that creates a viable program? We concluded that the main building was not suitable to reuse, but that the gym could be integrated into a new structure. A summary of the reasons:

- 500 Year Flood Plain. The main structure is 1.5' below the flood elevation. Given the type of structure that it is there is no way to raise the floor level. We believe the gym could be utilized since it is not a critical function. This alone is a primary reason to abandon this building.
- Renovation/Relocation Implications. Any renovation would be major involving replacing most of the systems. This cannot be done with the WS program remaining on site. The costs of finding, permitting, and retrofitting a secure, temporary facility are extremely high. Staff retention could suffer during this process which would be a major blow given the time and money it has taken to assemble and train the existing, dedicated staff.
- Renovation. Renovating this building would be so extensive that the costs approach new construction. The building is not sympathetic to the rehabilitation program because it was made to be a detention center. Being mostly one story, it inefficiently utilizes the limited site footprint.

STRATEGY - Our design strategy is to build a new structure on site while the existing program remains functioning on site in order to save on the temporary, significant relocation costs. We will reuse the gym to reduce costs since this is a large program element. After the program occupies the new structure, the existing would be demolished and the recreation yard and parking would be completed.

CONCEPT - The organizing concept of program elements around a circular corridor and corridor works for both a 25 and 30 bed design. In fact it is flexible enough to allow us to keep the design concept and continue to adjust and refine the program based on more detailed feedback and budgeting.

This concept appears to satisfy all the permitting issues which limit the developable area: Wetlands, Flood Plain and Stormwater. It satisfies the program elements in a straightforward manner and with relatively simple means creates an environment that is secure but the opposite of a detention center. There is plenty of natural light and views into the forest. We have avoided the curse of endless, artificially lit corridors.

MEP SYSTEMS & ENERGY ANALYSIS

The existing facility is not an energy efficient building. The median Energy Use Intensity (EUI) for an existing facility in the northeast is 90 kBtu/sf - but utility records indicate WS has an EUI of 115 kBtu/sf. Our projections assume an EUI of 60 and indicate that the 25 bed design would actually save money and the 30 bed would be quite similar, even though both are much larger than the existing facility.

PROBABLE COST

The preliminary design has not yet been developed enough to select structural and building systems. Our preliminary opinion of probable cost was developed with our local estimator - Tom Barden - and by comparing THL's experience with national averages.

Site work costs were calculated based on average of 10 - 15% of actual building costs on similar recent projects. Because this is a difficult site we used a factor of 18%. Building demolition cost was based on a somewhat larger, masonry structure in Waterbury. Our local estimator contacted a contractor who has done detention work and the sf numbers he provided coincided with what THL has seen in their national practice.

CONCLUSION

We quickly zeroed in on site issues which indicated that we had a very limited area to work with. The existing structure floor elevations were below the 500 year flood plain which is not acceptable for a critical facility. The building itself had many shortcomings besides the flood plain issue and we concluded it could not be reused. We also concluded that finding a temporary or permanent off site facility for the program would be very expensive and perhaps have a negative effect on the program if staff retention was harmed.

Therefore, the design strategy evolved to build a new structure incorporating the gym while the Woodside program continues to operate in the main structure. The building would then be demolished and the recreation yard and parking completed.

The design creates a secure environment that accommodates the program needed to fulfill the core mission of rehabilitation. It is a flexible concept that can work with a 25 or 30 bed program and many of the support spaces could be expanded or contracted around the central space.

END OF EXECUTIVE SUMMARY

Summary of Costs- Master Plan				2017 Dollars
Program Name	Square Footage	Average \$/SF	Average Sub-Total	High Sub-Total (x1.15)
25 BED - CONSTRUCTION (HARD) COSTS				
Housing	10,096	\$ 300	\$ 3,028,800	---
Intake and Medical	2,426	\$ 300	\$ 727,800	---
Staff Support	1,827	\$ 300	\$ 548,100	---
Building Support	1,416	\$ 300	\$ 424,800	---
Dining	2,016	\$ 300	\$ 604,800	---
Public Entry and Meeting Rooms	2,028	\$ 250	\$ 507,000	---
Visitation	569	\$ 275	\$ 156,475	---
Administration	1,947	\$ 250	\$ 486,750	---
Counseling	1,657	\$ 300	\$ 497,100	---
Education and Programming	3,526	\$ 300	\$ 1,057,800	---
Core and Primary Circulation	8,070	\$ 250	\$ 1,517,500	---
Existing Gym	5,952	\$ 90	\$ 535,680	---
SUB-TOTAL	39,530		\$ 10,092,605	\$ 11,606,496
Site Work (Civil & Building) - Phase 1 & 2	18% of Bldg Sub-total		\$ 1,818,659	\$ 2,089,169
Phase 2 - Demolition & Disposal	18,500	\$ 11	\$ 203,500	\$ 234,025
25 BED - TOTAL CONSTRUCTION BUDGET			\$ 12,112,774	\$ 13,929,690
		Avg \$/SF	\$ 306	\$ 352
30 BED - CONSTRUCTION (HARD) COSTS				
Housing	12,235	\$ 300	\$ 3,670,500	---
Intake and Medical	2,426	\$ 300	\$ 727,800	---
Staff Support	1,827	\$ 300	\$ 548,100	---
Building Support	1,416	\$ 300	\$ 424,800	---
Dining	2,016	\$ 300	\$ 604,800	---
Public Entry and Meeting Rooms	2,028	\$ 250	\$ 507,000	---
Visitation	569	\$ 275	\$ 156,475	---
Administration	1,947	\$ 250	\$ 486,750	---
Counseling	2,558	\$ 300	\$ 767,400	---
Education and Programming	4,771	\$ 300	\$ 1,431,300	---
Core and Primary Circulation	8,582	\$ 250	\$ 2,140,500	---
Existing Gym	5,952	\$ 90	\$ 535,680	---
SUB-TOTAL	48,307		\$ 12,001,105	\$ 13,801,271
Site Work (Civil & Building) - Phase 1 & 2	18% of Bldg Sub-total		\$ 2,160,199	\$ 2,484,229
Phase 2 - Demolition & Disposal	18,500	\$ 11	\$ 203,500	\$ 234,025
30 BED - TOTAL CONSTRUCTION BUDGET			\$ 14,364,804	\$ 16,519,524
		Avg \$/SF	\$ 310	\$ 357

TAB 7

Department of Buildings and General Services
Office of the Commissioner
2 Governor Aiken Avenue
Montpelier, VT 05633-5801

[phone] 802-828-3519
[fax] 802-828-3533

Agency of Administration

MEMORANDUM

TO: House Committee on Corrections and Institutions
Senate Committee on Institutions

FROM: Christopher Cole, Commissioner 

DATE: January 13, 2017

SUBJECT: Grants awarded FY 2017 under the Human Services and Educational
Facilities Competitive Grant Program

In accordance with Act 26 of 2015 Sec. 7 (5)(e) the funds appropriated in this sub section are to be allocated to (1) Human Services for a minimum of \$100,000.00 and (2) Educational Facilities for a minimum of \$100,000.00. The attached spreadsheet details the amounts awarded under this act, and previous fund balances.

TAB 8

Annual Report

State Energy Management Program

ACT 58 Sec. E.112 (d) On or before October 1 of each year commencing in 2016 and ending in 2019, the Department and EVT shall provide a joint report on the implementation of this section.

July 1, 2015 – June 30, 2016

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Executive Summary

In accordance with ACT 58 Sec. E.112 of 2015, the Vermont Department of Buildings and General Services (the Department) and Efficiency Vermont collaboratively developed and launched the State Energy Management Program (the Program) to accelerate, for State buildings and facilities, energy management measures, implementation of energy efficiency and conservation, and the use of renewable energy resources.

In this initial year of the Program, the Department and Efficiency Vermont executed a new Memorandum of Understanding, defining the relationship, roles, and responsibilities of each organization as it pertains to the Program. The Department, with support from Efficiency Vermont, recruited, hired, and trained its Program Team, effectively creating the Department's Energy Office. Together, the Department and Efficiency Vermont identified, developed, and implemented energy saving projects resulting in \$74,000 of initial-year savings for the State of Vermont, and over \$1.1M in savings over the life of these measures. The Program Team also supported the completion of projects resulting in an additional \$341,000 in initial-year savings for the State of Vermont, and over \$4.8M in savings over the life of these measures.

In FY2017, as the first full year wherein the Program will be fully staffed, project identification, development, and completion will accelerate, starting with a targeted effort to address the worst performing buildings first. The Program Team shall execute new energy evaluations on prioritized state-owned buildings in accordance with Section 24 Title 29: 157 VSA (a) (2). These evaluations shall identify opportunities for future energy savings, thus providing a roadmap for continued Program success.

FY2016: Targets, Actions, Results

Targets:

In accordance with ACT 58 Sec. E.112 (b) (1) (B), the Department and Efficiency Vermont aimed to reduce the State's total energy usage and related costs by an amount not less than \$150,000 through measures implemented as part of the Program.

Actions Taken:

- The Department and Efficiency Vermont executed a new Memorandum of Understanding, which includes targets for future energy savings, a process for determining how savings targets are met, and details of Efficiency Vermont's commitment for personnel over the four-year time period of the Program.
- The Department and Efficiency Vermont created a Program Process, defining:
 - Project identification, development, management and completion procedures
 - Hand-off points during the execution of efficiency projects
 - Documentation, tracking, and reporting schedule and protocols
- The Department, with support from Efficiency Vermont, recruited, hired, and trained the Program implementation team.
- Program representatives from each organization met bi-weekly for collaborative project identification, development, and management.
- Efficiency Vermont provided introduction, technical resources, and troubleshooting support to the Department of Buildings and General Services, the Department of Corrections, and the Agency of Transportation on utilization of Energy Star Portfolio Manager® ("ESPM"), effectively creating a building-energy accounting system that includes baseline and annual energy data.
- The Program Team reviewed the state-owned list of properties tracked in ESPM, the Department's major maintenance list, past energy evaluation reports, and urgent maintenance items to develop a prioritized list of energy saving opportunities. The purpose of these steps was to maximize the opportunity to reduce energy consumption in BGS buildings by performing energy audits on the worst performing buildings first. Details on the methodology and the resulting prioritized list are included in the Appendices.
- The Department, with support from Efficiency Vermont, developed and posted a Request for Proposals to secure contracted resources to perform building assessments, including energy audits, on the requisite square footage of the Department's building stock, in accordance with Section 24 Title 29: 157 VSA (a) (2). The list of buildings to receive energy audits is included in the Appendices.
- The Department and Efficiency Vermont, with support from Burlington Electric Department, identified, developed, and completed energy saving projects; as shown in the tables below.

