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A) Need for a Facility

Caribou is the second largest city in Aroostook County, a community of 8,189 located at the heart of rural Northern Maine approximately twenty minutes from the Canadian border. The city has a total area of 80.10 square miles (207.5 km²), of which 79.26 square miles (205.3 km²) is land and 0.84 square miles (2.2 km²) is water. Caribou is located in the geographical center of Aroostook County; the county is readily accessible by two major highways; Interstate 95 from the south and the Trans-Canada Highway from the north and east. In sparsely populated Aroostook County, Caribou is at the hub of spokes serving the area.

The Police Department currently has eighteen (18) full-time employees and +/- seven (7) part-time (reserve) employees. There are potentials for growth in both types and numbers of employees, especially in School Resource Officers, but in other areas as well.

The call numbers and arrests are relatively stable with annual fluctuations of under ten percent with no significant growth.

Caribou Police currently operate from a small space in the basement of the current City Hall, which was initially the City Fire Station. This building, constructed circa 1937, is an example of a facility that has undergone extensive adaptive re-use through a series of reactionary renovations. "Reactionary renovations" are defined as a series of limited renovations that occur within a space to fulfill an immediate need at a minimal cost. Usually, such limited renovations achieve initial success, but due to lack of long term planning, they ultimately present significant maintenance, energy efficiency, and operational functionality issues.

In the case of the current facility, the building clearly demonstrates signs of having had an overly-extended life-span. Conditions of construction and quality of maintenance indicate that the facility has reached the end of its useful life. While the building is an excellent candidate for comprehensive renovation, it is ill-suited to function as a police station and the space now utilized by the Police is not even one half of the necessary square footage for a contemporary station. In addition, the current building was constructed before the development of conventional building codes. As such, appropriate structural features necessary for a police station are lacking.

The International Building Code (IBC), and Maine Uniform Building and Energy Code, classify a Police Station as an Essential Risk Category IV Structure. Such a designation requires increased seismic, snow, and wind performance under the premise that the continued operation of such buildings during a natural disaster is essential to the community. The original building was not designed or constructed to this standard and retrofit and modernization will prove to be costly.

B) Existing Facilities

The Caribou City Hall is a two-story masonry structure with a flat roof. A masonry hose tower with a flat roof and pre-engineered garage with a gable metal roof have been added to the facility since its original construction. The roofing is a membrane roof which has reached its expected life. There are mechanical units sitting on the roof providing for heating the zones of the building. The police station in the basement has no mechanical ventilation.

The building sits on a sloping site with a flat graded pad at the level of High Street providing access to the First (Main) Floor entrance to City Hall. A green space at the corner of High and Main absorbs the difference in levels as the parking entry from Main Street occurs at the Basement Floor level that provides entry to the Police Department. There is public parking provided in front of the City Hall entry and to the side of the building at the entry to the Police Department.

The area occupied by the Caribou Police Department represents approximately three thousand square feet. Although this area was never designed as a police station, it has been modified to accommodate the department over time. These modifications, while once sufficient for immediate need, do not make for a safe, secure, or efficient workspace. The deficiencies in operation, which have become pronounced over time as the department evolves, are so extensive that the agency personnel have low expectations for the facility.

The biggest difficulty in evaluating the majority of the building for a possible use as the police station is the extent of spaces and interior finishes hiding the structural conditions. It is impossible to see the structural make-up or condition of the structural members for the second floor or the roof structure without destructive investigation (removing sections of multiple walls and finished ceilings). There appears to be no existing construction plans for the building and so structural walls or bearing points were extrapolated based on general standards for building construction.

Parking & Access

The overall organization of the site is unrestricted. Civilians are permitted to gain physical access to parking areas where officers store their vehicles creating potential risks for ambush situations. In the future, the site for personal vehicles for officers as well as department vehicles should be separately secured from public lots.



Ballistics

No ballistic protection was observed along the exterior perimeter of the building. Further, staff is immediately exposed to visitors with no physical or ballistic separation. Civilian staff is particularly at risk. For example, the Police Chief’s office is located at the front of the building and his window overlooks the public parking lot, it would be highly recommended that such windows be ballistically rated.

