

VILLAGE OF CROTON-ON-HUDSON
FEASIBILITY STUDY FOR THE SPACE ANALYSIS,
RENOVATION AND ENERGY IMPROVEMENTS FOR THE
STANLEY H. KELLERHOUSE MUNICIPAL BUILDING



DRAFT REPORT
MARCH 12TH, 2012

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Architects • Landscape Architects • Interior Architects

STANLEY H. KELLERHOUSE MUNICIPAL BUILDING



AERIAL VIEW

Village of Croton-on-Hudson

Feasibility Study for the Space Analysis, Renovation and Energy Improvements for the Stanley H. Kellerhouse Municipal Building

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Appendix (Bound Separately)

1. Anastos Engineering Associates: Structural Report (revised 12/19/10).
2. O'Dea Lynch Abbattista Draft Report: Analysis and Recommendations for Mechanical, Electrical Plumbing and Fire Protection (1/12/11).
3. O'Dea Lynch Abbattista: Geothermal System Analysis (2/14/11).
4. Daniel O'Connor, P.E.: Hydrant Flow Test Report (10/25/10).
5. Peter Gisolfi Associates: Summary of Thyssen Krupp Elevator Options (memo 2/16/11).
6. Peter Gisolfi Associates: Summary of Space Needs and Improvements (revised 10/5/10).
7. Proposed Parking Lot Expansion Plan Alternate "B" (9/10/10) as prepared for the Village by Site Design Consultants.
8. 2008 Rebanks Pepper Littlewood Architects Inc.
Section 3.2.3 Requirements for Functional Units.
Section 3.4.2 Staff and Space Schedules (with 2010 modifications).

Reference document (not included)

2008 Police Department and Village Court Needs Assessment and Facilities Master Plan prepared jointly by Rebanks Pepper Littlewood, Police Facility Consultants, and the VCA Group, Architects.

1.0 Executive Summary

- 1.1 In February 2010, the Village of Croton on Hudson initiated the process to obtain a complete Feasibility Study for the Space Analysis, Renovation of and Energy Improvements for the 30,000 square foot Stanley H. Kellerhouse Municipal Building. The main focus of the study was identified as the Police Department, the Village Court and Building Wide Energy Efficiency Improvements. After reviewing the qualifications of interested firms, reviewing proposals from short listed firms and interviewing the short listed firms, Peter Gisolfi Associates (PGA) was selected and awarded a contract for the Feasibility Study in June 2010.
- 1.2 The groundwork for the information concerning the needs of the Police Department and the Village Court was the 2008 report “Police Department and Village Needs Assessment and Facilities Master Plan” which was prepared jointly by Rebanks Pepper Littlewood (RPL), Police Facility Consultants, and the VCA Group, Architects. This report evaluated the conditions at the time, developed programs for near term and long term needs and evaluated two theoretical options for a new facility which could accommodate the Police Department and Village Court.
- 1.3 The program data contained in the RPL Report was used as the starting point for this Study based on the assumption that the Police Department staff would remain constant in the foreseeable future. The Program of Spaces contained in the RPL report was reviewed with the Police Department and updated to reflect any known or anticipated changes. This revised program, along with a description of the Functional Requirements contained in the RPL report, was used to develop the preliminary design concepts.
- 1.4 The initial direction provided by the Village regarding the space analysis was to investigate moving the Court Room to the Second Floor, where it would share the space of the Meeting Room, and to expand the Police Department on the First Floor. Bubble diagrams were produced for the preliminary design concepts. Based on review comments, these diagrams were developed into Schematic Plans and presented to the Village Board on 2/14/11. Subsequently, PGA was asked to investigate two additional options. The first additional option was to include the provision of a small Court Room on the First Floor and the second additional option was to eliminate the Court Room altogether, with the assumption the Court proceedings would take place off site. Under this scenario, the Court Clerk’s office and the Judge’s office were to still remain in the Municipal Building.
- 1.5 The three options contained in this report include two additional options, developed after the 2/14/11 presentation to the Village Board, and the preferred option from the 2/14/11 presentation. The scope of work for each option also includes a new mechanical system,

which is described in Sections 1.6 and 5.3, and plumbing upgrades, which are described in Section 5.3.

- a. There are a number of common features in the three options as summarized below:
 - 1. A new Fire Sprinkler System.
 - 2. A new Mechanical System: HVAC Scheme #1 Geothermal System
 - 3. The current Mechanical Room will be removed and a new Mechanical Room will be created elsewhere in the Basement.
 - 4. The original Basement corridor will be reestablished and it will be used as gallery space for the Historical Society.
 - 5. The Basement toilet rooms will be reconstructed as ADA compliant facilities.
 - 6. The Community Room and Pantry will be renovated.
 - 7. An expanded Police Department located on the First Floor.
 - 8. Two single use ADA compliant toilet rooms will be provided on the Second Floor.
 - 9. At the Second Floor, the corridors near the two stairwells will be reconfigured in order to create enclosed fire stairs.

- b. Option #1 (No Court Room)
Conceptual Budget \$5,158,000

This option is based on the premise that the Court Room will be moved out of the building; however, the Court Clerk's office and the Judge's office would remain. The common features listed above in Section 1.5a are included. Since the Basement storage space is not significantly impacted, this option does not include the creation of storage space in the Attic, the replacement of the elevator or the two new stair runs to the Attic.

- c. Option #2 (Small Court Room on the First Floor)
Conceptual Budget \$6,015,000

This option is based on the premise that a small Court Room is created on the First Floor. The common features listed above in Section 1.5a are included. The Village Historian's office is relocated to the Basement adjacent to the new Historical Society Gallery space. The Basement Teen Room is relocated across the corridor to the space currently used to store Village records. A 900 SF Court Room on the First Floor is located in the space currently occupied by the Village Historian's Office and the Judge's Office. The Judge's Office is relocated to a corner of the Court Clerk's Office. This option also includes the creation of storage space in the Attic, the installation of a new elevator, which extends service to the Attic, and the construction of two new stair runs between the Second Floor and the Attic.

d. Option #3 (Court Room Moved to the Second Floor)
Conceptual Budget \$6,373,000

This option is based on the premise that the Court Room is moved to the Second Floor. The common features listed above in Section 1.5a are included. The work in the Basement is the same as Option #2. The Recreation Department Office and the Multi Purpose Room are moved to the First Floor to the spaces currently occupied by the Village Historian's office, the Judge's Office and the Court Clerk's office. This option requires prisoners to be transported between the First and Second floors which would be accomplished using the elevator. A new two-sided elevator, with security features, is provided and will require the construction of a new, larger, elevator shaft. At the Second Floor, the current Meeting Room will be renovated to accommodate the Court use. A new lobby for the Court/Meeting Room will accommodate the security check point. Two Prisoner Holding Rooms have been provided: one adjacent to the elevator and one adjacent to the Court/Meeting Room. The Court Clerk's Office has been moved to the Second Floor and is located in the space currently occupied by the Recreation Department. This Option includes the creation of storage space in the Attic (similar to Option #2), the extension of the elevator to the Attic and the construction of two new stair runs between the Second Floor and the Attic.

