OREM CITY HALL

FEASIBILITY STUDY

March 04, 2021

OREM

method studio

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INTRODUCTION

Orem City has requested a feasibility study on the future of the City Hall Building. Orem is growing in population and economic revenue, and the municipal infrastructure is expanding to meet this overall growth. This study investigates either remodeling and adding to the existing building, or replacing it with a new structure. Both options would create a structure that meets the immediate and future needs of the city, as well as satisfy necessary codes and standards. Previous studies and evaluations of City Hall were reviewed and analyzed. Building concepts, and interior program space uses were generated based on feedback from city officials and previous data. This study provides a comparison of the two options. Also included are square footage data, spaces and programming, and exterior renderings of potential new building options.

EXISTING BUILDING ASSESSMENT FINDINGS

Orem City Hall has served the city for 50 years. It was built in 1970 and housed City Council Chambers, Mayor's Office, Police Station, City Attorneys, support staff, Multi-purpose rooms, a theater, and an unfinished basement. Since then, the building has been altered to reflect the growth and changes of the City. The basement was finished and office and cubicle space were created for city employees and city services. Law enforcement moved out to the Public Safety Building located East of City Hall. The multi-purpose and theater areas were remodeled into offices, cubicles, and other support areas. The main corridor leading to the City Council Chambers were closed off with security doors, which limited public access from the South of the building to the Library at the North. Areas within the building were further altered to accommodate the 311 Information center.

With the many alterations, remodels, changes in layout, and city departments evolving, the building does not meet the current and growing needs of the city. Many of the office and cubicle areas for city employees are crowded, and lacking of collaboration space. Rooms are used in multiple ways, such as a meeting room and a break room, or an office/meeting room. Lobby and waiting spaces for each department lack the needed space. The 311 Information Center is one of the more publicly used areas of the building. It's waiting area is small and can become crowded quickly. There are problems with the elevators and ADA accessibility. There are no fire alarm pull stations in the basement. There are concerns with an aging diesel generator and a buried fuel tank associated with the power source. Throughout the building, the windows are inefficient single-pane glass.

The basement area has a few sub levels and the corridors can be confusing. Offices and cubicles are cramped on this level, and many spaces serve multiple functions. Restrooms and other services seem to be placed where ever they can fit. The main server room for the building is located in the basement, and was added well after 1970. There are existing main water lines directly above the servers, and could lead to severe damage if a leak were to occur.

The main corridor is sectioned off due to the security doors installed at the City Council Chambers. This was done within the past 15 years due to increased concern for the safety of city officials and public meeting areas. Because of this change, the main access from city hall to the library has been altered. The original main lobby of the building has also been impacted due to this security issue. While certain areas of the building are cramped and over crowded, some areas of the second level are not being extensively used. This appears to be due to individual city departments and not splitting up personnel and resources.

The building is deficient structurally, and will need extensive work and modifications to bring City Hall to current code requirements. In a moderate to significant seismic event, the building would perform poorly, not only to the structure, but also to much of the mechanical, electrical, and other utilities throughout the space.

Mechanical, Electrical, Communications, and Life Safety have been updated in various stages and during various times of the building's lifetime. If a complete building remodel were to occur, much or all of the systems would need to be replaced with new and updated equipment. The electrical system is adequate, but much of the system such as lighting and lighting controls do not meet current energy code standards. If the building is to be renovated, the electrical lighting would need to be completely updated.

Additional information regarding current building assessment can be found in the Appendix.

PREFERRED DIRECTION & RECOMMENDATIONS

Construction costs for a new 50 year facility are estimated to range between $320 and $360 per square foot of finished building. Using a square foot cost in the middle of that range would result in a **55,000 square foot building costing approximately $19M.**

Doing a remodel of the existing building, as well as some modest additions are estimated to cost $21.9M, with the goals of meeting current seismic, life safety, ADA, building and energy codes, and providing similar function, energy efficiency, and overall performance to a new facility. A more modest remodel / addition could be done, resulting in lower or equal costs to building new, but the approach would need to be modified, with sacrifices made and priorities established. Reductions in longevity, maintenance, overall size, energy efficiency, building function, security, convenience, level of finish, and/or technology infrastructure could be considered to lower construction costs.

Based on these current and previous studies of the building, and analyzing new vs. remodel costs, **it is recommended that the current building be demolished and replaced with a new structure**. This conclusion is based on the finding that a new building would cost less than remodeling the current city hall. A new building would allow a more efficient layout that will accommodate the many departments and needs of the municipal government in a more efficient way. New construction would allow a more integrated use of current structural, energy, and sustainable systems. New construction will also allow better implementation of more current strategies for configuring and organizing spaces.

While it is possible to remodel and update the entire building to current codes and standards, it would require extensive and selective demolition. The building needs extensive structural upgrades to meet seismic requirements, and updates to all mechanical and electrical systems. Adapting city departments and creating an efficient layout within the building would be more limited based on the existing structural skeleton.

A new building would not only provide a more efficient layout and organization to meet current and future city needs, but it would also provide a smooth transition from existing to new building for the city services. The new structure has the possibility to be built next to the existing building. This would allow city departments to continually operate during construction. With a remodel or with the second new construction option, the building would need to be vacated, and city officials would need to relocate during construction.

With the current and future growth of Orem, a new building would help the city government meet the needs of the people, infrastructure, businesses, and future endeavors. A new building would include fewer risks, a more efficient use of space and layout, and provide a better return on the monetary investment.

Remodel / Addition Scope

In an attempt to create parallel scenarios, options for the remodel/addition and new construction had similar goals and projected outcomes. For example, in the remodel / addition scenario, costs for configuring open space and plaza upgrades were included so the end result would be similar to the plazas and open spaces planned with a new project build.

We have estimated the existing remodel footprint to be 45,000 square feet. In order to have comparable space configurations, 15,000 square feet of additions are recommended. Note that the once complete, the total square footage for an addition/remodel would be slightly more that for a new building. This is due to some inefficiencies and inflexibility in working with and reconfiguring the structure of an existing building to accomplish the same goals as what a new building could offer.

The following scope was included in the Remodel / Addition costs scenario:

- New building additions to meet the program space requirements (+5,000 SF)
- Seismic upgrades as recommended in previous studies
- Building envelope upgrades at the walls and roof for longevity, energy efficiency, and building aesthetics
- Reconfiguring interior spaces with new walls, doors, finishes, and millwork
- Upgrading and re-configuring restrooms, including plumbing infrastructure, fixtures, finishes, sizes, quantities, and clearances for compliance to current building codes and the ADA as well as water conservation
- Replacement and upgrades of current elevators
- New fire sprinkler system to meet current building codes
- Replacement of HVAC system for energy efficiency, longevity and compliance to energy codes
- Upgrades to electrical infrastructure including new panels, power, lighting fixtures and controls, data and communications, and security systems
- Demolition of portions of the building necessary to execute seismic, electrical and mechanical upgrades
- Exterior improvements including repair and replacement of sidewalks, upgraded landscaping, plazas and programmed open space, and additional parking as required by zoning
- Upgraded utility connections necessary for code compliance, safety and adequate service

Remodel / Addition Cost Scenario

BUILDING ADDITIONS

15,000 GSF

DIV	Description	QTY	UNIT	UNIT COST	TOTAL	NOTES
02	Existing Conditions	15,000	SF of Building	$ 3.00	$ 45,000	
03	Concrete	15,000	SF of Building	$ 11.00	$ 165,000	
04	Masonry					Included in division 07
05	Metals	15,000	SF of Building	$ 30.00	$ 450,000	
06	Woods and Plastics	15,000	SF of Building	$ 8.00	$ 120,000	
07	Thermal and Moisture Protectio	15,000	SF of Building	$ 40.00	$ 600,000	
08	Doors and Openings	15,000	SF of Building	$ 28.00	$ 420,000	
09	Finishes	15,000	SF of Building	$ 36.00	$ 540,000	
10	Specialties	15,000	SF of Building	$ 5.00	$ 75,000	
11	Equipment					Carried in owner soft costs
12	Furnishings	15,000	SF of Building	$ 2.00	$ 30,000	Does not include FF&E
13	Special Construcion	15,000	SF of Building			
14	Conveying Systems	15,000	SF of Building	$ 4.00	$ 60,000	
21	Fire Supression	15,000	SF of Building	$ 3.00	$ 45,000	
22	Plumbing	15,000	SF of Building	$ 5.00	$ 75,000	
23	HVAC	15,000	SF of Building	$ 34.00	$ 510,000	
26	Electrical	15,000	SF of Building	$ 38.00	$ 570,000	
27	Communication	15,000	SF of Building	$ 4.00	$ 60,000	
28	Electrionic Safety and Security	15,000	SF of Building	$ 3.00	$ 45,000	
31	Earthwork	15,000	SF of Building	$ 20.00	$ 300,000	
32	Exterior Improvements	15,000	SF of Building	$ 30.00	$ 450,000	
33	Site Utilities	15,000	SF of Building	$ 8.00	$ 120,000	
	New Construction Subtotal			$ 312.00	$ 4,680,000	
	General Conditions	7%			$ 327,600	
	Overhead and Profit	4%			$ 187,200	
	Bonds and Insurance	2%			$ 93,600	
	Subtotal cost for Addition			$ 352.56	$ 5,288,400	

BUILDING REMODEL

45,000 GSF

DIV	Description	QTY	UNIT	UNIT COST	TOTAL	NOTES
	Siesmic Upgrades	1	LS	$ 3,688,150	$ 3,688,150	Per previous study + escalation
	Interior Remodel	45,000	SF of Building	$ 180	$ 8,100,000	Interior framing, finishes, millwork, doors, New MEP
	Exterior Envelope Upgrades	45,000	SF of Building	$ 70	$ 3,150,000	Insulation, cladding (new brick and metal), roofing, glazing
	Exterior Improvements	1	LS	$ 1,650,000	$ 1,650,000	Parking, plazas, landscaping equal to new construcion approach
	Remodel Subtotal			$ 368.63	$ 16,588,150	
	Total Estimated Construction Cost			**$ 364.61**	**$ 21,876,550**	

Cost data was developed from consultation in January 2021 with Construction Control Corporation, a professional cost estimating and construction management firm in Salt Lake City. To project construction costs at a future time, 6% escalation should be applied for each year beyond 2021.

The estimate above represents construction costs. Additional soft costs should be planned for that would include items like furniture fixtures and equipment (FF&E), design and engineering fees, surveys and geotechnical studies, testing and special inspections, project management and internal staffing fees, utility connection costs and impact fees, plan review expenses, and other contingencies. In planning for the total project costs, we recommend carrying an additional 20%-25% of the construction budget.

New Construction Cost Scenario

NEW CONSTRUCTION
55,000 GSF

DIV	Description	QTY	UNIT	UNIT COST	TOTAL	NOTES
02	Existing Conditions	55,000	SF of Building	$ 3.00	$ 165,000	
03	Concrete	55,000	SF of Building	$ 11.00	$ 605,000	
04	Masonry					Included in division 07
05	Metals	55,000	SF of Building	$ 30.00	$ 1,650,000	
06	Woods and Plastics	55,000	SF of Building	$ 8.00	$ 440,000	
07	Thermal and Moisture Protectio	55,000	SF of Building	$ 40.00	$ 2,200,000	
08	Doors and Openings	55,000	SF of Building	$ 28.00	$ 1,540,000	
09	Finishes	55,000	SF of Building	$ 36.00	$ 1,980,000	
10	Specialties	55,000	SF of Building	$ 5.00	$ 275,000	
11	Equipment					Carried in owner soft costs
12	Furnishings	55,000	SF of Building	$ 2.00	$ 110,000	Does not include FF&E
13	Special Construcion	55,000	SF of Building			
14	Conveying Systems	55,000	SF of Building	$ 4.00	$ 220,000	
21	Fire Supression	55,000	SF of Building	$ 3.00	$ 165,000	
22	Plumbing	55,000	SF of Building	$ 5.00	$ 275,000	
23	HVAC	55,000	SF of Building	$ 34.00	$ 1,870,000	
26	Electrical	55,000	SF of Building	$ 38.00	$ 2,090,000	
27	Communication	55,000	SF of Building	$ 4.00	$ 220,000	
28	Electrionic Safety and Security	55,000	SF of Building	$ 3.00	$ 165,000	
31	Earthwork	55,000	SF of Building	$ 20.00	$ 1,100,000	
32	Exterior Improvements	55,000	SF of Building	$ 30.00	$ 1,650,000	
33	Site Utilities	55,000	SF of Building	$ 8.00	$ 440,000	

New Construction Subtotal			$ 312.00	$ 17,160,000
General Conditions	7%			$ 1,201,200
Overhead and Profit	4%			$ 686,400
Bonds and Insurance	2%			$ 343,200
Total Estimated Construction Cost			**$ 352.56**	**$ 19,390,800**

Cost data was developed from consultation in January 2021 with Construction Control Corporation, a professional cost estimating and construction management firm in Salt Lake City. A recommended cost range of $320 - $360 per square foot of new construction was provided based on past similar municipal projects along the Wasatch front. The data above is an example of how these costs could break out by division. To project construction costs at a future time, 6% escalation should be applied for each year beyond 2021.

Costs for new construction would be similar with both Options 1 and 2 presented in this study. However, with option 2, the existing building would need to be demolished prior to construction, requiring city staff and services to be re-located during construction activities. The costs for this re-location would need to be considered when weighing the benefits of the two options.

The estimate above represents construction costs. Additional soft costs should be planned for that would include items like furniture fixtures and equipment (FF&E), design and engineering fees, surveys and geotechnical studies, testing and special inspections, project management and internal staffing fees, utility connection costs and impact fees, plan review expenses, and other contingencies. In planning for the total project costs, we recommend carrying an additional 20%-25% of the construction budget.

Construction Costs and Seismic Risk Category

Risk categories are assigned to buildings to account for consequences and risks to building occupants in the event of a building failure. The intent is to assign higher risk categories, and hence higher design criteria, to buildings or structures that provide essential community services necessary to cope with an emergency situation.

Section 1604.5 of the IBC building code requires risk categories to be assigned to every building and structure based on descriptions in the nature of occupancy. Buildings with a primary use of "Civic Administration" can be classified as a "B" occupancy. As long as the total occupant load is under 5000, a Risk Category II could be used for this type of building. This would result in lower costs to structural and other infrastructure.

If the building however, contains fire, rescue, police or certain emergency functions, like being designated as a shelter, or it contains back-up communications, or emergency response functions, it would be required by code to be build using Risk Category IV. Likewise, administration could elect to build portions of the structure to Risk Category IV standards as a measure of emergency preparedness even if not specifically required by code. **If the building is designed to meet Risk Category IV standards, the higher range of the projected costs should be used for budgeting.**

TABLE 1604.5
OCCUPANCY CATEGORY OF BUILDINGS AND OTHER STRUCTURES

OCCUPANCY CATEGORY	NATURE OF OCCUPANCY
I	Buildings and other structures that represent a low hazard to human life in the event of failure, including but not limited to: • Agricultural facilities. • Certain temporary facilities. • Minor storage facilities.
II	Buildings and other structures except those listed in Occupancy Categories I, III and IV
III	Buildings and other structures that represent a substantial hazard to human life in the event of failure, including but not limited to: • Buildings and other structures whose primary occupancy is public assembly with an occupant load greater than 300. • Buildings and other structures containing elementary school, secondary school or day care facilities with an occupant load greater than 250. • Buildings and other structures containing adult education facilities, such as colleges and universities, with an occupant load greater than 500. • Group I-2 occupancies with an occupant load of 50 or more resident patients but not having surgery or emergency treatment facilities. • Group I-3 occupancies. • Any other occupancy with an occupant load greater than 5,000[a]. • Power-generating stations, water treatment facilities for potable water, waste water treatment facilities and other public utility facilities not included in Occupancy Category IV. • Buildings and other structures not included in Occupancy Category IV containing sufficient quantities of toxic or explosive substances to be dangerous to the public if released.
IV	Buildings and other structures designated as essential facilities, including but not limited to: • Group I-2 occupancies having surgery or emergency treatment facilities. • Fire, rescue, ambulance and police stations and emergency vehicle garages. • Designated earthquake, hurricane or other emergency shelters. • Designated emergency preparedness, communications and operations centers and other facilities required for emergency response. • Power-generating stations and other public utility facilities required as emergency backup facilities for Occupancy Category IV structures. • Structures containing highly toxic materials as defined by Section 307 where the quantity of the material exceeds the maximum allowable quantities of Table 307.1(2). • Aviation control towers, air traffic control centers and emergency aircraft hangars. • Buildings and other structures having critical national defense functions. • Water storage facilities and pump structures required to maintain water pressure for fire suppression.

Program Summary

OREM CITY CENTER FEASIBLITY STUDY — CURRENT & FUTURE NEEDS:

#	AREAS	EXISTING NET SQUARE FOOTAGE		JRCA 2017		X Factor	METHOD STUDIO (2-5yr)		(5-15yr)	
1.0	PUBLIC AREAS	5,340	NSF	9,067	NSF	0.59	9,352	NSF	0	NSF
2.0	ADMINISTRATION / RECORDER	2,616	NSF	3,305	NSF	0.79	3,570	NSF	0	NSF
3.0	BUILDING COMMON SUPPORT	6,103	NSF	6,028	NSF	1.01	6,334	NSF	0	NSF
4.0	INFORMATION TECH	2,832	NSF	1,914	NSF	1.48	2,232	NSF	0	NSF
5.0	ADMINISTRATIVE SERVICES	3,042	NSF	3,292	NSF	0.92	3,863	NSF	204	NSF
6.0	DEVELOPMENT SERVICES	6,052	NSF	5,894	NSF	1.03	7,031	NSF	0	NSF
7.0	LEGAL	3,156	NSF	2,097	NSF	1.50	2,819	NSF	0	NSF
	SUBTOTAL	29,139	NSF	31,596	NSF	0.92	35,201	NSF	204	NSF
	GROSSing FACTOR x	1.55	(Exist.)	1.55	(Exist.)		1.55		1.55	
		EXISTING		JRCA 2017			FUTURE (2-5yr)		FUTURE (5-15yr)	
	PROGRAM TOTALS GSF:	45,166	GSF	48,973	GSF	0.92	54,562	GSF	316	GSF

Program Detail

OREM CITY CENTER - PROGRAM OF SPACES

	DIV	PROGRAM / SPACE DESCRIPTION		NET SQUARE FOOTAGE (TYP)			PROGRAM / SPACE QUANTITY				NET SQUARE FOOTAGE TOTAL				NSF Subtotal
				Existing NSF/Unit	JRCA NSF/Unit	Method NSF/Unit	Exist.	JRCA 2017	Method 2-5 yrs	Method 5-15 yrs	Exist.	JRCA 2017	Method 2-5 yrs	Method 5-15 yrs	
PUBLIC AREAS	1.01	VESTIBULE			96	96		2	2		0	192	192	0	384
	1.02	PUBLIC LOBBY			8	8		150	150		0	1,125	1,125	0	2,250
	1.03	GALLERY / EXHIBIT			750	750		1	1		0	750	750	0	1,500
		RECEPTION / INFO DESK													
	1.04	SERVICE COUNTER		90	36	36	1	3	3		90	108	108	0	306
	1.05	CUSTOMER SERVICE SPECIALISTS		120	64	64	8	3	3		960	192	192	0	1,344
	1.06	CUSTOMER SERVICE MANAGER		95	120	120	2	1	1		190	120	120	0	430
	1.07	WORK/COPY AREA		120	120	120	1	1	1		120	120	120	0	360
	1.08	RESTROOMS - MEN		135	220	220	1	3	3		135	660	660	0	1,455
	1.09	RESTROOMS - WOMEN		205	220	220	1	3	3		205	660	660	0	1,525
	1.10	JANITOR		100	80	80	1	3	3		100	240	240	0	580
	1.11	CITY COUNCIL DIAS			650	650		1	1		0	650	650	0	1,300
	1.12	CITY COUNCIL CHAMBERS		1880	1,000	1,000	1	1	1		1,880	1,000	1,000	0	3,880
	1.13	CITY COUNCIL CONFERENCE ROOM		785	160	160	1		1		785	0	160	0	945
	1.14	COMMUNITY / MP ROOMS			1,200	1,200		2	2		0	2,400	2,400	0	4,800
	1.15	EMPLOYEE CREDIT UNION OFFICE		200	120	120	1		1		200	0	120	0	320
	1.16	FINGER PRINTING		90			1				90	0	0	0	90
	1.17	PASSPORT ROOM		175			1				175	0	0	0	175
	1.18	MAIL		20			1				20	0	0	0	20
	1.19	SAFE ROOM		120	200	200	1				120	0	0	0	120
	1.20	SERVING KITCHEN		150	192	192	1	1	1		150	192	192	0	534
	1.21	A/V CLOSET		15	80	80	1	1	1		15	80	80	0	175
	1.22	CHAIR AND TABLE STORAGE			200	200		2	2		0	400	400	0	800
		BUFFER	2%								105	178	183	0	450
		COLUMN TOTALS									*5,340*	*9,067*	*9,352*	*0*	
		SUITE TOTAL													23,743 nsf
ADMINISTRATION / RECORDER	2.01	LOBBY			200	200		1	1		0	200	200	0	400
	2.02	WAITING - ADMIN			35	35		4	4		0	140	140	0	280
	2.03	MEDIUM CONF. ROOM			260	260			1		0	0	260	0	260
	2.04	EXEC. ASSIST. (WORK STATION)		100	80	80	2	1	1		200	80	80	0	360
	2.05	MAYORS OFFICE		220	160	160	1	1	1		220	160	160	0	540
	2.06	COUNCIL OFFICE			120	120	1	1	1		0	120	120	0	240
	2.07	CITY MANAGER		220	240	240	1	1	1		220	240	240	0	700
	2.08	ASSIST. CITY MANAGER		140	160	160	1	1	1		140	160	160	0	460
	2.09	ASSIST. CITY MANAGER		135	120	120	1	1	1		135	120	120	0	375
	2.10	MNGMNT INTERN (3 WORK STATION)		100	64	64	1	1	1		100	64	64	0	228
	2.11	ECONOMIC DEVELOPMENT MANAGER		140	160	160	1	1	1		140	160	160	0	460
	2.12	CUSTOMER SERVICE MANAGER			120	120		1	1		0	120	120	0	240
	2.13	COMM SPECIALIST		80	80	80	1	1	1		80	80	80	0	240
		RECORDERS OFFICE													
	2.14	LOBBY - RECORDER		300	160	160	1	1	1		300	160	160	0	620
	2.15	WAITING - RECORDER			35	35		4	4		0	140	140	0	280
	2.16	CUSTOMER SERVICE KIOSK			36	36		2	2		0	72	72	0	144
	2.17	WAITING_REC/PASS (CHILDREN AREA)		110	64	64	1	1	1		110	64	64	0	238
	2.18	CUSTOMER SERVICE COUNTER		110	36	36	2	2	2		220	72	72	0	364
	2.19	CITY RECORDER		135	160	160	1	1	1		135	160	160	0	455
	2.20	ASSIST. CITY RECORDER		120	120	120	1	1	1		120	120	120	0	360
	2.21	NEIGHBORHOOD SERVICES OFFICE		120	64	64	1				120	0	0	0	120
	2.22	OFFICE TECHNICIANS			64	64		2	2			128	128	0	256
	2.23	RECORDER ARCHIVE STORAGE		205	260	260	1	1	1		205	260	260	0	725
	2.24	MP CONF ROOM			260	260		1	1		0	260	260	0	520
	2.25	MP COPY / WORK ROOM			160	160		1	1		0	160	160	0	320
	2.26	STAFF RESTROOM WOMEN						2	2		0	0	0	0	0
	2.27	STAFF RESTROOM MEN						2	2		0	0	0	0	0
	2.28	BREAK / LUNCH ROOM		120			1	2	2		120	0	0	0	120
		BUFFER	2%								51	65	70	0	186
		COLUMN TOTALS									*2,616*	*3,305*	*3,570*	*0*	
		SUITE TOTAL													9,491 nsf