Standoff Distances

Currently the building has no established standoff distance to the public parking lot. To mitigate the risk of explosive attacks it is recommended that public parking and drive aisles be located a minimum the following distances from the building. Vegetation should be kept away from the face of the building in order to mitigate the risk of ambush.

Construction Type	Minimal Standoff Recommendation
Load Bearing Wood Stud	105’-0”
Non-Load Bearing Wood Stud	80’-0”
Load Bearing Reinforced Masonry	86’-0”
Non-Load Bearing ReinforcedMasonry	30’-0”
Load Bearing Reinforced Concrete	66’-0”
Non-Load Bearing Reinforced Concrete	26’-0”

Mechanical Systems

Mechanical units were observed to be accessible to the public; mechanical units and intakes should be located in a manner that mitigates the risk of criminals making airborne substance attacks (I.E. Anthrax) against the department.

Lobby, Entry, and Chief’s Offices Security

The lobby space was observed to be partially physically secure with limited ballistic protection for staff working the front desk. Lines of sight to the entrance are clear and therefore increase the amount of time for the staff to be able to react to potential threats. In addition, while the transaction window appeared to offer some form of ballistic protection, the walls separating the lobby from the front desk area offered no protection; the lobby should contain a secure vestibule that allows department personnel to “buzz-in”. The front desk should have clear line of sight over the access routes, and the walls and windows separating the lobby from departmental staff should offer full ballistic protection.

The office of the Chief and Assistant have no clear view into the Lobby and no ballistic protection from the inside Lobby or from the exterior of the building. The Assistant has a door which opens directly into the Lobby with no view into the area and no mitigation if an event should occur in that space.





General Circulation

The building basement was never originally designed to serve as a police station. In many instances the department has adapted to the spaces that were made available to them in an effort to conduct operations as best as possible. The overall organization and flow of the basement is based upon the existing structure and offers little ability for improvement. In general, police stations should be zoned in a manner to protect officers, detainees, civilian employees, and the public from unnecessary contact and risk. Currently, the building offers little-to-no access control once beyond the lobby.

Civilian employees are forced to unnecessarily interact with detainees simply due to the way the current facility is organized. Individuals who have been detained and are being released often share the same access point as a person or family coming to the station for a separate function. In the future, the organization of the station should be developed to allow for clear and separate circulation paths amongst the various “user groups” of the building.

Sallyport Security

Numerous conditions were observed within the Sallyport that create risk to the community and department. In this case, the sally port was not much more than a garage, with no direct connection to the police operations. The sally port offered no physical security to prevent detainees from escaping should they incapacitate the arresting officer. In the event of an altercation between an officer and a prisoner there were no means for the officer to signal for assistance. The Sallyport and other areas of the building intended to hold prisoners should be designed with appropriate security features and access control elements to prevent unauthorized exiting from the building.

Sight & Sound Separation

Acoustical and visual separation from processing areas lacked elements that clearly created sight and sound separation amongst males, females, and juveniles. While the officers within the building are conducting operations in compliance with this standard by managing the logistics of how prisoners are housed, the physical facilities leave much to be desired. Individual booking room with durable materials that offer rated acoustical separations between each room are needed. Visual connectivity between rooms should be avoided in order to satisfy visual separation requirements.

Interview & Interrogation

Additional poor acoustical conditions were observed within the corridors of the building that allow sensitive conversations and testimony to be heard beyond the walls of the intended recipients. In numerous instances the walls do not extend to the underside of deck above, allowing for conversations to “jump” over the wall into the adjacent room. In addition, there are no corridors, so rooms are connected directly to one another with doorways allowing direct transfer of noise. This is particularly problematic when officers are interviewing multiple suspects and attempting to corroborate stories. The influence of outside noises into these rooms creates additional challenges in recording interviews. Interview and interrogation areas, acoustically isolated from the surrounding environment to prevent sound from transferring to multiple spaces, are necessary.



Storage

Numerous rooms located throughout the basement originally used for operations have been consigned for storage purposes. In some instances, small arms munitions were located in un-rated storage rooms; eating areas were converted to evidence processing.

