WORK SESSION MEETING
AGENDA
CITY OF CREVE COEUR
CITY COUNCIL
300 NORTH NEW BALLAS RD
SEPTEMBER 22, 2014
6:00 PM

CALL TO ORDER

ROLL CALL

DISCUSSION ITEMS

1. **Government Center & Police Facilities Study**
   Summary: Review and discussion of Space Needs Analysis Final Report, Geotechnical Report, Task Force Recommendation, and discussion regarding next steps.

Pursuant to Section 610.022 RSMo., the City Council could, at any time during the meeting, vote to close the public meeting and move to closed session to discuss matters relating to litigation, legal actions and/or communications from the City Attorney as provided under Section 610.021(1) RSMo. and/or personnel matters under Section 610.021(13) RSMo. And/or employee matters under Section 610.021(3) RSMo. and/or real estate matters under Section 610.021(2) or other matters as permitted by Chapter 610.

Posted: _____ posted 09/18/2014
Deborah Ryan, MPCC
City Clerk

City Council
300 North New Ballas Rd
Creve-Coeur, MO 63141

Debbie Ryan
City Clerk
(314) 872-2517
www.creve-coeur.org/

Meeting: 09/22/14 06:00 PM
DOC ID: 1092

DISCUSSION ITEM (ID # 1092)

Government Center & Police Facilities Study

DEPARTMENT OF PUBLIC WORKS
OFFICE MEMO

DATE: September 17, 2014

TO: Mark C. Perkins, City Administrator

FROM: Jim Heines, Director of Public Works

SUBJECT: Government Center and Police Facility Study Staff Report

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About a year ago, Council approved a contract with Bond Architects to perform a Government Center Space Needs Analysis. In addition, a task force comprised of the Mayor, several Council members, a number of citizens who serve on committees and commissions and staff members was formed. The task force members were asked to:

- Tour the building
- Review draft reports and provide feedback to the consultant
- Provide recommendations to the Council

Once Bond Architects completed the study, a final report was submitted to the Government Center Assessment Task Force to review and provide recommendation to Council.

A Work session field trip of the Government Center was held on Monday, June 9, 2014 for Council and Task Force members to tour the public areas of the building as well as the office spaces, storage and archive rooms.

As part of the recommendation from the task force staff directed staff to research the storm water regulations that would be triggered if a new building(s) were constructed on the site. In addition, they requested that we have geotechnical testing performed to make sure the site was capable of supporting new building(s) and a designated access road for the Police.

The research has been completed and this work session has been scheduled to review the following information:

- Geotechnical Report
- Bond Architect's final report
- Government Center Assessment Task Force Recommendations
- Discuss the next steps

Once Council provides direction as to which option or combination of options they would like to pursue, staff will look more specifically at the available financing options and report back to Council at a later date.

City of Creve Coeur

Government Center Space Needs Feasibility Study

bond ARCHITECTS

May 23, 2014

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Suite 100
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bond ARCHITECTS

City of Creve Coeur

Government Center Space Needs Feasibility Study

Final Report

May 23, 2014

This programming and feasibility effort was undertaken to holistically assess the current and anticipated facilities needs of the Creve Coeur Government Center, including City Hall, Community Center and Police Station. The goal of this study was to identify the Government Center's current and projected needs and to proactively plan for modifications to the existing building.

Summary of Recommendations

The existing Government Center has a number of safety and security concerns. Conflicts between public and Police vehicles on the site are a primary concern. Within the building, it is very difficult for the public to navigate, particularly between the Finance and Court offices. Because of the location of the existing elevator and the egress stair, the public circulates very close to the secure areas of the Police facility.

Options, ranging from strategic renovations for the most critical needs through full facility replacement, were presented. Budgets and phased implementation plans were developed to test the constructability of the options.

The Creve Coeur Government Center Task Force came to the consensus that limited renovations to the existing building would never completely solve the needs of the Government Center and still render it obsolete with unmet needs and an antiquated infrastructure. The appearance of the building is not particularly welcoming or up to the expected appearance for a prominent building in Creve Coeur.

The current site, centrally located on the City's main thoroughfare New Ballas Road, is an ideal location. Other adequate sites, centrally located in the community, would be difficult to find. The recommended approach is to build a new Police building on the current site with a new secondary access drive to Magna Carta Drive. The existing Government Center building will either be renovated or replaced with a phased implementation plan to accommodate the balance of the Government and Community Center functions.

Detailed Process and Findings Documentation

Programming

The planning process included multiple meetings with department heads, community members and representative key staff. A preliminary space program, the list of needed spaces and their sizes, was developed with a focus on spaces to support the current functions of the Government Center, as well as the necessary improvements to the building's function and way-finding. In addition to a list of spaces and adjacency diagrams were developed to determine the ideal locations for staff and support spaces by department and within departments. This exercise, developed independently from the existing building footprint, enabled the team to create an ideal vision for the Government Center. The diagrams were then compared to the existing conditions and a number of options were presented and discussed. Options ranged from slight modifications in the existing configuration to a complete overhaul. Each option was reviewed and revised. A cost estimate and an implementation plan were developed for each concept.

Findings

The building was originally constructed as an elementary school. The classroom wing has been adapted to accommodate the Police Department on two floors with a later addition of a sally port and firing range. The gym, the former cafeteria and some small meeting rooms on the lower level function as the Community Center. The upper level was modified and in-filled, to house City Hall functions. The building has been modified several times over the years in a small scale, band-aid approach. The goal of this study is to look at the building and its functions holistically and address both the small and large scale issues that exist. Generally, the building was found to have many needs in areas of efficiency, function, structure, appearance, and way-finding. Some of the needs are more urgent, other issues require more long-term improvement planning.

General Needs:

- All departments have multiple space needs. There is a general lack of meeting room space, office space, organized storage and restrooms throughout the building. Meetings take place in department hallways, disturbing nearby staff. Events are held in the building lobby, creating confusion and conflict with visitors to City Hall. Records storage occurs in hallways, a former restroom and unconditioned classrooms without a systematic organization or retrieval process. There are currently not enough restrooms to serve the assembly nature of the building. The Community Center spaces, in particular, need expanded restrooms to serve the scale of the events held in the Multipurpose Room and the Gym.
- Safety and security conflicts exist between uses on the site. Circulation through the site and the building is not well defined. Where staff and public circulation should be separated, they currently overlap. Though the Community Center components are very important to residents, the locations of these spaces within the building and on the site create conflict. Children attending Community Center programs can be found in the Police Department hallways. Visitor parking and pedestrians are in direct conflict with the Police's requirement for quick access to New Ballas Road. There is a narrow drive between the Community Center parking and the Police parking that could become blocked. Similarly, when a large event occurs in the Multipurpose Room, the staff is forced to park offsite and walk to the building. When there is a contentious issue facing the City Council, the large volume of visitor parking can spill into the areas where the Police vehicles park.
- Foundation settlement is occurring at the northeast wing. The floor visibly slopes in the open office and meeting room in the Building Department and in the public restroom off the lobby. A large settlement crack is visible on the west face of the building. There are visible piers in the courtyard that are shoring up the meeting room wall, but the floor slab does not appear to be shored up.
- Building systems need to be updated to improve efficiency. The building's boiler has recently been replaced but the individual heat pumps regularly fail. The lighting in most of the building has been upgraded for efficiency, however indirect lighting would allow employees a more comfortable working environment.
- Site and interior way-finding is a challenge. There are multiple entries to the building which creates confusion for first time visitors. Inside the building, it can be challenging to navigate between the floors, especially for visitors trying to move between the Court and Finance Departments.

- File storage is not consistent or organized and takes up a large amount of area in the building, There is no monitoring of the files to assure that removed items are properly returned.
- The building appearance is 'dated.' The exterior of the building looks has not changed much from when it was a school. The lobby is a tall, day lit space but appears more like a large retail store or mall entry than a civic facility. The interior finishes are worn. The private restrooms, the ones still in use, are the original school restrooms.

Strategies to Address Needs:

The team came up with several options to address the facilities needs. The needs were categorized by levels of priority. These assessments were then used to develop Options for various levels of renovation to the building.

Immediate Needs:

- Improve site access and parking for Police vehicles
- Improve egress for Police vehicles
- Relocate Courts closer to Finance
- Address building settlement
- Update finishes, windows and building systems
- Increase number and improve location of restrooms
- Rework file rooms to create more usable space
- Inside and outside way-finding

Functional Needs:

- Locate all Police functions to one level
- Expand and rearrange departments
- Relocate Courts to upper level

Long-Term Needs:

- The split level arrangement of the current building floors impedes accessibility and way-finding
- Placement of the gym interferes with departmental functions and limits growth

Options

Options covered modifications to the building, from addressing the most immediate needs to replacing the building entirely. A phased implementation plan was part of all options consideration, allowing the departments to stay operational through the renovations. See the attached slides showing each option's details.

- Improved Site Access- This recommendation could be a standalone project or incorporated into the following options.
- Option 1- This option addresses the immediate needs with a strategic renovation. A sub-option, 1A, includes the same tasks but pulls out the replacement of buildingwide systems and lighting.
- Option 2- This option addresses the immediate and functional needs by removing the Community Center function to a new site, opening more space for the Police to be located on the lower level.
- Option 3- This option addresses the immediate, functional and long-term needs by removing the Community Center to a new site and relocating the Police to a new building on the current site. The balance of the building would be expanded and renovated incrementally.
- Option 4- This option addresses the immediate, functional and long-term needs by moving all of the Government Center functions out of the existing building and replacing it with a new building on the same site.
- Options 5 and 6- These options address the immediate, functional and long-term needs by moving all of the Government Center functions out of the existing building and relocating them to a new building on a new site (Option 5) or renovating an existing building on an new site (Option 6).

Phased Implementation Plan

All of the options take into account maintaining Government Center operations during the proposed construction and renovation. This requires that the construction take place in phases with multiple moves. The more surgical the renovation, the more time and moves are required to complete the work.

Budget Estimate

Included in the final presentation were project costs for each of the options. Detailed cost estimates are attached. Below is the summary of each option's budget:

- Improved Site Access- $250,000
- Option 1A - $5,258,125
- Option 1- $10,308,104
- Option 2- $15,926,908
- Option 3- $20,799,629
- Option 4- $25,545,000
- Options 5 and 6- Dependent on site/building selected

Conclusion

The Creve Coeur Government Center Task Force, made up of community representatives and City Council members, determined that partial to substantial renovation to the current Government Center would not be the best solution to resolving the building's issues. The Government Center would still remain an obsolete building with unmet needs and antiquated infrastructure.

The safety and security issues within the Government Center complex must be addressed. The existing Government Center has a number of safety and security concerns. Conflicts between public and Police vehicles on the site are a primary concern. Within the building, it is very difficult for the public to navigate, particularly between the Finance and Court offices. Because of the location of the existing elevator and the egress stair, the public circulates very close to the secure areas of the Police facility.

The Task Force understood the conflicts that the Community Center functions currently pose on the existing site, but they determined that the function is important to the community, is not likely to be redeveloped elsewhere and brings positive energy to the site. With a redeveloped plan, it is the direction of the Task Force that a Community Center stay on site, but not necessarily as a gymnasium.

The appearance of the building needs to be updated and more welcoming for a prominent building in Creve Coeur. The current site, centrally located on the City's thoroughfare New Ballas Road, is an ideal location. Other adequate sites, centrally located in the community, would be difficult to find. The recommended approach is to build a new Police building on the current site with a new

secondary access drive to Magna Carta Drive. The existing Government Center building will either be renovated or replaced within phased implementation plan to accommodate the balance of the Government and Community Center functions.

Next Steps

The next steps are to refine and develop the design for a replacement Police building and a renovated or replaced City Hall on the existing site. To prepare a more refined project cost, further investigation of site development and storm water management will need to be studied.

Site Investigation Tasks:

- Commission a site survey to clearly delineate property boundaries and identify all utilities and easements and detailed topography
- Review MSD storm water collection and detention requirements on this site
- Obtain soil borings to identify bearing capacities, existing soils condition and investigate existing building settlement causes
- Develop site circulation plan to accommodate the site's multiple uses
- Investigate requirements for a new road to Magna Carta Drive
- Develop parking counts and site layout
- Locate Police building and access points on the site

Materials Attached

Attached to this summary are programming and departmental adjacency diagrams, presentations, a matrix of the 'pros and cons' of each option and cost estimates prepared over the course of this study.

Dept.	Space	Exist SF	Occupants	W		L	Desired SF	QTY	Total SF	Notes
General										
Notes:	Remove drop ceilings in favor of exposed duct and black painted ceilings.									
	Vestibule	72	4	12	x	6	72	1	72	
	Lobby	1,080	30	27	x	40	1,080	1	1,080	
	Council Chamber	2,244	120	44	x	51	2,244	1	2,244	
	Council Conference Room	270	18	15	x	18	270	1	270	
	Conference Room # 2	300	16	25	x	16	400	1	400	
	Public Restrooms	208	12	10	x	40	400	2	800	
	Employee Lounge & Kitchen	456	8	19	x	24	456	1	456	
	Employee Restrooms	112	3	10	x	22	220	4	880	
	Large Conference Room	-	20	16	x	24	384	1	384	
	Small conference room	-	6	12	x	16	192	2	384	
	Storage Room	49	1	7	x	7	49	1	49	
		4,791				Subtotal:			**6,947**	
Administration & Legislative										
Notes:	Offices not well proportioned; needs complete reorganization. Seek natural/borrow light into all offices.									
	Mayor's Office (share Judge's Chamber)	294	4	14	x	18	252	1	252	Window; office too large with limited use
	City Admistrator	224	6	14	x	18	252	1	252	
	City Clerk	294	1	14	x	16	224	1	224	
	City Clerk Storage (Closet)	12	0	2	x	6	12	1	12	Would like closet in office as secondary storage, but ceiling needs to be fireproof
	Asst to City Administrator	192	1	10	x	12	120	1	120	
	HR Assistant		1	10	x	12	120	1	120	
	Public Info & Mgnt Analyst	180	1	10	x	12	120	1	120	
	Records Storage (Vault)	98	1	14	x	10	140	1	140	Locate in more accessible, open area
	Reception area		6	14	x	20	280	1	280	
		1,294				Subtotal:			**1,520**	

Dept.	Space	Exist SF	Occupants	W		L	Desired SF	QTY	Total SF	Notes
Finance (proximate to Courts)										
Notes:	Proximate to storage closet. Increase natural and borrow light									
	Director of Finance	140	1	14	x	16	224	1	224	Move to front of dept, add bookshelves
	IT Office	238	1	10	x	12	120	1	120	Raised floor to accommodate wiring
	IT Coordinator	-	1	10	x	12	120	1	120	
	IT Workroom	-	1	14	x	16	224	1	224	
	IT Server Room	-	1	10	x	12	120	1	120	
	Administrative Assistant	110	1	10	x	11	110	1	110	
	Account Associate	110	1	10	x	11	110	1	110	
	Payroll Clerk	64	1	8	x	8	64	1	64	Window, bookshelves
	Accountant		1	10	x	12	120	1	120	
	Front Desk Receptionist		2	12	x	18	216	1	216	Increase
	Copy area/work room	108	2	10	x	18	180	1	180	Increase
		770				Subtotal:			**1,608**	
Courts (proximate to Police & Finance)										
	Court Administrator	192	1	10	x	12	120	1	120	
	Court Clerk	80	2	12	x	12	144	1	144	
	Deputy Court Clerk	64	2	10	x	10	100	1	100	
	Court Assistant	64	1	8	x	8	64	1	64	
	Records Storage	16	1	4	x	4	16	1	16	
	Public Phone Area		3	12	x	16	192	1	192	
	Prosecutor		4	14	x	14	196	1		Use Mayor's Office
	Judge		4	14	x	16	224	1		Use Mayor's Office
	Defense Attorney		4	12	x	14	168	1		Use Small Conference room
	Courts space separate from Council Chambers?		75	40	x	51	2,040	1		Use Council Chambers
	Docket Issuance		12	16	x	18	288	1		Use Council Conference room
		416				Subtotal:			**636**	

Dept.	Space	Exist SF	Occupants	W		L	Desired SF	QTY	Total SF	Notes
Building Department (proximate to Public Works)										
Notes:	Address uneven floors. Clean ducts; air and water quality concerns									
	Chief Building Official	169	1	14	x	16	224	1	224	
	Senior Plans Examiner	156	1	10	x	12	120	1	120	
	Plan Examiner	-	1	10	x	12	120	1	120	
	Commercial Building Inspector x 3	120	2	10	x	12	120	3	360	Shared office. Direct access to vehicles
	Code Inspector/Violations	120	1	10	x	12	120	1	120	Direct access to vehicles
	Residential Bldg Inspector	120	1	10	x	12	120	1	120	Direct access to vehicles
	Admin Assistant/Permits Clerk	100	1	10	x	10	100	1	100	
	Apartment Reoccupancy	100	1	10	x	12	120	1	120	
	Print Room	-	2	16	x	18	288	1	288	Houses copier and plotter
	Records Storage	-	1	24	x	24	576	1	576	Need more
		885				Subtotal:			2,148	
Public Works (proximate to Bldg Dept)										
	Director of Public Works	240	1	14	x	16	224	1	224	
	City Engineer	130	1	12	x	12	144	1	144	
	Engineer	130	1	10	x	12	120	1	120	
	Administrative Assistant	100	1	10	x	10	100	1	100	
	Conference Room	-	14	14	x	22	308	1	308	
	Small conference room	-	6	14	x	16	224	1	224	Additional space for Public Works use
	Restrooms	-	2	12	x	22	264	2	528	Need Employee Restrooms
	Records Storage	-	2	14	x	24	336	1	336	
		600				Subtotal:			1,984	

Dept.	Space	Exist SF	Occupants	W		L	Desired SF	QTY	Total SF	Notes
Planning & Zoning										
	Planning Director	192	1	14	x	16	224	1	224	
	City Planner	130	1	12	x	12	144	1	144	
	Project Manager	130	1	10	x	12	120	1	120	
	Administrative Assistant	100	1	10	x	10	100	1	100	
	P&Z Storage		1	14	x	16	224	1	224	
		552			Subtotal:				812	
Parks & Recreation										
	Lobby	100	0	12	x	17	204	1	204	Create central entry point
	Gymnasium	3,900	325	78	x	50	3,900	1	3,900	
	Gymnasium Storage (300-400 SF)	108	1	16	x	20	320	1	320	
	Multipurpose Rooms	2,318	90	42	x	32	1,344	3	4,032	
	Multipurpose Storage (350-400 SF)	-	1	19	x	20	380	1	380	
	Locker Rooms	-	22	24	x	28	672	2	1,344	
	Meeting Rooms	1,410	50	24	x	32	768	3	2,304	
	Restrooms	221	2	12	x	24	288	2	576	More/larger stalls, consolidated area
		8,057			Subtotal:				13,060	

Dept.	Space	Exist SF	Occupants	W		L	Desired SF	QTY	Total SF	Notes
Police										
	Police Chief	221	6	14	x	16	224	1	224	
	Chief's Administrative Asst.	140	1	10	x	12	120	1	120	
	Chief's Conference Room	208	6	14	x	18	252	1	252	Needs to be larger
	Lt. Police Ops CMDR	132	1	12	x	12	144	1	144	
	Lt. Police Field Ops CMDR	132	1	12	x	12	144	1	144	
	Sgt. Adm & Support Services	64	1	10	x	12	120	1	120	Air temp controlled by thermostat in the WC office. Admin offices usually 5-8 degrees colder than WC office.
	Sgt. Spec Projects	64	1	10	x	12	120	1	120	
	SRO	100	1	10	x	12	120	1	120	
	Support Svc Asst	64	2	8	x	8	64	1	64	
	Records Associate	64	2	8	x	8	64	2	128	Shared office w/window into lobby. Adjacent records storage.
	Records	476	0	14	x	34	476	1	476	Most packages and shipments to PD arrive through records. There needs to be a solution to receiving shipments by clerks which doesn't involve using the WC office. Records clerks fingerprinting citizens and store records in this offfic. Interrupts work flow of the watch commanders.
	Sgt's Office	120	3	12	x	12	144	3	432	Segregation from the rest of PD, office not large enough.
	(COPPS Unit)									
	Sgt./Supervisor	196	1	12	x	12	144	1	144	
	CPO/DARE	64	1	8	x	8	64	1	64	
	Traffic Safety x 3	192	2	8	x	8	64	3	192	
	(Police Investigations)									