Program Detail

BUILDING COMMON SUPPORT	3.01	BREAK / LUNCH ROOM			30	30		24	24	0	720	720	0	1,440
	3.02	KITCHEN			350	350		1	1	0	350	350	0	700
	3.03	STAFF RESTROOM (WOMEN)			170	170		2	2	0	340	340	0	680
	3.04	STAFF RESTROOM (MEN)			170	170		2	2	0	340	340	0	680
	3.05	BLDG MAINTAINCE OFFICE			120	120		1	1	0	120	120	0	240
	3.06	BLDG MAINTAINCE STORAGE		890	300	300	1	1	1	890	300	300	0	1,490
	3.07	FITNESS ROOM			400	400		1	1	0	400	400	0	800
	3.08	COMBINED LOCKER AREA			7	7		30	30	0	210	210	0	420
	3.09	CHANGING / SHOWER ROOMS			58	58		4	4	0	232	232	0	464
	3.10	COMMUNICATION ROOM		90	160	160	1	1	1	90	160	160	0	410
	3.11	BRANCH COMMUNICATION CLOSETS		72	80	80	1	2	2	72	160	160	0	392
	3.12	ELECTRICAL ROOM		150	160	160	1	1	1	150	160	160	0	470
	3.13	BRANCH ELECTRICAL CLOSETS		150	80	80	1	2	2	150	160	160	0	470
	3.14	MECH ROOM		2940	600	600	1	1	1	2,940	600	600	0	4,140
	3.15	FIRE SPRINKLER RISER ROOM		36	36	36	1	1	1	36	36	36	0	108
	3.16	ELEVATOR(S)		90	80	80	1	3	3	90	240	240	0	570
	3.17	ELEVATOR EQUIPMENT		80	80	80	1	1	1	80	80	80	0	240
	3.18	VERT CIRCULATION (STAIRS)		865	184	184	1	3	3	865	552	552	0	1,969
	3.19	VERT CIRCULATION (GRAND STAIR)		430	250	250	1	3	3	430	750	750	0	1,930
	3.20	MOTHERS LOUNGE		130	100	100	1		1	130	0	100	0	230
	3.21	FAMILY RESTROOM			100	100			2	0	0	200	0	200
	3.22	VENDING		60			1			60	0	0	0	60
		BUFFER	2%							120	118	124	0	362
		COLUMN TOTALS								*6,103*	*6,028*	*6,334*	*0*	
		SUITE TOTAL												18,465 nsf

INFORMATION TECH	4.01	SUB LOBBY INFORMATION TECH			120	120		1	1	0	120	120	0	240
	4.02	WAITING			35	35		4	4	0	140	140	0	280
	4.03	MP MEETING / TRAINING		190	260	260	1			190	0	0	0	190
	4.04	IT MANAGER		270	160	160	1	1	1	270	160	160	0	590
	4.05	IT ASSISTANT MANAGER			120	120			1	0	0	120	0	120
	4.06	ADMIN ASSISTANT			64	64		1	1	0	64	64	0	128
	4.07	HELP & SUPPORT DESK		64	64	64	4	5	6	256	320	384	0	960
	4.08	PROGRAMMERS		100	64	64	5	6	7	500	384	448	0	1,332
	4.09	NETWORK ENGINEER (2 IN OFFICE)		60	64	64	2	2	3	120	128	192	0	440
	4.10	IT TECH (4 STATION WORKSPACE)		90	64	64	4	2	2	360	128	128	0	616
	4.11	WORK/SET UP AREA		80	36	36	1	6	6	80	216	216	0	512
	4.12	STORAGE		620	96	96	1	1	1	620	96	96	0	812
	4.13	SERVER ROOM		260	120	120	1	1	1	260	120	120	0	500
	4.14	SMALL IT CONFERENCE ROOM		120			1			120	0	0	0	120
	4.15	STAFF REST ROOM WOMEN - SEE NOTE						1	1	0	0	0	0	0
	4.16	STAFF REST ROOM MEN - SEE NOTE						1	1	0	0	0	0	0
	4.17	BREAK / LUNCH ROOM - SEE NOTE						1	1	0	0	0	0	0
		BUFFER	2%							56	38	44	0	137
		COLUMN TOTALS								*2,832*	*1,914*	*2,232*	*0*	
		SUITE TOTAL												6,977 nsf

Program Detail

ADMINISTRATIVE SERVICES	5.01	SUB LOBBY/WAITING - FINANCE		145	35	35	1	1	1		145	35	35	0	215
	5.02	WAITING - FINANCE			13	13		8	8		0	100	100	0	200
	5.03	SERVICE COUNTER		80	80	80	2	3	4	1	160	240	320	80	800
	5.04	ACCOUNT CLERKS		64	64	64	4	4	4		256	256	256	0	768
	5.05	TREASURY DIVISION MANAGER		140	160	160	1	1	1		140	160	160	0	460
	5.06	MULTI-PURPOSE CONF/MEETING		335	260	260	1	1	1		335	260	260	0	855
	5.07	ADMINISTRATIVE ASSISTANT			80	80		1	1		0	80	80	0	160
	5.08	ADMINISTRATIVE SERVICES DIRECTOR			240	240	1	1	1		0	240	240	0	480
	5.09	ACCOUNTING DIVISION MANAGER		100	160	160	1	1	1		100	160	160	0	420
	5.10	ACCOUNTANTS		110	120	120	2	3	4	1	220	360	480	120	1,180
	5.11	PURCHASING AGENT		70	64	64	1	1	1		70	64	64	0	198
	5.12	ACCOUNTS PAYABLE		64	64	64	0.5	1	1		32	64	64	0	160
	5.13	STORE KEEPER		64	64	64	1	1	1		64	64	64	0	192
	5.14	ACCOUNTING INTERN			64	64		0.5	0.5		0	32	32	0	64
	5.15	HR SUB LOBBY (CUBICLE, COUNTER, FILES		210	120	120	1	1	1		210	120	120	0	450
	5.16	WAITING - HR		230	35	35	1	6	6		230	210	210	0	650
	5.17	APPLICANT COMPUTER WORK STATIONS		180	20	20	2	2	2		360	40	40	0	440
	5.18	SMALL INTERVIEW / CONF. ROOM		120	120	180	1	1	1		120	120	180	0	420
	5.19	ADMINISTRATIVE ANALYST			64	64		1	1		0	64	64	0	128
	5.20	HUMAN RESOURCES MANAGER		115	160	160	1	1	1		115	160	160	0	435
	5.21	HR GENERALISTS (HR OFFICE)		130	64	64	2	2	3		260	128	192	0	580
	5.22	RISK MANAGER		125	160	160	1		1		125	0	160	0	285
	5.23	WORK COPY ROOM		40	120	12	1	1	1		40	120	12	0	172
	5.24	FILING AND WORK ROOM			120	120			1		0	0	120	0	120
	5.25	STAFF REST ROOMS WOMEN - SEE NOTE						1			0	0	0	0	0
	5.26	STAFF REST ROOMS MEN - SEE NOTE						1			0	0	0	0	0
	5.27	BREAK / LUNCH ROOM - SEE NOTE						1			0	0	0	0	0
	5.28	VAULT			150	150	1	1	1		0	150	150	0	300
	5.29	IT ANALYST			64	64			1		0	0	64	0	64
		BUFFER	2%								60	65	76	4	204
		COLUMN TOTALS									*3,042*	*3,292*	*3,863*	*204*	
		SUITE TOTAL													10,400 nsf

Program Detail

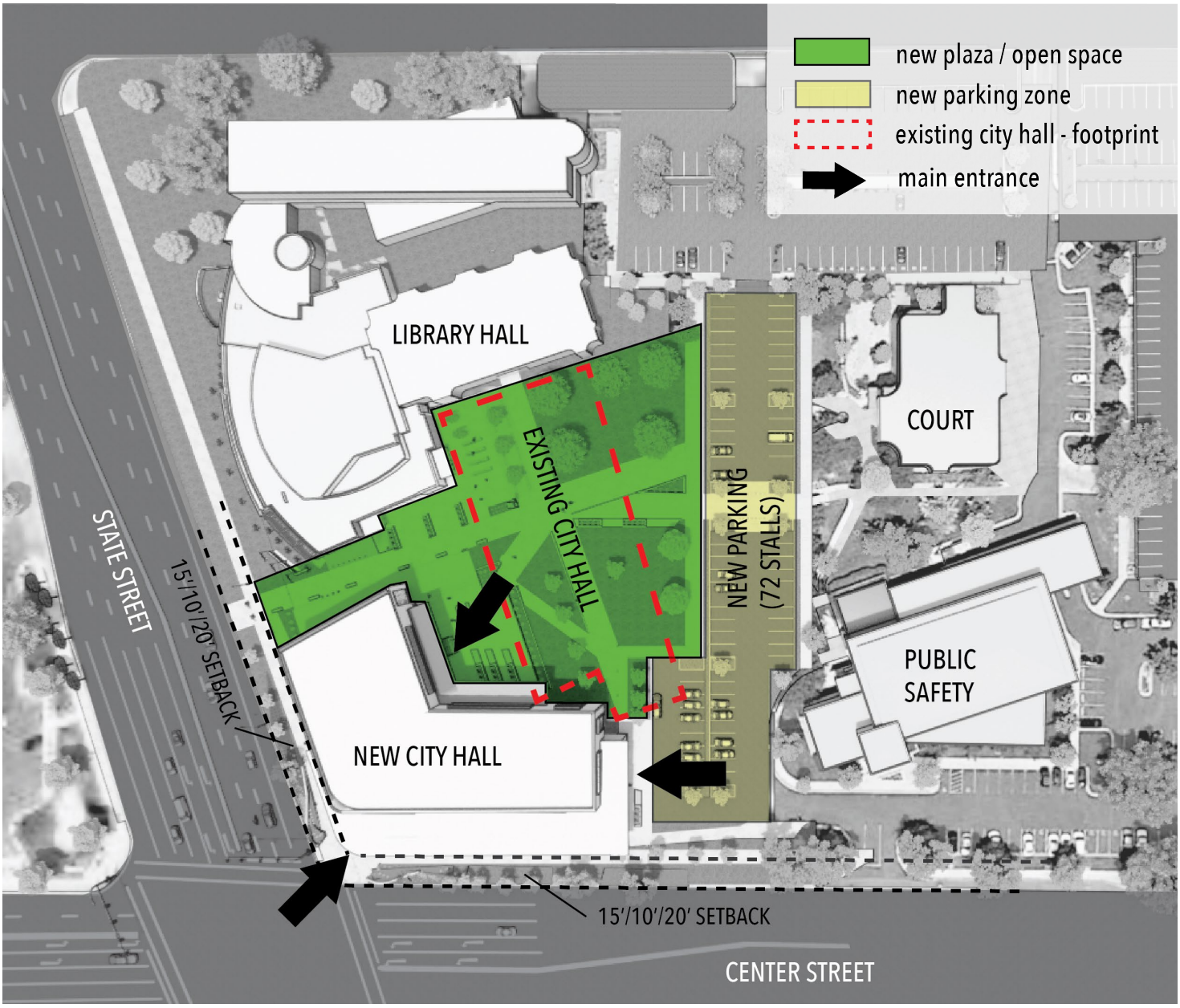
DEVELOPMENT SERVICES	6.01	SUB LOBBY	280	200	200	1	1	1	280	200	200	0	680	
	6.02	WAITING		35	35		20	20	0	700	700	0	1,400	
	6.03	INFORMAL MEETING AREAS		32	32		3	3	0	96	96	0	192	
	6.04	ENCLOSED SMALL MEETING ROOMS			120			4		0	480	0	480	
	6.05	SMALL CONFERENCE ROOM	260	120	180	2	2	2	520	240	360	0	1,120	
	6.06	LARGE CONFERENCE ROOM	345	450	450	1	1	1	345	450	450	0	1,245	
	6.07	SERVICE COUNTER	80	13	13	1	10	40	80	125	520	0	725	
	6.08	TECHNICIAN (2 PER OFFICE)	75	80	80	4	4	4	300	320	320	0	940	
	6.09	DEVELOPMENT SERVICES DIRECTOR	180	240	240	1	1	1	180	240	240	0	660	
	6.10	BUILDING SERVICES DIVISION MANAGER	155	160	160	1	1	1	155	160	160	0	475	
	6.11	BUSINESS LICENSE SPECIALIST	64	64	64	1	1	1	64	64	64	0	192	
	6.12	PLANS EXAMINER	72	120	120	2	2	2	144	240	240	0	624	
	6.13	INTERN	40	80	80	4	3	3	160	240	240	0	640	
	6.14	BUILDING INSPECTORS	36	80	80	6	5	5	216	400	400	0	1,016	
	6.15	PLANNING DIVISION MANAGER	150	160	160	1	1	1	150	160	160	0	470	
	6.16	PLANNER	90	80	80	3	3	3	270	240	240	0	750	
	6.17	ENGINEERING DIVISION MANAGER	160	160	160	1	1	1	160	160	160	0	480	
	6.18	CONSTRUCTION MANAGER	80	80	80	4	4	4	320	320	320	0	960	
	6.19	TRANSPORTATION ENGINEER	130	80	80	1	1	1	130	80	80	0	290	
	6.20	PRIVATE DEVELOPMENT ENGINEER	130	80	80	1	1	1	130	80	80	0	290	
	6.21	DESIGN ENGINEER	116	80	80	4	5	5	464	400	400	0	1,264	
	6.22	SURVEYOR	80	80	80	1	1	1	80	80	80	0	240	
	6.23	ENGINEERING TECHNICIAN	140	140	140	1	1	1	140	140	140	0	420	
	6.24	MAINTENANCE HEAD	120	120	120	1	1	1	120	120	120	0	360	
	6.25	MAINTENANCE STAFF	100	36	36	3	3	3	300	108	108	0	516	
	6.26	STAFF RESTROOM WOMEN (BASEMENT)	75			1	1	1	75	0	0	0	75	
	6.27	STAFF RESTROOM MEN (BASEMENT)	75			1	1	1	75	0	0	0	75	
	6.28	UNISEX RESTROOM (BASEMENT)	75	75	75	2	1	1	150	75	75	0	300	
	6.29	BREAK ROOM	30			1	1	1	30	0	0	0	30	
	6.30	ACTIVE DRAWING STORAGE	330	120	120	1	1	1	330	120	120	0	570	
	6.31	ARCHIVE DRAWING STORAGE	510	80	80	1	1	1	510	80	80	0	670	
	6.32	RADIO EQUIPMENT STORAGE	55	80	80	1			55	0	0	0	55	
	6.33	CUSTODIAL SUPERVISOR OFFICE		120	120			1	0	0	120	0	120	
	6.34	CUSTODIAL STORAGE		140	140		1	1	0	140	140	0	280	
		BUFFER 2%							119	116	138	0	372	
		COLUMN TOTALS							*6,052*	*5,894*	*7,031*	*0*		
		SUITE TOTAL											18,976	nsf

LEGAL	7.01	SUB LOBBY	180	120	120	1	1	1	180	120	120	0	420	
	7.02	WAITING		35	35		4	4	0	140	140	0	280	
	7.04	LARGE CONFERENCE ROOM (ATTORNEY	312	260	260	2	1	1	624	260	260	0	1,144	
	7.05	ADMIN ASSIST/PARALEGAL (OPEN OFF.)	200	64	64	1	3	4	200	192	256	0	648	
	7.06	PROCESS SERVER (EMPTY OFFICE)	110	64	64	1	1	1	110	64	64	0	238	
	7.07	EXTERN/CLERK		64	64			1	0	0	64	0	64	
	7.08	COPY/WORK/OFF. SUPPLY (STORAGE)	410	160	160	1	1	1	410	160	160	0	730	
	7.09	ATTORNEY	175	160	160	5	4	5	875	640	800	0	2,315	
	7.10	PROSECUTOR (OFFICE)	120	240	240	2	2	3	240	480	720	0	1,440	
	7.11	STAFF RESTROOMS WOMEN	110			1	1	1	110	0	0	0	110	
	7.12	STAFF RESTROOMS MEN	115			1	1	1	115	0	0	0	115	
	7.13	BREAK / LUNCH ROOM - SEE NOTE					1	1	0	0	0	0	0	
	7.14	CUSTODIAL	70			1			70	0	0	0	70	
	7.15	CONFERENCE ROOM	160		180	1		1	160	0	180	0	340	
		BUFFER 2%							62	41	55	0	151	
		COLUMN TOTALS							*3,156*	*2,097*	*2,819*	*0*		
		SUITE TOTAL											8,065	nsf

NEW BUILDING OPTION 1
Site Constraints and Zoning Considerations

Design option 1 assumes the existing city hall facilities will be occupied during construction of a new facility. The footprint of this proposal maintains a 10' buffer around the southwest corner of the existing building; wrapping and reinforcing the urban edge defined by State and Center street. This results in the elimination of the existing parking spaces on the south end of the building. To re-appropriate these stalls, as well as additional building area, parking has been conceived to transect the middle of the existing green space while maintaining the east-west connector across the campus. A new green space and urban plaza has been shifted to the west, providing outdoor spaces adjacent to the new and existing library hall amenities.