Evidence Storage & Processing

The department should be commended on managing evidence to date given their circumstances. Currently, evidence is processed in a space never intended for that purpose (the employee lunchroom) and most evidence is stored within multiple areas throughout the station. Improvements to the evidence security and processing, allowing for separate storage of narcotics, firearms, common evidence, bulk evidence, and recovered lost property are necessary. The narcotics storage areas should be separately ventilated from the rest of the building. In addition, given the increased risk across the nation of fentanyl exposure during evidence processing, the department should consider developing a decontamination area within the building. At no point in time should evidence be processed in the same environment that personnel eat, as is currently the case

Other

Other items observed throughout the station that call for significant improvement include, better access control systems, improved CCTV systems, Implementation of additional gun clearing tubes, and better site lighting.

CARIBOU CITY HALL

Building System/Function	Description	Status
Overall Performance (Relative to function)	Good response location relative to City and Route 1. Overall position of the building, relative to site provides potential security from lower parking lot, while maintaining an approachable entry at main floor.	Fair
Site Security	3 parking areas - no controls - direct access	Poor
Accessibility (ADA)	Must use different entrance for basement and first floor. No Elevator available	Poor
Foundation System	Unable to view - appears in basement to function with few issues	Fair
Structure	Unable to view - no apparent sagging or issues. Rear wall reported to have been stabilized in the past. Likely not Risk Category IV compliant.	Fair/Poor
Openings (Doors/Windows)	Multiple air leaks and issues with windows and doors	Poor
Thermal /Moisture (Walls/Roof)	Leaks at former hose tower. Minimal insulation in walls and roof.	Fair
Interior Finishes	Interior finishes look well maintained - need new carpeting	Good
Plumbing	Per existing code. Building is not sprinklered. Sprinkler system will be required per IBC/NFPA 1.	Good
Electrical	Lighting configuration older -some compact fluorescents per commercial building regulations.	Fair
HVAC	Standard residential grade hot water heating system. No cooling or mechanical ventilation. System may struggle to be zoned appropriately when building is fully occupied.	Fair/Poor

C) Proposed Facility

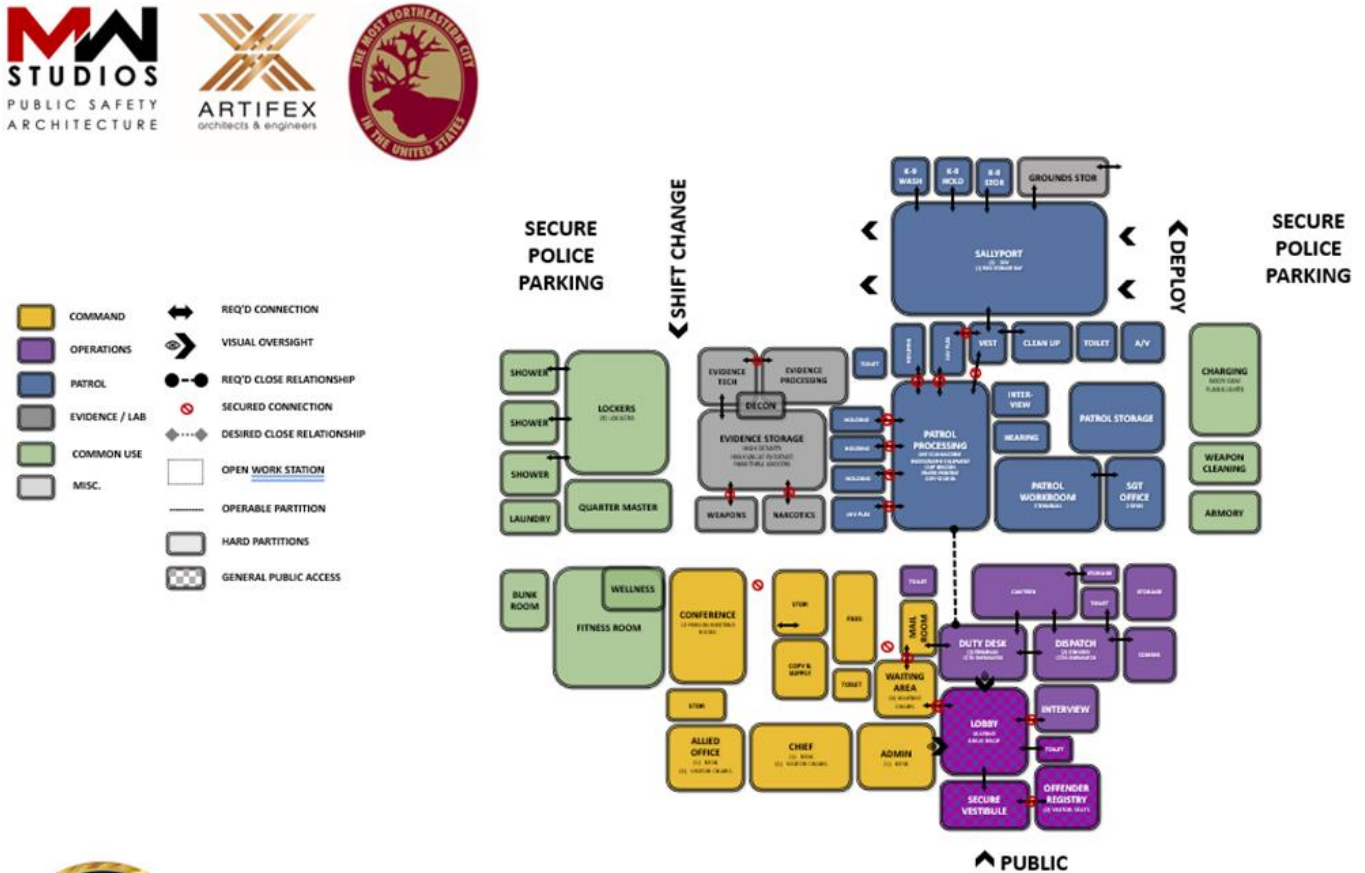
A Police Facility which meets contemporary standards for facilities of its type and size, based on best practices and current policing requirements and recommendations (IACP and CALEA) is the basis for design of the proposed new Caribou Police Station. The proposed station meet the functional needs and budgetary requirements of the Department and will conform to the Maine Uniform Building and Energy Code (MUBEC), the Architectural Barriers Act (ABA), and the Americans with Disabilities Act (ADA 2010) requirements.

