TOWN OF NORWICH
OFFICE OF THE TOWN MANAGER
P.O. Box 376, Norwich, VT 05055
(802) 649-1419 Ext. 101 or 102

MEETING NOTICE

THERE WILL BE A SPECIAL MEETING OF THE NORWICH SELECTBOARD

Date: **Wednesday, January 6, 2016**

Time: **6:30 PM**

Place: **Multipurpose Room, Tracy Hall**

Agenda

1) **FEMA Alternate Projects Proposals (Discussion/Possible Action Item)**
2) **Review of Proposal Clarifications – Public Safety Facilities (Discussion/Possible Action Item)**

BLACK RIVER DESIGN ARCHITECTS

PROPOSAL CLARIFICATION QUESTIONS AND ANSWERS DECEMBER 3, 2015

Q1. Please provide a written response to each of the numbered items in the Request for the Proposals (RFP) – Item 2. Schematic Design and Development of Estimates of Probable Costs – that confirms your intent to address each.

All components of item 2 in the RFP would be addressed, put in perspective, and cost estimated during the design process. To answer them now specifically, without input from the committee, is premature. At the end of the process, you will have a direction and a cost that people can understand, feel involved in, and feel is a carefully considered final design based on exploration of lots of options. We have included some material which shows our approach to the question of "what makes economic sense" for a project of this complexity. This is the foundation for a successful presentation to the voters.

Q2. Please summarize what the proposed deliverables are for each item in the RFP and what your proposed schedule of delivery is in weeks from the Notice to Proceed.

The following is copied from our proposal dated October 8, 2015 and includes our process approach and deliverables as well as a proposed timeline.

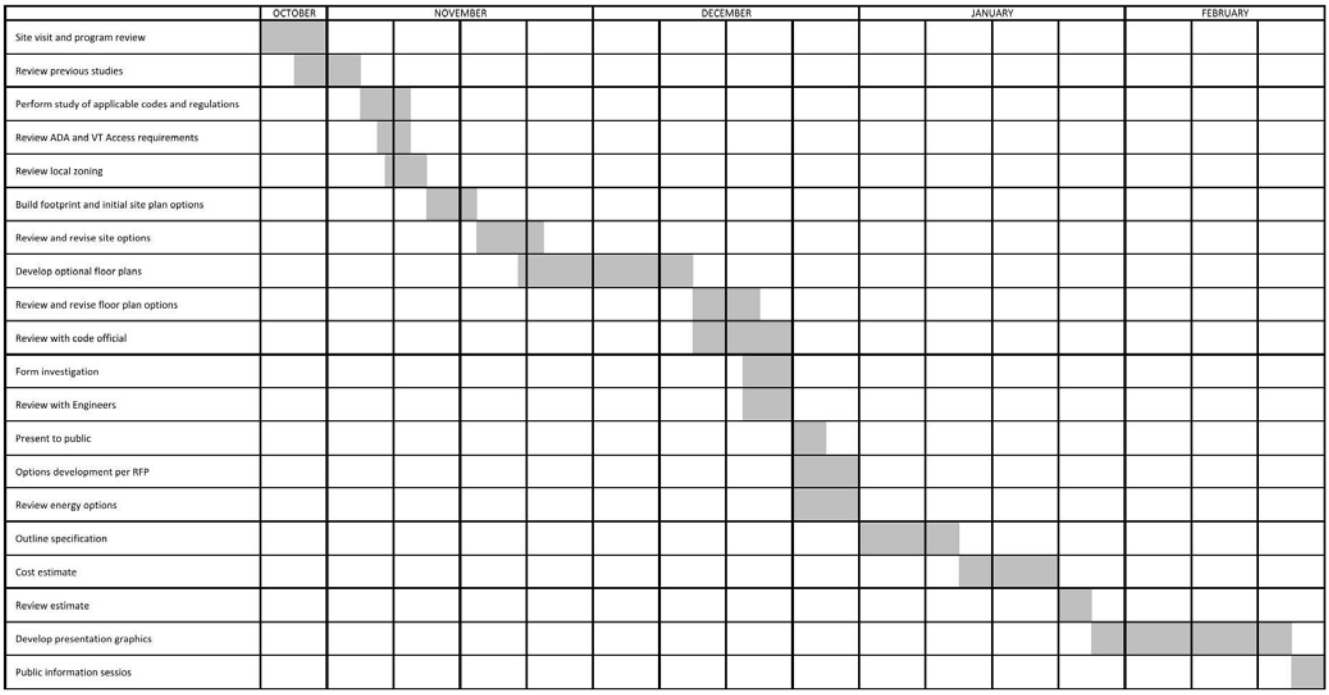
PROCESS DISCUSSION: Municipal work including city services, police and fire stations have been a part of Black River Design Architect's for over thirty years. A core aspect of our practice has been to both create and enhance Community. This can be expressed with the relationship of buildings and user friendly spaces between, in a community room, or as gathering places even in a hallway. Design can facilitate interaction and a sense of community in the user and we take pride in making this happen.

1. A frequent first step in our design process involves helping groups evaluate their existing spaces and the related functions space needs and relationships. Your RFP is asking for this feasibility study.
2. We as humans we are by nature, very adaptable. We make the best of spaces we are in. Black River Design would help examine the possibilities of a better way to achieve certain tasks and activities. Thus having the building respond to user needs rather than the other way around.

3. Following is an outline and list of tasks Black River Design Architects and its team would follow in the development of the requested pre bond study:
4. Visit the site with our team, the Police and Fire Chiefs and other members of the building committee to review existing conditions, review what works and what doesn't as well as identify constraints and opportunities.
5. Review the program of space needs and the relationship of spaces identified. Concepts of proximity and separation. Space size and special treatments are also reviewed. The program becomes a starting point for looking at options.
6. Review previous studies and identify concepts that were felt to be worth keeping.
7. Perform a study of current Vermont fire, Life Safety, and energy codes as may impact the renovations and new design.
8. Review current ADA and Vermont access modifications as would impact the design options.
9. Review local zoning regulations as may impact the project.
10. Develop approximate building foot print sketches and coordinate conceptual development of optional site plan layout with Pathways Consulting as well as identify constraints and opportunities as may impact building layout and configuration. We would also look at how the possible future new apparatus bays might be phased as a future improvement without undoing previous work. The site/civil aspects of the design concept will be central to reaching viable options. (See the attached Pathways Consulting statement of scope for a detailed indication of their services.)
11. Review the above conceptual site plans with the owner and make necessary revisions.
12. Optional public forum to review the conceptual site plans if the committee wishes to engage the community at an early stage (exact timing to be determined.)
13. Develop optional building floor plans that provide the elements of the program of space needs.
14. Review the preferred site and plan option with the Department of Public Safety to determine that they are in agreement with our basic responses to code and access requirements.
15. Review the floor plans with the owner and make necessary revisions to the preferred option.
16. Investigate building form of the preferred option and present to the owner.
17. Review the anticipated building concept with our Structural, Mechanical, and Electrical Engineers to determine the optimum choice for systems design. These options and their pros and cons would be reviewed with the owner.

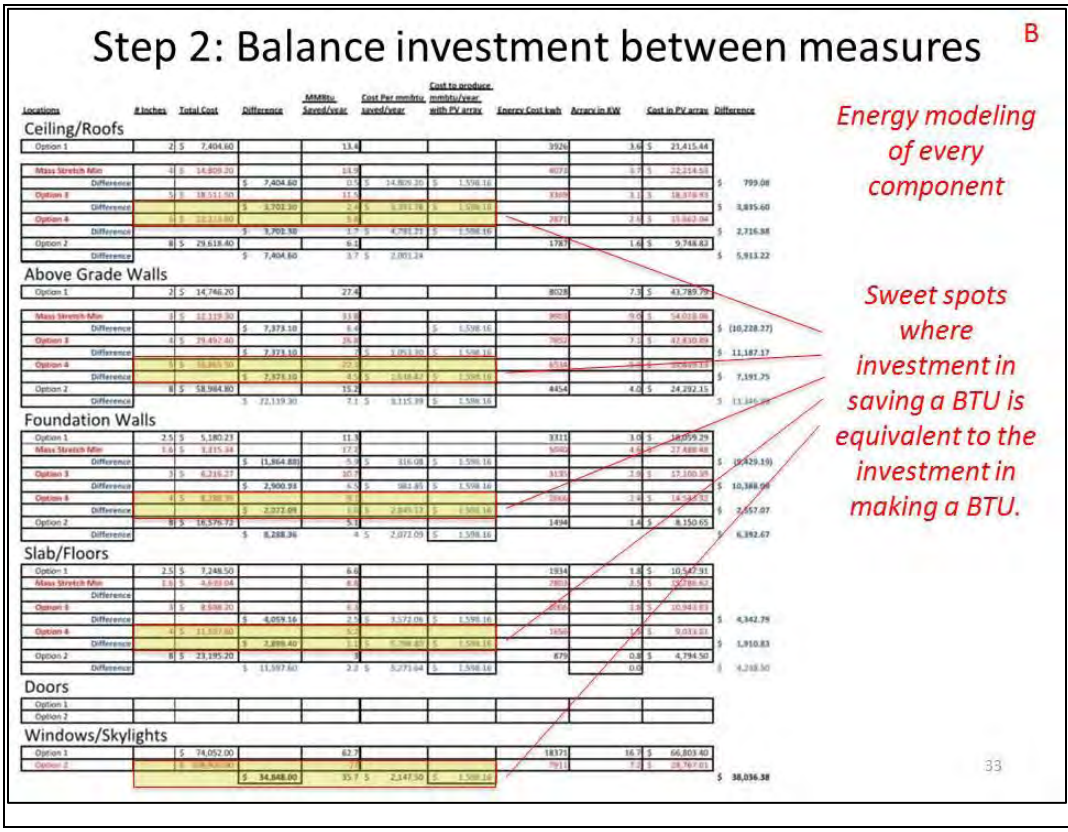
18. Develop design responses to the various building component options as requested in RFP section 2.5.
19. Energy considerations, green and sustainable design have long been a core aspect of our practice. We would identify what elements might be included if the building were to be approached as a net zero project. We typically involve Efficiency Vermont early on in a project to determine what areas of incentive and assistance they might be able to provide.
20. Develop an outline specification that addresses Mechanical, Electrical and Structural aspects of the project to facilitate development of a cost estimate.
21. Through our professional estimator, we would develop a detailed estimate of probable cost for the project and its options list.
22. Review the estimate with the owner.
23. Develop presentation graphics of the proposed solution including a rendered site plan, rendered floor plan several interior perspective sketches and two representative exterior perspective renderings.
24. Present the developed option at a second Public Informational Session.
25. We will assume the requested number of meetings with the Chiefs, and Selectmen, but would add an additional Public Informational session which would allow meeting the required number of public meetings for a possible pre bond process.

PROPOSED TIMELINE: Adjustments to the timeline below may be required depending on start date.

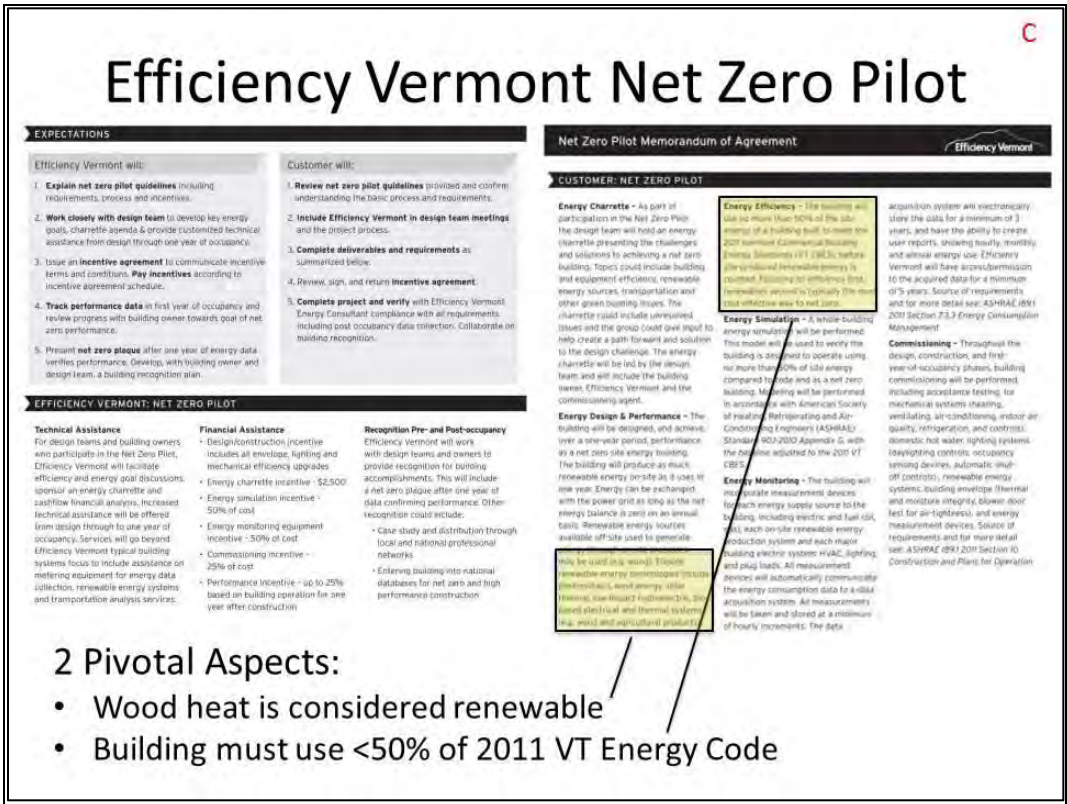


Q3. If the Net Zero Ready energy standard is chosen, how will you determine what the annual and lifetime operational and maintenance costs associated with building climate control and advanced technology are?