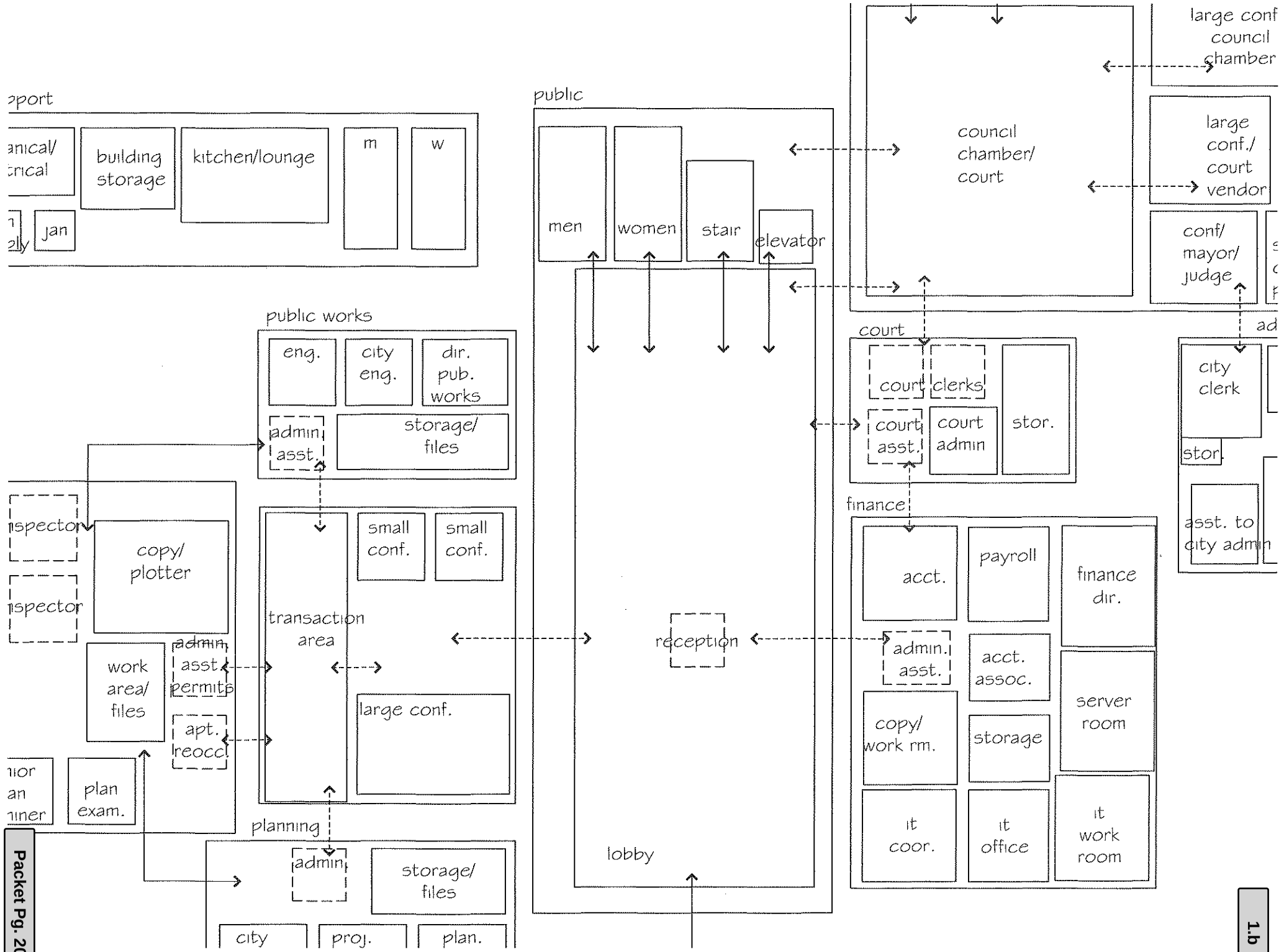
Dept.	Space	Exist SF	Occupants	W		L	Desired SF	QTY	Total SF	Notes
	Sgt./Supervisor	196	1	12	x	12	144	1	144	
	Detectives	506	5	10	x	12	120	5	600	Shared office
	Public Lobby	-	8	14	x	14	196	1	196	
	Unisex Restroom proximate to Interview Rooms		1	10	x	10	100	1	100	New
	Interview Rooms	128	4	8	x	8	64	2	128	
	Conference Room	-	12	16	x	18	288	1	288	
	Watch Commanders' Office	660	6	33	x	20	660	1	660	Needs to be more private
	Squad Room/Major Case Room	620	25	31	x	20	620	1	620	
	Mud room	224	6	16	x	14	224	1	224	
	Report Writing	154	2	10	x	14	140	1	140	Move closer to Watch Commander
	Evidence Officer	168	1	12	x	12	144	1	144	
	Evidence Processing	100	1	10	x	10	100	1	100	
	Evidence Lab	308	1	18	x	20	360	1	360	Increase from current size
	Evidence Room # 1	180	1	16	x	30	480	1	480	Double the size, pipes have leaked on evidence. We need a solution for handling wet biohazard evidence. This room ideally should not be accessible from public hallway.
	Evidence Room # 2	266	1	14	x	19	266	1	266	
	Break Room	140	6	16	X	18	288	1	288	
	Storage	-	0	12	x	10	120	1	120	Running out of space
	Workout Room	546	4	21	x	26	546	1	546	Noise from workout room interrupts rollcall- Men's locker room needs to be larger spac, locker size, leaking pipesabove space, locker size
	Locker Room (Mens)	616	12	14	x	44	616	1	616	
	Locker Room (Womens)	264	8	11	x	24	264	1	264	
	Armory	112	1	8	x	14	112	1	112	

Dept.	Space	Exist SF	Occupants	W		L	Desired SF	QTY	Total SF	Notes
	Sally Port	1,760	4	22	x	80	1,760	1	1,760	Difficult to navigateexit for conveyence vans. Need to find space other than sallyport for storing oversize evidence for security and accountability
	Police storage off Sally Port	456	0	8	x	57	456	1	456	
	Supplies, laundry, meal prep	-	2	16	x	14	224	1	224	
	Booking	126	2	9	x	14	126	1	126	Floor in poor shape. Leaking pipes.
	Prisoner Storage	-	1	10	x	10	100	1	100	
	Holding Cells	400	5	8	x	10	80	5	400	
	Juvenile Holding	80	1	8	x	10	80	1	80	Converted to a storage room, currently
	Interview Rooms	160	4	10	x	12	120	2	240	
	Video Room	56	2	8	x	7	56	1	56	
	Restroom and Shower	100	1	10	x	10	100	1	100	
	Firing Range	1,377	4	81	x	17	1,377	1	1,377	
	Firing Range Storage	80	1	8	x	10	80	1	80	
	Emergency Operations Center/Training		40	40	x	30	1,200	1	1,200	
		12,020				Subtotal:			**15,339**	
		29,385					Total All Departments		43,242	
										Hallways, walls, janitor's closets and
							30% Gross Up Factor		12,973	Mechanical rooms.
							Total SF		**56,215**	

Office Standards

City Administrator	14	x	18	
Department Directors	14	x	16	

Dept.	Space	Exist SF	Occupants	W		L	Desired SF	QTY	Total SF	Notes
	Department Professionals I			12	x	12				
	Department Professional II			10	x	12				
	Department Assistants			10	x	10				
	Assistants			8	x	8				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inspector
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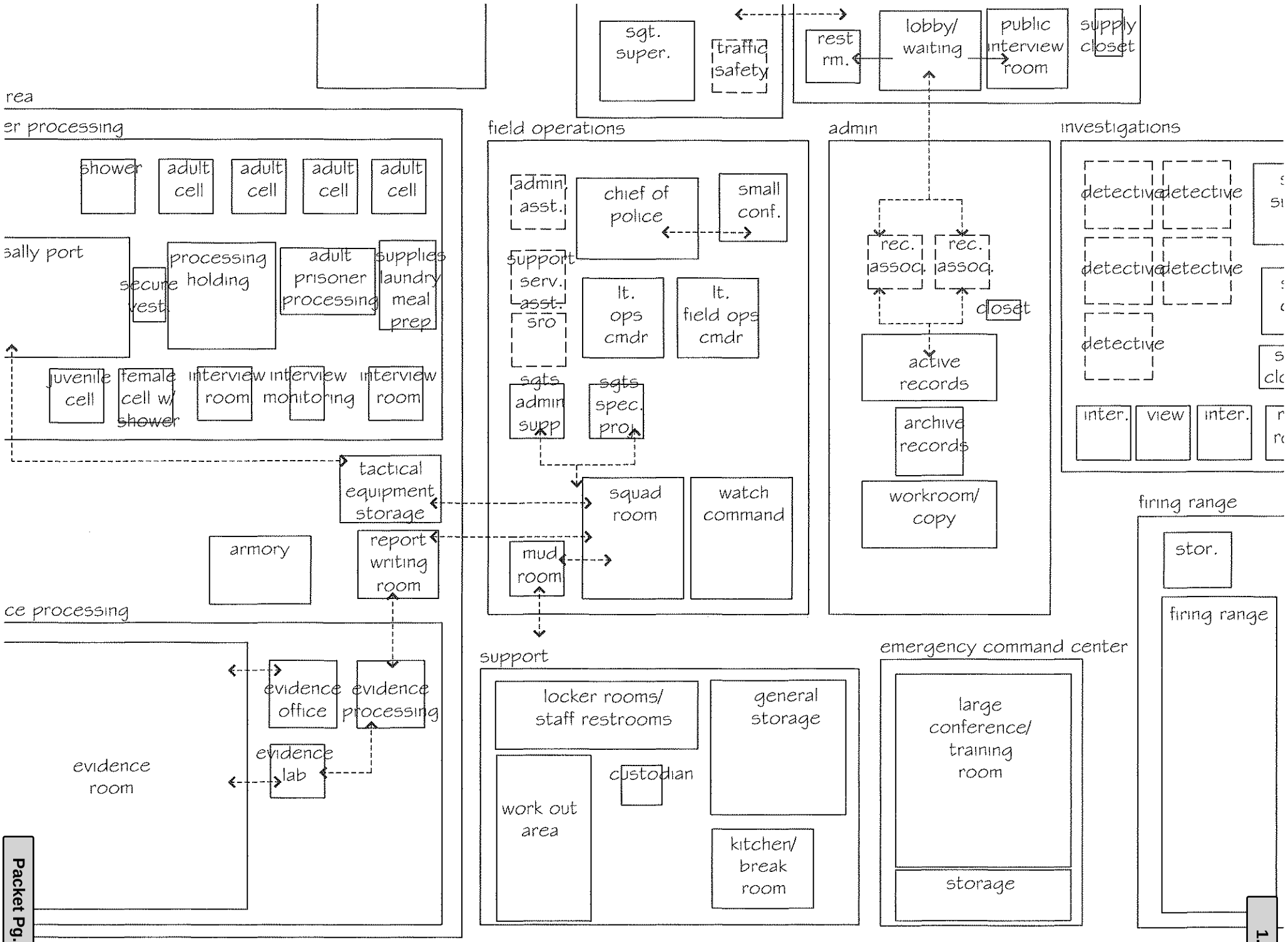
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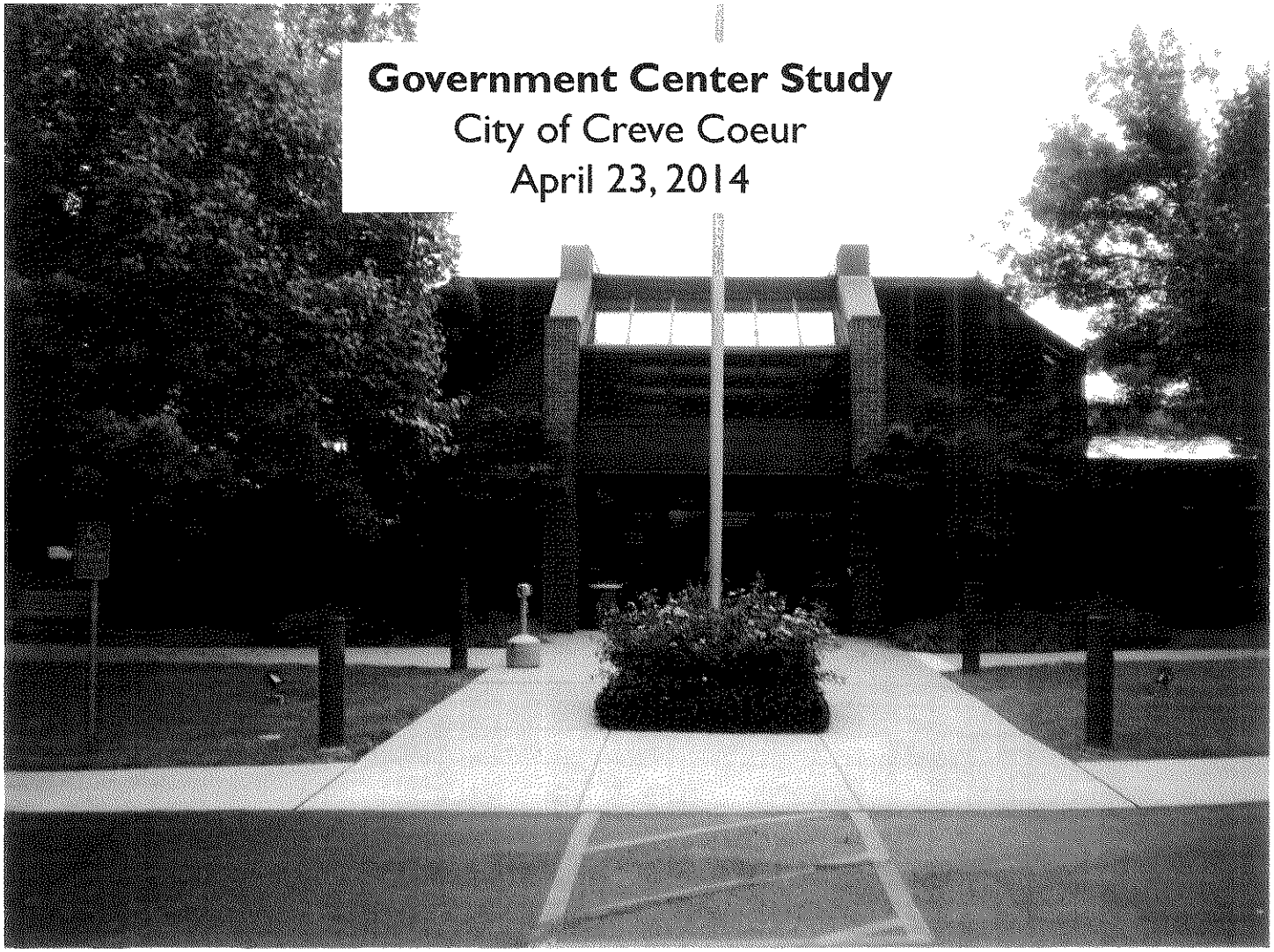
er processing
shower
adult cell
adult cell
adult cell
adult cell
sally port
secure vest
processing holding
adult prisoner processing
supplies laundry meal prep
juvenile cell
female cell w/ shower
interview room
interview monitoring
interview room
tactical equipment storage
armory
report writing room
ce processing
evidence office
evidence processing
evidence lab
evidence room
sgt. super.
traffic safety
rest rm.
lobby/ waiting
public interview room
supply closet
field operations
admin asst.
chief of police
small conf.
support serv. asst.
sro
lt. ops cmdr
lt. field ops cmdr
sgts admin supp
sgts spec. proj.
squad room
watch command
mud room
admin
rec. assoc.
rec. assoc.
closet
active records
archive records
workroom/ copy
investigations
detective
detective
detective
detective
detective
inter.
view
inter.
firing range
stor.
firing range
support
locker rooms/ staff restrooms
general storage
custodian
work out area
kitchen/ break room
emergency command center
large conference/ training room
storage

Government Center Study

City of Creve Coeur

April 23, 2014



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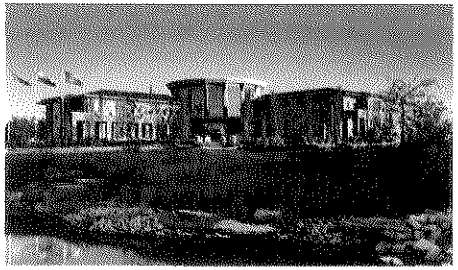
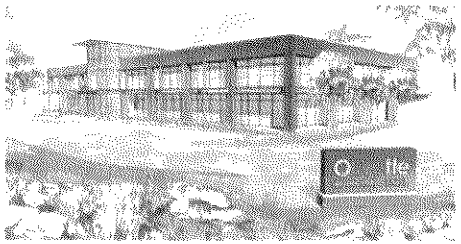
Government Center Study





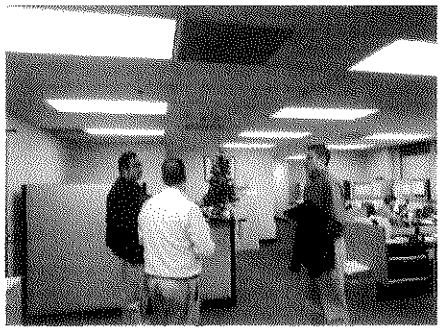
About Bond Architects

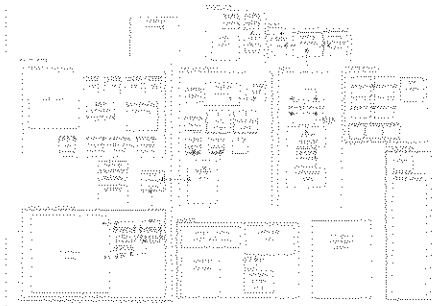
- Founded in 1992
- Extensive planning experience
  - Chesterfield Government Center
  - Olivette Municipal Facilities
  - Bellefontaine Neighbors City Hall & Police
- Longstanding municipal relationships
  - Rock Hill: Library, City Hall, Fire
  - Brentwood: Fire, Police, Library, Community Center
  - University City: Parks, Public Works, Library

bond ARCHITECTS

CITY OF CREVE COEUR, MO 1949

Government Center Study





Process To Date

- The design team assessed existing conditions
- Detailed surveys were completed by department heads
- Interviews were conducted with key staff
- Programmatic requirements were documented
- Departmental adjacency diagrams were developed
- Design options were developed and presented
- Cost estimates for each concept were reviewed
- Refined concepts were presented

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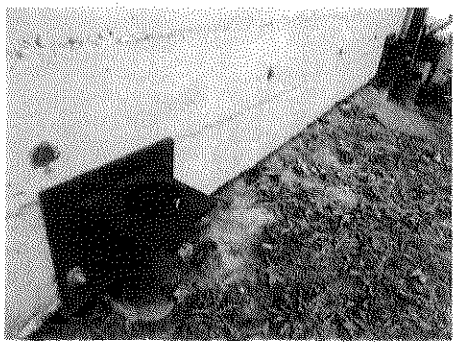
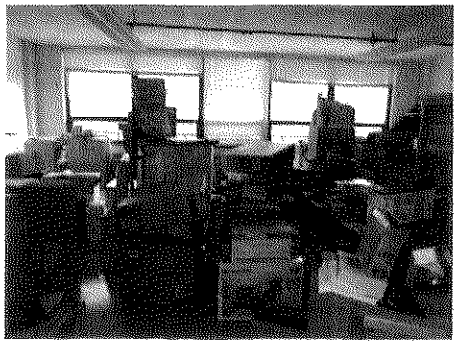
Government Center Study