FY2016 Results:

Site	Project Focus	KWH	MMBTU	First-year \$ Savings	Lifetime \$ Savings
Numerous locations	Standard Lighting Rebates	95,000		\$13,000	\$199,000
Statehouse	Airsealing, Exterior Lighting	5,000	500	\$4,000	\$69,000
AOT Chlmney Corners	Lighting	37,000		\$4,000	\$64,000
32 Cherry Street	Advanced lighting, controls	364,000	250	\$53,000	\$848,000
		501,000	750	\$74,000	\$1,180,000

- In addition to the projects listed above, several projects whose initiation predate the Program, benefitted from the focused collaboration of the Program Team. These projects are shown below.

Site	Project Focus	KWH	MMBTU	First-year \$ Savings	Lifetime \$ Savings
Lamoille County Courthouse	Major renovation	66,000		\$9,000	\$132,000
Westminster State Police Barracks	New Construction	92,000	50	\$39,000	\$522,000
Waterbury Complex	Rebuild	678,000	9,800	\$207,000	\$4,198,000
Solar Photovoltaic Net-Metering	Renewable Energy Generation	4,461,000		\$86,000	
		5,297,000	9,850	\$341,000	\$4,852,000

FY2017: Projected Savings, Strategies

Targets:

In accordance with ACT 58 Sec. E.112 (b) (1) (B), the Department and Efficiency Vermont aims to reduce the State's total energy usage and related costs in FY2017 by an amount not less than \$150,000 through measures implemented as part of the Program.

With the Department's Program Team now in place, it is possible to accelerate the development and management of energy saving projects.

Projected Savings:

Energy type	KWH	MMBTU	\$ savings
Electricity	763,000		\$94,000
Thermal Fuels		220	\$6,000
Additional Projects resulting from Energy Audits	500,000	400	\$67,000
	1,263,000	620	\$167,000

The State of Vermont will achieve additional \$95,000 savings through solar photovoltaic net-metering, with an estimated electrical energy generation of 5,515,000 kWh in FY2017.

A detailed list of planned FY2017 activities can be found in the Appendices.

Strategies:

Collaborative and systematic project identification, development, and management is vital to the success of the Program. To ensure this process is efficient and effective, the Department and Efficiency Vermont will execute the following strategies, as noted in the updated Memorandum of Understanding:

Consistent, Collaborative Communication

- The Program Team shall adhere to project identification, development, and management procedures defined in the MOU.
- The Program Team, with representatives from each organization, shall continue to participate in bi-weekly meetings for ongoing collaborative project identification, development, and management

Adequate Staffing

- Efficiency Vermont shall dedicate staff resources totaling a minimum of one (1) Full Time Employee (FTE) to support collaboration and project completion with the Department for the duration of the Program
- The Department shall maintain a staff team, supported by Efficiency Vermont, dedicated to Program implementation for Project Management and Program Support. These positions shall be in addition to the Department's State Energy Program Manager.

Collaborative Project Identification, Development, Management, and Completion:

- The Program Team shall use the list of energy saving opportunities developed in FY2016 to target the worst performing buildings first, conducting new energy audits on state-owned buildings in accordance with Section 24 Title 29: 157 VSA (a) (2), following the procedures developed by the Department with the support of Efficiency Vermont.
- With Technical Assistance from Efficiency Vermont as needed, the Department's Energy Project Managers shall finalize each project's scope of work and procure resources for implementation.
- Upon request, Efficiency Vermont shall assist the Department in assessing the need for commissioning or tuning of newly installed equipment.

Energy Tracking:

In accordance with ACT 58 Sec. E.112 (d) (3) the Department will continue to make improvements toward systems of measurement to achieve the goals of 2011 Acts and Resolves No. 40.

- Through the use of ENERGY STAR Portfolio Manager (ESPM), the Department will maintain an energy accounting system that includes baseline and annual data on energy consumption at properties owned or managed by the Department. The Department has requested that all state agencies who own and operate buildings utilize the ESPM for these purposes.
- With respect to transportation, Administrative Bulletin 2.3 Appendix B: Fuel Card Use – State Owned Vehicles, effective February 2, 2016, established the requirements of the statewide universal fuel card program to provide State agencies and departments with a vehicle and/or equipment fuel card that allows State employees to purchase fuel and other vehicle related supplies and services for State vehicles and/or State-owned fuel-powered equipment in order to conduct governmental business. The Department is now able to capture employee fuel purchases through the WEX Fleet Purchase Card reporting system.

FY2018-2019: Projected Savings, Strategies

Targets:

In accordance with ACT 58 Sec. E.112 (b) (1) (B), the Department and Efficiency Vermont aim to reduce the State's total energy usage and related costs for the remaining years of the Program by an amount not less than \$150,000 annually.

Projected Savings (annually):

Energy type	KWH	MMBTU	Dollar savings
Electricity	1,500,000		\$195,000
Thermal Fuels		1,100	\$8,000
Additional Projects resulting from Energy Audits	500,000	500	\$70,000
Renewable Generation	TBD		TBD
	2,000,000	1,600	\$273,000

Strategies:

Ongoing, collaborative, and systematic project identification, development, and management will remain critical to the long-term success of the Program. The Department and Efficiency Vermont will continue to execute the strategies as noted in the Memorandum of Understanding, making modifications and improvements as needed.

In accordance with ACT 58 Sec. E.112 (d) (3) the Department will continue to make improvements toward systems of measurement to achieve the goals of 2011 Acts and Resolves No. 40.

Observations & Recommendations

The Department and Efficiency Vermont, through the development, launch, and implementation of the State Energy Management Program, have successfully achieved first-year savings of \$74,000, and lifetime savings in excess of \$1.1M for projects implemented in FY2016. This has been achieved with one of three new positions filled for only six months of the first year of the four year preliminary period. With a full staff onboard as of July 1, 2016, our organizations are confident that the Program will produce the required annual savings, and significant lifetime savings, for the State of Vermont.

At the end of the four year preliminary period, we will undoubtedly ask that you institutionalize this Program. Until then, it is our job to demonstrate that the State Energy Management Program can continue to successfully save taxpayer dollars through energy efficiency and renewable energy investments.

We ask for your support as we move forward and fully implement the Program, demonstrating that state government leads by example.

Efficiency Vermont

By: *Elizabeth M. Gamache*
Name: Liz Gamache
Title: Director, Efficiency Vermont

Department of Buildings and General Services

By: *Michael J. Obuchowski*
Name: Michael J. Obuchowski
Title: Commissioner

Appendices

FY2017-2019 Project Development

Projects Scheduled for Completion in FY2017:

Existing Buildings				
Site	Project Focus	KWH	MMBTU	Dollar savings
Numerous	Standard Lighting Rebate Form	85,000		\$10,000
Chittenden Regional Correctional Facility	Refrigeration	9,000		\$1,000
Northern State Correctional Facility	Burners	4,000	20	\$1,000
Sharon Welcome Center	Numerous	25,000		\$3,000
109 State Street	Numerous	100,000		\$11,000
133 State Street	Numerous	187,000		\$21,000
Barre Courthouse	Elevator	2,000	200	\$3,000
Northwest State Correctional Facility	Water Treatment	32,000		\$4,000
Springfield State Office Building	HVAC, Lighting	75,000		\$8,000
Dept of Fish & Wildlife - Bennington	Lighting	2,000		\$500
Dept of Fish & Wildlife - Ed Weed Fish Culture	Water Treatment	129,000		\$21,000
Dept of Fish & Wildlife - Salisbury	Water Treatment	104,000		\$15,000
Guilford Welcome Center	HVAC	5,000		\$500
New Construction				
Site	Project Focus	KWH	MMBTU	Dollar savings
White River Junction Maintenance Garage	Numerous	TBD		
Saint Johnsbury-Lyndon Maintenance Garage	Numerous	TBD		
Northern State Correctional Facility Maint. Bldg	Numerous	4000	TBD	\$1,000
		763,000	220	\$100,000

Future Projects in Development through FY2017 Scheduled Energy Audits:

Site	Current Energy Cost Intensity (\$/ft ²)	Site EUI (kBtu/ft ²)	GFA (ft ²)	Potential Dollar savings with improved EUI
Newport State Office Building	\$2.78	166	77,399	\$92,506
Middlesex Central Services	\$2.55	90	39,388	\$37,523
Burlington Zampieri Office Building	\$2.70	95	115,785	\$31,425
Rutland Courthouse	\$2.76	95	45,265	\$26,867
St. Johnsbury Caledonia Courthouse	\$2.45	91	49,062	\$21,465
Burlington Office	\$2.26	118	27,000	\$9,557
St. Johnsbury State Office Building	\$2.45	113	9,122	\$9,126
Rutland McKinley Ave	\$2.43	59	14,094	\$8,380
Williston Information Center South	\$7.85	244	4,600	\$7,756
Royalton Troop Headquarters	\$2.19	62	12,250	\$5,775
Rutland Multi-Modal Transit Center	\$8.16	213	3,000	\$4,894
St. Albans Troop Headquarters	\$2.19	68	11,634	\$4,513
Derby Office Main Building	\$3.23	107	13,379	\$3,378
New Haven Public Safety	\$2.73	74	12,443	\$2,159
Bradford Troop Headquarters	\$1.98	54	3,020	\$1,421

Total square footage for all BCS buildings = 3,027,000 sq.ft
 Total square footage to be energy audited = 437,441 sq.ft.