Based on staffing, current standards, and procedures of the Caribou Police Department, a program for building spaces and adjacencies was produced and a generic “bubble diagram” of relationships was created by a consultant experienced and specializing in public safety facilities. This bubble diagram was utilized to design the proposed floor plan.

Program

GROUP		AREA	
A	COMMON USE	2,452	GSF
B	OPERATIONS	2,341	GSF
C	ADMINISTRATION	1,602	GSF
D	PATROL	2,349	GSF
E	EVIDENCE	1,177	GSF
F	OUTBUILDING / SUPPORT	1,968	GSF
TOTAL BUILDING AREA		11,890	GSF
CONDITIONED SPACE		9,922	GSF
UNCONDITIONED SPACE		1,968	GSF
TOTAL		11,890	GSF

Bubble Diagram of Program relationships





D) Building Sites

Amount of Land Required

Based on the square footage of the building and the need for access to and from a sally port as well as required separation of public and secure parking and access, the minimum site was determined to be one to one and one-half (1 – 1 ½) acres. A smaller site could be utilized if the building were constructed in more than one story.

Location – Alternate Locations

Four potential sites were available to the city based on a minimum size to meet contemporary standards for facilities of its type and size, based on best practices and current policing requirements. Criteria for site selection were determined by the consultants and residents of the city were asked to rate the sites based on their perceptions. One site ranked highest (Birds Eye) with only one other site (Sweden) seen as possible.