Site Plan



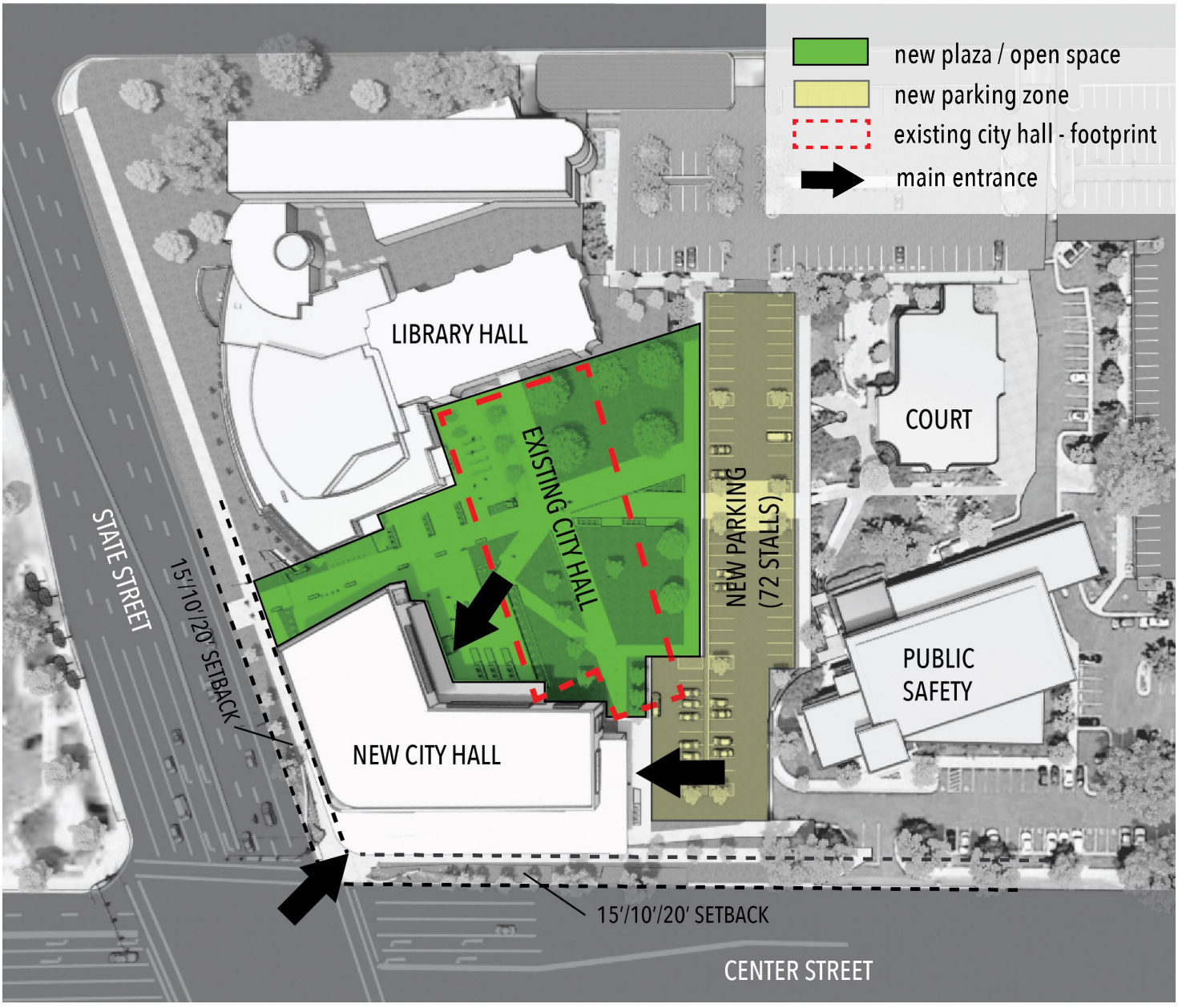
NEW BUILDING OPTION 1

Pros

- Large shared plaza space
- Allows Construction while existing building is occupied

Cons

- Main entry not prominent from State or Center
- Operations at City Hall may be disrupted during Construction (noise, utilities, access)
- More limitations for construction access and staging



NEW BUILDING OPTION 1
Massing Constraints and Zoning Considerations

The massing for design Option 1 takes urban design cues from the state street master plan (2015) as well as Orem city's zoning set back requirements. Option 1 reinforces the landmark urban corner of State and Center streets, staking a prominent claim to the corner while accommodating pedestrian scale. It is currently shown as a three story option. The length of the mass along center street eases as the 2 story elevation is aligned to the setback, stepping the 3rd level further to the north.

Zoning would allow for a reduced footprint size with more stories. Additionally, a strategy utilizing a basement could be incorporated to reduce overall costs or provide additional space for similar costs. Below grade spaces can be good opportunities for storage, mechanical and electrical spaces, and other programming like training rooms or fitness centers. Office spaces and other business functions could also be housed in a basement with considerations for code compliance and natural light.

Building Massing

NEW BUILDING OPTION 1
Building Aesthetics and Considerations

The aesthetics for design option 1 seeks to capture the stately nature of traditional civic service buildings while maintaining a modest, simple yet contemporary look & feel. Large glazing areas accommodate generous nature light for the interior spaces and provide wayfinding clues to the natural entrances to the facility. Blonde brick, natural wood, and metal panels anchor the new structure within the existing campus context, while providing a subtle, distinct landmark.

NEW BUILDING OPTION 1
Other Views

NEW BUILDING OPTION 1
Other Views

NEW BUILDING OPTION 2
Site Constraints and Zoning Considerations

Design Option 2 aims to foster dynamic and engaging relationships between the new facility and surrounding components of the overall City Center complex. Along State street, the building façade is angled in a way that draws public activity from the street, inward, to the interior City Center. The design also creates a dynamic interrelationship with the adjacent Library Hall and plaza. The Eastern side of Option 2 opens toward the Public Safety Building. This configuration allows for a large amount of public parking and an easily identifiable, primary public entry. This design includes new green space and urban plaza. The site configuration for Option 2 would require the existing City Hall to be demolished prior to construction.

Site Plan

NEW BUILDING OPTION 2

Pros

- Main entry prominent from Center Street
- More site area available during construction for staging and access

Cons

- Requires City operations to re-located during construction

NEW BUILDING OPTION 2
Massing Constraints and Zoning Considerations

The massing for design Option 2 follows Orem city's zoning set back requirements and urban design guidelines. Option 2 is also a three story schemes, but differs from Option 1 in that a larger proportion of the building mass aligns with State Street compared to Center Street. Moving from the South to North, the building mass along State Street angles slightly away from the street, which is an architectural gesture designed to lead the eye, and the pedestrian experience, toward the interior City Center plaza.

Like option1, this option could be done with a reduced footprint size and more stories. Additionally, a strategy utilizing a basement could be incorporated to reduce overall costs or provide additional space for similar costs. Below grade spaces can be good opportunities for storage, mechanical and electrical spaces, and other programming like training rooms or fitness centers. Office spaces and other business functions could also be housed in a basement with considerations for code compliance and natural light.

Building Massing

NEW BUILDING OPTION 2
Building Aesthetics and Considerations

Option 2 is designed to convey a stately, civic oriented architectural language. The design is also intended to represent a welcoming and friendly architectural expression to the public. Along the North, East, and West elevations, there are two-story, glazed volumes integrated in to the larger, three-story mass. These glassy volumes include an extended canopy on the East side and a colonnade on the North and West side. The colonnade is an architectural expression designed to engage the pedestrian, and to provide visual depth and variety to the overall design. The three story portions of the building mass are intended to be clad with materials that are dignified, affordable, and in keeping with the overall spirit of the existing City Center Complex. As with Design Option 1, such materials might include blonde brick, natural wood, and metal panels.

NEW BUILDING OPTION 2
Other Views

NEW BUILDING OPTION 2
Other Views

APPENDIX

OREM

method studio

APPENDIX

2021 Method Studio Existing Facility Assessment

- Exterior
  - Exterior Windows
  - Exterior Brick
  - Exterior Siding & Stucco
  - Roofing
  - Exterior Doors
- Interior
  - Public Restrooms
  - Corridors
  - Floors & Flooring
  - Basement
  - Entry & Access
  - Elevators
  - Accessibility
  - City Council Room
  - Public Lobby & Waiting Spaces
  - Meeting Rooms
  - Storage Rooms
  - Work & Prep Spaces
  - Break Room Spaces
  - Kitchen Spaces
- Structural
- Mechanical
  - Mechanical
  - Plumbing
  - Out-of-Date Systems
- Electrical
  - Electrical
  - Data & Communications
  - Lighting
- Life & Fire Safety
  - Fire Suppression
  - Fire Alarm System
- Site
  - Landscaping
  - Way-Finding
  - Site Concrete
  - Site Amenities
  - Site Access

Reference Documents

- 2020 BHB consulting - Seismic Study prepared for JRCA Architects
- 2016 JRCA & BNA Consulting - Electrical Building Evaluation
- 2016 VBFA - Mechanical Observation Report
- 2015 AE Urbia & j.M. Williams and Associates - Seismic Study
- 2005 EDA Architects - Orem City Facilities Master Plan

ARCHITECTURE: EXTERIOR

EXTERIOR WINDOW SYSTEMS:

Most windows appear to be original to the building. Most, if not all, appear to be of aluminum frame construction. Many include a fiberglass reinforced panel within certain sections. The thermal performance of these windows is unknown, however, glazing appears to be double pane.

Condition of glazing seals and caulking are unknown. There are hard water deposits at all ground level windows due to site irrigation.

A few windows have been added to the building. The openings have been cut into the existing brick. Sealant has been applied for moisture protection. Performance of window and opening are unknown.

EXTERIOR BRICK:

Much of the building exterior is brick. For the most part, brick appears to be in good condition. There is hard water staining from irrigation systems along the ground level. There is also some surface damage to brick where sidewalks directly abut the building.

Some additions and alterations have been made, including additions with similar brick. The additions are somewhat obvious due to slight color variations.

EXTERIOR SIDING & STUCCO:

Stucco system appears to be an Exterior Insulation and Finish System (EIFS). Age and performance of the system is unknown. Water staining occurs along the lower portion of the walls potentially due to moisture draining from system around windows or to over spray from site irrigation. The staining is more pronounced at the window sill corners.

These EIFS areas are not original to the building. They were installed as the result of either a remodel of the building (upper right image), or an addition as shown in the middle image.

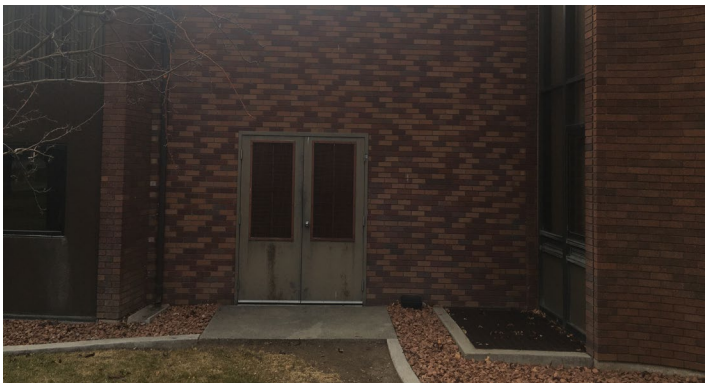
ROOFING:

The condition of the roof and its components is unknown. If the building were renovated, a new roofing system will need to be installed. Upgrading the building to current seismic codes, the roof would need to be removed to gain access to the substrate and structure beneath. The new roof system would need to meet current codes and energy standards.

EXTERIOR DOORS:

It appears that many exterior storefront type doors have been upgraded since the building was built in 1970. They seem to be in working condition, however, thermal performance is unknown.

There are also painted steel doors on the exterior, doors and frames have the potential for corrosion. Functionality and thermal performance of these doors is unknown.



ARCHITECTURE: INTERIOR

PUBLIC RESTROOMS:

Restrooms are located on each level of the building. All of the restrooms have been modified since initial building construction to accommodate accessibility and access. Due to this, each restroom seems inadequate in sizing and layout.

The restrooms located in the basement are small and seem to be placed where ever they could fit. A more centralized set of restrooms would be a more efficient use of space.

The restrooms on the main level are currently being remodeled to provide accessibility and update plumbing fixtures and room finishes.

CORRIDORS:

There are numerous corridors through out the basement. The basement areas are mostly off limits to the public. There is a lack of way-finding and direction.

The main and second levels have one main corridor that services all departments and entries. The main level corridor is blocked on the north end due to the security doors around the city council chambers. Access from the south end of the building to the library would either require exiting the building and walking outside, or having an access card to move through the secured area.

INTERIOR STAIRS:

The current building is contains three sets of stairs. The grand staircase is adjacent to the City Council Chamber and Office. It provides access to the main and second levels, and is located toward the North end of the building. It overlooks the main corridor and is open in style. At the time of assessment, it was not heavily used.

The remaining two stair ways are both enclosed and provide access to all three levels. One is centrally located near the elevators and Mayor's Office. The other is at the South end, and is used heavily by city employees.

FLOORS & FLOORING:

Main and second level flooring consists of brick with a protective coating. Due to the material, the floor has some variations in slight bumps, but nothing that would cause a tripping hazard.

The basement is fully carpeted.

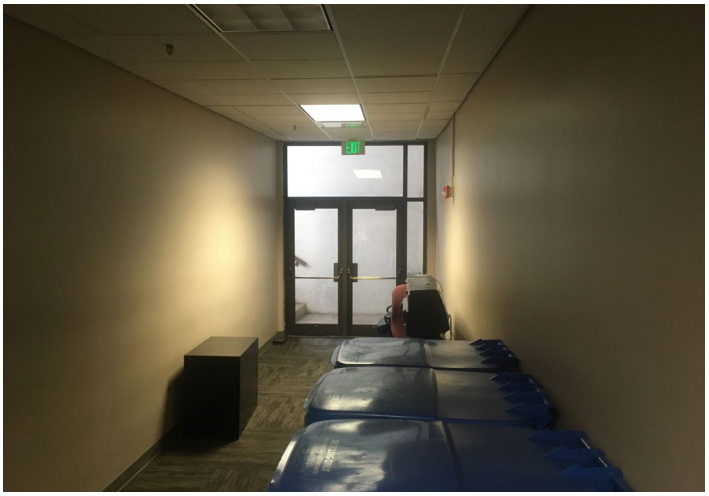
BASEMENT:

The basement level consists of a labyrinth of hallways, ramps, stairwells, and sub-levels.

ENTRY & ACCESS:

The building has access points on the north, east, and south elevations. The doors on the north end are part of a connection between city hall and the library. These doors face west and east. Access to the basement level is located on the east elevation and is mostly used by city employees.

Access to city hall from the north entry is limited due to electronic door locks that close off the council chamber rooms and hallway from the southern portion of the building. Public access is better suited to the east and south entrances.



ELEVATOR SYSTEMS:

There are two elevator systems that provide access to each level of the building. They are functional, but may be in need of an update to comply with current accessibility standards and codes.

ACCESSIBILITY:

Due to the building being built in 1970, it was not originally built to modern accessibility standards and codes. There have been alterations and amenities added to the building to accommodate patrons. While these changes have helped with certain areas, there are other spaces that do not meet requirements.

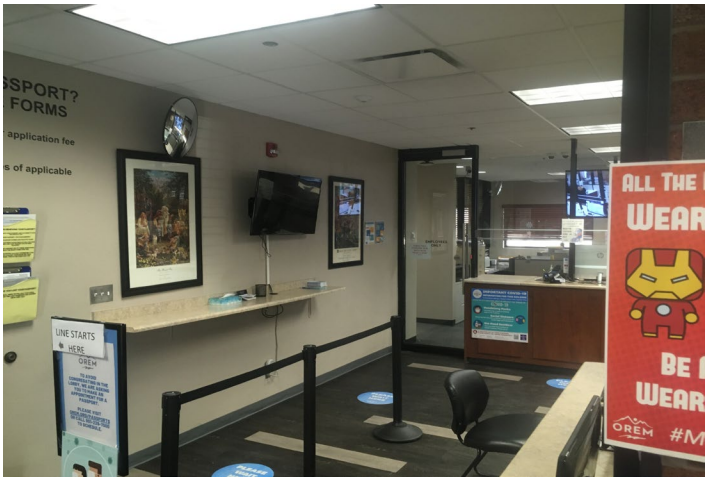
Main floor restrooms are currently being remodeled to provide accessible areas and pathways.

CITY COUNCIL ROOM:

At the time of assessment, the council room was being used as a temporary dentist's office for the public. It appears that this area is the multipurpose room for the building.

PUBLIC LOBBY & WAITING SPACES:

Each department of the building has its own small waiting spaces. Much of the public uses the 311 information waiting/cue area. Seating and other amenities are somewhat lacking due to the small waiting areas for each department.



MEETING ROOMS:

There are multiple meeting rooms located throughout the building. Many have dual purposes, including a break room in the basement, office space in the 311 information area, and in nook spaces along corridors.

STORAGE ROOMS:

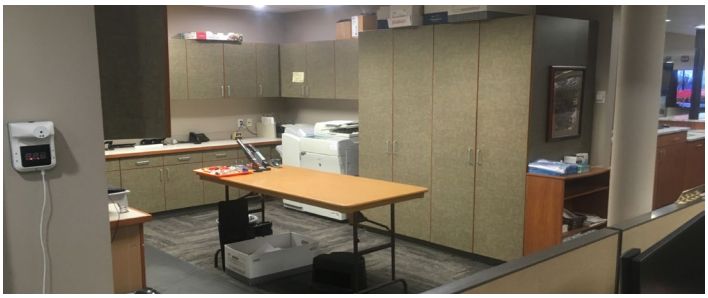
Most of the storage rooms are located in the basement. Others are near specific locations such as development services. Storage systems vary from metal shelving, storage nooks for plans, or movable filing/ storage systems.

Items are kept by the city for a specified amount of time, and then are destroyed or disposed of properly.

WORK & PREP SPACES:

Work and preparation spaces are sporadic through out building. Some are well defined, others are either a blend of break rooms or counter top space along walls.

Many of the work spaces on the main level are near or close proximity to a storage area.



BREAK ROOM SPACES:

There are multiple break room type of spaces throughout the building. Most consist of cabinets, a counter top for a microwave and coffee maker, and in some locations, a refrigerator. One area in the basement has a Foosball table, and a basement meeting room has a sofa and reading lights.

KITCHEN SPACES:

There is a centrally located, gallery layout kitchen on the main floor.

Other kitchen type prep areas occur near at break room or work room spaces. These areas usually consist of a refrigerator, microwave, and other counter top appliances.

STRUCTURAL

STRUCTURAL SEISMIC SUMMARY:

The following structural seismic summary is taken from a letter dated January 6, 2020 from Patrick James with BHB Consulting Engineers, PC. This summary letter is included in the appendix section of this report.

All structural summaries include 'life safety' and 'immediate occupancy' deficiencies. Additional information regarding these two classifications can be found in the appendix.

- Shear walls in the building would be overstressed in the event of an earthquake.

- Masonry walls appear to not meet reinforcement requirements.

- Walls around clerestory in mid section of the building appear to not be tied or connected together properly.

- Connections between walls and roof structure may need reinforcement.

- It is unknown if the brick veneer is mechanically tied to the inner cmu wall. If brick is not attached to the cmu, it could fall away during an earthquake and become a safety concern.

- There are no continuous ties between diaphragm chords.

- Several unreinforced masonry walls are located within the building. Bracing of these walls is unknown, and can potential be a life safety risk.

- Inadequate number of foundation dowels.

- Reentrant corner irregularities located in building, during a seismic event, the diaphragm can rip apart at these reentrant corner locations.

Patrick James with BHB Consulting Engineers, PC stated in the above mentioned letter that "The estimated structural design load increment to address the Immediate Occupancy deficiencies is 40% to 50%. The appropriate overall cost increase as a result this increment is 10% to 20%."

Mr James continues:
"it appears that the current City Hall building is used primarily as an office building with very little to no essential facilities requiring immediate occupancy after a seismic event. However, the city intends to create an Emergency Operations Center function and supporting spaces within the City Hall. If this ends up being the case, the structure will have to be classified as a Risk Category IV building, which means that it needs to remain operational after a seismic event.
"The extent of the deficiencies and required repairs depend on whether the building will need to be classified as a Risk Category II or IV building."

In 2015 AE Urbia and J.M. Williams and Associates provided a seismic study of the Orem City Center building. This report is included in the Appendix at the end of this report. This report included a seismic cost upgrade of approximately $2.6 million dollars.

MECHANICAL

MECHANICAL SUMMARY:

Much of the following was taken from a Mechanical Observation Report created by Richard Reeder, PE with VBFA Consulting Engineers. The report was prepared on 9/13/2016, and is included in the Appendix.

The building is served by a large, built up, dual duct VAV, air handling unit. The 1970 air handler unit is still in use, and most other major mechanical equipment has been replaced with updated units.

Two condensing type boilers were installed in 2010. The original boilers have been kept serviceable, but are mainly used as backups because they can be run on diesel fuel.

Asbestos abatement has been reported.

New heat pumps were installed and VFDs added to the system in 2010. This was done to increase energy efficiency.

A high efficiency chiller was installed in 2010, however, maintenance staff reports the need to constantly clean the chiller strainers.

Cooling pumps were replaced in 2010, and VFDs were added to increase energy efficiency.

The cooling tower was replaced in 2000 with a bac tower. Due to VFDs being used to save energy, the varying condenser water flow over the cooling tower media can cause water treatment issues.

Ductwork and air terminals are all original equipment. Supply and relief fans are original. VFDs have been installed to control the fans as a VAV system.

Controls are through an Alerton BMS system.

MECHANICAL SUMMARY CONTINUED:

New heat pumps were installed and vfds added to the system in 2010. This was done to increase energy efficiency.

A high efficiency chiller was installed in 2010, however, maintenance staff reports the need to constantly clean the chiller strainers.

Cooling pumps were replaced in 2010, and vfds were added to increase energy efficiency.

The cooling tower was replaced in 2000 with a bac tower. Due to vfds being used to save energy, the varying condenser water flow over the cooling tower media can cause water treatment issues.

External HVAC equipment is at both the East and West areas of the building, just outside the building. It is unclear if there are any units on the roof.

With the air handlers located in the basement level, there are numerous air intakes and/or exhaust grills at the ground level, just outside the building. They are located at the East, West, and South areas.

PLUMBING:

Plumbing observations and assessments were taken from a Mechanical Observation Report created by Richard Reeder, PE with VBFA Consulting Engineers. The report was prepared on 9/13/2016, and is included in the Appendix.

Plumbing fixtures appear to be fair. Sensor faucets have been added to restrooms.

VBFA noted that the cast iron sewer has leaks

The water is supplied through galvanized pipes. Water pressure at that time was adequate for fixtures. VBFA pointed out that corrosion can form in galvanized piping and cause pressure issues. But that was not the case.