The Department, with support from Efficiency Vermont, developed this prioritized-buildings list using two primary criteria; Energy Cost Intensity (ECI, measured in \$/ft²) and Site Energy Use Intensity (EUI, measured in kBtu/ft²). ECI shows how much the Department spends in electricity and fuel per building per ft². Site EUI measures how much electricity and fuel a building consumes per ft².

For each Fiscal Year, 2014, 2015, and 2016, the Program Team ranked buildings by each primary criteria independently, from best to worst performing building. The Team then averaged the two criteria-based lists for each year. The final step in creating the prioritized list above was to average the years together to determine the best and worst performing buildings over the past three years.

The final column shows the potential dollar savings should the building's performance, as measured by Site EUI, improve to the 75th percentile of energy performance for buildings of that type (office building, courthouse, etc.), according to ESPM.

TAB 9

**TRANSFER OF UNEXPENDED BOND BALANCES FOR MAJOR MAINTENANCE:
29 VSA, Sec. 152(a)(23)**

In accordance with the requirements of 29 VSA, Sec. 152(a)(23) pertaining to the Transfer of Unexpended Bond Balances for Major Maintenance, BGS Commissioner reports no funds were transferred and expended from unspent balances during FY2016.

TAB 10

2016 Annual Report

Historic Property Stabilization and Rehabilitation Special Fund

**Submitted to the House Committee on Corrections and Institutions
and the Senate Committee on Institutions
in accordance with 29 V.S.A. §155(c)**

**Laura V. Trieschmann
State Historic Preservation Officer
Vermont Division for Historic Preservation**

**Josh Hanford
Deputy Commissioner of the Department of Housing and Community Development
Agency of Commerce and Community Development**

**Chris Cole
Commissioner of the Department of Buildings and General Services
Agency of Administration**

January 15, 2017

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Executive Summary

The Historic Property Stabilization and Rehabilitation Fund (Fund) finances stabilization and rehabilitation of state-owned historic properties. The Fund was to provide net proceeds realized from the sale and/or lease of other vacant or underutilized historic properties owned by the state. This pilot program was to fill a funding gap and provide a higher level of stewardship for state-owned historic resources by allowing private sector partnerships to stabilize and rehabilitate underutilized properties. Sale or lease of any of the eligible properties was not to yield much money, because transfers and leases were coordinated with local municipality and/or non-profit organization with a preservation and history focus.

The Legislative Joint Fiscal Committee approved the proposal for implementing the Fund at its July 21, 2011, meeting. The Vermont Department of Buildings and General Services (BGS), Vermont Division for Historic Preservation (VDHP), and the Vermont Advisory Council on Historic Preservation have worked diligently to transfer, sell, or deaccession properties approved for inclusion in the Fund.

In 2011, the General Assembly approved fourteen historic properties as eligible for this Fund. In 2015, eight properties remained on the list, two of which were added in 2014.

Reducing the monies to \$50,000, the General Assembly repealed the Fund in 2016 (H. 878) and Governor Shumlin signed this on July 2, 2016.

Accomplishments in 2016

The appropriated funding amount of \$100,000 was reduced to \$50,000, with those funds to be allocated to the demolition of the Fuller Farmhouse and the Bishop's Cabin. One property, Fuller Farmhouse, is currently eligible for this Fund.

Farmhouse, St. Albans: Removed from List (H. 878, 2016)

Arsenal and Fairbanks Buildings, Vergennes: Removed from List (H. 878, 2016)

Fuller Farmhouse, Hubbardton: Archaeological and historical studies completed by VDHP staff have aided in recording the archaeological significance of the land associated with the Fuller Farmhouse at the Hubbardton Battlefield, leading to a determination that the property should not be deaccessioned or leased. Removal of any acreage associated with the Revolutionary War battlefield (July 7, 1777) in Hubbardton because of the proposed sale of Fuller Farmhouse would compromise the historical integrity of the site. In 2015, VDHP received a grant from the National Park Services' American Battlefield Protection Program to study the boundaries and national significance of the battlefield, which includes the site where the farmhouse is located. Accordingly, these sensitive archaeological sites must be protected. The 1920s house is non-contributing resource to the battlefield.

VDHP consulted with the Town of Hubbardton Select board and Hubbardton Historical Society, which sought to obtain use of the building as a museum. Funding for the needed renovations to the building and the establishment of a museum was not secured by the town or historical society; VDHP was informed on April 16, 2016 of their desire not to pursue this plan. VDHP now plans to demolish the building. The foundation shall be capped to preserve any potential archaeological sites. The barn shall be retained. The General Assembly approved this action. (H. 878, 2016)

Eureka Schoolhouse and Baltimore Covered Bridge, Springfield: Removed from List (H. 878, 2016)

Bishop's Cabin, Orwell: Demolished and materials removed in 2016; the General Assembly approved this action. (H. 878, 2016)

Burtch-Udall House, Quechee: Removed from List (H. 878, 2016)

Kent Tavern Museum, Calais: Removed from List (H. 878, 2016)

Property	Town	Dept	Proposed Action	2016 Finding/Action	Income to Fund
Farmhouse and barn, 3469 Lower Newton Rd	St. Albans	BGS	Subdivide and sell the house, barn, and up to 10 acres	Removed from List (H. 878)	\$0
Arsenal & Fairbanks buildings	Vergennes	BGS		Removed from List (H. 878)	\$0
Fuller Farmhouse	Hubbardton	VDHP	Explore lease or transfer (building only) to Town or Historical Society.	Town and Historic Society relinquished options for their use of building. Demolition of structure and capping of foundation is pending. Retain Barn.	\$0
Eureka Schoolhouse and Baltimore Covered Bridge	Springfield	VDHP	Continue use as state historic site open to public	Removed from List (H. 878)	\$0
Bishop's Cabin	Orwell	VDHP	Demolish cabin and preserve archaeological site	Building demolished. Removed from List (H. 878)	\$0
Burtch-Udall (Theron Boyd House)	Quechee	VDHP	Identify opportunities for leasing, partnering, or otherwise enhancing use of property	Tours by appointment. Outreach to three interested neighbor for leases of land; two lease agreements signed and one pending. Removed from List (H. 878)	\$0
Kent Tavern Museum	Calais	VDHP	Identify opportunities for leasing, partnering, or otherwise enhancing property	Tours by appointment. Removed from List (H. 878)	\$0

Activities for 2016-2017

The lack of revenue from this pilot program has suggested it is not overwhelmingly successful. Therefore, during the 2016 session, the General Assembly repealed the Fund. The remaining activities included:

- Funds reduction from \$100,000 to \$50,000 in July 2016 (FY17)
 - The fund covered the costs for razing Bishop's Cabin and removal of the materials in winter 2016 (FY16). Total costs \$17,083.
 - The remaining funds will be used to raze the Fuller Farmhouse at Hubbardton Battlefield.
- Fund be terminated in July 2017 (end of FY17).

Annual Review of the Fund by BGS and the Vermont Advisory Council on Historic Preservation:

The Fund is a self-contained, funded program, revenue to expenditures. The Fund was seeded with a \$100,000 appropriation and possible net proceeds from the sale or lease of properties approved in ACT 40 of 2011. The annual balance is limited to \$250,000. Any unencumbered overage returns to the General Fund for reallocation.

In accordance with the Fund management process, approved by the Legislative Joint Fiscal Committee in July 2011, meetings were held to discuss and review the status of the program. The annual review meetings between BGS and VDHP were held on June 30, 2016 and September 29, 2016, to discuss the status and future of the Fund. BGS and VDHP agreed on the above stated Activities for 2016-2017.

A draft of this report was distributed to the Vermont Advisory Council on Historic Preservation (Council) in and was discussed at their October 19, 2016, meeting. The Council unanimously made the following motion:

The Council has reviewed the Draft 2016 Annual Report to the General Assembly on the Historic Property Stabilization & Rehabilitation Special Fund and concurs with the activities for 2016-2017.

The Fund: Program Description and Process

1. Purpose of the fund

Act No. 40 (“An act relating to capital construction and state bonding”) established the Historic Property Stabilization and Rehabilitation Special Fund (Fund) during the 2011 Legislative session. An innovative partnership between the BGS and VDHP, the Fund finances stabilization and rehabilitation of state-owned historic properties from the net proceeds realized from the sale and/or lease of other under-utilized historic properties owned by the state. The Fund is a pilot program at this time; it only includes historic properties owned by BGS and VDHP as designated by the General Assembly.

The Fund:

- Fills a funding gap and provides a higher level of stewardship for state-owned historic resources.
- allowed the state to comply with 22 V.S.A. §14, which directs state agencies to develop plans for maintaining historic properties under their ownership and to institute procedures to assure plans and programs contribute to the preservation of historic properties in their portfolio, while avoiding unreasonable economic burden to the state.
- ensured the historic integrity of properties sold or leased with historic preservation easements or covenants.
- allowed the state to form private-sector partnerships in order to stabilize and rehabilitate underutilized properties.
- was a self-contained special fund program.

2. Statutory Authority

The Fund was established by Act No. 40 during the 2011 Legislative session by amending 29 V.S.A. §155. Act No. 41 during the 2012 Legislative session amended the law. The Fund is managed by and under the authority and control of the Commissioner of BGS. (See Appendix II for the full text.)

During the 2012 legislative session, the General Assembly amended 29 V.S.A. §155 to:

- 1) Include net revenue from “lease” of properties, along with sale, into the Fund.

- 2) Clarified that, if the Fund balance exceeds \$250,000 as of November 15 in any year, then the general assembly shall reallocate “funds not subject to encumbrances for other purposes.”
- 3) Clarified the purposes of the Fund to state that “rehabilitation and stabilization” include “payment of costs of historic resource evaluations and archaeological investigations, for building assessments related to a potential sale, or lease, for one-time fees for easement stewardship and monitoring, and for related one-time expenses.”
- 4) Clarified that “lease” of historic properties are included in the Fund.

The Legislative Joint Fiscal Committee approved the proposal for implementing the Fund at its July 21, 2011, meeting. The Fund was repealed by the committee in 2016.

