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2.1 Facilities Needs/Issues/Concerns

SMMA, in conjunction with BCA, has assessed Ledyard's facilities from three perspectives: the physical condition of the buildings, how well they serve the program housed within them, and (for those buildings of historic significance) historic preservation concerns.

2.1.1 Repairs/Asset Protection Needs

The biggest facility issue facing the Town of Ledyard is an aging building stock. While Ledyard's facilities maintenance personal has worked hard to keep its buildings in good working order, limited funds and changing programmatic needs have made its current buildings increasingly inadequate for the uses they house. SMMA has assessed Ledyard's facilities with regard to the physical condition, and has provided an extensive list of repair work at the 6 schools, the Town Hall building, the Police Station, the Bill Library and the Gales Ferry Library. Daedalus Projects, Inc. provided a cost estimate that breaks down the proposed work into the following categories, to help prioritize work into a capital plan:

Capital Upgrades: Any work necessary to preserve and maintain the original state and functions of a facility. Includes projects intended to develop or improve facilities beyond their original utility.

Code compliance/ADA: Any work necessary to bring a building or structure into compliance local, state or federal regulations, such as ADA, fire safety or other applicable codes.

Energy Efficiency: Any work necessary to remove antiquated, inefficient building systems, or to reduce a facility's energy consumption/utility usage. This may include mechanical upgrades and weatherization.

ITT Upgrades: Any work, such as infrastructure upgrades, necessary to support updated technology within the facility.

The following table summarizes the recommended repair work at each facility, broken down by the above categories. A detailed report of these costs as well as SMMA's building-by-building assessments are available in the appendix of this study.

The following assumptions and exclusions should be noted:

Assumptions:

- Site and adjacent building(s) will be occupied during entire construction period.
- Construction will be phased. A premium for out-of-hours labor expense has been included in the Main Summary.
- Each Building has been considered as a separate Project within the wider collection of this Study.
- Construction start date has been assumed as Summer 2012
- Our costs assume that there will be competitive bidding in all trades and sub-trades i.e. at least three bids per trade or subtrade.
- The Total Construction Cost reflects the fair construction value of this project and should not be construed as the prediction of the lowest bid.
- Unit rates are based on current dollars with an escalation allowance to start of construction provided in the Main Summary.
- Subcontractor's markups have been included in each unit rate. Markups cover the cost of field overhead, home office overhead and subcontractor's profit.
- Design and Pricing Contingency markup is an allowance for unforeseen design issues, design detail development and specification clarifications.
- General Conditions and Requirements value covers General Contractor's bond and site office overhead
- Overhead and Profit markup is calculated on a percentage basis of direct construction costs. The value also covers General Contractor's insurance.

Exclusions:

- Site or existing condition surveys and investigations.
- Design fees and other soft costs.
- Interest expense.
- Owner's project administration.
- Project Manager's fee
- Construction of temporary facilities.
- Relocation expenses
- Printing and advertising.
- Specialties, loose furnishings, fixtures and equipment beyond what is noted.
- Building permit fees.
- LEED Certification submission process.
- Police details and street/sidewalk permits.
- Legal Fees.
- Utility back charges during construction
- Owner furnished and installed furnishings and equipment, artwork, loose case goods and similar items.

Facility	GSF	Capital Upgrade	Code/ADA	Energy Efficiency	IT Upgrade	Cost
Gallup Hill School	39,189	\$2,598,150	\$160,252	\$524,332	\$2,055	\$3,284,789
Ledyard High School	191,000	\$7,936,015	\$316,064	\$3,207,303	\$0	\$11,459,382
Ledyard Center School	47,420	\$3,375,280	\$368,125	\$388,772	\$17,541	\$4,149,718
Gales Ferry School	45,362	\$304,042	\$5,953	\$2,030	\$0	\$312,025
Juliet Long School	37,600	\$2,355,285	\$272,153	\$444,918	\$0	\$3,072,355
Ledyard Middle School	75,600	\$4,842,248	\$262,473	\$1,405,127	\$0	\$6,509,849
Town Hall Complex	11,600	\$476,112	\$8,951	\$339,429	\$0	\$824,492
Police Department	6,328	\$235,069	\$21,967	\$86,985	\$6,766	\$350,786
Bill Library	10,858	\$239,386	\$36,976	\$73,360	\$6,766	\$356,487
Gales Ferry Library	3,710	\$206,734	\$22,882	\$1,353	\$0	\$230,969
Total	468,667	\$22,568,321	\$1,475,796	\$6,473,609	\$33,128	\$30,550,854

For further analysis SMMA compared this scope of work with the scope of work previously compiled by Chow Lawler in their 1996 assessment. The following table summarizes by building the original 1996 repair costs, the 1996 costs inflated to 2011 dollars and the 2011 assessed repair costs. Additionally, a Facilities Condition Index (FCI) has been calculated for each building. FCI, a standard measure, is used to determine the condition of each building and is calculated by dividing the sum of the deferred maintenance (i.e., the repairs, replacements or modifications required) by the current replacement value of the building. The higher the FCI, the poorer the condition of the building systems. An FCI from 0.00 – 0.05 is considered excellent, 0.05 – 0.10 is good and 0.10 – 1.00 is fair to poor.