There are two sewer ejector pumps for the basement. One located in engineering, the other in the I.T. Department. The pump was replaced sometime around 2016. The piping is cast iron, and there have been cracks in the past that have caused odors in the basement area. At the time of the VBFA report, there were no cracks in the piping or odor issues.

OUT OF DATE SYSTEMS:

Metal smokestack/flue from basement up through roof. This was originally used to burn papers and documents. Currently is not being used and slated to be removed.

ELECTRICAL

ELECTRICAL SUMMARY:

The following electrical summary was taken from an Observation Report dated 8/1/2016. It was prepared by Brian Hicks, PE with BNA Consulting. This document is located in the Appendix.

Existing service is 120/208V, three phase, four wire with a 2000A rating. In 2016, BNA Consulting recommended a building the size of the city center should be using a 277/480V, so that a smaller wire size and lower voltage drops could be used.

The original switchgear is still located in the main electrical room, and that it is being fed by a new switchgear.

It was recommended that the old switchgear be replaced, due to the difficulty of acquiring parts and circuit breakers.

Electrical conduit racks throughout the building are not seismically supported. All would require seismic bracing, and would require a significant amount of effort and ultimately, cost.

The utility transformer is dated June 2003. Current Rocky Mountain Power standards mandate a vault be placed underneath the transformer for conductor routing. It is unclear if this is the case.

The existing 300kW emergency generator seems to have met its service life. The ventilation is inadequate, and could potentially overheat while accommodating a large electrical load. There is an underground fuel tank, approximately 4000 gallons buried to the east of the building. The condition of the tank is unknown, and could potentially be an environmental issue.

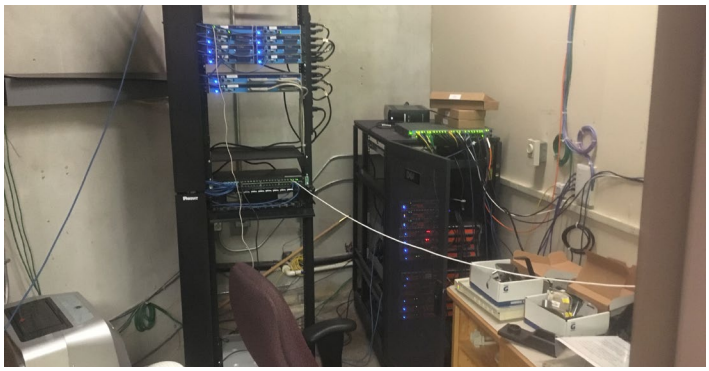
BNA Consulting estimated the following figures in 2016:
Electrical renovation: $42/sq ft.
New construction: $30/sq ft
(These numbers would increase for 2021)

SERVER ROOM:

Servers are located in the basement. The room was not originally intended for this purpose. There are main water supply lines directly above the servers, and could potentially cause significant damage if a leak were to occur. The room has an elevated floor for cooling. The servers are next to office spaces, and sound isolation pads have been installed along walls and doors.

COMMUNICATIONS & DATA:

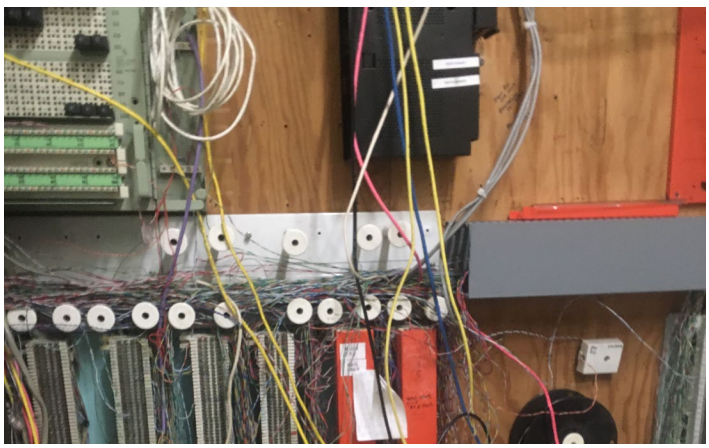
The main communications and data room is located in the basement. There are other smaller rooms on the main level that also serve as communications.



LIGHTING:

Lighting controls are extremely basic. These are not compliant with current codes. Upgrading controls to be compliant would be challenging.

The light fixtures themselves vary from room to room. Due to the age of the building, many fixtures have been updated over time.



LIFE & FIRE SAFETY

FIRE SUPPRESSION:

City Hall utilizes a pressurized fire sprinkler system. It appears to be functional. Age of system is unknown.

FIRE ALARM SYSTEM:

BNA Consulting reported in 2016 that the existing fire alarm system is in a constant state of trouble due to ground faults in the system that cannot be traced.

They recommended an open platform that can be serviced by multiple contractors versus having a proprietary system and one contractor.

The above informational summary was taken from an Observation Report prepared by Brian Hicks, PE with BNA Consulting on 8/1/2016. This report can be found in the Appendix.

SITE

LANDSCAPING:

Trees located in the south west corner of the city center were planted in the late 1940's to early 1950's. These were here before city hall was built in 1969. There are also large trees located on the east side.

Much of the site is covered with sod. Areas around large trees and the South West corner are comprised of medium sized landscaping rocks. Concrete curbing separates the rock from sod.

WAY-FINDING:

Exterior signage located in exterior courtyard between city hall and justice building.

No exterior signage observed at southwest corner of lot.

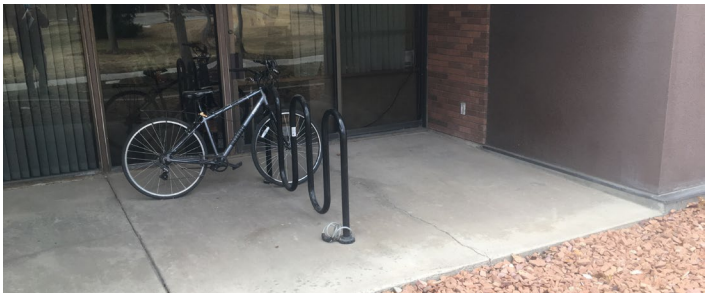
SITE CONCRETE:

With the age of the building, sidewalks are comprised of sections poured at different decades. Other sections have been cut for site work and subsequently filled. Walkways intersect at different angles and directions. Some concrete pads have lumber around the perimeter. These areas have been filled over to remove tripping hazards. These repairs have since deteriorated and will need additional attention.

SITE AMENITIES:

Bicycle Racks
Two exterior bicycle racks are located on the East side of the building. One near the entrance between the Library and the City Council Chamber area of City Hall. It is easily accessible.
The other bicycle rack is located near the East entrance near Building Services on the main level and the stairwell entrance to the basement level. It is located underneath a covered patio, however, there is not a concrete or paved path to the area. Users need to cross landscaping gravel.

Outdoor Seating
There are a few benches on the site, none were being used at the time of site observation. There is a canopy with seating at the bus stop along State Street.



SITE ACCESS:

Accessing the building is possible on each exterior face. There is a public transit bus stop along State Street to the West of the building. Public using this route most likely would use the North entrance next to Library Hall, or the South entrance near the 311 Services area.

The main public parking lot is located to the North East of the building, and access to the building from this location occurs at the North end of the building next to the Library, or the East entrance near Building Services and Accounting.

Access to the South portion of the building can be from the public bus stop, or the South parking lot.

BHB CONSULTING
ENGINEERS, PC
2766 South Main Street
Salt Lake City, UT 84115

p. 801 355 5656
bhbengineers.com

January 6, 2020

Jim Child
JRCA Architects
577 S 200 E
Salt Lake City, UT 84111

Dear Jim:

We have performed further investigation into the seismic study for the Orem City Hall building. We take no exception to the recommendations that were provided by AE Urbia in their seismic study of the building on page 9 of their report dated June 2015.

Below is a summary of deficiencies for "Life Safety" and "Immediate Occupancy" that were found in our investigation and some suggestions for repairs for each item.

The Life Safety deficiencies are as follows:

- The shear walls appear that they would be overstressed in an earthquake. The walls also appear to not all satisfy the reinforcement requirements for special reinforced masonry shear walls. These issues can be fixed by constructing new shotcrete walls with ties attaching to the existing wall or by using FRP to reinforce the existing walls. Diaphragm connections and drag elements may need to be reinforced as well to accommodate the load demand on the shear walls.
- The walls around the clerestory area in the mid-wing appear to not be tied together or reinforced properly. It is recommended to add new shotcrete walls with ties to the existing to reinforce and stabilize the walls. Alternatively, the existing wythes could be tied together with helical tie rods and by using FRP to reinforce the existing walls where additional reinforcement is required.
- There are no continuous cross ties between diaphragms chords. Straps or plates can be attached to the concrete floor or attached to joists to create continuous ties and or drag elements.
- It is also unclear if the brick veneer is tied to the CMU walls with any kind of tie. If the brick is not attached to the CMU, the brick can fall away during a seismic event and be safety concern. Helical tie rods can be utilized to attach veneer to the structural walls.
- There are several unreinforced masonry walls in the building. It is unknown how or if these walls were braced to the structure. Unreinforced masonry is a life safety concern in seismic events due to their brittle nature and collapse potential. All unreinforced masonry should be removed and replaced with stud framed partition walls anchored to the structure.

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2766 South Main Street
Salt Lake City, UT 84115

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The Immediate Occupancy deficiencies are as follows:

- The shear walls appear that they would be overstressed in an earthquake. The walls also appear to not all satisfy the reinforcement requirements for special reinforced masonry shear walls. These issues can be fixed by constructing new shotcrete walls with ties attaching to the existing wall or by using FRP to reinforce the existing walls.
- The walls around the clerestory area in the mid-wing appear to not be tied together or reinforced properly. It is recommended to add new shotcrete walls with ties to the existing to reinforce and stabilize the walls. Alternatively, the existing wythes could be tied together with helical tie rods and by using FRP to reinforce the existing walls where additional reinforcement is required.
- The diaphragm connections to shear walls appears to be inadequate. This can be remedied with new connections to the new shear walls when installed. New connections can be made with angles and anchors installed into the walls and floor slab/roof deck.
- Foundation dowels appear to be inadequate. FRP or plates can be installed with anchors into the masonry and concrete foundation wall to tie them together better where required.
- There are reentrant corner irregularities in the building that do not appear to have the tensile capacity required. A reentrant corner is defined to exist where both plan projections of the structure beyond a reentrant corner are greater than 15% of the plan dimension in that direction. An unreinforced reentrant corner can result in the diaphragm ripping apart during a seismic event. Steel beams may need to be added at the reentrant corners to “drag” forces away from the corner and into the diaphragm.
- There are no continuous cross ties between diaphragms chords. Straps or plates can be attached to the concrete floor or attached to joists to create continuous ties and or drag elements.
- It is also unclear if the brick veneer is tied to the CMU walls with any kind of tie. If the brick is not attached to the CMU, the brick can fall away during a seismic event and be safety concern. Helical tie rods can be utilized to attach veneer to the structural walls.
- There are flexible (non-concrete filled) diaphragms that span more than 40 feet between lateral supports (shear walls). This can cause excessive deflections in the diaphragm and inadequate transfer of forces to shear walls. Steel drag elements may need to be added to transfer forces from the diaphragm to the shear walls.

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2766 South Main Street
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The estimated structural design load increment to address the Immediate Occupancy deficiencies is 40% to 50%. The approximate overall cost increase as a result this increment is 10% to 20%.

It appears that the current City Hall building is used primarily as an office building with very little to no essential facilities requiring immediate occupancy after a seismic event. However, the city intends to create an Emergency Operations Center function and supporting spaces within the City Hall. If this ends up being the case, the structure will have to be classified as a Risk Category IV building, which means that it needs to remain operational after a seismic event.

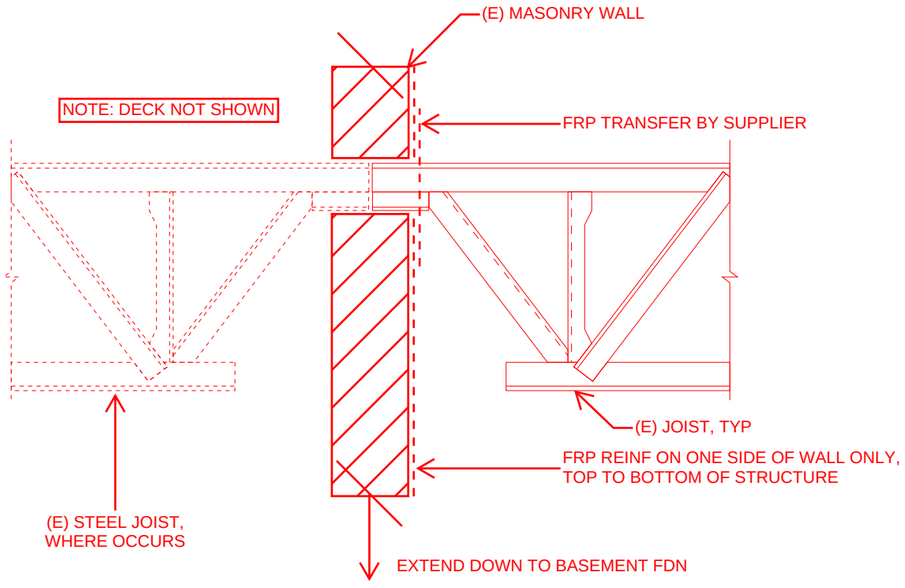
The extent of the deficiencies and required repairs depend on whether the building will need to be classified as a Risk Category II or IV building.

Sincerely,

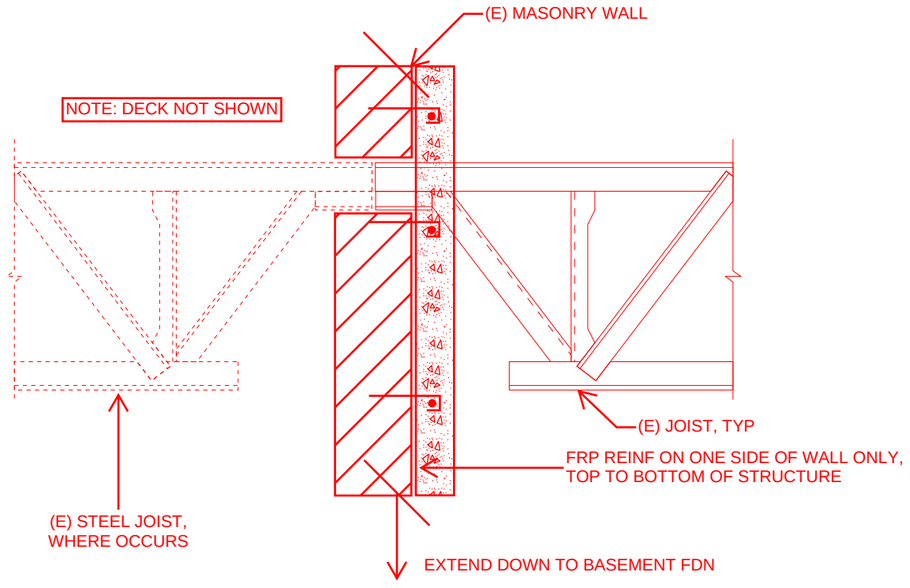
Patrick James, Project Manager
BHB Consulting Engineers, P.C.

SECOND FLOOR & LOW ROOF FRAMING PLAN - AREA "B"
SCALE : 1/8" = 1'-0"
INSTALL POST INSTALLED VENEER TIES PER DETAIL 5, TYP AROUND PERIMETER
INSTALL POST INSTALLED VENEER TIES PER DETAIL 5, TYP AT BRICK VENEER
SEISMIC DRAG, SIMILAR TO CONT CHANNEL CHORD
BRACE INTERIOR NON-BEARING MASONRY WALLS PER DETAIL 6
SIM
FLOOR FRAMING NOTES
1- TOP OF ALL FINISHED FLOORS ARE LEVEL. ELEV. +13'-0"
2- SLAB THICKNESS OVER STEEL JOISTS AS FOLLOWS:
4 1/2" WITH VINYL FLOOR COVER'G
4" WITH CARPET & PAD
3" WITH TERRAZZO
2 1/2" WITH BRICK & CER. TILE.
SEE ARCH. DRWGS. FOR LOC'TN OF VARIOUS FINISHES.
3- REINF SLABS AS FOLLOWS:
3 1/4" & 4 1/2" SLABS W/ #3 @ 15" O.C. EA. WAY
2 1/2" SLABS W/ 6"x6" 4/4 WELD WIRE MESH.
4- FLR JOISTS TO HAVE 2 1/2" DEEP BEARING & ALL LOW ROOF JOISTS TO HAVE 5" DEEP BEARING.
5- TOP OF ALL STEEL JOISTS EL. = +12'-7 1/2"
6- TOP OF ALL STEEL BEAMS EL. = +12'-5" UNLESS SHOWN OTHERWISE.
CLOUD HANGER DETS
K/S7 GWF 15.5 CONN. TO WALL — SCALE : 3/4" = 1'-0"
L/S7 GWF 15.5 CONN. TO PIPE COL — SCALE : 3/4" = 1'-0"
M/S7 EXP. JOINT DETAIL @ LOW ROOF — SCALE : 3/4" = 1'-0"
A/S7 PIPE COL. CONN. TO CONC. BEAM — SCALE : 3/4" = 1'-0"
B/S7 TUBE CONN. TO CONC. BEAM — SCALE : 3/4" = 1'-0"
C/S7 LOW ROOF CONN @ 2ND FLOOR — SCALE : 3/4" = 1'-0"
D/S7 JOIST CONN TO CONC. BEAM @ WINDOWS — SCALE : 3/4" = 1'-0"
E/S7 JOIST & SLAB CONN. @ MASONRY WALL — SCALE : 3/4" = 1'-0"
F/S7 LOW ROOF & 2ND FLOOR CONN. DETAIL — SCALE : 3/4" = 1'-0"
G/S7 BEAM TO COL. CONN. — SCALE : 3/4" = 1'-0"
N/S7 CONC. BEAM & WF BEAM CONN. DETAIL — SCALE : 3/4" = 1'-0"
O/S7 WF BEAMS @ STAIR OPNG. — SCALE : 3/4" = 1'-0"
J/S7 2ND FLOOR BEAMS CONNECTION DETAILS — SCALE : 3/4" = 1'-0"
I/S7 PIPE COL. TO WF BEAM CONN. DETAIL — SCALE : 3/4" = 1'-0"
X/S7 SECTION — SCALE : 3/4" = 1'-0"
DEEPEN BOND BM. TO SAME DEPTH AS BEAM FOR OPNG AT EACH SIDE OF OPNG, MIN. DISTANCE - 3'-0" — TYPICAL FOR ALL SIMILAR CONDITIONS
OREM CITY CENTER
OREM, UTAH
ASHWORTH ARCHITECTS, A.I.A.
120 EAST 300 NORTH, PROVO, UTAH
REVISED
SHEET No. S-7
REGISTERED PROFESSIONAL ENGINEER Ralph L. Wadsworth No. 2525 STATE OF UTAH