3. Summary

All state agencies own and manage historic properties and there are not enough monies to maintain and manage all of them. BGS owns and/or administers over 150 buildings that have been identified as historic. VDHP owns and maintains 83 buildings, structures, and sites. Most are actively used for state programs and services under a stable preservation maintenance program. Several of those owned by VDHP are open to the public. Some, however, are vacant or underutilized, with little prospect for productive use. In times of tight budgets, maintenance is often lacking and many of the buildings considered neglected. The establishment of the Fund was an innovative response to this problem, one that prioritized underutilized properties for stabilization and rehabilitation, provided a revenue stream to help fund needed repairs, and fostered the lease or sale of properties that would better serve non-state purposes. Included in the list of properties for possible lease or sale were some owned by VDHP that were not related to the mission of the state historic sites program. Several of these properties (such as Bishop’s Cabin, in Orwell, and Fuller Farmhouse, in Hubbardton) are not open to the public.

The Fund is not meant as a substitute for capital budget support for the state historic sites that are maintained by VDHP and open to the public. Maintenance and operation of the state-owned historic sites regularly open to the public continue to be funded in the capital budget. Two properties currently not officially open to the public -- Kent Tavern Museum and the Theron Boyd House -- were added to the Fund to supplement capital budget appropriations for work necessary to stabilize and maintain them. They have since been removed from the Fund.

It was the intention of the State that historic properties be kept by the State in its portfolio. However, if the Commissioner of BGS determines, based upon a recommendation from the Fund Advisory Group, that an investment from the Fund is necessary to secure a building from further deterioration, or to conduct an archaeological study, or for any other necessary purpose PRIOR to transfer or sale, then use of the Fund was appropriate, and the historic property could be removed from the State’s portfolio.

Deaccessioning, transfer or sale of historic buildings was based on the following criteria:

- a building was not suited to serve a mission-related purpose;
- a building would better serve the public in non-state ownership and/or use; and/or
- there was better opportunity for long-term preservation than if the building remained in state ownership.

Prior to transferring a property to a municipal or non-profit entity, it was important to ascertain that entity’s commitment and ability to sustain future operating and maintenance costs.

Each year, BGS and VDHP held an Annual Review meeting to review activities and accomplishments of the program during the previous year, selected the priority projects that will be funded in the following calendar year, and ensured that no funds above \$250,000 remain unobligated.

4. Management of the Fund

The BGS Commissioner managed the program associated with the Fund with a dedicated Fund Advisory Group consisting of a BGS Commissioner designee; the State Curator and Assistant State Curator; the State Historic Preservation Officer or designee, and State Historic Sites Chief or designee; and the Commissioner of the Department of Housing and Community Development or designee. The Advisory Group makes recommendations to the BGS Commissioner on the operations of the Fund.

The BGS Commissioner, working with the Fund Advisory Group, submitted a Report to the Legislature by January 15 of each year, developed on the following timetable and outline:

- Annual Review meeting between BGS and VDHP held each year
- Draft of Report circulated to Advisory Council on Historic Preservation each year
- The Report included information on deposits, disbursements, properties sold and stabilized or rehabilitated, and plans for future property transfers, leases and stabilization or rehabilitation of state-owned properties, and recommendations for changes and improvements in the program.

The Advisory Group meet and requested disbursements from the Fund as needed. Requests were presented to the BGS Commissioner for his/her review and final approval.

5. Deposits into the Fund

The Fund received \$100,000 in the FY12 capital bill. This was reduced to \$50,000 in the FY17 capital bill.

The FY12 capital bill authorized the deposit of net revenues from:

- the sale of 3469 Lower Newton Road, St. Albans
- the sale or lease of the Fuller Farmhouse at the Hubbardton Battlefield, Hubbardton
- from the donation of the Hyde Log Cabin, Grand Isle
- from the sale or lease of the Bishop Cabin at Mount Independence
- from the donation of the Bradley Law Office, Westminster
- from the donation or sale of the Eureka Schoolhouse, Springfield

BGS Commissioner was to deposit net revenues into the Fund. The Fund balance on November 15 of any year was capped at \$250,000. Unobligated monies in excess of that amount were to be reallocated by the General Assembly for other purposes in the next enacted capital appropriations bill. BGS Commissioner was authorized to seek needed appropriations through the Capital Budget.

Historic properties transferred out of state ownership were protected with a covenant and/or historic preservation easement as VDHP deemed necessary. The intent was to protect the exterior of the building, any outstanding interior features and/or associated collections, and, if warranted, associated property and landscape features, and/or archaeological sites. VDHP recommended historic features that should be protected, and required that the property owner obtain VDHP's prior written approval before undertaking any construction, alteration, rehabilitation, or other activity that might affect the protected features of the historic property.

6. Disbursements from the Fund

The Fund was to be used for: 1) rehabilitation or stabilization of state-owned historic properties; 2) payment of costs of historic resource evaluations, archaeological investigations, and/or building assessments related to potential sale, transfer, or lease; 3) easement stewardship fees; and 4) other related expenses. The Fund was available for payment of easement stewardship fees that cover baseline documentation and annual stewardship monitoring.

Appendix I

Act No. 40 An act relating to capital construction and state bonding. (H. 446). Approved May 20, 2011. 29 V.S.A. §155 was amended during the 2012 legislative session.

REPEALED H. 878 (2016 legislative session)

Sec. 25. PROPERTY TRANSACTIONS; MISCELLANEOUS

(f) Following consultation with the state advisory council on historic preservation as required by 22 V.S.A. §742(7) and pursuant to 29 V.S.A. §166, the commissioner of buildings and general services is authorized to subdivide and sell the house, barn, and up to 10 acres of land at 3469 Lower Newton Road in St. Albans. Net proceeds of the sale shall be deposited in the historic property stabilization and rehabilitation fund established in Sec. 30 of this act.

Sec. 26. PROPERTY TRANSACTIONS; MISCELLANEOUS

(b) The commissioner of buildings and general services on behalf of the division for historic preservation is authorized to enter into the agreements specified for the following properties, the proceeds of which shall be dedicated to the fund created by Sec. 30 of this act:

- (1) Fuller farmhouse at the Hubbardton Battlefield state historic site, authority to sell or enter into a long-term lease with covenants.
- (2) Hyde log cabin in Grand Isle, authority to donate property free of covenants to Grand Isle or, in the alternative, to donate the building to Hyde Park, or in the alternative to sell the property.
- (3) Bishop Cabin at Mount Independence State Historic Site in Orwell, authority to sell or enter into a long-term lease with covenants on the land.
- (4) Eureka Schoolhouse in Springfield, authority to transfer with covenants to a local organization or, in the alternative, to sell the property.
- (5) Bradley Law Office in Westminster, authority to transfer with covenants to a local organization.

Sec. 30. 29 V.S.A. §155 is added to read:

§155. HISTORIC PROPERTY STABILIZATION AND REHABILITATION SPECIAL FUND

(a) There is established a special fund managed by and under the authority and control of the commissioner, comprising net revenue from the sale or lease of underutilized state-owned historic property to be used for the purposes set forth in this section. Any remaining balance at the end of the fiscal year shall be carried forward in the fund; provided, however, that if the fund balance exceeds \$250,000.00 as of November 15 in any year, then the general assembly shall reallocate the funds not subject to encumbrances for other purposes in the next enacted capital appropriations bill.

(b) Monies in the fund shall be available to the department for the rehabilitation or stabilization of state-owned historic properties that are authorized by the general assembly to be in the fund program, for payment of costs of historic resource evaluations and archaeological investigations, for building assessments related to a potential sale or lease, for one-time fees for easement stewardship and monitoring, and for related one-time expenses.

(c) On or before January 15 of each year, the department shall report to the house committee on corrections and institutions and the senate committee on institutions concerning deposits into and disbursements from the fund

occurring in the previous calendar year, the properties sold, leased, and stabilized or rehabilitated during that period, and the department's plans for future stabilization or rehabilitation of state-owned historic properties.

(d) Annually, the list presented to the general assembly of state-owned property the commissioner seeks approval to sell pursuant to section 166 of this title shall identify those properties the commissioner has identified as underutilized state-owned historic property pursuant to subsection (b) of this section.

(e) For purposes of this section, "historic property" has the same meaning as defined in 22 V.S.A. §701.

Sec. 31. TRANSITION; FUNDING

(a) On or before July 15, 2011, the department of buildings and general services and the division for historic preservation shall develop a proposal for the program required in Sec. 30, 29 V.S.A. §155(b), of this act and shall present the proposal to the chairs of the house committee on corrections and institutions and the senate committee on institutions. The chairs shall review the proposal and recommend to the joint fiscal committee whether or not to approve the proposal. After review of the proposal and the chairs' recommendations, the joint fiscal committee shall approve the proposal, disapprove the proposal, or direct the departments to amend and resubmit the proposal to the chairs by a date certain.

(b) Of the funds appropriated in Sec. 6(a)(3) of this act, the sum of \$100,000 is allocated in fiscal year 2012 to the historic property stabilization and rehabilitation special fund created in Sec. 30 of this act.

Appendix II

Title 22: Libraries, History, and Information Technology

Chapter 14: HISTORIC PRESERVATION

22 V.S.A. §701. Definitions

(6) "Historic property" or "resource" means any building, structure, object, district, area or site that is significant in the history, architecture, archaeology or culture of this state, its communities or the nation.

22 V.S.A. §743. Cooperation of agencies

An agency, department, division or commission shall:

(1) Consult the Vermont advisory council on historic preservation before demolishing, altering or transferring any property that is potentially of historical, architectural, archaeological or cultural significance, including any property listed on the state register. An agency, department, division or commission shall submit its annual capital improvement plan to the council.

(2) Initiate measures and procedures to provide for the maintenance, through preservation, rehabilitation or restoration, of properties under its ownership that are listed on the state or National Register; the measures and procedures shall comply with applicable standards prescribed by the state historic preservation division.

(3) Develop plans for the maintenance, through preservation, rehabilitation or restoration, of historic properties under their ownership in a manner compatible with preservation objectives and which does not result in an unreasonable economic burden to public interest.