General Findings

- The building has settlement issues and is not seismically braced
- Multiple building uses, layout & limited parking creates conflicts:
  - Way-finding for the general public needs improvement
  - Direct access from parking to the main entrance is limited
  - Work flow between departments is challenging
  - Limited meeting space for both public and staff functions
- Building limitations and opportunities:
  - Conference room space
  - File storage space
  - Natural light
  - ADA accessibility

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CITY OF CREVE COEUR, MO 1949

Government Center Study

General Findings

- Police need an alternate entrance to the parking lot
- The building's appearance could be enhanced to welcome our community
- Staff are concerned about indoor air quality
- Heat pump replacement should be routinely scheduled
- Surveillance and building security should be enhanced
- Wide hallways are impractical

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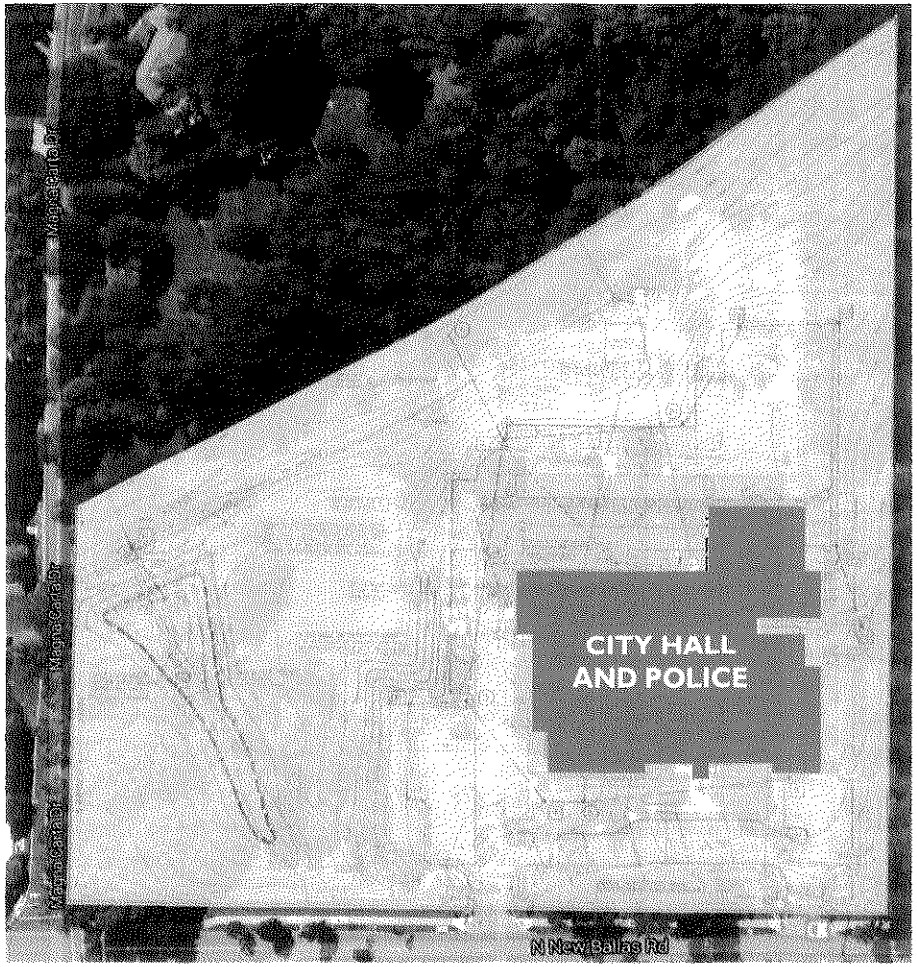

Site Plan N

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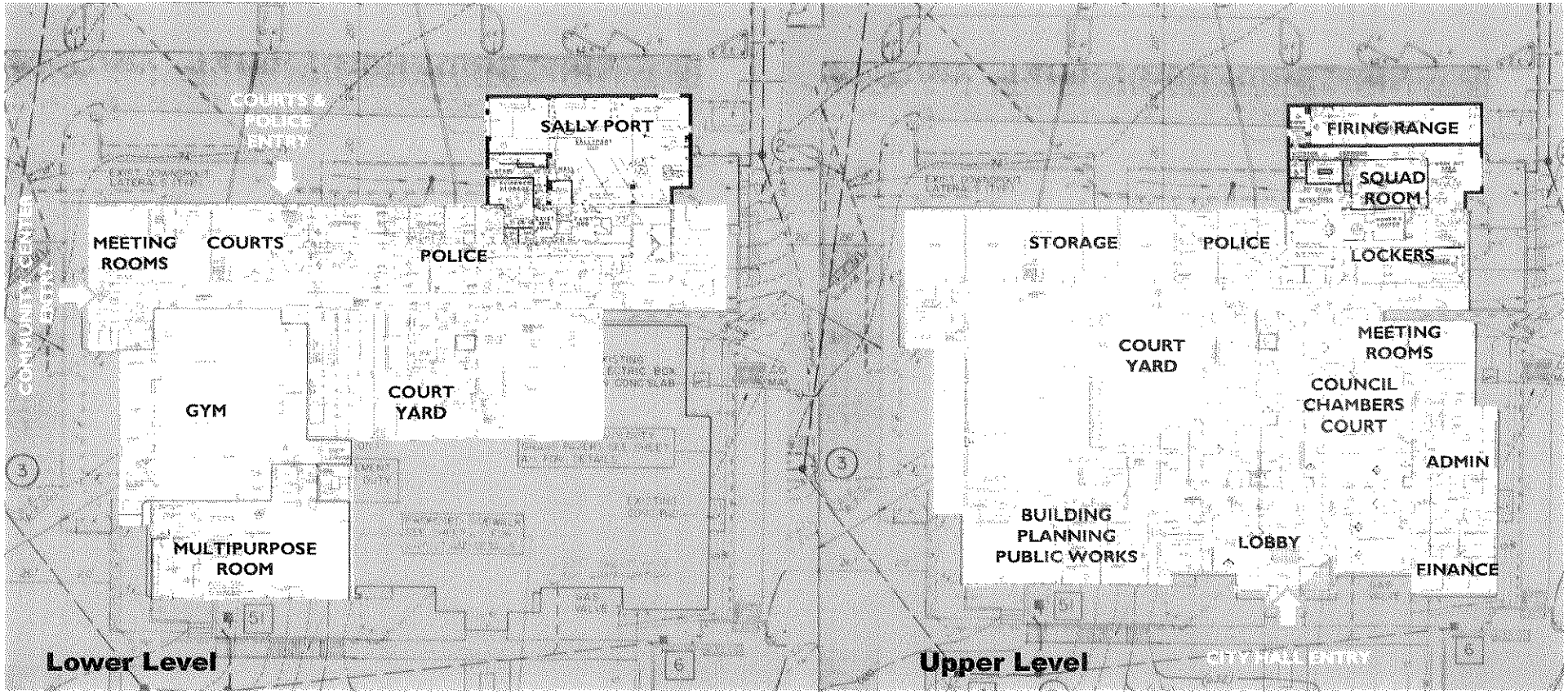
Existing Site Conditions

Government Center
April 23, 2014



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Existing Conditions

Government Center
April 23, 2014

Government Center Study

Options for improvement

- Improved site access
- Option 1A: Strategic renovations
- Option 1: Strategic renovations with building wide systems improvements
- Option 2: Renovations with a limited addition
- Option 3: Renovations with a substantial addition
- Option 4: Replace existing Government Center with a new building in its place
- Option 5: Build a new Government Center in a new location
- Option 6: Renovate a building in a new location to be the Government Center

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CITY OF CREVE COEUR, MO 1949

Government Center Study

Options for improvement

- Improved site access
  - Provide secondary vehicular access to police parking
  - Removes vehicular and pedestrian conflicts with police vehicles
  - Cost Estimate: $250,000

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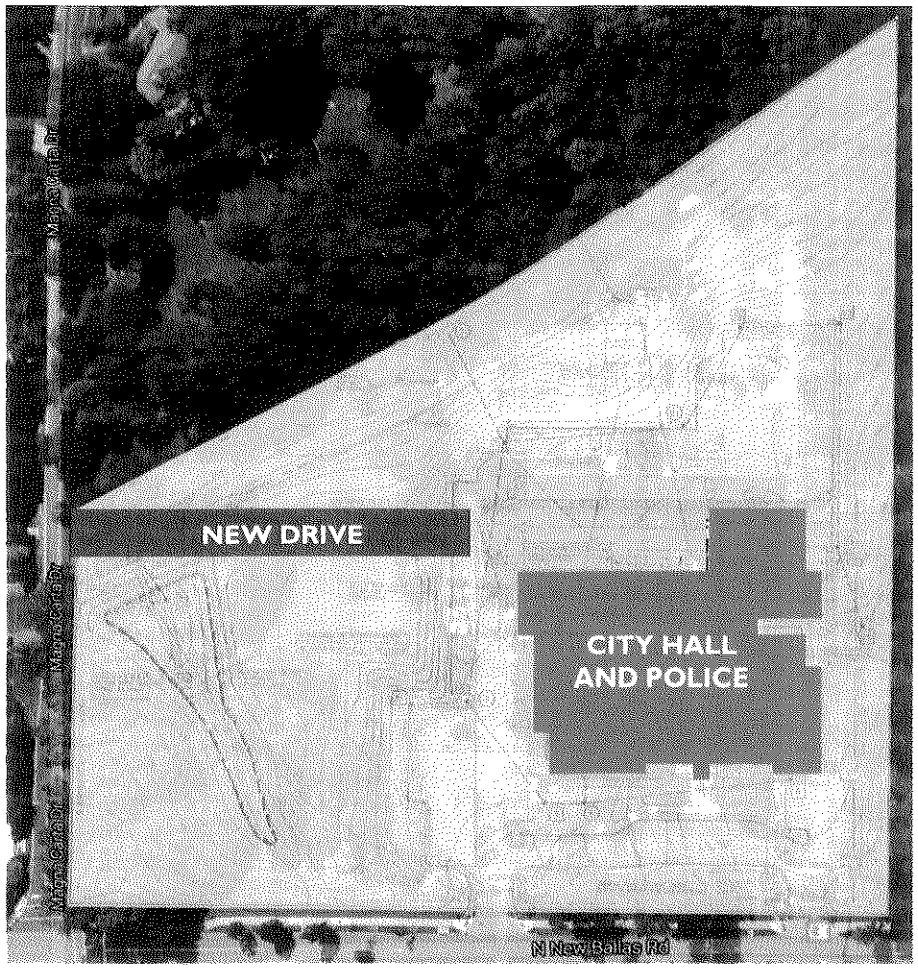

Site Plan N

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Improved Site Access

Government Center
April 23, 2014

Government Center Study

Options for improvement

- Option 1A: Strategic renovations
  - Address building settlement
  - Improve site access and parking for Police vehicles
  - Relocate Courts closer to Finance
  - Increase number and improve location of restrooms
  - Rework file rooms to create more usable space
  - Cost estimate: $5,258,125
- Option 1: Strategic renovations with building-wide systems improvements
  - Includes all of the improvements above
  - Update finishes, windows and building systems throughout
  - Cost estimate: $10,308,104

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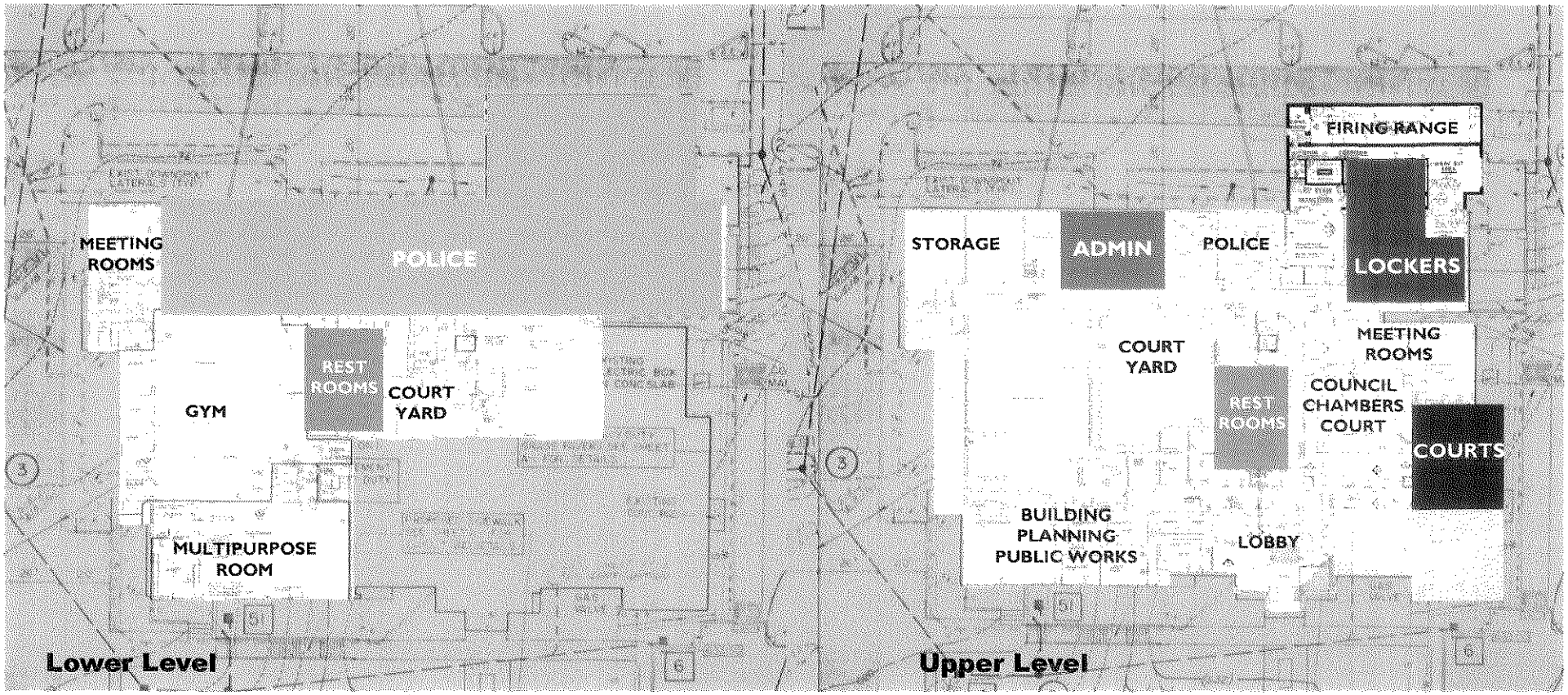

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Options I & IA
Strategic Renovations

Government Center
April 23, 2014

Government Center Study

Options for improvement

- Option 2: Renovations with a Limited Addition
  - Address Option 1 improvements
  - Relocates Community Center to a new location
  - Locate all Police functions to one level
  - Expand and rearrange departments
  - Cost estimate: $15,926,908

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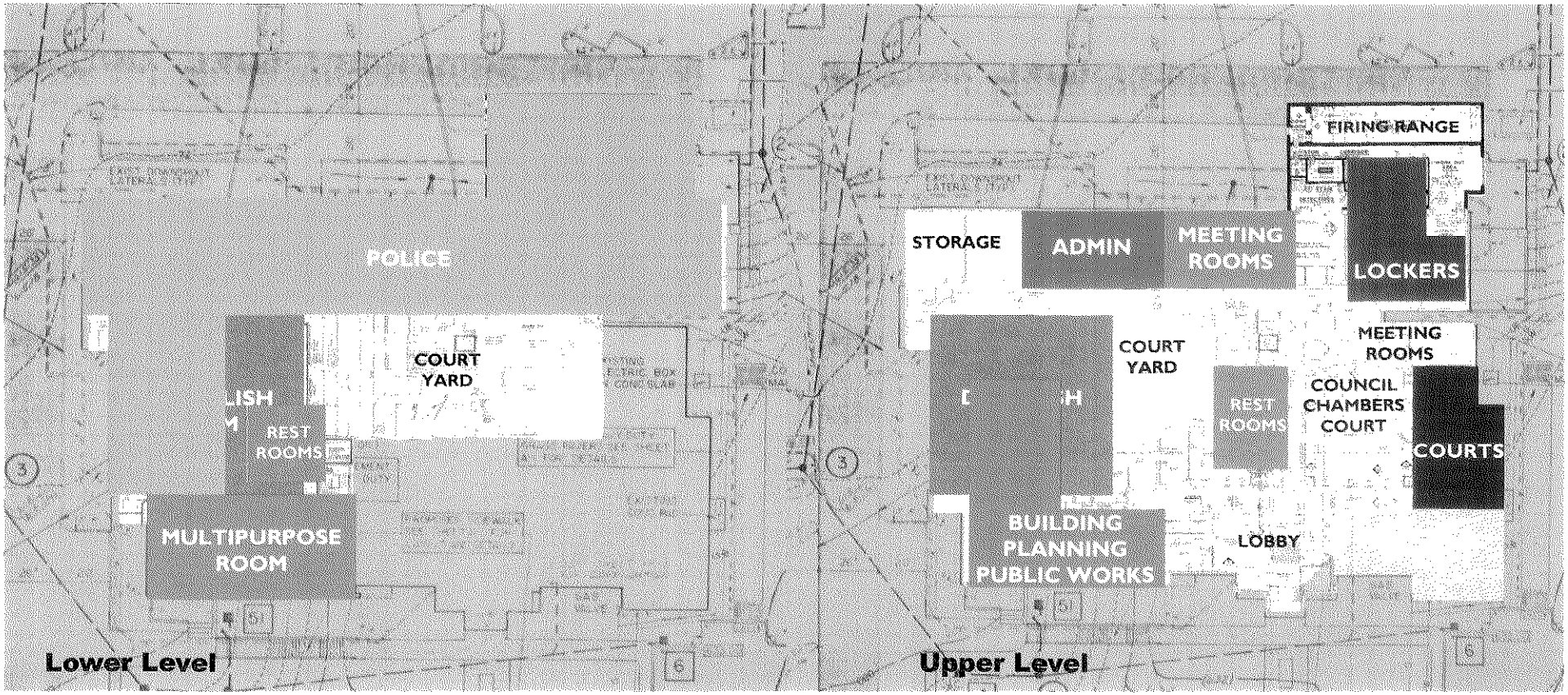
CITY OF CREVE COEUR, MO 1949



Option 2
Renovations with Limited Addition

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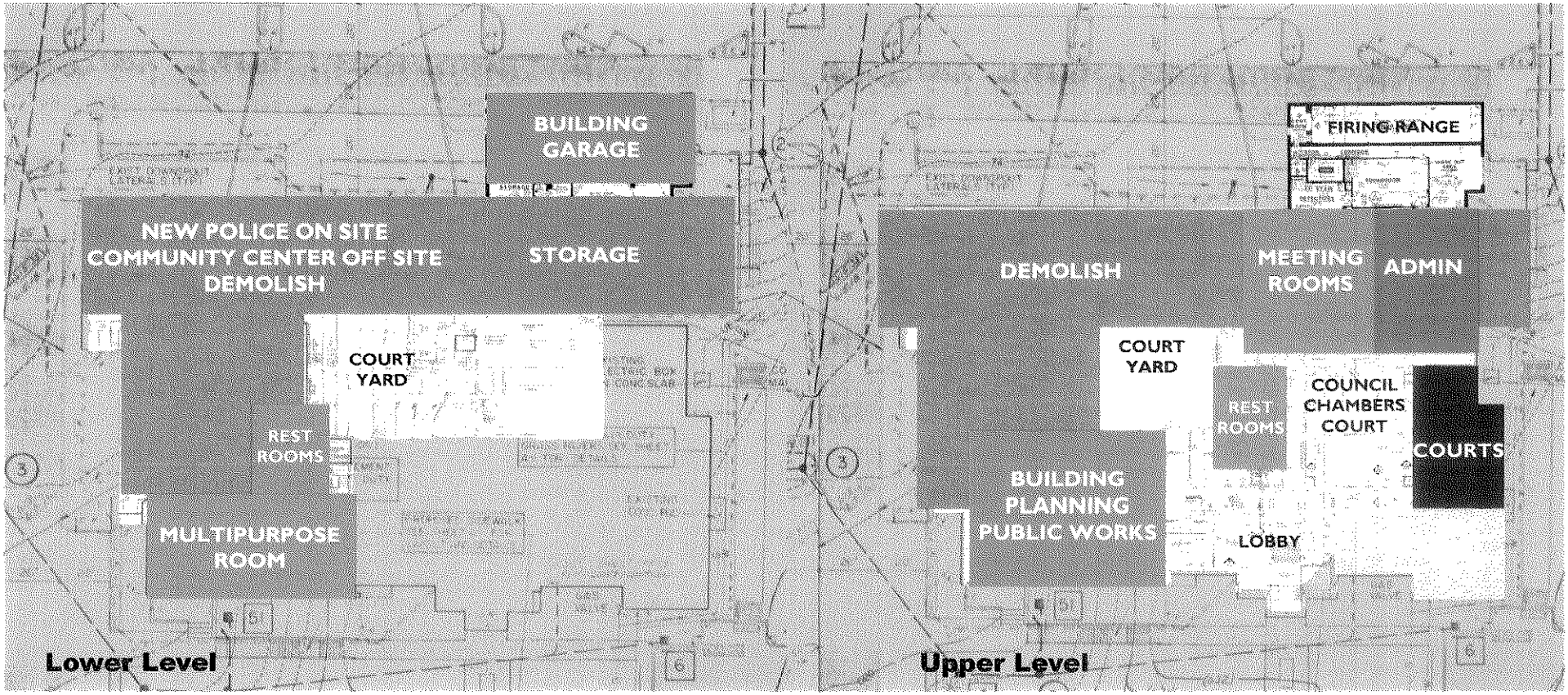
Government Center
April 23, 2014