2.1.2 Building Program, Capacity Issues and Gap Analysis

In addition to determining whether Ledyard's buildings are physically sound and in good repair, another key element of this assessment is to identify how well these facilities meet the needs of the programs residing within them. SMMA has conducted both qualitative and quantitative inquiries regarding the capacity of these structures as it relates to their function.

Building Programs and Capacity Issues

As part of SMMA's analysis of Ledyard's facilities, our team examined how well the buildings suited their current use and program. Section 1.2.2 Building Program Interviews details how each of the schools and town departments function and what their facilities needs are. These interviews were then quantified, using guideline space recommendations to produce a recommended program.

Educational Facilities Gap Analysis

SMMA surveyed administration at each of the Ledyard public school facilities to determine how well their buildings met their needs. While each facility had a unique set of issues associated with it, some themes persist throughout the district:

- Lack of cafeteria/food service space at the elementary schools, inadequate lunch/auditorium facilities at the middle school
- Open classroom layout at the middle school
- ADA accessibility issues in older buildings
- Inconsistent heating and cooling in older buildings
- Limited electrical capacity to support new and expanded technology
- Overall lack of storage space

SMMA determined which schools in the Ledyard district are spatially deficient, based on Connecticut State's Standard Space Specifications for educational facilities. These calculations are based on a worksheet available from the state, and included in appendix of this report. The table below summarizes the capacity findings by school:

Educational Facilities Gap Analysis Summary Table

School	Projected Enrollment	Existing GSF	Guideline GSF	Surplus/Deficit GSF
Gales Ferry ES	182	23,000	22,568	432
Juliet Long ES	253	37,600	35,436	2,164
Gallup Hill ES	272	39,189	36,256	2,933
Ledyard Center ES	416	47,420	53,856	(6,436)
Ledyard MS (7+8 only)	356	75,600	62,656	12,944
Ledyard MS (6,7+8)	523	75,600	88,040	(12,440)
Ledyard HS	794	191,000	143,212	47,788

The table shows that only Ledyard Center School has a clear capacity need and is undersized. The middle school is not undersized for grades 7 and 8, although if the Ledyard Public School District wishes to shift 6th grade into the middle school, it will require a small addition to accommodate the additional classes.

Ledyard Police Department Gap Analysis

The Police Station functions in an inadequate building and space layout. The department survey indicates a need for more space based current department functions. SMMA has included the calculation for the immediate space need for these basic functions. However, the present building and site location of the station with overhead wire easement restrictions, grade changes and drainage problems makes it difficult to expand or make addition to the current structure and allow the site to function in a reasonable manner. Adding space to the current building layout without major renovation of the current space is not possible. If a new police station were to be built a comprehensive program summary would require 22,685 net square feet and a site of 3 acres for the local population of Ledyard. This would not fit on the current site.

The current survey indicates 31 occupants with future growth to 45. The breakdown of personnel is 22 officers, 1 resident trooper, 1 clerk, 1 custodian, 6 dispatchers. Space need includes more locker space, office space, report writing room, training room and kitchen. Storage space is lacking and the Ledyard Emergency Community Communications Center requires its own space and accessibility.

SMMA has provided an alternative space need summary indicating the requirements for a modest facility based on the present operation of the police department, but still providing a new building that would be operationally usable. This new building could be planned for the current site with the demolition of the existing structure. This new building would create a professional facility for the Ledyard Police Department. The environment would be comfortable and efficient and meet the requirements for adequate working space including detainee areas.

Ledyard Police Department Gap Analysis Summary Table

Program	ASF	GSF
Existing Police Station	4,868*	6,328
Guideline Police Station	22,685	29,490*
Ledyard Recommendation	6,210	8,073*
Space Need (deficit)	(1,342)	(1,745)**