(4) Institute procedures to assure that its plans, programs, codes and regulations contribute to the preservation and enhancement of sites, structures and objects of historical, architectural, archaeological or cultural significance. (Added 1975, No. 109, § 4.)

22 V.S.A. §742. Duties and powers of the council

(7) Provide an advisory and coordinative mechanism by which state undertakings of every kind which are potentially deleterious to historic preservation may be discussed, and, where possible, resolved, giving due consideration to the competing public interests which may be involved. The head of any state agency or department having direct or indirect jurisdiction over a proposed state or state-assisted undertaking, or independent agency having authority to build, construct, license, permit, authorize or approve any undertaking, shall prior to the approval of the state funds for the undertaking, or prior to any approval, license, permit or authorization as the case may be, take into account the effect of the undertaking on any historic property that is included in the state register of historic places. Where, in the judgment of the council such undertaking will have an adverse effect upon any listed district, area, site, building, structure or object, the head of the state agency or department shall afford the council reasonable opportunity to comment with regard to the undertaking.

(8) Advise on any participation in the review of federal, federally assisted, and federally licensed undertakings that may affect historic properties and sites and approve any participation in the review of nonfederal undertakings, including, but not limited to proceedings under the state land use and development act (10 V.S.A. chapter 151).

22 V.S.A. §765. Transfer of state property

When transferring real property under its jurisdiction that contains significant archaeological, aboriginal or other anthropological resources, the state, may, upon the recommendation of the state historic preservation officer, with the advice of the state archaeologist, condition the transfer upon such covenants, deed restrictions or other

contractual arrangements as will limit the future use of the property in such a way as will protect those resources. (Added 1975, No. 109, §4; amended 1995, No. 46, §47.)

22 V.S.A. §766. Reservation of lands to be sold

Upon written notice to the head of a state agency administering state lands, given by the state historic preservation officer, with the advice of the state archaeologist, the agency head shall reserve from sale any state lands, including lands forfeited to the state for nonpayment of taxes, on which sites or artifacts are located or may be found, as designated by the state archaeologist under section 763 of this title, provided, however, that the reservation of the lands from sale may be confined to the actual location of the site or artifacts. When the sites or artifacts have been explored, excavated or otherwise examined to the extent desired by the state archaeologist, he or she shall then file with the agency head a statement releasing the lands and permitting their sale. (Added 1975, No. 109, § 4; amended 1995, No. 46, § 48.)

22 V.S.A. §767. Cooperation between agencies

All state agencies, departments, institutions and commissions, as well as all municipalities, shall cooperate fully with the state archaeologist in the preservation, protection, excavation, and evaluation of specimens and sites; and to that end:

- (1) When any state, regional or municipal agency finds or is made aware by an appropriate historical or archaeological authority that its operation in connection with any state, state assisted, state licensed, or contracted project, activity, or program adversely affects or may adversely affect scientific, historical, or archaeological data, the agency shall notify the state archaeologist and shall provide him or her with information concerning the project, program, or activity. The provisions of this chapter shall be made known to contractors by the state agencies doing the contracting.
- (2) The state archaeologist, upon notification or determination that scientific, historical, or archaeological data including specimens, is or may be adversely affected, shall, after reasonable notice to the responsible agency, conduct or cause to be conducted a survey and other investigations to recover and preserve or otherwise protect such data, including analysis and publication, which in its opinion should be recovered in the public interest.
- (3) The division shall initiate actions within 60 days of notification under subdivision (1) of this subsection and within such time as agreed upon in other cases. The responsible agency is authorized and directed to expend agency funds for the purpose of recovering the data, including analysis and publications, and the costs shall be included as part of the contractor's costs if the adverse effect is caused by work being done under contract to a state agency. (Added 1975, No. 109, §4.)

TAB 11

Fund Overview – Property Management

The Property Management program began FY 2016 with a negative fund balance of \$22.4M.

This negative balance was the result of many years of not having a funding source to cover all the expenses of the program, along with the recovery of our three “Property Management Treasurer Buildings” at a) 108 Cherry St in Burlington, the b) Bloomer Building in Rutland and c) 20 Houghton St in St Albans. These three PM Treasurer Buildings are being purchased over a 20 year period of time, and the recovery of that purchase expense is being billed out to the tenants of the buildings over 50 years. Currently this part of the program has a negative fund balance near \$13M (or 47% of the total), which is the result of this difference between the payment (over 20 Years) and billing (over 50 years) timeframe.

In FY15 the 20 Houghton St Property was sold to Mylan Pharmaceutical, and the property was completely paid off. The 108 Cherry St building will be completely paid off in FY16, and the Asa Bloomer building will be fully paid in December of 2017. During FY17 the negative fund balance of \$13M in the PM Treasurer Buildings part of the program, will start decreasing, and return to zero over the next 30 years of service of these buildings.

Additionally, in FY 17 a surcharge is being applied to each of the 130 leases managed by the Property Management program, which will reduce the unfunded expenses of the program, and also reduce the negative fund balance into the future. This surcharge will be added to the tenant lease expense at a rate just over 5.3%.

The fund balance at the end of FY2016 was negative \$24.2M, based on the following revenues and expenses.

Revenues	\$ 22,382,550.00
Costs of Good Sold	\$ (19,576,958.00)
Operating Expenses	\$ (3,965,437.00)
Total Mortgage Payments	\$ (635,500.00)
Net Income (Loss)	\$ (1,795,435.00)
Fund Balance at 06/30/15	\$ (22,431,197.00)
Fund Balance at 06/30/16	\$ (24,226,542.00)

TAB 12

Title: Report to the Senate Committee on Institutions and the House Committee on Corrections and Institutions on the expenditure of funds from the State Energy Management Program revolving funds.

Date: January 15, 2017

In accordance with Act 178 of 2014, Section 41. 29 V.S.A. § 168, State Energy Management Program; Revolving Funds, (f) Beginning on or before January 15, 2015 and annually thereafter, the Department of Buildings and General Services shall report to the Senate Committee on Institutions and the House Committee on Corrections and Institutions on the expenditure of funds from the State Resource Management Revolving Fund for resource conservation measures and the State Energy Revolving Fund for energy efficiency improvements and the use of renewable resources. For each fiscal year, the report shall include a summary of each project receiving funding and the State's expected savings.

State Resource Management Revolving Fund (SRMRF) Project Summary

In total, thirty projects have received funding through the SRMRF. Twenty-five projects have been complete, eleven projects have been paid back in full and nineteen projects have an outstanding balance. There were nine projects approved for funding in 2016.

2016 Projects:

- The Department of Buildings and General Services removed the long standing pole mounted flood lights that highlighted the State House and replaced them with high efficient LED flood lights placed on the roofs of 133 State Street and 111 State Street. The parking lot lights behind the Department of Labor were replaced with energy efficient LED's as part of this loan as well. The project cost was \$34,257 and will save an estimated \$7,671 annually in electricity and maintenance costs.
- The Department of Buildings and General Services in partnership with the Department of Corrections replaced the existing aerator motors at the Northwest State Correctional Facility waste water treatment plant with high efficiency motors and variable frequency drives to control pump speed based on dissolved oxygen (DO) measurements using new DO probes. This project cost \$9,676 and will save an estimated \$2,980 annually in electricity and maintenance costs.

- The Department of Buildings and General Services implemented multiple energy savings measures to reduce energy usage in 133 State Street. The majority of work was performed in-house. These modifications consisted of:
 - Amending existing Energy Recovery Ventilator scheduling
 - Re-programming existing fan coil units to improve operational efficiency
 - Modifying existing Hot Water Supply reset schedule parameters.
 - Adding Direct Digital Control start/stop for Domestic Hot Water circulating pump.This project cost \$4,625 and will save an estimated \$29,778 annually in electricity costs.
- The Department of Buildings and General Services and The Agency of Transportation are working together at the Randolph Information Center to replace 20 streetlight heads with new LED fixture and 39 interior T8 bulbs with 14W LED bulbs as well as a seven-day daylight savings programmable timer that will allow for street lights for the rear parking area to be shut off during winter months. This project is estimated to cost \$10,000 and will save an estimated \$2,394 annually in electricity and maintenance costs.
- The Department of Buildings and General Services is implementing lighting and HVAC controls upgrades to the Springfield State Office Building. This project is estimated to cost \$70,950 and will save an estimated \$20,452 annually in electricity and maintenance costs.
- The Department of Fish and Wildlife in partnership with the Department of Buildings and General Services is implementing lighting and pump upgrades to ANR's Salisbury and Ed Weed Fish Hatcheries. This project is estimated to cost \$91,411 and will save an estimated \$36,081 annually in electricity and maintenance costs.
- The Department of Buildings and General Services in partnership with the Department of Corrections are implementing the installation of three Ozone retrofits to the washers at three different facilities; the Northeast Regional Correctional Facility, the Northwest State Correctional Facility and the Caledonia County Work Camp. The Ozone method of sanitizing laundry that does not require hot water, reduces washing and drying times, and makes the use of laundry chemicals unnecessary. Combined, these projects are estimated to cost \$13,500 and will save an estimated \$22,066 annually in electricity costs.