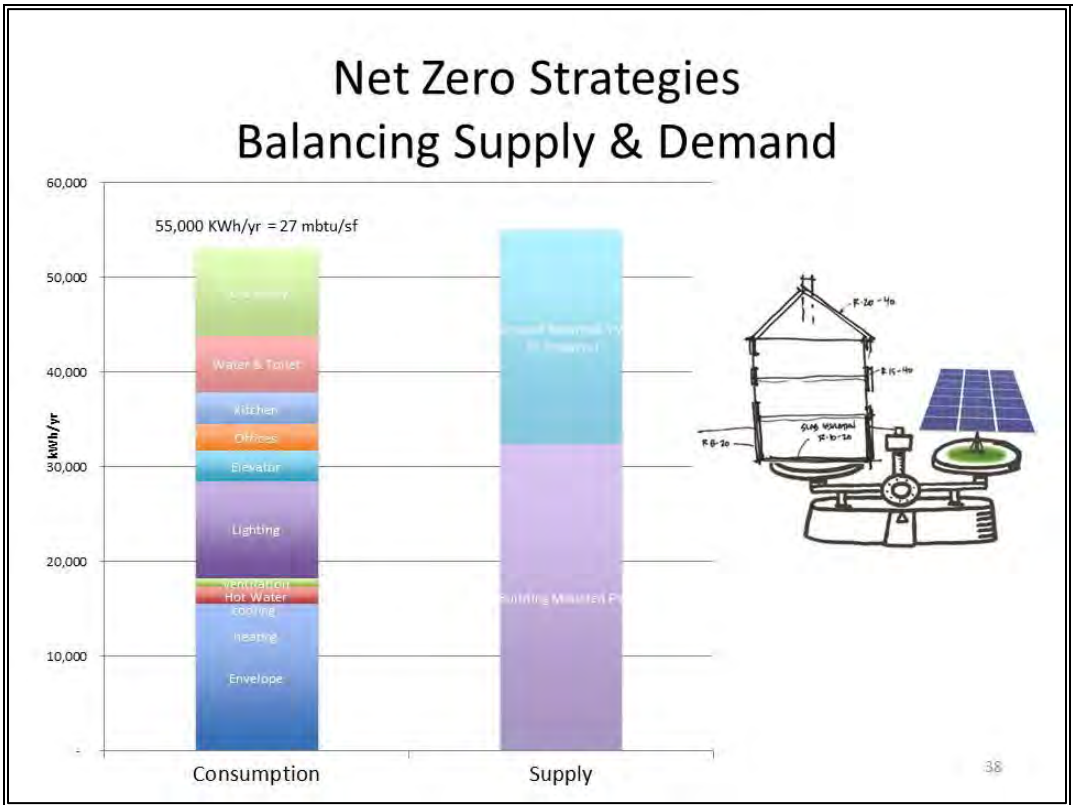
An energy model will be produced that will allow for various combinations of building envelope and mechanical systems Energy Conservation Measures (ECMs) to be analyzed and evaluated. The software used to generate the energy model is HAP v4.8 which allows for hourly energy analysis over a complete year of climate and scheduled occupancy conditions. We will work with local service contract providers as well as Norwich maintenance staff to establish realistic annual maintenance costs estimates for the various system approaches. These costs are then extrapolated into the future using utility and maintenance cost anticipated escalation rates. Energy modeling and annual maintenance cost estimates would be an additional service.



Black River Design recently gave a talk at Efficiency Vermont's Better Buildings by Design Conference on how to balance your investments in a net-zero building.



On the recently completed Rumney Memorial School project, Efficiency Vermont grant money paid for the energy modeling to explore the viability of net zero. The voters passed the bond.

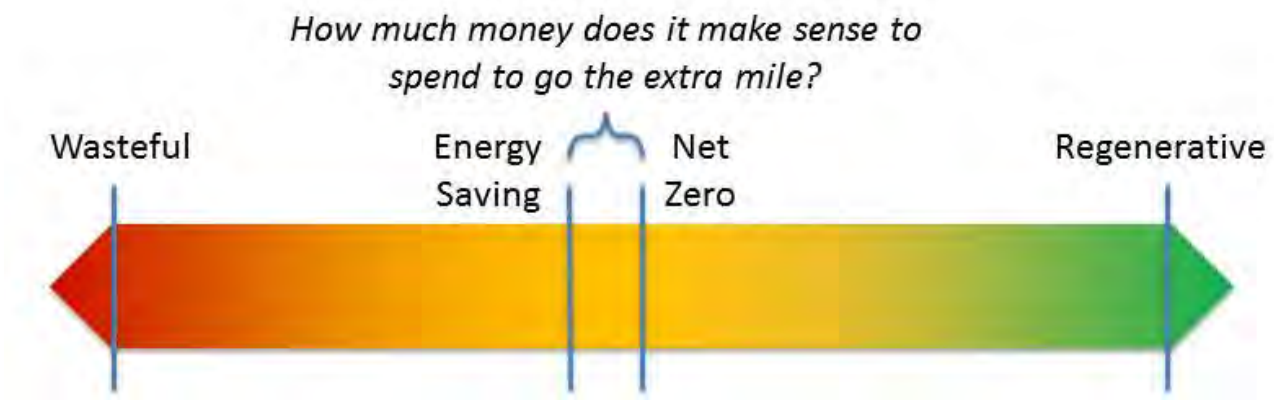


For your project, we would first work with you to establish the base case energy needs, along with the required R's and compare it to an optimized model with fewer PVs.

Q4. Using the Vermont Commercial Energy Code and Net Zero Standards as the minimum and maximum range of standards of desirable energy efficiency for the project, how will you determine if there is a design within this range that represents the best benefit/cost ratio?

We assume that your first priority is convincing the voters of Norwich to invest in your new fire/police facility. That is often priority #1 and means that we have to be able to present the results of our economic feasibility simply and coherently. With our track record of passing public facility and school bonds, we bring experience in selling projects to voters.

From a technical standpoint, we bring experience in a wide range of degrees of investment in energy efficiency. Recently our firm completed a Net Zero Energy and Water project for Williams College. We know what is involved in coming to the optimal balance between investing in energy savings versus investing in energy generation. We look forward to the chance to explain our approach to the committee and ultimately the voters of Norwich.



Q5. Please identify who will be performing the Life-Cycle Costs (LCC) scenarios and summarize the methodology that they will employ.

A Life-Cycle Cost analysis will be employed, utilizing ongoing cost inputs as described in Q3. above plus estimates of probable first time and replacement costs with input from the committee and Norwich leaders to make informed decisions about the approach to be pursued. We have found that arriving at an understandable metric for analyzing what makes financial sense for taxpayers is very important in getting to a successful bond vote.

Q6. How will you create secure space for the Police Department that is adjacent to public space, shared space and the space of the Fire Department?

Our process, coupled with our experience in addressing and combining public, shared, and combined police/fire/rescue functions will lead to several options. The tricky combinations of security, public access, police, and fire needs will require careful attention to layout and relationships of spaces, levels of visibility and adjacency versus separation, closure, locking.

Q7. In your design, how will you best use circulation and adjacency to create the most efficient use of space?

Corridors provide a path from one space to another, but are typically not considered usable from a space standpoint. Where possible, we would combine spaces such that they may be accessed through another space, thus not requiring a separate corridor.

At times, however, functional relationships such as secure spaces may not allow for passage through another space. Toward that end, we would organize program functions to reduce hallway lengths. We have also used a technique where some functions can actually take place within a corridor, thus doubling its use and efficiency. Some functions may also allow for separate points of entry, possibly eliminating the need for a corridor.

Q8. What is your concept of a simple, appropriate, and attractive design that fits into the aesthetics of the Town?

Context has always been an important consideration in our designs. We see each building as an essential part of the visual fabric of our communities. We strive to build upon the patterns that have formed our communities over the centuries. The challenge is designing a building which is a reflection of its surroundings, but which has its own identity. Whether an addition, renovation or new construction, a municipal building should be in harmony with its surroundings while conveying the sense of durability, stability, and permanence of the organizations occupying them. The challenge is designing a building that visually fits in with the surrounding environment while creating its own identity that enhances the overall street experience.

Careful attention to making sure the building does not visually dominate the immediate area is an important consideration. Use of multiple materials, providing changes of plane and other design elements can allow for a building that is larger than its neighbors, but does not feel out of place.

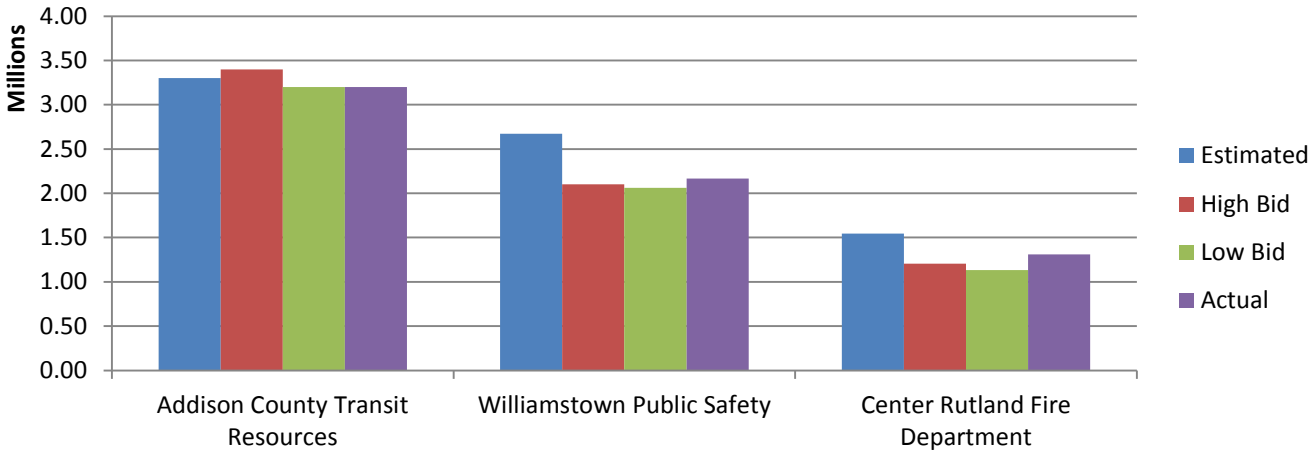
Site planning will also be important. For this project, we have included Pathways Consulting on our proposed team. Together we would investigate site and building options working toward an optimum layout and design as relate to site access, open space, density, building massing, and parking. This is the step where the initial definition of the neighborhood character would emerge, and is critical in our efforts to create community.

Q9. Our project's success will depend on costs and estimates to present to Norwich voters that are reliable and accurate. Please supply us with examples of your estimator's previous estimates compared to actual costs on similar projects.

We will frequently examine a number of options which can have an impact on cost. Rough comparison estimates of selected feasible options will give a rough idea of total costs and is a tool for selecting an overall direction. As the plan becomes better defined, we will give the plans and specifications to a professional estimator familiar with construction costs and practices to prepare a detailed cost estimate. As a contractor, our estimator understands and has a finger on the pulse of current costs. With his use of the CSI division of construction, he "builds" the project based on its components.

Once a realistic target budget is determined, it is imperative that it is met. Our track record on this aspect is an excellent one. There are several strategies that we employ to achieve this outcome. A complete understanding of the client's needs is critical, as is developing a complete scope of work and properly estimating its probable cost. We strive to understand the client's needs completely and incorporate that information into the bid documents. We review estimated costs at several stages, and don't waste our time or yours on elements that are not affordable, but rather keep expectations realistic and within budget throughout the design development process. We are conscious of "project cost creep" and work with the Owner and Contractor to avoid it. We work with the Owner and Contractor to ensure all aspects of the project are clearly understood so that the best overall decisions for the project can be made should unforeseen issues arise.

RECENT PROJECT COST ESTIMATE COMPARISONS



Q10. Please summarize the number of meetings that you envision with the Select board, Department Heads, and the public.

We have assumed a total of nine meetings, seven allocated per the RFP.

Q11. How many concept iterations including architectural, engineering and estimates of probable costs does your proposal include?

We have assumed the development of perhaps two or three variations of the schematic concept of site and floor plans, each addressing the program. The relative cost differences of the options typically are easily reviewed based on square footage. Typically, one of those options or a mixture of portions of a couple options emerge as the best solution, We make revisions as needed to arrive at the best option and this is the option that is fully estimated.

Q12. Please confirm your total proposed contract cost including all services and reimbursables, as a result of having reviewed the above questions. Please state how the proposed cost would be adjusted, if the work were to commence in May 2016.

The only increase in costs would be if you choose to have David Slade prepare a cost estimate of maintenance costs, which he could provide for $760. If the project is not commenced until May of 2016, there would be no increase in our fees.

December 03, 2015

Neil R. Fulton
Town Manager, Town of Norwich
300 Main Street, P.O. Box 376
Norwich, VT 05055

Dear Mr. Fulton,

In responding to the original RFP, Maclay Architects and our consultant Team were very careful to assess your RFP and provide the scope of work requested. To further confirm our commitment to the scope of work requested, we offer the following clarifications to the questions in your November 17, 2015 correspondence.

Q1. Please provide a written response to each of the numbered items in the Request for the Proposals (RFP) – Item 2. Schematic Design and Development of Estimates of Probable Costs – that confirms your intent to address each.

At the completion of this project there will be a schematic site plan, floor plans, structural plans, elevations, outline specification, mechanical systems narrative, with sufficient detail to accurately estimate probable costs of the facilities for the purpose of bonding the proposed improvements. The estimates of probable cost shall include the following program elements and features, at a minimum, itemized where practical:

a) All elements listed under 2.2 of the RFP, (2.2.1 – 2.2.14).
b) All features noted under 2.3 of the RFP, (2.3.1 – 2.3.8).
c) All features noted under 2.4 of the RFP, (2.4.1 – 2.4.2).
d) All features noted under 2.5 of the RFP, (2.5.1 – 2.5.12).

Q2. Please summarize what the proposed deliverables are for each item in the RFP and what your proposed schedule of delivery is in weeks from the Notice to Proceed.

In Section 2 of our October 8th Proposal we summarized the tasks, deliverables and timetable for completing our services in the 'Proposed Project Schedule.' Attached is an updated version of the "Proposed Project Schedule". This revised schedule shows that timetable for the delivery of our services from the Notice to Proceed to the Completion of the Services Requested.

Q3. If the Net Zero Ready energy standard is chosen, how will you determine what the annual and lifetime operating and maintenance costs associated with building climate control and advanced technology are?

Maclay Architects and our team has extensive experience with these systems and will provide valuable insight into sizing, siting, and operating costs for heat pumps and heat recovery ventilators. Based on monitoring of post-occupancy energy use on other projects and schematic energy modeling, we will be able to make accurate projections of annual and long term operating and maintenance costs.

Q4. Using the Vermont Commercial Energy Code and Net Zero standards as the minimum and maximum range of standards of desirable energy efficiency for the project, how will you determine if there is a design within this range that represents the best benefit/cost ratio?

Proven net zero financial assessment template: We will utilize the detailed template we developed for a proposed model 300,000 square foot net zero mixed-use office, manufacturing and residential neighborhood in Hinesburg, Vermont[1]. This project, funded by Efficiency Vermont, offers a proven process and model for design and financial feasibility of net zero energy buildings against code compliant buildings of various building types. The template can quickly and effectively be adapted and modified to meet your specific needs and requirements. The approach and methodology that we used for this recent study is one that we use on all projects in our office, and we are very proficient and practiced in its delivery.

Effective modeling, costing, and choices in sustainability: We will employ comparative energy modeling and cost estimating to determine project costs, both capital and operating, of a net zero building compared to a code compliant building. We develop building envelope options with multiple thicknesses of insulation and alternative material assemblies. When there are questions about the affordability versus performance of key components, such as improved windows or thicker exterior insulation, our "choices in sustainability" approach provides clear alternatives to help you understand the impact of energy performance on operating costs and budget. We look at combining increased energy conservation costs with mechanical and electrical system downsizing to give the most cost effective projections.

