wv engineering associates pa
11 king court keene new hampshire 03431 603 352 7007

Existing Conditions Report

Re: **Bow Safety Complex**
Police and Fire Departments
WVA Project No. 06111

July 11, 2006

POLICE DEPARTMENT

Mechanical

Sprinkler

The Bow Police Station is not sprinklered.

Plumbing

The building is served by an on site well at the rear of the building, the Police Department's facilities are corrected to the building main. Sanitary sewer is directed to an on-site disposal system.

The domestic water main serving the Bow Police wing is equipped with a water softener, the softener is reportedly not used.

Domestic hot water is heated via a power vented gas fired unit, State Model PR650CCVT, 40 MBH, 50 gallon, installed in 2004 with thermostatic mixing valve. The domestic water heater appears in good condition.

The first floor is provided with two sets of toilet facilities, facilities appear to be ADA compliant and in fair condition.

Toilet facilities on the second floor also include showers, none of the fixtures are ADA compliant. Water closets are tank type. All fixtures are in fair condition.

There is a break room on both floors with drop-in stainless steel sinks, fixtures are not ADA compliant.

The Bow Police portion of the building has a flat roof and is provided with two roof drains. Roof drains appear to be directed to a storm sewer system which discharges to site.

There are no emergency roof drains, parapet wall configuration could cause 12 inches of water to backup upon roof drain failure.

HVAC

The building is heated and cooled with two 7-1/2 ton gas fired rooftop units. The unit serving the first floor appears to have been installed in 2000, the second floor unit in 2002. Both units are Lennox Model TGA090S2BM1G with two stage 180 MBH input (144 MBH output) gas heaters, full economizers and barometric relief dampers. These units are belt driven and equipped with 2 Hp supply fans. Filters are 2 inch

pleated paper type.

Rooftop units when installed were placed on adapter curbs utilizing existing duct work. Both units appear to be in good condition.

There are two exhaust outlets on the roof, one for toilets and one for a garage hood. Outlets are within 5 feet and 7 feet of the rooftop unit intakes respectively and can cause cross contamination. Exhaust outlets should be a minimum of 10 feet and are recommended to 20 feet away. Both rooftop units are controlled by programmable thermostats on each floor. Old abandoned thermostats are also still in place. Both rooftops are in good condition and reportedly operate satisfactorily.

Toilets are exhaust via ceiling mounted exhaust fans, operation tied to run simultaneously with the light.

Electrical

Exterior

Electric service entrance extends underground from a Concord Electric utility pole located along the driveway approaching the police station/public works building.

The pole includes (3) 75 KVA pole mounted transformers which supply 277/480 volt power to the building.

The building includes utility metering at the pole with locked and sealed meter equipment at the base of the pole.

The underground service extends partway down the west side of the building and enters a floor mounted circuit breaker switchboard.

This 800 amp switchboard was new with the 1987 era construction of the public works building and appears to be in good to excellent condition.

Exterior phone service extends underground from utility poles to a location in a closet which has been converted into a women's restroom.

Site power includes electrical distribution underground to sheds and covered parking areas as well as to the refueling station located to the east of the main building.

Site lighting is limited to utility style fixtures and a variety of flood fixtures added over time around the perimeter of the various buildings.

A pad mounted generator set is located on the east side of the building and serves the police station. The generator is equipped with a service disconnect located just inside the building adjacent to the generator location.

Distribution

Electrical power is distributed from the main switchboard located in the public works main level. This 800 amp switchboard at 277/480 volts includes a series of branch breakers feeding various sub-panels located out within the facility.

A 200 amp, 3-pole breaker serves the sub-distribution panel which serves the police station.

A recent summary report of existing circuitry and electrical distribution was provided by Marc Aucoins Electric Service from Henniker, NH.

Information in that report appears to match field observations during our walkthrough and indicates that the police station automatic transfer switch is located on the second floor in a corridor space adjacent to a series of electrical panels which serve the police station.

The service does not provide separate transfer switch and electric distribution specifically for the existing 24/7 dispatch center located within the police building.

Several feeders related to the generator and transfer switch equipment are installed in PVC conduit within the building. We suspect that these conduits are not properly fire sealed when crossing what should be fire rated assemblies separating shop/garage/public works areas from the office/business areas associated with the police station.

