ARCHITECTURE ENGINEERING PLANNING INTERIORS ENERGY

Merrimack County Courthouse Design and Space Planning

Department of Administrative Services
Concord, New Hampshire

Study Summary Report

NH Project #80776

May 29, 2014
SMRT Project No. 14025

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INTRODUCTION

The Judicial Branch within Merrimack County has experienced growth and organizational changes to its system and has responded by adapting to fit within its current building stock or by leasing space.

- The Judicial Branch is now in need of a new court facility for the Superior Court as the current facility is now insufficient and site-constrained.

- The Circuit Court system was reorganized in 2011 and now includes the Sixth Circuit Probate Division. The Circuit Court system includes the District Division, Probate Division, and the Family Division. The Probate Court is currently located within the Merrimack County Administration Building, which shares the same site as the historic Merrimack County Courthouse where the Superior Court exists. With a move of the Superior Court, it is timely for the Probate Court to also be relocated.

- The New Hampshire Administrative Office of the Courts serves all NH courts with management services. The Judicial Branch has undertaken to develop a comprehensive electronic court case processing system to provide electronic access to a common database for scheduling, files, payments, document management, notifications, and more. An additional component of this effort is the consolidation of telephone information services state-wide into a single call-center. These changes to the work of the Judicial Branch are creating the need for different physical facilities for Judicial Branch operations, adding space needs for offices and call-center operations, for example, but also deleting space needs within individual court facilities throughout the state.

This study has been undertaken to

- identify the space needs of the Judicial Branch within Merrimack County,

- identify options to provide those space needs utilizing current building stock or land to provide the best result operationally and financially.

- identify options to purchase or lease other property if this represents the best option for the Judicial Branch.

Finally, a proposal for funding to achieve the goals resolved by this study will be submitted through the legislative budget process. It is expected that two or possibly three biennium budget cycles will be required to complete the developed goals of this study.

ANALYSIS

Existing Facilities

The Judicial Branch currently has facilities at four Merrimack County locations considered within this study.

A. The Superior Court is located within the historic Merrimack County Courthouse behind the County Administration Building at 163 North Main Street in Concord.

This facility is not owned by the State of NH, being owned by the County with court facilities leased to the State. Opportunities to expand or significantly change the current building to suit growth within the courts are very limited. This facility was not evaluated for renovations or additions as a part of this study.

B. The Probate Court is located on the same site as the Merrimack County Courthouse within the County Administration Building. The space for the Probate Court is also leased from the County, and so was not evaluated as a part of this study.

C. The Circuit Courthouse is located at 32 Clinton Street in Concord.

This facility is in good condition having been constructed in 1991. As this is a courts building, renovations which might be considered to repurpose the building would be costly. This property is on a portion of a large parcel owned by the State

and contiguous with New Hampshire Hospital. The immediate site can accommodate some expansion but with the compromise that parking must move and expand across the hospital entrance drive at the facility's southwest boundary. Site soils are a constraint as they are unsuitable for spread-footing foundations, however, this can be overcome with the use of piles.

D. The Administrative Offices of the Courts (AOC) is located at 2 Charles Doe Drive in Concord. The AOC provides support services to the courts including fiscal management, case management, security, human resources, information technology support, and facilities management.

The AOC facility is in good condition having been constructed in 1998. The building is small but suited to its current site and use, and well located for the courts system adjacent to the Supreme Court. With this facility continuing in use and nearby land available (Ball Field site), the Hazen Drive location offers the best opportunity as a location to accommodate Judicial Branch facility consolidation within Merrimack County.

E. The Trial Court Center is located at 45 Chenell Drive, and is a leased facility. The TCC is an administrative center for the courts and includes support staff for courts, the administrative judges, training facilities, and the e-Court call center.

SMRT has completed an engineering evaluation of this facility to help inform a decision to purchase the property. This evaluation is included within this report as an appendix. In general, the facility is sound, clean, and functional. Having been constructed very economically, some of its systems are at or nearing the end of their performance life and should be replaced. These primarily include mechanical units and roofing.

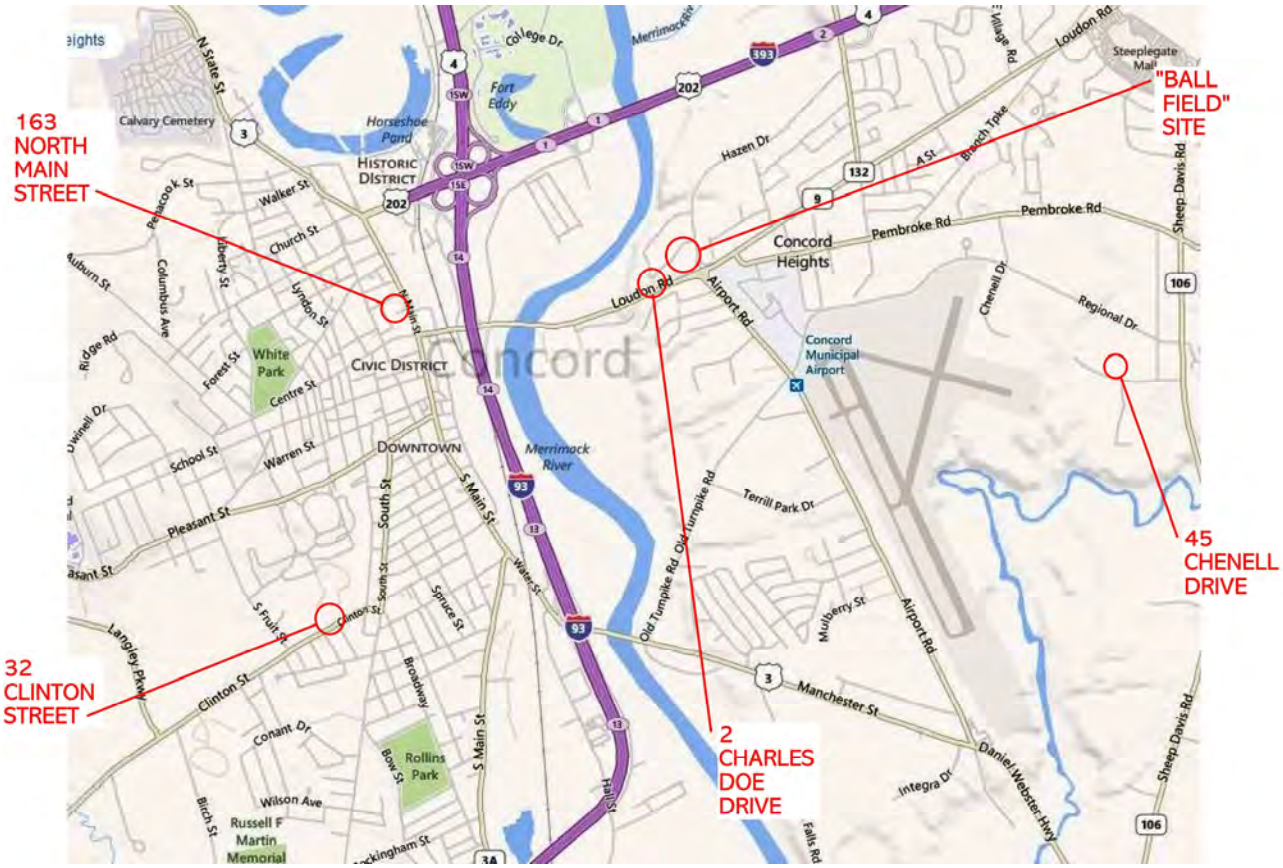
Two features recommend against purchase:

1. The building envelope is poorly designed for energy performance. Though the roof can easily be insulated to meet current standards when a new roof is installed, the wall system would require significant interruption of operations and expense to upgrade from the interior. An alternative option would add a new exterior insulation and weather barrier skin.
2. The building is on a property in an odd location making way-finding to the address difficult. Given the limited need for public access to this operation, however, this may not be significant.

One feature highly recommends this property for purchase:

1. Low cost. It is expected that this facility could be purchased and improved to a measured degree for much less than would be required to construct a new facility.

Location Map



Facility Needs – Architectural Programs

A space programming effort was undertaken by the team to describe the right-sized facilities for each of the identified court system functional operations. A space program provides a tool to test the fit of each operation within new, renovated, or leased buildings. The functional interrelationship of operations to one another guides the placement of each.

If the Judicial Branch's operations are to be consolidated, it would make the most sense for the AOC and TCC to be combined as these operations are closely related. Additionally, it would make sense for the Probate Court, which is now located with the Superior Court at 163 North Main Street in Concord, to be with the Circuit Court of which it is a division, though this addition will be a challenge, and so somewhat costly.

The following space programs are the final result of several drafts which were vetted within team meetings. These present these resultant options:

A. A new Superior Court with three courtrooms.
   The program shown is the final iteration developed through the study effort. It is a reduced program from the initial program which had an additional court and more space for storage.

B. A combined AOC and TCC facility.
   This program may be applied to a combined facility at the current AOC site with an addition, within the existing TCC building, or within a new structure.

C. A separate Probate Court. This program assumes that the Probate Court would stand alone, occupying the vacated 2 Charles Doe Drive address subsequent to the relocation of the AOC to join the TCC at Chenell Drive. (See below for more information.)