Q5. Please identify who will be performing the Life-Cycle Costs (LCC) scenarios and summarize the methodology that they will employ.

We provide in-house energy modeling by our Research Director, Laura Bailey, for the various design and energy performance options. Laura will also lead our financial analysis and develop our Energy Report that projects first-year operating and ownership costs, 20- or 30-year operating and ownership costs, and a cash flow analysis.

Maclay Architects uses prescriptive envelope and mechanical metrics for net zero ready building design. We have successfully implemented the recommended levels of insulation and air sealing to achieve net zero on over 10 projects, starting with The Putney School Fieldhouse in 2007. Maclay Architects has worked with DEW on many recent projects to streamline cost estimating for code and net zero ready buildings in order to generate the incremental additional capital costs. Our methodology is broken out in the following steps:

1. Calculate code compliant, NZR and NZ construction cost

[1]. A summary report and full report of this feasibility study can be found at the following links, respectively:
https://www.efficiencyvermont.com/docs/about_efficiency_vermont/whitepapers/NZFsummary.pdf
https://www.efficiencyvermont.com/docs/about_efficiency_vermont/whitepapers/NZFfullReport_web.pdf

2. Calculate the energy consumption for the Code and NZR buildings
3. Establish financing rates and borrowing terms for the project
4. Determine 1st year and long term capital and operating costs for Code and NZR
5. Determine cash flow and return on investment

This proven financial analysis has successfully empowered clients to make the most prudent investment for their building renovation or new construction.

Q6. How will you create secure space for the Police Department that is adjacent to public space, shared space and the space of the Fire Department?

We separate the circulation into and within the secure holding areas from the remainder of the building as much as possible. Where shared internal access doors between the secure and unsecure areas of the building are required, that door will only lead into a secondary, semi-secure holding area that is monitored by cameras and police staff separated by secure interior glazing systems.

An example of how this can be accomplished is shown in the attached floor plan of the secure holding areas we created for the Bennington District Court and State Office Building. At Bennington we created a Vehicle Sallyport that was adequately wide and deep to allow safe transfer of persons under custody from the police vehicle into the holding area. The "Secure Garage" layout in the plans developed by BreadLoaf Architects for the Norwich Police and Fire Safety Building was too narrow and shallow to provide for safe use by the Police Department.

Q7. In your design, how will you best use circulation and adjacency to create the most efficient use of space?

Minimizing the ratio of Net Square Footage to Gross Square Footage within a project is essential for several reasons. By minimizing the circulation within a facility we can reduce the occupants' movements within the building, decrease the building area and volume, reduce construction costs and lower operating costs.

We will diagram and evaluate multiple building configurations during the conceptual design phase of the Project in order to determine the best way to organize your building program to create the most efficient facility possible given the constraints of the site and existing conditions.

When we were selected to design the Bennington District Court and State Office Building, the State already had a conceptual design on which the Project Budget was based. That conceptual design envisioned the demolition and rebuilding of 45,000 SF of single story office and courtroom space. Our firm was able to demonstrate to the State that, for the same budget, they could build a three story, 45,000 SF replacement building which had more efficient area to volume ratios and significantly lower operating costs.

Q8. What is your concept of a simple, appropriate, and attractive design that fits into the aesthetics of the Town?

This is certainly an important question, given this project's adjacency to the Village and surrounding residential lots. Our design process addresses this question. We begin with a photo survey of the architectural character of the neighborhood and other architecturally significant buildings in the area. We then compile example photos of projects that have successfully integrated new construction into existing villages. Through this process we ultimately develop an appropriate, and attractive design that fits into the aesthetics of the Town.

We recently designed a new Town Office Building for the Town of Waitsfield, VT which is located on the only remaining undeveloped lot on Main Street, within the Historic Village District of Waitsfield. That project is under construction. A sketch of that new Town Office Building is attached.

Q9. Our project's success will depend on costs and estimates to present to Norwich voters that are reliable and accurate. Please supply us with examples of your estimator's previous estimates compared to actual costs on similar projects.

We included DEW's preconstruction/cost estimating services in our proposal to ensure that the budgets prepared for this project will be as reliable as possible. DEW's estimating accuracy goal is 1-3% and it has been our experience that they meet that goal in all but the most unusual of circumstances.

Attached is a document which DEW provided that documents their success in estimating the cost of projects within that 1 – 3% accuracy goal.

Q10. Please summarize the number of meetings that you envision with the Selectboard, Department Heads, and the public.

In our Proposed Project Schedule, attached, we planned on leading seven meetings during the course of the work. In the project schedule each meeting is noted by a red diamond symbol.

We propose to begin the project with a meeting with the Department Heads and any members of the public that the Town would like to ask to serve on the Building Committee.

A second meeting with the Department Heads and Building Committee is planned near the completion of the Project Definition Phase of our work.

A third meeting with the Selectboard is planned at the completion of the Project Definition Phase, to present the Board with a progress report of the work accomplished to date and to solicit the Board's input on the design direction.

The fourth meeting scheduled is with the Department Heads and Building Committee to review the schematic design and outline specifications for the Project.

A fifth meeting is planned to present an overview of the schematic design and outline specifications for the project with the Selectboard. If the Board approves of the general parameters and design of the project; then we would proceed to develop the detailed the cost estimate, energy modeling and financial modeling to confirm that the projects goals and objectives can be achieved within the project budget.

The sixth proposed meeting is with the Selectboard to present the final schematic design package and project budgets to the Board and to solicit any final modifications the Board would like to see incorporated into the Project.

Once we are all confident that we have developed a schematic design and project budget that accomplishes the project goals and objectives we have planned a seventh meeting to present the project to the public.

We are glad to consider a different progression of the meetings and could offer to do additional meetings within the same budget if some of the seven meeting planned can be combined to be on the same evening, such as presenting to the Building Committee and Selectboard on the same day.

Q11. How many concept iterations including architectural, engineering and estimates of probable costs does your proposal include?

During the Project Definition Phase of our work we would diagrammatically explore as many design concepts as we, or the building committee, could envision as potentially viable on the existing site. There would be a minimum of three conceptual design concepts for how to accomplish the project on the site. Each conceptual option will be evaluated by the entire architectural, engineering and cost estimating team.

By the end of the Project Definition Phase of our Team's work, we would focus on the two best concepts for organizing the project design on the existing site.

During the Schematic Design Phase our Team would compare the pros and cons of the two best design options and identify the feasibility of accomplishing the net-zero energy performance goals, for each option. We would then select the best design direction and further evaluate the most cost effective strategies for making the most promising design option energy efficient and sustainable to operate within the project budget.

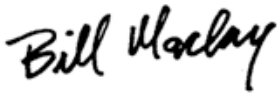
Q12. Please confirm your total proposed contract cost including all services and reimbursables, as a result of having reviewed the above questions. Please state how the proposed cost would be adjusted, if the work were to commence in May 2016.

As long as the work commences before June 2016, we are willing to hold open the fee proposal provided in our October 8, 2015 Proposal. The fees proposed in the October 8, 2015 include normal reimbursable expenses for mileage, postage, photography and printing and would be billed monthly against the total lump sum fee of $53,565.00.

Our team has great interest in assisting the Town of Norwich with creating a safe, durable, energy-efficient and cost-effective Police and Fire Facility. We are happy to answer any further questions you have regarding our proposal. Additionally we would be happy to offer you a tour of any of the projects referenced in our proposal materials.

We are committed to doing what is necessary to make this project successful by meeting your project goals and objectives. We also hope you will contact our references, as they will confirm this commitment. If selected, we will make the necessary effort to provide the Town of Norwich Fire and Police Departments with the highest level of work product and service.

Sincerely,



Bill Maclay, AIA, LEED AP
Principal

Bill Gallup, AIA, LEED AP
Senior Associate

PROPOSED PROJECT SCHEDULE

PHASE I	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week16	Week 17	Week 18
PROJECT DEFINITION																		
Kick off meeting - Review program, site issues, energy goals, budget requirements, Fire and Police project goals, functionality improvements, security improvements	♦																	
Site and Building Evaluations Code and permit analysis	◆——◆																	
Prepare design summary with building performance criteria, space planning and code requirements		◆——◆																
Circulate materials noted above to building committee for review and comment			◆——◆															
Generate diagrammatic site plans and building layouts Summarize construction system and MEP system options (For both Code Complaint and Net-Zero energy performance options)				◆——◆														
Meeting to review diagrammatic design material, construction system and MEP recommendations						♦												
Summarize findings and obtain Owner approval to proceed with schematic design						◆——◆	☆											
Present overview of work to date to Selectboard							♦											
SCHEMATIC DESIGN																		
Produce detailed schematic site plan with all site utility work identified							◆——◆											
Produce detailed schematic building plans, elevations and sections							◆——◆											
Generate outline specifications for pricing (For both Code Complaint and Net-Zero energy performance options)									◆——◆									
Generate MEP, Fire Protection and Security System descriptions and outline specifications for pricing (For both Code Complaint and Net-Zero energy performance options)									◆——◆									
Present Schematic Design Materials to Building Committee										♦								
Refine schematic design package based on building committee review and comment										◆——◆								
Present overview of schematic design materials to Selectboard											♦							
Finalize schematic design package (plans, elevations, sections, wall sections, systems description, utilities, civil/site design) (For both Code Complaint and Net-Zero energy performance options)											◆——◆							
DEW to prepare detailed, unit cost based, construction cost estimates (For both Code Complaint and Net-Zero energy performance options)												◆——◆						
Maclay Architects to model energy performance for both code compliant and net-zero design options												◆——◆						
Maclay Architects to perform financial analysis, identifying projected operating costs and cash flow analysis for both code compliant and net-zero design options													◆——◆					
Present Cost Estimates, Energy Modeling and Financial Analysis to Building Committee and Selectboard														♦				
Incorporate final review comments by Selectboard and Building Committee into design, financial analysis and presentation materials														◆——◆				
Schedule and present materials at Public Forum (Date to be determined by Selectboard)															♦			
BOND VOTE (Date to be determined by Selectboard)																		

SECURE HOLDING AREAS CAN BE ADJACENT OTHER PUBLIC AREAS AS LONG AS THERE IS A SEPARATE CIRCULATION SYSTEM TO AND WITHIN THE SECURE AREA THAT IS WELL MONITORED AND SAFELY SEPARATED FROM THE ADJOINING USES WITHIN THE BUILDING.

LEGEND

- Usable Area
  - Building Common Area
  - Floor Common Area
    - Public Circulation
    - Staff Circulation
  - Major Vertical Penetration
  - Rentable Area
    - 01 Judiciary—Courtsets
    - 02 Judiciary—Court Admin
    - 03 Sheriff Secure Holding
    - Courts Private Circulation
    - Courts Public Circulation
    - Courts Secure Circulation
    - 04 Probation Parole
    - 05 Department of Labor
    - 06 Agency of Human Services
    - 07 DCF—Family Services
    - 08 DCF—Economic Services
    - 09 DCF—Office of Child Support
    - 10 DAIL—Voc Rehab
    - 11 State's Attorney Offcie
    - 12 Buildings General Services
    - Internal Department Circulation

GROSS FLOOR AREA NEW: 11,415 GSF
GROSS FLOOR AREA RENOVATED: 12.759 GSF
TOTAL: 24,174 GSF

BENNINGTON DISTRICT COURT & STATE OFFICE

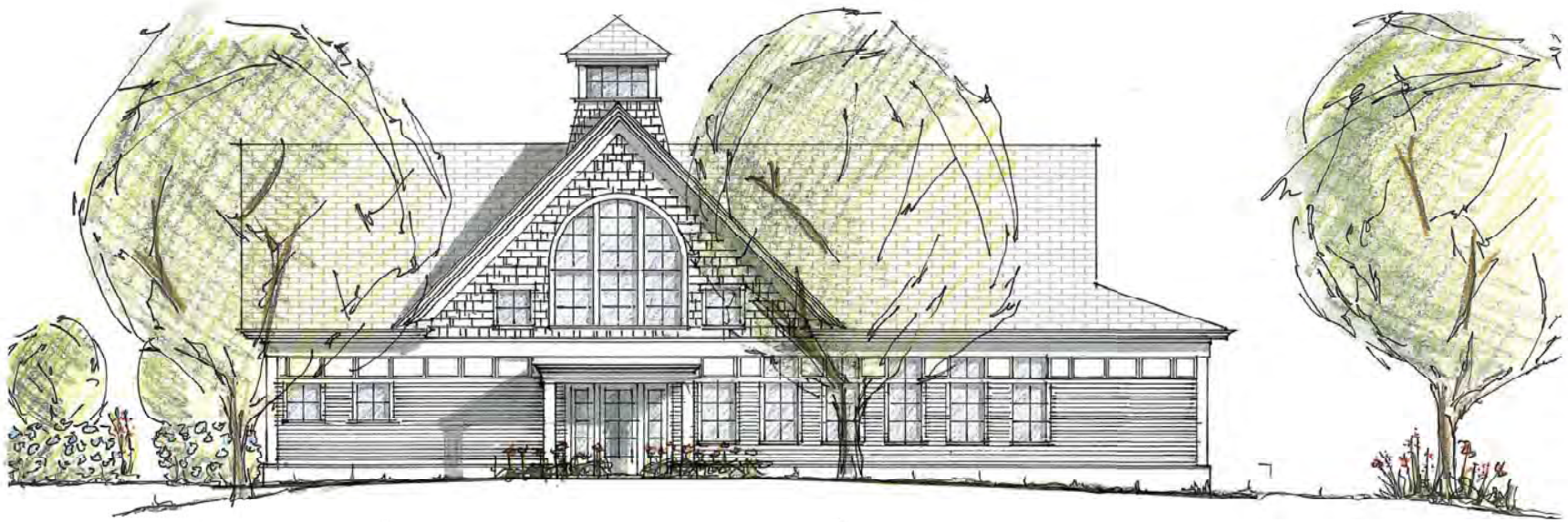
FIRST FLOOR PLAN

11.19.09

MACLAY ARCHITECTS in association with RICCIGREENE ASSOCIATES

VT BUILDINGS GENERAL SERVICES

A1.1



STREET ELEVATION

0' 2' 4' 8' 16'

PARK ELEVATION

FIELD ELEVATION

VAULT ELEVATION

0' 4' 8' 16' 32'

DEW CONSTRUCTION CORP

ESTIMATING ACCURACY

KING STREET HOUSING

Original Estimate | $5,868,859

Final Contract | $5,958,211

Percentage | 2%

WEST RIVER SENIOR HOUSING

Original Estimate | $7,054,370

Final Contract | $7,164,215

Percentage | 2%

CASTLETON STATE COLLEGE - CAMPUS CENTER

Original Estimate | $6,265,218

Final Contract | $6,356,509

Percentage | 1%

PUTNEY SCHOOL FIELD HOUSE

Original Estimate | $5,120,080

Final Contract | $5,109,764

Percentage | -0.2%

UVM WING DAVIS WILKS DORM

Original Estimate | $12,897,951

Final Contract | $12,897,343

Percentage | 0.14%

CASTLETON STATE COLLEGE - DORM/FITNESS CENTER

Original Estimate | $6,876,430

Final Contract | $6,747,422

Percentage | -1.91%

REFERENCES

David Stiger, Director of Construction
Dartmouth Hitchcock Medical Center
(603) 650-5738
david.l.stiger@hitchcock.org

Paul Pezone, VP of Operations
Cheshire Medical Center
(603) 354-5407
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Paul Calandrella, COO
Mt. Ascutney Hospital
(802) 674-7274
paul.calandrella@mahhc.org

Fire & Police Facilities
Town of Norwich

Requested Proposal Clarication

Prepared for: Town of Norwich, Vermont

Prepared by: Christopher Kennedy, AIA, LEED AP

Date: 12.03.2015 Revised

12.03.2015

Neil Fulton
Town Manager
Town of Norwich
300 Main Street
Norwich, Vermont 05055

RE: Proposal for Professional Services
Fire & Police Facilities – Norwich, Vermont

Dear Mr. Fulton,

As requested we have reviewed the 12 questions that you sent to us regarding our proposal and have provided answers. Please do not hesitate to ask additional questions if you feel the need for additional clarification.