Government Center Study

Options for improvement

- Option 3: Renovations with a substantial addition
  - Address list of Option 1 & 2 improvements
  - Remove and replace the most challenging wings
  - Constructs a new Police Station on the Government Center site
  - Cost estimate: $20,799,629



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Option 3
Renovations with Substantial Addition

Government Center
April 23, 2014

Government Center Study

Options for improvement

- Option 4: Replace existing Government Center with a new building in its place
  - Address all needs with a new building
  - Would require temporarily relocating all functions
  - Cost estimate: $25,545,000

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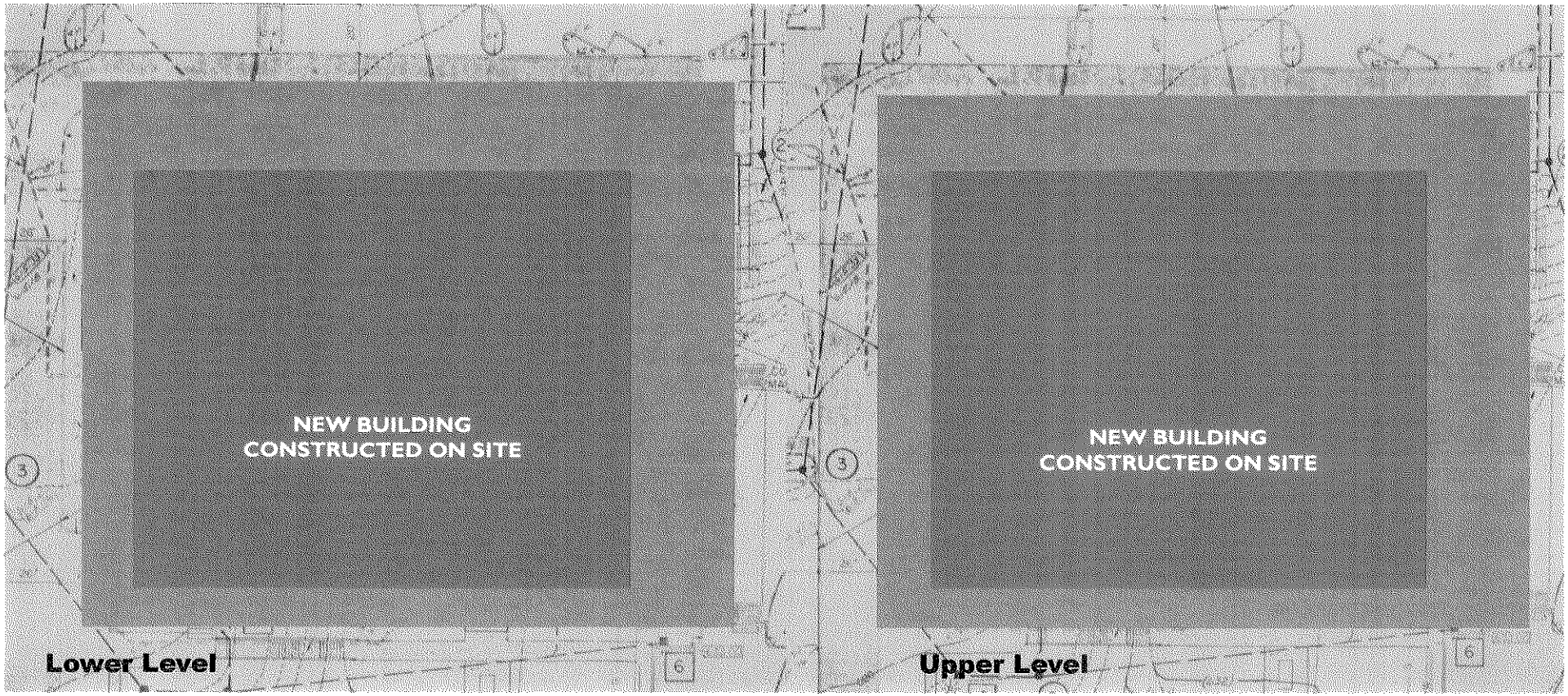
CITY OF CREVE COEUR, MO 1949



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Option 4
New Government Center on Site

Government Center
April 23, 2014

Government Center Study

Options for improvement

- Option 5: Build New Government Center on a new location
- Option 6: Renovate a building in a new location to be the Government Center
  - Address all needs with a new building
  - Would not require temporarily relocating all functions
  - Cost estimate: dependent on site/building selected

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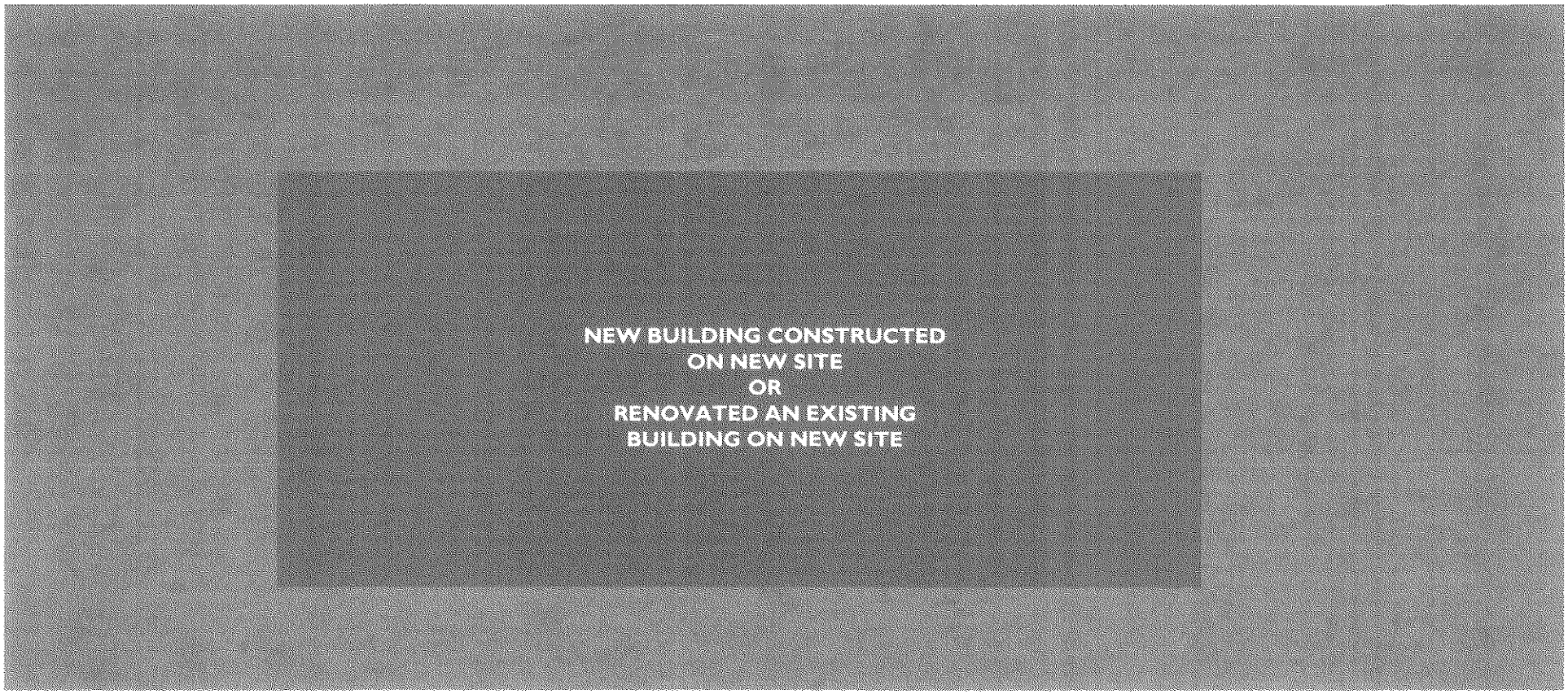

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Option 5 & 6
New Government Center on New Site

Government Center
April 23, 2014

Government Center Study

Implementation Plan

- Improvements must be implemented in phases
- Facility must stay operational during renovations
- Develop the most cost effective solution

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CITY OF CREVE COEUR, MO 1949

Creve Coeur Government Center
Design Options Matrix
Bond Architects
April 23, 2014

Option	Description	Pro's	Con's
Option 1A	Strategic renovations	Resolves pressing concerns	Resolves only most pressing concerns
		Least costly option	Renovations are a longer process and done around staff
		Recent investments in building systems are maintained	Building interiors will not have a consistant appearance
		Can be implemented in phases	Community Center functions remain split
Option 1	Strategic renovations with building wide systems improvements	More holistic approach to building systems improvements	Resolves only most pressing concerns
		Increases utility efficiency	Renovations are phased and done around staff
		Can be implemented in phases	Community Center functions remain split
Option 2	Renovations with a limited addition	Community Center funtions are consolidated	Renovations are phased and done around staff
		Increases utility efficiency	Does not improve the exterior appearance of the building
		Consoldation of Police functions on one level improves department seperation	
		Site circulation improved by relocating Community Center	
		Improves way-finding	
Option 3	Renovations with a substantial addition	Police constructed as 'essential facility'	Renovations are phased and done around staff
		Community Center funtions are consolidated	Does not improve the exterior appearance of the building
		Better space utilization for staff efficiency	
		Increases utility efficiency	
Option 4	Replace existing Government Center with a new building in its place	Does not require purchase of a new site	Requires Government Center function to move twice
		Entire building could be constructed as 'essential facility' and comply with seismic safety requirements	Incurrs additional cost and time to implement
		New building better represents the quality of the community	Would require temporary relocation of government service during construction
		Improves all department functions	
		Improves way-finding	
		Reduces existing parking limitations	
		Maintains Government Center central location, with presence on Ballas	
Option 5	Build a new Government Center in a new location	Improves all department functions	Requires purchase of real estate
		Entire building could be constructed as 'essential facility' and comply with seismic safety requirements	Challenging to find a large enough, centrally located site
		New building better represents the quality of the community	Potentially removes commerical real estate from tax base
Option 6	Renovate a building in a new location to be the Government Center	Potentially improves all department functions	Requires purchase of real estate
			Challenging to find a large enough, centrally located site and building
			Potentially removes commerical real estate from tax base

Creve Coeur Government Center
Design Options Cost Estimate
Bond Architects and Cooper Estimating
April 23, 2014

Option 1A

Minimum necessary changes

Secondary vehicle access				$177,213	
Rework loop roadway at front of building		Allowance		$200,000	
Lobby façade improvement		Allowance		$250,000	
Add Parking- Unit Price $2,000 per space	42	$2,000		$84,000	
Repair building settlement				$54,280	
Hire records clerk				By Others	
Relocate City administration				$184,213	
Relocate Courts, Expand Finance				$362,642	
Relocate squad room				$167,929	
Renovate / expand locker rooms				$467,189	
Add restrooms and storage @ lower level courtyard				$560,000	
Renovate / add restrooms @ upper level courtyard				$400,315	
Pave remainder of courtyard				$28,361	
Replace windows & exterior doors				$255,000	
Replace Council Chamber ceiling				$9,000	
Replace Council Chamber HVAC				$48,000	
Replace Council Chamber Lighting				$33,600	
Replace Council Chamber finishes				$36,000	
Site Improvements				$377,165	
Stormwater detention		Allowance		$200,000	
Subtotal					**$3,894,907**
Soft Cost- Design fees, site survey, administration			20%	$778,981	
Construction Contingency			15%	$584,236	
Fixtures, Furniture and Equipment					
Utility Relocation					
Abatement of Hazardous Materials					
Subtotal				**$1,363,217**	
Total Option 1A					**$5,258,125**

Option 1

Minimum necessary changes

Secondary vehicle access				$177,213	
Rework loop roadway at front of building		Allowance		$200,000	
Lobby façade improvement		Allowance		$250,000	
Add Parking- Unit Price $2,000 per space	42	$2,000		$84,000	
Repair building settlement				$54,280	
Hire records clerk				By Others	
Relocate City administration				$184,213	
Relocate Courts, Expand Finance				$362,642	
Relocate squad room				$167,929	
Renovate / expand locker rooms				$467,189	
Add restrooms and storage @ lower level courtyard				$560,000	
Renovate / add restrooms @ upper level courtyard				$400,315	
Pave remainder of courtyard				$28,361	
Replace windows & exterior doors				$455,938	
Replace Ceilings (areas not addressed above)				$278,385	
Replace Flooring (areas not addressed above)				$294,568	
Replace Roofing				$628,116	
Replace HVAC System (areas not addressed above)				$1,743,329	
Replace Lighting (areas not addressed above)				$456,989	
Option - Replace with LED fixtures		Add		$265,000	
Site Improvements				$377,165	
Stormwater detention		Allowance		$200,000	
Subtotal					**$7,635,633**
Soft Cost- Design fees, site survey, administration			20%	$1,527,127	
Construction Contingency			15%	$1,145,345	
Fixtures, Furniture and Equipment					
Utility Relocation					
Abatement of Hazardous Materials					
Subtotal				**$2,672,471**	

Total Option 1			**$10,308,104**

Option 2

Substantial renovations

Secondary vehicle access			$177,213
Rework loop roadway at front of building		Allowance	$200,000
Lobby façade improvement		Allowance	$250,000
Add Parking- Unit Price $2,000 per space	42	$2,000	$84,000
Repair building settlement			$54,280
Hire records clerk			By Others
Build new recreation / community component			$2,629,650
Demo gym / expand police department			$1,815,268
2nd floor addition for building department			$646,800
Add elevator			$350,000
Relocate city administration			$240,189
Renovate for new meeting rooms			$178,106
Renovate / expand locker rooms			$467,189
Expand finance			$206,801
Renovate / add restrooms @ upper level courtyard			$400,315
Pave remainder of courtyard			$48,309
Replace windows & exterior doors			$399,479
Replace Ceilings (areas not addressed above)			$256,315
Replace Flooring (areas not addressed above)			$272,497
Replace Roofing			$525,396
Replace HVAC System (areas not addressed above)			$1,389,498
Replace Lighting (areas not addressed above)			$364,237
Option - Replace with LED fixtures		Add	$265,000
Site Improvements			$377,165
Stormwater detention		Allowance	$200,000

Subtotal			**$11,797,710**
Soft Cost- Design fees, site survey, administration		20%	$2,359,542
Construction Contingency		15%	$1,769,656
Fixtures, Furniture and Equipment			
Utility Relocation			
Abatement of Hazardous Materials			
Subtotal			**$4,129,198**
Total Option 2			**$15,926,908**

Option 3

Maximize facility improvements

Secondary vehicle access			$177,213
Rework loop roadway at front of building	Allowance		$200,000
Lobby façade improvement	Allowance		$250,000
New police station over covered parking			$5,185,000
Repair building settlement			$54,280
Hire records clerk			By Others
New recreation / community component			$2,629,650
Temporary relocation of courts			$112,000
Demolish gym and classroom wing			$468,165
New 2-story addition to City Hall with Elevator			$2,215,000
Add elevator at shooting range			$250,000
Renovate shooting range and sallyport			$252,000
Renovate MP room			$240,000
Add restrooms @ lower level			$495,916
Renovate / add restrooms @ upper level courtyard			$400,315
Renovate public works			$240,000
Relocate city administration			$240,189
Expand finance			$178,106
Pave remainder of courtyard			$48,309
Replace windows & exterior doors			$219,807
Replace Ceilings (areas not addressed above)			$52,945
Replace Flooring (areas not addressed above)			$69,128
Replace Roofing			$304,920
Replace HVAC System (areas not addressed above)			$349,428
Replace Lighting (areas not addressed above)			$91,598
Option - Replace with LED fixtures	Add		$106,000
Site Improvements			$377,165
Stormwater detention	Allowance		$200,000
Subtotal			**$15,407,133**
Soft Cost- Design fees, site survey, administration		20%	$3,081,427
Construction Contingency		15%	$2,311,070
Fixtures, Furniture and Equipment			
Utility Relocation			
Abatement of Hazardous Materials			
Subtotal			**$5,392,497**
Total Option 3			**$20,799,629**

Option 4

Demolish existing facility / New city hall

Moving Expenses			$120,000
Rent in Temporary space (18 Months)			$1,995,000
Demolish City Hall			$525,000
New City Hall			$15,750,000
Site Work			$1,260,000
Subtotal			**$19,650,000**
Soft Cost- Design fees, site survey, administration		20%	$3,930,000
Construction Contingency		10%	$1,965,000
Fixtures, Furniture and Equipment			
Utility Relocation			
Abatement of Hazardous Materials			
Subtotal			**$5,895,000**
Total Option 4			**$25,545,000**

* Note - Pricing is based on current start of construction. Projected escalation is 4%-5% per year.

General Comment:
Estimates are intended to be used as a professional opinion of the probable cost of construction, based on the Estimators understanding of the design at the time the estimate was prepared. The Estimator has no control over General or Subcontractor overhead and profit percentages, bidding climates, schedules, contractor's methods of determining prices, continuing design modifications or addenda, etc., therefore, we cannot guarantee that proposals, bids, or actual construction costs will be within a certain range of this, or subsequent, cost estimates.