- 1.6 The initial effort also included a comprehensive building analysis: inspections were performed by PGA and their consultants, which included a structural engineer, an electrical engineer and a mechanical/plumbing engineer. The building structural, plumbing and electrical systems were all deemed to be in generally good condition. During the mechanical engineer's inspection, Village staff reported problems with thermal comfort in a number of spaces. It was determined that these problems were the result of inadequate system zoning and local controls. In addition, the engineer observed that required ventilation air was only being provided by one of the 14 split air conditioning systems which serve the building. As a result of these conditions, and the age of the equipment, the Mechanical Report describes two new HVAC systems. They would each dramatically improve the thermal comfort within the building and improve the energy efficiency, the controllability and the long term reliability of the system. Of the two schemes, the Geothermal Heat Pump System (HVAC Scheme #2) is the recommended scheme. Although the initial cost of the Geothermal Heat Pump System is higher than HVAC Scheme #1, a Life Cycle Cost Analysis predicts a significant out of pocket cost savings over a 30 year period: somewhere in the range of \$800,000 to \$900,000.
- 1.7 A breakdown of the budgets for each option is shown in the Conceptual Budgets Chart.
- a. The Construction Cost Budget includes the following:
1. Budgets by area of work as shown in the Conceptual Construction Budget Diagrams.
 2. The Geothermal HVAC Scheme #2.

3. The Domestic Water Service Upgrades.
 4. The Fire sprinkler System.
 5. The new elevator (Options #2 and #3).
 6. An allowance of \$75,000 for the removal of hazardous materials.
 7. A 10% Design Contingency (for scope).
 8. A 5% Construction Contingency (for potential discovered conditions during construction).
- b. An 18% mark up on the Construction Costs is added to account for the Soft Costs. These costs include Architect/Engineer's fee, Construction Manager/Owner's Representative's fee, independent testing and inspection, Fundamental Commissioning of the HVAC system, A/E reimbursable costs and other project related administrative costs.
- c. Finally, an allowance of \$100,000 is added for temporary office provisions and relocation expenses during construction and for furniture and equipment.
- d. The total project budgets for each option are as follows:
1. Option #1 (No Court Room): \$5,158,000
 2. Option #2 (Small Court Room on the First Floor): \$6,015,000
 3. Option #3 (Court Room moved to the Second Floor): \$6,373,000

2.0 Introduction, Scope and Process

- 2.1 On February 9, 2010, the Village of Croton on Hudson issued a Request for Qualifications (RFQ) for Professional Architectural Services to assist the Village with an evaluation of the Stanley H. Kellerhouse Municipal Building. On March 30, 2010, the Village issued a Request for Proposal (RFP) for a complete Feasibility Study for a space analysis, renovations and energy improvements for the Municipal Building. The main focus of the study was identified as the following:
- a. Expansion of Police Department into space occupied by the current Court Room and adjacent corridor.
 - b. Relocation of the Court Room and related offices to the Second Floor.
 - c. Building wide energy improvements.
 - d. Evaluation of the needs and spaces of the other departments.
- 2.2 A contract for these services was awarded to Peter Gisolfi Associates (PGA) in early June 2010. Peter Gisolfi Associates engaged the services of the following consultants:
- a. Rebanks Pepper Littlewood (RPL) – Police Facility Consultant

- b. O’Dea Lynch Abbattista (OLA) – Mechanical, Electrical, Plumbing and Fire Protection Consultants
 - c. Anastos Engineering Associates (AEA) – Structural Engineering Consultant
- 2.3 The Village provided PGA with a copy of the 2008 Police Department and Village Court Needs Assessment and Facilities Master Plan which was prepared jointly by Rebanks Pepper Littlewood, Police Facility Consultants and the VCA Group, Architects. This document was used as the starting point for the programming effort.
- 2.4 The work to date has consisted of the following:
- a. A review of the RPL program which resulted in the decision to follow the 2007 Program Requirements with some revisions based on discussions with Police Chief Anthony Tramaglini and Patrol Division Lieutenant Russell Harper.
 - b. Staff interviews with representatives of the other departments were conducted in order to understand their current operations and to identify program requirements: this included the Village Administration, the Village Clerk’s Office, the Building Department, the Treasurer’s Department, the Court Clerk’s Office, the Recreation Department and the Office of the Village Historian.
 - c. The preparation of Existing Conditions Building Plans.
 - d. The preparation of Functional Analysis Diagrams which summarized the current use of the spaces.
 - e. The preparation of Degree of Change Diagrams which identified the potential opportunity for “change of use” in the current spaces.
 - f. A building walkthrough with OLA for the purpose of identifying and evaluating mechanical, electrical, plumbing and fire protection issues related to the scope of the study.
 - g. A building walkthrough with Chris Anastos for the purpose of identifying and evaluating structural issues related to the scope of the study.
 - h. A review of the existing elevator with the manufacturer, Thyssen Krupp Elevator (formerly Dover Elevator), based initially on a review of the original 1994 shop drawing followed by an inspection by a Sales Representative for New Construction and a Service Repair and Modernization Technician from Thyssen Krupp Elevator.
 - i. The preparation of Bubble Diagrams representing initial design options.

- j. The preparation of preliminary schematic plans of the preferred options and subsequent revisions to these plans.
- k. A presentation to the Village Board of Trustees on February 14, 2011.
- l. After evaluation of the initial schemes, the Village requested the investigation of two additional options: one which created a small court room on the First Floor and a second which eliminated the Court Room altogether.
- m. The two additional options were reviewed and modified based on comments from the Village. These two additional options, along with one of the original options for moving the Court Room to the Second Floor (the original scope of the study), have been incorporated into the report as Options #1, #2 and #3.