Additionally, confirmation of HVAC system ducted returns should be made to determine if PVC conduits above accessible ceilings would be permitted to remain as an existing condition or if they need to be remove due to their presence within an air return plenum.

Panelboards within the facility are older style boards. Some are residential grade "load center" style of panelboards.

There is a separate load center style panelboard located flush mounted in the dispatch area which serves specific receptacles associated with dispatch equipment.

A 277/480 volt lighting and equipment panelboard serving the police area of the building is not provided with standby generator power. A 277/480 volt panel serving selected lighting circuits as well as a step-down transformer and apparently all of the 120/208 volt panels within the police facility are backed up by the standby generator.

The wiring work associated with this generator does not appear to have included full separation of standby wiring from normal utility powered wiring.

While this approach of serving much of the facility of the standby generator provided practical electrical backup, the wiring does not appear to technically meet the requirements for separation for legally required standby services in the National Electrical Code or the backup requirements associated with 911 dispatch and associated emergency services typical of requirements for NFPA 1221.

Via communications with MiltonCAT, generator vendors, we have confirmed that the generator is 37.4 kW, 45 KVA rated. 1997 diesel "Whisper Watt" Multiquip Mode DCA-45AA1U2. MiltonCAT has provided service to this unit.

Branch circuit wiring within the facility includes a variety of conduit and cables typically installed over time since the original building construction.

Such wiring includes some non-metallic cables installed above accessible ceilings serving receptacles within walls and drop-in light fixtures within the suspended ceilings. These cables are not completely supported in accordance with Electrical Codes. These cables would not be permitted to be installed in a newly constructed

building in accordance with today's codes.

Branch circuit wiring to receptacles is similar to the lighting circuit wiring. Receptacle placement within the building is does not include the quantity and spacing suitable for a modern police station and office building. Use of extension cords on a long term/permanent basis to serve electrical equipment was observed in several areas of the police station during our walkthrough.

Dedicated receptacles should be installed at each location where electrical power is required as part of a renovation/improvement project.

Receptacles, light switches and other electrical devices appear to be new with the construction of the original building and with various renovations over time. These devices appear to be in good condition.

Lighting

Interior lighting within the office spaces is typically provided with 2 ft. x 4 ft. acrylic lense recessed troffers. These fixtures have energy saving ballasts and energy saving T-12 lamps typical of the late 1980's construction period.

These fixtures are older and in fair to poor condition with some yellowing lenses. Several lamps were noted of having darkened ends indicating that they are beyond their useful life.

Any comprehensive renovation of the facility should include a replacement of existing magnetic ballast/T-12 fixtures with modern electronic ballast/T-8 lamp equipped fixtures.

Additionally, consideration of modern style fixtures with direct/indirect optics and low brightness lenses/diffusers should be considered as part of the overall upgrade.

Lighting in utility spaces includes surface mounted strip type fixtures with exposed T-12 lamps. Surface mounted wraparound fixtures were also observed in the data equipment closet and other locations.

Emergency lighting within the facility included individual unit type battery packs. These packs served remote heads located in the vicinity of the battery unit and also single remote heads extended from these battery units. Emergency coverage was incomplete, emergency battery units did not properly operate with the test button. Does not appear that battery units are correctly wires upstream of the light fixture circuits serving the spaces where the battery units provide emergency power as is required by current electrical and life safety codes.

Exit lighting fixtures were within the building were typically 1980's era equipment with incandescent 110 volt utility style lamps and smaller incandescent emergency lamps typically powered by remote battery units. The exit signs did not appear to be the modern self-contained type typically installed.

The location and quantity of exit signs does not clearly mark the paths of egress based on modern code requirements.

It is recommended that a replacement of the incandescent remote powered exit signs with self-contained LED style exit signs with integral standby batteries be completed throughout the building.

Emergency lighting is not provided at the outside of exit doors to illuminate the exit discharge as is typically required by today's codes.

Cold weather emergency ballasted fixtures or remote heads fed from interior emergency battery units should be provided at each of the exit discharge locations.

The present booking and interview rooms were provided with office style recessed fixtures. It is recommended that vandal resistant/minimum security fixtures should be provided in booking and holding cell areas. These fixtures should be provided with integral emergency battery packs to provide both normal and emergency/life safety lighting within these spaces.