At UK Architects, we believe the best architecture is the result of a collaborative process. Always.

- We work with you to create spaces and places that reflect your goals and further your objectives
- We maximize the value of every investment and decision
- We create useful, meaningful and beautiful spaces and places

Thank you for considering UK Architects for your project, as the Town of Norwich seeks a better future for its Fire and Police Departments.

Warmest Regards,

UK ARCHITECTS, PC

Christopher P. Kennedy, AIA, LEED AP
Principal

ARCHITECTS

Proposal Clarifications

1. **Please provide a written response to each of the numbered items in the Request for the Proposals (RFP) – Item 2. Schematic Design and Development of Estimates of Probable Costs – that confirms your intent to address each**

   We intend to provide a Schematic Design and Opinion of Probable Cost for the project as outlined in Item 2 of the Request for Proposal dated 09.10.2015. The Opinion of Probable Cost will be based on Schematic Design level of information and will address all of the items listed in part 2 of the RFP.

   Schematic Design establishes the general scope, conceptual design, and scale and relationships among the components of the Project. The primary objective is to arrive at a clearly defined, feasible concept and to present it in a form that results in Owner understanding and acceptance. The secondary objectives are to clarify the project program, explore the most promising alternative design solutions, and provide a reasonable basis for analyzing the cost of the Project.

2. **Please summarize what the proposed deliverables are for each item in the RFP and what your proposed schedule of delivery is in weeks from the Notice to Proceed**

   Below is our list of Deliverables taken from our proposal. We have listed the weeks during the schedule when these items will be in progress. We have also attached a copy of the Proposed Project Schedule form our proposal at the end of the list of questions.

   Pre-Design (Weeks 1 & 2)

   1. Drawings of Existing Conditions.
   2. A Project Program Outline
   3. Evaluation of Regulatory Requirements

   Schematic Design & Public engagement (Weeks 2 to 13)

   1. Documentation of Public Engagement Sessions
   2. Concept Designs (limit 2), each design will include:
      Concept Site Plans
      Concept Building Plans (identifying potential phases)
      Concept Building Massing Studies using 3D Digital Models
      Concept Sketches of Primary Exterior Elements
   3. Final Schematic Design:
      Schematic Site Plan
      Schematic Building Plans (identifying potential phases)
      Schematic Exterior Elevations
      Schematic Interior Elevations of Primary Spaces
      Schematic Building Massing Model (to be used as a base for renderings included under Public Outreach Support)

Consultant services

1. Schematic Site Plan Diagram
2. MEP Systems Narratives

Cost estimating & Constructability (Weeks 6 to 13)

1. Preliminary Construction Cost Estimate for each Concept Design (limit 2 concepts)
2. Project Construction Cost Estimate of Final Schematic Design
3. Phasing Analysis with Estimated Construction Schedule for each proposed phase
4. Life Cycle Cost Analysis for Final Schematic Design
5. Net Zero Cost Analysis for Final Schematic Design

Presentation Materials (Weeks 14 to 15)

1. Birds Eye View Rendering of Final Schematic Design
2. Exterior Eye Level Rendering of Final Schematic Design
3. Colored Site Plan
4. Representative Exterior Elevations

3. If the Net Zero Ready energy standard is chosen, how will you determine what the annual and lifetime operational and maintenance costs associated with building climate control and advanced technology are?

Our approach would generally involve a robust, low load envelope which would contribute to a simple system for HVAC. We would likely vet two approaches to the Mechanical System: A Biomass FHW system and a VRF, Air to air heat pump system. The operational cost projections would be based on a modeled energy load with costs tied to current fuel and/or electrical costs. The modeled building energy loads would be offset with site generated PV. Our projections would include sizing the PV system for the various approaches.

4. Using the Vermont Commercial Energy Code and Net Zero Standards as the minimum and maximum range of standards of desirable energy efficiency for the project, how will you determine if there is a design within this range that represents the best benefit/cost ratio?

Using the VT Commercial energy code building as baseline, we would then break out the building envelope and system improvements in the construction cost estimate to go to a low load Net Zero ready building design. We would recommend that the team establish a EUI standard for the NZE design. An example of this would be a modeled goal of 15 kBtus/square foot. The design details would adhere to this goal. It is important to understand that the team is charged with coming up with a conceptual design so there will be numerous assumptions necessary to determine both construction cost and building performance projections. Our approach would be to do an ASHRAE level I assessment of the various approaches put forth by the design team.

5. **Please identify who will be performing the Life-Cycle Costs (LCC) scenarios and summarize the methodology that they will employ.**

   The LCC will be performed by the Mechanical Engineering and Cost Estimating Consultants. The design team is charged with developing schematic design approaches for upgrading the Fire Station and replacing the police station. It should be understood that this is not a complete design and though the team will establish the basic approach to envelope and system choices, it is our opinion that there will not be enough information to do a complete detailed Life Cycle Cost Analysis. The Life Cycle Cost Analysis will utilize assumptions and information typically available in a Schematic Design.

6. **How will you create secure space for the Police Department that is adjacent to public space, shared space and the space of the Fire Department?**

   Ensuring that various program spaces can be adjacent to each other while having differing requirements for security and access is part of the design process. Depending upon the specific concerns, a variety of options may be considered. It also depends on which space is required to be protected and for what reason.

   Some typical methods that might be considered are: Security System control of doors, wall construction that is resistant to penetration, design layouts that are easy to visually monitor as well as others.

7. **In your design, how will you best use circulation and adjacency to create the most efficient use of space?**

   Ensuring that the project maximizes efficiency to minimize the amount of building area required to meet your program is a basic part of the design process. There are some inherent complexities in your project program that we can identify in the Pre-Design phase and discuss ways that complexity/inefficiency can be mitigated during the Schematic Design phase. Additionally we will consider ways to increase the flexibility of the project and strive to achieve a high level of "value" in relationship to the project cost.

8. **What is your concept of a simple, appropriate, and attractive design that fits into the aesthetics of the Town?**

At UK Architects, we resist the temptation to start with preconceived solutions and take pride in our ability to keep an open mind during the exploration and discovery process at the beginning of projects. We take the time to develop a strong understanding of the site context and perform comprehensive analysis of opportunities and constraints before beginning a design. This detailed adoption of Design Thinking not only sets UK Architects apart in our field, but it also ensures no design opportunities are missed as we move forward.

Beyond the basic functionality necessary for fire and police facilities to accommodate the needs of the individual departments, there are a number of other elements that should be considered in the design of public facilities.

Maintaining the traditional compact settlement patterns of village centers
Incorporating a mix of uses in the downtown
Walkability and accessibility to public buildings
Engaged citizens with a sense of community heritage and vision for the future
Incremental growth

Local economies are more vibrant and real when there are a wide mix of uses and buildings that aggregate a variety of community needs and remain adaptable to the changing needs of the community.

If we were to try to describe an appropriate design style, it would be something that fits in with the character of the existing village and takes cues from a Northern New England vernacular.

9. **Our project's success will depend on costs and estimates to present to Norwich voters that are reliable and accurate. Please supply us with examples of your estimator's previous estimates compared to actual costs on similar projects.**

See the attached list provided by Bruss Project Management, the proposed Project Team's Cost Estimator.

10. Please summarize the number of meetings that you envision with the Selectboard, Department Heads, and the public.

Below are all the Meetings in our proposal. As the project proceeds, it may be necessary to make adjustments. There would be no charge for adjusting the meetings provided they stay within the total time parameters listed.

Pre-Design

1. Programming Review Meeting with Town Manager, Police and Fire

Schematic Design

1. Public Engagement Session 1 – 6 Hrs
2. Public Engagement Session 2 – 6 Hrs
3. Concept Design Review – 2 Hrs
4. Final Schematic Design Review – 2Hrs
5. Building Systems Review – 2 Hrs

Cost Estimating & Constructability

1. Concept Design Estimate Review
2. Final Schematic Design Estimate Review

Public Presentation Support

1. Attendance and support at Public Forum – 2 Hrs

Bonus Services

1. 4 Hours of Interactive Sessions

11. How many concept iterations including architectural, engineering and estimates of probable costs does your proposal include?

Design Iterations:

Concept Designs (limit 2), each design will include:
Final Schematic Design:

Cost Estimating Iterations

Preliminary Construction Cost Estimate for each Concept Design (limit 2 concepts)
Project Construction Cost Estimate of Final Schematic Design
Phasing Analysis with Estimated Construction Schedule for each proposed phase
Life Cycle Cost Analysis for Final Schematic Design
Net Zero Cost Analysis for Final Schematic Design

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12. Please confirm your total proposed contract cost including all services and reimbursables, as a result of having reviewed the above questions. Please state how the proposed cost would be adjusted, if the work were to commence in May 2016.

In our proposal we suggested waiting until 2016 to begin the scope of work. However, we did not have the time to fully discuss this with our consultants. We therefore propose increasing the original fee proposal as follows:

Consultant Reimbursables: increase from $750.00 to $1,000.00

Possible Increase in Consultant Fees: Maintain original Consultant Fee amounts, however include a contingency amount of $1,500 to be utilized if needed.

Original Fee Proposal: $33,522

Revised Fee Proposal: $33,772 + $1,500 consultant contingency = $35,272

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Schedule

The proposed schedule below is approximately 22 weeks in duration. This schedule relies on the ability of the Project Team and the Owner to be available and prepared for meetings at the times listed in the schedule. It is our experience that it is difficult to schedule public participation events during the summer season. A May 1, 2016 start date may be problematic, since a significant portion of the scope of work will take place during the summer. An alternative might be to consider a September 1, 2016 start.

Date	Task
Week 1	o Complete Owner/Architect Agreement. o Site visit with Civil & Landscape Architect o Prepare existing conditions and finalize project program.
Weeks 2 to 4	o Distribute final project program. o Initial Code Review based on project program o Public Engagement Session 1 o Complete Documentation of Public Engagement Session
Weeks 4 to 6	o Develop concept design options.
Week 7	o Continue to develop concept design options o Develop initial concept cost estimates
Weeks 8 to 10	o Review concept design options with Owner. o Owner gives comments to Architect. o Public Engagement Session 2 o Complete Documentation of Public Engagement Session.
Weeks 11 & 12	o Develop final schematic design o Building Systems Meeting with Consultants and Owner
Weeks 13 & 14	o Continue to develop final schematic design o Begin developing final cost estimate
Weeks 15 to 18	o Review cost estimate with Owner. o Determine final approved project budget target. o Revise schematic design as necessary to match approved budget.
Weeks 19 & 20	o Prepare Presentation Materials
Week 21	o Public Presentation
Week 22	o Town Meeting

BRUSS project management

Relevant Estimating Projects List

Proctor Academy

2011 Locker room addition
Initial estimate: $1,494,900 GMP Contract: $1,430,600
Architect: UK Architects, Chris Kennedy

2012- Lakes Region Community Services
Initial estimate: $2,226,300 GMP Contract; $1,986,800
Architect: UK Architects, Chris Kennedy

2013 Phillips Exeter Academy, Faculty Housing projects
Initial estimate; $676,500 GMP Contract: $659,563
Architect: TMS Architects, John Merkle

2013 Proctor Academy Sally B Dorm
Initial estimate; $2,604,400 GMP Contract: $2,645,600
Architect: O'Neil and Pennoyer Architects

2015 Francestown Town Hall Addition and renovations
Initial estimate: $956,750 GMP Contract: $967,343
Architect: Catlin-Petrovick, Mike Petrovick

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Concord, NH 03301
603.856.8218
603.344.1552
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JAY WHITE, ARCHITECT, PLC
COMMERCIAL – COMMUNITY FACILITIES – HISTORIC PRESERVATION

100 STATE STREET, SUITE 230, MONTPELIER, VERMONT 05602
Phone: (802) 793-1850 Email: jaywhitevt@gmail.com

December 1, 2015

Neil Fulton, Town Manager
Town of Norwich
300 Main Street, P.O. Box 376
Norwich, Vermont 05055

ANSWERS TO QUESTIONS RELATED TO
Proposal for Architectural, Preservation and Engineering Services
NORWICH FIRE AND POLICE FACILITES
Schematic Design and Estimate of Probable Costs

Neil,

Thank you for the opportunity to clarify our proposal. In addition to answering your questions, there are three aspects of it I would like to amend and clarify:

FIRST: I am withdrawing consideration of connecting your new building to the apparatus building at the southeast corner for these reasons:

1. The apparatus building is well organized with a lot of equipment in it as it is. It does not have enough space to give up the storage I remember seeing along the back wall in order to accommodate more doors. Your RFP and program is well defined and it does not include spending any money on the apparatus building except to make it more energy efficient. I concur.

2. Given your property boundary lines, the only way to connect at the southeast corner would be with an inefficient corridor to reach it from the new office space on your own property further east – and I promised in my proposal to avoid long corridors as will be required to get the gross and net area requirements as close to each other as possible.

3. For security and safety reasons, I don't want to trap either the fire department or the police department with dependence on access only from Hazen Ave. If someone blocked it, the police or fire department would be trapped in an emergency.

I like to bring fresh ideas to the table. After Steve Leinoff's comment at the site visit that firemen had to back in from Main Street -- blocking Main Street in the process -- and that BreadLoaf had suggested a second phase of work to correct that, I tried to think of ways to solve that problem with this project in one phase. But this option doesn't work for many reasons, including those listed above so there is no reason to consider it further.