Merrimack Superior Space Program

Space program 5/27/14

# Quantity	Description	NSF	Total NSF	
	Courtrooms & Components			
1	Large Jury	2,340	2,340	Based on Carroll Courthouse for high profile cases
1	Medium Jury	1,820	1,820	Based on Hills. South jury
1	Small Jury/Hearing	1,505	1,505	Based on Dover (previous jury) courtroom & standards
2	Holding cell	96	192	1/pair of courtrooms
2	Secure Atty/Def conference rooms	75	150	1/pair of courtrooms
1	Alternative Dispute Resolution	280	280	Typical meeting room space based on dimensions
1	Media Room or Access	85	85	TBD
1	Video Conferencing Closets		-	take from large courtroom footprint
	Conference Rooms & Outside Agency Offices		-	
4	Conference Rooms	100	400	Usually two per courtroom - reduced courtroom count
1	Conference Rooms	200	200	
1	Conference Rooms	140	140	Based on Derry with more than 4 people
	Lobbies		-	
1	Clerical Office's Public Lobby	270	270	Assumes 3 service windows, 4 feet per window
1	Public Access, Work Area Adjacent to Clerk's Office	165	165	Allows for Public Access of four individuals.
1	Total Courtroom Lobbies (reduced count of courtrooms)	1,546	1,546	Use combined areas of courtrooms divided by two.
1	Entrance Security Station	250	250	= 790 SF
1	Entrance Vestibule	160	160	Similar to Hills. North, allows for stacking of public
4	Public Bathrooms	187	748	2-per floor, based on larger AOC, upper floors
	Judicial Chambers & Components		-	
3	Judges Chambers	250	750	Based on Cheshire judge's chambers allows for meeting with 4+
3	Law Clerks Offices	115	345	seats 4 @ 64 NSF each
1	Monitors Offices	192	192	combined space for 3 Monitors @ 64 NSF each
1	Library /Staff Conference	260	260	Based on standards
2	Staff Bathrooms	50	100	Standard size and should be based on today's code requirements
	Jury		-	
3	Deliberation Rooms	270	810	Based on standard jury with break counter
3	Alternate Juror Rooms	120	360	through a vestibule, may share the same bathrooms as the jury.
6	Bathrooms (2 per Deliberation Room)	50	300	Based on Carroll
2	Security Officer Stations (Sits 2 per room)	60	120	Similar to Hills North and located close to the Jury Deliberation rooms.
1	Assembly Room/Grand Jury Room	1,750	1,750	100 capacity at 200 NSF/person
2	conference rooms	150	300	adjacent jury assembly room
	Clerical Work Areas		-	
2	Clerk's/Deputy Office	180	360	Use typical office area with space for filing and two person meeting
12	Superior Clerical Work Area	80	960	Based on 6 x 8 workstation and circulation space
3	Public Counters (with 1 handicap)	32	96	Allows for circulation of staff behind one another
1	Clerk's Offices Active Filing	750	750	Based on Carroll (300SF) times 2.5
1	Coat Closet	30	30	Added item.
1	Paper and Office Supplies	80	80	Based on AOC, could include photocopier
1	Photocopy Work Area	75	75	Adjacent to three clerical office areas
1	Mail Area	75	75	Typical area allowed for the function
1	Lunch/Lounge Room	280	280	Based on Concord District
2	Staff Bathrooms	150	300	Based on AOC size
	Total Court Functions		18,544	
	Circulation	**30%**	5,563	Usually uses 25, 30 or 35% dependant on type of construction & number of floors
	Total Including Circulation (DGSF)		**24,107**	

Filing, Maintenance, Security, Circulation & Parking Program				
# Quantity	Description	NSF	Total NSF	
	Inactive File Storage			
1	Storage Room, (Needs to be Checked w Existing)	800	800	Based on Hillsborough South with added space
1	Vault	250	250	Based on Carroll & doubled due to larger volume of cases
	Maintenance & Utility Related		-	Based on Carroll
1	Custodial Office and Work Area	216	216	Based on night crew area in Hills S.
1	Custodial Supply	150	150	Based on Derry doubled
3	Slopsink Rooms	56	168	Based on Derry : located on each floor
1	Mechanical Room	340	340	Double the size of Derry, will need to be based on system and design
1	Electrical Room	225	225	Based on Hillsborough S.
1	Computer, Voice,Fire Room	125	125	Based on Hillsborough S.
	Security (Basement Level)		-	
6	Holding Cells, 2 Isolated for Juveniles and Females	54	324	Based on Hillsborough S.
1	Group Holding Cell	297	297	Based on Hillsborough S.
4	Interview Space, adjacent 3 cells	66	264	Based on Hillsborough S
1	Holding Area Control	160	160	Based on Hillsborough N
1	Sheriff Break Area	234	234	Use Cheshire CC staff break area.
1	Sallyport	404	404	Based on Carroll
	Misc. to be Determined		-	
1	Staff Bathroom	60	60	2- on each floor with 1-Unisex bathroom
	Total Service Functions		4,017	
	Circulation	**15%**	603	
	Total Service Area Including Circulation (DGSF)		**4,620**	
	Total Approximate Space Requirements (DGSF)		***28,727***	
	Approximate Building Gross Square Feet at 20%		**34,472**	

Administrative Office of the Courts and Trial Court Center
New Building, Lease Space, or Addition to Existing AOC Building Options
Space Program
4/28/2014

Administrative Office of The Courts							
# Required	Description	NSF Each	Total NSF	Unit NSF Sum	Key:	Blue	Shared Space
						Green	Flexible Work Space
Directors Office:							
1	Director Office	210	210		Based on current office		
1	Court Service Representative	64	64		Workstation		
1	Executive Secretary	160	160				
1	Facilities Liason	120	120	554	Needs space for drawings, filing		
Operations:							
1	Manager of Operations Office	170	170		Little larger than on current office (160 SF)		
2	**Flexible Work Spaces**	48	96				
Human Resources:							
1	HR Generalists	170	170		Sized for meetings of 2 to 3 individuals with filing space		
4	Associate(s)	64	256				
1	Filing Space	100	100		6 x 16.5' (located in proximity to work area)		
1	Secure File Room	100	100		6x16.5 (Allows for lateral files or shelving on both sides of room)		
Building and Grounds:							
1	**Groundskeeper/Building Service Worker**	64	64		**One of the Shared Workspaces Under General Areas**		
Records Management:							
1	**Records Management Clerk**	48	48		**One of the Shared Workspaces Under General Areas**		
1	Filing Space	100	100	1,104	Small space for short term storage/files, items waiting to go to courts		
Fiscal, Budget and Accounting:							
1	Fiscal Manager	170	170		Sized for meetings of 2 to 3 individuals with filing space		
1	**Flexible Work Spaces**	48	48				
Accounting Support:							
3	Accounting Support Specialist	64	192		Systems Furnishings		
1	**Flexible Work Spaces**	48	48				
1	Filing Space	100	100		May be shared with Accounting Filing		
Accounting:							
1	Chief Accountant	160	160		Size of Jason's current office		
4	Accounting Analyst	64	256		Systems Furnishings		
1	Filing Space	150	150		10x15'		
Budget:							
1	Budget Assistant	48	48	1,172	Systems Furnishings		
Internal Audit:							
1	Internal Auditor	160	160				
1	Auditor	64	64		6x8 Workstations		
1	**Flexible Work Spaces**	48	48				
1	Filing Space	48	48	320	For Lateral Files		
Court Security:							
1	Manager of Court Security	170	170		Includes lockable storage area in office		
1	**Court Security Officer**	48	48		**One of the Shared Workspaces Under General Areas**		
1	Court Security Officer at Entrance	48	48		One of the Shared Workspaces Under General Areas		
1	Secure Storage Space	170	170	436			
Information Technology:							
1	Chief Technology Officer	170	170		Sized for meetings of 2 to 3 individuals with filing space		
1	Deputy Court Technology Officer	160	160		Size of Jason's current office		
Development & Infrastructure:							
1	Information Technology Manager	160	160		Size of Jason's current office		
Infrastructure:							
1	Sr Network Administrator	160	160		Size of Jason's current office		
3	Lan Specialist	64	192		6x8 Workstations		
1	**Flexible Work Spaces**	64	64				
1	Computer Equip. Storage, Assembly, Network Ro	340	340		20x17' Based on one half of Chenell Drive		
Development:							
8	Development Staff	64	512		Any special filing/storage space necessary?		
2	Developers	64	128				
2	Consultants	64	128				
2	**Flexible Work Spaces**	64	128				
Support Desk:							
1	LAN Supervisor	64	64		Workstation or Office		
4	LAN Specialist I	64	256		Systems Furniture (Gary added two positions)		
1	**LAN Specialist 1**	64	64				
1	**Flexible Work Spaces**	64	64				
Server and Storage Space:							
1	Secure Server Room	408	408		17 x 24' as proposed last Spring		
1	Secure Storage Space	190	190		10 x 19' Storage Space for equipment, based on Chenell		
1	Secure Workbench Space	160	160	3,348			

# Required	Description	NSF Each	Total NSF	Unit NSF Sum	Key: Blue Shared Space / Green Flexible Work Space
General Counsel:					
1	Counsel Office	170	170	170	Sized for meetings of 2 to 3 individuals with filing space
Education and Training:					
1	Education Coordinator	64	64		6x8 Workstations
1	Assistant	64	64		6x8 Workstations
1	Storage Space for Materials	100	100	228	
General Areas, Specific to AOC:					Areas in the proximity of AOC operations
1	Shared Workstations (3 others listed in above sections)	64	64		1 remaining of 4 for multiple uses, consultants, temp. work areas
4	Conference Rooms	200	800		12x19', similar to Chenell Drive….includes video conferencing
1	Large Conference Room / Training Room				See TCC for shared large conference room if programs are combined
4	Bathrooms	160	640	1,504	Similar to AOC
Total NSF, Administrative Office of the Courts				***8,836***	**54** *STAFF*

Trial Court Center

Circuit Court

# Required	Description	NSF Each	Total NSF	Unit NSF Sum	
Administrative Judges and Support Staff:					
2	Administrative Judges Chambers	240	480		Based on Chenell Drive, but a little wider
1	Executive Secretary	170	170		Larger than Linda's current office
7	Secretarial Staff	48	336		Systems Furnishings (Dictation Center)
CIP, DV Coordinators, Staff Attorney:					
2	Office Setups	160	320		Typical smaller office
2	Staff Attorney	170	340	1,646	Little larger based on need for library material
Administrator, ADR, Family, Probate Court, Data Specialist:					
1	Administrator	190	190		Large enough for meeting of 2 to 3 people with filing
1	Executive Secretary	170	170		Typical size for this position type
2	Evening Supervisor, ADR Coordinator	160	320		
2	Family Serv Rep & Data Specialist	160	320	1,000	
Administrator, Call Center, Public Info:					
1	Administrator	190	190		
1	Call Center Manager	120	120		Allows for meeting of up to 4 individuals
35	Call Center Representatives, Asst Mgr	48	1,680		
5	Public Info; Centralized Staff	48	240	2,230	
Administrator, District Court:					
1	Administrator	190	190		
1	Service Representative	160	160	350	
Administrator:					
1	Administrator	190	190		
1	IT Forms Specialist	120	120	310	Systems Furnishings with Additional space for Filing
Coordinator, Electronic Registries:					
1	Coordinator Office	170	170		
7	Registry Representatives	48	336	506	
Subtotal NSF, Circuit Court Functions				***6,042***	