Community Evaluation Survey						
Priority	Weight		Birds Eye	Washburn	Water	Sweden
1	x2	Safety & Security Does the site allow space for proper safety measures to protect officers?	★★★★★ 10 Excellent Access Points & Standoff Capacity	★★★★★ 6 No Standoff Distance Capacity	★★★★★ 2 No Standoff Distance Capacity	★★★★★ 6 Limited Standoff Distance Capacity
2	x2	Response Profile Does the site allow for efficient and timely response to calls?	★★★★★ 10 Central to All Regions	★★★★★ 4 Far Away From Rte 1 Corridor & Rural Area	★★★★★ 4 Close to High Traffic Arteries/rapid Response	★★★★★ 6 Far Away From Rte 1 Corridor & Rural Area
3	x2	Civic Presence Will the site allow the department to be seen in the community?	★★★★★ 10 Highly Visible Among Major Corridor	★★★★★ 4 Direct Relationship to Courthouse	★★★★★ 2 Highly Centralized Location	★★★★★ 8 Indirect Relationship to Courthouse
4	x2	Topography Suitability Are the sites slopes suitable for development or is significant grading required?	★★★★★ 10 Suitable Grading	★★★★★ 6 Grading Not	★★★★★ 2 Severely Sloped	★★★★★ 8 Moderate Slope to North
5	x1	Site Access Does the site possess sufficient space for ingress and egress as well as parking?	★★★★★ 5 Sufficient Parking & Access to All Cans	★★★★★ 2 Limited Parking Capacity	★★★★★ 1 Topography is Very Steep, Little Parking Potential	★★★★★ 4 Sufficient Parking & Access to All Cans
6	x1	Land Acquisition Is the consideration of land acquisition favorable?	★★★★★ 5 Community Owned	★★★★★ 2 Requires Acquisition	★★★★★ 3 Community Owned	★★★★★ 1 Requires Acquisition of Commercial Property
7	x0.5	Future Expansion Will the site allow for further development in the future?	★★★★★ 2.5 Ample Space for Expansion	★★★★★ 1 No Space for Expansion	★★★★★ .5 No Space for Expansion	★★★★★ 1 Ample for Limited Expansion
8	x0.5	Environmental Risks Potential of unforeseen environmental contamination.	★★★★★ 2 Free of Heavy Contaminants	★★★★★ 1 Current Use Due to Current Use	★★★★★ 1 Current Use Due to Underdeveloped	★★★★★ 1 Limited Use Due to Current Use (Industrial)
9	x0.5	Tax Revenue Implications Will the site displace or remove tax generating parcels from the city?	★★★★★ 2 Unlikely Potential for Gentrification	★★★★★ .5 Original Revenue	★★★★★ 1 Underdeveloped	★★★★★ 1 Originals Commercial Revenue
10	x0.5	Existing Structure Demo Demolition of existing buildings, building foundations, and site features.	★★★★★ 2 Minimal Risk & Resources for Removal	★★★★★ 1 High Value Structures on Site	★★★★★ 1 No existing structures	★★★★★ .5 High Value Structures to Be Removed
11	x0.5	Utility Availability Site access to electric, gas, water, and other services.	★★★★★ 2.5 Utilities Available Nearby	★★★★★ 1.5 Utilities Available Nearby	★★★★★ 1.5 Utilities Available Nearby	★★★★★ 1.5 Utilities Available Nearby
TOTAL SCORE			59	29	19	38
RANK			1	3	4	2

The Birds Eye site is a large, former industrial site which has been leveled and is ready for re-development. The Sweden site is currently the site of a restaurant but provides through access from two streets. The Sweden site is not large enough to hold a possible public safety complex, but the Birds Eye site is.

. Site Plan

The Consultants utilized the Birds Eye site to develop a plan for the Police Department facility as well as providing a more general plan for a public safety development on the site.



Site Suitability

The Birds Eye site is an excellent site for the proposed police station. There is access to the two major roads which define the edges of the city, as they split just south of this site. The site is visible and accessible and provides adequate parking space and circulation as well as the required stand-off distances. It is not in a flood plain, nor is it in a residential neighborhood. Although the site has some slopes to the major frontage road, Route 1, the site itself is relatively flat.