SECOND: I want to clarify that much of our work includes items well beyond the normal definition of "Schematic Design" because you also need a detailed cost estimate and a variety of options to assess the cost of getting from Base Line to Net Zero. Without the detailed specifications and mechanical engineering included in our lump sum proposal, we could not obtain enough detail to get accurate pricing. Some firms may exclude or add on costs for engineering in a Schematic Design Phase because it normally is completed in the Design Development Phase. We include it in the lump sum price of this proposal.

THIRD: I have confirmed that **Efficiency Vermont** will be working with **Daniel Dupras, PE** and **Claus Bartenstein, PE, LEED AP** of **Engineering Services of Vermont [ESVT]** to provide the engineering associated with the Whole Building Energy Modeling and Life Cycle Cost Analysis. ESVT will focus on the building HVAC options, Whole Building Energy Modeling and Lift Cycle Cost Analysis. Upland Construction will provide pricing for each option being considered in building envelope and HVAC and Electrical systems. Information about **Engineering Services of Vermont** and resumes of the principal engineers are included in my email with this document.

ESVT was also the electrical and mechanical engineering consultant we used on the Royalton Municipal and Police Building. Although Royalton's design basis was the *Vermont Commercial Building Energy Standards*, we were still able to use LED lights throughout and air exchange heat pumps throughout the building, as the cost of both of these technologies has come way down in just the last couple of years as the LED world is expanding and the advantages of heating and cooling with air exchange heat pumps is becoming more well known.

I have also now identified **Nick Thiltgen, PE, LEED AP** of **Efficiency Vermont [EV]** as the consulting engineer we intend to use at Efficiency Vermont. Nick has worked with Engineering Services of Vermont on several other projects -- as have I -- in achieving this analysis. Nick is the engineer who met with your Selectboard on 4/15/15, so he is already somewhat familiar with the issues in Norwich and he told me about your remote solar array project we may be able to hook into as space on this site to generate energy may be limited, but we'll find out.

Answers to your questions are as follows:

Q1. Please provide a written response to each of the numbered items in the Request for the Proposals (RFP) – Item 2. Schematic Design and Development of Estimates of Probable Costs – that confirms your intent to address each.

2.1 Our work will include the following deliverables:

a. Site Plan of existing conditions indicating what utilities, buildings, tanks, trees and driveways will be removed. This is necessary to quantify demolition cost.

b. Site Plan of proposed design indicating existing building and utilities that will remain, new utilities, leach field location, buried gas tank location, building footprint, roof plan, police shed location, existing and new driveways, parking areas, major trees and walks.

c. Floor plan of the new building and existing apparatus building. These will show furniture and equipment in all areas to the extent it can be defined at the schematic level. We always show furniture, even at the schematic level, as it is the only way to assure the rooms are the right shape and size; many firms do not do this.

d. Elevations of all sides of the new building. These will be annotated to dimension heights, and identify and quantify materials so we can get accurate pricing.

e. At least two building cross-section drawings indicating structural technique, insulation systems, roof heights and ceiling heights.

f. Typical wall section, showing all materials, flashing, and windows, and other details normally included after the Schematic Design Phase so they can be accurately priced.

g. Color Rendering of the Building

h. Description, specification and design engineering of mechanical and electrical options from Base line to Net Zero to the extent the options can be priced. This will be well past what is normally included in a Schematic Design.

i. Building Specifications. This is required to be beyond the normal Schematic Design phase because it needs to be complete in order to get accurate construction cost estimating.

j. Whole Building Energy Modeling.

k. Life Cycle Cost Analysis.

l. Detailed cost estimate organized by CSI Construction Division. An example of the Schematic Design Cost Estimate Upland Construction and I prepared for the Royalton Municipal Building is attached as a way to show you how detailed it will be. This level of detail allows us to keep the estimate adjusted as scope, materials, or quantities change. These estimates are normally between 8 and 10 pages of a single-spaced Excel spreadsheet. It also allows us to factor in different whole building energy models where we can factor in the cost and energy savings gained over time for different types of insulation and other building details.

m. Recommendations and consensus with Selectboard of how close to Net Zero you want to be, and a detailed estimated construction cost and project cost of the selected design and options for the building, mechanical, and electrical design systems selected.

2.2 **Elements in support of combined facilities** will be addressed as follows:

2.2.1 Owners costs will be defined and estimated to include such things as testing, owner's insurance, and the cost of moving the police and fire personnel to temporary quarters until the new building is ready, renting that space, and the cost of moving them back into the new building. If a decision is made to build the new building north of the existing building, we may be able to avoid temporary office and moving costs, but that may impact construction cost. All of it will be analyzed to produce the best results for Norwich and factor in all costs

associated with the project. The Selectboard, Town Manager and Department Heads should be involved in all of the decisions so you can understand and defend them, as this will be required to gain public support for the selected project.

2.2.2 Site preparation and landscaping will be described at the conceptual, schematic design level so it can be priced. Landscape concept will be shown on the site plan, but it will not be completed to the extent that it can be bid as not all plants will be identified at the Schematic Design phase.

2.2.3 Removing police station and foundation cost will be defined, and also include disposal charges. Asbestos may need to be tested so we know how much it may add to demolition cost. If so, the cost of testing and removal of asbestos will be factored in, too.

2.2.4 Removal of the existing septic system will be described to point it can be estimated. Its location will be shown on the Site Plan of Existing Conditions.

2.2.5 Removal of two oil tanks will be described to point it can be estimated. Their locations will be shown on the Site Plan of Existing Conditions. Testing may be required to determine if there is any contamination related to the two oil tanks that will need to be mitigated. If so, that cost will also be estimated but may be listed as a contingency since soil damage under or around the tanks can't be determined until they are removed.

2.2.6 The Site Plan of Existing Conditions will show the locations of the emergency generator and underground propane tank. The Site Plan of Proposed Conditions will show their new locations. Cost of the move will be indicated on the Cost Estimate.

2.2.7 The existing Police Storage Shed location will be shown on the Site Plan of Existing Conditions. If it is reused in the new design, it will be shown in its new location. You may want to consider accommodating that storage function in the new building in order to have one less building to maintain on site, save the cost of moving it, getting power to it, or insuring it. (Royalton sold the little building the Listers used prior to getting their new municipal building on EBay!)

2.2.8 and 2.2.9 We will estimate the cost of the sprinkler system, security alarm system, fire alarm system and dialer. A traditional sprinkler will require a 4" water line from Main Street. That cost will also be included as a line item in our Cost Estimate. In the rare event access to a large water line is distant, we will specify and price a mist system that uses less water, but has a higher first cost than a normal system with a nearby water source. Repair of streets to access utilities will also be factored into our Cost Estimate.

2.2.10 Engineering Services of Vermont [ESVT] will look at the current boiler and make a recommendation of whether you should keep it, or operate all buildings from a new, more efficient boiler. That has been the recommendation on our most recent projects, as boiler energy efficiency has greatly improved. The cost of air exchange heat pumps that are usually recommended by Efficiency Vermont – and for which they offer incentives -- will also factor into this equation, and if used, the size of the boiler can be reduced as it will not need to provide all heating in the building. Again, price of several options will be factored into the cost analysis of energy efficiency options being considered.

2.2.11 We will assess if existing driveways should be repaved, or if they also need a new base. Since our construction bid for Royalton came in less than their budget, Royalton chose to rebuild their existing parking areas and drives that were originally specified to be just resurfaced with a new 1" topping layer of asphalt. Their base was weak and our pricing analysis of both options determined rebuilding was the long-term better option.

22.12 Pathways will define requirements for the new septic and include its size and location on the Site Plan of Proposed Conditions. We will, of course, assure storm and septic systems are sufficiently separated from each other and at least 10 feet from any water line as required by Vermont code. Contours and site drainage patterns will be indicated if necessary to direct storm water to the correct locations.

22.13 Pathways will define requirements for the storm water and include any information about it that may affect cost on the Site Plan of Proposed Conditions.

22.14. ESVT will estimate the cost annual operating and maintenance cost of the new building and the apparatus building that will remain. This will actually be done with several cost estimates and scenarios as we factor in the cost for each item factored into the Net Zero upgrade.

2.3 Base energy option

2.3.1 We will factor in the cost of propane heating for the new building and the fire apparatus building. This will involve several cost options as a smaller boiler will be suitable if the Life Cycle Cost Analysis indicates that the air exchange heat pumps should also be used.

2.3.2 In the last couple of years Efficiency Vermont and ESVT have both recommend that we air exchange heat pumps to get more energy efficient cooling that is cheaper to install than a central air conditioning system and just as comfortable with a higher level of control. But to confirm and to be able to explain it to the public, we will price the difference between a ducted air conditioning system and an air exchange mini-split heating and air-conditioning system.

2.3.3 When we checked the cost of T-8 or T-5 high efficient fluorescent lighting on projects in the past three years, we have consistently found LED lighting throughout as preferable, even in low-first-cost projects like the Royalton Municipal and Police building we just completed. But to confirm the savings to the public, we will price both types of lighting and factor the results into our Life Cycle Cost Analysis.

2.3.4 Our design will include bituminous paving at all driveways. Walks may be either concrete or asphalt, and we will price both options. We recommend omitting curbs where possible in order to get water to drain more evenly into grassy areas. Omitting curbs may also make it easier to plow and will reduce construction cost as long as we can assure that the site and paved area drain well – properly away from all buildings and walking areas.

2.3.5 We will locate and price the requested 35' radio tower with capacity of three 20' antennas mounted on top of it.

2.3.6 We will assess the cost of installing floor drains in the apparatus building with an oil separator, and define what is required so we can factor in its cost.

2.3.7 We recommend LED exterior security lighting controlled with a photo cell. Since LED is so cheap to operate and Royalton's new Municipal and Police Buildings is off by itself, Royalton leaves their security lighting on all night. An option for you would be to consider a timer on some or all of the security lights, depending on the final design and what is there now. Security lights will be tall with cut-off, non-glare heads so they don't shine into the senior residences next door.

2.3.8 The alarm and security system will be defined to be provided by the same supplier. We will consult with security companies to get this cost after the floor plans are completed.

2.4 Net-Zero Option

2.4.1 If the building envelope is tight enough, and we have triple-pane windows and extra insulation throughout, we may be able to avoid the cost of a propane baseboard system and rely entirely on air exchange heat pumps for both heating and cooling as recommended by Efficiency Vermont. To determine this, ESVT will calculate heat loss and make this recommendation accordingly.

At Royalton, we installed air exchange heat pumps for both air condition and heating but it was more cost effective there to add a bit of gas-fired baseboard radiation than increase the first cost of the building to meet Net Zero requirements. If we had not done so, the cost of the building would have exceeded their approved bond and the project could not have been built at all. In your case, we will define, primarily with the help of Efficiency Vermont and Engineering Services of Vermont what is required to get to Net-Zero on an option-by-option basis.

We will also consider a Net-Zero Ready option that will provide the optimal building features for energy use reduction needed but defer solar panels or other energy generation systems to a later date or as part of an over-all Norwich plan that may allow you to connect several buildings to a solar energy array.

Efficiency Vermont also offers incentives to help municipalities get toward Net-Zero. We will identify those programs, too, and use those incentives in a "savings" column in our Cost Estimates.

2.4.2 I think we will find that LED lighting throughout will be the best value in both the Baseline Energy Option and the Net-Zero energy option as this is what will likely be required anyway to get to the energy requirements in the new *2015 Edition of the Vermont Commercial Building Energy Standards* that limit how many watts per square foot we can use for lighting. We will find out the difference in first cost and operating cost and factor the results into our Life Cycle Cost Analysis.

We also expect to have a lot windows, especially on the sunny sides to increase passive solar gain and increase daylighting. And to be honest, naturally lit rooms with windows in Vermont are just more fun to be in. I will not propose any permanent work areas in windowless rooms.

Q2. Please summarize what the proposed deliverables are for each item in the RFP and what your proposed schedule of delivery is in weeks from the Notice to Proceed.

Proposed Deliverables and estimated schedule of completion are as follows:

Upon Notice to Proceed:

CLIENT MEETING #1: Consultant Team, Selectboard, Town Manager, Department Heads, Key Staff

Discussion will include:

1. Introduction of team and discussion of roles.

2. Department Head, Town Manager and Selectboard goals and objectives.

3. Confirm schedule.

4. Definition of Net Zero and Net Zero Ready.

Two weeks after notice to proceed we expect to have:

5. Minutes of meetings with staff and department heads confirming net area program of spaces, function of spaces, location of spaces and adjacencies, list of new and existing equipment and furniture required in each area.

6. Site Plan of existing conditions indicating what utilities, buildings, tanks, trees and driveways.

CLIENT MEETING #2: Project Information and Program Approval

Three to Four weeks after notice to proceed we expect to have:

7. Preliminary floor plan of the new building to the extent we can review pedestrian circulation within the new building, connection to the apparatus building, security features, room sizes and locations of all spaces. These will show furniture and equipment in all areas to the extent it can be defined at the schematic level. (We always show furniture, even at the schematic level, as it is the only way to assure the rooms are the right shape and size; many firms do not do this.)

8. Preliminary site plan indicating roads, potential parking areas, snow storage areas, driveways and walk ways. We want to obtain concept approval of the floor plans and preliminary site plan before we proceed with Pathways to work on the Site Plan of Proposed Design.

CLIENT MEETING #3: Floor Plan and Preliminary Site Plan Approval.

Four to six weeks after notice to proceed we expect to have:

9. Elevations of all sides of the new building. These will be annotated to dimension heights, and identify and quantify materials so we can get accurate pricing.

10. Building cross-section drawing indicating structural technique, insulation systems, roof heights and ceiling heights.

11. Typical wall section, showing all materials, flashing, and windows, so they can be accurately priced.

CLIENT MEETING #4: Building Elevations and Aesthetics Approval.

Six to seven weeks after notice to proceed we expect to have:

12. Description of site utility options.

13. Site Plan of proposed design indicating existing building and utilities that will remain, new utilities, leach field location, buried gas tank location, building footprint, roof plan, police shed location, existing and new driveways, parking areas, major trees and walks.

CLIENT MEETING #5: Final Site and Utilities Plan Approval

Seven to eight weeks after notice to proceed we expect to have:

14. Description of Mechanical, Electrical, Plumbing and Sprinkler options as required to generally describe what is intended so each option being considered can be priced.

15. Outline Specifications to define all materials in the building and on the site.

CLIENT MEETING #6: Agreement of Options to be considered in Whole Building Energy Modeling and Life Cycle Cost Analysis.

Eight to eleven weeks after notice to proceed we expect to have:

16. Whole Building Energy Modeling basis, identifying building construction details and material options we want to price so we can factor in Construction Cost with Life Cycle Cost.

17. Detailed cost estimate organized by CSI Construction Division, with options for the same items, side-by-side in a separate columns for each option we are considering.

18. Estimated cost to operate building on an annual basis.

19. Life Cycle Cost Analysis.

20. Recommendations of which options should be accepted in order of priority to get from Baseline Energy Option to Net-Zero Ready Option.