Lighting within the dispatch room includes recessed incandescent down lights on wall mounted dimmer switches. These lights include blue painted lamps intended to lower the overall light intensity in this 24/7 dispatch area.

Consideration of adjustable head track lighting and/or dimmable direct/indirect or indirect only light fixtures should be considered as part of a renovation project.

Fire Alarm

Fire alarm system within the building is located on a public works area mezzanine electric room. Fire alarm is a late 1980's era, hardwired Simplex fire alarm system with limited direct wired zone capability. There is a remote annunciator, backlit style with individual zone labeling located in the main entry vestibule of the police station.

The fire alarm system panel, wiring, and alarm indicating appliances all appear to be original with the construction of the building in the late 1980's. This era predates the Americans with Disabilities Act. The system design components, quantity, and layout do not comply with Federal ADA Guidelines nor with the present NFPA 72 Fire Alarm System Standard.

Horn strobe appliances within the building are not laid out to comply with ADA Guidelines. The style of the horn strobe includes the older white strobe lense which does not provide sufficient candle power to address annunciation with individuals with hearing impairments. Similarly, strobe only appliances are not located in proper locations and hallways, conference rooms, restrooms, and in individual office spaces to provide notification of alarm.

The system includes pull stations located at exit doors and at stairway locations. The system also includes duct smoke detectors on the ductwork associated with the (2) rooftop air handlers.

It is recommended that the fire alarm system be completely replaced with a modern, micro-processor based, analog addressable fire alarm system with additional smoke detector coverage in the police station dispatch area, evidence storage, computer equipment rooms, booking and holding areas, as well as at the fire alarm control panel itself.

Additional fire alarm smoke sensors would be provided at any required elevator equipment room, elevator shaft, and elevator lobby's.

Additional horn strobe and strobe only appliances should be provided within each occupyable space.

Duct smoke detectors should be provided on HVAC equipment who's capacities in excess of 2,000 cfm in accordance with the currently adopted International Building codes.

Replacement of the fire alarm system should include a comprehensive replacement throughout the building which would include both the police station and the public works department portions of the building.

Fire alarm system should also provide monitoring of the fire sprinkler system as well as any dedicated suppression systems which may be associated with cooking equipment or hazardous material storage areas.

Communications

Telephone communications extend underground from the utility to a telephone backboard located in a telephone closet. The closet has been partially converted to also become the women's restroom. This results in the police station phone wiring backboard being exposed and accessible to unauthorized public and staff personnel.

The police department phone system is also located within that closet space.

An adjacent/dedicated communications closet is provided for the dispatch equipment including radio equipment, communications servers, and related support equipment. This equipment is located in a relatively narrow closet which has been provided with a residential style ceiling mounted exhaust fan. Consideration of dedicated cooling equipment to this space should be reviewed.

Review of the telecommunications and security needs of the police station should include consideration of a single telecommunications room dedicated to phone service dispatch support equipment, security equipment, camera equipment and related security equipment.

FIRE DEPARTMENT

Mechanical

Sprinkler

The Bow Fire Station is not sprinklered.

Plumbing

The building is served by an on-site well system with tanks and pump located in the basement. During our visit the pump was cycling erratically.

Domestic water is heated by a State Model PX50NBRT911, 40 MBH input and 50 gallons of storage during summer months and via a boiler insert heating during winter months. The summer water heater was installed in 1996 and is equipped with a thermostatic mixing valve.
Building sewer reportedly goes to the municipal sewer service, a grit/oil separator is installed for area drains in the apparatus bays.

There are two sump pumps located in the basement, only one appears to be operable.

Toilet facilities located on the first floor are not ADA compliant, fixtures are in fair/poor condition.

The building is equipped to two compressed air systems, one for shop use and one for breathable air tanks. Both systems appear to be in good condition.

HVAC

The building is heated with a cast iron gas fired boiler, HB Smith 19A-9 section, with Power Flame burner, 1066 MBH, built and installed in 2004. Boiler appears to be in good condition.

The building has two zone pumps, piping appears to be sectioned for the fire station and the recreational areas of the building. Control of individual zones within a pumping zone is via electric zone valves.

Heating throughout is mainly fin radiation, apparatus bays have unit heaters. Heating equipment is old, obsolete and in poor condition.

Apparatus bays are also equipped with side wall propeller fans and self-contained "smoke eaters". The equipment is also old, obsolete and in poor condition.