The existence of additional acreage for city development is also a positive factor as the existing fire station and City Hall are both potential candidates for moving to a municipal

E) Cost Estimates

Development and Construction

Completed by a third-party Cost Estimating consultant, the cost of the construction development of a new police station on the Birds Eye site is \$9,443,820. as shown in the table below:

CARIBOU POLICE STATION			CONCEPT ESTIMATE	
 PREFERRED CONSTRUCTION MANAGEMENT	NEW 11900 sf		PROJ. NO:	26-076
	RENOVATED sf		REVISION:	1
			EST DATE:	8/19/2021
			GROSS SF:	11900
DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
DIVISION 2 - INTERIOR DEMOLITION	11,900	SF	\$ -	\$ -
DIVISION 2 - SITE WORK	11,900	SF	\$ 122.57	\$ 1,458,621.74
DIVISION 3 - BUILDING CONCRETE	11,900	SF	\$ 22.42	\$ 266,802.83
DIVISION 4 - MASONRY	11,900	SF	\$ 48.83	\$ 581,041.00
DIVISION 5 - STEEL	11,900	SF	\$ 46.83	\$ 557,300.00
DIVISION 6 - CARPENTRY	11,900	SF	\$ 1.66	\$ 19,800.00
DIVISION 7 - THERMAL MOISTURE PROTECTION	11,900	SF	\$ 50.12	\$ 596,478.75
DIVISION 8 - OPENINGS	11,900	SF	\$ 52.30	\$ 622,380.00
DIVISION 9 - FINISHES	11,900	SF	\$ 54.25	\$ 645,577.00
DIVISION 10 - SPECIALTIES	11,900	SF	\$ 7.24	\$ 86,175.00
DIVISION 11 - EQUIPMENT	11,900	SF	\$ 2.41	\$ 28,700.00
DIVISION 12 - FURNISHINGS	11,900	SF	\$ 0.79	\$ 9,350.00
DIVISION 12 - CASEWORK AND MILLWORK	11,900	SF	\$ 18.67	\$ 222,200.00
DIVISION 13 - SPECIAL CONSTRUCTION	11,900	SF	\$ 0.44	\$ 5,220.00
DIVISION 14 - CONVEYING	11,900	SF	\$ -	\$ -
DIVISION 21 - SPRINKLER	11,900	SF	\$ 7.47	\$ 88,882.50
DIVISION 22 - PLUMBING	11,900	SF	\$ 22.35	\$ 265,985.00
DIVISION 23 - HVAC	11,900	SF	\$ 67.86	\$ 807,556.34
DIVISION 26 - ELECTRICAL	11,900	SF	\$ 76.41	\$ 909,288.12
CONSTRUCTION SUBTOTAL	11,900	SF	\$ 602.64	\$ 7,171,358
GENERAL CONDITIONS	8.00	%		\$ 573,709
CONSTRUCTION SUBTOTAL	11,900	SF	\$ 650.85	\$ 7,745,067
DESIGN / ESTIMATE CONTINGENCY	10.00	%		\$ 774,507
CONSTRUCTION SUBTOTAL	11,900	SF	\$ 715.93	\$ 8,519,574
OVERHEAD AND PROFIT	3.50	%		\$ 298,185
CONSTRUCTION SUBTOTAL	11,900	SF	\$ 740.99	\$ 8,817,759
BOND AND INSURANCE	2.00	%		\$ 176,355
CONSTRUCTION SUBTOTAL	11,900	SF	\$ 755.81	\$ 8,994,114
ESCALATION - ASSUME FALL 2022 START	5.00	%		\$ 449,706
CONSTRUCTION GRAND TOTAL	11,900	SF	\$ 793.60	\$ 9,443,820

Land and Rights

The property is currently owned by the City of Caribou – there are no acquisition costs associated with this piece of property.

Legal

Although no legal fees are expected, we have provided an allowance of \$5,000 to cover legal fees and builder's risk insurance.

Architect Fees

Architectural Fees, per State of Maine BGS standards, are estimated at 7% of the \$7,745,067 for construction and general conditions

Interest

Equipment

Furniture and fixtures are estimated to cost between \$60,000 and \$100,000, based on availability and inflation

Contingencies

Included in the Estimate of Probable Construction Costs is a contingency for design/estimate at this stage of the project of 10% or \$774,507.

Refinancing

Other

Attached is project Budget Sheet that includes the various additional costs expected in a project such as this.