21. Estimated Cost of Project to include: Building costs, site costs, owner costs, bonding costs, fees.

CLIENT MEETING #7 Discussions with Owner on Option Recommendation and Project Costs including Construction Cost and other Owner Costs

Twelve to fourteen weeks after notice to proceed we expect to have:

19. Adjustment of plans, elevations and site as required for public presentation of project, based on Client Recommendations from Client Meeting #7.

20. A color rendering of the building.

21. Public presentations as required to help you "sell" the project and its cost to the voters.

CLIENT MEETING #8 / PUBLIC PRESENTATION

Q3. If the Net Zero Ready energy standard is chosen, how will you determine what the annual and lifetime operational and maintenance costs associated with building climate control and advanced technology are?

The approach to Net Zero is a whole building design approach rather than a prescriptive approach using the energy code. The idea of a Net Zero building is to determine how the energy use of the building can be offset by on-site renewable or purchased Net Zero off-site energy. The design approach will require us to develop a whole building energy model to identify the building energy intensity. The building energy model will allow the design team to explore alternatives for the building thermal envelope, electrical energy, process energy to determine how the building energy intensity can be minimized, thereby developing methods for offsetting the energy use with Net Zero Energy Sources.

Q4. Using the Vermont Commercial Energy Code and Net Zero Standards as the minimum and maximum range of standards of desirable energy efficiency for the project, how will you determine if there is a design within this range that represents the best benefit/cost ratio?

Cost/benefit is evaluated through a whole building design approach which will include modeling of the building in order to investigate alternatives for achieving Net Zero. This process will include a cost/benefit analysis including lifecycle costs to optimize the cost/benefit ratio for the building and guide us to make the best recommendations to Norwich.

Q5. Please identify who will be performing the Life-Cycle Costs (LCC) scenarios and summarize the methodology that they will employ.

This part of the work will be led by **Nick Thiltgen, PE, LEED AP** of **Efficiency Vermont (EV)** and **Dan Dupras, PE,** of **Engineering Services of Vermont (ESVT).** Both will work with the design team to develop the Life Cycle Cost Analysis. The scenarios utilized will include developing a list of potential alternatives which could be improvement to maximize the reduction in building energy intensity. From this list we will determine the implementation cost, potential energy savings and maintenance cost for each. Efficiency Vermont will identify energy incentives they offer to help offset construction cost of some specific energy components and systems they typically recommend.

We will utilize the **Federal NIST Building Life Cycle Costing program (BLCC)** to conduct an economic analysis by evaluating the relative cost effectiveness of alternative building details, specifications and building-related systems or components, all of which will be priced individually by **Upland Construction.**

The BLCC will be used to evaluate alternative designs that have higher initial costs but lower operating costs over the project life than the lowest-initial-cost design. This will allow for evaluating the costs and benefits of alternatives for this project. The program will allow life cycle cost (LCC) of several identified alternative designs to compare and to determine which has the lowest LCC and is therefore more economical in the long run – and how long a payback period might be for any one system. This program also calculates comparative economic measures including net savings, savings-to-investment ratio, adjusted internal rate of return, and years to payback.

Q6. How will you create secure space for the Police Department that is adjacent to public space, shared space and the space of the Fire Department?

The Police Department entrance and spaces will be completely separate from the Fire Department entrance and spaces. Initial thought is to build the new building just north of the existing building that will be demolished. Exact location will be determined in the initial planning stages of the project and will include input from both department heads on how both departments need to function.

As currently envisioned, the Fire Department entrance and functions will be on the west side of the new building with its main entrance on the western part of the south façade of the new building. Upon entering the Fire Department you can go straight ahead to Fire Department Facilities, left into the existing Apparatus building accessed through the existing training room, or turn right to get into shared spaces that will include a new training room, public restrooms and building service areas.

The middle entrance will lead to the shared spaces of the Training room and public restrooms. It may be useful for the public to be able to use this space without entering either the police department or the fire department.

The Police Department may have its entrance at the eastern part of the south façade, or through the east elevation around the corner.

It will be possible to access every part of the Police Department without going into any part or the Shared Space or the Fire Department space, and vice-versa.

Access to the shared space of Training Room, Public Restrooms, and common boiler, electrical, I.T. and janitor rooms will be directly from the exterior into a small lobby that will serve all the shared spaces. Each department will also have an internal connection to this same small lobby.

Q7. In your design, how will you best use circulation and adjacency to create the most efficient use of space?

The layout described above will produce a very efficient design, and it will have few if any corridors. All functions from each department can be accessed directly from their own separate small lobby that will serve only their space. Emergency and secondary exits will be through unlocked rooms rather than corridors where practical in order to get the building gross area to be as close to the programmed net area as possible.

Parking will generally be south of the new building and east of the existing apparatus building with access from both Main Street and Hazen Street. Putting parking all in one area makes it more economical for building, snow removal and access to the new building.

Entrances on sunny sides of the building are generally more easily maintained in winter conditions.

Q8. What is your concept of a simple, appropriate, and attractive design that fits into the aesthetics of the Town?

We recommend a simple, New England style classic look with good proportions, sloped roofs, large overhangs and extra tall windows to let in more daylight, similar to what we designed for Royalton, seen here. →

These materials are generally maintenance-free. The trim is all solid white PVC plastic that will never need painting. The siding is all standard cementitious-based Hardie panels in two different textures with soft baked-on colors to break up the scale. Roof will be black asphalt shingles. Entrances will be under a gable end where possible.

In the event we want an entrance on a long side, we will protect it with a small roof like this one, which is the public entrance to the Royalton Police Department.

Large overhangs add interest, shade and protect wall mounted heat pumps from falling rain and snow.

In order to break up the scale of a 5000 sf building, we will probably stagger its form as we did at Royalton.

Q9. Our project's success will depend on costs and estimates to present to Norwich voters that are reliable and accurate. Please supply us with examples of your estimator's previous estimates compared to actual costs on similar projects.

We have chosen to get detailed construction pricing from a contractor that is of the right size to build a 5000 sf building economically. **Upland Construction** is the contractor for the new 4756 sf Royalton Municipal and Police Building and provided the detailed estimate enclosed with this document after the Schematic Design phase when all work was specified and quantities could be accurately calculated. I have worked with **Upland Construction** on three similar projects over the last five years – always with positive results and accurate pricing prepared by Patrick Redden.

Years ago I was with a firm that relied on an estimating company for cost estimates, but in doing so, we found them to be less than accurate and not as believable to the public. Sometimes they forgot some overhead or management costs, or did not take into account how simple or how complicated the project would be to actually build.

I have also found that estimates from large companies like DEW, Engelberth Construction, or PC Construction – all of whom have full time estimators and offer this service to architects-- are usually higher than the final bid price of a project of your size, which are really too small for them. Pierre LeBlanc (President of Engelberth Construction) told me that this is because larger companies such as theirs have much more overhead than smaller companies and have to add a percentage to cover full time estimators, marketing people, and layers of project management that is not necessary with 5000 sf project costing less than a million dollars. He told me they stopped bidding small projects like this because of it, when I asked him to bid on the Royalton Municipal Office and Police Building.

With a contractor doing the estimating that is likely to also bid the project, we know that their own bid on the same project will be at or just under their own estimate.

I always work with the estimator and review each line independently based on my own resource guides and experience but I always pay for the contractor's time to prepare the estimate so my client is not obligated to use them for construction or bidding if the client doesn't want to do so. For your project, the estimating cost is already carried in this proposal at the level of detail and options described above.

For the 4756 sf Royalton Municipal Office Building, Upland's Schematic Design estimate for building and site work was $759,107; their bid on a slightly different final specification and design was $698,500. The construction contract price was $721,935 because the Selectboard decided to add more scope into the base contract because the bid was lower than their budget. Since the project had no unforeseen conditions, the Selectboard decided to use their contingency on other additional work items and better finishes bringing the total amount to $743,224.

We have attached a list of similar projects Upland has completed. Patrick tells me that those that show an increase from the original estimate/contract price and final price were due to similar adjustments to the scope of work made by the owners for similar reasons or were due to unforeseen conditions associated with the project that had nothing to do with the original estimate.

Q10. Please summarize the number of meetings that you envision with the Selectboard, Department Heads, and the public.

We anticipate eight meetings with the Selectboard, Department Heads and the public, as listed in the answer to Question 2 above. There may be other team meetings that Department Heads and/or Select Board may need or want to be involved in. All of these meetings are included in our proposal's lump sum price, even though you only asked that we include seven meetings.

Q11. How many concept iterations including architectural, engineering and estimates of probable costs does your proposal include?

We guarantee design satisfaction, so the amount of iterations of design to get approval from the Selectboard, Town Manager, and Department Heads is unlimited in this proposal. It may take more time to get there, but no additional fees for any member of our team will be required.

Based on my years of experience with other municipal buildings, I am confident that with an agreement of the program and preliminary site plan in the first few weeks where we are confirming net areas and adjacency requirements, we can get the Selectboard, Town Manager and Department Head approval of the floor plan and preliminary site plan quickly.

Adjustments can be made throughout the process to meet your needs, and add or change items you want add or change without additional fees as long as we stay on this property and the project scope is essentially the same.

Q12. Please confirm your total proposed contract cost including all services and reimbursables, as a result of having reviewed the above questions. Please state how the proposed cost would be adjusted, if the work were to commence in May 2016.

We confirm that that the proposed Project Cost and Fee listed in the original proposal ($26,220 for architectural, building cost estimating, and upgrade cost estimating work and $7,720 for civil engineering, site planning and site cost estimating for a total fee of $33,940) is still valid. The engineering to complete the Life Cycle Cost Analysis may be more than I originally estimated after my discussions last week with the engineers, but I have also dropped the offer to look at connection to the southeast corner of the apparatus building in addition to the more northern site, so they offset each other. We estimate reimbursable expenses will be about $1500 for the whole team.

The price does not change if you want to commence the work in May, 2016, but we would like to confirm a contract well before that so we can reserve the time. Thank you for your continued consideration of this team; you won't be disappointed if you select us.

Jay White, AIA, NCARB
JAY WHITE, ARCHITECT PLC
100 State Street, Suite 230
Montpelier, Vermont 05602

Enclosures: Resumes and Relevant Projects for Engineering Services of Vermont; Sample Cost Estimate; Summary of Upland Construction Cost Estimates

Upland Construction, Current and Recently Completed Projects

Phoenix House, South Barre, VT
Maclay Architects (Tom Bodell) 802-496-4004
Central Vermont Community Land Trust (Allison Friedkin) 802-476-4493
Contract $537,394. - Final Billed Amt. $618,983.

Westminster VT Armory Energy Improvements & Mezzanine
Vermont Dept of Military
Bill LaPoint, VT project Mgr
Contract $269,500. - Final Billed Amt. $ 290,493.

Murphy Residence, Harvard MA
Design by Bensonwood (Chris Adams) 603-756-3600
Dennis Murphy – Owner, 800-222-8711
Contract $1,600,000. - Final Billed Amt. $1,600,000.

State of Vermont – Forrest, Parks and Recreation, Quechee Facility
Fritz Horton AIA , 802-985-0110
Chuck Eddy - Forrest Parks and Recreation 802-773-2657
Contract $327,000. - Final Billed Amount $376,743.

Town of Royalton – Town Offices and Police Station
Jay White, PLC – Architect 802-793-1850
Contract $721,935. - Final Billed Amt..$743,224.07

Barnes Camp Restoration, Stowe VT
Mount Mansfield Company, Owner
Robert Carl Williams Architects
Jay White 802-793-1850
Contract $594,000. - Final Billed Amt $611,463.

ENGINEERING SERVICES

Engineering Services of Vermont provides engineering and design services in the disciplines of mechanical and electrical building systems. We are experts in HVAC, plumbing, fire protection, lighting, power distribution, communication and alarm systems. We have the capabilities to provide complete engineering, design and support services for any size project from concepts through construction. Our most commonly utilized services include:

Consultation Services:

- Consultation for code and permit requirements.
- Consultation for system requirements to suit the proposed occupancy.
- Engineering Consultation Services for claims remediation or for legal disputes.
- Expert witness and Expert opinions.

Field Investigation Services:

- Site Investigations and Special Testing to determine existing conditions and equipment
- Investigate problems with existing MEP systems

Studies and Reports:

- Studies and Reports for system alternatives, life cycle costs, code compliance, alternative energy systems, etc.
- Energy Audits
- Feasibility studies for buildings.
- Energy Conservation Reports.

Engineering and Design Services:

- Conceptual Design: Define the Basis of Design, Define Code Issues, Conceptual system load estimating Conceptual level estimating, Develop Concept Drawings
- Preliminary Design: Finalize basis of Design, Develop Preliminary System Loads, Develop Preliminary Design Layout, Develop Preliminary Level Estimates
- Final Design: Final Design to prepare complete Construction Documents for the mechanical and electrical systems, Develop Project Specifications, Finalize estimates of the probable construction costs of the mechanical and electrical systems.

Permit Applications:

- Relative to the mechanical and electrical systems including ACT 250, energy conservation, equipment efficiency, underground fuel tanks, exterior lighting and utilities' ability to serve the proposed project.

Bidding Services:

- Preparation of Addenda, review of bids, review of Bidders' qualifications and recommendations for award of the Contract.

Construction Services:

- Field Inspection Services
- Full Commissioning Services
- Preparation of Change Orders or Field Orders,
- Review of Change Proposals,
- Review of Payment Requests,
- Punch lists, final inspection and assistance during project close-out.

In addition to our traditional engineering services, Engineering Services of Vermont has LEED accredited personnel and has provided LEED services for many LEED projects. :

LEED Services:

- Building modeling
- Commissioning Services
- LEED submissions

DANIEL W. DUPRAS, P.E.

Mechanical Engineer
Principal

EDUCATION:

Associate, Architectural Engineering Technology, with Honors: 1984 Vermont Technical College, Randolph, VT

REGISTRATIONS:

Registered Professional Engineer:
Vermont,
Massachusetts,
Maine,
New Hampshire

PROFESSIONAL ASSOCIATIONS:

American Society of Plumbing Engineers, Vermont Society of Engineers, American Society of Heating, Refrigeration and Air Conditioning Engineers, Past Vice Chairmen of the Board of Vermont Professional Engineers

CAREER EXPERIENCE

2010 - Present	Partner of Engineering Services of Vermont, LLC
1996 – 2010:	President of Lane Associates Consulting Engineers, P.C.
1989 – 1996:	DuBois & King, Inc. Mechanical Engineer - Project Manager
1984 – 1989:	Lane Engineering, Inc. - Vice President and Mechanical Designer

CLAUS P. BARTENSTEIN, P.E., LEED-AP

Electrical Engineer
Principal

EDUCATION:

Associate, AE Mechanical Technology: 1986 Vermont Technical College, Randolph, VT

REGISTRATIONS:

Vermont, New Hampshire, New York, North Carolina, Massachusetts, Pennsylvania, Washington, California, Nevada and Arizona

PROFESSIONAL ASSOCIATIONS:

National Fire Protection Association (NFPA); Vermont Society of Engineers, National Council of Examiners for Engineering and Surveying (NCEES); U.S. Green Building Council (USGBC), LEED-AP certified; Emerge Alliance; Efficiency Vermont Design Professionals Advisory Board; State of Vermont Board of Professional Engineering (Governor appointment)

CAREER EXPERIENCE

2010-Present	Partner of Engineering Services of Vermont, LLC
2003- 2010:	Department Manager - Electrical Engineering, Stahlman Group
2001 to 2003:	Electrical Engineer, Stahlman Group, Concord, New Hampshire
1999 to 2001:	Electrical Engineer; Project Engineer, DuBois & King, Inc.
1994 to 2001:	Senior Electrical Designer, DuBois & King, Inc.
1989 to 1994:	Electrical Designer, DuBois & King, Inc.
1987 to 1989:	Electrical Draftsman; Electrical Designer, Lane Engineering, Inc.