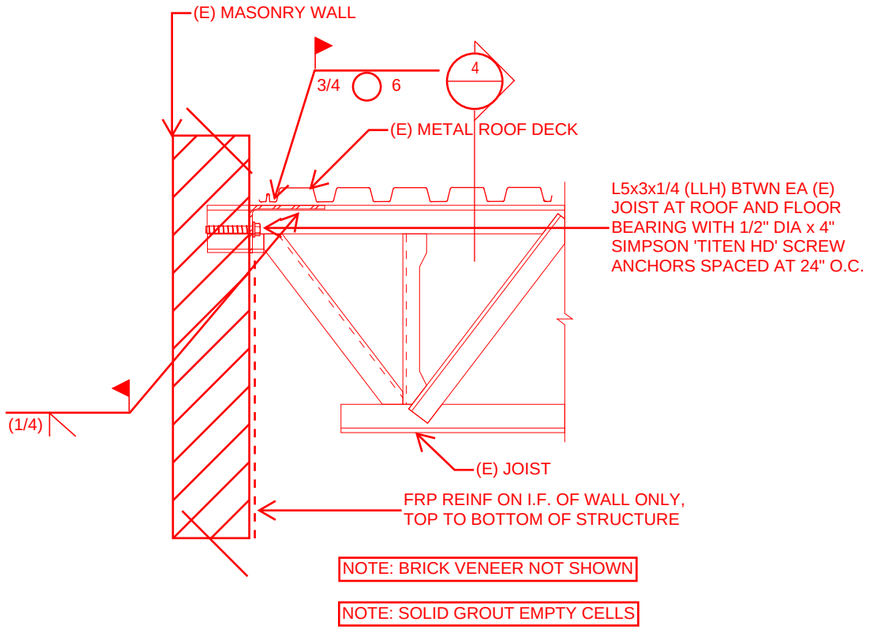

HIGH ROOF FRAMING PLAN - AREA "B"
SCALE : 1/8" = 1'-0"
ROOF FRAMING NOTES
1- ROOF DECK TO BE 1 1/2", TYPE B, 22 GUAGE, GALVANIZED STEEL DECK (NO TYPE "S" DECK ALLOWED.)
2- STEEL ROOF DECK TO BE CONNECTED TO ALL SUPPORTS AS FOLLOWS :
A. 3/4" PLUG WELD @ 18" O.C. AT ALL PANEL EDGES PARALLEL TO PERIMETER SUPPORTS & 6" O.C. @ PANEL ENDS & SUPPORTS.
B. ALL WELDS TO HAVE WELD WASHERS. SIDE LAPS ARE TO BE BUTTON PUNCHED @ 24" O.C. TO SUIT ARCHITECT
DASHED LINE INDICATES A NEWxCONT CHANNEL CHORD
INSTALL POST INSTALLED VENEER TIES PER DETAIL 5, TYP AT BRICK VENEER
INSTALL POST INSTALLED VENEER TIES PER DETAIL 5, TYP AROUND PERIMETER
SEISMIC DRAG, SIMILAR TO CONT CHANNEL CHORD
BRACE INTERIOR NON-BEARING MASONRY WALLS PER DETAIL 6
MISC FRAMING TO CONNECTIE SEIMIC TO (2) EXISTING STEEL JOISTS
SIM
TYP
K 58 TYPICAL CONC BEAM @ WALL DETAIL
SCALE : 3/4" = 1'-0"
J 58 STEEL DECK BEARING @ MASONRY WALL DETAIL
SCALE : 3/4" = 1'-0"
A 58 TYPICAL JOIST BEARING & CONC BEAM @ HIGH ROOF
SCALE : 3/4" = 1'-0"
(THIS SECTION SIM AT WDO SPANS.)
B 58 SECTION THRU HIGH ROOF & EXPANSION JOINT
SCALE : 3/4" = 1'-0"
C 58 SLIP JOINT FOR CONC. BEAM
SCALE : 3/4" = 1'-0"
D 58 PIPE COL. TO WF BEAM & SPLICE
SCALE : 3/4" = 1'-0"
E 58 WF BEAM TO CONC. BEAM
SCALE : 3/4" = 1'-0"
F 58 TYP. CONC. BM. & JOIST BRG @ WINDOWS
SCALE : 3/4" = 1'-0"
H 58 TYPICAL SHEAR WALL DETAIL
SCALE : 3/4" = 1'-0"
G 58 JOIST CONN. @ INTERIOR MASONRY BEARING WALL
SCALE : 3/4" = 1'-0"
NOTE : BRICK MUST BE BUILT TO CLR. BEAM TO ALLOW FOR MOVEMENT
PROVIDE 15" WIDE POCKET BLOCK-OUT FOR N.S. BEAM
1/2" x 8" x 12" GRAPHITE IMPREGNATED BUFFER PAD TO ALLOW LATERAL MOVEMENT
DBL 'H'-BLOCK BEAM (8'-0" LONG) BEGIN @ CORNER FILL W/ CONC. & REINF W/ 2-#5 CONT T & B.
NOTE : AT CURVED PORTION OF WALL DROP BOTT OF BOND BEAM TO EL. +23'-4"
NOTE : JOISTS THIS AREA TO HAVE 2 1/2" DEEP BEARING ENDS
NOTES : ALL JOISTS THIS AREA TO HAVE 5" DEEP BEARING ENDS
LOW POINT OF TOP OF BEAM 23'-4"
CONC BEAM SLOPES 8" UP & DOWN TO ACCOMODATE ROOF SLOPE
NOTE : AT CURVED WALLS & WALLS PARALLEL W/ JOISTS TOP OF BEAM @ EL 26'-1" SEE SECTION K/58 FOR SIM REINF.
4" CONC. SLAB OVER VAULT REINF. W/ #3 @ 10" EA. WAY IN BOTT. W/ #3 @ 12" WALL DOWELS ALL AROUND
12" x 25" CONC BEAM W/ 2-#5 CONT T & B #3 @ 2 @ 10" EA SIDE OF OPNG
WALL TYPE #5 SEE SHT #S-2.
NOTE : JOIST BRG @ EAST WDO OPNG VARIES FROM 25'-5 1/2" @ NORTH TO 25'-10 1/2" @ SOUTH END.
OREM CITY CENTER
OREM, UTAH
ASHWORTH ARCHITECTS, A.I.A.
120 EAST 300 NORTH, PROVO, UTAH
SHEET NO.
S-8
REGISTERED PROFESSIONAL ENGINEER
Ralph L. Wadsworth
No. 2520
STATE OF UTAH



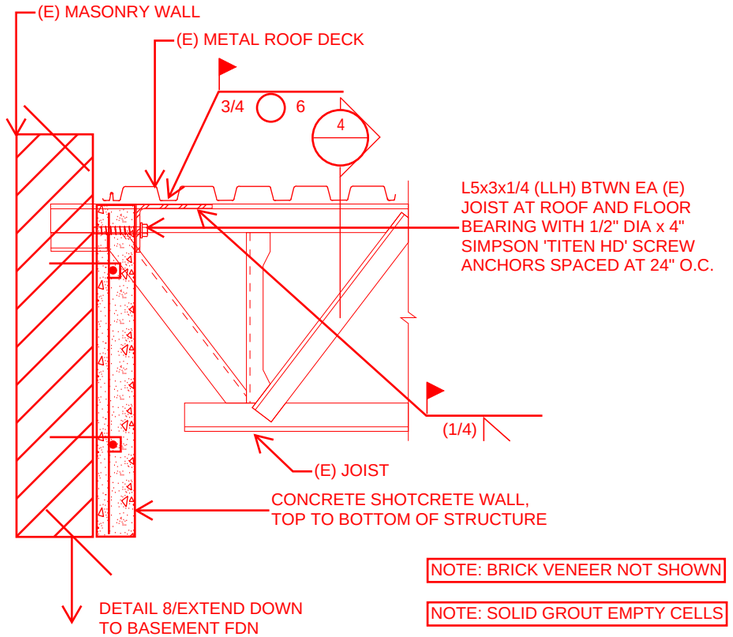
DETAIL 7 (AT TYPICAL (E) MASONRY WALLS)



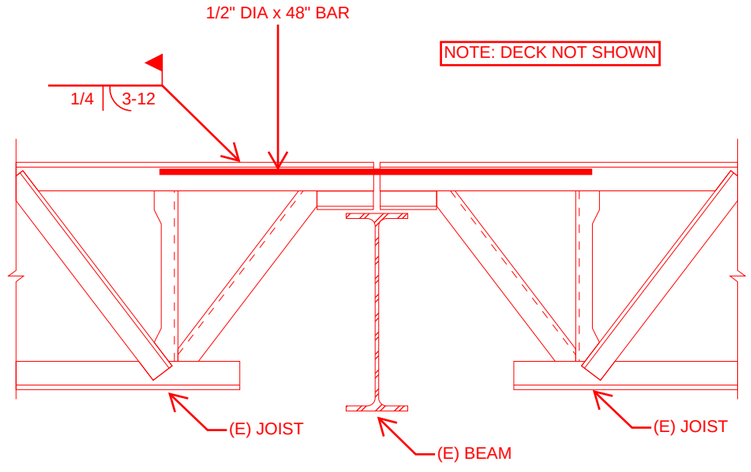
DETAIL 8 (AT (E) CLERESTORY MASONRY WALLS)



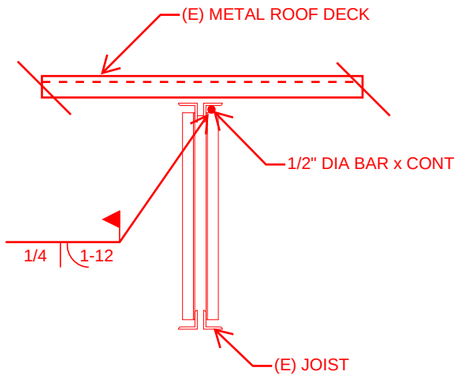
DETAIL 1 (AT TYPICAL (E) MASONRY WALLS)



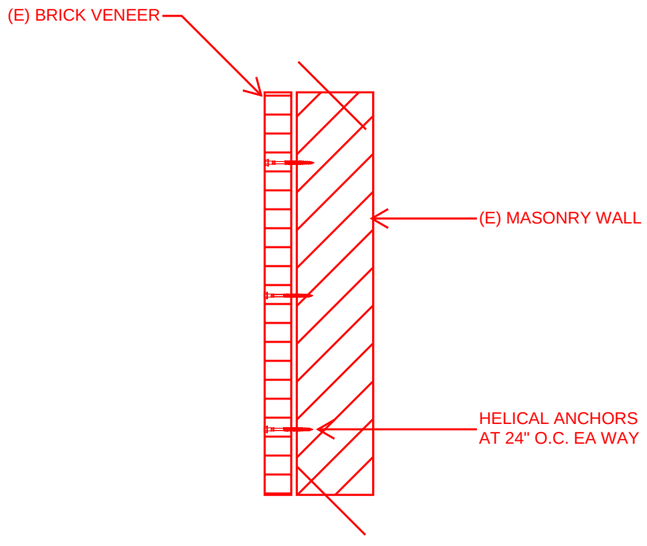
DETAIL 2 (AT (E) CLERESTORY MASONRY WALLS)



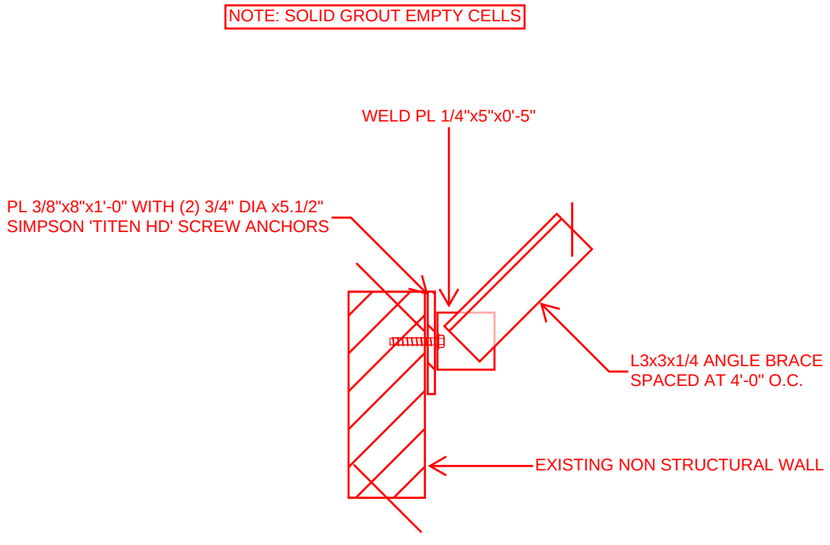
DETAIL 3 (CONTINUOUS TIE)



DETAIL 4 (ROOF JOIST REINF)



DETAIL 5 (BRICK VENEER TIES)



DETAIL 6 (BRACING OF NON STRUCTURAL WALL)

Building Evaluation 1.0

To: Jim Child
JRCA

From: Brian Hicks, PE, RCDD

Date: 8/1/2016

Re: Orem City Center Electrical Building Evaluation

Jim,

We walked through the Orem City Center on July 27th, 2016 to observe the existing conditions of the electrical system. Photos are available for viewing by clicking this link.

Below are our observations:

1. Service Size
    a. The service size is 120/208V three phase four wire with a 2000A rating. A building of this size should be utilizing 277/480V in lieu of 120/208V to capitalize on smaller wire sizes and lower voltage drops. This is not realistically a potential energy saving item, but is nevertheless a good engineering practice to utilize 277/480V in an application with such a large building. There is sufficient capacity in the service to expand the building, as the electrical switchgear is only 19% utilized.
2. Switchgear
    a. It appears the original building switchgear has been refed from new switchgear that was upgraded at an unknown date. The new switchgear is in good condition however the old switchgear should definitely be replaced in an upgrade. Due to the age of the older switchgear, acquiring circuit breakers would be quite difficult and expensive. In the event of a building replacement, I feel it would be prudent to investigate the possibility of re-using the existing newer 2000A 120/208V switchgear in the new building.
3. Fire Alarm System
    a. The existing fire alarm system is in a constant state of trouble because of ground faults on the system that cannot be traced. Simplex has tried to isolate the location but it sounds like significantly more investigation and a more experienced technician would be required to isolate the ground fault and correct the problem. An open platform system that would permit several fire alarm contractors to service the equipment is preferred—currently only one contractor is available for servicing.
4. Electrical Conduit Racks

BNA Consulting
635 South State Street
Salt Lake City, Utah 84111
P 801.532.2196
F 801.532.2305

    a. Electrical conduit racks are not seismically supported and would require seismic bracing to be brought up to current codes. This would involve a significant amount of effort throughout the building, because everywhere an electrical trapeze occurs—seismic bracing would be required.
5. Telecommunications
    a. The main telecommunications room is overrun with cables that do not appear to be used anymore. The room is in dire need of being redone with the system upgraded. The service entrance for the telecommunications appears very poorly installed yet critical city services are counting on that line functioning.
6. UPS System
    a. The UPS system appears to be grossly under-utilized which causes the efficiency of the unit to significantly drop. In short, when the UPS is under-utilized, the UPS becomes an energy hog and a fair amount of energy is "wasted." The UPS should be replaced with a smaller size UPS with a smaller battery cabinet (64 minutes of current backup time, which is probably excessive).
7. Emergency Generator
    a. No date was found on the emergency generator but the rating is 300kW. It is extremely possible that this generator is very oversized for the load it carries. There is very little ventilation in the room where the generator is located and if the generator were actually burdened with a large load, I highly doubt that the generator would be able to accommodate the load without overheating unless someone opens the area doors. The generator appears to have met its service life and should be replaced. There is an underground ~4,000 gallon fuel tank buried in the grass to the east and is most likely a single-wall tank and would require significant issues with the EPA.
8. Lighting Controls
    a. There are extremely basic lighting controls (former Wattstopper panels which had their interiors removed and replaced with GE relays) provided in the building and are in no way compliant with the stringent codes applicable today. It would be significantly challenging to upgrade the lighting controls to be compliant with the newest code editions.
9. Utility Transformer
    a. The Rocky Mountain Power transformer is dated June 2003, which is when the possible service upgrade took place and the newer switchgear was installed. Current Rocky Mountain Power standards mandate a vault be placed underneath the utility transformer for conductor routing.

2015/2016 Power Bill Information			
	Demand (kW)	Demand (Amps)	Utilization
Jun-15	250	301	19%
Jul-15	248	298	19%
Aug-15	255	307	19%
Sep-15	259	312	19%
Oct-15	256	308	19%
Nov-15	193	232	15%
Dec-15	181	218	14%
Jan-16	184	221	14%
Feb-16	197	237	15%
Mar-16	240	289	18%
Apr-16	254	306	19%
May-16	245	295	18%

Considering these factors, I estimate the following for electrical costs in renovations compared to leveling the existing building and doing new construction:

Renovation; $42/Sq Ft
New Construction; $30/Sq Ft.

In other words, I estimate a $12/Sq Ft premium for attempting to bring existing equipment up to code.

Please let me know if there are any questions and I am more than happy to help.

Thank you so much,

Brian Hicks, PE, RCDD
801-532-2196
bhicks@bnaconsulting.com

MECHANICAL OBSERVATION REPORT

1. City Center

Mechanical Systems:

The building was constructed in 1970. The building is served by a large, built up, dual duct vav, air handling unit located on the lower level. This air handling unit is still in use. However, most of the major mechanical equipment has been updated and replaced. Apparently there have been several recent energy efficiency improvement projects and the old mechanical equipment was replaced with new, more energy efficient equipment.

Mechanical Equipment:

Two new boilers were added in 2010. They are Thermal Solutions and are high efficiency, condensing type boilers. The two original Cleaver Brooks boilers have been kept in service because they can run on diesel fuel and be used as a backup. They are not normally used.

It was reported that all of the asbestos insulation has been abated.

The heating pumps were replaced in 2010 and vfd's were added for energy efficiency.

The building originally had a radiant heating system for supplemental heating. The radiant heating system has been turned off and is no longer used.

A new high efficiency chiller was added in 2010 to replace the old chiller. It is a MultiStack. The maintenance staff has reported that they are struggling with the constant need to clean the chiller strainers, almost every 2 months.

The cooling pumps were replaced in 2010 and vfd's were added for energy efficiency.

In 2000 the cooling tower was replaced with a new BAC tower. The fill was replaced in 2015.

The condenser water pumps have been replaced and vfd's were added to control the pumps. While the vfd's will save pumping energy, varying the condenser water flow over the cooling tower media can cause water treatment problems. Power Engineering is the current water treatment supplier.

Air Handling Units and Ductwork:

The air handling unit is a built up system. The supply fans are original. VFD's have been added to control the fans as a vav system. The dampers look adequate, although the position they were in did not look correct. The filter racks look adequate and the filters were clean. The relief fan is original equipment.

The ductwork and air terminals are all original equipment. The ductwork is routed throughout the building to dual duct vav boxes thru the ceilings and was not readily observable.

Plumbing:

The plumbing fixtures looked fair. Sensor faucets have been added.

It was reported the cast iron sewer does have some leaks. The water piping is galvanized. Often with age the corrosion in galvanized piping causes pressure problems. But it was reported the water pressure is adequate to the fixtures.

There is a sewage ejector for the basement sewer.

Fire Sprinkler System

The building has a wet fire sprinkler system.

Automatic Temperature Controls:

The building control system is an Alerton BMS system maintained by Rocky Mountain.

2. Library

Mechanical Systems:

The building was constructed in 1984. The building is served by a multi-zone air handling unit located on the lower level. This air handling unit is still in use. The library receives heating and chilled water from the City Center.

Air Handling Units and Ductwork:

The multi-zone air handling unit is a packaged style unit. The air handling unit is original equipment. The relief fan is an inline type and is original equipment. There is a newer coil pump on the heating coil.

The ductwork and air terminals are original equipment. The multi-zone ductwork is routed throughout the building and was not readily observable.

There are radiant heaters under the windows that are still in operation.

Plumbing:

The plumbing fixtures looked fair. Sensor faucets have been added. No problems were reported with the plumbing.

Fire Sprinkler System

The building has a wet fire sprinkler system.

Automatic Temperature Controls:

The building control system is an Alerton BMS system maintained by Rocky Mountain.

2. IT Area

Mechanical Systems:

The IT area is served by a glycol cooled Liebert Computer Room Air Conditioning unit (CRAC). The room has a raised floor that is used as a supply air plenum. The condenser is outside near the east entrance. The Liebert unit looks older. The condenser looks relatively new.

Problems/Deficiencies

Because the majority of the mechanical equipment has been recently replaced as part of energy efficiency upgrade, the mechanical systems are in fairly good shape.

The built up air handling unit serving the City Center is over 45 years old. The fans in an air handling unit have an estimated service life of around 25 years, so they are well beyond their expected service life. The coils have an estimated service life around 20 years, they are also well beyond their expected service life.

The multi-zone air handling unit serving the Library City Center is over 30 years old. The fans in an air handling unit have an estimated service life of around 25 years, so they are well beyond their expected service life. The coils have an estimated service life around 20 years, they are also well beyond their expected service life. . A multi-zone air handler is not a very energy efficient system.

The ductwork has an anticipated service life of around 30 years. The ducts get dirty and joints become leaky. Duct leakage will affect system efficiency, comfort and controllability
The dual duct vav boxes serving the City center have an estimated service life of 20 years and are well beyond their expected usage.

Recommendations.

The City Center and Library mechanical systems are very well maintained. With all of the new equipment these buildings could be used for several more years. Our main concerns with long term use of the building would be as follows:

1. The age of the built up air handler. The replacement of the fans and coils would seem to be imminent due to their age. This work could include replacing the fans, coils, dampers, controls, relief fan and vfd's. One advantage the built up air handler has is there is adequate space to replace these components.

2. The age of the multi-zone air handler. The multi-zone air handler replacement would seem to be imminent due to its age. It is also not a very energy efficient system. This work could include replacing the entire air handler, dampers, controls and relief fan. Replacing the multi-zone would be difficult and costly because of the compactness of the unit and tight spaces around this air handler

3. The condition of the old ductwork. Duct leakage can have a very detrimental impact on a buildings energy efficiency and comfort. It is very expensive to repair ducts in place, especially anywhere it is difficult to access the ductwork. We recommend a duct pressure test. This testing would be able to provide the information necessary to determine condition of the ductwork in both buildings.

4. The ATC system. We recommend that the ATC controls be re commissioned to make sure they are still preforming the proper sequences in an energy efficient manner.

5. Fire Sprinkler System. The fire sprinklers are approaching the age when the sprinkler heads should either be replaced or at a minimum, a representative sample should be removed and tested.