Preliminary Project Budget Summary

Caribou Police Department	Date of this report: 04/20/2023
NEW POLICE BUILDING	Const. Start: Spring 2024
<i>Birdseye Site, Caribou, Maine</i>	Const. Complete: Winter 2024-2025

One Story w/Basement

Part A: Administrative & Reserves		
1 Acquisitions	\$0	
2 Legal/Insurance	\$5,000	<i>Easements, Builders risk insur.</i>
3 Bid Document Printing and Handling	\$1,500	
4.1 Furnishings	\$50,000	<i>Office furniture, lockers, dispatch desks</i>
4.2 Fixtures	\$16,000	<i>includes radio antenna</i>
4.3 Equipment		
5 IntermediateRental	\$0	
7 Moving, Temporary Space		
8		
9		
	Part A Subtotal	\$72,500
Part B: Fees & Services		
10 Architect/Engineer Basic Services Fee	\$629,000	<i>7.0 % of updated cost of construction for 2023</i>
11 Legal/Insurance	\$18,000	
13 A/E Reimbursables Expenses	\$0	<i>construction document printing included in 3.0</i>
14 Hazardous Materials Reporting	\$4,500	<i>additional testing</i>
16 Survey/Traffic	\$0	
17 Geotechnical	\$3,000	<i>Subsurface investigation completed expense</i>
18 Special Inspections	\$2,000	<i>Structural steel</i>
19 Construction Testing	\$2,000	<i>Soils & concrete</i>
20 Hazardous Materials Removal	\$0	
21 Commissioning	\$20,000	
22 Clerk of the Works		
23		
	Part B Subtotal	\$678,500
Part C: Probable Construction Cost		
24 Construction Estimate	\$7,745,067	<i>Probable Construction Cost @\$650/sf</i>
25 Design Contingency	\$774,507	<i>10% of PCC</i>
26 O/H andProfit	\$298,185	<i>4%</i>
27		
	Part C Subtotal	\$8,817,759
	Escalation - Spring 2024	\$881,776 <i>5%</i>
28	Total Project Cost	\$10,450,535

F) Annual Operating Budget

Income

Operation and Maintenance Costs

G) Maps, Drawings, Sketches, and Photographs

Maps

Drawings and Sketches



Proposed Elevation

City of Caribou
Caribou Police Department
Project No. 2023102



ARTIFEX
architects & engineers

PHONE: 207-974-3028
www.artifexae.com

175 Exchange St.
Bangor, ME 04401

Photographs

H) Construction Problems

The Birds Eye site, with access to the two major roads which define the edges of the city, is not in a flood plain, nor is it in a residential neighborhood, but it is a hilly, post-industrial site. The site has some slopes to the major frontage road, Route 1, where police vehicle access is taken. There will need to be a fairly large retaining wall at the building. Once on the site, the land itself is relatively flat.

We expect no hazardous material problems with the immediate site as clearance and testing has been done. But there are some remaining building slabs and areas where final remediation has not been completed. Depending on the final extent of construction, we may encounter some material which will need to be removed and replaced.

Current availability of construction materials is also a potential construction issue. Electric Generators, sizes as may be required at this facility, have a long lead time and may extend the construction schedule.

I) Conclusions and Recommendations

The Caribou Police Department is currently in the basement of a building constructed as a fire station in 1937 where most elements have reached the end of their useful life. Many elements cannot meet current CALEA or IACP Standards, no matter how hard the Police department tries. The proposed site and building design meets all of these standards and provides an opportunity for Caribou to grow and develop. It will provide a safe and healthy environment for the Police officers, those people held in its cells, and the public. It is much needed. Any extension or delay in proceeding will only add to the financial cost/burden to the City and will impair the Caribou Police in their ability to do their jobs.

2. DEFINITIONS

LAW ENFORCEMENT TERMINOLOGY

CALEA	Commission on Accreditation for Law Enforcement Agencies
PSAP	Public Safety Answering Point
EOC	Emergency Operations Center
IACP	International Association of Chiefs of Police
SDD	Special Deployment Division
SSD	Special Services Division
SVU	Special Victims Unit
DV	Domestic Violence
ATFP	Anti-Terrorism Force Protection
EMA	Emergency Management Agency
EST	Emergency Services Team (SWAT)
CIU	Criminal Investigations Unit
CID	Criminal Investigations Division
SRO	School Resource Officer
EOD	Explosive Ordinance Disposal
IAPE	International Association for Property & Evidence
CRO	Community Resource Officer
CVE	Commercial Vehicle Enforcement
POLY	Polygraph
PIO	Public Information Officer

SPACE NEEDS TERMINOLOGY

NSF	Net Square Feet: The amount of usable program each Division requires for operational procedures. Does not consider overall building circulation, utility spaces, shared common spaces with other Divisions or public areas.
GSF	Gross Square Feet: The total area in the building. Includes all space needed to circulate personnel, common public areas, utilities, structural systems, and wall thickness.