Superior Court

Chief Justice and Support Staff:					
1	Chief Justice Chambers	240	240		Based on Chenell Drive
2	Administrators (Includes 1 Part Time Position)	190	380		Provides Room for Filing & meeting of two
1	Executive Secretary	170	170		Provides Room for Filing & meeting of two
2	Court Systems Representative	160	320		
2	Executive Secretary, Court Systems Specialist	170	340		
1	**Flexible Work Spaces**	**48**	**48**	1,498	
Centralized Jury:					
1	Jury Manager	160	160		
3	Jury Processing Staff	48	144	304	
Subtotal, NSF Superior Court Functions				***1,802***	
General Areas, Specific to Trial Court Center					
1	Large Training Room (With Divider)	2,000	2,000		Shared with AOC
2	Training Conference Room	750	1,500		Similar to the size of the E-Court Room, holds up to 30
2	Conference Rooms	590	1,180		Similar in size to Training Room A at the AOC
4	Conference Rooms	200	800		12x19', similar to Chenell Drive, holds up to 8
1	Library	250	250		Similar to the size at Chenell
3	Copy/Work Areas	108	324		Similar in size to the AOC
6	Bathrooms	160	960		
Subtotal, NSF General Areas Specific to Trial Court Center				***7,014***	
Total Area NSF, Trial Court Center				***14,858***	**84** *STAFF*

# Required	Description	NSF Each	Total NSF	Unit NSF Sum		Key:	Blue	Shared Space
							Green	Flexible Work Space
E-Court								
4	Managers/Deputies	160	640					
75	E-Court Staff	48	3,600					
Total NS, E-Court				***4,240***	**79** *STAFF*			
Common Area for Entire Program								
1	Reception Area	580	580		Chenell squared off			
2	Lounge	400	800		Similar in size to the current at Chenell			
1	Custodial Office/Work Area	260	260		Includes workspace for custodial			
1	Custodial Supply	200	200		10 x 20'			
2	Slopsink Rooms	56	112		Based on Derry, assumes one floor			
1	Mechanical Room	170	170		Estimated, dependant on site and design			
4	Closets for Coats etc	60	240					
2	Electric Room	100	200		Estimated, dependant on site and design			
2	data closets	48	96					
Subtotal NSF, Common Area for Entire Program				***2,658***				
Circulation (corridors, stairs, elevators, etc) @ 35%				***10,707***				
These calculations assume that it will be possible to go from pure NSF to BGF in one step since this is office and not courtroom function.								
Total Approximate GSF Requirements				***41,299***	**217** ***STAFF***			

Merrimack Probate Court Space Program

Fit to Existing AOC Building Second Floor

Space Program 5-28-2014

# Required	Description	NSF Unit	Total NSF	
	Courtrooms			
1	Issues Courtroom	1,110	1,110	Seating for 1 additional row over Dover
	Conference Rooms			
1	Conference Room	100	100	Use existing conference space on lower level for additional conference needs.
	Lobbies			
1	Courtrooms Lobby	500	500	Use existing lobby.
1	Security & Entrance Vestibule	210	210	Use existing lobby.
2	Public Bathrooms	50	100	Existing
	Judicial Chambers & Components			1 Per Courtroom as a rule
1	Judges/Masters Chambers/Library	250	250	
1	Judicial Staff Office	130	130	
	Clerical Work Areas			
1	Clerk's Office	170	170	Similar in size to Keene
7	Clerical Work Area	80	560	8' x 10' based on setup needs for avoiding work comp issues. 3 Probate, 6 District 6 Family and 25% Future
2	Public Counter Area (Includes 1 Handicap)	50	100	7x7 per public space, Separate two from main counter for privacy
1	Staff Lounge	200	0	Use existing on 1st floor.
1	Clerk's Office Active Filing	150	150	10' x 15'
1	Inactive Storage/Filing	1,000	1,000	Based on space available and anticipated reduction due to e filing. 2' for long term retention of records. Current size is 21'x52 and almost out of space. Use of some first floor area an option.
1	Coat Closet	24	24	3' x 8'
1	Photocopy Work Area	75	75	Based on Derry, two small areas or one large area for this purpose
1	Mail Area	70	70	Based on Derry
1	Custodial Office	130	0	Use existing facilities.
1	Custodial Supply	150	0	Use existing facilities.
2	Slopsink Rooms	56	56	Use existing facilities.
1	Video Teleconferencing Closet	12	12	Based on Derry
1	Computer, Voice, Fire Room	70	0	Use existing facilities.
1	Mechanical Room	150	0	Use existing facilities.
	Misc. Locations to be Determined			
2	Staff Bathroom	50	100	Second floor staff toilet rooms to be added.
	Parking Spaces Adjacent to the Courthouse			**TBD; this needs further analysis.**
1	Circulation (corridors, stairs, elevators, etc)		943	**Uses 20% subject to Architects standards.**
Total Approximate Space Requirements (DGSF)			***5,660***	
Approximate Building Gross Square Feet at 20%			**6,792**	

OPTIONS DEVELOPMENT

Superior Court Options

Careful consideration quickly concluded that only one of the sites considered truly offers sufficient and suitable land needed for a new superior court facility. The "Ball Field" area of State property at Hazen drive is of sufficient size to accommodate a new building with its requisite parking, is near to other Judicial Branch facilities, and has preferred site conditions for development. Beneficial site features include good soils for foundations, flat topography, and ready access to utilities.

Initial studies considered the benefits of a three level structure both economically and operationally. Prisoner transport within a trial courts building is a critical component of any design, and can be complicated or simplified by the building configuration. Prisoner movement strongly suggests that the building be multi-level to permit the circulation paths of prisoners to arrive by elevator at the court rooms. Thus, the courts building could be two or three levels with courts on a single or on multiple floors.

A larger building footprint requires more land. A taller structure will generally require more circulation space and so be somewhat less efficient, and so possibly be more costly. On this site, a three level structure could include a basement which, with some grading could accommodate prisoner holding below-grade. This option was considered, but after examining several schemes with and without a basement, it was resolved that the space-program did not lend itself to three levels efficiently. Thus, two story concepts were further examined.

Options with courts on one and two levels were considered. These showed that consolidating functionally related activities on the same level was the preferred configuration. This option allowed:

- The entry level of the structure to permit visitors seeking assistance from the clerk's office to acquire those services on the entry level.
- The grade level of the structure to receive, hold, and circulate prisoners separately from the public and staff.
- The upper level of the structure to be a more quiet level with a public waiting lobby separate from the entry lobby.
- That the balance of space-needs between two equal floors was good, providing storage and mechanical spaces on the lower level in balance with the area needed for courts on the upper level.

Once a viable floor plan design was established, the team worked to reduce the project size to the minimum required by the Judicial Branch, removing one of four courtrooms and reducing the lower level storage and equipment areas. This resulted in a two story building which fits well on the proposed site retaining some site area for potential future expansion.

Superior Court Preferred Solution

The preferred solution places a new two story structure with identical floor plates on the "Ball Field" site at Hazen Drive. The concept developed to test this solution is 34,500 gross square feet. It is a brick veneer building with a cornice, a flat roof, and parapets to help conceal rooftop equipment.

- The structure as anticipated will be steel frame with concrete floors and a metal deck roof.
- Windows will be glazed aluminum storefront and curtainwall.
- The building envelope will exceed code requirements for insulation and incorporate a full air barrier.
- Engineered systems will be of medium quality with either interior or roof-top air handlers, but with zone control through variable air volume units with reheat. A boiler will provide hot water for heating and reheat. Alternative systems for heating and cooling may be considered with an enhancement to the budget, with options including geothermal storage of energy, or solar collectors. Solar collectors are assumed to be installed in order to meet Executive Order 2011-1.
- Electrical systems will include a full emergency/backup generator. Lighting systems will be high-efficiency fluorescent lamped fixtures or LED lamped fixtures. Lighting controls will enhance efficiency by the use of occupancy sensors and timers.
- Communications systems will be provided throughout which will be IT based, and will include telephone and data, security cameras with recording, and access control.
- Interior finishes will generally be commercial quality with painted gypsum board walls, carpeting or vinyl composition tile, resilient base, and grid acoustic ceilings. Doors will be wood veneer with chrome hardware.
    - Special finishes will be provided within public areas for durability and an improved aesthetic. Courts will be simple but will be equipped with wood veneer casework and seating suitable to this use.

  - Special finishes will be provided within holding areas for security and durability, providing concrete masonry partitions and detention grade doors, windows, and locking hardware.

- Site work will include asphaltic concrete paving, granite curbs, and concrete sidewalks. Other site features will include a sign, flagpoles, LED site lighting, benches or seats, and landscape plantings.

Finally, to test the future success of this solution, a program and plan were developed to demonstrate how a future addition might be constructed to expand the court's facilities.

MERRIMACK COUNTY COURTHOUSE
CONCORD, NEW HAMPSHIRE

CONCEPT SITE PLAN
SUPERIOR COURT - HAZEN DRIVE

0 40' 80' 120' 240'
1" = 80'

23 MAY 2014

SMRT

2 LEVEL 2
1/16" = 1'-0"

DEPARTMENT LEGEND

- 01 COURTROOMS & COMPONENTS
- 02 CONF. ROOMS & OUTSIDE AGENCY OFFICES
- 03 LOBBIES
- 04 JUDGES CHAMBER & COMPONENTS
- 05 JURY
- 06 CLERICAL WORK AREAS
- 07 CIRCULATION
- 08 INACTIVE FILE STORAGE
- 09 MAINTENANCE & UTILITY
- 10 SECURITY

1 LEVEL 1
1/16" = 1'-0"

MERRIMACK COUNTY COURTHOUSE
PROPOSED 34,500 SF SUPERIOR COURT

1/16" = 1'-0"
14025
05/23/14

MERRIMACK COUNTY COURTHOUSE

PROPOSED 34,500 SF SUPERIOR COURT

14025

05/23/14

Merrimack Superior Space Program

Future Plan (5/27/14)