3.0 Building Location and History

- 3.1 The Stanley H. Kellerhouse Municipal Building is located at One Van Wyck Street at the intersection of Van Wyck Street and Old Post Road North. The building is situated such that “true north” is on a 45° angle to the building as seen in the attached site plan. For the purposes of this document, the Old Post Road side of the building is east, the side of the building with the Police Department entrance is west, the Brook Street side of the building is north and the Van Wyck Street side of the building is south.
- 3.2 The Municipal Building was constructed in 1909 as the Croton Union School. At the time of its construction, it housed grades 1 through 12. The school auditorium was located on the Second Floor in the space which is currently occupied by the Village Administrative offices and the Main Corridor. A plan showing the layout of the Auditorium, and photographs showing portions of the original vaulted ceiling which still remain; can be seen in the attached drawing. In 1926 grades 7 through 12 were moved to the newly constructed Croton Harmon High School. The Municipal Building remained a grade school until 1939 when the construction of the Pierre Van Cortlandt School was completed. The building was sold to the Village of Croton and it became the home for the Village offices, the Croton Free Library and the Police Department. In later years, the Town of Cortlandt also rented space in the building.
- 3.3 According to the “History of Croton-on-Hudson”, the Croton Police Department began in 1924 when George Dobbs was appointed the Chief of Police. Police business was conducted from Dobbs’ home until 1927 when it was moved to the local Judge’s office. In 1941, the Police Department headquarters was moved to the Municipal Building. The “History of Croton on Hudson” indicates the Police Department headquarters, which consisted only of space on the west side of the west stair, was significantly remodeled in 1975. The present Police Department entrance, including the entry stair on the west side of the building, was constructed during this renovation. As the Police Department has

grown since 1975, the space has been further modified. The Police Department was given additional space when the Town of Cortlandt offices moved out of the building in the early 1990's.

4.0 Program Analysis

4.1 As noted in the introduction, the main focus of the feasibility study was the expansion of the Police Department on the First Floor and the relocation of the Court Room and the Court Clerk's office to the second floor. The starting point for the Program Analysis for the Police Department was the 2008 Police Department and Village Court Needs Assessment and Facilities Master Plan which was prepared jointly by Rebanks Pepper Littlewood (RPL), Police Facility Consultants, and the VCA Group, Architects. This report should be referenced for the in depth analysis. The following are excerpts from the report:

- "The existing area allocated to the Police Department and Court within the Village Hall has long ceased to meet the Departments needs effectively or securely. The building is overcrowded and does not support efficient Police operations. Many functions must share small, crowded offices. There are no proper secure facilities for safe handling of prisoners and arrested persons, and there is no room for internal training or community activities."
- "The existing space assigned to the Police Department within the Village Hall (approximately 4,800 sq. ft. including the Police Garage and Archived Records Storage) is totally inadequate."

4.2 Two of the sections from the RPL report were used as the main reference documents: Section 3.4.2 "Staff and Space Schedules" and Section 3.2.3 "Requirements for Functional Units."

Section 3.4.2 "Staff and Space Schedules" contains a list of Program Spaces categorized by function or use. For each space, there is an indication of what existed at the time (quantity and size) and what was projected to be needed in the near future and in the far future (projected 25 years to 2032). The future requirements were based on the input obtained at the time of that study. The list of the Police Department staff in the RPL Report was revised to reflect the 2010 staff. The RPL report included a projected staff for the year 2032. For the purpose of this study, it was assumed there would be no increase in the Police Department staff in the immediate future and the designs were to be based on accommodating only the current staff. The same process was followed in reviewing the Program of Required Spaces. The following is a summary of the revisions to the program:

- a. Section 101-Senior Administration
 - 1. Delete the future Administrative Assistant.
 - 2. Delete the future Administrative Sergeant.
 - 3. The two Commanders' offices should have a desk and room for two additional chairs for meeting purposes.
- b. Section 102-Records and Information Services
 - 1. Delete the work station noted for a future Records Clerk: None is anticipated.
 - 2. Delete the requirement for a "public counter". This function can be accommodated at the front desk.
- c. Section 201-Patrol and Operational Units
 - 1. The spaces for the Patrol Sergeants, Patrol Officers and the Dispatch Desk should be in close proximity of one another.
 - 2. The five Patrol Sergeants will share one office. There is typically only one person using the office at a time but there should be space for two desks.
 - 3. The twelve Patrol Officers will also share one office. This space is used for completing their reports.
 - 4. The space for equipment storage must accommodate fire arms and ammunition.
- d. Section 202-Front Desk/Dispatch
 - 1. There is typically only one person at a time working at the Dispatch Desk but there needs to be two work stations and two dispatch consoles.
 - 2. During the day there is a civilian dispatcher. After hours, the Patrol Sergeant on duty performs the dispatch duties.
 - 3. The Patrol Sergeants' office and Patrol Officers' office must be in close proximity to the front desk.
- e. Section 203-Support Units
 - 1. The Parking Enforcement work station does not necessarily need to be close to the dispatch/front desk but it would be helpful if it was.
 - 2. The space for the Auxiliary Police does not necessarily need to be located "within" the Police Department proper. The current room is located in the Basement.
- f. Sections 301-Detective Bureau and 302-Youth Bureau Detective
 - 1. The program will include one office for the Investigative Detective and one office for the Youth Bureau Detective.
 - 2. The two detectives could possibly share a soft Interview Room: the RPL Program lists one interview room for each one. There must be a separate Interview Room for the Patrol Officers as noted in section 201 of the RPL Program.
 - 3. The office for the Youth Bureau Detective must not be near the prisoner detention areas and it should have an entrance directly from the public corridor.

- g. Section 303-Evidence (Property) and Identification
 - 1. The Evidence Intake must be located within the Police Department proper.
 - 2. The other spaces (drying cabinets, evidence storage and identification lab) may possibly be located remotely.
- h. Section 401-Detention Area
 - 1. The layout and adjacencies of these spaces must follow the Department of Corrections guidelines: for example, Booking must be located by the Holding Cells. John Pepper will be consulted for the requirements.
- i. Section 402-Prisoner Sallyport
 - 1. Given the site conditions, this function cannot realistically be accommodated and it will be deleted from the program.
 - 2. The entrance on the west side of the building will be maintained as the access point for prisoners. The Lieutenant expressed some concern about the present entrance which has a set of exterior stairs with 11 risers and a 6'-6" change in elevation from the parking lot. These stairs are located next to the ramp to a Basement garage door which increases the distance to grade at that side of the stair. He noted this is a potentially dangerous condition and does not meet ADA requirements. PGA will consult with John Pepper on this topic. An ADA compliant ramp (with a maximum pitch of 1 in 12) would require 78' of ramp and two (2) 5' stretches of level landings for a total run of 88'. (Note: As a result of the design process, this entrance would not be used as the access point for transporting prisoners in any of the three proposed schemes.)
- j. Section 501-Common/Shared Areas
 - 1. In previous discussions, it was suggested the proposed Multi-Purpose Room, for interaction with the public, could be a room shared with the Recreation Department.
- k. Section 502-Lockers and Washrooms
 - 1. The RPL Report listed two sets of men's and two sets of women's toilet and shower facilities (noted as "A" and "B" in the report). It was agreed that only one set of facilities is required for each sex.
 - 2. The Police Fitness Room will be deleted from the program requirements. The present space will be converted to some other Police Department function.
 - 3. The locker count in the RPL Program is accurate. The lockers for Police Officers are typically full size while the civilian lockers may be half size.
- l. Section 503-Public Access Areas
 - 1. These space requirements will not be included in the Police Department Program as they will be shared space.