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June 2015

OREM CITY
Attn: Bill D. Bell / City of Orem / Development Services Director
56 North State Street / Orem, Utah 84097

RE: OREM CITY CENTER
SEISMIC STUDY 2015

1.0 SCOPE AND BASIS OF REPORT

The following is a current seismic evaluation of the Orem City Center main office building and council chambers located at 56 North State Street - Orem, Utah. A Tier 1 seismic evaluation was performed in 2005 in accordance with ASCE Standard, ASCE/SEI 31-03 - "Seismic Evaluation of Existing Buildings," published by the American Society of Civil Engineers and the Structural Engineering Institute. A Tier 1 evaluation is defined as "The completion of checklists of evaluation statements that identifies potential deficiencies in a building based on performance of similar buildings in past earthquakes." At that time the building was evaluated to the "Life Safety Performance Level." Life Safety Performance Level is defined as "Building performance that includes

damage to both structural and nonstructural components during a design earthquake, such that: (a) partial or total structural collapse does not occur, and (b) damage to nonstructural components is non-life-threatening." The industry standard is to keep the building standing long enough for the occupants to evacuate the building, after which the building would then collapse, be demolished, or possibly repaired depending on the extent of the structural damage and cost of repairs vs. replacement cost of the building. The Tier 1 evaluation identified several deficiencies such as inadequate shear walls (which are the walls used to resist lateral seismic forces in the building), Roof Diaphragm deficiencies (which is the roof deck and its capacity to transfer lateral seismic forces to the shear walls as well as bracing the shear walls, etc), and some additional concerns with glazing. Potential mitigation measures were discussed, but a more detailed analysis which is part of a Tier 2 evaluation was not performed, and actual repairs were not engineered. Also note that although the building was evaluated in accordance with a "Life Safety Performance Level," it should have been evaluated to an "Immediate Occupancy Performance Level." "Immediate Occupancy Performance Level," is defined as a building performance that includes damage to both structural and nonstructural components during a design earthquake, such that: (a) the damage is not life-threatening, so as to permit immediate occupancy of the building after a design earthquake, and (b) the damage is repairable while the building is occupied." The City Center would need to be available, up and operating after a major earthquake. The building was originally treated as a Risk Category II building (typical office building) as defined in ASCE Standard ASCE/SEI 7-10 Minimum Design Loads for Buildings and Other Structures and in the 2012 IBC (International Building Code) table 1604.5. The City Center needs to comply with Risk Category IV, buildings and other structures designed as essential facilities. Essential facilities are buildings and other structures that are intended to remain operational in the event of extreme environmental loading from flood, wind, snow or earthquakes. The Orem City Center is a designated emergency preparedness, communications and operations center which must be able to provide emergency response for the public. It should be

noted that the original study was done in 2005. The building code was updated in 2006, 2009, and 2012 and there is now a 2015 version of the code is being evaluated by the State of Utah for adoption.

The purpose of this new and updated seismic study is to evaluate the Orem City Center as a risk category IV building in accordance with the current building code.

The analysis and recommendations submitted in this report are based upon visual observations, past seismic studies, original construction documents, engineering calculations, and sound engineering judgments. The analysis and recommendations submitted in this report are based upon the information available to our office at the time this report was prepared. The nature and extent of structural variation (if any) may not become evident until the construction phase begins, at which time modifications may be required. This report has been prepared to assist the owner in decisions pertaining to the future use of the building. Our findings and conclusions have been obtained in accordance with accepted professional engineering practices in the field of structural engineering. This warranty is in lieu of all other warranties, expressed or implied.

2.0 METHODS OF SEISMIC EVALUATION

There are several methods for evaluating an existing building for seismic forces. Historically the engineering community has used the ASCE Standard, ASCE 31-03 Seismic Evaluation of Existing Buildings which was published in 2003 and is now twelve years old (the building code has gone through 4 code cycles since then). ASCE 41-06 Seismic Rehabilitation of Existing Buildings has typically been used to do the actual seismic upgrades of deficient buildings. A newer publication is the IEBC International Existing Building Code which is intended to provide flexibility to permit the use of alternative approaches to

achieve compliance with minimum requirements to safeguard the public health, safety and welfare insofar as they are affected by the repair, alternation, change of occupancy, addition and relocation of existing buildings. In the case of this building, we are not interested in minimum requirements to safeguard against the loss of life. This is a risk category IV building which needs to remain in operation after an earthquake, therefore the other option for evaluating a building to see how it will perform per the current building code, is to simply use the current building code to evaluate the existing building. This approach is also promoted by ASCE (the American Society of Civil Engineers) and other engineering organizations. In fact one of the methods of compliance in the IEBC is to use the International Building Code, IBC level seismic forces (all other methods of evaluation typically reduce the seismic forces to below those required in the building code).

The seismic forces used for this study were obtained using the current 2012 International Building Code as adopted by the State of Utah and all applicable importance factors and coefficients as required by the adopted standards such as ASCE 7-10 Minimum Design Loads for Buildings and Other Structures, and ACI 530 Building Code Requirements for Masonry Structures and Specifications for Masonry Structures.

3.0 BACKGROUND

The Orem City Center building was constructed in 1969. Seismic design was not included in the building code until 1972, so the Orem City center was designed and constructed without any consideration for seismic forces, typical of all other buildings constructed during that time period. The building would have been designed for lateral forces due to wind, but the later seismic forces as calculated in this report as a risk category IV are over 10 times greater than the wind forces!

4.0 EXISTING STRUCTURE

The following is a description of the existing structure and its structural members:

This report addresses the city offices and the city council chamber portions of the building. It does not address the library wing located to the north of the city council chambers (the city offices are located to the south of the city council chambers).

As previously mentioned, the building was constructed in 1969, making it 46 years old. The typical life of a building is estimated to be 50 years, per industry standard. If well maintained a building can last much longer.

The city council room, and adjacent lobby are a single story space with walls and a roof that are approximately 30 feet tall. In plan, the perimeter walls are elongated "S" shapes which flare in and out at door and window locations. The council room and lobby are connected directly to the library by a lower level breezeway, and also connected directly to the city offices to the south. The city office portion of the building is a single story structure for its full length along the east side of the building and is approximately 13' tall. The west portion of the city offices wing is a two story structure which is approximately 27 feet tall.

According to the plans, the roof deck is a 1.5" type "B" 22 gage metal deck. The deck is connected at its perimeter with ¾" diameter puddle welds spaced 18" o.c. along when parallel the flutes of the deck and at 6" o.c. perpendicular to the flutes. Side lap fasteners are spaced 24 inches on center. The roof deck is supported by pre-engineered open-web steel joists spaced at 6 feet and 7 feet on center. The steel joists at the roof bear on reinforced concrete bond beams which in turn bear on masonry walls. The floor is constructed of open web steel joists spaced at 2 feet on center, which support a corrugated metal deck and concrete that varies from 2.5" thick to 4.5" thick depending on the

finished floor materials. For example where brick pavers occur on the floor, the concrete is only 2.5" thick. Floors with carpet are 4" thick and 4.5" thick at vinyl flooring. The 2.5" thick concrete has a 6" x 6" welded wire mesh, while the other floors have #3 bars at 15" o.c. each way.

There are several wall types:
Wall type 1:
4" brick - 4" cmu - 4" brick
With #7 vertical bars at 32" o.c. and #6 horizontal bars at 48" o.c.

Wall type 2:
4" brick - 8" cmu
With #5 vertical bars at 32" o.c. and (2) #4 horizontal bars at 48" o.c.

Wall type 3:
4" brick - 1.5" grout - 4" cmu
With #4 vertical bars at 18" o.c. and #4 horizontal bars at 24" o.c.

Wall type 4:
8" cmu

Wall type 5:
4" brick - 4" brick

The foundation is constructed of reinforced concrete.

For the most part, the structural members are in good condition.

5.0 GRAVITY AND LATERAL LOAD RESISTING SYSTEMS

There are two load resisting systems required in a building; a gravity load

resisting system and a lateral load resisting system. The same structural system may be used to resist both the gravity loads and the lateral loads. In the case of this building lightly reinforced masonry walls are used for both systems. The loads are resisted by a bearing wall system constructed of reinforced masonry. Although the lateral load resisting system would have been designed to only resist wind loads, it will also be subjected to seismic forces (which in the case of this building are 10 times greater). Per the code there are three types of reinforced masonry shear walls; Ordinary reinforced masonry shear walls, Intermediate reinforced masonry shear walls, and special reinforced masonry shear walls. The Orem City Center is in a seismic design category D. The ordinary and intermediate reinforced masonry shear walls are not permitted in seismic design category D per the current building code. Only the special reinforced masonry shear wall system is permitted, but has several detailing requirements which do not exist in this building. One of the problems this building has is that the reinforcing in the building does not meet the special reinforcing steel requirements, so automatically is in violation to the building code. Because the building lacks the needed ductility, therefore the building was analyzed at if it was an intermediate reinforced masonry shear wall system, to help take into account the lack of special detailing. Please note that lack of special reinforcing details has led to the collapse of masonry and concrete buildings and structures in recent earthquakes.

6.0 STRUCTURAL EVALUATION, FINDINGS AND DEFICIENCIES SUMMARY

The following is a summary of structural concerns or deficiencies related to the lateral load resisting system which have been identified through a lateral analysis and structural engineering calculations. These concerns and deficiencies if not corrected may result in a collapse or partial collapse of the building and the potential loss of life.

In the following descriptions any reference to the city council room also include

the adjacent lobby area.

When subjected to lateral loads the roof diaphragm / roof deck in greatly over stresses and is not capable of resisting the lateral loads.

The roof diaphragm / roof deck does not have an adequate chord member to withstand tensile forces in the deck.

The connection between the roof deck and the masonry walls cannot adequately transfer the in-plane shear forces.

The east and west exterior masonry walls are over stressed in shear when subjected to seismic forces. There is also inadequate boundary reinforcing to resist tension forces and overturning in the ends of the walls.

The exterior walls in the city council room are approximately 30 feet tall and the majority of those walls are unbraced for the full 30 feet. The masonry wall is constructed of multi-wyths of 4" bricks and concrete masonry units. Depending on how these walls were constructed, if fully grouted together, then they will act as a 12 inch thick wall. If not fully grouted, then these walls may act as (3) 4" thick walls, which would not be able to withstand the out-of plane seismic shear forces. (This could be further evaluated through destructive testing. The wyths could be pinned together will stainless steel helical pins drilled into place, at 16" o.c. each way, or as calculated.)

The roof diaphragms / roof decks are over stressed and inadequate.

The second level floor diaphragm is over stressed and inadequate in many locations.

Nearly all of the second level shear walls / masonry walls are over stressed when subjected to the design lateral seismic force. As these walls fail, the

loads are redistributed to the remaining walls which will in turn fail.

Nearly all of the main level shear walls / masonry walls under the two story section of the building are over stressed when subjected to the design lateral seismic force. As these walls fail, the loads are redistributed to the remaining walls which will in turn fail.

7.0 RECOMMENDATIONS

In the previous section several structural concerns and or deficiencies related to the lateral load resisting system, (the buildings ability to withstand lateral seismic loads) were identified. These concerns and deficiencies if not corrected may result in a collapse or partial collapse of the building and the potential loss of life. These items are life-threatening, and should be properly addressed.

Roof diaphragms / roof decks - The roof diaphragms need to be reinforced and or replaced throughout the building.

Diaphragm connections - The diaphragm connections to the wall need to be strengthened for both in-plane and out of plane seismic forces.

Diaphragm chords - Install or create adequate roof diaphragm chords and drag struts.

Floor diaphragms / floor decks - The second level floor diaphragms that are deficient need to be reinforced and or replaced.

Multi-wyth walls need to act as a solid element when subjected to out-of-plane loads. These walls can be pinned together using stainless steel helical rods installed at 16" o.c. each way, or as calculated.

All of the shear walls / masonry walls that are over stressed when subjected to seismic forces need to be strengthened. There are several ways in which this could be done. One common way is to drill and epoxy #3 dowels with hooked ends into the existing walls at 16" o.c. each way. Then tie #4 reinforcing steel at 12" on center each way (or as calculated) and provide matching dowels or equal into the foundation below. Then to apply 4" to 8" of shotcrete, thus creating a new structural wall. The floor and roof diaphragms would then need to be properly attached to the new wall for shear transfer, etc. This new structural wall would require the modification of electrical systems, mechanical systems, and new finishes, etc. Other options could include installing braced frames, using glass and carbon composites, etc.

With all of the above recommended repairs, in most cases all of the architectural finishes would have to be removed and replaced (such as roofing, flooring, and other finishes), and if not removed, covered and then new finishes installed. Therefore estimated structural repair costs are often times much higher than originally anticipated.

8.0 PRELIMINARY COST ESTIMATE

In comparison to the 2005 tier 1 seismic report please note that the 2005 construction cost estimates did not include the full seismic upgrade that was required per that analysis let alone what is actually required for the level of safety that is needed. The seismic upgrade estimate that was provided for the main remodel only addressed the roof diaphragm and did not include any estimated costs for strengthening the shear walls, their attachments, connections to the foundation, connections to floor and roofs and necessary drag struts. The Tier 1 evaluation was based on Life Safety only. Also note that the escalation of construction costs for Utah from 2005 to 2015 are 140% higher now, according to the RSMeans Square Foot Costs 2015 edition.

OREM CITY CENTER – SEISMIC STUDY 2015:

The preliminary cost estimate for the structural upgrade is based on partial estimates from the original report converted to 2015 dollars and cost estimating from the 2015 RSMeans Building Construction Cost Data publication. Deficiencies in the lateral load resisting system have been identified and the preliminary cost estimate is an estimated budget amount to correct each deficiency. The next step would be to actually engineer all of the required fixes and to prepare construction documents that could then be bid by general contractors and sub-contractor who specialize in this type of corrective work. The cost estimate provided in this report is just that, an estimate. A 20% contingency is included per industry standards. Once a final design is prepared, the contingency could be reduced to 5% - 10%.

The area of the main level city offices and city council / lobby areas is 20,130 square feet. The area of the second level is 6,808 square feet and the area of the basement is 17,959 square feet for a total area of 44,897 square feet.

Preliminary cost estimate for the seismic upgrade:

Removal and replacement of roofing and accessories:	$206,399.00
Diaphragm, chords, struts, bracing, connections, etc:	$426,618.00
Shear wall upgrade and connections:	$1,082,992.00
Pinning masonry wyths together in tall walls:	$118,477.00
Wall furring and finishes:	$119,013.00
Flooring - carpet squares with demo for work:	$130,110.00
Total preliminary cost estimate:	$2,083,609.00
Contingency (20%):	$416,722.00
Professional fees (5%)	$104,180.00
Grand Total - Preliminary Cost Estimate:	**$2,604,511.00**

Note: No pricing has been included for the modification / relocation of electrical and mechanical systems as needed to perform the work. Also no

pricing has been included for possible disruptions in the basement area.

9.0 SUMMARY AND CONCULTIONS

At the time that the Orem City Center was constructed in 1969, the building code did not address seismic forces. In the event of a natural disaster such as a large earthquake, the public and more specifically the citizens of Orem City will look to the city for emergency response and other assistance. Because of the nature of the City Center, the buildings should be designed for immediate occupancy after a major earthquake and should therefore be designed as a risk category IV facility. If the building is upgraded, it should be upgraded to that level of seismic resistance.

After doing a lateral analysis of the existing structure, several structural concerns or deficiencies related to the lateral load resisting system have been identified. These concerns and deficiencies if not corrected would result in a collapse or partial collapse of the building and the potential loss of life. The city would be dysfunctional at a time that the citizens of the city would need them the most.

The deficiencies could be corrected. The required repairs would be disruptive, expensive, and at the end of the day may not be as good as new construction. For example the structure may be upgraded, but the existing windows and other systems may still be inadequate. Other deficiencies are often times identified during the construction process that were not originally anticipated. Although the repairs would help to correct structural deficiencies, they would not address other deficiencies related to ADA issues, energy efficiency, security, the work environment, public interaction, etc.

The City Center could be seismically upgraded at great cost (while still having other deficiencies). It may be more cost effective to build a new wing that

would house all of the city functions and would address all of the concerns and issues the city has, while then reducing the cost of upgrading the existing structure by allowing for more industrial types of repairs and then using the space for other functions, or deferring the upgrade, depending on how the existing building would be used.

Please note that if you have questions, concerns or if you need additional information at this time, please contact my office.

Sincerely,

James M Williams - PE, CE, SE, AIA, LEED AP

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DRAFT

OREM CITY FACILITIES MASTER PLAN 6 JUNE 2005

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TABLE OF CONTENTS

F O R W A R D

Edwards and Daniels is pleased to submit the **Orem City Facilities Master Plan**. This report was compiled by EDA and our consultant team which included Structural, Mechanical, and Electrical Engineers, and a Landscape Architect. EDA worked in conjunction with and received input and direction from the following Orem City representatives: Richard Manning, Assistant City Manager; Steve Earl, City Attorney; Paul Johnson, City Attorney; Louise Wallace, Library Director; Mikel Birch, Risk Manager; Amy Peterson, Human Resources; Joyce Johnson, Neighborhoods in Action; Shirley Paz, Administrative Services; Kent Allen, Administrative Services; Dean Nickels, Treasurer/Administrative Services; Craig Valantine, Accounting; Jeff Pedersen, Administrative Services Director; Lurain Lyman, Administrative Services; Charlene McKay, Community Neighborhood Services; and Bill Bell, Orem City Building Official.

This report addresses the current needs associated with specific buildings that are part of the Orem City Center/Library, departments currently occupying space within the Orem City Center, as well as the Fire Station No.1 and Fire Station No. 2. These needs were initially identified by Orem City in their original Request for Proposal and have been modified and redefined as part of this report.

The Master Plan's emphasis has been to identify current needs and propose potential solutions with projections of probable cost. Each area of need has been reviewed on site by the appropriate consultant team members and representatives from Orem City. When available, original construction documents for the buildings have also been reviewed. Review meetings with City Representatives were conducted and preliminary portions of the report were provided to the City for their on going planning and budgeting needs.

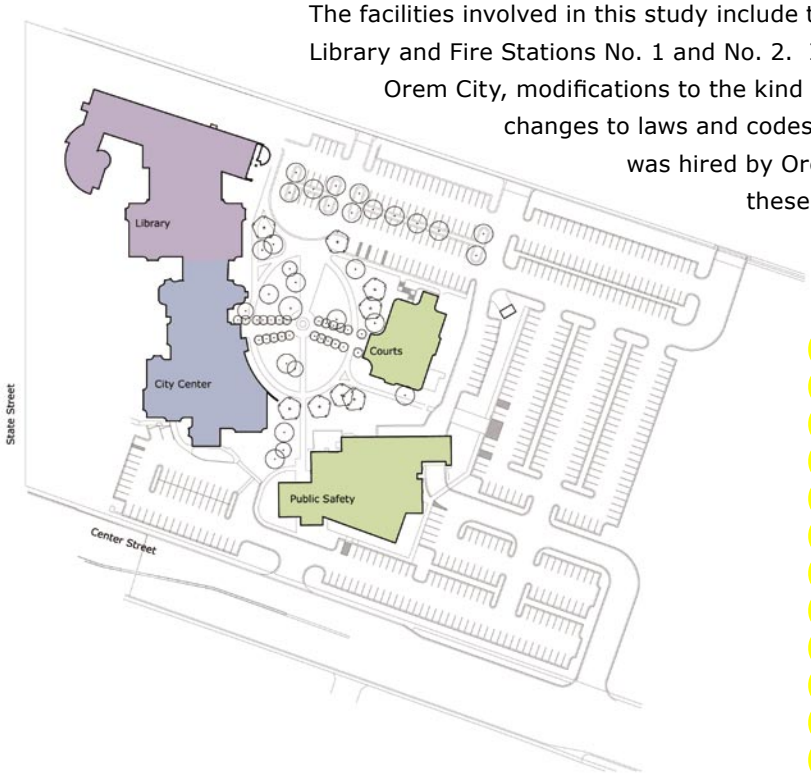
While the initial scope of work focused primarily on the facilities and modifications to them, it became apparent early on in the development of the report that The Orem City Center as a whole has evolved over the years as additional structures and departmental services have been added to the site. The original compound of buildings has been enhanced by the addition of Emergency Services Buildings as well as a Courts Facility. While the existing compound of buildings has reinforced the centralization of city services, the sense of place and the formal interface between these services and buildings has been lost.

To address this issue EDA felt it was important to revisit how the facilities are accessed by city employees and visitors. We believe this analysis, as reflected in the overall Site Plan, has helped redefine a sense of arrival to the Orem City Center, reinforce a sense of place defined by the existing buildings, and refocus and simplify the entrances to the facility as a whole.

The original City Center buildings were built in the late 1960's, have been well maintained, and still function effectively today. However, based on over thirty years of use, changing city requirements and needs, new technology, wear and tear on building systems and equipment, and changing building codes, there is a definite need to update and improve the functional capabilities of the facilities in conjunction with current building codes. The EDA Team feels strongly that the buildings themselves are still a valuable community resource and can be upgraded to serve Orem City's current and future needs in a cost effective manner. **Peter Emerson, EDA Architects**

EXECUTIVE SUMMARY

STUDY BACKGROUND



The facilities involved in this study include the Orem City Center, the Orem City Library and Fire Stations No. 1 and No. 2. In light of substantial population growth in Orem City, modifications to the kind and manner of city service delivery, and changes to laws and codes affecting building design, EDA Architects was hired by Orem City in the fall of 2004 to evaluate these structures and make recommendations to enhance their performance and functionality for both current and future needs. The charge to the design team was to assist in the development of a master plan that would address the following objectives:

- Enhance user-friendliness and functionality of the facilities for public and staff
- Increase the environmental quality of the buildings
- Enhance life-safety
- Ensure handicapped accessibility
- Improve energy efficiency
- Strengthen the City Center/Library's sense-of-place
- Address Orem City's scope of work as described in the Request for Proposal (April, 2004) and the subsequent users' work session (January 12, 2005).

FACILITY BACKGROUND

City Center/City Library. Located at 56 North State Street, the City Center and the first phase of the City Library were designed by Ashworth Architects and constructed in 1969 as the governmental and cultural focus for Orem City. In the nearly 40 years since its construction, the City Center has only undergone minor renovation work, most recently interior improvements to the Building Services Department.

Because of growing service demand, the City Library was expanded in 1993 to support a new children's section and audio/video department. Scott, Louie and Browning designed the expansion. This site also accommodates the Fourth District Court Building and the Public Safety Building and is contiguous to the Orem City Center Park.