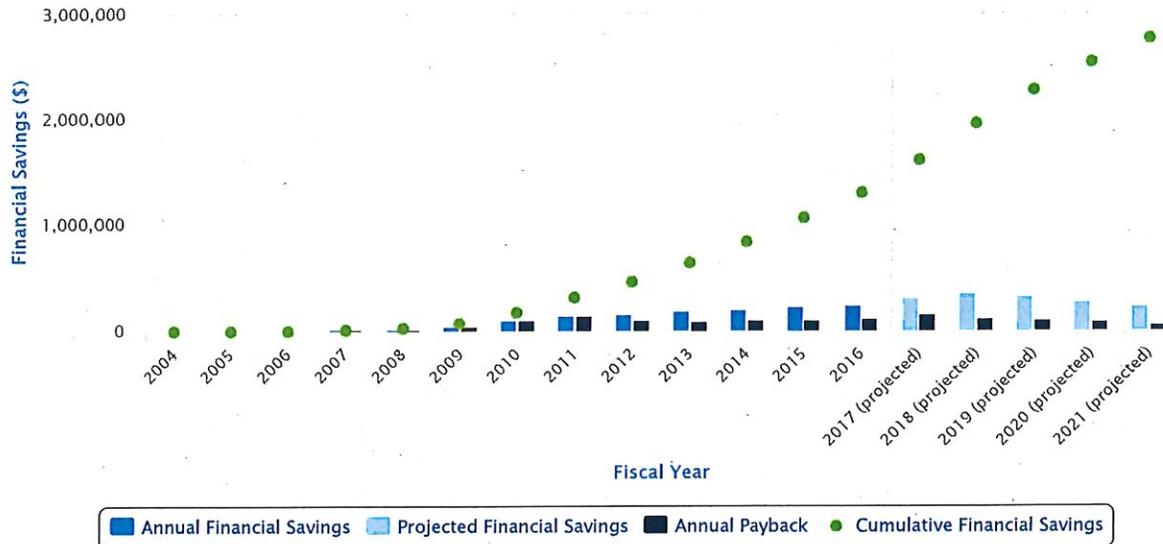
State government has invested \$1,382,196 from the fund in energy projects that have resulted in over \$1,451,479 in avoided energy costs to the State. The SRMRF currently has \$1,269,207 available for funding future resource conservation projects.

These projects have helped to conserve over 77,756 MMBTU of energy and roughly 6,983 metric tons of carbon dioxide equivalent emissions (MTCO_{2e}).

The State Resource Management Revolving Fund

This graph demonstrates the current and projected financial savings associated with projects that have been funded with SRMRF dollars. If no other projects were to be funded through the SRMRF, the initiative will have saved tax payers \$2,771,373 by the end of FY2021.

All Projects: Financial Savings Over Time



FISCAL YEAR	ANNUAL FINANCIAL SAVINGS (\$)	PROJECTED FINANCIAL SAVINGS (\$)	ANNUAL PAYBACK (\$)	CUMULATIVE FINANCIAL SAVINGS (\$)
2004	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00
2006	1,173.86	0.00	1,173.86	1,173.86
2007	8,523.62	0.00	8,523.62	9,697.48
2008	19,226.96	0.00	19,178.30	28,924.44
2009	43,069.16	0.00	40,114.26	71,993.60
2010	103,899.11	0.00	100,944.21	175,892.71
2011	140,351.08	0.00	136,768.40	316,243.79
2012	149,548.25	0.00	95,966.85	465,792.04
2013	179,929.45	0.00	87,090.79	645,721.49
2014	202,020.04	0.00	98,805.37	847,741.53
2015	225,940.15	0.00	98,942.51	1,073,681.68
2016	236,829.97	0.00	105,233.96	1,310,511.65
2017	0.00	308,750.13	152,210.56	1,619,261.79
2018	0.00	344,200.97	118,922.43	1,963,462.75
2019	0.00	320,358.78	91,201.37	2,283,821.53
2020	0.00	261,960.03	84,345.61	2,545,781.56
2021	0.00	225,592.05	56,135.95	2,771,373.61

State Energy Revolving Fund (SERF) Project Summary

One project has been completed and a second project has been proposed and is awaiting approval.

- The Department of Buildings and General Services has completed the second phase of the project at 32 Cherry St., which consists of the installation of state of the art lighting control technology. This project cost was \$629,973, down from the estimated \$650,774. It is saving \$52,506 annually in avoided energy costs.
- The Department of Buildings and General Services will replace existing fluorescent lighting with an energy efficient LED lighting and controls system. The LED controls package will be seamlessly incorporated onto the existing building energy management controls system to provide additional energy saving features.
 - Light fixtures will be converted from fluorescent fixtures to retrofitted LED fixtures with “retrofit kits”
 - New occupancy and light level sensors will be used to control lighting levels and HVAC temperatures
 - All converted lights will automatically dim in response to sunlight over other conditions that cause the space to be over-lit. All converted lighting zones will be enabled to automatically dim if no occupancy is detected in the space.
 - HVAC heat pump occupancy control in each lighting zone will be enabled to automatically set back if no occupancy is detected in the space.

This project is estimated to cost \$555,764 and will save an estimated \$48,191 annually in electricity and maintenance costs.

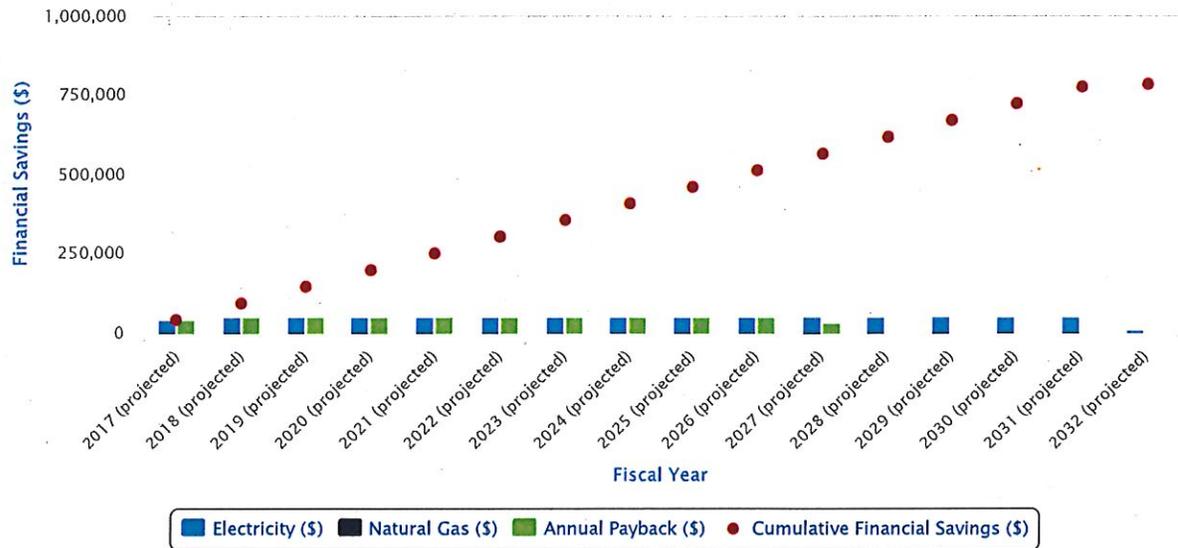
State government has invested \$1,047,517 from the fund in energy projects that have resulted in over \$30,140 in avoided energy costs to the State. The SERF currently has \$7,598,755 available for funding future resource conservation projects.

These projects have helped to conserve over 724 MMBTU of energy and roughly 96 metric tons of carbon dioxide equivalent emissions (MTCO_{2e}).

The State Energy Revolving Fund

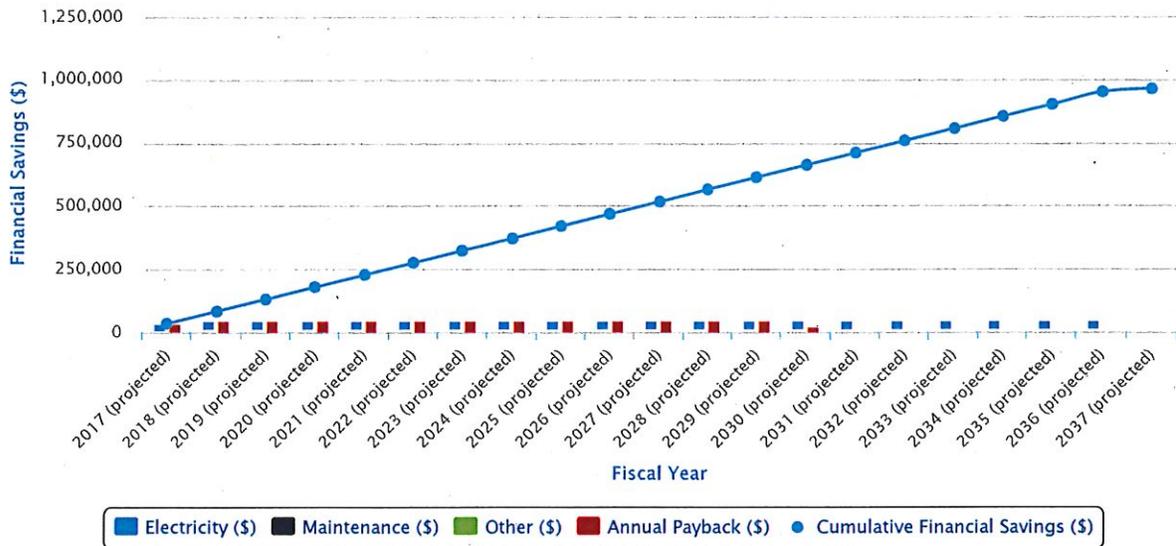
This graph demonstrates the current and projected financial savings associated with projects that have been funded with SERF dollars. If no other projects were to be funded through the SERF, the initiative will have saved tax payers \$1,545,809 by the end of FY2032.