2. There should be public toilet(s) on this floor for use by someone visiting the Police Department after hours.
- m. Section 504-Common Service and Storage Areas
 1. Spaces listed in the RPL program but not dedicated to Police Department use will not be included in the updated Police Department Program.
- n. Section 601-Police Garage
 1. The existing police garage (540 SF) will be maintained "as is".
 2. The Impound Garage will be deleted from the program.
 3. The Large Evidence Storage Room and the Bicycle Storage Room are much needed spaces. Storage for recovered bicycles may also need to be accommodated off site.
 4. A Dive Equipment Storage Room of 260 SF (same as what exists) will be added to the program.
- o. Section 701-Municipal Court
 1. Two Holding Areas, one male and one female, are required. The total required square footage could be reduced from 240 SF to approximately 160 SF. The one for the males should be larger than the one for the females.
 2. The Security Screening Area must be carefully located. At times, there can be a long line of people waiting to pass through the metal detector.
- 4.3 The program analysis resulted in the working program which was used as the basis for the design of the Police Department. Each of the three options included in the report utilize essentially the same layout for the Police Department. As a result of the limitations of the available space, some of the program elements from the RPL report were eliminated or reduced in size.
- 5.0 Building Analysis
- 5.1 Architectural
 - a. The Village provided PGA with electronic files of the building plans. The layouts were field checked and updated by PGA to produce Existing Conditions Building Plans.
 - b. These plans were used to prepare "Functional Analysis Diagrams" which summarize the current use of the spaces. The plans were also used to prepare a "Degree of Change Analysis" which identified the potential opportunity for a "change of use" in the current spaces.
 - c. The current Boiler Room in the Basement was added after the original construction. Its floor is 4'-0" lower than the Basement floor. Underpinning of the original stone

- wall using concrete block was observed. When it was constructed, the room was placed in the middle of what was the main corridor, forcing the east-west circulation to pass through a narrow service corridor. PGA is recommending the removal of this Boiler Room in order to re-establish the original corridor. A new Mechanical Room will be created on the north side of the corridor.
- d. The Attic is only accessible from the east stairwell and the run of stairs is very steep, similar to a ship's ladder. There is no run of stairs to the Attic in the west stairwell. The floor framing at the Attic level extends over the top of this stairwell. There are three distinct sections with a floor structure. Two of these sections (Attic #1 and Attic #2) are currently used as informal storage rooms and the third (Attic #3) is leased to T-Mobile and Nextel and contains telephone equipment. Attic #3 also contains a ladder and hatch which provides access to the roof.
 - e. The stairwells are open to the Second Floor corridors. The entrances need to be reconfigured and protected with fire doors in order create an enclosed egress stair.

5.2 Structural

- a. Chris Anastos, from Anastos Engineering Associates (AEA), Structural Engineers, participated in a building walkthrough for the purpose of evaluating the general condition of the building and identifying and evaluating structural issues related to the scope of the study. The comments in the report are based on a visual inspection only, which included inspection of some easily accessible existing probes in the building finishes. The walkthrough took place after the initial design concepts were developed which allowed the engineer to focus on several issues related to the proposed designs. A copy of the report is included in the Appendix.
- b. The building, constructed around 1908, is two stories plus a full basement and partial attic. The building's floors and attic are framed with heavy timber joists with wood subflooring. The joists bear on interior and exterior brick bearing walls. The roof is framed using heavy timber trusses, incorporating some steel tension elements, with timber framing spanning between the trusses. The roof deck is wood. The exterior walls were built using solid brick with what appears to be cast stone lintels and sills. There is some steel in the building, including steel columns and beams in the east wing (the Community Room) and the west wing (the Garage and Storage Areas). There is evidence the foundations are mortared stone. The building's structure is generally in good condition for the age of the building.
- c. Two of the proposed options suggest finished storage space could be created in the Attic at two locations. The floor in Attic #2 is framed with 2 ½" x 14" wood joists spanning approximately 23'. This framing can safely carry a load of 75 pounds per square foot which would be suitable for storage use. In addition, AEA determined it would be possible to extend the elevator to the attic in its present location. This will

require the creation of a landing in what was the upper portion of the ceiling of the original auditorium. This would involve the installation a steel beam which would span from the south facing exterior wall to the interior bearing wall which separates the Second Floor Meeting Room and the Corridor (a span of approximately 38'). As noted earlier, the only access to the attic is via a very steep stair at the East Stairwell. AEA confirmed the existing run of stairs could be removed and replaced with a conventional stair and a run of stairs could be installed from the Second Floor to the Attic at the West Stairwell.

- d. On the exterior of the building, the structural engineer observed some deterioration of the brick and the mortar joints in the lower 6' of the building and some deterioration, presumably due to water infiltration, of the decorative wood soffits and cornices at the roof line. The Village has indicated these conditions will be investigated in the near future under a separate contract.

5.3 Mechanical, Electrical, Plumbing (MEP) and Fire Protection (Sprinkler System)

- a. John Fusco, Mechanical Engineer, and Joseph Fierro, Electrical Engineer, from O'Dea, Lynch Abbattista Consulting Engineers, participated in a building walkthrough for the purpose of evaluating the MEP systems. A copy of their report is included in the Appendix.
- b. The OLA report describes the existing Heating, Ventilation and Air Conditioning Systems (HVAC) which includes a hot water boiler in a Basement Mechanical Room, fin tube radiation along the perimeter walls, 14 split air conditioning systems and various window air conditioners. As noted earlier and in OLA report contained in the Appendix, in order to address control and zoning problems, the lack of ventilation air and the condition and age of the equipment, OLA has recommended two HVAC schemes which could replace the present systems in their entirety. These systems would improve the heating and air conditioning throughout the building and would also provide the required ventilation air. The two recommended schemes are as follows:

Scheme 1: High Efficiency Air Cooled Split Systems with a High Efficiency Gas Boiler

- Replace the existing air cooled split systems with high efficiency air cooled split systems. Consolidate systems where appropriate. Provide hot water heating coils and introduce ventilation air into the systems. Utilize variable air volume distribution for central station air handling units and fan coil air conditioning units for smaller zones. The cumulative tonnage of the systems would be approximately 65-70 tons.
- Provide a high efficiency gas fired boiler system for the building. The system would consist of three boilers approximately 700 MBH each and a primary-

secondary hot water piping system. Re-zone and reconfigure the perimeter fin tube radiation in order to accommodate the planned architectural changes and to accommodate a lower heating water temperature to improve system efficiency.

The budget for this scheme is approximately \$700,000.