# Quantity	Description	NSF	Total NSF	
	Courtrooms & Components			
1	Large Jury	2,340	2,340	Based on Carroll Courthouse for high profile cases
1	Medium Jury	1,820	1,820	Based on Hills. South jury
2	Small Jury/Hearing	1,505	3,010	Based on Dover (previous jury) courtroom & standards
2	Holding cell	96	192	1/pair of courtrooms
2	Secure Atty/Def conference rooms	75	150	1/pair of courtrooms
1	Alternative Dispute Resolution	280	280	Typical meeting room space based on dimensions
1	Media Room or Access	85	85	TBD
1	Video Conferencing Closets		-	Included in large courtroom area
	Conference Rooms & Outside Agency Offices		-	
5	Conference Rooms	100	500	Usually two per courtroom
1	Conference Room	200	200	
1	Conference Room	140	140	Based on Derry with more than 4 people
	Lobbies		-	
1	Clerical Office's Public Lobby	270	270	Assumes 3 service windows, 4 feet per window
1	Public Access, Work Area Adjacent to Clerk's Office	165	165	Allows for Public Access of four individuals.
1	Total Courtroom Lobbies	3,585	3,585	Use combined areas of courtrooms divided by two.
1	Entrance Security Station	250	250	
1	Entrance Vestibule	160	160	Similar to Hills. North, allows for stacking of public
4	Public Bathrooms	187	748	2-per floor, based on larger AOC, upper floors
	Judicial Chambers & Components		-	
4	Judges Chambers	250	1,000	Based on Cheshire judge's chambers allows for meeting with 4+
4	Law Clerks Offices	115	460	Based on Carroll; sits 2 per office
1	Monitors Offices	266	266	Shared spaces.
1	Library /Staff Conference	260	260	Based on standards
3	Staff Bathrooms	50	150	Standard size and should be based on today's code requirements
	Jury		-	
4	Deliberation Rooms	270	1,080	Based on standard jury with break counter
4	Alternate Juror Rooms	120	480	through a vestibule, may share the same bathrooms as the jury.
8	Bathrooms (2 per Deliberation Room)	50	400	Based on Carroll
2	Security Officer Stations (Sits 2 per room)	60	120	Deliberation rooms.
1	Assembly Room/Grand Jury Room	1,670	1,670	Reduced by 75 sf
2	Conference Rooms	150	300	Adjacent to Jury Assembly Room
	Clerical Work Areas		-	
2	Clerk's/Deputy Office	180	360	Use typical office area with space for filing and two person meeting
12	Superior Clerical Work Area	80	960	Based on 6 x 8 workstation and circulation space
3	Public Counters (with 1 handicap)	32	96	Allows for circulation of staff behind one another
1	Clerk's Offices Active Filing	580	580	Reduced in anticipation of gains by e filing.
1	Coat Closet	30	30	Added item.
1	Paper and Office Supplies	80	80	Based on AOC, could include photocopier
1	Photocopy Work Area	75	75	Adjacent to three clerical office areas
1	Mail Area	75	75	Typical area allowed for the function
1	Lunch/Lounge Room	280	280	Based on Concord District
2	Staff Bathrooms	150	300	Based on AOC size
	Total Court Functions		22,917	
	Circulation	**20%**	4,583	Revised to 20% due to efficiency of design concept for addition.
	Total Including Circulation (DGSF)		**27,500**	

# Quantity	Description	NSF	Total NSF	
Filing, Maintenance, Security, Circulation (Usually Located in a Basement) & Parking Program				
#			**Total**	
Quantity	**Description**	**NSF**	**NSF**	
	Inactive File Storage			
1	Storage Room, (Needs to be Checked w Existing)	400	400	Based on Hillsborough South with added space
1	Vault	250	250	Based on Carroll & doubled due to larger volume of cases
	Maintenance & Utility Related		-	Based on Carroll
1	Custodial Office and Work Area	216	216	Based on night crew area in Hills S.
1	Custodial Supply	150	150	Based on Derry doubled
3	Slopsink Rooms	56	168	Based on Derry : located on each floor
1	Mechanical Room	340	340	Double the size of Derry, will need to be based on system and design
1	Electrical Room	225	225	Based on Hillsborough S.
1	Computer, Voice,Fire Room	125	125	Based on Hillsborough S.
	Security (Basement Level)		-	
6	Holding Cells, 2 Isolated for Juveniles and Females	54	324	Based on Hillsborough S.
1	Group Holding Cell	297	297	Based on Hillsborough S.
4	Interview Space, adjacent 3 cells	66	264	Based on Hillsborough S
1	Holding Area Control	160	160	Based on Hillsborough N
1	Sheriff Break Area	234	234	Use Cheshire CC staff break area.
1	Sallyport	404	404	Based on Carroll
	Misc. to be Determined		-	
1	Staff Bathroom	60	60	2- on each floor with 1-Unisex bathroom
	Total Support Functions		3,617	
	Circulation	**15%**	543	
	Total Support Space Including Circulation (DGSF)		**4,160**	
	Total Approximate Space Requirements (DGSF)		***31,660***	
	Approximate Building Gross Square Feet at 20%		**37,992**	

MERRIMACK COUNTY COURTHOUSE

CONCORD, NEW HAMPSHIRE

CONCEPT SITE PLAN

SUPERIOR COURT WITH FUTURE ADDITION - HAZEN DRIVE

0 40' 80' 120' 240'

1" = 80'

23 MAY 2014

2 LEVEL 2
1/16" = 1'-0"

DEPARTMENT LEGEND

- 01 COURTROOMS & COMPONENTS
- 02 CONF. ROOMS & OUTSIDE AGENCY OFFICES
- 03 LOBBIES
- 04 JUDGES CHAMBER & COMPONENTS
- 05 JURY
- 06 CLERICAL WORK AREAS
- 07 CIRCULATION
- 08 INACTIVE FILE STORAGE
- 09 MAINTENANCE & UTILITY
- 10 SECURITY

1 LEVEL 1
1/16" = 1'-0"

SMRT

MERRIMACK COUNTY COURTHOUSE

PROPOSED SUPERIOR COURT WITH 3,500 SF ONE STORY ADDITION

1/16" = 1'-0"
14025
05/23/14

Administrative Office of the Courts & Trial Court Center (AOC & TCC)

The need to accommodate growth within the call center of the TCC establishes an immediate need for action. Thus all options developed for these space-needs ultimately needed to take into account this fact. Ideally, from an operational perspective, a combined facility should be developed. Several options were evaluated:

A. Combined AOC/TCC at 2 Charles Doe Drive
The team first evaluated the option to construct an addition to the AOC at 2 Charles Doe Drive. Use of this site would co-locate both the Superior Court and the AOC/TCC on a site that also serves the Supreme Court. This would be a great benefit to the operations of the courts.

With careful design of parking, the site between the proposed Superior Court location and the existing AOC can accommodate up to a 40,000 sf addition plus parking if the building is constructed on two levels. The fit is tight, however, reducing options for expansion on this property in the future. More significantly, the proposed addition is more than twice the size of the existing AOC, and so is an overwhelming expansion of that building. If pursued, this project should consider the existing AOC as a wing to the proposed addition, with an analysis of the building equipment within the existing AOC for integration with that of the addition.

B. Combined AOC/TCC at 2 Charles Doe Drive – Reduced area
To reduce the potential project size, the program for the TCC was revised to assume greater sharing of conference space needs, and to reduce some spaces with greater efficiency or less anticipated growth. The size of the addition after reduction is 30,000 sf on two levels. The fit of this revised program on the AOC site is a better fit. (Refer to meeting notes for sketch plans.)

C. Combined AOC/TCC at 45 Chenell Drive – Further Reduced Area
In an effort to test whether both the AOC and TCC could fit within the existing 40,000 sf facility at 45 Chenell Drive, the programs for both were further compressed with the result that these could be made to fit in the existing leased building. (Refer to meeting notes for representative programs.) Though tight, the effort was successful with the greatest compromise being that any future growth would lead to the need for an addition or a move.

D. Separate TCC at Site to be Determined
Assuming that the AOC were not to move, and that the TCC would either continue at its current 45 Chenell Drive address or move to a similar structure elsewhere in Concord, a program and sketch plan were developed. The sketch shows occupancy of the Chenell Drive facility as the template with a 30,000 sf program.

AOC/ TCC Preferred Solution

The preferred solution seeks the benefit of a combined facility for operational efficiency and effectiveness and for the best economy. This will be accomplished by the option to purchase 45 Chenell Drive or another property. A new facility is anticipated to be like the property at 45 Chenell Drive, improved for long term use and energy efficiency. The ideal property will:

- Be a modest structure that is approximately 45,000 gsf on one or two floors.
- Have windows of glazed aluminum storefront and curtainwall.
- Have a building envelope that exceeds code requirements for insulation and will incorporate a full air barrier.
- Have engineered systems of medium quality with gas roof-top air handlers, but with zone control through variable air volume units with reheat. A boiler will provide hot water for reheat. If gas is not available, the boiler will also provide heating to roof top units. Hot water will be provided by solar collectors with the boiler providing backup.
- Include an electrical system with a full emergency/backup generator. Lighting systems will be high-efficiency fluorescent lamped fixtures or LED lamped fixtures. Lighting controls will enhance efficiency by the use of occupancy sensors and timers.
- Have communications systems provided throughout which will be IT based, and will include telephone and data, security cameras with recording, and access control.
- Be finished with interior finishes which are generally of commercial quality with painted gypsum board walls, carpeting or vinyl composition tile, resilient base, and grid acoustic ceilings. Doors will be wood veneer with chrome hardware.
- Be expandable.

45 Chenell Drive, if purchased, will require some improvements to achieve greater building performance than it now provides in terms of both energy efficiency and in the longevity of its systems. These improvements are anticipated to be phased if purchase is successful.

Note that for these two operations to be located together at a new location, the current AOC building at 2 Charles Doe Drive will become available for use and is anticipated to be occupied by the Probate Court. This option is shown below.