Option # 4

Space	Exist SF	Occupants	W		L	Desired SF	QTY	Total SF	Cost SF	Subtotal	Notes
ceilings in favor of exposed duct and black painted ceilings.											
	72	4	12	x	6	72	1	72	$ 240	$ 17,280	
	1,080	30	27	x	40	1,080	1	1,080	$ 240	$ 259,200	
ber	2,244	120	44	x	51	2,244	1	2,244	$ 320	$ 718,080	
rence Room	270	18	15	x	18	270	1	270	$ 240	$ 64,800	
om # 2	300	16	25	x	16	400	1	400	$ 240	$ 96,000	
ns	208	12	10	x	40	400	2	800	$ 280	$ 224,000	
ge & Kitchen	456	8	19	x	24	456	1	456	$ 220	$ 100,320	
rooms	112	3	10	x	22	220	4	880	$ 280	$ 246,400	
nce Room	-	20	16	x	24	384	1	384	$ 280	$ 107,520	
ce room	-	6	12	x	16	192	2	384	$ 280	$ 107,520	
	49	1	7	x	7	49	1	49	$ 180	$ 8,820	
	4,791			Subtotal:				**6,947**		$ **1,949,940**	
gislative											
l proportioned; needs complete reorganization. Seek natural/borrow light into all offices.											
(share Judge's Chamber)	294	4	14	x	18	252	1	252	$ 240	$ 60,480	Window; office too large with limited use
or	224	6	14	x	18	252	1	252	$ 240	$ 60,480	
	294	1	14	x	16	224	1	224	$ 240	$ 53,760	
age (Closet)	12	0	2	x	6	12	1	12	$ 180	$ 2,160	Would like closet in office as secondary storage, but ceiling needs to be fireproof
dministrator	192	1	10	x	12	120	1	120	$ 240	$ 28,800	
		1	10	x	12	120	1	120	$ 240	$ 28,800	
Analyst	180	1	10	x	12	120	1	120	$ 240	$ 28,800	
ault)	98	1	14	x	10	140	1	140	$ 180	$ 25,200	Locate in more accessible, open area

Space	Exist SF	Occupants	W		L	Desired SF	QTY	Total SF	Cost SF	Subtotal	Notes
		6	14	x	20	280	1	280	$ 240	$ 67,200	
	1,294			Subtotal:				**1,520**		**$ 355,680**	

Space	Exist SF	Occupants	W		L	Desired SF	QTY	Total SF	Cost SF	Subtotal	Notes
Courts)											
torage closet. Increase natural and borrow light											
ance	140	1	14	x	16	224	1	224	$ 240	$ 53,760	Move to front of dept, add bookshelves
	238	1	10	x	12	120	1	120	$ 240	$ 28,800	Raised floor to accommodate wiring
	-	1	10	x	12	120	1	120	$ 240	$ 28,800	
	-	1	14	x	16	224	1	224	$ 220	$ 49,280	
n	-	1	10	x	12	120	1	120	$ 180	$ 21,600	
Assistant	110	1	10	x	11	110	1	110	$ 240	$ 26,400	
iate	110	1	10	x	11	110	1	110	$ 240	$ 26,400	
	64	1	8	x	8	64	1	64	$ 240	$ 15,360	Window, bookshelves
		1	10	x	12	120	1	120	$ 240	$ 28,800	
ceptionist		2	12	x	18	216	1	216	$ 240	$ 51,840	Increase
k room	108	2	10	x	18	180	1	180	$ 220	$ 39,600	Increase
	770			Subtotal:				**1,608**		**$ 370,640**	
Police & Finance)											
trator	192	1	10	x	12	120	1	120	$ 240	$ 28,800	
	80	2	12	x	12	144	1	144	$ 240	$ 34,560	
Clerk	64	2	10	x	10	100	1	100	$ 240	$ 24,000	
t	64	1	8	x	8	64	1	64	$ 240	$ 15,360	
e	16	1	4	x	4	16	1	16	$ 240	$ 3,840	
rea		3	12	x	16	192	1	192	$ 240	$ 46,080	
		4	14	x	14	196	1			$ -	Use Mayor's Office
		4	14	x	16	224	1			$ -	Use Mayor's Office
		4	12	x	14	168	1			$ -	Use Small Conference room
ate from Council Chambers?		75	40	x	51	2,040	1			$ -	Use Council Chambers

Space	Exist SF	Occupants	W		L	Desired SF	QTY	Total SF	Cost SF	Subtotal	Notes
e		12	16	x	18	288	1			$ -	Use Council Conference room
	416			Subtotal:				636		$ 152,640	

Space	Exist SF	Occupants	W		L	Desired SF	QTY	Total SF	Cost SF	Subtotal	Notes
t (proximate to Public Works)											
n floors. Clean ducts; air and water quality concerns											
Official	169	1	14	x	16	224	1	224	$ 240	$ 53,760	
aminer	156	1	10	x	12	120	1	120	$ 240	$ 28,800	
	-	1	10	x	12	120	1	120	$ 240	$ 28,800	
uilding Inspector x 3	120	2	10	x	12	120	3	360	$ 240	$ 86,400	Shared office. Direct access to vehicles
-/Violations	120	1	10	x	12	120	1	120	$ 240	$ 28,800	Direct access to vehicles
g Inspector	120	1	10	x	12	120	1	120	$ 240	$ 28,800	Direct access to vehicles
t/Permits Clerk	100	1	10	x	10	100	1	100	$ 240	$ 24,000	
ccupancy	100	1	10	x	12	120	1	120	$ 240	$ 28,800	
	-	2	16	x	18	288	1	288	$ 220	$ 63,360	Houses copier and plotter
e	-	1	24	x	24	576	1	576	$ 180	$ 103,680	Need more
	885			Subtotal:				**2,148**		**$ 475,200**	
nate to Bldg Dept)											
blic Works	240	1	14	x	16	224	1	224	$ 240	$ 53,760	
	130	1	12	x	12	144	1	144	$ 240	$ 34,560	
	130	1	10	x	12	120	1	120	$ 240	$ 28,800	
Assistant	100	1	10	x	10	100	1	100	$ 240	$ 24,000	
om	-	14	14	x	22	308	1	308	$ 220	$ 67,760	
ce room	-	6	14	x	16	224	1	224	$ 240	$ 53,760	Additional space for Public Works use
	-	2	12	x	22	264	2	528	$ 240	$ 126,720	Need Employee Restrooms
e	-	2	14	x	24	336	1	336	$ 180	$ 60,480	
	600			Subtotal:				**1,984**		**$ 449,840**	

Space	Exist SF	Occupants	W		L	Desired SF	QTY	Total SF	Cost SF	Subtotal	Notes
or	192	1	14	x	16	224	1	224	$ 240	$ 53,760	
	130	1	12	x	12	144	1	144	$ 240	$ 34,560	
r	130	1	10	x	12	120	1	120	$ 240	$ 28,800	
Assistant	100	1	10	x	10	100	1	100	$ 240	$ 24,000	
		1	14	x	16	224	1	224	$ 180	$ 40,320	
	552			Subtotal:				**812**		$ **181,440**	
	100	0	12	x	17	204	1	204	$ 220	$ 44,880	Create central entry point
	3,900	325	78	x	50	3,900	1	-	$ 180	$ -	
rage (300-400 SF)	108	1	16	x	20	320	1	-	$ 180	$ -	
ooms	2,318	90	42	x	32	1,344	3	4,032	$ 200	$ 806,400	
torage (350-400 SF)	-	1	19	x	20	380	1	380	$ 200	$ 76,000	
	-	22	24	x	28	672	2	1,344	$ 240	$ 322,560	
s	1,410	50	24	x	32	768	3	2,304	$ 200	$ 460,800	
	221	2	12	x	24	288	2	576	$ 240	$ 138,240	More/larger stalls, consolidated area
	8,057			Subtotal:				**8,840**		$ **1,848,880**	

Space	Exist SF	Occupants	W		L	Desired SF	QTY	Total SF	Cost SF	Subtotal	Notes
	221	6	14	x	16	224	1	224	$ 220	$ 49,280	
trative Asst.	140	1	10	x	12	120	1	120	$ 220	$ 26,400	
ence Room	208	6	14	x	18	252	1	252	$ 220	$ 55,440	Needs to be larger
CMDR	132	1	12	x	12	144	1	144	$ 220	$ 31,680	
Ops CMDR	132	1	12	x	12	144	1	144	$ 220	$ 31,680	
port Services	64	1	10	x	12	120	1	120	$ 200	$ 24,000	Air temp controlled by thermostat in the WC office. Admin offices usually 5-8 degrees colder than WC office.
cts	64	1	10	x	12	120	1	120	$ 200	$ 24,000	
	100	1	10	x	12	120	1	120	$ 200	$ 24,000	
st	64	2	8	x	8	64	1	64	$ 200	$ 12,800	
iate	64	2	8	x	8	64	2	128	$ 200	$ 25,600	Shared office w/window into lobby. Adjacent records storage.
	476	0	14	x	34	476	1	476	$ 180	$ 85,680	Most packages and shipments to PD arrive through records. There needs to be a solution to receiving shipments by clerks which doesn't involve using the WC office. Records clerks fingerprinting citizens and store records in this offfic. Interrupts work flow of the watch commanders.
	120	3	12	x	12	144	3	432	$ 200	$ 86,400	Segregation from the rest of PD, office not large enough.
:)										$ -	
	196	1	12	x	12	144	1	144	$ 200	$ 28,800	
	64	1	8	x	8	64	1	64	$ 200	$ 12,800	
	192	2	8	x	8	64	3	192	$ 200	$ 38,400	

Space	Exist SF	Occupants	W		L	Desired SF	QTY	Total SF	Cost SF	Subtotal	Notes
tigations)											
	196	1	12	x	12	144	1	144	$ 200	$ 28,800	
	506	5	10	x	12	120	5	600	$ 200	$ 120,000	Shared office
	-	8	14	x	14	196	1	196	$ 220	$ 43,120	
om proximate to Interview Rooms		1	10	x	10	100	1	100	$ 240	$ 24,000	New
ns	128	4	8	x	8	64	2	128	$ 180	$ 23,040	
om	-	12	16	x	18	288	1	288	$ 200	$ 57,600	
nders' Office	660	6	33	x	20	660	1	660	$ 200	$ 132,000	Needs to be more private
ajor Case Room	620	25	31	x	20	620	1	620	$ 200	$ 124,000	
	224	6	16	x	14	224	1	224	$ 180	$ 40,320	
	154	2	10	x	14	140	1	140	$ 200	$ 28,000	Move closer to Watch Commander
er	168	1	12	x	12	144	1	144	$ 200	$ 28,800	
ssing	100	1	10	x	10	100	1	100	$ 180	$ 18,000	
	308	1	18	x	20	360	1	360	$ 180	$ 64,800	Increase from current size
n # 1	180	1	16	x	30	480	1	480	$ 180	$ 86,400	Double the size, pipes have leaked on evidence. We need a solution for handling wet biohazard evidence. This room ideally should not be accessible from public hallway.
n # 2	266	1	14	x	19	266	1	266	$ 180	$ 47,880	
	140	6	16	X	18	288	1	288	$ 180	$ 51,840	
	-	0	12	x	10	120	1	120	$ 180	$ 21,600	Running out of space
	546	4	21	x	26	546	1	546	$ 200	$ 109,200	Noise from workout room interrupts rollcall- Men's locker room needs to be larger spac, locker size, leaking pipesabove space, locker size
ns)	616	12	14	x	44	616	1	616	$ 240	$ 147,840	

Space	Exist SF	Occupants	W		L	Desired SF	QTY	Total SF	Cost SF	Subtotal	Notes
Womens)	264	8	11	x	24	264	1	264		$ -	
	112	1	8	x	14	112	1	112	$ 240	$ 26,880	
											Difficult to navigateexit for conveyence vans. Need to find space other than sallyport for storing oversize evidence for security and
	1,760	4	22	x	80	1,760	1	1,760	$ 160	$ 281,600	accountability
off Sally Port	456	0	8	x	57	456	1	456	$ 160	$ 72,960	
y, meal prep	-	2	16	x	14	224	1	224	$ 180	$ 40,320	
	126	2	9	x	14	126	1	126	$ 220	$ 27,720	Floor in poor shape. Leaking pipes.
ge	-	1	10	x	10	100	1	100	$ 220	$ 22,000	
	400	5	8	x	10	80	5	400	$ 320	$ 128,000	
g	80	1	8	x	10	80	1	80	$ 320	$ 25,600	Converted to a storage room, currently
ns	160	4	10	x	12	120	2	240	$ 220	$ 52,800	
	56	2	8	x	7	56	1	56	$ 220	$ 12,320	
Shower	100	1	10	x	10	100	1	100	$ 240	$ 24,000	
	1,377	4	81	x	17	1,377	1	1,377	$ 375	$ 516,375	
orage	80	1	8	x	10	80	1	80	$ 180	$ 14,400	
erations Center/Training		40	40	x	30	1,200	1	1,200	$ 180	$ 216,000	
	12,020			Subtotal:				**15,339**		$ 3,215,175	Police
							30%	4,602		$ 964,553	Gross up for mechanical, Walls, Circulation)
								19,941		**$ 4,179,728**	Police Total SF
								24,495		$ 5,784,260	All Other Departments

Space	Exist SF	Occupants	W	L	Desired SF	QTY	Total SF	Cost SF		Subtotal	Notes
						30%	7,349		$	1,735,278	Gross up for mechanical, Walls, Circulation)
							31,844		$	**7,519,538**	Total Government Center
									$	450,000	Asbestos Abatement
									$	750,000	Demolish Existing Bldg
									$	1,000,000	Underground Stormwater Detention
									$	300,000	Retaining Walls
									$	200,000	New Road to Magna Carta
									$	300,000	Parking 360 deg around bldg
									$	75,000	Regrade south side
									$	300,000	Landscape
									$	**15,074,266**	Total Construction Cost
								10%	$	1,507,427	Construction Contingency

Space	Exist SF	Occupants	W	L	Desired SF	QTY	Total SF	Cost SF		Subtotal	Notes
								10%	$	1,507,427	FF&E
								3%	$	452,228	Surveys and Geotechnical report, legel wor
								7%	$	1,055,199	Design Fees
									$	**19,596,545**	
							31,844	$ 4	$	127,376	Move Government Center Staff (2 Times)
							31,844	$ 22	$	1,401,114	Lease of Temp space (2 Years) (2016-2017)
									$	**21,125,035**	**Total Project Cost**

based on 2014 construction costs. Factor escalation of 4 % annually after 2014.

Creve Coeur Government Center
Option 3 - Implementation Plan
7-May-14

Phase	Task	Year 1												Year 2												Year 3									
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10
I	Site Preparation																																		
	New Police Building																																		
	Move police in																																		
	Build Park Department Space																																		
	Move Parks Department																																		
II	Move Finance and Court into multi purpose space																																		
	Renovate Finance and Courts																																		
	Move Finance and Courts into renovated space																																		
III	Demolish Police and Parks Spaces																																		
IV	Build New Meeting Rooms and Admin Space																																		
V	Move Admin into renovated space																																		
VI	Move Council Chambers into multi-purpos space																																		
	Renovate Council Chambers																																		
	Move Council Chambers into renovatted space																																		
VII	Move Pub Works, Planning and Building Dept into multi-purpose space																																		
	Renovate PW, P & BD space																																		
	Move PW, P & BD into Renovated Space																																		
VIII	Renovate Exist Pub Restrooms Upper Floor																																		
IX	Expand Restrooms @ Multi-purpose room lower level																																		

Creve Coeur Government Center
Option 4 - Implementation Plan
7-May-14

Phase	Task	Year 1												Year 2												Year 3									
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10
I	Site Preparation																																		
	New Police Building																																		
	Move police in																																		
	Move Out of Government Center																																		
	Demolish Exist Government Center																																		
	Site Preparation																																		
	New Government Center																																		
	Mc																																		

PCL XL error

Subsystem: GE_VECTOR

Error: GEEmptyClipPath Warning: IllegalMediaSize

bond
ARCHITECTS

Bond Architects, Inc.
222 South Central Avenue, Suite 100
St. Louis, MO 63105
314.863.4994
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SUBSURFACE EXPLORATION
NEW POLICE STATION AND PARKING GARAGE
CREVE COEUR, MISSOURI

Prepared for:

CITY OF CREVE COEUR
Creve Coeur, Missouri

Prepared by:

GEOTECHNOLOGY, INC.
St. Louis, Missouri

Geotechnology, Inc. Report No. J023346.01

September 5, 2014

GEOTECHNOLOGY INC
FROM THE GROUND UP

September 5, 2014 J023346.01

George Seifried
Project Manager, Department of Community Development
Planning Division, City of Creve Coeur
300 North New Ballas Road
Creve Coeur, Missouri

SUBSURFACE EXPLORATION
NEW POLICE STATION AND PARKING GARAGE
CREVE COEUR, MISSOURI

Dear Mr. Seifried:

Presented herein are the results of Geotechnology's subsurface exploration at the referenced project site. This exploration was conducted in general accordance with Geotechnology's revised proposal P023346.01 dated July 23, 2014. This report includes our understanding of the project, observed site conditions, conclusions and/or recommendations, and supporting data.

It has been our pleasure to provide geotechnical services to you, and we would welcome the opportunity to provide other services during the course of the project. Please contact us if you need further information or clarification about this document.

Very truly yours,

GEOTECHNOLOGY, INC.

Brian J. Sanders, P.E.
Staff Engineer

STATE OF MISSOURI
BRIAN J. SANDERS
NUMBER PE-2012000812
9/5/14
PROFESSIONAL ENGINEER

Joel A. Weinhold, P.E.
Geotechnical Group Manager

BJS/JAW:bjs/jab

Copies submitted: (3) + CD

J023346.01

SUBSURFACE EXPLORATION
NEW POLICE STATION AND PARKING GARAGE
CREVE COEUR, MISSOURI

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SUBSURFACE EXPLORATION
NEW POLICE STATION AND PARKING GARAGE
CREVE COEUR, MISSOURI

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ILLUSTRATIONS

APPENDICES

SUBSURFACE EXPLORATION
NEW POLICE STATION AND PARKING GARAGE
CREVE COEUR, MISSOURI

SECTION I - EXECUTIVE SUMMARY

The executive summary is provided solely for the purpose of overview, and a number of details are omitted, any one of which could be crucial to the proper application of this report. Parties who rely on this report must read the full report.

- The project involves the design and construction of a proposed two- to three-story police station with a below-grade parking garage and an access road in Creve Coeur, Missouri. Load data were not provided; therefore, we have assumed that the structure will have maximum column and wall loads of 325 kips per column and 6 kips per lineal foot, respectively.

- The stratigraphy generally consists of silty clay and high plastic clay to depths of 5 to 20.5 feet, which is underlain by shale and limestone bedrock. Auger or sampler refusal was encountered in each boring, except for B-6, at depths ranging from approximately 13 to 20.5 feet. Rock core recoveries ranged from 60 to 100 percent, rock quality designations (RQD) ranged from 10 to 65 percent.

- Groundwater was not observed during drilling in the borings.

- Shallow foundations may be used for lightly loaded portions of the structure (i.e., column loads less than 200 kips). Strip and spread footings can be proportioned for net allowable bearing pressures of 2,000 and 2,500 pounds per square foot (psf), respectively, provided they bear on firm, low plasticity, natural soil or compacted engineered fill.

- Rammed aggregate piers can be installed to obtain allowable bearing pressures in the range of 4,000 to 6,000 psf.

- Spread footings bearing on shale or limestone bedrock can be used to support the proposed building provided column loads do not exceed 400 kips. Spread footings bearing on shale or limestone can be designed using a net allowable bearing pressure of 5 kips per square foot (ksf).

- Alternatively, the proposed building can be supported on drilled shafts bearing on shale or limestone bedrock and proportioned for a net allowable bearing pressure of 20 ksf.

- Based on the 2009 International Building Code, the soil profile below the building site can be defined as Class C, Very Dense Soil and Soft Rock Profile.

- Excavations could expose high plasticity soil. Overexcavation and replacement or treatment of high plasticity soil is recommended to reduce the risk of floor slab distress.

- The basement excavation will be mostly in clay soil, hard shaley clay soil, and soft clayey shale bedrock. The shale can generally be excavated using a large dozer equipped with a single-tooth ripper. However, hard rock excavating techniques such as line drilling and chipping with a hydraulic hoe-ram, might be required to remove massive, competent shale or hard limestone layers.

- Excavation along the south side of proposed police station might require a shoring system adjacent to the existing parking lot for current Creve Coeur Public Works Department building if the excavation cannot be backsloped. Remaining sides of excavations might be accomplished by backsloping the excavation sidewalls. Excavation and shoring design and construction recommendations are provided in this report.

SECTION II - PROJECT DATA

AUTHORIZATION

The services documented in this report were provided in accordance with the terms, conditions and scope of services described in Geotechnology's revised proposal P023346.01 dated July 23, 2014. The project was authorized by your signed acceptance of the proposal.

PURPOSE AND SCOPE OF SERVICES

The purpose of our services is to develop recommendations for geotechnical aspects of the design and construction of the project as described in our proposal. Briefly, services consisted of site reconnaissance, drilling six borings, laboratory testing, engineering analyses, and preparation of this report. Important information prepared by The Association of Engineering Firms Practicing in the Geosciences (ASFE) for studies of the type is included in Appendix A for your review.