* assume 1.3 gross factor

** required addition to Police Station for existing program

Recommended Ledyard Police Department Program

Description	Preferred Program	Guideline SF	Space Req'd.	Existing SF	Deficit/ Surplus ASF
Office Spaces					
Chief's Office	1	200	200		
Chief's Secretary	1	150	150		
Officer Desk Space	10	80	800		
Small offices (Detective/Supervisor/Prosecutor/future Lt.)	4	100	400		
Dispatch	1	300	300		
Office Spaces Subtotal			1,850		
Support Spaces					
Training Classroom	2	300	600		
Reception Seating	1	100	100		
Conference Large	1	250	250		
Booking Room	1	100	100		
Interview Room with Observation	1	300	300		
Cells	6	85	510		
Kitchen	1	200	200		
General Storage	1	150	150		
Evidence Storage	1	200	200		
Record Storage	1	200	200		
Ammunition Storage	1	200	200		
Locker rooms (Men's' and Women's')	2	200	400		
Fitness Room	1	500	500		
Custodial/Workshop	1	400	400		
Enclosed sally port	1	250	250		
Support Spaces Subtotal			4,360		
ASF Total			6,210	4,868	(1,342)

Bill Library Gap Analysis

Before the Ledyard Library Commission disbanded in June of 2006 they reported to the Town Council the results of its comprehensive building needs assessment, which concluded that there was not enough space for the libraries to provide the level of services to which the residents of Ledyard were entitled. The Commission was created January 1999 and worked for 7 years to identify the need for an addition to the Bill Library Building to efficiently meet the literary, technological, historical and educational resource needs of the Town. That need still exists and we have verified that the space planning guidelines established by the State Library Board updated and based on the 2010 local population censuses results support the same conclusion.

Bill Library Gap Analysis Summary Table

	NSF	GSF
Existing Space	8,352*	10,858
2000 Guideline	15,862	20,620*
2010 Guideline	20,453	26,589*
Space Need (deficit)	(12,101)	(15,731)**

* assume 1.3 gross factor

** required addition to Bill Library by Connecticut State Library Guidelines

SMMA believes that the previously defined program which originally suggested adding 14,368 gross square feet to the library needs to re-examined and refined. Using the updated 2010 State Library Guidelines a library facility for the local population would be approximately 20,453 net square feet. The existing Bill Library is approximately 8,352 net square feet, outlining a potential space need of 12,101 net square feet. The additional program space would place the Bill Library in the middle (average) of 20 towns surveyed for population served, and gross square feet provided per capita. A summary of this revised program is below: The complete worksheet is available in the appendix of this report.

Recommended Bill Library Program

Program	NSF
Collection space	6,275
Public electronic workstations	430
User seating space	4,020
Staff work space	1,200
Meeting room space	3,005
Special-use space	1,432
Non-assignable space	4,091
Total NSF	20,453

Town Hall Complex Gap Analysis

The Ledyard Town Hall complex is comprised of aged facilities that are poorly configured and sized to the current use. Based on square footage guidelines provided by the Whole Building Design Guide from the National Institute of Building Sciences and interviews with department heads from Town Hall, SMMA has developed a recommended program.

This program is based on the following feedback received from various departments in the building:

- Storage space is in high demand, especially secure storage such as the vault, as there are many departments that must hold on to paper documents for extended periods of time.
- The building is divided into many small offices, which creates an inefficient use of space and inhibits inter-department collaboration.
- Some departments would benefit from being grouped with one another.
- While there are some space available for conferences and meetings, these are limited and departments often have trouble scheduling them when they are needed.
- In some cases, offices are insufficiently sized and lack breakout space for plan review, informal meetings and other activities.

Based on this feedback and the size of Ledyard and its current government facilities, SMMA recommends a program that organizes the departments into three groups: Executive, Community Development and Services. Each of these groups is organized to maximize inter-department collaboration and to create space efficiencies within Town Hall. This program allows for shared office space for each group, including conference space, breakout work space and reception. The following table summarizes the organization of the groups, as well as their assignable square footage:

Town Hall Gap Analysis Summary Table

	ASF	GSF*
Existing Space	9,107	14,971**
Program Guideline	13,851	23,547
Space Need (deficit)	(4,744)	(8,576)

* Assume 1.7 gross factor for proposed program

**Includes main Town Hall Building (12,381 SF), Annex (2,250 SF) and DPW office in Garage (340 SF).

Recommended Town Hall Program

Description	Space Req'd.	Existing SF	Deficit/ Surplus
Executive Group	5,575	3,450	(2,125)
Mayor	449	377	(72)
Finance	384	347	(37)
MIS	344	341	(3)
Tax Assessor	344	630	286
Tax Collector	344	432	88
Treasurer/Town Council	1,544	1,323	(221)
Shared/General Space	2,166		(2,166)
Community Development Group	3,100	1,246	(1,854)
Building & Zoning	688	612	(76)
DPW	264	200	(64)
Planning	424	319	(105)
Wetlands	224	115	(109)
Shared/General Space	1,500		(1,500)
Service Group	5,176	3,299	(1,877)
Administration		294	294
Human Resources	344	176	(168)
Register of Voters	464	125	(339)
Social Services	664	1,030	366
Town Clerk	1,740	742	(998)
Visiting Nurses Assoc.	664	932	268
Shared/General Space	1,300		(1,300)
ASF Grand Total	13,851		