Electrical

Exterior

The electrical service entrance extends overhead from a Concord Electric utility pole located on the south side of the project adjacent to the gazebo. Overhead service conductors extend to the electric room. The pole includes a 3 phase bank of (3) pole mounted utility transformers which serve the building electrical needs. The service extends to the fire house where a exterior mounted meter socket is installed on the north side of the building.

The service is interrupted at the entrance point location via a service entrance disconnect switch which in turn serves a Generac transfer switch which is backed up by a standby generator. The 225 amp main panelboard and associated work related to the generator appears to be 1980's era equipment. Older gear is typical throughout the remainder of the building - typically in fair to poor condition.

Phone service extends overhead from utility poles to the building. The main service provides power to the Recreation side of the building as well as the remote Charles Coffin building. The generator is located under a wood framed structure. There is evidence of heat damage to the wood structure due to the close proximity of the exhaust system.

Site lighting around the building consists of limited surface/building mounted utility lights and incandescent flood lights. While not viewed at night, it appears that lighting would be considered inadequate.

Distribution

Electrical power is distributed from the 225 amp main panel and backed up by the 30 kW diesel generator in its entirety.

A wide variety of wiring methods have been employed over time serving the various sub-panels in the Recreation area, the oldest portions of the fire station, and the newer fire station additions. In general, panel are labeled and corrections appear to reflect updates over time.

A variety of add-on panels, disconnect switches, and junction boxes indicate work has been completed on a "as needed" basis over time. The arrangement of the generator standby system is such that the building is backed up by the generator, technically, no "emergency" system exists within the building given that non-essential/non-critical loads are served by the same standby distribution system as any critical or emergency loads.

Wiring within the buildings include a variety of non-metallic and metal clad cables, conduits and surface raceways. Non-metallic cable is not permitted in a place of assembly.

Lighting

Lighting within the older fire station includes fluorescent and incandescent fixtures which are old style in fair to poor condition and should be scheduled for replacement.

One bay is provided with older style 8 ft. T-12 lamps, while lighting in another garage utility bay includes more modern style up/down 8 ft. industrial. These fixtures appear to be in good to excellent condition.

Any comprehensive renovation of this facility should include a complete replacement of existing incandescent and/or magnetic ballast/T-12 fluorescent fixtures with modern electronic ballast/T-8 lamp configured fixtures.

Emergency lighting provided within the facility includes battery units in selected locations. Coverage does not appear adequate and in compliance with today's modern codes. The Recreation room includes small/older, unit style battery units.

The upper level staff living/dining area does not have emergency lighting batter units nor exit signs. See architectural report for exit stair comments. Lighting within the Multipurpose building/Recreation building portion of the structure includes HID high bay fixtures with decorative incandescent flood lights aimed at the "stage" area.

Exit sign location and coverage is limited. Any comprehensive review of the building and facilities should include a complete evaluation and replacement of emergency battery units and exist signs.

It is recommended that a replacement of incandescent remote powered exit signs with LED style exit signs which include integral standby batteries should be included as part of building renovation.

Emergency lighting is not provided at the outside of exit doors to illuminate the exit discharge as is typically required by today's codes. Cold weather emergency ballasted fixtures and/or remote heads feed from interior battery units should be provided at each of the existing exit discharge locations.

Fire Alarm

Neither the main fire alarm building nor the Annex building is provided with a central building wide fire alarm system. A code compliant voice annunciated, modern, micro-processor based, analog addressable fire alarm system with smoke detector coverage in radio rooms, staff sleeping areas and office areas should be provided.

Horn strobe appliances and strobe only equipment should be provided throughout the fire station as a base alarm system. Voice annunciation through speaker strobes should be provided in the Recreation Center as a place-of-assembly. Voice annunciation could continue and be utilized throughout the fire station as well as the Recreation Center for a common alarm approach.

Duct smoke detectors should be provided in any HVAC equipment with CFM capacity greater than 2,000 CFM. Fire alarm system should also include monitoring of fire protection sprinkler system and any added kitchen hood suppression equipment.

Communications

Overhead telephone services are provided from utility poles on the adjacent roadways. Telephone system wiring within the facility is minimal and appears to have been built-up over time to suit the needs of the facility. Exposed wiring at the backboard and within the utility bays was observed.