PROJECT AND SITE DESCRIPTION

The project involves the design and construction of a proposed two- to three-story police station with a below-grade parking garage and an access road in Creve Coeur, Missouri. Load

data were not provided; therefore, we have assumed that the structure will have maximum column and wall loads of 325 kips per column and 6 kips per lineal foot, respectively.

The site is located east of New Ballas Road, just north of the existing Public Works Department building and is a vacant, grass- and tree-covered lot. The site slopes down generally from west to east with an estimated 8 to 10 feet of vertical relief. Design grades have not been finalized, however, Geotechnology assumes cuts and fills on the order of 5 feet will be needed to reach final design grades. The site location and general topography of the area as per the U.S.G.S. map of the vicinity are shown on Plate 1.

SECTION III - FIELD EXPLORATION AND LABORATORY TESTING

FIELD EXPLORATION

The field exploration consisted of drilling six borings, designated as Borings B-1 through -6, at approximately the locations shown on Plate 2. The borings were located in the field by a representative of Geotechnology. If more precise data are required, a registered land surveyor should be retained to establish boring locations and elevations.

The borings, with the exception of Boring B-6, were drilled to auger refusal using an ATV-mounted CME 550 rotary drill rig equipped with 3 3/4-inch hollow stem augers. Boring B-6 was terminated at a depth of 5 feet. Borings B-1 and -4 were extended into the bedrock using NQ-rock coring techniques. Standard penetration tests (SPTs) were performed using an automatic hammer. Split-spoon and relatively undisturbed Shelby tube samples were obtained at the depths indicated on the boring logs presented in Appendix B. An explanation of the terms and symbols used on the boring logs, as well as rock core descriptions, is also provided in Appendix B.

An engineer of Geotechnology provided technical direction during field exploration, observed drilling and sampling, assisted in obtaining samples and prepared logs of the material encountered. The boring logs represent conditions observed at the time of exploration and have been edited to incorporate results of the laboratory tests.

Unless noted on the boring logs, the lines designating the changes between various strata represent approximate boundaries. The transition between materials may be gradual or may occur between recovered samples. The stratification given on the boring logs, or described herein, is for use by Geotechnology in its analyses and should not be used as the basis of design or construction cost estimates without realizing that there can be variation from that shown or described.

The boring logs and related information depict subsurface conditions only at the specific locations and times where sampling was conducted. The passage of time may result in changes in conditions, interpreted to exist, at the location where sampling was conducted.

LABORATORY TESTING

Laboratory testing was performed on the soil samples to estimate pertinent engineering and index properties. Moisture content and Atterberg limits tests were performed on selected cohesive soil samples. Unconfined compression tests and unit weight determinations were performed on select Shelby tube samples. Results of laboratory index tests are presented on the boring logs.

SECTION IV - SUBSURFACE CONDITIONS

STRATIGRAPHY

The general soil stratigraphy beneath the surficial grass and topsoil consists of soft to very stiff silty clay and high plastic clay to depths of 5 to 18 feet. The cohesive soils in Borings B-1, -2 and -3 are underlain by soft shale to depths of 13 to 20.5 feet, which is underlain by alternating layers of shale and limestone bedrock. The upper layer of soft shale was not present in Borings B-4, -5 and -6.

Auger or sampler refusal was encountered in each boring, except for B-6, at depths ranging from approximately 13 to 20.5 feet. Recovered rock core in Borings B-1 and -4 included hard, very finely crystalline, thin bedded, slightly to moderately weathered, limestone, and moderately hard to soft, gray and red, moderately weathered shale. Rock core recoveries ranged from 60 to 100 percent, rock quality designations (RQD[1]) ranged from 10 to 65 percent. The majority of the core not recovered was in the shale beds, most likely from shale that broke down during the coring process.

GROUNDWATER

Groundwater was not observed in the borings during drilling. Groundwater levels may not have stabilized before backfilling, which is typical in less permeable, cohesive soil. Water may also be trapped near the top of rock. The lack of indicated groundwater levels may not represent present or future levels. Groundwater levels may vary substantially over time due to the effects of seasonal variation in precipitation or other factors not evident at the time of exploration. Excavations that remain open may collect water.

[1] Rock Quality Designation (RQD) is the ratio of the sum of the pieces of core measuring 4 inches or larger to the total length of the cored interval, expressed as a percentage.

SECTION V – DESIGN CONSIDERATIONS AND RECOMMENDATIONS

Geotechnology should be allowed to review final foundation loads and plans to check that our recommendations have been properly implemented. Depending on the final loads for the police station and underground parking garage, the recommendations given herein may require modifications, and/or additional field exploration and related analysis may be required.

Based on the results of the borings, the depth to rock varies from approximately 13 to 20.5 feet across the proposed expansion site. Rammed aggregate piers or rock-bearing foundations can be used due to the assumed relatively heavy column and wall loads. High plasticity clay might be near the anticipated floor slab subgrade and will require remediation as discussed below.

EXCAVATION AND SHORING

Excavation Slopes. It appears that open-cut excavations could be used for a majority of the planned excavation. Excavation slopes should be consistent with OSHA[2] regulations. The soil materials encountered during excavations for the proposed project are anticipated to consist of medium stiff to hard, silty clay, clay, and soft shale soils underlain by alternating layers of limestone and shale bedrock. These materials can be classified as OSHA Type B soils with temporary slopes constructed at 1V:1H or flatter.

Excavation depths and inclinations (including adjacent existing slopes) should not exceed those specified in local, state, or federal safety regulations (e.g., OSHA Health and Safety Standards for Excavations) 29 CFR Part 1926, or successor regulations. The toe of the excavation slope should begin at least 5 feet beyond the outside edge of the structure. Slope protection should be provided to reduce the potential for desiccation or inundation of the soils that could promote unstable conditions. Desiccation could lead to cracking of the soils and inundation could result in erosion and/or a loss of shear strength. Polyethylene sheeting should be installed over the face of the slope to reduce potential degradation from weather. Surface water should be directed away from the top edges of the excavation and should not be permitted to flow onto the slope.

It is important to note that soils encountered in the construction excavations could vary across the site and that, even if the OSHA criteria are used, there is a potential for slope failure. If different subsurface conditions are encountered at the time of construction, Geotechnology recommends that we be contacted immediately to evaluate the conditions encountered and provide additional recommendations, if required.

[2] Occupational Safety and Health Administration.

Shoring. Excavation to construct the basement level of the proposed police station might require temporary shoring next to the parking lot to the south. Methods of excavation support include soldier piles and lagging (possibly anchored with tie-backs), soil nail walls, or tangent-pile or secant-pile walls. Retention systems must be designed to resist anticipated lateral earth pressures plus surcharge loads, if present. Hydrostatic pressure must also be considered behind tangent-pile and secant-pile walls. The retention system design must incorporate, as a minimum, the lateral pressures and pressure distribution as shown on Plate 3.

Project specifications should indicate the maximum permissible movement, particularly the lateral movement, if the retention system wall is to be used as the back form of the permanent wall. The permanent wall should have increased thickness to accommodate the lateral load which will occur during construction.

Construction site safety is the sole responsibility of the contractor, who is responsible for the means, methods, and sequencing of construction operations. Temporary shoring and bracing must be consistent with local, state or federal safety regulations (e.g., OSHA Health and Safety Standards for Excavations) 29 CFR Part 1926, or successor regulations. Great care and attention to details must be given for both design and installation of the retention system. The depth and composition of fill and soil materials encountered in the construction excavation could vary from that observed in the borings. As such, the performance of the retention system should be monitored by a qualified registered professional engineer.

SITE GRADING

Highly Plastic Clay. Depending on final grades, highly plastic clay may be exposed at the below-grade floor slab subgrade. Highly plastic clay occurring within 2 feet of lightly loaded footing subgrades (i.e., footings with a contact pressure of less than 1,500 psf) and within 3 feet of floor slab subgrade must be remediated as discussed herein. As a measure to improve performance, highly plastic soil occurring in parking lots or paved-walk subgrades should also be remediated to a depth 12 inches.

After highly plastic clay removal, the overexcavation can be backfilled with low plasticity soil (liquid limit less than 45 percent), minus-graded crushed limestone or excavated highly plastic material which is stabilized by incorporating hydrated lime such that the soil plasticity is reduced to a plasticity index less than 20 percent. The backfill should be placed and compacted as required in the Compaction Summary. Funds should be provided in the construction budget for remedial treatment of high plasticity clay.

The nominal method of treatment suggested above is based on generally accepted standards in the local engineering community. Clay properties, including plasticity, moisture content, density, swell pressure, and mineralogy are extremely variable and can, in some instances, be conducive to more severe swell pressures and volume change potential than can be

mitigated by nominal treatment. Consequently, when building or constructing pavements in an area where highly plastic clay is present, it should be recognized that there is an inherent risk that damage associated with shrink or swell of the soil can occur, even with remedial treatment of subgrade soil. Alternatively, additional testing of the existing soils can be accomplished to estimate the minimum depth of removal and replacement of highly plastic soil required to neutralize the swell pressures and volume change exhibited by the clay at this site.

Site Preparation. In general, cut areas and areas to receive fill and backfill should be stripped of vegetation, topsoil, and pavement. The exposed subgrade should be proofrolled. Soft soil or yielding areas should be excavated and backfilled with soil or minus-graded, crushed limestone compacted to the minimum compaction level given in the Compaction Summary.

Suitable Fill Materials. Recommended off-site soils to be used for fill and backfill include low plasticity soil (liquid limit less than 45) and minus-graded, crushed rock. The on-site silty clay soils are suitable for reuse as controlled fill. The highly plastic clay may also be used for engineered fill, but should be restricted to a depth of at least 3 feet below planned slab subgrades and 1 foot below pavement subgrade.

Fill and Backfill Placement. Fill or backfill should be placed in uniform lifts not exceeding 8 inches in thickness. The fill should be systematically compacted until the minimum compaction given in the Compaction Summary is achieved. The soil should be placed at a moisture content compatible with the required compaction. Depending on the soil moisture at the time of construction, aeration or wetting may be required to achieve the required compaction. Deleterious material should not be included in the fill, and the fill should not be placed on soft materials or frozen ground.

COMPACTION SUMMARY

Category	Minimum Compaction [a,b]
Cohesive Soil	90%
Minus-Graded, Crushed Rock	95%

a Measured as a percent of the maximum dry unit weight as determined by the modified Proctor test (ASTM D 1557).
b Moisture content within - 2% to + 3% of optimum moisture content.

Trench Backfill. Settlement of utility trench backfill can result in unsightly depressions. Settlement of trench backfill can be reduced by mechanically compacting the backfill in lifts to the minimum compaction levels given in the Compaction Summary. Permeable material (i.e. clean rock or sand) should not be used for backfill. Permeable backfill can promote piping of silty soils, can collect water and promote subgrade softening, or in the presence of potentially expansive soils, lead to heaving. Project specifications should require the use of compacted, well-graded, crushed limestone or soil for trench backfill.

Subgrade Protection. Drainage of the construction areas should be provided to protect slab subgrades from the detrimental effects of weather conditions during construction. Finished subgrades should be kept free of standing water.

Collection and Disposal of Site Water. Managing of the site water is important in the successful performance of grade-supported systems. Water from surface runoff and downspouts should be collected and discharged through a site drainage system.

Control of surface runoff should be maintained in compliance with the rules and regulations set forth in the Federal Water Pollution Control Act (1977). Additionally, permits related to site grading activities and control of storm water during construction activities should be obtained from the applicable governmental jurisdiction(s).

SHALLOW FOUNDATIONS

Soil-Supported Foundations. Shallow foundations may be used for lightly loaded portions of the structure (i.e., column loads less than 200 kips). Strip and spread footings can be proportioned for net allowable bearing pressures of 2,000 and 2,500 psf, respectively, provided they bear on firm, low plasticity, natural soil or compacted engineered fill. The minimum lateral dimensions for strip and spread footings should be 18 and 24 inches, respectively. Exterior footings and footings in unheated interior areas should be embedded at least 30 inches below the lowest adjacent exterior grade to provide protection from seasonal moisture variations and frost penetration.

Soft soil could be exposed at bearing levels in some footing excavations. These excavations should be extended through soft zones to stiffer soil. The overexcavation can be backfilled with lean concrete.

Settlement. Shallow foundations, proportioned and constructed as recommended above, could settle approximately 1 inch. Differential settlement between any two adjacent footings can be approximately 3/4 inch. Estimated settlement values contained in this report are based on index properties of the soil and our experience with similar projects.

Rock-Supported Foundations. Depending on final grades, and the basement location, some footings may bear directly on bedrock. Spread foundations supported on the underlying bedrock may be designed for a net allowable bearing pressure of 5,000 psf. Foundations should be extended through the weathered rock to bear on more competent rock, which may underlie a few feet of weathered rock. Rock will generally be considered competent if it cannot be removed by a Caterpillar 225 or larger excavator. The bearing surface of foundations should be observed by a registered professional engineer knowledgeable in geotechnical engineering or his representative to determine that the bearing surface is capable of supporting the design bearing pressures.

Settlement of Rock-Supported Foundations. Based on our experience with similar projects, the settlement of rock-supported foundations, designed and installed in accordance with the recommendations in this report, is expected to be less than 1/2 inch.

Spread Foundation Construction Considerations. The bottom of the excavation should generally be level; however, it is permissible to excavate vertical steps if required to expose sound bedrock. Any vertical, soil-filled seams exposed in the bottom of the excavation should be hand cleaned or power-washed to remove the soil. Loose rock and rock loosened by blasting or mechanical methods should be removed from all foundation excavations.

Frost heave is generally not a problem for rock-supported footings; therefore, the minimum depth of footing embedment will be controlled as required for structural considerations. Loose rock should be removed from all foundations.

Lateral Resistance. Lateral loads can be resisted by frictional resistance between the base of the footings and the bearing material. Resistance to sliding can be computed assuming an ultimate coefficient of friction of 0.35 for soil and 0.55 for shale or limestone. Appropriate safety factors should be applied to determine the allowable sliding resistance. The maximum resistance should be limited to 1,000 psf.

Ultimate passive resistance for footings, if required, can be computed assuming an equivalent fluid pressure of 250 pounds per cubic foot (pcf) (soil) and 400 pcf (rock). Safety factors should be applied to determine allowable sliding and passive resistances (typical factor of safety of 3). Passive resistance in the top 30 inches of soil should be neglected due to seasonal variations in moisture and frost penetration. Passive soil resistance for spread footings on rock should be neglected because of strain incompatibility between the rock and soil. Passive resistance in the top 2 feet of rock should also be neglected.

Uplift Resistance. Uplift loads can be resisted with the dead weight of the footings and the structure, and frictional resistance between the sides of the footings and the soil and rock. An allowable resistance of 300 psf can be considered for frictional resistance between the sides of the footings and the soil, if the footings are earth-formed or compacted backfill is placed around them. For footings in rock, an allowable resistance of 1,000 psf can be considered. Frictional resistance in the top 30 inches of soil should be neglected due to seasonal variations in moisture and frost penetration. Frictional resistance in the top 2 feet of rock should also be neglected.

Specialty Ground Improvement Piers. As an alternative to shallow foundations, ground improvement consisting of aggregate piers may be considered to support the proposed footings with loads up to 500 kips. Conventional spread footings bearing on aggregate piers may be designed using a net allowable bearing pressure of 5,000 psf.

Aggregate piers are constructed by drilling a vertical borehole to remove a column of soil, typically about 30 inches in diameter, or displacing a column of soil with a mandrel. The base of the excavated or displaced soil column is backfilled with clean crushed aggregate tamped with a mandrel/ram to create a compacted aggregate bulb. The ground improvement element is built on top of the bottom bulb by placing additional thin lifts of compacted clean aggregate. The result is a dense column of aggregate.

It should be noted that ground improvement elements are proprietary foundation systems designed and constructed by a ground improvement contractor. Consequently, a ground improvement contractor should be contacted to determine the suitability of their system for use at this location as well as to confirm the bearing capacity value for the final foundation design. The following ground improvement contractors are available in the St. Louis Region: Geopier Foundation Company Inc., Hayward Baker Inc., and Subsurface Constructors Inc. The contractor should prepare its design based on the allowable design bearing pressure while maintaining total settlements of less than 1 inch. Geotechnology is available to review and advise on specific ground improvement methods.

DEEP FOUNDATIONS

Axial Capacity. Drilled shafts bearing on the underlying bedrock can be proportioned for an allowable end-bearing pressure of 20 kips per square foot (ksf) provided they are socketed approximately 1 foot into bedrock. If higher capacities are needed, the shafts may be further socketed into the bedrock. Consequently, shaft capacity could be equal to the summation of the following: (1) the end area of the pier multiplied by the allowable end-bearing pressure and (2) the competent rock socket surface area multiplied by the allowable skin friction value. An allowable side frictional resistance of 15 pounds per square inch (psi) may be applied to a rock socket in shale or limestone. Should structural loads require rock sockets deeper than the depth of the rock cores of this exploration, additional borings and rock coring should be performed.

The allowable bearing pressure of the bedrock given herein is based on the inherent strength of the intact rock and on the influence of jointing, fracturing, and solution features. A bearing elevation can be determined prior to drilled shaft excavation by drilling foundation inspection holes within the footprint of each shaft.

Rock socket sidewalls should be free of clay seams, soft and highly weathered rock, and voids. Only the portion of the sidewall in competent rock should be relied on to provide friction capacity. Consequently, the rock sockets might need to be deepened in order to provide the required competent rock socket surface area. We recommend observing the excavated rock sockets remotely using a downhole camera prior to concrete placement.

Uplift Capacity. Uplift resistance for drilled shafts bearing on limestone can be computed considering the following: (1) bouyant weight of concrete, (2) skin friction between concrete and

the soil. Allowable skin friction can be applied at a rate of 250 psf for the natural soil and compacted fill. Resistance in the upper 30 inches of the shaft should be neglected due to seasonal variations in moisture content and frost penetration. If higher uplift capacities are needed, the shaft can be socketed into the bedrock. In lieu of soil skin friction, allowable skin friction in shale or limestone can be applied at a rate of 10 psi.

Settlement. Based on our experience, settlement of drilled shaft foundations, designed and constructed in accordance with the recommendations in this report, is expected to be about 1/2 inch or less. Elastic compression of the piers, however, should be evaluated by the structural engineer.

Lateral Resistance. Lateral capacity of drilled shafts for various lateral deflections could be determined by using the computer program LPILE. If requested, Geotechnology could evaluate the lateral capacity of drilled shafts. Please note that the LPILE inputs are ultimate values and the resulting calculated loads and deflections should have an appropriate factor of safety applied. Based on the laboratory results and our experience, soil parameters for use in the lateral load analysis program LPILE are given in the following table.

SOIL PARAMETERS FOR LATERAL LOAD ANALYSIS

Soil Type	Soil Model	Angle of Internal Friction (degrees)	Undrained Shear Strength (psf)	Static Soil Modulus, k (pci)	Strain Parameter E50	Effective Unit Weight (pcf)	Moist Unit Weight (pcf)
Silty Clay, Clay, Soft Shale	Stiff Clay	n/a	1,500	n/a	0.005	63	125

ROCK PARAMETERS FOR STATIC LATERAL LOAD ANALYSIS

Rock Type	Soil Model	Effective Unit Weight (pcf)	Moist Unit Weight (pcf)	Young's Modulus, Er (psi)	Uniaxial Compressive Strength (psi)	RQD (Percent)	k_{rm}
Strong Rock, Slightly Weathered to Fresh Limestone	Strong Rock	97	160	n/a	2,500*	n/a	n/a

*Maximum value allowable by LPILE ver 6.0

Construction Considerations. Drill rigs should be capable of exerting a minimum torque of 50,000 foot-pounds and a positive crowd force of at least 35,000 pounds. Flat-plate augers should not be permitted. Augers should have carbide cutting teeth.