RELEVANT PROJECT EXPERIENCE
Net-Zero Projects

Vermont Public Radio, Colchester, Vermont

This project is the renovation of a 10,000 square foot radio station office building (constructed originally as a horse stable) and two building additions for a completed project area of 24,500 square feet. This project was an Efficiency Vermont Net-Zero Pilot Project where we are working as part of the design team along with the Owner, Architect, Construction Manager and Commissioning Agent. This project utilizes air-to-air heat pump systems to provide heating and air conditioning to all spaces along with LED lighting and automatic controls throughout. Energy use is offset through rooftop mounted photovoltaic generation. Project is presently under construction (photo below).

Bethany Birches, Plymouth, Vermont

Approximately 9,200 square foot pavilion building, housing kitchen, activity space and offices to serve both summer and winter camping activities. This project was an Efficiency Vermont Net-Zero Pilot Project. Engineering Services of Vermont provided the mechanical, plumbing and design services as part of the design team which included the Owner, Architect, Construction Manager and Commissioning Agent. ESVT's involvement was only through design. It is understood that construction of the building has been completed.

Other Similar

Engineering Services of Vermont has been involved in several successful LEED certified projects. ESVT is presently involved in the design phase of an apartment building with the goal of Passive-House certification (30 units, 42,500 square feet).

Prepared by Jay White, Architect, with Patrick Redden (Upland Construction),
Claus Bartenstien, Eng.Services of Vermont, Robert Townsend

01 General Conditions

01-21-00 Allowances

Cost Item	Class	Quantity	Cost Est	Overhead	Markup	Total Est
01-21-16.50 Contingency	OTHER	1 Each	10,000	0	0	10,000
Risk Allowance =/- 2%						
		01-21-00 Allowances Totals:	10,000	0	0	10,000

01-30-00 ADMINISTRATIVE REQIREMENTS

Cost Item	Class	Quantity	Cost Est	Overhead	Markup	Total Est
01-30-10 Plans & Copies	MATERIAL	plans & copies: 1	600	0	0	600
		01-30-00 ADMINISTRATIVE REQIREMENTS Totals:	600	0	0	600

01-31-00 Project Mgmt. & Coordination

Cost Item	Class	Quantity	Cost Est	Overhead	Markup	Total Est
01-31-13 Project Management and Coordination	LABOR	1 Each	15,000	1,500	750	17,250
01-31-13.200240 On Site Supervisor	LABOR	24 Weeks	21,600	2,160	1,080	24,840
Full time field supervision						
		01-31-00 Project Mgmt. & Coordination Totals:	36,600	3,660	1,830	42,090

01-51-00 Temporary Utilities

Cost Item	Class	Quantity	Cost Est	Overhead	Markup	Total Est
01-51-13 Temporary Electricity	OTHER	By owner	0	0	0	0
01-51-16 Temporary Fire Protection	OTHER	5 Each	325	33	16	374
10lb ABC fire extinguishes						
01-51-23 Temp. Heating, Cooling & Ventilation	OTHER	SUMMER CONSTRUCTION, NONE	0	0	0	0
01-51-33 Temporary Telecommunications	OTHER	USE CELL PHONES; NONE	0	0	0	0
01-51-36 Temporary Water	OTHER	WATER ON SITE; NONE	0	0	0	0
		01-51-00 Temporary Utilities Totals:	325	33	16	374

01-52-00 Construction Facilities

Cost Item	Class	Quantity	Cost Est	Overhead	Markup	Total Est
01-52-13 Field Offices and Sheds	OTHER	5 Months	750	75	38	863
01-52-16 First Aid Facilites	OTHER	6 Months	150	15	8	173
01-52-19 Sanitary Facilities	OTHER	temp.toilets: 6 Months	690	69	35	794
		01-52-00 Construction Facilities Totals:	1,590	159	80	1,829

01-54-00 Construction Aids

Cost Item	Class	Quantity	Cost Est		Overhead	Markup	Total Est
01-54-16.500100 All-terrain Forklift	EQUIP	3 Months	5,250		525	263	6,038
01-54-19 Temporary Cranes	EQUIP	1 Weeks	1,750		175	88	2,013
01-54-20 Man Lift	EQUIP	5 Months	8,500		850	425	9,775
01-54-23 Temp. Scaffolding & Platforms	EQUIP	15 Weeks	2,250		225	113	2,588
01-54-39 Small Tools and Equipment	MATERIAL	1 Each	3,200		320	160	3,680
		01-54-00 Construction Aids Totals:		20,950	2,095	1,048	24,093

01-56-26 Temporary Fencing

Cost Item	Class	Quantity	Cost Est		Overhead	Markup	Total Est
01-56-26.500100 6 foot Chainlink Site Fence.	LABMAT	NONE CARRIED, USE ORANGE BARRIER	500		50	25	575
		01-56-26 Temporary Fencing Totals:		500	50	25	575

01-58-13 Project Identification

Cost Item	Class	Quantity	Cost Est		Overhead	Markup	Total Est
01-58-13.50 Project Sign	MATERIAL	1 Each	250		25	13	288
		01-58-13 Project Identification Totals:		250	25	13	288

01-74-00 Cleaning & Waste Management

Cost Item	Class	Quantity	Cost Est		Overhead	Markup	Total Est
01-74-13 Progress Cleaning	LABOR	24 Weeks	2,400		240	120	2,760
01-74-19 Constr. Waste Mgmt. & Disposal	LABMAT	4 Each	3,600		360	180	4,140
Final Cleaning	LABOR	5000 Sq Ft	2,250		225	113	2,588
		01-74-00 Cleaning & Waste Management Totals:		8,250	825	413	9,488

01-76-00 Protecting Installed Construction

Cost Item	Class	Quantity	Cost Est		Overhead	Markup	Total Est
Temp. protection of carpets & finishes	LABMAT	1 Each	1,000		100	50	1,150
		01-76-00 Protecting Installed Construction Totals:		1,000	100	50	1,150

01-80-00 PERFORMANCE REQUIREMENTS

Cost Item	Class	Quantity	Cost Est		Overhead	Markup	Total Est
01-80-10 Construction Bonding	OTHER	1 Each	10,000		1,000	500	11,500
		01-80-00 PERFORMANCE REQUIREMENTS Totals:		10,000	1,000	500	11,500

	Cost Est		Overhead	Markup	Total Est
01 General Conditions Totals:		**90,065**	**9,007**	**4,503**	**103,575**

03 - Concrete

03-30-00 CAST-IN-PLACE CONCRETE

Cost Item	Class	Quantity	Cost Est	Overhead	Markup	Total Est
03-30-01 Footings and Sonotubes	LABMAT	17.5 Cubic Yards	6,125	613	306	7,044
350 lf						
03-30-15 Foundation Wall	LABMAT	35 Cubic Yards	12,250	1,225	613	14,088
Frost wall 350lf						
03-30-20 4" Slab on Grade	LABMAT	4760 Sq Ft	10,472	1,047	524	12,043
4760 sqft						
03-30-25 Rebar and Reinforcing	LABMAT	1 Each	3,500	350	175	4,025
03-30-30 Slab Haunches	LABMAT	10 Cubic Yards	3,500	350	175	4,025
03-30-35 Concrete Prep and Finish	LABOR	160 Hours	7,200	720	360	8,280
Cut and Fill, Expansion joints and saw cutting.						
03-30-00 CAST-IN-PLACE CONCRETE Totals:			43,047	4,305	2,152	49,504

	Cost Est	Overhead	Markup	Total Est
03 - Concrete Totals:	**43,047**	**4,305**	**2,152**	**49,504**

04 - Masonry

04-22-00 Concrete Unit Masonry

Cost Item	Class	Quantity	Cost Est	Overhead	Markup	Total Est
04-22-50 Reinforced CMU Vault with 8" Concrete Ceiling	LABMAT	1 Each	18,500	1,850	925	21,275
CMU filled and reinforced 17'-6" x 18'-8"						
04-22-00 Concrete Unit Masonry Totals:			18,500	1,850	925	21,275

	Cost Est	Overhead	Markup	Total Est
04 - Masonry Totals:	**18,500**	**1,850**	**925**	**21,275**

05 - Metals

05-41-00 Structural Metal Stud Framing

Cost Item	Class	Quantity	Cost Est	Overhead	Markup	Total Est
05-41-10 Structural Steel Studs 6" Wall 16" oc	LABMAT	500 Linear Ft	11,900	1,190	595	13,685
05-41-15 Bridging and Bracing	LABMAT	500 Linear Ft	2,590	259	130	2,979
05-41-20 Headers, Boxing, Jacks and Corners	LABMAT	180 Linear Ft	1,611	161	81	1,380
05-41-00 Structural Metal Stud Framing Totals:			16,101	1,610	805	18,516

	Cost Est	Overhead	Markup	Total Est
05 - Metals Totals:	**16,101**	**1,610**	**805**	**18,516**

06 - Wood, Plastics, and Composites

06-11-00 Wood Framing

Cost Item	Class	Quantity	Cost Est	Overhead	Markup	Total Est
06-11-10 Miscelleneous Blocking and Framing	LABMAT	1 Each	1,100	110	55	1,265
06-11-20 Roof Overhangs, Lookouts and Jettwork 2x6	MATERIAL	75 Each	825	83	41	949
Misc framing materials for eaves, rakes etc..						
2x6x16 75pc's						
06-11-21 Simpson Fasteners	MATERIAL	100 Each	225	23	11	259
2x6 joist hangers						
06-11-25 Roof Fill-in Labor	LABOR	48 Hours	2,160	216	108	2,484
4 men 1.5 days						
06-11-30 All Framing Fasteners	MATERIAL	1 Each	1,500	150	75	1,725
		06-11-00 Wood Framing Totals:		**5,810**	**581**	**291**	**6,682**

06-16-00 Sheathing

Cost Item	Class	Quantity	Cost Est	Overhead	Markup	Total Est
06-16-20 Roof Sheathing	MATERIAL	225 Each	7,243	724	362	8,329
5/8" T&G Zip roof						
06-16-21 Sheathing Installation Labor	LABOR	80 Each	3,600	360	180	4,140
4 men 2.5 days						
06-16-43 Exterior Gypsum Sheathing	MATERIAL	140 Each	1,960	196	98	2,254
3500 + 900 gables= 4400/32=						
06-16-45 Wall Sheathing Installation	LABOR	96 Hours	4,320	432	216	4,968
4men 3 days						
Shear wall plywood, 1/2" thick		100 lf	1000	100	50	1,150
		06-16-00 Sheathing Totals:		**18,123**	**1,812**	**906**	**20,841**

06-17-00 Shop-Fabricated Structural Wood

Cost Item	Class	Quantity	Cost Est	Overhead	Markup	Total Est
06-17-15 Wood Trusses 8/12 Pitch	MATERIAL	1 Each	19,519	1,952	976	22,447
Quote from Bethel Mills						
06-17-17 Truss Installation	LABOR	64 Hours	2,880	288	144	3,312
4 men 2 days						
06-17-18 Truss Bracing and Blocking Stock 2x4	MATERIAL	75 Each	915	92	46	1,052
2x4x16'						
06-17-19 Truss Bracing Labor	LABOR	32 Hours	1,440	144	72	1,656
4 men 1 day						
		06-17-00 Shop-Fabricated Structural Wood Totals:		**24,754**	**2,475**	**1,238**	**28,467**

06-45-00 Architectural Wood Trim

Cost Item	Class	Quantity	Cost Est	Overhead	Markup	Total Est
06-45-10 Chair Rail AL	LABMAT	80 Linear Ft	220	22	11	253
06-45-20 1x4 Window Trim 22 lf x 24units	MATERIAL	580 Linear Ft	725	73	36	834
06-45-23 Window Extension Jamb and Mullion 32 lf each x 24	MATERIAL	768 Each	730	73	37	840
06-45-25 Labor to Trim Window Units 1 man 4 hours at 45/hr x 24	LABOR	96 Hours	4,320	432	216	4,968
06-45-30 1x4 Interior Door Trim 18 Int. and 6 Ext. 22 x 20 + 2 x 30	MATERIAL	850 Linear Ft	1,063	106	53	1,222
06-45-35 Labor to Install Door Trim 1 man 24 hrs	LABOR	24 Hours	1,080	108	54	1,242
06-45-50 Fasteners and Adhesives	MATERIAL	1 Each	450	45	23	518
		06-45-00 Architectural Wood Trim Totals:		**8,588**	**859**	**429**	**9,876**

06-47-00 Exterior Wood Trim

Cost Item	Class	Quantity	Cost Est	Overhead	Markup	Total Est
06-47-10 Primed Solid Pine Fascia Trim 1x10 with 1x4 shadow Primed Pine	MATERIAL	NONE CARRIED, DUE TO DETAIL	0	0	0	0
06-47-11 Hardi-Panel Soffit 2 ft wide	MATERIAL	475 Linear Ft	1,425	143	71	1,639
06-47-15 Install Soffit 2 men seven days	LABOR	112 Hours	5,040	504	252	5,796
06-47-18 Corner Boards and Frieze Boards 5/4 x 8	MATERIAL	650 Linear Ft	1,625	163	81	1,869
06-47-19 Install Corner and Frieze Boards 2 men 5 days	LABOR	80 Hours	3,600	360	180	4,140
06-47-25 5/4x6 Rain Cap	MATERIAL	300 Linear Ft	555	56	28	638
06-47-26 Install Rain Cap	LABOR	16 Hours	720	72	36	828
06-47-50 5/4 x4 Window and Door Trim	MATERIAL	600 Linear Ft	744	74	37	856
06-47-51 Install Window and Door Trim 2 men 2 days	LABOR	32 Hours	1,440	144	72	1,656
06-47-80 Porch Post Trim	LABMAT	1 Each	650	65	33	748
		06-47-00 Exterior Wood Trim Totals:		**15,799**	**1,580**	**790**	**18,169**