CODES & STANDARDS TERMINOLOGY

IBC	International Building Code
NFPA	National Fire Protection Association
IEBC	International Existing Building Code
IECC	International Energy Conservation Code
IPC	International Plumbing Code
IMC	International Mechanical Code
ASHRAE	American Society of Heating & Air-Conditioning Engineers
UL 752	Underwriters Laboratory Testing Method for Ballistic Resistance
ASCE	American Society of Civil Engineers
AHJ	Authority Having Jurisdiction. The organization, political subdivision, office, or individual charged with the responsibility of administering and enforcing the provisions of said jurisdictions adopted building code(s).

2.1 CRITICAL FACILITIES & RISK CATEGORY

What is a critical facility?

In general usage, the term “critical facilities” is used to describe all manmade structures or other improvements that, because of their function, size, service area, or uniqueness, have the potential to cause serious bodily harm, extensive property damage, or disruption of vital socioeconomic activities if they are destroyed, damaged, or if their functionality is impaired.

Typically the following buildings fall under the broad umbrella of the critical facility label: emergency response facilities (fire stations, police stations, rescue squads, and emergency operation centers [EOC’s]), custodial facilities (jails and other detention centers, long-term care facilities, hospitals, and other healthcare facilities), schools, emergency shelters, utilities (water supply, wastewater treatment facilities, and power), communications facilities, and any other assets determined by the community to be of critical importance for the protection of the health and safety of the population. The adverse effects of damaged critical facilities can extend far beyond direct physical damage. Disruption of healthcare, fire, and police services can impair search and rescue, emergency medical care, and even access to damaged areas.

Who or what determines which structures are a critical facility?

The definitions that outline what type of structure comprises a critical facility, whether it be from FEMA, IBC, NFPA or ASCE are defined broadly and generalized. The intention is that consideration for labeling a structure as a critical facility is developed by the State of Maine, the local authority having jurisdiction (AHJ.)



What is a Risk Category and why does it matter?

Unlike the generalized terminology for what makes a building a critical facility, the IBC provides very specific guidelines to determine a buildings risk category. The Risk Category is derived by determination of the building's occupancy, and how said occupancy correlates to the greater service it provides within society.

The determination of a building's Risk Category helps set the course heading for identifying what structural provisions a building will require in order to maintain operations in the event of a natural disaster. In short, as the Risk Category rating grows, so do the requirements of the buildings structural design. The determination of these provisions and the buildings Risk Category are outlined within the opening pages of IBC, Chapter 16, Structural Design and further expanded upon within the entirety ASCE 7-10. It should be noted that most critical facilities fall into Category III or Category IV, described below:

Category I includes buildings and other structures whose failure would represent a low hazard to human life, such as agricultural buildings and storage facilities.

Category II includes all buildings not specifically included in other categories such as offices.

Category III includes buildings and other structures that represent a substantial hazard to human life in the event of failure. They include buildings with higher concentrations of occupants (i.e., where more than 300 people congregate in one area). These are typically educational facilities with capacities greater than 250 for elementary and secondary facilities, 500 for colleges and adult education facilities, or 150 for daycare facilities.

Category IV includes essential facilities such as hospitals, fire and police stations, rescue and other emergency service facilities, power stations, water supply facilities, aviation facilities, and other buildings critical for the national and civil defense. These facilities are chosen because of their vitally important role in protecting the health and safety of the community.

What does this mean for the project?

The need to update an existing structure during a renovation project, assigning a buildings Risk Category, or the decision to label a facility as critical will reverberate throughout the design and construction process. Project budget, building age, size, location, infrastructure availability and how the structure correlates to the greater operational function it serves should all be considered on a project by project basis.