Radio equipment and wiring presently located in the small shared office area in one of the utility bays was observed. A dedicated radio room/communications equipment room should be considered as part of a modernization project.

A complete new communications wiring system including phone, data, intercom/PA equipment is recommended with CAT 5e data wiring, patch panels, modern pathways, and RJ 45 style work area jacks at outlets.

FIRE STATION - ANNEX

Mechanical

Sprinkler

The Bow Fire Station Annex is not sprinklered.

Plumbing

The domestic water service appears to be piped from the adjacent fire station.

The building has one toilet facility on the upper level with tank type water closet. Fixtures are not ADA compliant.

There is also one kitchenette sink, stainless steel drop-in residential type.

Domestic water is heated via a gas fired State water heater, 32.5 MBH, 40 gallon storage.

HVAC

The garage area on the lower level is heated with a gas fired unit heater hung high at the ceiling.

The upper level is provided with a gas fired furnace located in the attic. Warm air is distributed with fiberglass duct board air duct. Fiberglass duct board has the potential to lose loose fibers into the air stream and should be replaced.

Electrical

Exterior

Building mounted utility lights with integral photo cell control are installed on the building.

Electric service is provided underground from the main Fire Station to a residential load center style Crouse-Hinds panel located in the garage bay area. The panel does not appear to include separate grounding as is

required by current codes for service from one building to another. Panel includes branch breakers serving lighting and power loads within the building. The water service does not appear to be bonded at this location.

Power

Wiring within the facility includes surface conduits in the apparatus equipment bay and romex wiring above ceilings at the upper level.

Panel needs some panel fillers where breaker openings exist.

Lighting

Lighting includes a variety of used surface mounted fluorescent industrial fixtures in the garage bay and in the gathering room at the upper level. Utility closets are provided with an incandescent lamp holder.

Emergency lighting is provided by individual battery units which also provide standby power to incandescent exit signs. Exit sign at the rear entry have a missing face plate and lamps, should be replaced.

There are no emergency lights at exit discharge as required by current codes.

Fire Alarm

There is no central fire alarm equipment in the building. A ceiling mounted smoke detector is located at the upper level.

It is recommended that a remote fire alarm panel be installed in this building and connected to the main fire alarm panel proposed for the Fire Station/Recreation building. Horn strobe and strobe only appliances should be provided at both levels along with pull stations at the doors and duct smoke detectors to monitor any HVAC equipment with CFM's greater than 2,000 CFM.

Communications

Communications includes phone extension from the main Fire Station building.

END

ENGINEERING QUALIFICATIONS

Our engineering and design staff of nine engineers, designers and CAD draftsmen has extensive experience with a full range of facilities and projects throughout the New England and New York area.

We have specialized in existing facilities engineering services and the unique institutional issues facing owners' engineering and maintenance staffs. Our work includes extensive field review of Financial, Institutional, Public Safety, Educational and Health Care Facilities with central systems which must be available on a 24 hour basis to serve the needs of the facility's clients.

We have completed projects which include energy audits, engineering studies, system evaluations, design, cost estimation, engineering, specification writing and construction administration for a wide variety of new, renovation and additions to existing facilities.

In addition, our client list includes state government agencies throughout New England where we have provided energy code training to our peers in the industry, specifically on the state energy codes adopted in New Jersey, New Hampshire, Vermont and Massachusetts. We have also been instrumental in pursuing LEED (Leadership in Energy and Environmental Design) Certification as awarded by the U.S. Green Building Council and the Federal SPIRIT recognition for several major design projects. The ECHO Center at Lake Champlain in Burlington Vermont was the first LEED certified project in the State of Vermont.

Our ongoing work with construction managers, design/build projects and coordination with electrical/mechanical subcontractors and vendors keeps our construction cost information up to date.

Engineering and construction cost estimates, routine math and system calculations are performed on spreadsheets using Lotus-compatible programs including QuattroPro version 9.0. Our computer capabilities include word processing for correspondence and specifications using WordPerfect 9.0. and Microsoft Word. We produce and use Adobe .pdf files for wordprocessing and Cad Drafting for owner/client review and use.

HVAC heating, ventilation and cooling loads and building systems modeling is completed on Carrier HAP E-20 software. Energy use and economic analysis of a variety of system options can be computed to evaluate the impact of proposed system renovations on existing central plant equipment and energy budgets.