	Cost Est	Overhead	Markup	Total Est
06 - Wood, Plastics, and Composites Totals:	**73,074**	**7,307**	**3,654**	**84,035**

07 - Thermal and Moisture Protection

07-11-00 Dampproofing

Cost Item	Class	Quantity	Cost Est	Overhead	Markup	Total Est
07-11-13 Bituminous dampproofing	LABMAT	1400 Sq Ft	420	42	21	483
07-11-19 Sheet dampproofing	LABMAT	4735 Sq Ft	600	60	30	690
6 mil poly						
		07-11-00 Dampproofing Totals:	**1,020**	**102**	**51**	**1,173**

07-21-00 Thermal Insulation

Cost Item	Class	Quantity	Cost Est	Overhead	Markup	Total Est
07-21-12 Blue Bd - Foundation Walls and Slab	MATERIAL	200 Each	8,400	840	420	9,660
07-21-13 Interior 1" Iso-Board Insulation	LABMAT	1 Each	5,090	509	255	5,854
Quote from Builders Installed Products						
07-21-15 Blueboard Installation	LABOR	32 Each	1,440	144	72	1,656
07-21-19 Foamed-in-place insulation	LABMAT	1 Each	4,120	412	206	4,738
2' Perimeter Spray and Scuttle and Slopes to Knee Wall						
07-21-28 Blown Cellulose Insulation (12", R42)	LABMAT	4735 Sq Ft	3,182	318	159	3,659
07-21-45 R-19 Unfaced Batts at Wall	LABMAT	3445 Sq Ft	3,445	345	172	3,962
		07-21-00 Thermal Insulation Totals:	**25,677**	**2,568**	**1,284**	**29,529**

07-31-00 Shingles & Shakes

Cost Item	Class	Quantity	Cost Est	Overhead	Markup	Total Est
07-31-13 Asphalt Shingles	LABMAT	70 Roofing Sqr	10,500	1,050	525	12,075
07-31-14 Drip Edge	MATERIAL	45 Each	630	63	32	725
07-31-15 Ice and Water at Eaves and Rakes	MATERIAL	10 Rolls	1,500	150	75	1,725
07-31-17 Roof Paper (Tri-Flex)	MATERIAL	6 Rolls	720	72	36	828
07-31-17 Roof Prep Labor	LABOR	48 Each	1,920	192	96	2,208
2 men 2 days						
		07-31-00 Shingles & Shakes Totals:	**15,270**	**1,527**	**764**	**17,561**

07-46-00 Siding

Cost Item	Class	Quantity	Cost Est	Overhead	Markup	Total Est
07-46-26 Hardboard Clapboard Siding	LABMAT	Estimate: 2100 sf	7,875	788	394	9,056
4 x 300 + Gables 125+ 200+175+400						
07-46-30 Hardie Shingle Board Siding	LABMAT	2600 Sq Ft	11,050	1,105	553	12,708
7x300 2100						
		07-46-00 Siding Totals:	**18,925**	**1,893**	**946**	**21,764**

	Cost Est	Overhead	Markup	Total Est
07 - Thermal and Moisture Protection Totals:	79,817	7,982	3,991	91,790

08 - Openings

08-16-00 Composite Doors

Cost Item	Class	Quantity	Cost Est	Overhead	Markup	Total Est
08-16-20 Solid Core Masonite Doors	MATERIAL	18 Each	5,220	522	261	6,003
Prehung no other hardware						
08-16-25 Door Installation	LABOR	32 Hours	1,440	144	72	1,656
08-16-30 Hardware Installation	LABOR	18 Hours	810	81	41	932
Owner Supplied						
		08-16-00 Composite Doors Totals:		**7,470**	**747**	**374**	**8,591**

08-30-00 SPECIALTY DOORS & FRAMES

Cost Item	Class	Quantity	Cost Est	Overhead	Markup	Total Est
08-30-20 Vault Door and Frame	MATERIAL	1 Each	6,610	661	331	7,602
5410 quote from KL Security plus freight 1200.						
08-30-25 Vault Door Installation	LABOR	1 Each	2,800	280	140	3,220
Personnel and forklift w/operator, Setting Frame in Masonry Opening.						
		08-30-00 SPECIALTY DOORS & FRAMES Totals:		**9,410**	**941**	**471**	**10,822**

08-42-00 Entrances

Cost Item	Class	Quantity	Cost Est	Overhead	Markup	Total Est
08-42-10 Entry Doors with Fixed door Lite	MATERIAL	4 Each	4,800	480	240	5,520
08-42-15 Entry Door Installation	LABOR	16 Hours	720	72	36	
08-42-30 Single Flush Entry Doors	MATERIAL	3 Each	1,350	135	68	1,553
08-42-35 Flush Entry Door Installation	LABOR	8 Hours	360	36	18	414
		08-42-00 Entrances Totals:		**7,230**	**723**	**362**	**8,315**

08-54-00 Composite Windows

Cost Item	Class	Quantity	Cost Est	Overhead	Markup	Total Est
08-54-20 Fiberglass Windows	MATERIAL	21 Each	23,100	2,310	1,155	26,565
Marvin Wood Ultrex						
08-54-25 Window Installation Prep	LABMAT	21 Each	3,150	315	158	3,623
08-54-30 Window Installation	LABOR	21 Hours	945	95	47	1,087
		08-54-00 Composite Windows Totals:		**27,195**	**2,720**	**1,360**	**31,274**

	Cost Est	Overhead	Markup	Total Est
08 - Openings Totals:	**51,305**	**5,131**	**2,565**	**59,001**

09 - Finishes

09-22-00 Non-Structural Metal Framing

Cost Item	Class	Quantity	Cost Est	Overhead	Markup	Total Est
09-22-10 Metal Framing for Interior Partitions 10'h. 24"oc 3 5/8" 20 gauge.	LABMAT	300 Linear Ft	5,700	570	285	6,555
09-22-20 Bracing, Bridging and Blocking	LABMAT	300 Linear Ft	1,554	155	78	1,787
		09-22-00 Non-Structural Metal Framing Totals:		**7,254**	**725**	**363**	**8,342**

09-29-00 Gypsum Board

Cost Item	Class	Quantity	Cost Est	Overhead	Markup	Total Est
09-29-20 Wall Board	LABMAT	16000 Sq Ft	21,600	2,160	1,080	25,920
		09-29-00 Gypsum Board Totals:		**21,600**	**2,160**	**1,080**	**24,840**

09-31-00 Fiberglass flooring

Cost Item	Class	Quantity	Cost Est	Overhead	Markup	Total Est
09-31-01 Allowance - Installed AL	LABMAT	200 Each	1,500	150	75	1,725
		09-31-00 Thin-Set Tiling Totals:		**1,500**	**150**	**75**	**1,725**

09-53-00 Acoustical Ceiling Suspension Assemblies

Cost Item	Class	Quantity	Cost Est	Overhead	Markup	Total Est
09-53-20 Suspended Ceiling Tile and Grid System AL	LABMAT	4125sf	16,500	1,650	825	18,975
		09-53-00 Acoustical Ceiling Suspension Assemblies Totals:		**16,500**	**1,650**	**825**	**18,975**

09-68-00 Carpeting

Cost Item	Class	Quantity	Cost Est	Overhead	Markup	Total Est
09-68-20 Carpet Square and Entrance Mat AL	LABMAT	475 YARD2	14,250	1,425	713	16,388
		09-68-00 Carpeting Totals:		**14,250**	**1,425**	**713**	**16,388**

09-91-00 Painting

Cost Item	Class	Quantity	Cost Est	Overhead	Markup	Total Est
09-91-20 Exterior Painting NONE CARRIED, PRE PAINTED HA	LABMAT	1 Each	0	0	0	0
09-91-30 Interior Painting	LABMAT	1 Each	21,000	2,100	1,050	24,150
		09-91-00 Painting Totals:		**21,000**	**2,100**	**1,050**	**24,150**

	Cost Est	Overhead	Markup	Total Est
09 - Finishes Totals:	**82,104**	**8,210**	**4,105**	**94,420**

10 - Specialties

10-14-00 Signage

Cost Item	Class	Quantity	Cost Est	Overhead	Markup	Total Est
10-14-20 Room Signage VINYL LETTERS ON GLASS	LABMAT	1 Each	500	50	25	575
10-14-50 Main sign above roof	LABMAT	1 Each	1,500	150	75	1,725
		10-14-00 Signage Totals:		**2,000**	**200**	**100**	**2,300**

10-28-00 Toilet, Bath & Laundry Accessories

Cost Item	Class	Quantity	Cost Est	Overhead	Markup	Total Est
10-28-50 Misc Bath Accessories AL	LABMAT	1 Each	2,000	200	100	2,300
Sanitary Napkin Disposal Units, 1 Baby changing station, Waste paper disposal, paper towel dispenser, grab bars, toilet tissue						
		10-28-00 Toilet, Bath & Laundry Accessories Totals:		**2,000**	**200**	**100**	**2,300**

10-44-00 Fire Protection Specialties

Cost Item	Class	Quantity	Cost Est	Overhead	Markup	Total Est
10-44-10 Fire Extinguisher Cabinets	LABOR	3 Each	750	75	38	863
		10-44-00 Fire Protection Specialties Totals:		**750**	**75**	**38**	**863**

	Cost Est	Overhead	Markup	Total Est
10 - Specialties Totals:	**4,750**	**475**	**238**	**5,463**

12 - Furnishings

12-30-00 CASEWORK

Cost Item	Class	Quantity	Cost Est	Overhead	Markup	Total Est
12-30-20 Miscelleneaous Cabinetry and Countertops AL	LABMAT	1 Each	5,500	550	275	6,325
Lump Sum						
		12-30-00 CASEWORK Totals:		**5,500**	**550**	**275**	**6,325**

	Cost Est	Overhead	Markup	Total Est
12 - Furnishings Totals:	**5,500**	**550**	**275**	**6,325**

15 - HVAC

Cost Item	Class	Quantity	Cost Est	Overhead	Markup	Total Est
Baseboard heat and Air Conditioning			**42,000**	**4,200**	**2,100**	**48,300**

15 - PLUMBING

Cost Item	Class	Quantity	Cost Est	Overhead	Markup	Total Est
Toilet fixtures, sink, kitchenette sink, hose bibs			**21,500**	**2,150**	**1,075**	**24,725**

21 - Fire Suppression

21-20-00 FIRE-EXTENGUISHER SYSTEMS

Cost Item	Class	Quantity	Cost Est	Overhead	Markup	Total Est
21-20-20 Vault Fire Extinguisher System AL	LABMAT	1 Each	14,000	1,400	1,100	16,500
		21-20-00 FIRE-EXTENGUISHER SYSTEMS Totals:	**14,000**	**1,400**	**1,100**	**16,500**

	Cost Est	Overhead	Markup	Total Est
21 - Fire Suppression Totals:	**14,000**	**1,400**	**700**	**16,100**

16 - ELECTRICAL

Cost Item	Class	Quantity	Cost Est	Overhead	Markup	Total Est
Lights, power, data runs			**41,500**	**4,150**	**2,075**	**47,725**

(average of two estimates received)

31 - Earthwork

31-05-00 Common Work Results for Earthwork

No Cost Items

31-23-00 Excavation and Fill

Cost Item	Class	Quantity	Cost Est	Overhead	Markup	Total Est
31-23-05 Equipment Mobilization	LABMAT	1 Each	2,500	250	125	2,875
Trucking machinery to and from site through out project						
31-23-10 Excavation,Hauling, Backfill & Rough Grade	LABMAT	1 Each	17,427	1,743	871	20,041
Approx 500 cuyds excavation, back fill material, hauling, compaction, erosion control, rough grade finish, paving prep (roadway excavation).						
31-23-15 Trenching and Backfill for Waterline	LABMAT	1 Each	1,180	118	59	1,357
Approx 160 lf trench five feet deep for 2" water line from well to building. Including 2" 160 psi poly water pipe with fittings, buried in 12 inches of sand.						
31-23-17 Trench and Backfill for Electric Feed	LABMAT	1 Each	1,430	143	72	1,645
Approximately 110 lf. of trench with one three inch schedule 80 pvc conduit for primary and two 2" schedule 80 pvc conduit's for phone/data/catv. placed and buried in sand						
Septic System	ALLOW		7000	700	350	8,050
		31-23-00 Excavation and Fill Totals:	29,537	2,954	1,477	33,968

	Cost Est	Overhead	Markup	Total Est
31 - Earthwork Totals:	**29,537**	**2,954**	**1,477**	**33,968**

TOTAL FOR BUILDING AND EARTHWORK ASSOCIATED WITH BUILDING, NOT INCLUDING PARKING OR ROAD IMPROVEMENTS **$704,720**

32 - Exterior Improvements to parking, landscaping and road behind building

32-11-00 Base Coarses

Cost Item	Class	Quantity	Cost Est	Overhead	Markup	Total Est
32-11-10 Base Course for Roadway	LABMAT	114 Cubic Yards	5,358	536	268	6,162
8" of 1 1/2" stone trucked spread and compacted, approx:						
		32-11-00 Base Coarses Totals:	**5,358**	**536**	**268**	**6,162**

32-12-00 Flexible Paving

Cost Item	Class	Quantity	Cost Est	Overhead	Markup	Total Est
32-12-10 Mobilization	LABMAT	1 Each	1,500	150	75	1,725
Moving equipment on and off site						
32-12-20 Asphalt Paving in Parking Lot	LABMAT	3000 YARD2	12,000	1,200	600	13,800
Add 1 inch wearing course to existing 27000 square feet.						
32-12-22 3" Roadway Paving	LABMAT	520 YARD2	15,600	1,560	780	17,940
1 1/2" rough course and 1 1/2" wearing course approximately 520 square yards.						
32-12-25 Pavement Marking	LABMAT	1 Each	2,500	250	125	2,875
Parking stripes with 2 wheel chair stencils						
		32-12-00 Flexible Paving Totals:	**31,600**	**3,160**	**1,580**	**36,340**

32-92-00 Turf & Grasses

Cost Item	Class	Quantity	Cost Est	Overhead	Markup	Total Est
32-92-10 Topsoil, Seed and Mulch	LABMAT	1 Each	10,335	1,034	517	11,885
spread stockpiled topsoil, seed and mulch approximately 3000 square feet area around building perimeter only with three 3" by 12' maple tree at designated locations						
		32-92-00 Turf & Grasses Totals:	**10,335**	**1,034**	**517**	**11,885**

	Cost Est	Overhead	Markup	Total Est
32 - Exterior Improvements Totals:	**47,293**	**4,729**	**2,365**	**54,387**

TOTAL FOR BUILDING AND EARTHWORK ASSOCIATED WITH BUILDING, INCLUDING PARKING, LANDSCAPING AND NEW ROAD BEHIND BUILDING	**$759,107**