Scheme 2: Geothermal Heat Pump System

- Replace the existing split systems with high efficiency water to air and water to water heat pumps. Consolidate the systems where appropriate and introduce ventilation air into the systems. Utilize variable air volume distribution for central station air handling units and constant volume heat pump air conditioning units for smaller zones.
- Provide a vertical closed loop ground source geothermal well field, consisting of 24-28 wells approximately 460' deep, in an area approximately 7000 square feet. This well field would be sized for a load of approximately 60-65 tons. The well field could be located in either the west parking lot area or the east parking lot area. Careful planning is required in order to accommodate the phasing and logistical installation challenges associated with the wells. The well loop piping would be run underground to a header in a Basement Mechanical Room. Provide a condenser water distribution system throughout the building to serve the heat pump units.
- Provide a water to water heat pump unit to generate low temperature hot water to serve the perimeter fin tube radiation. Re-zone and reconfigure the perimeter fin tube radiation to accommodate the planned architectural changes and to accommodate the lower heating water temperature. This will allow for setback operations without using fan energy.

The budget for this scheme is approximately \$1,000,000.

Each proposed HVAC system would address the need for a phased installation and maintaining the functions of critical areas such as the Police Department. Each option would also permit the Police Department to operate independently and 24/7. Each system would include the installation of a Building Management System which would provide centralized control.

Comparing HVAC Schemes 1 and 2, several distinctions arise between the systems including the capital costs, efficiencies, maintenance, and the system expected useful life. The geothermal system has higher capital costs (estimated to be approximately \$300,000) because of the well field and the condenser water distribution piping system. The geothermal system will have higher energy efficiencies and lower energy costs inherent to the use of a “free” heat source and sink in the earth and the

use of water cooled equipment. The maintenance of the geothermal system would be less than an air cooled split system scheme since there is no combustion equipment. In general, the closed loop geothermal loop requires little maintenance other than water treatment. The service life of the geothermal system components is significantly longer than the air cooled system components. The well field piping is expected to last 50+ years. The service life of air cooled equipment is typically only 15 years.

At the request of the Village, OLA performed an analysis of the proposed Geothermal System. The resulting report is included in the Appendix. As noted above, the proposed Geothermal System will involve the installation of 28 wells located approximately 16' apart. These wells would be approximately 8" in diameter and 460' deep. An independent loop of plastic pipe would be installed in each well and each loop would run back to a main header in the Mechanical Room. PGA has recently installed similar systems at the Bronxville Village Hall and at the reconstructed Goodhue Wing at the Hackley School. Photographs depicting the installation of the well field at the Hackley School are included in the report.

While the simple payback of the \$300,000 cost difference was calculated to be 27 years, the life cycle cost analysis indicates the Geothermal System would have a significant cost benefit over a 30 year period. The overall life expectancy for the heat rejection component of the heat pump systems is longer than that of a split system. OLA believes that with a service life of 30 years (the well field is typically expected to last over 50 years) the geothermal system will have a reasonable economic case. If the replacement cost of the condensing units in 20 years and the boilers in 25 years is included, the Life Cycle Cost Analysis would indicate that the geothermal system is favorable. The cumulative cash flow from energy savings and the avoided replacement of the outdoor condensing units and boilers over the 30 years would be in the range of \$800,000 to \$900,000 with an assumed 7% utility escalation rate. The OLA Geothermal Report should be referenced for the detailed analysis.

- c. In general, the plumbing appears to be in fair condition and is functional. This includes the domestic water piping and the sanitary piping. The proposed renovations will essentially replace these systems building wide. The conceptual budgets cover the cost of this work. The OLA report recommends the 1 ½" domestic water service, which initiates from Old Post Road North, be replaced with a 2" minimum service and that a code required Reduced Pressure Zone (RPZ) Backflow Prevention device be installed (\$25,000 budget). The OLA report also recommends a new high efficiency gas fired domestic hot water heater be installed (\$20,000 budget for the system).
- d. In general, the electrical system appears to be in fair condition and functional. The existing electrical service and power distribution capacity appears to be adequate for

the proposed renovations and new HVAC systems. The proposed renovations include the provision of new power, lighting, lighting controls and fire alarm in those areas that will be affected by this project.

- e. The building does not have a fire sprinkler system. We understand there is a desire to provide an automatic sprinkler system to serve the entire building. The system will consist of a wet pipe hydraulically designed system. The need for a dry pipe system for the unconditioned attic space will be further investigated and would ultimately depend upon the final planned usage of the space. The use of a preaction sprinkler system or a dry agent FM-200 type system for valuable records storage areas can be considered.

A hydrant flow test was requested and performed by the Village. A copy of this report is included in the Appendix. It was determined from the data collected that there is adequate pressure under flow conditions to serve a sprinkler system in the building without the need for a fire pump. A new water service for the fire sprinkler system, anticipated to be 4" in size, would need to be provided. It would run parallel to the new 2" domestic water service. A double check backflow prevention device will be provided for this service. The piping will extend to a sprinkler riser up the building. Each floor will be provided with a floor control assembly, connected to the riser, consisting of a flow switch, tamper monitored valve, and an inspector's test port, to serve the sprinklers on that level. A Siamese fire department connection will also be provided on the front façade of the building (total construction budget for the system \$275,000).

5.4 Building Envelope

- a. As noted in Section 5.2 d, the exterior masonry shows signs of deterioration. The masonry will be evaluated in the near future under a separate contract.
- b. The roof consists of three steeply pitched hipped roofs (one set of hip ends at the central section and one hip end at each side wing) with a flat area at each of the three sections. The roof perimeter has a built in Yankee Gutter and a decorative wood soffit and fascia around the entire building. In approximately 1978, the slate on the sloped roofs was removed and replaced with asphalt shingles and the flat roofs received new 3 ply built up roofing. As noted in Section 5.2 d, deterioration, due to water infiltration, was observed at the decorative wood soffits and cornices. Village staff have indicated that recent roof leaks have been observed and significant water infiltration occurred during Hurricane Irene. The roof will be evaluated in the near future under a separate contract.
- c. The basic building construction was described in the structural report: brick exterior bearing walls, 12" to 16" thick, with heavy timber floor and roof framing. There is no visible insulation in the walls, the attic floor or the roof structure.

- d. The windows, replaced approximately 10 years ago, have 1" insulated glass. The half round toplights on the Second Floor of the north elevation (the Brook Street side of the building) may not have been replaced. These windows are located above the hung ceilings in the Village Administration Offices, in the upper portion of what was the original Auditorium.