MERRIMACK COUNTY COURTHOUSE

CONCORD, NEW HAMPSHIRE

CONCEPT SITE PLAN

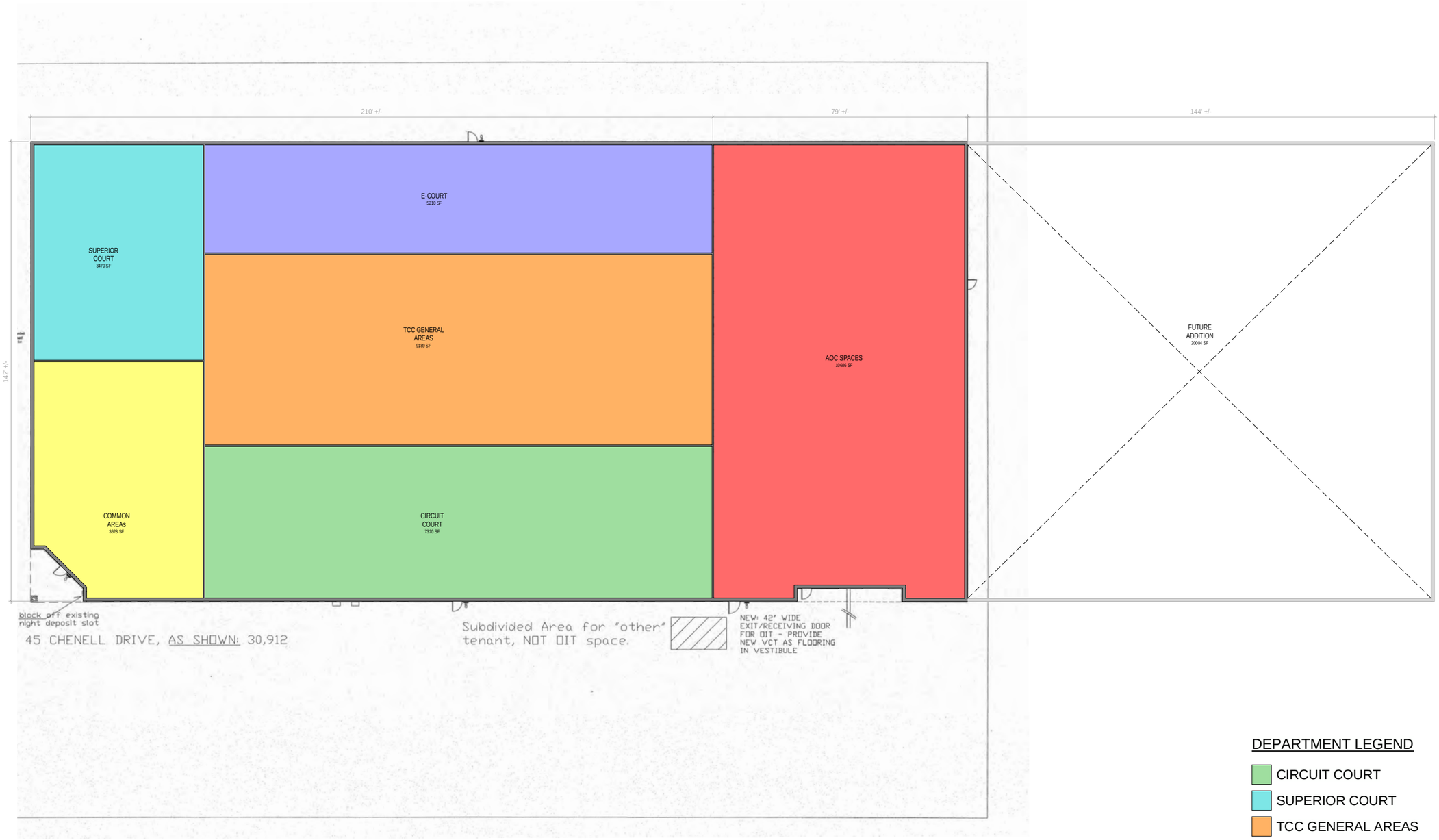
CHENELL DRIVE - FUTURE 20,000 SF ADDITION

0 50' 100' 150' 300'

1" = 100'

23 MAY 2014

SMRT



DEPARTMENT LEGEND

- CIRCUIT COURT
- SUPERIOR COURT
- TCC GENERAL AREAS
- E-COURT
- COMMON AREA
- AOC SPACES

MERRIMACK COUNTY COURTHOUSE

30,000 SF TCC W/ 10,000 SF AOC @ CHENELL DRIVE (20,000 SF ADDITION SHOWN)

1/16" = 1'-0"
14025
05/23/14

Probate Court

The Probate Court, currently located within the Merrimack County Administration Building on the same site together with the Superior Court, would move to another location once the Superior Court is moved. Operationally, the preferred solution would be to move Probate Court to be a part of the current Circuit Courthouse on Clinton Street as it is a division of the Circuit Court. Several options for adding on to the existing building at Clinton Street were considered and reduced to one preferred option at this location. Due to the anticipated availability of the 2 Charles Doe Drive building once the AOC is moved, however, a second option for a Probate Courthouse there was considered.

A. Probate Court as an Addition to the Circuit Courthouse
   Several test plans were developed to determine the best fit of an addition to the existing Circuit Courthouse that will accommodate the space program of the Probate Court. Concepts included a single large addition to the northeast or to the southwest side of the existing structure. For all, parking expansion on the opposite side of the hospital entrance drive will be required. This location for parking is best suited to the site due to wetlands bounding the northeast edge of the currently developed property.

   Given the value of continuing to utilize the existing lobby and clerk offices, it was resolved that additions which add two courts to the southwest side of the building and which add additional floor area to the existing clerk offices will provide the greatest efficiency and functionality.

   Further studies tested options for two courts on an upper floor, or one court each on two floors. The most efficient and economical plan shows a smaller two story addition housing a Probate Court room on each floor, plus additional offices and holding cells to expand these service areas in correlation with increased need.

B. Probate Court as a Stand-Alone Facility
   As consolidation of AOC offices with those of the TCC might possibly result in a move for the AOC, options to locate Probate Court into the current AOC facility were considered to provide a recommendation to beneficially reuse the existing AOC building. A program was developed to guide the functions that would be needed for an independently located Probate Court.

   The option shown graphically places a single courtroom on the upper floor and anticipates that the existing conference room will serve as a hearing room when needed.

Probate Court Preferred Solution

The preferred solution places the Probate Court into the existing facility at 2 Charles Doe Drive. To the extent possible, for greatest economy, existing spaces will be used as-is or with limited modifications. The area designated for a courtroom and ancillary spaces will be renovated to this new use. Other areas will be repaired after construction and otherwise provided with renewed finishes only.

- A single courtroom will be located on the second floor (entry level) east side. This placement will permit security screening to be placed within the existing lobby prior to the courtroom.

- Other modifications to serve the courtroom will include the addition of staff toilet rooms on the upper floor, one combined chamber/library for the judge, and space for four clerks.

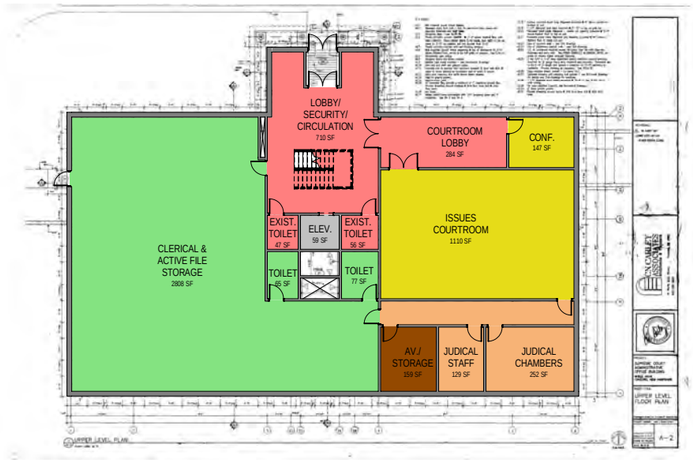
- Mechanical systems are expected to continue in service with modifications required to ductwork and diffusers to suit new floor plan layouts, and to controls to suit new space conditioning zones.

- Electrical systems will be modified as required for new uses. The existing generator will be evaluated for its ability to meet the needs of the new building use.

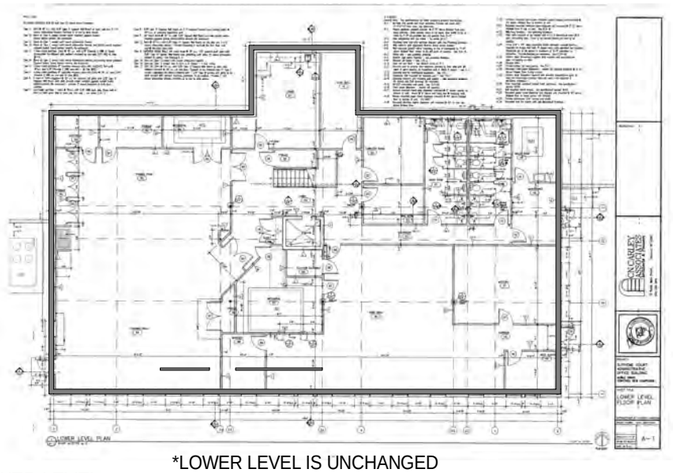
- Communications systems will be modified as required for new uses with jack relocations and electronics systems modifications as needed. Security cameras will be added as appropriate for a courthouse operation.

- Interior finishes in office and non-public areas will be commercial quality consistent with existing building finishes. Finishes will generally be painted gypsum board walls, carpeting or vinyl composition tile, resilient base, and grid acoustic ceilings. Doors will be wood veneer with hardware to match existing.

    - Special finishes will be provided within public areas for durability and an improved aesthetic to the extent that the existing lobby does not provide these. Courts will be simple but will be equipped with wood veneer casework and seating suitable to this use.



UPPER LEVEL



*LOWER LEVEL IS UNCHANGED

LOWER LEVEL

DEPARTMENT LEGEND

- NEW JUDICIAL AREAS
- NEW PUBLIC AREAS
- NEW CIRCULATION
- NEW CLERICAL WORK AREAS
- NEW COURTROOMS
- NEW SUPPORT SPACES

MERRIMACK COUNTY COURTHOUSE

PROPOSED PROBATE COURT IN EXISTING AOC BUILDING

1/16" = 1'-0"

14025

05/23/14

CONSTRUCTION AND PROJECT COSTS

Estimates for project cost have been performed based upon the concepts developed, applying reasonable assumptions with regards to general building quality, finishes, mechanical and electrical systems, and site development.

- Costs per square foot were derived from quantity estimates and these applied to the various options.
- All costs are based upon a project that would start design in 2015. Funding must also include a factor added for anticipated inflation to the time that the project would start if later than that date. The construction market is increasing in activity more than in recent years, and so at this time, a factor of 5 – 6% per year is recommended.
- Construction costs include only items purchased and installed by a construction contract.
- Owner costs typically include legal counsel, insurance, design services, permitting, construction contingency, furniture and equipment, testing and inspections, geotechnical investigations and surveying, and commissioning. These are included as 20% of the construction cost.