The drilling contractor should be prepared to use temporary, single or double casing to reduce water inflow and/or sidewall collapse into the shaft. The drilled piers should have less than 1/2 inch of accumulated sediment at the base, prior to concrete placement. Additionally, the piers should be dewatered prior to the placement of concrete. If the piers cannot be dewatered such that no more than 2 inches of water is present prior to concrete placement, then concrete should be placed using an approved wet placement method.

FLOOR SLABS

A slab-on-grade floor can be used for the proposed building. The high plastic clay must be remediated, as previously discussed. The floor slab should be underlain by a minimum 6-inch thick layer of well-graded crushed rock and compacted as indicated in the Compaction Summary. A 6-mil or thicker plastic sheet should be placed below the floor to reduce the potential for moisture to permeate the slab and the potential for mold growth within habitable sections of the building. Notwithstanding other structural considerations, slab-on-grade floors should be designed to allow for differential movements that normally occur between the floor slab, columns, and foundation walls.

LATERAL EARTH PRESSURES

Below grade walls should be designed to withstand lateral earth pressures caused by the adjacent soil. Design lateral pressures from surcharge loads should be added to the lateral earth pressure load. Lateral earth pressures can vary with wall restraint conditions, type of backfill, slope of ground surface behind the wall and method of backfill compaction. Highly plastic soil should **not** be used as wall backfill since considerable lateral loads can develop with these potentially expansive soils.

Design values are provided in the following table for soil lateral loads on walls with horizontal backfill, subject to active and at-rest conditions. For below grade walls in which tilting or deflection is not tolerable at-rest lateral earth pressure conditions should be assumed.

At-Rest and Active Lateral Earth Pressure Values On Below Grade Walls with Horizontal Backfill		
Description of Backfill	**Design soil lateral load (psf per foot of depth)**	
	At-rest	**Active**
Inorganic clays of low to medium plasticity; e.g., silty clay (CL)	65h + 0.55q	50h + 0.40q
Well-graded crushed rock; e.g., 3/4-inch minus (GW-GM)	50h + 0.40q	30h + 0.30q

Where:

h = depth below adjacent grade, feet
q = surcharge load, psf

In giving these values, it is assumed that hydrostatic pressures will not develop behind walls and that the wall backfill will be compacted as recommended in the Site Grading section of this report. Therefore, the walls should be provided with a drain system to allow for dissipation of water. Undrained walls can be subjected to additional pressures from groundwater, perched water, pipe leakage or surface water infiltration.

For the above equations to be valid for sand or gravel backfill, the backfill should be placed in a wedge extending upward and away from the edge of the wall footing at a 45-degree angle or flatter. If sand and gravel are to be placed within a steeper wedge, the values for low plasticity soil given above should be used. Further, soft uncompacted soil on the excavation slope should be removed prior to placement of backfill. Design drawings should reflect this requirement.

SUBSURFACE DRAINAGE

Although groundwater was not observed in the borings, infiltration and collection of surface water behind below-grade walls could occur. Geotechnology recommends constructing a subsurface drainage system, as shown on Plate 4, around the perimeter of below-grade walls. The subsurface drainage system can consist of 6-inch PVC or equivalent pipe with 1/4- or 3/8-inch perforations; the pipe must be laid with the perforations down and enveloped with drain filter having a gradation in the range shown on Plate 4. The drainage filter must be surrounded with Mirafi 140 filter cloth or equivalent. The drainage system should be routed to a sump for collection and disposal to the sewer system.

SEISMICITY

Per the general procedures of Section 1613.5 of 2009 International Building Code (IBC), the soil profile at the project site can be defined as Class C, Very Dense Soil and Soft Rock. The assessment of the soil and/or rock properties below the boring termination depth is based on our professional opinion in accordance with Section 1613 of IBC 2009. Spectral response acceleration at short periods (S_s) and at 1-second periods (S_1) of 0.52 g and 0.16 g, respectively, can be used.

PAVEMENT CONSIDERATIONS

The durability of any pavement section depends significantly on good maintenance and on sufficient subgrade and surface drainage. Pavement section service life can decrease substantially if the pavement is constructed on a poor subgrade, uncontrolled fill, if the pavement has poor surface or subsurface drainage, and/or if the pavement is not maintained. Periodic maintenance, such as crack filling and sealing, is also required for pavement sections to achieve their design life.

Pavement Considerations. A detailed pavement design and analysis was beyond the scope of our services. Standard asphalt concrete pavement design for a given service life requires evaluation of the soil by CBR tests or other methods, estimates of daily traffic volumes and axle weights. For this project, concrete pavements may be designed assuming a vertical subgrade modulus of 150 pci or less. The asphalt pavements may be designed assuming a CBR value of 3 or less.

Based on our experience of typical pavement sections constructed in this area, a 10-inch crushed rock base with a 4-inch asphalt section is often used in high traffic areas, and an 8-inch base with a 3-inch asphalt pavement section is often used in parking areas. Where heavy channelized wheel loads are concentrated, particularly in front of trash dumpsters, loading docks, etc., a 7-inch concrete section underlain by 4-inches of base course is often used. Proper joint reinforcing should be provided at concrete pavement joints.

Pavement sections thinner than those determined from design methods are frequently used and often perform adequately. Maintenance or an overlay is generally required sooner with reduced thickness sections than would be required for a designed section. Regardless of the pavement section selected, the top 12 inches of subgrade should be compacted to the density and moisture content presented in the Compaction Summary given in the Site Grading section of this report.

If pavements are not constructed immediately after grading, the subgrade should be shaped to prevent ponding. Minor ponding, of even short duration, can cause softening of a soil subgrade to a significant depth. If there is substantial lapse of time between grading and paving, or if the subgrade is disturbed by construction activities, the subgrade should be proofrolled with a loaded, tandem-axle dump truck or equivalent equipment. Soft spots observed during initial construction or

proofrolling should be removed and replaced with compacted soil or rock, possibly combined with a geotextile or geogrid. The rock base course and soil subgrade should be compacted as recommended in the Site Grading section of this report.

Depending on when the pavement is constructed, the subgrade may not support construction equipment such as rock trucks or asphalt trucks, which have substantially heavier axle loads than those vehicles, which the pavement section is designed to support. Such conditions will be more apparent during wetter periods of the year. Excavation of soft subgrade and placement of additional base course and/or geogrid may be required to construct the pavement during these periods.

SECTION VI - RECOMMENDED ADDITIONAL SERVICES

The conclusions and recommendations given in this report are based on interpretation of exploration data and Geotechnology's experience. The client must recognize that variations might occur from conditions observed in the boring. Design recommendations are based on data from the boring and sampling procedures. Actual subsurface conditions might vary from the boring location. Therefore, design recommendations are subject to adjustment in the field, based on subsurface conditions encountered during construction. Since the intent of the design recommendations is best understood by Geotechnology it is imperative to involve Geotechnology in the final design and construction process. Observation services are viewed as a continuation of the design process. Geotechnology will not be responsible for improper use of recommendations or failure by others to recognize conditions that might be detrimental to the successful completion of the project, or its performance.

Foundation plans should be reviewed by Geotechnology as part of construction services to observe that recommendations have been correctly implemented. On-site services are required during foundation construction and site grading since placement techniques can significantly impact the completed project. Subgrades in foundations should be observed prior to placement of concrete to establish that the soil conditions are consistent with the conditions encountered during the field explorations. Of particular concern is the presence of uncontrolled fill below new foundations and floor slabs.

Construction observation is intended to enhance compliance with project plans and specifications. It is not insurance, nor does it constitute a warranty or guarantee of any type. In all cases, contractors et. al. should be held responsible for the quality of their work and for adhering to plans and specifications.

SECTION VII - LIMITATIONS OF REPORT

This report has been prepared on behalf of and for the exclusive use of the client for specific application to the named project as described herein. If this report is provided to prospective contractors, the client should make it clear that the information is provided for factual data only and not as a warranty of subsurface conditions included in this report. Unanticipated soil or rock conditions may require the expenditure of additional funds to attain a properly constructed project. Therefore, some contingency fund is recommended to accommodate such potential extra costs.

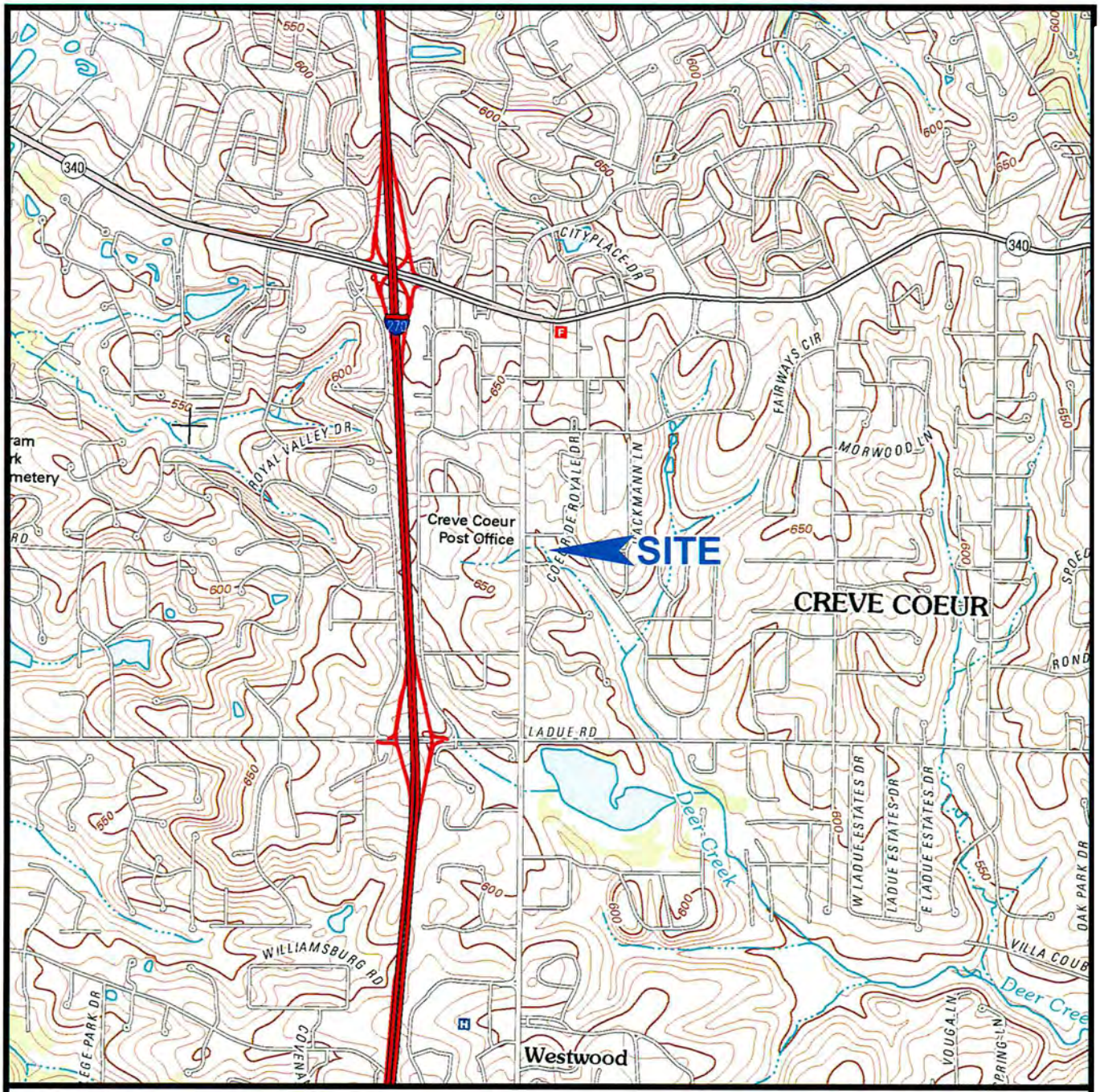
Geotechnology has attempted to conduct the services reported herein in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality and under similar conditions. The recommendations and conclusions contained in this report are professional opinions. No other representation, expressed or implied, is included or intended.

Unless specifically stated in our proposal or this report, the scope of our services for this phase of the project did not include any environmental assessment or investigation for the presence or absence of wetlands or hazardous or toxic material in the soil, surface water, groundwater or air, on or below or around this site. Any statements in this report or on the boring logs regarding odors noted or unusual or suspicious items or conditions observed are strictly for the information of our client. Our scope did not include any services to investigate or detect the presence of mold or any other biological contaminants (such as spores, fungus, bacteria, viruses, and the by-products of such organisms) on and around the site, or any services designed or intended to prevent or lower the risk of the occurrence of an infestation of mold or other biological contaminants.

The analyses, conclusions, and recommendations contained in this report are based on the data obtained from the subsurface exploration. The field exploration methods used indicate subsurface conditions only at the specific locations where samples were obtained, only at the time they were obtained, and only to the depths penetrated. Discrete sampling cannot be relied on to accurately reflect natural variations in stratigraphy that may exist between sample locations and/or intervals. Unless specifically noted, the scope of our services did not include an assessment of the effects of flooding and natural erosion of adjacent creeks or rivers on the project site.

The recommendations included in this report have been based in part on assumptions about natural variations in site stratigraphy that may only be completely evaluated during earthwork and foundation construction. Accordingly, Geotechnology should be retained to perform construction observation and complete its geotechnical engineering service using observational methods. Geotechnology cannot assume liability for the adequacy of its recommendations when they are used in the field without Geotechnology being retained to observe construction.

The conclusions or recommendations presented in this report should not be used if the nature, design, or location of the facilities is changed or if there is a substantial lapse in time between the submittal of this report and the start of work at the site. If changes are contemplated, Geotechnology must review them to assess their impact on findings, conclusions, and/or design recommendations given in this report. Geotechnology will not be responsible for any claims, damages, or liability associated with any other party's interpretations of the subsurface data or reuse of the subsurface data or engineering analyses in this report without our express written authorization.



NOTES

1. Plan adapted from a 7.5 minute U.S.G.S. map for Creve Coeur, Missouri quadrangle, last revised in 2012.

0 2,000 4,000

SCALE IN FEET

N

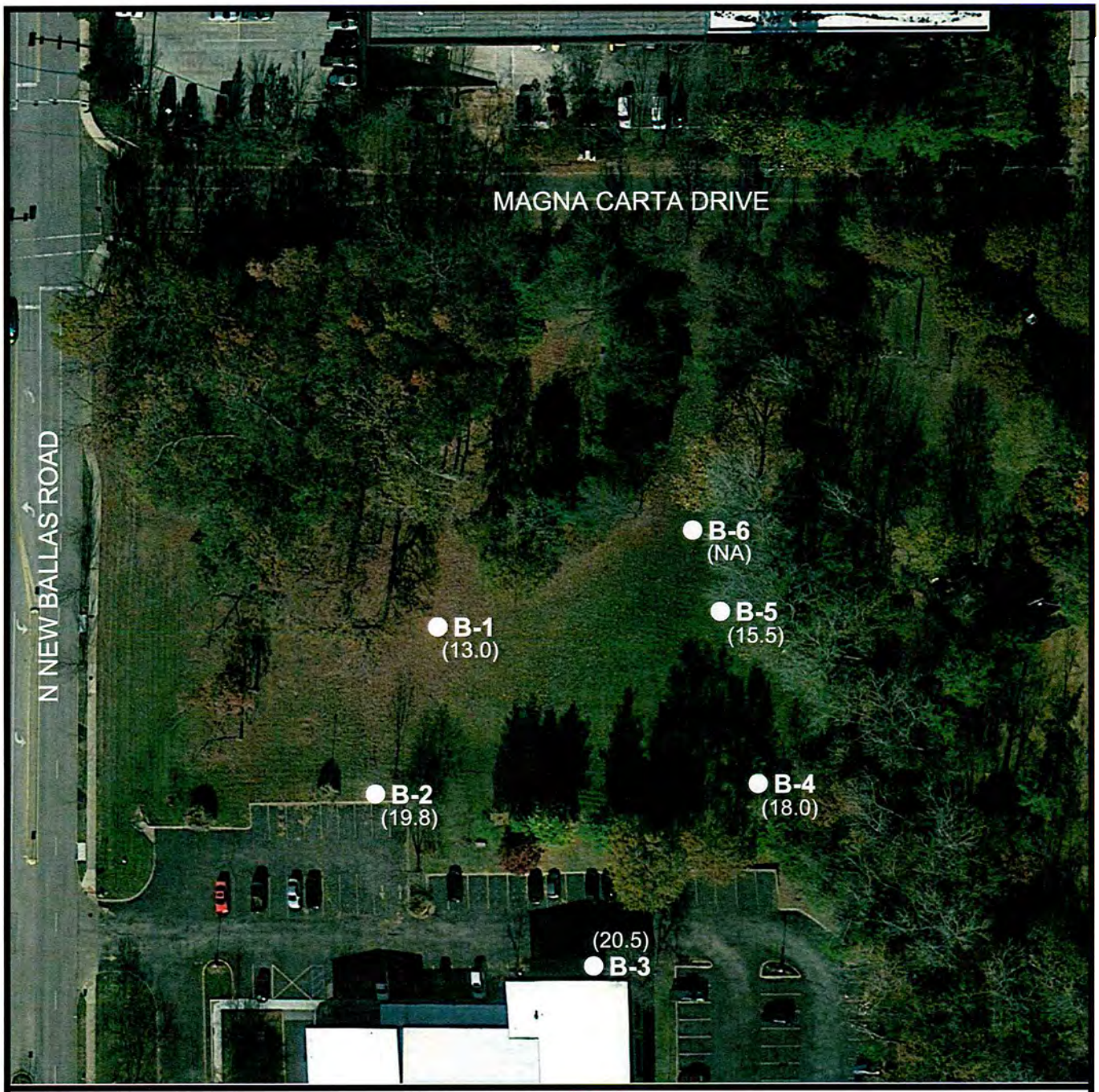
Drawn By: WAH	Ck'd By: BJS	App'vd By: JRL
Date: 8-18-14	Date: 8/29/14	Date: 9/2/14

GEOTECHNOLOGY INC
FROM THE GROUND UP

Subsurface Exploration
New Police Station & Parking Garage
Creve Coeur, Missouri

SITE LOCATION AND TOPOGRAPHY

Project Number	
J023346.01	PLATE 1



NOTES

1. Plan adapted from a November 12, 2013 aerial photograph courtesy of Google Earth.
2. Borings were located in the field with reference to existing site features and are shown approximate only.