5.5 ADA and Elevator Investigations

- a. The first floor of the building is approximately 6' above the adjacent finish grade. Over the years provisions have been made to improve accessibility to the building. These include the installation of the ramp down to the Basement Community Room on the east (Old Post Road North) side of the building and the installation of the handicapped lift to the First Floor on the north (Brook Street) side of the building. None of the current toilet rooms appear to be 100% ADA compliant.
- b. In 1994, an elevator was installed which serves all three floors of the building. The initial direction provided by the Village was to investigate moving the Court Room to the Second Floor and to investigate creating finished storage space in the attic. Since the elevator does not reach the Attic, an extension of the elevator service to the Attic was evaluated along with the option of providing a separate one floor material lift in lieu of the elevator extension. In Option #3, the elevator would be used to transport prisoners between the Police Department on the First Floor and the Court Room on the Second Floor. Certain security features not present in the current elevator would be required, as well as access from two sides in order to minimize the potential for contact between the prisoners and the public. Based on an initial assessment by the elevator manufacturer, Dover Elevator, now called Thyssen Krupp, the changes would require a new elevator cab, a new operating system and a new shaft. A new hydraulic lift system, a drilled piston system in lieu of the present telescoping piston system, would also be required in order to extend the elevator to the Attic level. A summary of the considerations which were discussed with Thyssen Krupp is included in the Appendix. After some research, PGA found an alternate manufacturer, Kone Inc., which offers a non-hydraulic elevator called the Kone Ecospace. This elevator can achieve the 40'-8 1/2" travel distance and will fit within the existing footprint of the elevator shaft in Option #2; however, a new shaft is required for the two sided elevator in Option #3.

5.6 Environmental Investigation

- a. The scope of the report did not include any evaluation for the presence of hazardous materials such as asbestos, lead or PCBs. This would need to be done in the future by a licensed inspector.

5.7 Site Analysis

- a. The scope of this report did not include an evaluation of the surrounding site conditions.
- b. As part of a separate study, the Village engaged the services of the firm Site Design Consultants (located in Yorktown Heights, New York) to investigate options for expanding the parking around the building. The selected scheme adds additional parking on the Brook Street (North) side of the building. This would be accomplished by constructing a 450' long by 10' high retaining wall. This scheme will result in a net gain of 21 additional parking spaces. The engineer's construction cost estimate is \$350,000. A description of the proposed plan is included in the Appendix.

6.0 Alternate Schemes

6.1 Overview

- a. The updated program, the updated existing conditions building plans and the information obtained from the various analyses were used to produce bubble diagrams which were all based on the initial direction provided by the Village: the Police Department was to be expanded on the First Floor by moving the Court Room to the Second Floor where it would share the space of the large Meeting Room. These diagrams were developed into three preliminary schematic plans which were presented to the Village Board on February 14, 2011. Subsequently, PGA was asked to study two additional options which would presumably require less construction. The first option was to include a small Court Room on the First Floor and the second option was to eliminate the Court Room but not the Court Clerk's office or the Judge's office: these offices would remain within the Municipal Building.
- b. The alternatives contained in this report include the two additional options (designated as Option #1 and Option #2) and the preferred alternative from the initial effort (Option #3). These may be summarized as follows:

Option #1 (lowest cost): The Court Room is eliminated from the building with the assumption that Court proceedings will take place at another location, possibly at the Town of Cortlandt Court.

Option #2: The Court Room is accommodated in a smaller room located on the First Floor.

Option #3 (highest cost): The Court Room and Court Clerk's Office are being moved to the Second Floor. The Court Room is accommodated in a reconfigured Meeting Room/Court Room.

- c. Two sets of plans are included for each option. The first set of plans show the Proposed Layouts and include a Functional Analysis based on use. The second set of plans are the Conceptual Construction Budget diagrams. Square foot Construction Budgets are assigned to the areas of work based on the level of anticipated construction: light renovation, moderate renovation, major renovation, intense renovation, and reconstruction. The “light renovation” has been applied to areas with no other architectural work other than that related to the installation of the new fire sprinkler and mechanical systems. In those areas, it is assumed the finished ceilings will be removed and new ceilings, lighting and lighting controls will be installed. The budgets also include an allowance for finish work that may be required to accommodate the new mechanical system. The red dashed lines indicate areas of “changed space.” These are spaces where a change of use will occur or where “significant” construction will occur (such as the new stair runs from the Second Floor to the Attic).

- d. There are a number of common features in the three options. These are as follows:

General

- Assuming a Fire Sprinkler System and/or a Mechanical System will be installed, every space in the building will be affected. The installation of the fire sprinkler piping and mechanical ductwork will require the removal of the present finished ceilings. For the purposes of budgeting, it is assumed every space will receive a new ceiling, new lighting and lighting controls.
- Both the east stair (the Old Post Road North side of the building) and the west stair (the Police Department side of the building) will be renovated. At the Second Floor, the stair entrances will be reconfigured, and fire doors will be installed to separate the stairwells from the corridors in order to meet the code requirements for enclosed fire egress stairs. If formal storage space is created in the Attic, as suggested in Options #2 and #3, the stairwells will be reconstructed to provide proper access to the Attic. At the east stair, the steep run of stairs from the Second Floor to the Attic will be removed and replaced. At the west stair, a run of stairs will be installed from the Second Floor to the Attic (none exist currently). This will be accomplished by removing the Attic floor framing which runs over the top of the west stair.

Basement

- In all cases, the current Mechanical Room in the Basement is shown to be removed in order to restore the original main corridor. The 4’ elevation difference between this room and the corridor will be eliminated and a new slab will be installed. This corridor could be used as gallery space for the Historical Society as the current display space in the First Floor corridor will be lost due to the expansion of the Police Department.

- The Basement toilet rooms will be reconstructed in their entirety. Additional space is required to meet ADA requirements and the new layout assumes space will be taken from the current Teen Room.
- The Community Room and Pantry will be renovated.
- The Police Auxiliary function, currently located in the Basement, will be moved to the First Floor and located within the Police Department space.

First Floor

- The proposed Police Department layout is essentially the same for all three of the proposed options. The initial intent was to use the current Police Department entrance as the access point for transporting prisoners, with the front desk and public access being located adjacent to the elevator and the east stair. Police Department concerns about this stair are described in Section 4.2 i. During the course of the design process, the Cells and Booking Area were moved to the east side of the Police Department, adjacent to the entrance with the handicapped lift. This was done to address the adjacency requirements as the dispatcher assists in monitoring the prisoners. In the proposed layout, the entrance, adjacent to the handicapped lift will be used as the access point for transporting the prisoners. The proposed layout maintains the concept of a main corridor; however, this corridor space is dedicated to Police Department use and will function as a work zone with the provision of desks and storage cabinets. The plan addresses the current haphazard layout of spaces which requires the Police staff to go through the public corridor to get to and from some of their spaces. The plan provides public access to the Police Department next to the east stair and the elevator from a lobby in the main part of the building. The current entrance on the west side of the building remains but would only be used by Police staff or those visiting the Youth Detective's office.