2.1.3 Historic Preservation Concerns

Bill Library

The Bill Library is in good condition overall. Conditions observed in need of repair include the following:

- Open joints and loose stones at foundation wall below 1893 portion of building and exposed waterproofing membrane laid over foundation at north turret
- Peeling paint at wall shingles at junction between west office wing extension roof and adjacent building wall, likely due to standing snow on roof
- Rusting of roof level vents, west elevation
- Peeling paint at exterior ramp and stair railings



Loose foundation stones at north elevation



peeling paint at junction between building wall and roof, west elevation

Recommended repairs to address the above conditions:

- Repoint the foundation wall and excavating the earth adjacent to the north turret to allow for the installation of sub-surface waterproofing
- Install snow melting heat cables where the west office wing extension abuts the building wall to prevent damage to wall
- Prepare and paint metal elements (roof vents and stair rail) to prevent further deterioration

Ledyard Center School

The exterior envelope of the Ledyard Center School is in fair condition.

Exterior conditions observed in need of repair include:

- Displaced brick at northeast corner of 1959 classroom wing
- Cracked and previously patched cast stone decorative elements at south elevation of auditorium and severe efflorescence at the brick below the patched areas
- Open or sealed mortar joints at brick walls and window sill units
- Cracked and sealed brick at the east and west corners of the auditorium
- Step cracking in the brick below window sills at the west elevation classroom windows
- Cracked and missing mortar at the chimney at the 1959 portion of the building
- Cracks at previously repaired window sill patches at the east elevation of the 1953 classroom wing and severe efflorescence at the brick below the patched areas.
- Cracked and previously patched concrete at the top of the foundation wall throughout the 1959 portion of the building
- Rust and peeling paint at exposed steel window lintels at the auditorium and other single window openings at the north and east elevations
- Biological growth at cast stone elements at the auditorium
- Cracked wood panel below the window sill of the northwest kindergarten classroom
- Rusted vent at the east elevation of the 1953 classroom wing
- Deteriorated metal awnings at the auditorium and the northwest kindergarten classroom



Displaced brick at northeast corner of 1959 classroom wing



previously patched decorative cast stone



Cracked and sealed brick at southeast corner of auditorium



Step cracking below window sill, west elevation original building



Rusted lintel at auditorium



previously repaired areas at concrete foundation, 1959 building

Recommended repairs to address the above conditions:

- Rebuild area of displaced brick at northeast corner of 1959 classroom wing
- Remove deteriorated patches at cast stone decorative elements and window sills and repatch. Repair cracked original elements with patching material and stainless steel pins if required. Clean efflorescence from brick below previous patched areas
- Repoint mortar joints at exterior brick walls and chimneys and at cast stone elements including window sills
- Remove cracked brick and replace with matching brick
- Remove deteriorated patches from top of concrete foundation wall and repatch. Chamfer top of foundation wall to shed water
- Scrape, prime and paint steel window lintels in place
- Clean cast stone areas to remove biological growth
- Remove cracked wood panel below northwest kindergarten classroom window sill and replace with new matching panel
- Replace or scrape, prime and paint rusting vents and other metal elements
- Remove deteriorated metal awnings and patch brick

Town Hall

The Town Hall is in good condition overall. Conditions observed in need of repair include the following:

- Continuous cracks at the northeast and southeast corners of the 1988 additions. The brick quoins at these corners are not tied into the adjacent wall
- Crack in the concrete foundation at the northwest corner of the 1965 addition
- Cracking at the concrete block at the lower level of the east wall of the original building
- Areas of spalled brick at the southeast corner of the 1965 addition
- Rusted steel at window lintels at the east wall of the 1965 addition (south side of the connector) and the west wall of the 1965 addition
- Wood rot at the base of the entrance columns and checked and peeling paint at the remainder of the columns, the entrance door frame and sidelights
- Wood rot at soffit above lower level entrance at south wall of connector
- Damaged metal attic vent at top of south wall of 1988 addition
- Rust at vent covers at the east wall of the 1965 addition (north side of the connector)
- Missing gooseneck at the base of the aluminum downspout at the west wall of the south 1988 addition that is allowing water wash over the brick



Northeast corner crack.



Wood rot and peeling paint at base of entry post.

Recommended repairs to address the above conditions:

- Remove mortar and install a control joint at the cracked corners of the 1988 addition

- Grout and patch cracks at concrete foundation and concrete block wall
- Replaced cracked/spalled brick with new brick
- Scrape steel lintels free of rust, prime and repaint. Repoint brick above lintels
- Remove paint from wood columns and entrance surround, perform consolidation and repair at rotted wood, prime and repaint.
- Replace or scrape, prime and paint rusted vent covers
- Replace missing gooseneck at west downspout