SERF 001 – 32 Cherry St Lighting & Controls Upgrade: Financial Savings Over Time



FISCAL YEAR	ELECTRICITY (\$)	NATURAL GAS (\$)	TOTAL SAVINGS (\$)	ANNUAL PAYBACK (\$)	CUMULATIVE FINANCIAL SAVINGS (\$)
2017	41,200.99	2,386.57	43,587.56	43,587.56	43,587.56
2018	49,631.55	2,874.92	52,506.47	52,506.47	96,094.03
2019	49,631.55	2,874.92	52,506.47	52,506.47	148,600.50
2020	49,631.55	2,874.92	52,506.47	52,506.47	201,106.96
2021	49,631.55	2,874.92	52,506.47	52,506.47	253,613.43
2022	49,631.55	2,874.92	52,506.47	52,506.47	306,119.90
2023	49,631.55	2,874.92	52,506.47	52,506.47	358,626.37
2024	49,631.55	2,874.92	52,506.47	52,506.47	411,132.83
2025	49,631.55	2,874.92	52,506.47	52,506.47	463,639.30
2026	49,631.55	2,874.92	52,506.47	52,506.47	516,145.77
2027	49,631.55	2,874.92	52,506.47	33,838.86	568,652.23
2028	49,631.55	2,874.92	52,506.47	0.00	621,158.70
2029	49,631.55	2,874.92	52,506.47	0.00	673,665.17
2030	49,631.55	2,874.92	52,506.47	0.00	726,171.64
2031	49,631.55	2,874.92	52,506.47	0.00	778,678.10
2032	8,407.53	487.01	8,894.54	0.00	787,572.64

SERF 002 – 108 Cherry St Lighting & Controls Upgrade: Financial Savings Over Time



FISCAL YEAR	ELECTRICITY (\$)	MAINTENANCE (\$)	OTHER (\$)	TOTAL SAVINGS (\$)	ANNUAL PAYBACK (\$)	CUMULATIVE FINANCIAL SAVINGS (\$)
2017	26,853.37	2,825.20	5,704.91	35,383.49	35,383.49	35,383.49
2018	36,572.69	3,847.76	7,769.75	48,190.20	48,190.20	83,573.69
2019	36,572.69	3,847.76	7,769.75	48,190.20	48,190.20	131,763.89
2020	36,572.69	3,847.76	7,769.75	48,190.20	48,190.20	179,954.09
2021	36,572.69	3,847.76	7,769.75	48,190.20	48,190.20	228,144.29
2022	36,572.69	3,847.76	7,769.75	48,190.20	48,190.20	276,334.49
2023	36,572.69	3,847.76	7,769.75	48,190.20	48,190.20	324,524.68
2024	36,572.69	3,847.76	7,769.75	48,190.20	48,190.20	372,714.88
2025	36,572.69	3,847.76	7,769.75	48,190.20	48,190.20	420,905.08
2026	36,572.69	3,847.76	7,769.75	48,190.20	48,190.20	469,095.28
2027	36,572.69	3,847.76	7,769.75	48,190.20	48,190.20	517,285.48
2028	36,572.69	3,847.76	7,769.75	48,190.20	48,190.20	565,475.68
2029	36,572.69	3,847.76	7,769.75	48,190.20	48,190.20	613,665.88
2030	36,572.69	3,847.76	7,769.75	48,190.20	24,467.36	661,856.08
2031	36,572.69	3,847.76	7,769.75	48,190.20	0.00	710,046.28
2032	36,572.69	3,847.76	7,769.75	48,190.20	0.00	758,236.48

TAB 13

§ 701a. Capital construction bill

(c) The spending authority authorized by a capital construction act shall carry forward until expended, unless otherwise provided. All unexpended funds remaining for projects authorized by capital construction acts enacted in a legislative session that was two or more years prior to the current legislative session shall be reported to the General Assembly and may be reallocated in future capital construction acts.

(d) On or before January 15, each entity to which spending authority has been authorized by a capital construction act enacted in a legislative session that was two or more years prior to the current legislative session shall submit to the House Committee on Corrections and Institutions and the Senate Committee on Institutions a report on the current fund balances of each authorized project with unexpended funds.

ACTS OF 2008 THROUGH ACTS OF 2016
UNSPENT CAPITAL FUNDS AS OF 1/9/2017

PROJECT	APPROPRIATION PER ACT	PROJECT BUDGET	AMOUNT EXPENDED	ENCUMBRANCE AMOUNT	PROJECT BALANCE	COMMENTS
ACTS OF 2008						
Veterans Home Final Phase of Geothermal HVAC Renovations	1,700,000.00	1,684,084.64	1,684,084.66	0.00	0.02	Reallocation.
ACTS OF 2009						
Purchase Property/Obtain Permits & Design for Brattleboro/Rockingham State Police Building	650,000.00	644,183.70	644,183.70	56.75	0.00	Westminster Public Safety New Facility - Punch List & Stormwater Issues
ACTS OF 2011						
Brattleboro SOB HVAC Replacement & Renovations	3,275,000.00	3,275,406.57	3,097,396.35	0.00	178,010.22	Reallocation.
ADA Renovations - Statewide	50,000.00	50,000.00	21,693.00	0.00	28,307.00	Reallocation.
Perform Repairs & Upgrades to County Courthouses to Comply with ADA	200,000.00	197,710.00	195,630.91	0.00	2,079.09	Funds to be spent in spring 2017. Remaining courts: Bennington Superior Court, Chittenden Superior Court, Orleans Superior Court, Grand Isle Superior Court, Washington Superior Court, and Rutland Superior Court
ACTS OF 2012						
Statewide Contingency	300,000.00	300,000.00	202,451.00	97,549.00	0.00	To be used for Dept. of Health Laboratory punch list items.
VT Veterans' Home Mold Phase II	0.00	354,439.00	293,447.34	0.00	60,991.66	Mold removal continues in the building
Removal of Existing Dam, Upgrade Potable Water Supply	400,000.00	392,695.50	390,459.22	0.00	2,236.28	Funds needed for additional well and trenching
Perform Repairs & Upgrades to County Courthouses to Comply with ADA	200,000.00	198,281.00	179,592.30	0.00	18,688.70	Funds to be spent in spring 2017. Remaining courts: Bennington Superior Court, Chittenden Superior Court, Orleans Superior Court, Grand Isle Superior Court, Washington Superior Court, and Rutland Superior Court
ACTS OF 2013						
Statewide Building Reuse and Planning: Sect 27 Act 178 - Cap Plan	75,000.00	75,000.00	18,000.00	57,000.00	0.00	\$10K - SA/Sheriff Move; \$10K SESCOF Land Survey; \$2K VIT Move & \$35K Removal of Bldg.
Statewide Contingency	100,000.00	100,000.00	46,549.60	8,753.20	44,697.20	Reallocation.
32 & 108 Cherry St HVAC and DDC Control Upgrades/Roof Renov.	250,000.00	250,000.00	124,707.50	0.00	125,292.50	To complete Suite 207 heat pumps.
Southern State Correctional Copper Waterline Replacement	400,000.00	400,000.00	395,864.00	4,136.00	0.00	Salem Engineering contract (expires 3/31/17).
NWSCF Roof and Soffit Replacement, A,B,C Wings	425,000.00	425,000.00	0.00	0.00	425,000.00	Project out to bid.
Renovation & Replacement of Vermont State Hospital, Related Projects	8,700,000.00	8,700,000.00	7,504,057.98	2,980.00	1,192,962.02	Outstanding expenditures associated with land purchase, site work, and maintenance garage.
Renovation & Replacement of Waterbury State Office Complex	21,200,000.00	21,200,320.00	21,185,300.10	15,019.90	0.00	ProAv PO
Major Maintenance East-West		3,525,786.72	2,825,033.61	700,753.11	0.00	Being used on various projects
Health Lab, Continue Co-Location of DOH w/UVVM	5,000,000.00	4,970,225.00	4,965,884.50	4,340.50	0.00	To be used for Dept. of Health Laboratory punch list items.
Corrections, Security Upgrades	100,000.00	99,405.00	99,013.99	0.00	391.01	Reallocation.

ACTS OF 2008 THROUGH ACTS OF 2016
UNSPENT CAPITAL FUNDS AS OF 1/9/2017

PROJECT	APPROPRIATION PER ACT	PROJECT BUDGET	AMOUNT EXPENDED	ENCUMBRANCE AMOUNT	PROJECT BALANCE	COMMENTS
Lamoille County Courthouse Planning/Design for Renovations & Addition	1,000,000.00	994,045.00	949,787.61	40,282.83	3,974.56	Under Construction
Major Maint at Historic Sites Statewide	200,000.00	215,809.00	213,505.00	2,304.00	0.00	Garventa USA contract - project ongoing
Bennington Monument Structural Repairs & ADA	175,000.00	173,958.00	147,621.49	8,112.00	18,224.51	Project in design; beginning construction spring 2017.
Battle of Cedar Creek & Winchester Memorials, Relocation of Roadside Markers	35,000.00	34,851.00	6,597.40	0.00	28,253.60	Reallocation.
Design, Construction, Fitup Brattleboro/Rockingham Field Station	3,000,000.00	2,982,136.00	2,753,013.21	229,122.79	0.00	Westminster Public Safety New Facility - Punch List & Stormwater Issues
Purchase Land for Public Safety Field Stations & Conduct Feasibility Studies	550,000.00	396,725.00	54,527.10	329,576.65	12,621.25	Funds to be used for Clarendon Public Safety Facility land purchase \$35K deposit paid, \$315K left to pay; \$150,000 reallocated in 2016.
ACTS OF 2014						
Statewide Building Reuse and Planning	75,000.00	75,000.00	33,647.76	0.00	41,352.24	BGS Commissioner to determine spending.
Statewide Contingency Fund	100,000.00	100,000.00	15,748.55	84,251.45	0.00	VVH Kitchen Project
Statewide Major Maintenance	8,369,994.00	6,798,537.89	4,247,643.30	1,272,753.56	1,278,141.03	BGS Commissioner to determine spending.
Statewide Major Maint - Obie Funds		1,044,000.00	41,278.84	171,605.00	0.00	\$20K Security Lighting for Springfield District Office; Secure/Safe Bds for Woodside up to \$100K; Glass Pro
Facilities Condition Analysis		111,545.21	69,836.34	41,708.87	0.00	Tec PO
Implementing Project Management System		250,000.00	0.00	0.00	250,000.00	Pre-encumbrance for Energy
Capital Complex Historic Preservation Major Maintenance	200,000.00	200,000.00	106,763.43	0.00	93,236.57	Reallocation.
Waterbury State Office Complex Renovation/Replacement	33,000,000.00	33,186,262.00	33,125,911.70	60,350.30	0.00	BGS Commissioner to determine spending.
Agency of Agriculture & ANR Lab Development/Site Location	300,000.00	300,000.00	282,639.18	17,096.35	264.47	ProAv PO
Secure Residential Facility, Siting & Design Vergennes, Weeks School Master Plan	50,000.00	50,000.00	2,423.50	0.00	47,576.50	Project ongoing
Health Lab, Continue Co-Location of DOH w/LUVM	30,000.00	30,000.00	29,995.00	0.00	5.00	Hold
SSCF & SESCOF Suicide Abatement (Windows/Bunks/Vents)		5,980,448.00	5,817,314.00	103,134.00	60,000.00	Reallocation.
NSCF Kitchen/Serving Line Reconstruction		199,348.23	44,674.00	0.00	154,674.23	To be used for Dept. of Health Laboratory punch list items.
Caledonia Courthouse Wall Stabilization & Foundation (Monitoring/Planning)	40,000.00	39,870.00	27,002.60	0.00	12,867.40	\$150K out to bid for SSCF (Jan 2017)
Major Maintenance @ Historic Sites	200,000.00	199,348.00	189,191.00	3,000.00	7,157.00	Reallocation.
Governance Plan for Pittsford RH Wood Criminal Justice/FSTC	50,000.00	49,837.00	47,900.00	0.00	1,937.00	Projects in process.
Veterans' Home Kitchen Remodel-Federal Fund Match	435,000.00	433,582.00	212,807.77	93,579.63	127,194.60	Reallocation.
						Project in process.