Second Floor

- Two single use ADA compliant toilet rooms will be provided on the Second Floor. These rooms will be created by expanding the current staff toilet near the Building Department offices and by taking space from what is currently the Recreation Supervisor's office.

Attic

- All three options show the potential for creating formal storage space in the Attic. The need for storage space would be partially affected by the choice of the proposed options. The budget for Option #1 does not include the creation of finish storage space in the Attic as the current storage in the Basement is not significantly impacted in this option. This eliminates the need to replace the

elevator, create an elevator landing at the Attic level or provide the two new runs of stairs from the Second Floor to the Attic. The budgets for Options #2 and #3 include the cost for this work. It was suggested the Village evaluate their storage needs and consider the possibility of securing some off site storage.

- The Attic space is unfinished, unconditioned and only has a rough wood board subfloor. At a minimum, the space would be enclosed and provided with proper lighting and exhaust. The type of storage would impact the decision on how to finish and condition the space. As described earlier in this document, work would be done in both stairways to provide a conventional set of stairs from the Second Floor to the Attic and elevator service would be provided to the Attic level. The elevator work is described in detail in Section 5.5 and the structural requirements for creating an elevator landing are described in Section 5.2 c. It should be noted that the space labeled Attic #2 is compromised by the fact that the headroom below the bottom chords of the roof trusses (spaced about 11' apart) is only 6'-0".

6.2 Option #1 (No court Room)

- a. This option is based on the premise that the Court Room is moved out of the building to an off site location. This results in the fewest architectural changes and the lowest conceptual budget.
- b. The Basement Plan includes the common work described in Section 6.1 d. The new mechanical space is shown where the Teen Room is currently located and the Teen Room is shown where the Police Auxiliary and Meter Room had been located. Further analysis may determine the position of these two spaces could be flipped: the Teen Room, which could possibly double as a multi-purpose room, would be located in a portion of the space it currently occupies. The space is slightly smaller due to the expansion of the toilet rooms).
- c. The First Floor Plan includes the proposed Police Department layout. The Village Historian's office, the Court Clerk offices and the Judge's office are unchanged except for the light renovation work described in Section 6.1 c.
- d. The Second Floor Plan includes the common work described in Section 6.1 d. The remaining spaces are unchanged except for the "light renovation" work described in Section 6.1 c.
- e. The Attic Plan includes the common work described in Section 6.1 d. The work required to create finished storage space is noted on the plans but it is not in the budget for Option #1.

6.3 Option #2 (Small court Room on the First Floor)

- a. This option is based on providing a small Court Room on the First Floor.

- b. The Basement Plan includes the common work described in Section 6.1 d. It shows new space for the Village Historian's office which will be displaced by the Court Room on the First Floor. The Teen Room, which could double as a Multi-Purpose Room, has been located across the hall to the space which is currently used for Village Record Storage. Space must be found for this function; preferably in the Attic. As noted in Section 6.2 a, the proposed locations of the Mechanical Room and the Village Historian's Office may be flipped.
- c. The First Floor Plan reflects the proposed Police Department layout. A 900 SF Court Room has been located in the space currently occupied by the Village Historian's Office, the Judge's office and a Pantry. The Judge's Office will be accommodated within the space currently occupied by the Court Clerk's office. A security checkpoint for the Court Room will be located in the corridor. The scheme, as it relates to the Court Room, compromises some of the original program elements. There is no dedicated holding area for prisoners, no waiting room, no space for client/attorney meetings and no Jury Room. An alternate version of this plan resulted in a smaller Court Room (approximately 640 SF), the Judge's office remained in its current location and a small room (approximately 90 SF) was created which could accommodate some of the "missing" program elements.
- d. The Second Floor Plan includes the common work described in Section 6.1 d. The remaining spaces are unchanged except for the "light renovation" work described in Section 6.1 c.
- e. The Attic Plan includes the common work described in Section 6.1 d. The work required to create finished storage space is included in the budget.

6.4 Option #3 (Court Room on Second Floor)

- a. This option is based on moving the Court Room to the Second Floor where it will be accommodated in a reconfigured Meeting Room/Court Room. This option is based on the original scope and results in the greatest change to the building spaces.
- b. The Basement Plan is the same as the Option #2 Plan. The discussion point related to this option is whether or not the Recreation Department should be located in the Basement in place of the Village Historian's Office. If so, the Village Historian's Office would remain in their current location on the First Floor. Since the Basement corridor would be used as gallery space for the Historical Society, it seemed logical to locate the office there as well.
- c. The First Floor Plan reflects the proposed Police Department layout; however, this option calls for the elevator be changed to a two sided elevator with security provisions that will allow it to be used for transporting prisoners between the Police

Department and the Court Room. This will not only require a new elevator, it will also require a new larger elevator shaft. The Recreation Department offices, or possibly the Village Historian's Office, would be located on this floor along with a shared Multi Purpose Room. The plan also includes an ADA compliant unisex toilet room which would serve the Multi-Purpose Room.

- d. The Second Floor Plan includes the complete renovation of the shared Meeting Room/Court Room. This includes the provision of a lobby which would function as the security checkpoint when the court is in session. A male and female holding room's have been provided: the revised program requirements call for one of each. In either case, the prisoners will have to be transported through the public corridor between the elevator and the Court Room. A waiting area and an attorney/client Meeting Room have also been provided. The Court Clerk's and Judge's offices are located in the space currently occupied by the Recreation Department. The remaining Village Administration spaces are unchanged except for the light renovation work described in Section 6.1 c.
- e. The Attic Plan includes the common work described in Section 6.1 d.

7.0 Budgets and Construction Phasing

7.1 Conceptual Budgets

- a. Conceptual Budgets for the three options are summarized in the attached chart. The components making up the total budget for each option are described in the following paragraphs. In some cases, allowances have been included. These amounts would be refined as more information becomes available. The budgets take into account the requirement for prevailing wages for Public Work and the Wick's Law requirement for separate contracts. There will be at least four prime contracts: General Construction, Mechanical, Plumbing and Electrical. It is conceivable there may also be separate contracts for the Geothermal Well Field and for the Fire Sprinkler System. The 18% mark up for soft costs includes an allowance for a Construction Manager/Owner's Representative to manage the construction.
- b. The Conceptual Construction Budget Diagrams (one set for each option) were developed by assigning a cost per square foot construction budget to each area of work based on the level of anticipated construction. The levels of construction may be described as follows:
 - Light Construction (\$40/SF): This budget has been applied to areas with no other architectural work other than that related to the installation of the new Fire Sprinkler System and the new HVAC System. In those areas, it is assumed the finished ceilings will be removed and new ceilings, lighting and lighting controls

will be installed. It also provides an allowance for finish work that may be required to accommodate the components of the new Mechanical System. This budget was also applied to the Attic which may be finished for storage use.