New Hazen Drive Superior Courthouse

Building and Site Cost/SF Estimate	$341
Building Area (gross square feet)	34,500
Construction Cost - Building	$10,705,000
Construction Cost – Site	$1,059,000
Owner's Costs	$2,353,000
Recommended Project Cost	$14,117,000
Project Cost/SF	$409.19

Chenell Drive Office – Renovation and Fit-Out for Full Occupancy

Building Repairs	$303,000
Building Area (gross square feet)	40,000
Renovation Area (gross square feet)	13,500
Renovation Cost/SF Budget	$40
Renovation Cost to Occupy - Building	$540,000
Owner's Costs	$167,000
Recommended Project Cost	$1,012,000
Project Cost/SF - Average	$25.30

Chennel Drive Addition

Presumed Addition Building Area (gross square feet)	20,000
Renovation Cost/SF Budget	$210
Renovation Cost – Building & Site	$4,200,000
Owner's Costs	$840,000
Recommended Project Cost	$5,040,000
Project Cost/SF	$252.00

Two Charles Doe Drive Office Renovation to be Probate Court

Building Cost/SF Estimate (average)	$82.37
Building Area (gross square feet)	13,500
Construction Cost - Building	$1,112,000
Construction Cost – Site	$38,000
Owner's Costs	$230,000
Recommended Project Cost	$1,380,000
Project Cost/SF	$102.22

Building Evaluation

New Hampshire Trial Court Center
45 Chenell Drive
Concord New Hampshire

April 18, 2014

Prepared by:

SMRT
144 Fore Street
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207 772-3846

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1. Use and Reliance Limits

This review of the New Hampshire Trial Court Center at 45 Chenell Drive in Concord New Hampshire was limited to a single site visit and concurrent communications with on-site personnel in order to prepare a reasonable report on the condition of the existing office building. SMRT was provided some of the original construction drawings to assist in the preparation of this report. Identification of maintenance or improvement items that should be considered is based upon information available and the limited observations made and is therefore not comprehensive.

2. Approach to Study

The following report is the result of a field visit by a structural engineer, an architect, a mechanical engineer, and an electrical engineer on April 4, 2014. The investigation team was escorted throughout the facility by the Courts Facilities Manager. During the visit we walked the building's perimeter and roof. We inspected the office space, toilet rooms and support space. Finally, we inspected the mechanical and electrical rooms. Field notes and photographs were taken to document existing conditions.

3. Property Description

The evaluated property is located at 45 Chenell Drive, in Concord New Hampshire. The building is a one story building with 12" single-wythe concrete masonry unit (CMU) bearing walls and a "flat" steel structured roof. Windows and storefronts are aluminum frame units. Windows are fitted with insulating tinted glass.

The building was constructed in 1998 and originally housed offices of the Taxation Administration. The building comprises approximately 41,000 square feet of office space. The NH Trial Court Center is the primary tenant occupying approximately half of the gross floor area, with a reception lobby, staff break room, toilet rooms and support space. A Church organization has leased a small area within the structure and the remainder is currently unoccupied.

An asphaltic concrete parking lot and sidewalk leading to the main entrance is on the east side of the building.

4. Executive Summary

45 Chenell Drive was constructed economically, and this fact is evident throughout the building in the systems provided, in the simplicity of the structure, in the poor performance of the building envelope, and in its finishes. Though sound, the structure provides office accommodations that are limited in comfort, enclosure and space conditioning systems that are not energy efficient, and materials and equipment which is short lived. In spite of these limitations, the facility can provide serviceable, economical accommodation with limited investment. Because lower quality systems and components exist throughout, however, major investment to change the fundamental nature of the facility is not recommended.

The building is sixteen years old and the exterior envelope and interior fit-up is, for a building of this age, in good condition. Rooftop HVAC equipment and the ballasted EPDM roof are approaching their life expectancy and should be replaced. The HVAC equipment and thermal envelope should be upgraded to meet the State of New Hampshire Energy Code requirements. Minor renovations and upgrades should also be made to meet ADA accessibility guidelines and the electrical code.

5. Codes and Standards

The following Codes and Standards are currently applicable to this building: Authority Having Jurisdiction includes:

State of New Hampshire Fire Marshal
City of Concord Building and Fire Departments

Currently adopted Codes include:

- New Hampshire State Building Code
- State Fire Code
- International Building Code 2009 with State of New Hampshire Amendments
- International Existing Building Code 2009 with State of New Hampshire amendments
- International Energy Conservation Code 2009 with State of New Hampshire amendments
- International Mechanical Code with State of New Hampshire amendments
- International Plumbing Code 2009 with State of New Hampshire amendments
- National Electrical Code 2011 with State of New Hampshire amendments
- Code for barrier Free Design for the State of New Hampshire, 2008

- 2010 ADA Standards for Accessible Design, Department of Justice, 2010

6. Building Component Review

A. Site

General Overview
The asphalt drive, parking, side walk and a loading dock area are located on the east side of the building. A lawn with planted bushes and trees occurs on the east, west and north sides. An area of woodland bounds the south side of the building adjacent to the entrance.

Observations
- The asphalt paving is in fair to poor condition with some cracking.
- The parking area is lighted with pole lights that are spaced far apart suggesting light levels at night may be low.
- An emergency generator is located between the sidewalk and the east side of the building. This was reported to have been added by the current primary tenant.

Recommendations
- Budget to have asphalt paving sealed and restriped in the next year.

B. Building Envelope

General Overview
The roof of the building is a ballasted EPDM system on rigid board insulation on metal decking. By the absence of fasteners visible below the metal deck, the ballast retains both the insulation system and the roofing membrane as was common for this system.

The south, west and east exterior walls are split face CMU bearing masonry. These walls have stud furring on the inside which is insulated with batt insulation and typically finished with gypsum board. Stud furring extends only to above the ceilings leaving the wall surface above ceilings uninsulated.

The north wall is clad in metal panels attached to cold formed metal studs (we assume to allow for future building expansion- research would be required to determine potential footprint of an addition on

this side). It is assumed that the studs supporting the metal panels are also insulated with batt insulation.

The building envelope does not meet the requirements of the current NH State Energy code as one would expect for a building of this age. Compliance retroactively is not required, however, energy performance would be enhanced by the installation of additional thermal insulation at the roof and walls. The ballasted EPDM roof is original to the building and although in good condition consideration should be given to replacing it and adding more roof insulation. This work would be best performed when the roof top HVAC equipment is replaced (see mechanical observations). Overall, the walls are in good condition with only minor repairs necessary to the CMU exterior.

Observations

- The ballasted EPDM roof is in good condition for its age and drains to roof drains aligned with the column grid running the length of the building. At some locations pine needles have accumulated at the roof edge and adjacent roof drains.
- Inspection of the roof edge adjacent the roof hatch indicates that there is 3" of board insulation on the roof.
- The roof deck is approximately 20'-3" above the slab on grade.
- Exterior wall assembly is comprised of 12" split face structural CMU. CMU exterior walls have furred-out gypsum board/metal stud walls with fiberglass batt insulation at office areas. The exterior wall is un-insulated above the plane of the acoustical panel ceiling.
- Efflorescence occurs in a continuous band at the top of the exterior wall. Efflorescence is typically the result of wetting of the masonry, dissolution of salts within the material, and the subsequent transportation and deposition of those salts on the masonry surface when the moisture evaporates. Thus, at some time, the masonry in this location was wetted, though no apparent wetting was apparent during observation for this report.
- Efflorescence and rust occurs at the lintel over the main entrance.
- Sealant in masonry control joints is cracked at some locations.
- A crack was observed in the CMU where a lintel ties into the wall above the loading dock.
- Operable insulated aluminum frame windows occur along the perimeter of the building. The windows appear to be in good condition although there are reports of them being drafty and cold in winter months. The building has limited thermal control, and so this may or may not be due to air leaks, and could simply be the result of an area being cool.

- Fixed insulated storefront windows and single glazed entry doors occur at the main entrance. The storefront and entry door appears to be in good condition.

Recommendations

- In order to improve the thermal envelope at the roof a minimum of 2" additional isocyanurate board insulation and a cover board should be installed on the roof when replacing the aging EPDM membrane. The existing roofing system is ballasted, however the new roofing system should instead be fully adhered. A replacement roofing system would typically require screw fasteners and washers to adhere the insulation to the metal deck. Installers will need to be aware of obstacles below the roofing deck that their screws might damage, but this remains the best option.
- In order to improve the thermal envelope of the exterior wall a minimum of R-19 insulation should be installed on the interior face of the CMU above the ceiling where there currently is no insulation. Because the ceiling cavity is an air plenum, code requirements limit choices for this material and its vapor retarder to those which meet ASTM E 84 Class A requirements.
- The tops of exterior walls should be monitored for wetting at various weather and humidity conditions to possibly determine the source of moisture which caused efflorescence.
- A roof ladder which exceeds 24'-0" in height and requires a "cage" or safety features meeting OSHA regulations. This building's roof ladder is just below the limit, and so any safety accommodation that could be considered would be beneficial. A safety cage above 16' height would be beneficial. A safety post at roof hatch is recommended.
- Crack in CMU above loading dock needs to be repaired- see structural narrative.
- Building sealants have a limited life and should be inspected each year. Typically, urethane sealants will need replacement every 8 – 12 years. Silicone sealants can last twice this time. Existing sealants in masonry walls have failed in places showing that sealants installed have reached the end of their service life, and so should be replaced with silicone sealants.

C. Building Interior

General Overview

The building floor plan is laid out with offices typically located on the exterior wall with open office areas and support space in the middle of the floor plate. The spaces are defined by metal stud gypsum walls terminating a few inches above the suspended acoustical panel ceiling.

Finishes are typical for a "spec" office building including carpeting and VCT. Some will require replacement in areas.

Observations

- Life safety features of the building including the location and width of exits, travel distances etc. appear to be in compliance with applicable codes.
- Ceilings are 2'-0" by 2'0" acoustical panel ceilings, typically at 8'-10" A.F.F. and in good condition except where leaks have occurred above the ceiling and stained tiles.
- Acoustical batts have been placed above the ceiling in some locations to reduce acoustical intercommunication between rooms.
- Walls are typically gypsum board on 3 5/8" metal studs that terminate a few inches above ceiling and that are braced to ceilings and bar joists above. Walls and paint finishes are in good condition.
- Cosmetic cracks in gypsum board occur at the top corners of some hollow metal door frames.
- Exterior CMU walls at occupied space have been furred out with metal stud/gypsum board walls and insulated with fiberglass batts. Walls return at window openings with deep hardwood sills.
- Office area and corridor floors are carpeted and in good condition.
- Toilet room floors have VCT which is generally in poor condition.
- Toilet room plastic laminate counters are in fair to poor condition.
- The lobby reception window has 42" high counter which does not meet ADA height requirements if a visitor is required to write.
- Side clearance from walls at some handicap toilets does not meet the required 60" clearance.
- The main entrance door is set back in a deep wall return that does not provide required ADA clearances.
- The clear height below lavatory counters is less than the dimensional clearance required by ADA.
- An electrical panel projects more than 4" into a corridor.