Electrical lighting, voltage drop, power factor correction and simple short circuit calculations are completed on a variety of software packages. Interior and exterior lighting system calculations, design, point to point printouts and economic analysis can be provided using lighting vendor based software. Emergency and standby generator system analysis, loading, voltage dip, and stepped load sequences is also available.

Life cycle costing analysis can be provided with the use of custom spreadsheets or the National Bureau of Standards Building Life Cycle Cost (BLCC) software.

All of our engineering and support staff have PC workstations connected via an office network and are proficient in the productive use of PC based computer systems in a consulting engineering office.

We have extensive experience in the production of facilities engineering documents with AutoCad drafting software. Our staff has used AutoCad continuously in the consulting engineering environment since 1985. We currently use AutoCad 2000 and have a scheduled update to Acad 2006 in 2005. Our office makes significant and productive use of custom AutoCad menus developed in house to serve the specialized needs of the Electrical and Mechanical disciplines. Custom macros, Autolisp routines, script files and batch files are developed as required to increase productivity and final document quality. We have Pentium based CAD stations, networked, a Hewlett Packard 1040C along with a Hewlett Packard Design Jet 600 inkjet plotter for efficient plotting of high quality D and E size drawings on bond, vellum or mylar.

We have internet and e-mail capabilities for client correspondence, specifications transfer, vendor equipment information from websites and exchange of CAD files for timely and efficient project coordination.

MARK D. VINCELLO, PE

Education
B.S. Mechanical Engineering, Syracuse University, May, 1978
B.A., Architecture, Syracuse University, May 1978
H.S. Graduate, Wayland, MA, June 1972

Registration (Mechanical)
Maine, Massachusetts, New Hampshire, New Jersey, New York,
Pennsylvania, Vermont, Connecticut

Affiliations
American Institute of Architects
American Society of Heating, Refrigerating and Air Conditioning Engineers
National Council of Examiners for Engineering and Surveying. Registration #9647

Employment Experience

1991 - Present WV Engineering Associates, PA

Senior Mechanical Engineer and founding partner. Responsible for all facets of mechanical engineering design and project management from concept through project commissioning for commercial/industrial, institutional and large residential clients in Vermont, New Hampshire, Massachusetts and New York. Each project is approached from a holistic, comprehensive standpoint, and designed with thoughtful, efficiency-based ideas. Large central HVAC systems controlled with state of the art control devices, backed by simple control sequences are a specialty.

1990-1991 Engineered Systems Inc./Wintermeyer-Penney-Cobb, Inc.

Senior Mechanical Engineer with responsibilities as noted above. A significant portion of the work accomplished at ESI/WPC focused on providing ICP format studies to institutions and TAR services to utilities, associated design work, and support in engineering and administrative services required by utility staff engineers and program managers. Included in this work were packaged rooftop HVAC system comparisons for small commercial buildings typically installed in drugstores and professional offices. Extensive building modeling skills required. Representative clients include Rutland Regional Medical Center and St. Johnsbury Work Camp.

1978-1990 Robson & Woese, Inc.

Vice President and Mechanical Engineering Department head with responsibilities as noted above and direct supervision of a technical staff of 18 engineers and designers. Provided extensive engineering services to clients in upstate New York, including many hospitals, schools, universities and work for industrial plants. A significant portion of this experience was with central distribution of steam, hot and chilled water, as well as extensive work at laboratory and office facilities at Xerox, Kodak and IBM.

1976-1978 Raymond Development, Inc.

Carpenter on the renovation of several large building projects in downtown Boston. This experience, gained with the hands-on installation of companion building systems to HVAC equipment, has been invaluable in the development of practical designs that achieve the design requirements, and can be installed without unnecessary complications.

1970-1976 Part time auto mechanic. Employment while attending high school and college.

Representative list of **Local and State Police / Municipal Facilities** project experience of our Engineering Staff:

Acton Safety Complex, Acton, Massachusetts
Programming and preliminary outline specifications for design and construction of new Public Safety Facility in Acton, MA. Project will combine police and fire station under one facility with shared/common support spaces. Project includes apparatus bays, sally-port, storage facilities, administration, E911/dispatch, emergency operation center, and indoor pistol range. Project also includes renovation of existing satellite fire station. Apparatus bays and fire department staff quarters completed under Phase II of the project.