Fire Stations No. 1 and No. 2. Fire Station No. 1 was constructed in 1968 at 300 East 1000 South. Fire Station No. 2, located at 911 North Main Street, was constructed in 1976. These facilities represent two of the three fire stations presently serving the Fire Division of Orem City's Public Safety Department.

ARCHITECTURAL AND SITE DESIGN

THE COUNCIL CHAMBERS

Rationale: Orem City's explosive population since the Council Chambers were first constructed in 1969 has created a demand for larger facilities to accommodate greater public participation in city government proceedings. Additionally, changes in laws precipitated by the Americans with Disabilities Act has impacted the design and arrangement of audience seating areas, council/staff seating areas, as well as the design of information display, public address and communication systems. Greater attention to the security of public officials has also necessitated increased separation between the audience and areas for the council and staff.

Proposed modifications:

1.` Expand council chambers to increase public seating
2. Replace lighting with high efficiency/low maintenance lighting system
3. Replace audio/visual system with state-of-the-art a/v equipment
3. Provide centralized controls for lighting, window coverings, audio visual equipment
4. Replace existing auditorium seating with moveable seating
5. Install flat-screen monitors at each council members seat
6. Provide an adjacent meeting space with direct access from council dais that can function as council conference room and council meeting pre-function space.
7. Provide convenient storage areas for equipment, supplies, nametags, etc.

CITY ATTORNEY OFFICES ADDITION

Rationale: The desire for improved access for both the public and the Orem City Administration necessitates moving the City Attorney Offices from the basement of the Fourth District Courts Building (located to the east of the existing City Center) to a more visible and convenient location on the site.

Proposed modifications:

1. Relocate City Attorney's Offices from court building to City Center building and provide additional space as arranged/allocated on accompanying drawings.
2. Provide a separate and controlled access point from new City Center vestibule to attorney's offices
3. Provide a secure and bullet-resistant barrier between public waiting area and attorney/staff work areas.
4. Provide a security system comprised of panic buttons and visual monitoring of public areas from reception area.

CITY CENTER ADDITION

Rationale: Expanded city services requires additional space for relocated employee support areas. Additionally, changes in laws relative to the Americans with Disabilities Act have created a need for new and fully accessible employee restrooms.

Proposed modifications:

1. Expand City Center building to accommodate relocated employee break room, storage room, janitorial room, and new handicap-accessible restrooms.

CITY CENTER MAIN REMODEL

Rationale: Since the City Center Building was completed in 1969, Orem City has experienced great population growth requiring expanded facilities for its various services. These added facilities have affected the organization of the site, changing the means and manner in which staff and visitors arrive to and circulate about the entire complex of buildings now occupying the site. Increased population has translated into increased use of most of the departments servicing the public.

Advancements in technology have changed spatial needs, necessitating the creation of spaces and building areas dedicated to technology equipment and distribution. Also, changes in laws relative to the Americans with Disabilities Act have created a need for new and fully accessible employee restroom in addition to the prior upgraded facilities.

Proposed modifications:

1. Create new building entrance that includes a reception and orientation area. Develop a flexible gallery area for the display of community achievements and information.
2. Relocate and expand Human Resources Office with access to reception area. Create a private interview space.
3. Expand Administrative Services Office. Remodel to improve line-of-sight, enhance visitor experience, increase security and privacy, allow for growth.
4. Enhance Administrative Services environment. Co-locate all work areas to main floor and relocate storage to basement.
5. Relocate Neighborhoods-in-action Office to improve access to main entrance.
6. Upgrade mechanical systems to improve air quality, comfort and energy efficiency.
7. Ensure handicapped accessibility to all areas. Replace elevator with ADA compliant equipment. Re-configure existing restrooms and build new restrooms per ADA standards.
8. Enhance energy performance of building by increasing insulation in walls and ceilings in areas of renovation.
10. Create new conference room accessed from main lobby and from City Council Chambers.
11. Upgrade lighting systems through improved light quality and energy efficient fixtures and controls.
12. Improve building security by decreasing points of entry/exit.
13. Relocate Credit Union from Court Building basement to second floor of City Center. Enhance security by dividing public areas from staff areas.
14. Preserve access from State Street public transit stop via west entrance (between Library and City Center.
15. Centralize copy/work room on main floor.

PLAZA RENOVATION

Rationale: The site area--bounded by the City Center Building, the Library, the Courts Building, the Public Safety Building and parking lots--has experienced numerous modifications since its construction in 1969. Presently, the space is characterized by large grassy areas, criss-crossed by concrete sidewalks and punctuated by seemingly unrelated flower beds, seating areas, and displays. This space should reinforce a sense of arrival while formalizing and organizing an important sense-of-place for visitors and employees.

Proposed modifications:

1. Create a unifying spatial organization in the form of an oval, re-enforced by the City Attorney's Addition and articulated by new sidewalks, seating areas, and landscaping.
2. Create a focal point and activity center to the plaza.
3. Enhance visitor orientation by installing appropriate and unified signage and other wayfinding devices.
4. Enhance perceived and actual safety through well designed and environmentally-friendly pedestrian-level site lighting.
5. Enhance community identity through beautiful and meaningful public art.
6. Define vistas into and through the site along important axis, organized along the vehicle approaches and principal entrances to the Library, City Center, Public Safety Building and Courts Building.
7. Employ water-conservative plantings as a model of sustainable landscaping.

LIBRARY REMODEL

Rationale: Constructed in the same period as the City Center, the Library shares many of the life-safety, ADA accessibility, and building system deficiencies as its neighbor. In addition, growth in services and collections has created a need for reconfiguring areas dedicated to securing and maintaining collection material impacting the library administration areas of the original building.

Proposed modifications:

1. The Library's Administrative area (including offices for the Director, Administrative secretary, catalogers, Division Manager, acquisitions staff, mending and processing staff and volunteers, etc.) each for the Department Secretary, including:
    a. a workspace and greeting area
    b. an office for the Library Director
    c. a conference room adjacent to the Director's office to seat 15
    d. offices for two Division Managers
    e. an open workspace with desks for 5 acquisitions staff
    f. an open area/workspace adjacent to acquisitions staff for receiving shipments of books
    g. offices for 3 catalogers
    h. a workroom for mending and processing to seat 10
    i. an office adjacent to the mending/processing workroom, with desks and workspace for 2 supervisors

2. General building upgrades, including:
    a. Replacement of existing ceiling tile
    b. Install new floor finishes
    c. Upgrade heating and cooling systems
    d. Upgrade electrical and voice/data cabling
    e. Improve lighting quality and lighting level
    f. Enhance "crater lights" as a feature element
    g. Upgrade restrooms to meet ADA requirements, enhance privacy and improve appearance
    h. Install generator for back-up library power needs
    i. Enhance staff room make more comfortable and to allow for storage for personal belongs.
    j. Expand storage for "book sale" items
    3. Expand library space over proposed "City Center Addition" described above to include a portion of library's expanded administrative functions on second floor.

LIBRARY ADDITION

The needs assessment for the City Library determined that additional room is required to accommodate its expanding collection and services. These areas include:

The Media Department to be expanded from its current 4,450 square feet to approximately 7,600 square feet in a new addition to the existing facility. The master plan identifies three alternative locations for this addition: Option 1--west of the adult collection wing and connecting to the children's library; Option 2--west of the facility to incorporate an entrance from State Street; or Option 3--north of the children's wing.

FIRE STATION NO. 1

The building serves as one of several fire stations for the City of Orem and was constructed in 1968. The building is located at 300 East 1000 South in Orem, Utah. A small addition to the building was made within the past 10 years to house equipment for an on - site cellular communications tower. This equipment shelter is not associated with the operations of the fire department.

The extent of the remodel, is primarily to remodel the interior living spaces to meet the ADA requirements, provide for both male and female accommodations, and enhance the living environment. To achieve this level of remodel most existing interior partitions, finishes, and fixtures are to be selectively demolished and removed. New design would require new partitions, finishes and fixtures.

Based on the seismic report (attached for reference) some new masonry walls and /or structural remediation will be required to ensure the structural performance of this facility.

The total square footage of the existing facility is 7,434 gross square feet, with 3 drive-thru vehicle apparatus bays.

FIRE STATION NO. 2

The building serves as one of several fire stations for the City of Orem and was constructed in 1976. The building is located at 911 North Main Street in Orem, Utah.

Based on the (attached) seismic report, minimal structural mitigation measures are required, as part of the new remodel.

Like the Fire Station No. 1 remodel the extent of Fire Station No. 2 remodel is primarily to enhance the interior living spaces, remodel to meet ADA requirements, and to provide accommodations for both male and female fire fighters and staff. Again, to achieve this level of remodel most existing interior partitions, finishes, and fixtures are to be selectively demolished and removed. The new design would require new partitions, finishes, and fixtures.

The total square footage of the existing facility is 6,531 gross square feet, with one large drive-thru vehicle apparatus bay.

STRUCTURAL

CITY CENTER AND LIBRARY

Per the ASCE 31-03 Tier 1 checklist the following deficiencies were found. Several shearwalls are overstressed and require additional shear capacity. The large clearstory windows are a potential hazard in the event of an earthquake and should be safety glazed. Large items such as file cabinets and shelving need to be anchored to the structure to reduce the risk of falling or shifting during an earthquake. The roof deck directly over the windows at the East side of the Orem City Office Building is overstressed. The beams supporting the roof deck need to be tied together to create a drag strut to distribute the lateral load between masonry walls. Although an extensive gravity load analysis of the structure was not performed, it is our opinion that the structure is adequate to meet the gravity load demand.

The Orem Children's Library meets the current code-prescribed (2003 International Building Code) seismic demand. The building was designed to the 1991 Uniform Building Code seismic criteria which is greater than that calculated by the 2003 IBC for this particular site. Upon a review of the construction drawings and a site observation, no major discrepancies were found between construction drawings and the building.

FIRE STATION 1

The existing roof diaphragm (i.e. 2" topping slab) appears to be inadequate to meet the seismic demands as prescribed by the 2003 Existing International Building Code. The masonry shear walls at both sides of the high apparatus bay need to be strengthened or new walls must be added to meet the seismic demand. A lateral load resisting system is absent in the X-direction for the high apparatus bay. Although an extensive gravity load analysis of the structure was not performed, it is our opinion that the structure is adequate to meet the gravity load demand. The daily operations for the building will be minimally impacted by the proposed mitigation measures.

FIRE STATION NO. 2

The buildings existing lateral load-resisting system (masonry shear wall system) is adequate to meet the seismic demands as prescribed by the 2003 Existing International Building Code. There are minor discontinuity issues involving lateral connections that can be resolved easily. The daily operations of the building should not be intruded upon by any of the proposed mitigation measures. Although an extensive gravity analysis of the structure was not performed, it is our opinion that the structure is adequate to meet the gravity load demand.

MECHANICAL AND PLUMBING

A. Attorney Addition (Est. Cost/SF $17.00)
   1. The new addition area will consist of offices and two conference rooms.
      a. This area will be divided into approximately 4 zones based on the space usage and load requirements.
      b. A package rooftop A/C unit will serve each zone providing heating/cooling and ventilation.
      c. The supply and return air distribution system shall be overhead via sheet metal ducts.
      d. Each zone will be provided with a programmable thermostat.
      e. New gas piping shall connect into and extend from an existing location. This gas piping will run over the roof to each rooftop unit.
      f. New primary/secondary roof drain will be provided to allow for roof drainage. Drainage piping will extend out of the building to an existing system for connection.
      g. A new overhead fire sprinkler system will be provided.

B. In-fill Area Between the Existing Library and The Council Chamber (Est. Cost/SF $20.00)
   1. This new construction area will consist of council break room and public restrooms.
      a. New heating and cooling water piping shall extend from the existing system and terminate a air handler fan coil unit mounted above the storage room.
      b. The supply and return air distribution system shall be overhead via sheet metal ducts.
      c. A programmable thermostat shall be provided for space comfort.
      d. The Janitors Closet and Restroom shall be ventilated by mean of a power roof ventilator.
      e. New plumbing fixture, which provides low water consumption, will be provided along with Photo-eye faucets.
      f.Hot water for the Lavatory and Break Room sinks will be generated by an electric water heater, which will be located within the Janitor’s Closet area.
      g. Existing culinary water and sanitary sewer will be extended to serve this area.
      h. New overhead fire sprinkler system will be provided.

i. New primary/secondary roof drains will be provided and extended to the existing system.

C. Existing Council Chambers and Adjacent Conference Room (Est. Cost/SF $12.00)
   1. This area shall include increasing the square footage of the Chamber area by moving the existing entrance wall to the west. Renovating the existing Recorder File Room space to the south for the new Conference Room.
      a. This space, which is presently served by a multi-zone type air handler, will require modifications and upgrading the existing overhead distribution system – new ceiling diffusers and grilles will be provided.
      b. New programmable thermostats per zone will be provided.
      c. Upgrade to the ventilation system to meet IAQ requirements.
      d. Relocated of existing overhead fire sprinkler system.

D. Library Remodel (Est. Cost/SF $12.00)
   1. The Library remodel space consist of ceiling replacement and light wall modification for both main level and the upper mezzanine space. A small area located in the basement will also be remodeled.
      a. Modification to the existing multi-zone air handler and the existing overhead distribution system. Upgrades will include new ceiling diffusers and grilles.
      b. New programmable thermostats per zone will be provided.
      c. Upgrade to the existing fire sprinkler system to include semi-recess heads.
      d. Upgrade restroom to meet ADA requirements.

E. Existing Building Remodel (Est. Cost/SF $12.00)
   1. The remodel for this area will include upgrading the offices, entry gallery and information desk. Upgrade to ADA standards for restrooms and elevator.
      a. Upgrade the existing multi-zone unit to meet the new office layout requirements.
      b. Installation and modification to the existing supply and return air distribution system to include new sheet metal ducts and ceiling diffusers, as required.
      c. Upgrade controls to meet new zone modification.
      d. Provide new low water consumption type plumbing fixtures with Photo-eye faucets. Connecting to existing water and sanitary sewer.
      e. Provide modification to existing fire protection system including head spacing and new semi-recess sprinkler heads.

F. Fire Station No. 1 (Est. Cost/SF $14.00)
   1. The remodel space at the fire station will consist of relocating walls to create additional living space, dining, kitchen, and upgrades to restrooms.
      a. HVAC modification to include re-routing of the air distribution ducts to relocated ceiling diffusers and grilles.
      b. Upgrade zone control/thermostats.

c. Modification to fire sprinkler system.
d. Upgrade restroom to meet ADA standards.

G. Fire Station No. 2 (Est. Cost/SF $14.00)
1. Fire Station #2 will be renovated to include upgrade to the living spaces, restroom / showers, dining and kitchen areas, and upper level or mezzanine living space.
a. The HVAC system shall be modified to include re-routing of the sheet metal distribution ducts and relocating the ceiling diffusers and grilles.
b. Upgrade zone control thermostats.
c. Restroom modification to meet the ADA standards.
d. Upgrade and/or relocation of the fire sprinklers.

ELECTRICAL AND LIGHTING

1. Attorney Addition - $17.35 per square foot
    a. This area will consist of new construction of standard office additions with two conference rooms.
        i. New power distribution panels (2) will be required.
        ii. Power for both the main level and the basement will require additional receptacles. The standard office receptacles layout of one receptacle in each wall of the office with 4 plex receptacles at each location to accommodate electronic equipment will be provided.
        iii. Lighting will consist of standard 2X4 parabolic T-8 lamp and electronic ballast fixtures. The conference rooms will be medium quality fixtures with simple lighting control.
        iv. Distribution of both telephone and data to all of the work areas and the conference rooms will be provided. One telephone/data outlet will be provided for each work station.
        v. The security system will consist of duress alarm switches located in every office and meeting location. The doors will have card readers and electrical locks on them to control access to the area. There will be no motion detectors.
        vi. The existing zone building fire alarm system will be expanded by adding smoke and heat detectors and strobe/horn modules.

2. Infill Addition - $14.45 per square foot
    a. This area will consist of new construction of standard office additions.
        i. A new power distribution panel will be required.
        ii. Power for both the main level and the basement will require additional receptacles. The standard office receptacles layout of one receptacle in each wall of the office with 4 plex receptacles at each location to accommodate electronic equipment will be provided.
        iii. Lighting will consist of standard 2X4 parabolic T-8 lamp and electronic ballast fixtures.
        iv. Distribution of both telephone and data to all of the work areas and the conference rooms will be provided. One telephone/data outlet will be provided for each work station.

v. Infrastructure will be roughed in for a future security system.
vi. The existing zone building fire alarm system will be expanded by adding smoke and heat detectors and strobe/horn modules.

3. Council Chambers Remodel - $24.47 per square foot
   a. This area will be used for both City Council meetings and multipurpose room. An adjacent conference room will be included. The ceiling including the lighting in this area is substandard and will be replaced. All power receptacles and telephone/data ports will be replaced.
      i. A new power distribution panel will be required.
      ii. Power outlets to all of the council areas will be required. The conference room will require additional power distribution.
      iii. Lighting will be very complex. It will consist of both chamber lighting and conference lighting. A moderately complicated lighting control panel will be required.
      iv. The council meetings will require extensive telecommunication distribution. Data ports will be provided for each council chair, the Mayor, and all other staff that needs access to the network during council meetings.
      v. A specialized sound system for the council meetings and for the multipurpose room will be required. Each council chair, the Mayor, and all other staff that needs access to the sound system will be provided microphone ports.
      vi. The building fire alarm system will be extended into this area by adding heat and smoke detectors and strobe/horn devices.

4. Library Remodel - $12.60 per square foot
   a. The library area remodel will consist of replacement of ceilings and walls on the main floor and mezzanine floor, and finishing an area in the basement. All new power distribution, lighting, and telephone/data distribution will be required.
      i. The area will require new power distribution panels and additional receptacles in the basement area.
      ii. Most of the branch circuit wiring is TW wiring and needs to be replaced.
      iii. The overhead (high bay) lighting in the main area is old mercury vapor lights with remote ballasts and very substandard wiring. All of the lights and wiring must be replaced. A new lighting control system will be required. Lighting in the other areas will be replaced with the standard 2X4 parabolic fixtures with T-8 lamps and electronic ballasts.
      iv. The library now required extensive data distribution for access to the library inventory system and the internet. Extensive distribution and telephone/data ports will be required.
      v. The existing sound system in the library main area will be upgraded.
      vi. The existing fire alarm system will also be upgraded with new smoke and heat sensors and horn/strobe modules.

5. Main Building Remodel - $20.85 per square foot
    a. The work in this area will consist of upgrading offices to current standards.
        i. The main service to the building (120/208 volt, 2000 amp) appears to be adequate. Although the service is large enough, a new larger generator will be required. The current generator produces 1040 amps. Utah Power bills indicate that in the summer months, the building consumes more power than is available. A 600 kw generator is priced. Also, new circuit breakers will be required for all of the new panelboards located throughout the new and remodeled facility. Currently, none of the main distribution circuits are labeled. That must be corrected also. It is recommended that an electrician trace the circuits and measure the loads to insure the 2000 amp main feed to the building is adequate with the addition.
        ii. The offices will need new power distribution panels and new wiring to all of the receptacles.
        iii. All of the lighting will be upgraded to the 2X2 parabolic fixtures with T-8 lamps and electronic ballasts. The conference rooms will require a little more specialized lighting and simple controls.
        iv. New phone and data distribution systems will be installed in all of the areas.
        v. A new security system will be planned for in the reception area. Raceways will be installed so when a security system is required, the infrastructure is in place.
        vi. The existing fire alarm system will be upgraded by adding smoke and heat sensors and horn/strobe modules.

6. Plaza Area
    a. The work in this area includes electrical and lighting improvements.

7. Fire Station No. 1 (Central) - $4.80 per square foot
    a. The work in this area includes the complete remodel and upgrade of the living area of the Fire Station.
        i. The main service to the facility is adequate and can remain. Minor checking of the service will be performed.
        ii. Power for each new receptacle, furnace, kitchen equipment, etc. will be provided.
        iii. The facility will receive all new light fixtures that will provide lighting in accordance with the standards and will result in a reduction of energy consumed. New light fixtures will be 2x 2 parabolic fixtures with T-8 lamps and electronic ballasts where possible. Specialized lighting will be provided in the dining/meeting area and the TV area. Lighting will be connected to the alarm system so it is activated when the alarm is activated.
        iv. Telephone/data will be provided to all of the rooms in the facility.
        v. The building sound system will be upgraded.
        vi. The existing fire alarm system will be upgraded by adding smoke and heat sensors and horn/strobe modules.

8. Fire Station No. 2
    a. The work in this area includes the remodel of the living area on the first floor and the mezzanine floor of the Fire Station.
        i. The main service to the facility is adequate and can remain. Minor checking of the service will be performed.
        ii. Power for each new receptacle, furnace, kitchen equipment, etc. will be provided.
        iii. The facility will receive all new light fixtures that will provide lighting in accordance with the standards and will result in a reduction of energy consumed. New light fixtures will be 2x 2 parabolic fixtures with T-8 lamps and electronic ballasts where possible. Specialized lighting will be provided in the dining/meeting area and the TV area. Lighting will be connected to the alarm system so it is activated when the alarm is activated.
        iv. Telephone/data will be provided to all of the rooms in the facility.
        v. The building sound system will be upgraded.
        vi. A new security system will be installed.
        vii. The existing fire alarm system will be upgraded by adding smoke and heat sensors and horn/strobe modules.