Recommendations

- Leaks above stained ceiling tiles should be traced to find origin and repaired. This effort will be superseded by the installation of a new roof.
- ADA non-compliant conditions described above should be rectified.
    - If a lobby visitor is required to complete forms or sign-in, then an accessible writing surface is required.

- Whenever walls or doors are modified, new configurations should be installed to comply with ADA clearance requirements.
- Toilet rooms which are not compliant should be surveyed for options to bring them into compliance. This effort should focus first upon those toilet facilities most likely to be utilized by a visitor, or by a current employee with a disability.

- Finishes in poor condition should be replaced.

D. Structural

Observations
45 Chenell Drive has one-story CMU perimeter bearing walls approximately 20' tall with interior HSS columns supporting open-web joist roof framing with non-composite metal roof deck. The non-bearing rear wall of the structure appears to be metal stud framing with metal panel siding. The ground floor is slab-on-grade. The approximate building footprint is 135 feet x 280 feet. Structural framing is divided into three interior column lines spaced approximately 45' o.c. with roof joists framing into girders between the column lines.

The building was constructed in 1998 and, in general, is in good structural condition with reasonable wear consistent with a structure its age.

Reference is made to:
1. Drawing S3 ROOF FRAMING dated December 12, 1997 provided by Opechee Construction Management Corp. (no other structural drawings were provided).
2. Steel joist catalog from New Millennium Building Systems.

- *Steel roof framing*
  Typical open-web steel joists are 32" deep with a double 2x2 angle for the top and bottom chords and are marked 32LH08, which is a standard joist produced by New Millenium Building Systems. The listed capacities of the joists exceed the forces from code-specified snow loads and the actual dead loads so the joists are not under-designed. The joists are sized to meet a standard deflection criteria under full snow loads of span / 240, or (45 feet * 12 inches / foot) / 240 = 2.25".

  The client reported that, soon after initial occupancy in 1998, a heavy snowstorm appeared to cause 2-3 inches of vertical deflection in some sprinkler heads at the ceiling level. The client does not recall any subsequent repairs to the building. Note that the length of spans in this building is long and that the design criterion is

proportionate to the span. Thus, observed deflections within this structure, though meeting the criterion, will be greater than in another structure with shorter spans. Longer spans were an economy selected during the design of the facility.

Note that both the sprinkler lines and ceiling panels are hung from the roof and in the case of heavy roof loads they would be expected to deflect in unison; i.e.: little or no relative movement between the ceiling panel and sprinkler head would occur. One explanation for the apparent movement of sprinkler heads is that joist deflections may have caused a loose sprinkler hanger to slip free and the sprinkler pipes sagged locally. If the ceiling remained attached to the joist, this would create the condition as described above. It appears that at some point the sprinkler attachment was fixed as this problem has not recurred (according to the client).

Refer to photo of roof framing

- *Exterior CMU bearing walls and exterior concrete.*
  An informal visual survey of approximately 830 linear feet of exterior CMU bearing walls and the visible portion of the perimeter foundation wall revealed no major structural cracks in the CMU walls or foundation. The mortar is in generally good condition with no areas requiring major repointing. One minor crack was noted and should be addressed per the recommendations below. Refer to photo of crack above loading dock.

- *Interiors*
  Interior non-bearing partitions show some minor cosmetic cracking (see photo). These do not indicate structural settlement or movement. Had gypsum systems expansion joints been provided, these cracks might not have occurred. The exclusion of gypsum systems expansion joints is common, as are gypsum systems cracks.

  The slab-on-grade is covered by carpet but there were no signs of settlement, damage, or water penetration.

Recommendations

- *Exterior CMU bearing walls.*
  At one location near the loading dock lintel (ref. photo 3893) there is an isolated crack approximately 16” x 3/8” wide. This crack should be filled to prevent water infiltration and subsequent freeze-thaw cycles.

E. Plumbing Systems

Observations

- *Domestic Water System*
  A combination domestic water and fire protection line enters the Mechanical Room and the domestic water line immediately branches off. Irrigation water branches off the domestic water line. Water meters are installed on both the domestic water and the irrigation water line. Domestic water is piped through a RPZ backflow preventer and to a pressure booster pump and bladder tank. The power switch for the pump is currently in the off position. Static water pressure at the time of the field visit was 65 psig. An RPZ backflow preventer is not visible on the irrigation line in the mechanical room, though required by code.

  Domestic hot water is produced by electric tank-type water heaters located above the ceiling near each bathroom.

- *Sanitary Drainage and Vent System*
  Sanitary drainage piping is below slab and therefore unable to be observed during site visit. Plumbing fixtures appeared to be functioning properly and no indications of issues with drainage system were observed.

  Existing sanitary vent piping material is PVC, which exceeds the maximum smoke-developed rating allowed in a return air plenum and so not permitted by current codes.

- *Roof Drainage System*
  Roof drains were observed on the roof and cast iron roof drainage piping was observed in the ceiling plenum. Roof drainage system appears to be in good working condition. No modifications to existing roof drainage system are expected to be required.

- *Plumbing Fixtures*
  Existing plumbing fixtures are commercial type and appear to be in good working condition. Toilets are floor-mounted flush valve type. Lavatories are drop-in-counter type with manual wrist blade faucets. There is a single level water cooler drinking fountain that does not meet ADA requirements to accommodate wheelchair users.

- *Natural Gas Distribution*
  The natural gas regulator and meter are located on the building exterior. The regulator reduces natural gas from street pressure (60 psig) to 7" water column pressure. Natural gas distribution piping runs in the ceiling plenum with individual roof penetrations for each packaged rooftop HVAC unit. Natural gas piping above the roof does not appear to be painted and shows a considerable amount of rust.

Recommendations

- Explore whether or not existing domestic water booster pump is required. At 65 psi pressure, the system should be able to flush toilets and operate other fixtures. Perhaps the service was improved subsequent to building construction, or perhaps service pressure is unreliable. Repair pump system if required. Remove pump system if not required.

- Install a RPZ backflow preventer on the irrigation line.

- Existing water heaters are old, and typically would not be expected to have a long service life. Additionally, a leak from a water heater above a ceiling can cause damage. We recommend that existing electric storage tank type water heaters be replaced with new electric tank type water heaters in compliance with International Energy Conservation Code.

- Replace existing sanitary vent piping within the plenum with cast iron or copper piping. Alternatively and where pipe routing permits it, the plastic piping can be enclosed within a wall.

- Replace existing single level drinking fountain with new bi-level, ADA compliant drinking fountain.

- Paint exposed natural gas piping on roof.

F. Fire Protection Systems

Observations

- The building is served by an existing wet pipe sprinkler system. A combination domestic water and fire protection line enters the Mechanical Room and the domestic water line immediately branches off. The fire protection line continues on to a dual check valve assembly, alarm check valve and fire department connection. Fire protection piping extends above the ceiling into the ceiling plenum to feed fire protection distribution piping throughout building.

Recommendations

- No fire protection work is expected to be required, unless wall layouts or space programming changes are made.

G. Heating, Ventilating and Air Conditioning Systems

General Overview

The existing HVAC systems serving 45 Chenell Drive consist of multiple packaged rooftop HVAC units with electric direct expansion cooling,

economizer cooling and gas heat. HVAC units are constant air volume units, serving one temperature control zone per unit.

A split system HVAC unit consisting of a roof-mounted condensing unit and indoor evaporator provides cooling in the Computer Room.

Roof-mounted exhaust fans provide bathroom exhaust and general exhaust.

Observations

- *HVAC Equipment*
  Existing packaged rooftop HVAC units are constant air volume units, serving one temperature control zone per unit. HVAC units were manufactured in 1998. HVAC units show signs of rust and general weathering, but appear to be in relatively good condition for their age. Existing HVAC units do not meet International Energy Conservation Code minimum cooling efficiency requirements. Exhaust fans show signs of rusting on the fasteners, but appear to be in overall good condition.

- *HVAC Air Distribution*
  HVAC supply air distribution system consists of sheet metal supply duct mains located in plenum space above ceiling with flexible insulated branch ducts to ceiling-mounted supply diffusers. Ductwork appears to be intact and in relatively good shape. Flexible duct lengths exceed industry standard for maximum lengths. Flexible ductwork is poorly supported, as can be seen in photographs.

  Return air is a non-ducted plenum return system consisting of ceiling-mounted egg crate style return grilles open to ceiling return plenum. Exterior walls in ceiling plenum are not insulated.

  Exhaust air is ducted from ceiling-mounted exhaust grilles to roof-mounted exhaust fans.

Recommendations

- Existing packaged rooftop HVAC units are nearing the end of their expected lifespan and should be replaced. Existing HVAC units do not meet Energy Conservation Code minimum cooling efficiency requirements. Assuming interior wall layout and space programming remain unchanged, existing HVAC units may be replaced with new packaged rooftop HVAC units that meet International Energy Conservation Code heating and cooling efficiency requirements and provide the same level of control and comfort as the current equipment. Curb adapters will be required to allow new HVAC units to be located on existing roof curbs, however, with a new roofing system to be installed, new roof curbs are an option.

- Replace existing split system HVAC unit serving the Computer Room with new unit that meets International Energy Conservation Code heating and cooling efficiency requirements.

- Existing HVAC supply, exhaust and return distribution does not need to be modified unless interior wall layout or space programming changes occur. Existing insulated flexible supply ductwork should be properly supported if work above the ceiling is done.

- If significant interior wall layout or space programming changes are expected to occur, alternate HVAC system options should be considered. System options would offer greater energy efficiency and thermal comfort through better zoning. The current system cannot be easily adapted for a higher level of control, but should significant work within the building result in exposure of ductwork, a new higher performing system is an option, but at a cost that might be $80/sf, depending upon the system selected. The technology available and most likely applicable would be gas-fired custom rooftop units with VAV zone control, with or without energy recovery from exhausted air.

H. Electrical Power Distribution

General Overview

Overall, the electrical distribution system appears to be in good condition and the service size appears adequate for the current use of the building.