Brattleboro Public Safety Facility, Brattleboro, Vermont
Programming and preliminary outline specifications for design and construction of new Public Safety Facility in Brattleboro, VT. Project will combine police and fire station under one facility with shared/common support spaces. Project includes apparatus bays, sally-port, storage facilities, administration, E911/dispatch, emergency operation center, and indoor pistol range. Project in budgeting for Town Meeting.

Canterbury Town Center, Canterbury, New Hampshire
Mechanical and electrical engineering services for a 16,200 sq. ft. town office/safety complex.

Kittery Police Station, Kittery, Maine
Electrical engineering and communications design for relocation of existing police station to new construction and addition at existing Town Hall building. Project included close coordination with police department representatives and vendors for antenna, enhanced 911, replacement phone systems for three town departments, communication systems and security systems. Project included 2 bay sallyport, 3 holding cells, training room, replacement standby generator, dispatch center, radio/communications room, locker rooms, evidence room and staff offices. Included phased relocation of Town offices within renovation.

Londonderry Police Department, Londonderry, New Hampshire
Mechanical, electrical, plumbing and fire protection engineering services for a new police facility adjacent to the existing police station with an approximate square footage of 22,000 sq. ft. The project also included site improvements/modifications, parking lot lighting and a 1,500 sq. ft. garage/out building on the site.

Manchester Police Department, Manchester, New Hampshire
HVAC, Plumbing and Electrical engineering and communications coordination for programming and evaluation of renovation and additions to existing municipal police facility. Work to date has included field review of existing facility, meetings with department captains and BSO during programming stages, narrative report on existing conditions, assisting with budgeting for renovations to systems including full replacement of HVAC system, fire alarm system, electrical and lighting upgrades, and telecommunications improvements. Project suspended.

Milford Police Station, Milford, New Hampshire
Engineering Design services for a new 2-story, 15,000 sq. ft. modern police facility. The facility will include holding and detention facilities, drive through sallyport, roll call room, office and support space for police administration and detective functions, along with a community room within a new structure

Lyndon Public Safety Complex, Lyndonville, Vermont
Electrical engineering services for an 11,000 sq. ft. of apparatus training and support facilities for the fire department and 1,500 sq. ft. for police department spaces. Design included energy efficient lighting, exterior lighting, power layouts, fire alarm system layouts and communication systems layout.

Newmarket Police Station, Newmarket, New Hampshire
Plumbing and electrical engineering for new, freestanding police station. Project included drive through sallyport, holding cells, new dispatch center, administration offices and staff areas including lunchroom and conference room. Included relocation of existing standby generator.

Newport Police Station, Newport, New Hampshire
Electrical engineering and coordination for radio antenna, dispatch layout and 911 conduit provisions for relocated police station. Project was a renovation of an existing "downtown" building into police headquarters. Work includes security conduit provisions, CCTV conduit provisions and secure door layout. Project included tight budget - economical design and tracking of costs through design process was critical.

Onondaga County Fire Control Center, Syracuse, New York
Communications center for dispatch of county Fire and Rescue units.

Rochester Police Department, Rochester, New York
HVAC Engineering for facility renovations including firing range.

St Johnsbury Public Safety Building, St Johnsbury, Vermont
Electrical field evaluation and report on condition of building electrical systems including lighting, power, communications and fire alarm systems at town hall, Police and Fire Station. Included capitol improvement budget and construction estimate for elevator and administration addition.

State of NH - Police Standards and Training, Concord, New Hampshire
Electrical engineering for Classroom and Auditorium addition to State of NH Standards and Training Facility including extension of sound system, intercom, video recording and presentation systems.

State of VT - Work Corps Training Center, St Johnsbury, Vermont
HVAC and Electrical Engineering for new minimum security work camp complex at existing Correctional Center, including administration, dormitory and maintenance facilities.

State of VT - ADA Review of State of Vermont Police Stations
Architectural and engineering review of existing Police offices/holding areas for capitol improvement report.

Troop C State Police Barracks, Milford, New Hampshire
Electrical Engineering for new State of NH Police barracks facility including radio room, office, holding, and administration areas.

Weare Safety Complex, Weare, New Hampshire
Mechanical engineering for a new fire/police facility with sally port and fire truck bays. Work included heating for office and meeting areas, gas fired heat and exhaust ventilation in the garage areas.