PROJECT TOTALS
by Construction Control Corporation
5 May 2005

Note
Costs assume total project completion, consecutive sequence. Broken sequencing or multiple contracts will increase cost.

City Center and Library Remodel and Expansion

State of Design: Schematic
Area (in square feet): 12, 136

Description	SF Cost
Attorney Addition	$1,580,187
Infill Addition	$541,512
Council Chambers Remodel	$352,143
Library Remodel	$2,031,502
Main (City Center) Remodel	$1,405,769
Plaza Renovation	$402,689
TOTAL CONSTRUCTION COST (City Center and Library)	$6,313,802
Architectural and Engineering Fees	$79,260
FF&E 8%	$505,104
Testing and Inspection	$4,500
Soils and Geotechnical Investigation	$8,000
Owner's Contingency 10%	$631,380
TOTAL PROJECT COST (City Center and Library)	**$7,542,046**

Firestation No. 1

State of Design: Schematic
Area (in square feet): 7, 434

TOTAL CONSTRUCTION COST (Fire Station No. 1)	$373,921
General Conditions 8%	$29,914
Overhead and Profit 7%	$26,174
Design Contingency	$58,088
TOTAL PROJECT COST (Fires Station No. 1)	**$486,097**

Firestation No. 2

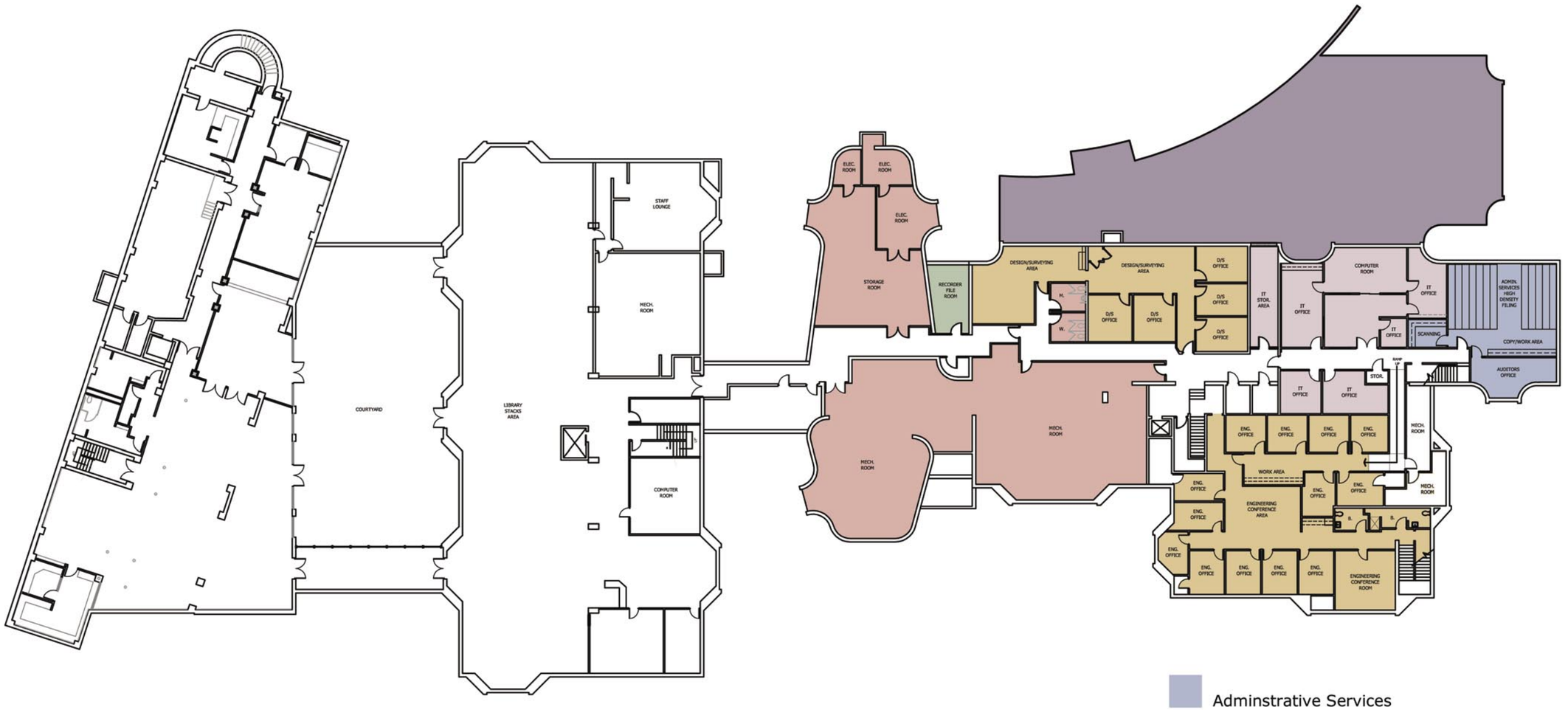
State of Design: Schematic
Area (in square feet): 6, 531

TOTAL CONSTRUCTION COST (Fire Station No. 2)	$289,715
General Conditions 8%	$23,177
Overhead and Profit 7%	$20,280
Design Contingency	$43,457
TOTAL PROJECT COST (Fire Station No. 2)	**$376,630**

APPENDIX

NORTH

OREM CITY CENTER PRELIMINARY SITE DEVELOPMENT PLAN



- Adminstrative Services
- IT
- Engineering/Design/Surveying
- Support Spaces
- Recorders File Room
- Future Expansion Space

NORTH

CITY CENTER LOWER LEVEL PRELIMINARY FLOOR PLAN

0 2 4 8 16

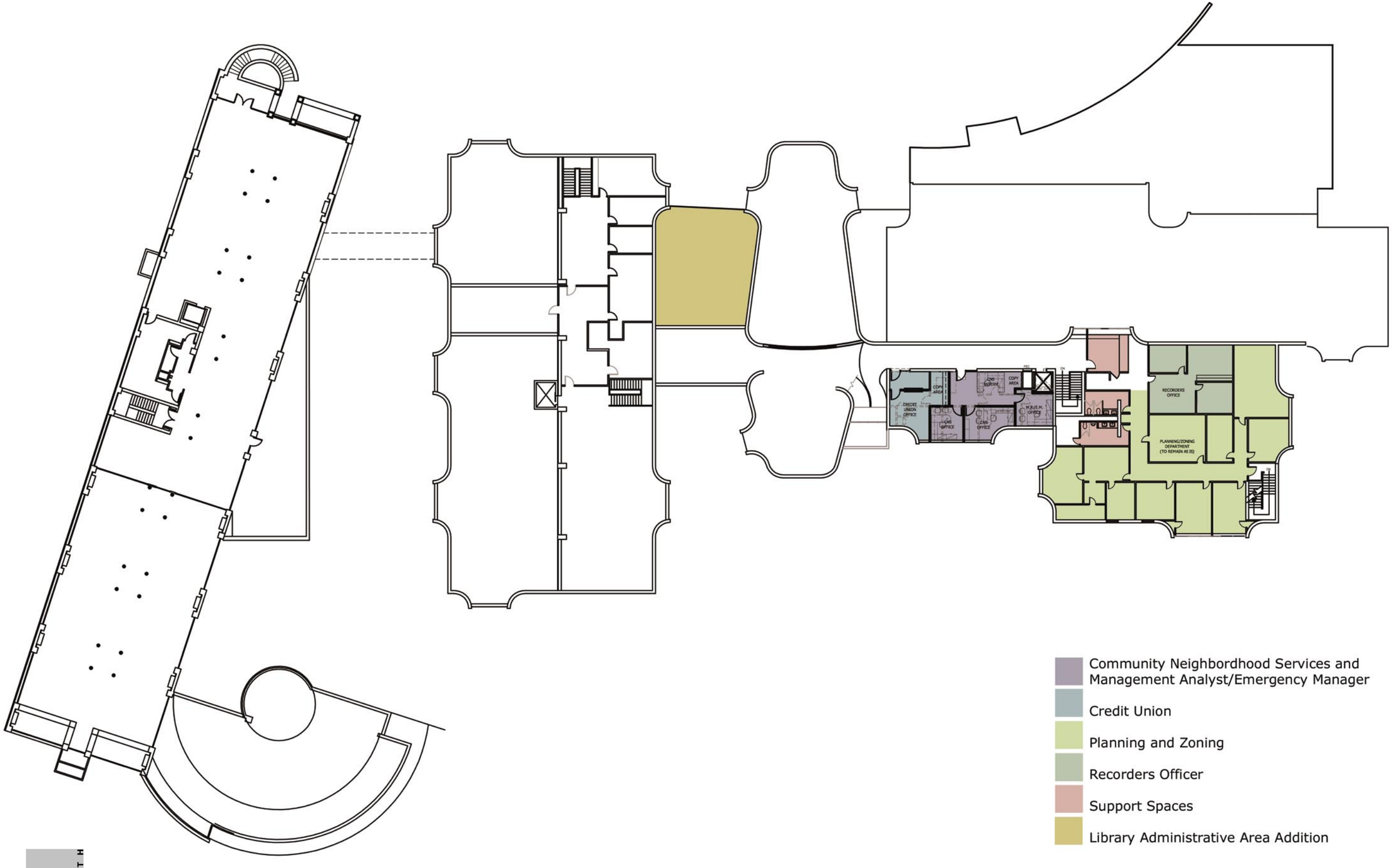
EDA

Human Resources/Risk Mangement
City Attorney
Administrative Services
Planning and Zoning
Neighborhoods in Action
Mayor/City Manager Office
City Council Chambers
Support Spaces

NORTH

0 2 4 8 16

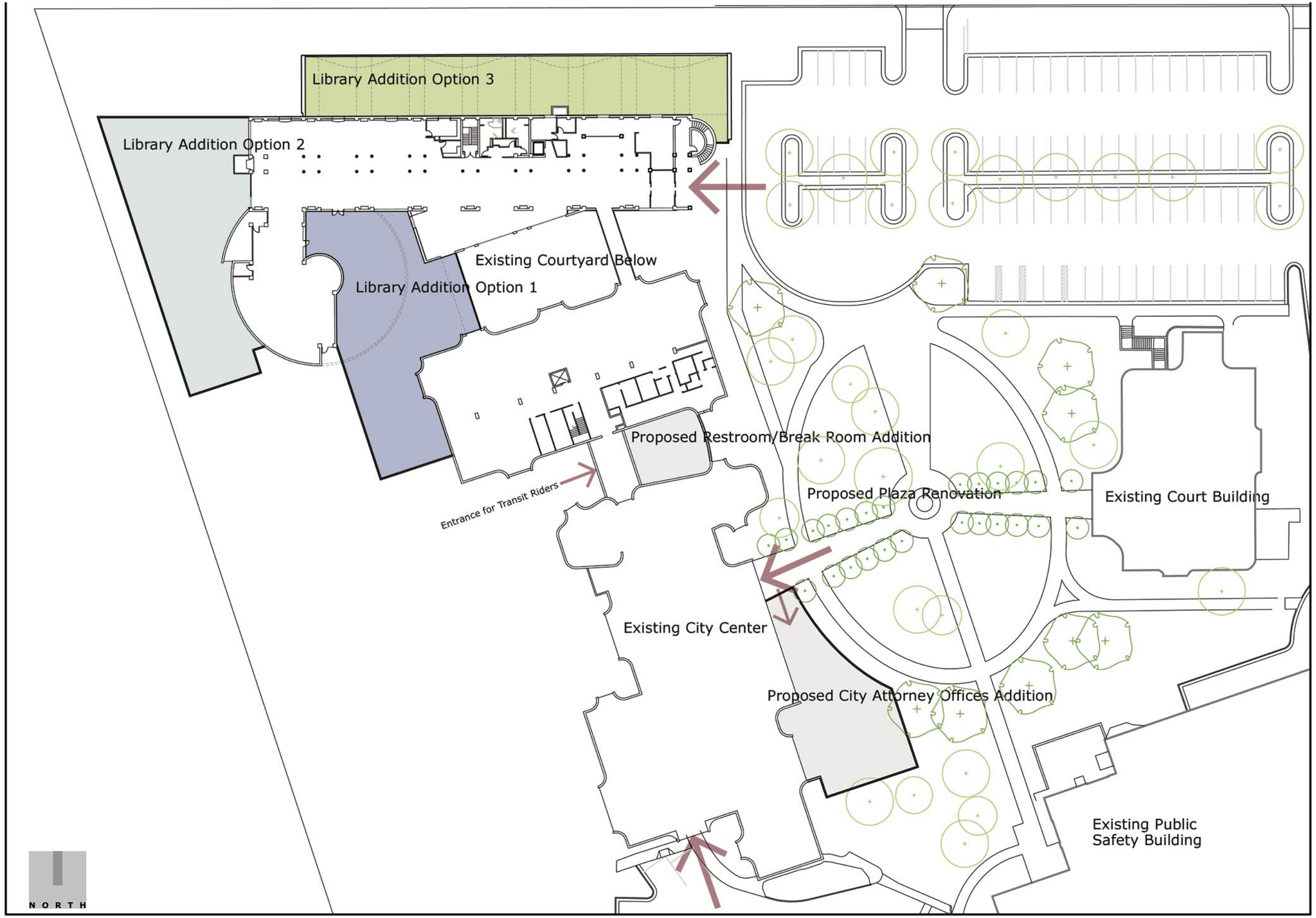
CITY CENTER MAIN LEVEL PRELIMINARY FLOOR PLAN



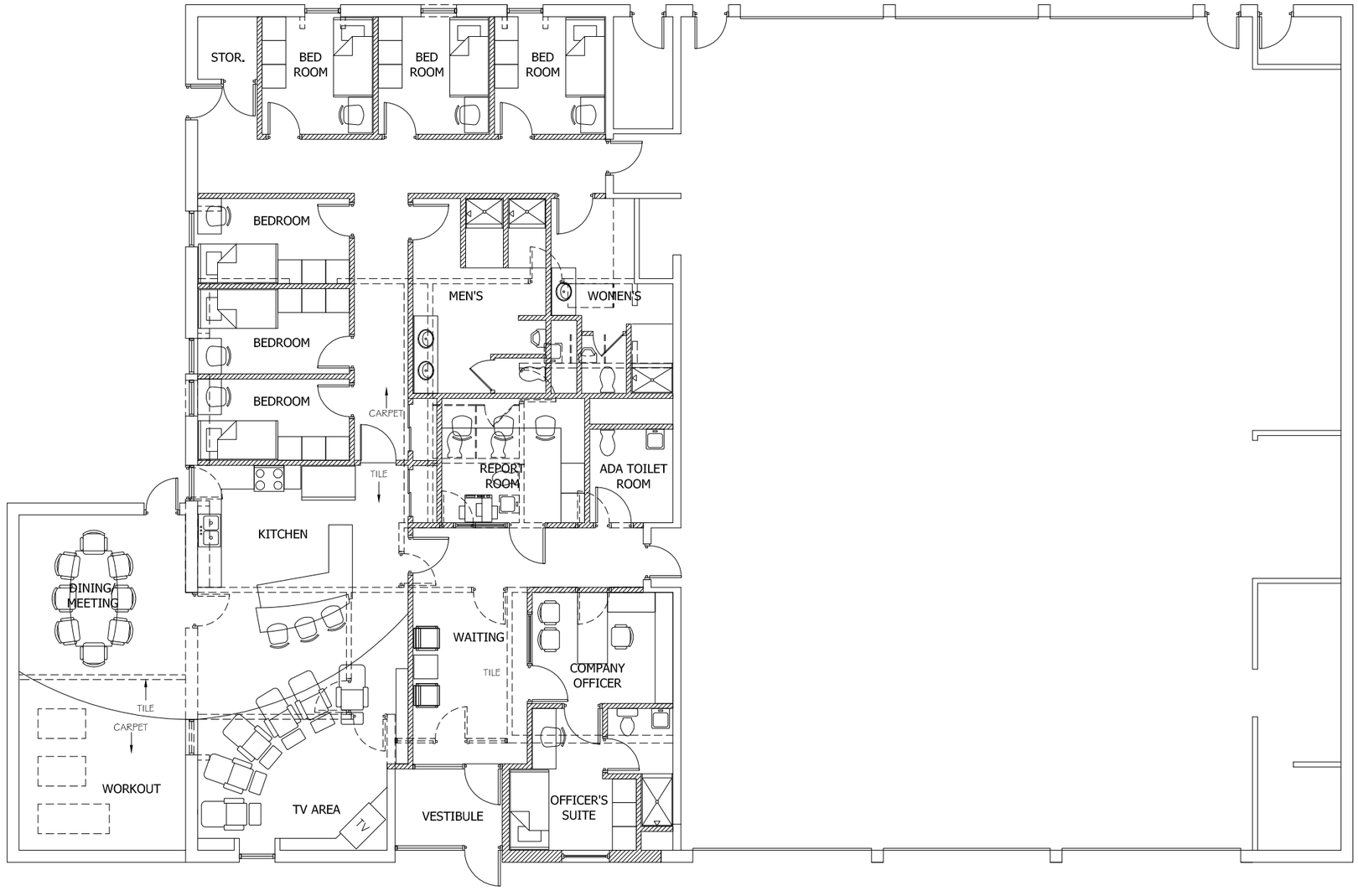
CITY CENTER UPPER LEVEL PRELIMINARY FLOOR PLAN

NORTH

PLAZA RENOVATION PLAN



ALTERNATIVE LIBRARY ADDITIONS PLANS



NORTH

FIRE STATION NO. 1 MAIN LEVEL

EDA

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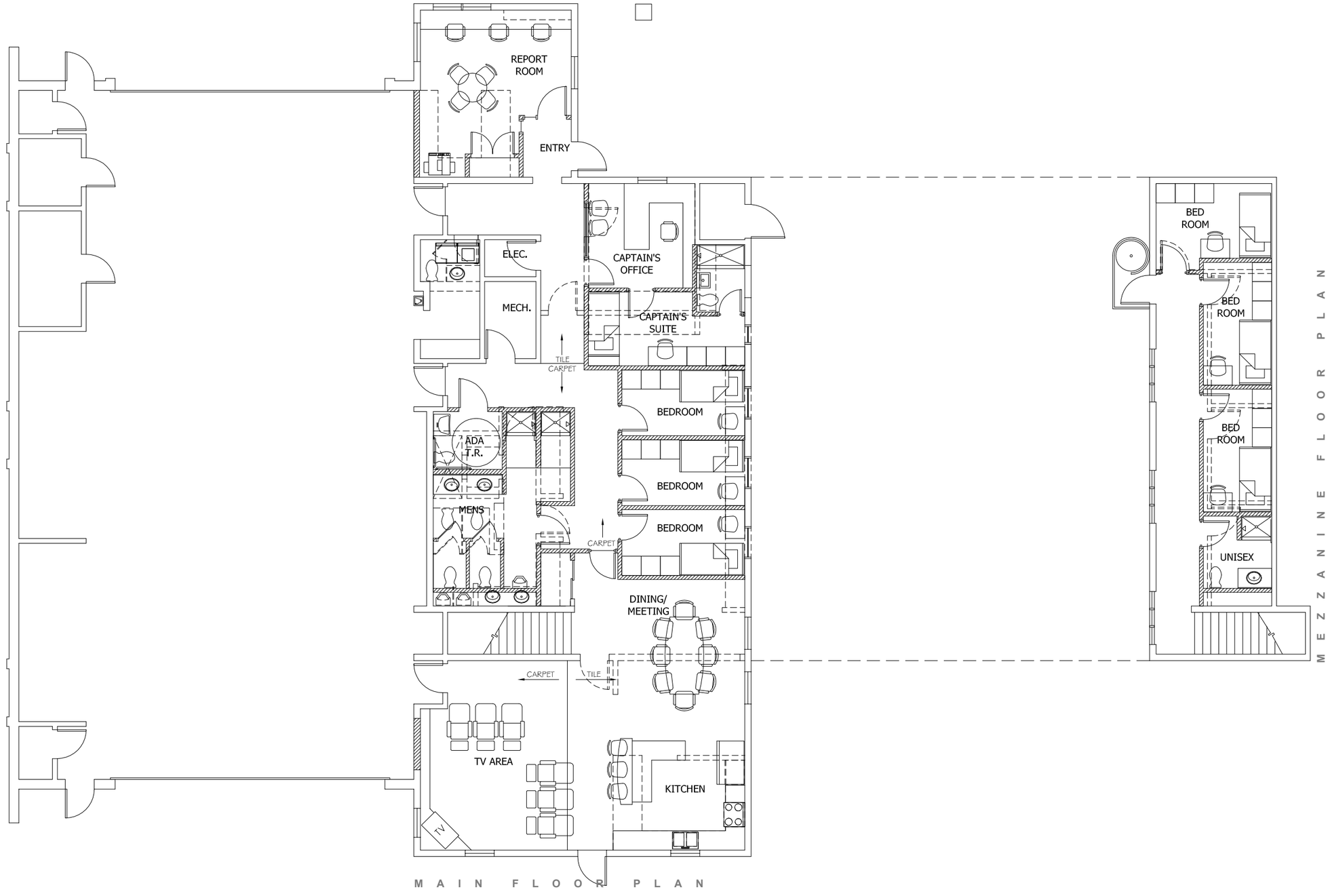

MAIN FLOOR PLAN

MEZZANINE FLOOR PLAN

NORTH

FIRE STATION NO. 2

0 2 4 8 16

EDA