Observations

- The building is fed from a utility owned 225kVA pad mounted transformer located at the front of the building. From there, the service conductors are run underground to a 480Y/277 Volt, 800 Amp, main distribution switchboard (MDP) located in the main electrical room.
- The main distribution panel (MDP) feeds (2) panelboards (HP & HP-1), a 125 Amp transfer switch and 150kVA transformer T-1. It also contains (2) 100 Amp, 3 pole spares and space for an additional 3 pole circuit breaker.
- Transformer T-1, also located in the main electric room, is tapped to serve all the 208Y/120 Volt panelboards (except GPLP) in the building.
- The majority of the building's panelboards were manufactured in April 1998 and are located in electrical closets but a few are located in corridors. Some do not have all circuits labeled. MDP, HP, HP-1, LP and LP-1 are located in the main electric room; Panels GPHP & GPLP (both mfr. in 2/2011) and LP3 are located in the optional standby electrical equipment room; Panel LP4 (mfr. 1/2000) is

located in a corridor outside the main electric room; Panel is CP is located in the computer room and Panels LP2 and LP2B (? mfr. date) are located in the vacant tenant section.

- HP (480Y/277 Volt, 400 Amp, 42 slot) has all circuits labeled and space for (1) 3 pole circuit breaker.
- HP-1 (480Y/277 Volt, 225 Amp, 42 slot) has all circuits labeled, (5) single pole 20 Amp spares and (11) single pole spaces.
- LP (208Y/120 Volt, 225 Amp, 42 slot) is lacking labeling of some circuits and has (2) single pole spaces.
- LP-1 (208Y/120 Volt, 225 Amp, 42 slot) is lacking labeling of a large majority of circuits and has no spares or space.
- LP2 (208Y/120 Volt, 225 Amp, 42 slot) is lacking labeling of some circuits and has (1) single pole 20 Amp spare.
- LP2B (208Y/120 Volt, 100 Amp, 42 slot) has all circuits labeled and (17) spaces.
- LP3 (208Y/120 Volt, 200 Amp, 42 slot) is lacking labeling of a large majority of circuits and has (12) spaces.
- LP4 (208Y/120 Volt, 225 amp, 42 slot) is lacking labeling of some circuits and has (22) spaces.
- CP (208Y/120 Volt, 200 Amp, 42 slot) has all circuits labeled, (8) single pole 20 Amp, (1) 2 pole 20 Amp and (3) 2 pole 30 Amp spares as well as (2) single pole spaces.

- Wiring methods are a mix of single conductor wiring in Electrical Metallic Tubing (EMT) or Polyvinyl Chloride (PVC) and armored cable.

Recommendations

Unlabeled branch circuits should be traced to determine what is served by them. Consideration should also be given to tracing circuits that are labeled with descriptions that seem vague (such as "lighting" or "receptacles") or are known to be incorrect (such as "Bob's office"). Label device wall plates with panel and circuit number. This will aid in troubleshooting during planned and unplanned outages.

I. Optional Standby Power Distribution

General Overview

The optional standby distribution system appears to be in good condition.

Observations

- The building is served by an 80kW, 480Y/277 Volt optional standby diesel generator located at the front of the building near the transformer. It has a stand-alone sub-base tank. Tank size is unknown but based on the outside dimensions of the tank, it's estimated that the size is around 280 gallons. At full load, this will provide 40 hours of run time. The generator was manufactured in

February of 2007. It is unknown how many hours it has been run. The generator was installed to primarily serve the computer/call room but it also has branch circuits that serve lighting in various areas.

- From the generator output breaker (150 Amp) conductors are run underground to a 480Y/277 Volt, 200 Amp disconnect mounted on the outside of the building and then to a 125 amp transfer switch located in the optional standby electrical equipment room.
- Also located in this same room are panels GPHP, GPLP & LP3 and a 75kVA dry type transformer. Panel LP3 is not part of the standby power distribution system.
  - GPHP (480Y/277 Volt, 200 Amp, 42 slot) has all circuits labeled and (30) single pole spaces.
  - GPLP (208Y/120 Volt, 200 Amp, 42 slot) has all circuits labeled, (4) single pole 20 Amp and (2) 2 pole 30 Amp spares as well as (10) single pole spaces.

Recommendations

Provide regular maintenance and testing as outlined in the owner's manual.

J. Lighting

General Overview

Light fixtures both outside and in appear to be in good condition.

Observations

- Exterior lighting consists of pole mounted High Intensity Discharge (HID) lighting in the parking lot and building mounted quartz fixtures controlled by photocell and lighting contactor. The building mounted quartz fixtures also seem to have a motion sensor.
- Interior lighting is all fluorescent. Two by four foot parabolic and acrylic lens with T8 lamps dominate. Some compact fluorescent downlights are installed in the lobby.
- Some fixtures had either non-working or have removed lamps. It could be that some were removed to address employee comfort.
- Lighting is by standard switches; no occupancy sensors.
- Exit signs appear to be LED but some may be fluorescent as a few appear to be only partially lit.
- Individual wall mounted battery pack lighting units appear to provide adequate coverage.

Recommendations

- Consider adding occupancy sensors, at least in the private offices and conference spaces, to save energy.
- Replace non-working lamps as required.

Fire Alarm System

General Overview
The fire alarm system appears to be in good condition.

Observations
- The building is sprinklered. There is also a dry system air compressor but it is unknown what it serves. The computer room was once be protected by an Inergen dry agent system but it has been disconnected. Nine cylinders with manifold still remain in the telephone room.
- The fire alarm panel is located just inside a mid-point employee entrance. It is a Gamewell Zans 400, zoned, non-addressable, system. Six zones are used. It appears to have 18 spare zones.
- Pull stations are located at the exits. They appear to be installed at the correct ADA height.
- Remote test switches for the RTU duct smoke detectors are located next to the fire alarm panel.
- Notification appliances, some audible/visual and some visual only are provided. The lenses are clear acrylic. In the open office areas and toilets the coverage appears adequate. The corridors, however, are mostly not code compliant. An annunciation device is required within 15 feet of each end of a corridor with a separation of no more than 100 feet between devices.
- Fire extinguishers are not monitored in accordance with the latest New Hampshire Fire code.

Recommendations
- Provide notification appliances in the corridors to comply with code. A power extender panel may be required. If it is, a smoke detector will be required at its location.
- Although possibly grandfathered, consider installing monitoring detection at each fire extinguisher location. Three switches are currently required by code at each location to monitor weight, presence and obstruction.
- Zoned fire alarm panels are not typically installed today and it may be difficult to get parts. Addressable panels are the norm. Consider replacing the zoned panel with an addressable panel and addressable initiation devices, (manual pull stations, smoke detectors, flow switches, etc.). Addressable panels let alarm companies and first responders know exactly where the issue is.

7. Appendix

Existing Conditions Photographs

Summary of Deficiencies and Probable Cost of Corrective Measure

Appendix A
Existing Conditions Photographs

East side of building with sidewalk and emergency generator

East side of building with main entrance

South side of building with main entrance

North side of building with metal panel wall

West side of building

Loading dock on east side

Parking lot

Roof with roof top HVAC equipment

Roof hatch and access ladder

Exterior wall above ceiling

Typical open office area with modular workstations

Typical offices along corridor

Crack in CMU above loading dock

Debris on roof along roof edge

Debris in roof drain

Ceiling tiles stained by leak above

CMU bearing wall and roof framing

Bar joist bearing on CMU wall and continuous line of efflorescence

Sprinkler lines support on bar joists

PVC plumbing vent piping in plenum

Packaged roof top unit and gas piping

Fire protection and domestic water entrance

Domestic water booster pump

Appendix B
Summary of Deficiencies

The following items have been described in greater detail in the narrative portion of this report. The table below is intended to summarize these issues and associated order-of-magnitude opinions relative to the costs of corrective actions. These numbers are informed by past project experiences and by RS Means 2014 Square Foot Cost Data.'

	First Year Priority Recommended budget = $600,000 project cost
	Five Year Priority Recommended budget = $75,000 project cost
	Optional Performance Improvement Recommended budget = $20,000 project cost

Renovations for tenancy change are not included in these recommended project costs.

Summary of Deficiencies &
Opinions Relative to Potential Costs of Corrective Measures

Issue No.	Brief Description	Cost of Corrective Measures ($ X 1,000)	Comments
1	Seal asphalt paving on parking lot and drive way and re-stripe.	15	Plan to seal asphalt and re-stripe in 1st year
2	Install new fully adhered single ply roof membrane and rigid insulation board	215	60 mil fully adhered EPDM over addional 2" isocyanurate and cover board
3	Install mineral wool insulation on interior face of exterior wall above ceilings	20	5-3/4" R-25 mineral wool batts secured with friction fit wire supports
4	Recommend installing cage or safety features on roof ladder; install safety post at roof hatch.	2	The roof ladder is close to 24'-0" high at which height it requires a "cage" or safety features meeting OSHA regulations
5	Crack in CMU above loading dock needs to be repaired- see structural narrative.	.25	
6	Remove and replace obsolescent sealant joints.	5	Allowance

Summary of Deficiencies &
Opinions Relative to Potential Costs of Corrective Measures

Issue No.	Brief Description	Cost of Corrective Measures ($ X 1,000)	Comments
7	Repair leaks above ceiling	2.5	Allowance (may not be required if roof is repaced)
8	Rectify ADA non-compliant conditions	15	Replace aging counters in bathroom and reception meeting ADA requirements
9	Replace finishes in poor condition	20	Allowance; Plan to replace VCT in bathrooms in 5 years; Miscellaneous paint and ceiling finish upgrades
10	Trace unlabeled panelboard branch circuits.	3	Assume a weeks' work for an electrician.
11	Trace vague panelboard branch circuits.	3	Assume a weeks' work for an electrician.
12	Label device (receptacle & light switch) wall plates with panel and circuit number.	3	Assume a weeks' work for an electrician.
13	Add occupancy sensors to private offices.	0.3	Cost per installed device.

Summary of Deficiencies &
Opinions Relative to Potential Costs of Corrective Measures

Issue No.	Brief Description	Cost of Corrective Measures ($ X 1,000)	Comments
14	Provide fire alarm notification appliance circuits in corridors where lacking to comply with code.	5	
15	Install monitoring devices at fire extinguisher locations.	5	Assume 10 extinguisher locations but does not include cost for compliant extinguishers.
16	Replace existing zoned fire alarm panel and initiation devices (manual pull stations, smoke detectors, flow switches, etc.) with a fully adressable system.	25	Panel & 50 initiation devices.
17	Replace existing packaged rooftop HVAC units.	215	(1) 2 Ton unit (2) 3 Ton units (3) 4 Ton units (2) 5 Ton units (1) 6 Ton unit (3) 7.5 Ton units (2) 10 Ton units
18	Replace existing PVC sanitary vent piping in ceiling return plenum.	6	
19	Install RPZ backflow preventer in irrigation line.	0.5	