- Moderate Renovation (\$60/SF): This budget has been applied to areas where additional finish work is anticipated (i.e. walls and floors).
- Major Renovation (\$100/SF): This budget has been applied to areas where a change of use occurs or where more involved construction is anticipated.
- Intense Renovation (\$175/SF): The budget has been applied to the Basement Pantry.
- Reconstruction (\$200/SF): This budget has been applied to areas where spaces will be gutted and completely reconfigured.

These budgets include the architectural work, the related electrical work and any related plumbing work. “Subtotal Cost #1” in the Summary Chart reflects the total of these five categories.

- c. The column titled “Geothermal and Plumbing” reflects OLA’s Budgets for this work. The total number includes \$1,000,000 for the Geothermal Heat Pump System (HVAC Scheme #2). If HVAC Scheme #1 (estimated at \$700,000) is selected, this line item would be reduced by \$300,000. This line item also includes the following: the Fire Sprinkler System (\$275,000), the Domestic Water Service Upgrade (\$25,000) and the new Domestic Hot Water System (\$20,000).
- d. The column titled “New Elevator” reflects the budget for the new elevator and the required elevator shaft modifications. The budget to construct the new landing at the Attic level is included in Subtotal Cost #1. As noted previously, the budget for Option #1 does not include the cost for a new elevator to create storage space in the Attic. For Option #2, the proposed elevator can be installed within the footprint of the existing shaft. For Option #3, the budget includes the cost of a two sided elevator and the construction of a new larger shaft.
- e. The Hazmat Budget of \$75,000 is an allowance to cover the potential removal of hazardous materials. The scope and budget would be clarified after inspection and testing by a certified inspector.
- f. Subtotal Cost #2 reflects the total of the construction budgets described to this point. A 15% Design Contingency is added to arrive at the total Construction Budget. This reflects a 10% Design Contingency for scope and a 5% Construction Contingency for potential discovered conditions during construction.

- g. An 18% mark up on the construction costs is added for the soft costs. The soft costs include Architect/Engineer's fee, Construction Manager/Owner's Representative fee, independent testing and inspection, fundamental commissioning of the HVAC system, AE reimbursable costs and other project related administrative costs.
- h. The next column includes a \$100,000 allowance to cover temporary office provisions and relocation costs during construction, and new furniture and equipment (primarily for the Police Department).
- i. The Village has expressed an interest in incorporating LEED concepts in the project but not necessarily pursuing LEED certification. The project scope and budgets reflect this desire. The following components would factor into LEED certification: the Geothermal System, the Building Management System, Fundamental Commissioning, upgraded lighting and lighting controls. If the Village chooses to pursue actual LEED certification, then additional funds would need to be budgeted. The amount will vary depending on the level of certification which is targeted. The additional costs will include the USGBC filing fee, Architect's costs, MEP consultant's costs and construction costs in the form of hard costs and additional administration.

7.2 Construction Issues and Phasing

- a. Certain components of the proposed construction will potentially have a significant impact on the use of the site and the building.
 - The installation of the Geothermal Well Field will have a significant impact on the site. The Geothermal Analysis includes a plan showing two options for the well field location. Option 'A' is shown as the parking area on the west (Police Department) side of the building. Option 'B' is shown as the parking area on the east (Old Post Road North) side of the building. Drilling is accomplished using a substantial truck mounted drill rig. The hillside on the north (Brook Street) side of the building is most likely too steep to accommodate this rig. The process uses water to cool the drill and remove the spoils from the bore hole. The resulting slurry must be managed. This may require the use of a filtering truck which removes the sediment before directing the water to a storm inlet. After the wells are drilled, a system of trenches is installed to direct the geothermal pipe (one loop from each well) to a Mechanical room in the building. These trenches must be a minimum of 4' deep in order to provide frost protection to the pipes. Given the very "tight" site conditions, it is almost certain the driveway around the back of the building, and much of the parking, will be unusable during the well installation process. This process is expected to take approximately two months.

- The work to install the new Fire Sprinkler System will affect every space in the building. The budgets assume all hung ceilings will be removed and replaced in order to accommodate this work. This work could be phased. The sprinkler provisions for each area being renovated would be installed during the renovation. The remainder of the work would be scheduled based on the Village's ability to give up sections of the building to allow for the construction to proceed. The system would not be operational until all work was completed.
- If the elevator is replaced, elevator service will be lost for the duration of the installation. If the elevator is extended to the Attic to provide access to for storage space, steel framing will need to be installed at the Attic level to create the new landing and to allow the full size shaft to be extended to the Attic. The space directly below the new landing should not be occupied while the landing is being constructed. For Options #1 and #2, a new elevator can be installed within the footprint of the existing shaft. For Option #3, a new larger shaft will need to be constructed. This will impact the spaces that surround the elevator as the floor openings and elevator pit must be increased in size.
- The reconstruction of the Basement Toilet Rooms should be completed prior to the construction of the Police Department. If the work is done simultaneous with, or after the completion of, the Police Department, there would be a period of time when the entire building would have access to only one or two single use Toilet Rooms.
- The work to construct the Police Department could conceivably take approximately 4 months, provided the long lead items are secured in advance of the start of the work. We would not recommend trying to phase the work in the Police Department area and temporary provisions will need to be made to accommodate the Police Department during the construction. The plumbing work will affect the spaces below the Police Department and this will need to be taken into consideration.
- The work affecting the two stairwells will require careful coordination since both stairwells are both required for egress purposes. The construction of the enclosures at the Second Floor entrances is required as part of any renovation but the work related to the stair runs from the Second Floor to the Attic is only required if the decision is made to create storage space in the Attic. The work would be phased: the construction in one stairwell would be completed before the construction in the other is started. While the work is in progress, the affected stairwell would be limited to "emergency use only" but the access would be maintained.

- As previously noted, the work related to the installation of the new Mechanical System will affect every space in the building. This will require careful planning. Since a new location for the Mechanical Room is being proposed, the “head end” equipment for the new system can be installed without “disconnecting” the current system. The terminal units and equipment serving the individual spaces and areas will be new. This work will need to be completed between the end of one heating season and the beginning of the next season, roughly May to September. During construction, the current central air systems will need to be removed to allow the new work to be completed. The Second Floor Village Administration offices will be provided with a perimeter fin tube radiation for the primary heating and with either a variable air volume distribution system for cooling, allowing for separate zoning of perimeter and interior zones for cooling and heating, or smaller constant volume units zoned accordingly. The ductwork will either be installed above the hung ceiling or within Attic #2 (as it currently is) if this Attic is not converted to storage space.
- b. The budget includes an allowance to account for temporary office provisions and relocation expenses during construction.