ACTS OF 2008 THROUGH ACTS OF 2016
UNSPENT CAPITAL FUNDS AS OF 1/9/2017

PROJECT	APPROPRIATION PER ACT	PROJECT BUDGET	AMOUNT EXPENDED	ENCUMBRANCE AMOUNT	PROJECT BALANCE	COMMENTS
ACTS OF 2015						
Asbestos	50,000.00	50,000.00	1,011.00	0.00	48,989.00	BGS Commissioner to determine spending.
Statewide Building Reuse and Planning	75,000.00	75,000.00	0.00	0.00	75,000.00	BGS Commissioner to determine spending.
Statewide Major Maintenance	8,210,287.00	6,742,920.79	471,048.37	92,067.88	6,179,804.54	Energy Audit Encumbrance - BGS Commissioner to determine spending.
Statewide Major Maint - Obie Funds	100,000.00	1,007,604.00	0.00	0.00	1,007,604.00	BGS Commissioner to determine spending.
Statewide Contingency Fund	100,000.00	100,000.00	60,331.04	31,546.17	8,122.79	BGS Commissioner to determine spending.
Lifesafety & Infrastructure Improvements at 120 State St.	300,000.00	300,000.00	203.26	211,250.00	88,546.74	Project in process.
Statewide, BGS Engineering & Architectural Project Costs	3,567,791.00	1,069,638.00	1,062,725.70	0.00	6,912.30	Reallocation.
Statewide Physical Security Enhancements	200,000.00	200,000.00	111,720.96	39,000.00	49,279.04	Ongoing
SSCF Steamline Replacement Phase 1 & Design/Cost Phase 2	1,200,000.00	1,200,000.00	1,037,362.58	0.00	162,637.42	Project in process.
Southern State Correctional Copper Waterline Replacement	1,829,086.00	1,829,086.00	1,574,420.08	204,738.92	49,927.00	Funds used by DOC to move inmates during project; waiting for bill from DOC.
Waterbury State Office Complex Restoration & Project Costs	19,151,826.00	19,151,826.00	18,878,233.89	130,170.25	143,421.86	
Agency of Agriculture & ANR Lab Design Construction Docs/Permitting	2,500,000.00	2,500,000.00	823,527.67	755,528.73	920,943.60	Project in process.
Statewide Elevator Repairs / Replacement	100,000.00	100,000.00	70,328.77	0.00	29,671.23	BGS Commissioner to determine spending.
32 Cherry St. HVAC Controls Upgrades	150,000.00	150,000.00	149,449.62	0.00	550.38	Reallocation.
108 Cherry St. Garage & Structural Audit	50,000.00	50,000.00	36,137.00	0.00	13,863.00	Project in process.
Middlesex State Archives Renovations	660,000.00	660,000.00	312,223.56	139,732.40	208,044.04	Project in process.
St. Johnsbury, Caledonia Courthouse, Stabilize Foundation	1,700,000.00	1,700,000.00	1,048,644.64	0.00	651,355.36	Reallocation.
Pittsford Training Center Electrical Upgrade	120,000.00	120,000.00	78,103.16	39,480.00	2,416.84	Project in process.
WRJ Windsor Court Design/Planning/Mechanical/Security/Energy Upgrades	300,000.00	300,000.00	421.99	271,505.00	28,073.01	Project in design.
Woodside Design/Planning & Repairs/Improvements	200,000.00	200,000.00	78,102.54	26,052.16	95,845.30	Design & Planning ongoing.
Curatorial State House	50,000.00	50,000.00	0.00	0.00	50,000.00	BGS Commissioner to determine spending.
Corrections, Security Upgrades	99,496.67	99,496.67	10,851.14	25,294.88	63,350.65	Ongoing
Corrections Camera & Systems	99,496.67	99,496.67	86,201.18	0.00	13,295.49	Ongoing
Corrections Perimeter Intrusion	99,496.66	99,496.66	78,244.76	3,592.00	17,659.90	Ongoing
Judiciary ADA Compliance at County Courthouses	179,094.00	179,094.00	21,700.00	0.00	157,394.00	Funds to be spent in spring 2017.
Major Maintenance @ Historic Sites	198,993.10	198,993.10	157,800.56	23,700.00	17,492.54	Projects in process.
Bennington Monument Elevator, Roof Repairs	117,405.90	117,405.90	97,046.17	0.00	20,359.73	Project ongoing.
Vermont Fire Academy Burn Building	298,490.00	298,490.00	0.00	0.00	298,490.00	Cannot spend until Federal match has been met.
ACTS OF 2016						
Asbestos	50,000.00	50,000.00	0.00	0.00	50,000.00	BGS Commissioner to determine spending.
Statewide Building Reuse & Planning	75,000.00	75,000.00	0.00	0.00	37,146.00	BGS Commissioner to determine spending.

ACTS OF 2008 THROUGH ACTS OF 2016
UNSPENT CAPITAL FUNDS AS OF 1/9/2017

PROJECT	APPROPRIATION PER ACT	PROJECT BUDGET	AMOUNT EXPENDED	ENCUMBRANCE AMOUNT	PROJECT BALANCE	COMMENTS
Statewide Major Maintenance	8,300,000.00	6,815,000.00	0.00	0.00	6,815,000.00	BGS Commissioner to determine spending.
Statewide Major Maint - Obie Funds Engineering/Design for State House Generator		1,000,000.00	0.00	0.00	1,000,000.00	BGS Commissioner to determine spending.
Repairing Damage to Removal of VIT Equipment & Wiring		150,000.00	0.00	89,239.00	60,761.00	Study in process.
Facility & Energy Assessments		150,000.00	3,155.92	0.00	146,844.08	
Statewide Contingency Fund		160,000.00	0.00	0.00	160,000.00	BGS Commissioner to determine spending.
Curatorial State House	100,000.00	100,000.00	0.00	0.00	100,000.00	BGS Commissioner to determine spending.
Lifesafety & Infrastructure Improvements at 120 State St.		25,000.00	0.00	0.00	25,000.00	BGS Commissioner to determine spending.
Statewide, BGS Engineering & Architectural Project Costs	1,500,000.00	1,500,000.00	0.00	0.00	1,500,000.00	FY 17 Construction
	3,553,061.00	756,054.00	0.00	0.00	756,054.00	
Statewide Physical Security Enhancements	1,000,000.00	1,000,000.00	0.00	0.00	1,000,000.00	BGS Commissioner to determine spending.
SSCF Streamline Replacement Phase 1 & Design/Cost Phase 2	200,000.00	200,000.00	0.00	0.00	200,000.00	Project in process.
Southern State Correctional Copper Waterline Replacement	1,100,000.00	1,100,000.00	0.00	445,000.00	655,000.00	Finish Core Building 2017; Fire Safety issues.
Waterbury State Office Complex Restoration & Project Costs	2,000,000.00	2,000,000.00	0.00	0.00	2,000,000.00	
Statewide Elevator Repairs / Replacement	100,000.00	100,000.00	0.00	0.00	100,000.00	BGS Commissioner to determine spending.
108 Cherry St. Garage & Structural Audit	300,000.00	300,000.00	0.00	0.00	300,000.00	Project ongoing.
Pittsford Training Center Electrical Upgrade	500,000.00	500,000.00	0.00	0.00	500,000.00	Project in process.
Statewide ADA Projects	74,000.00	74,000.00	0.00	0.00	74,000.00	BGS Commissioner to determine spending.
115 State & I Baldwin Data Wiring	40,000.00	40,000.00	2,526.04	0.00	37,473.96	Project in process.
11 & 13 Green Mtn Dr. Planning & Siting for DLC	75,000.00	75,000.00	0.00	0.00	75,000.00	
Statewide, Strategic Building Realignments	250,000.00	250,000.00	4,622.83	237,125.00	8,252.17	109 & 111 Study in process.
Randolph, AGR, Food & Market & ANR Collaborative Lab/Site Construction	14,048,174.00	14,048,174.00	0.00	0.00	14,048,174.00	FY 17 Construction
Corrections Security Upgrades	100,000.00	99,089.50	0.00	0.00	99,089.50	Ongoing
Corrections Perimeter Intrusion	100,000.00	99,089.50	0.00	0.00	99,089.50	Ongoing
Orleans State Courthouse, Assessment & Feasibility Study	50,000.00	49,545.00	0.00	49,545.00	0.00	Study in process.
Barre State Courthouse & SOB, Infrastructure Eval & Design	40,000.00	39,636.00	0.00	39,636.00	0.00	Study in process.
Major Maintenance @ Historic Sites	200,000.00	198,178.40	0.00	0.00	198,178.40	Project in process.
Bennington Monument, Elevator, Roof Repairs	50,000.00	49,544.60	0.00	0.00	49,544.60	Project ongoing.
Williston State Police Barracks, 911 Ctr Acoustical Design, Reno & Furnishings	250,000.00	247,723.00	0.00	0.00	247,723.00	Option to purchase parcel approved by Institutions. Draft Option Agreement and Purchase & Sales Agreement are in review and approval process.