LEGEND

● Boring Location
(XX.X) Depth to Auger Refusal (ft)

0 40 80 160
SCALE IN FEET

N

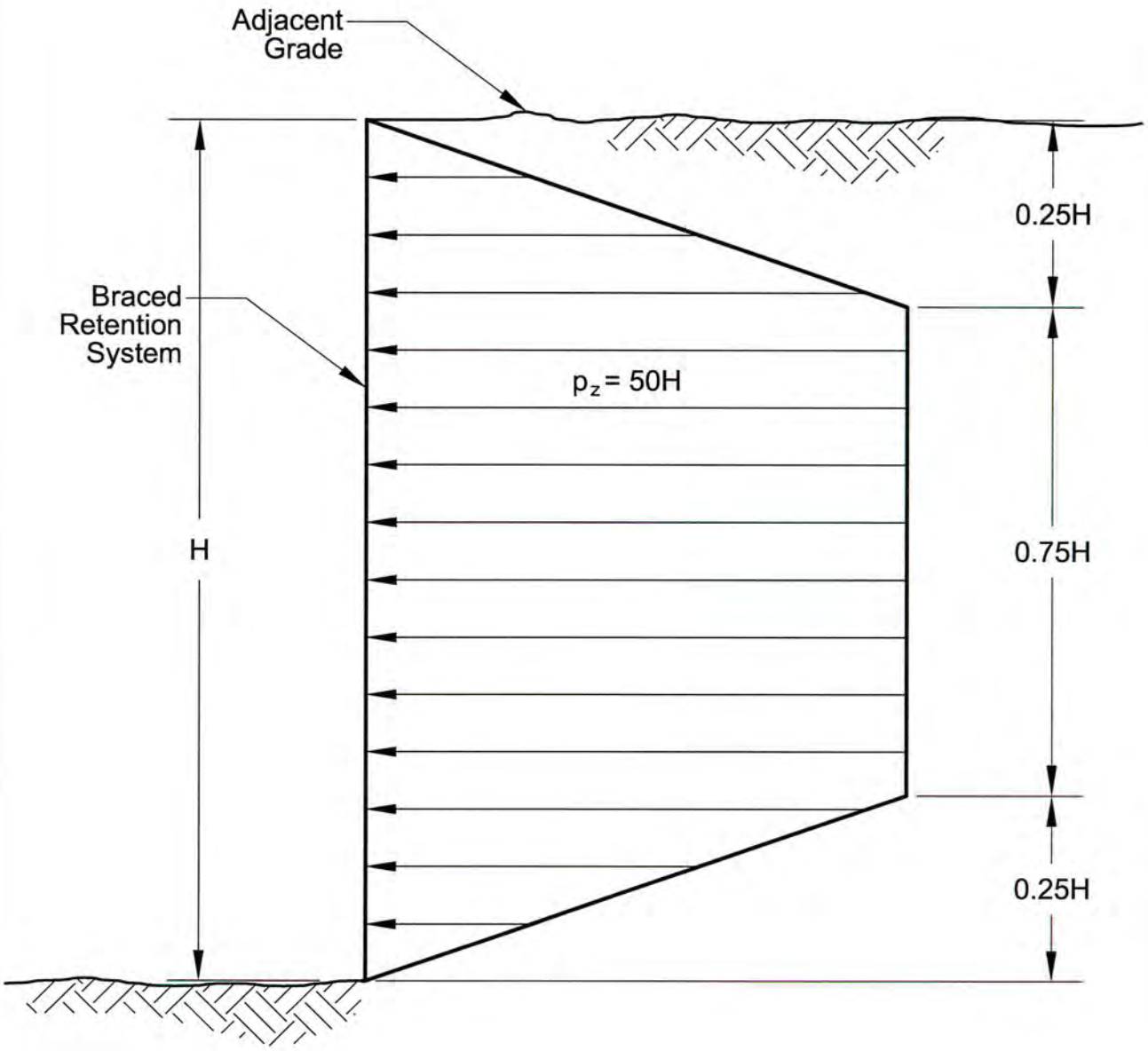
Drawn By: WAH	Ck'd By: BJS	App'vd By: JWZ
Date: 9-3-14	Date: 9/4/14	Date: 9/11/14

GEOTECHNOLOGY INC
FROM THE GROUND UP

Subsurface Exploration
New Police Station & Parking Garage
Creve Coeur, Missouri

AERIAL PHOTOGRAPH OF SITE AND BORING LOCATIONS

Project Number J023346.01	PLATE 2



WHERE:

p_z = Pressure in psf

H = Effective Wall Height in Feet

NOTES

1. Surcharge loads, if any, should be added to diagram given above. Surcharge loading should have an active coefficient of 0.5 applied.

2. The lateral earth pressure given herein does not include any hydrostatic pressure behind the wall.

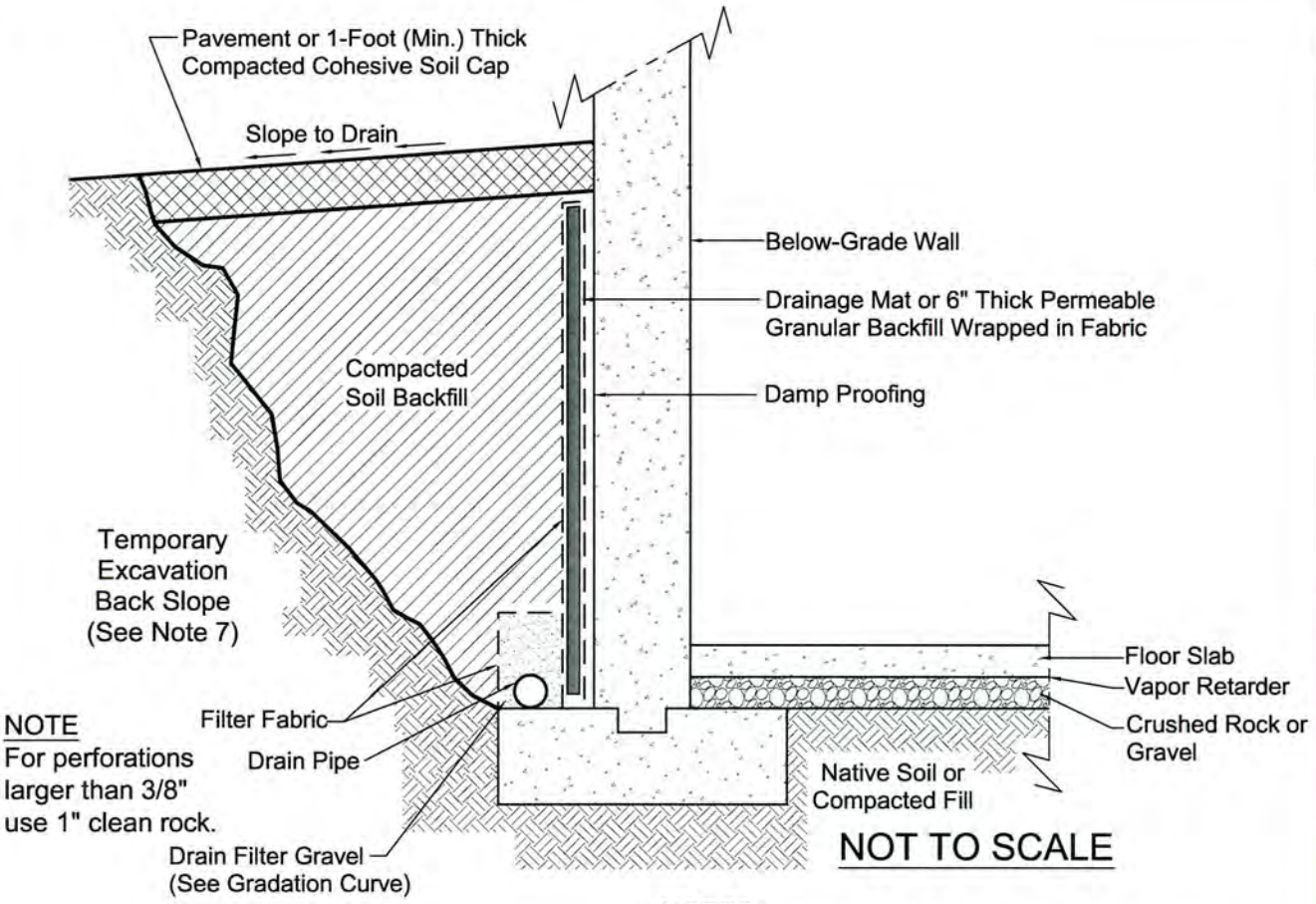
Drawn By: WAH	Ck'd By: BJS	App'vd By: JAL
Date: 9-3-14	Date: 9/4/14	Date: 9/4/14

GEOTECHNOLOGY INC
FROM THE GROUND UP

Subsurface Exploration
New Police Station & Parking Garage
Creve Coeur, Missouri

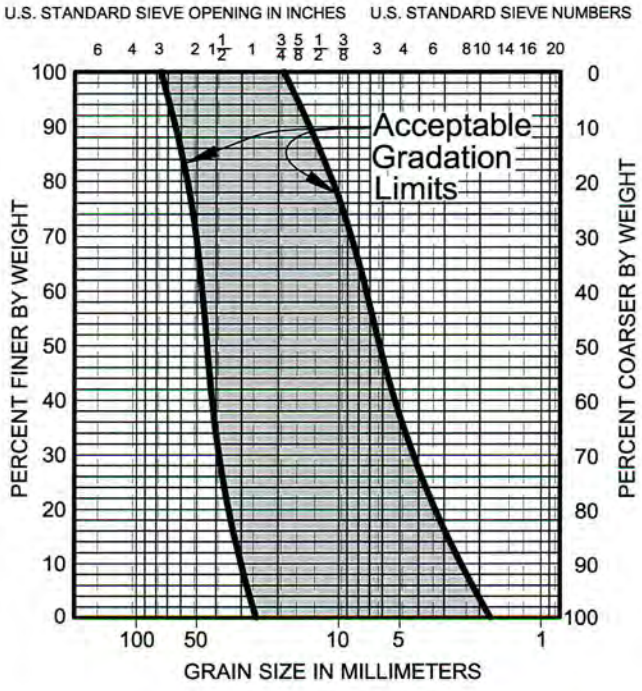
MINIMUM APPARENT LATERAL EARTH PRESSURE DIAGRAM FOR BRACED RETENTION SYSTEMS

Project Number J023346.01	PLATE 3



NOTES

1. 4" or larger, Sch. 40 PVC drain pipe or equivalent with 1/4" to 3/8" perforations.
2. Perforations positioned downward.
3. Location and invert of pipe as required for drainage.
4. Route drain pipe to daylight to outside slope.
5. Cleanouts advisable at changes of direction.
6. As an alternate, ASTM 2729 sewer pipe may be used in conjunction with 1" clean filter rock and filter fabric.
7. A minimum 45-degree back slope may be required if the structural engineer designs the wall using lateral pressures for a granular backfill.



COBBLES	GRAVEL		SAND	
	COARSE	FINE	COARSE	MEDIUM

DRAIN FILTER GRADATION

Drawn By: WAH	Ck'd By: BJB	App'vd By: JRR
Date: 9-3-14	Date: 9/4/14	Date: 9/4/14

GEOTECHNOLOGY INC
FROM THE GROUND UP

Subsurface Exploration
New Police Station & Parking Garage
Creve Coeur, Missouri

BELOW-GRADE WALL SCHEMATIC DRAINAGE DETAIL

Project Number	
J023346.01	PLATE 4

APPENDIX A

IMPORTANT INFORMATION ABOUT YOUR GEOTECHNICAL ENGINEERING REPORT

Important Information about Your

Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you —* should apply the report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

Rely on Your ASFE-Member Geotechnical Engineer for Additional Assistance

Membership in ASFE/The Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.

ASFE THE GEOPROFESSIONAL BUSINESS ASSOCIATION

8811 Colesville Road/Suite G106, Silver Spring, MD 20910
Telephone: 301/565-2733 Facsimile: 301/589-2017
e-mail: info@asfe.org www.asfe.org

APPENDIX B

LOGS OF BORINGS B-1 THROUGH -6
BORING LOG: TERMS AND SYMBOLS
ROCK CORE DESCRIPTIONS

Surface Elevation: _____ Completion Date: 8/13/14

Datum: _____

DEPTH IN FEET	DESCRIPTION OF MATERIAL	GRAPHIC LOG	DRY UNIT WEIGHT (pcf) SPT BLOW COUNTS CORE RECOVERY/RQD	SAMPLES
	Very stiff to stiff, tan, silty CLAY - (CL)		9-11-7	SS1
5			4-8-7	SS2
	Soft, red and yellow SHALE		4-4-8	SS3
			4-7-7	SS4
10			50/2"	SS5
	Hard, gray, very finely crystalline, thin bedded, moderately weathered LIMESTONE		100%/0%	NX1
15			100% / 10%	NX2
20	Soft, bluish-gray, moderately weathered SHALE		60% / 19%	NX3
	Core loss - 19 inches			
	Boring terminated at 23 feet.			
25				
30				
35				

SHEAR STRENGTH, tsf

Δ - UU/2 ○ - QU/2 □ - SV

0.5 1.0 1.5 2.0 2.5

STANDARD PENETRATION RESISTANCE

▲ N-VALUE (BLOWS PER FOOT)

(ASTM D 1586)

WATER CONTENT, %

PL 10 20 30 40 50 LL

S-2"

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES AND/OR ROCK STRATA. ACTUAL TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

LOG OF BORING 2002 WL J023346 01 - CREVE COEUR GOVT CTR.GPJ 00 CLONE ME.GDT 8/19/14

GROUNDWATER DATA

X FREE WATER NOT ENCOUNTERED DURING DRILLING

DRILLING DATA

___ AUGER 3 3/4" HOLLOW STEM

WASHBORING FROM ___ FEET

BLS DRILLER SHN LOGGER

CME 550 DRILL RIG

HAMMER TYPE Auto

REMARKS:

Drawn by: AGB	Checked by: BJS	App'vd. by:
Date: 8/18/14	Date: 8/19/14	Date: 9/4/14

GEOTECHNOLOGY INC
FROM THE GROUND UP

Subsurface Exploration
New Police Station and Parking Garage
Creve Coeur, Missouri

LOG OF BORING: B-1

Project No. J023346 01

Surface Elevation: _____ Completion Date: 8/14/14

Datum: _____

DEPTH IN FEET	DESCRIPTION OF MATERIAL	GRAPHIC LOG	DRY UNIT WEIGHT (pcf) SPT BLOW COUNTS CORE RECOVERY/RQD	SAMPLES
	Soft to stiff, brown, silty CLAY - (CL)		2-2-2	SS1
			2-2-1	SS2
5			100	ST3
			2-2-4	SS4
10				
	Soft, gray to tan SHALE with limestone fragments		2-3-6	SS5
15				
			4-10 -50/3"	SS6
20	Spoon refusal at 19.8 feet.			
25				
30				
35				

SHEAR STRENGTH, tsf

Δ - UU/2 ○ - QU/2 □ - SV

0.5 1.0 1.5 2.0 2.5

STANDARD PENETRATION RESISTANCE

▲ N-VALUE (BLOWS PER FOOT)

(ASTM D 1586)

WATER CONTENT, %

PL 10 20 30 40 50 LL

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES AND/OR ROCK STRATA. TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

LOG OF BORING 2002 WL J023346 01 - CREVE COEUR GOVT CTR.GPJ 00 CLONE ME GAI 8/20/14

GROUNDWATER DATA

X FREE WATER NOT ENCOUNTERED DURING DRILLING

DRILLING DATA

___ AUGER 3 3/4" HOLLOW STEM

WASHBORING FROM ___ FEET

BLS DRILLER SHN LOGGER

CME 550 DRILL RIG

HAMMER TYPE Auto

REMARKS:

Drawn by: AGB	Checked by: BJS	App'vd. by: JSM
Date: 8/18/14	Date: 8/29/14	Date: 9/4/14

GEOTECHNOLOGY INC
FROM THE GROUND UP

Subsurface Exploration
New Police Station and Parking Garage
Creve Coeur, Missouri

LOG OF BORING: B-2

Project No. J023346.01

Surface Elevation: _____ Completion Date: 8/14/14

Datum: _____

DEPTH IN FEET	DESCRIPTION OF MATERIAL	GRAPHIC LOG	DRY UNIT WEIGHT (pcf) SPT BLOW COUNTS CORE RECOVERY/RQD	SAMPLES
	Soft to stiff, brown, silty CLAY - CL			
			2-1-2	SS1
			106	ST2
5				
	Medium stiff to stiff, tan CLAY - (CH)			
			2-3-4	SS3
			101	ST4
10				
			2-2-4	SS5
15				
	Soft, yellow SHALE with limestone fragments			
			2-6-12	SS6
20	Auger refusal at 20.5 feet.			
25				
30				
35				

SHEAR STRENGTH, tsf

Δ - UU/2 ○ - QU/2 □ - SV

0.5 1.0 1.5 2.0 2.5

STANDARD PENETRATION RESISTANCE

▲ N-VALUE (BLOWS PER FOOT)

(ASTM D 1586)

WATER CONTENT, %

PL 10 20 30 40 50 LL

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES AND/OR ROCK TYPES. IN-SITU, THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

LOG OF BORING 2002 WL J023346.01 - CREVE COEUR GOVT CTR.GPJ 00 CLONE ME.GAN 8/25/14

GROUNDWATER DATA

X FREE WATER NOT ENCOUNTERED DURING DRILLING

DRILLING DATA

___ AUGER 3 3/4" HOLLOW STEM

WASHBORING FROM ___ FEET

BLS DRILLER SHN LOGGER

CME 550 DRILL RIG

HAMMER TYPE Auto

REMARKS:

Drawn by: AGB	Checked by: BJS	App'vd. by: JO
Date: 8/18/14	Date: 9/4/14	Date: 9/4/14

GEOTECHNOLOGY INC
FROM THE GROUND UP

Subsurface Exploration
New Police Station and Parking Garage
Creve Coeur, Missouri

LOG OF BORING: B-3

Project No. J023346.01

Surface Elevation: _____ Completion Date: 8/14/14

Datum: _____

DEPTH IN FEET	DESCRIPTION OF MATERIAL	GRAPHIC LOG	DRY UNIT WEIGHT (pcf) SPT BLOW COUNTS CORE RECOVERY/RQD	SAMPLES
	Medium stiff to stiff, brown CLAY - (CH)			
			4-4-4	SS1
			3-4-4	SS2
5				
			102	ST3
			2-3-4	SS4
10				
			2-3-5	SS5
15				
			50/1"	SS6
	Hard, gray, very finely crytalline, thin bedded, slightly to moderately weathered LIMESTONE		67% 28%	NX1
20	Core loss - 11 inches			
	Core loss - 2 inches		83% 65%	NX2
	Very soft to soft, gray to tan, medium bedded, moderately weathered SHALE			
25				
	Core loss - 17 inches		73% 43%	NX3
	clastic			
30	Moderately hard to soft, gray to red, moderately weathered SHALE		100% 57%	NX4
	Boring terminated at 33 feet.			
35				

SHEAR STRENGTH, tsf

Δ - UU/2 ○ - QU/2 □ - SV

0.5 1.0 1.5 2.0 2.5

STANDARD PENETRATION RESISTANCE

▲ N-VALUE (BLOWS PER FOOT)

(ASTM D 1586)

WATER CONTENT, %

PL 10 20 30 40 50 LL

S-1"

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES AND/OR ROCK TYPES. IN-SITU, THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

LOG OF BORING 2002 WL J023346.01 - CREVE COEUR GOVT CTR.GPJ 00 CLONE ME.GAI 8/19/14

GROUNDWATER DATA

X FREE WATER NOT ENCOUNTERED DURING DRILLING

DRILLING DATA

___ AUGER 3 3/4" HOLLOW STEM

WASHBORING FROM ___ FEET

BLS DRILLER SHN LOGGER

CME 550 DRILL RIG

HAMMER TYPE Auto

REMARKS:

Drawn by: AGB	Checked by: BJS	App'vd. by:
Date: 8/18/14	Date: 8/09/14	Date: 9/4/14

GEOTECHNOLOGY INC
FROM THE GROUND UP

Subsurface Exploration
New Police Station and Parking Garage
Creve Coeur, Missouri

LOG OF BORING: B-4

Project No. J023346.01

Surface Elevation: _____ Completion Date: 8/13/14

Datum: _____

DEPTH IN FEET	DESCRIPTION OF MATERIAL	GRAPHIC LOG	DRY UNIT WEIGHT (pcf) SPT BLOW COUNTS CORE RECOVERY/RQD	SAMPLES
	Stiff to very stiff, tan, silty CLAY - (CL)		5-6-6	SS1
			97	ST2
5			3-5-6	SS3
			4-5-8	SS4
10				
	Stiff, gray CLAY - CH		2-4-50/3"	SS5
15	Auger refusal at 15.5 feet.			
20				
25				
30				
35				

SHEAR STRENGTH, tsf

Δ - UU/2 ○ - QU/2 □ - SV

0.5 1.0 1.5 2.0 2.5

STANDARD PENETRATION RESISTANCE

▲ N-VALUE (BLOWS PER FOOT)

(ASTM D 1586)

WATER CONTENT, %

PL 10 20 30 40 50 LL

9"

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES AND/OR ROCK TYPES. IN-SITU, THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

LOG OF BORING 2002 WL J023346.01 - CREVE COEUR GOVT CTR.GPJ 00 CLONE ME GAU 8/29/14

GROUNDWATER DATA

X FREE WATER NOT ENCOUNTERED DURING DRILLING

DRILLING DATA

___ AUGER 3 3/4" HOLLOW STEM

WASHBORING FROM ___ FEET

BLS DRILLER SHN LOGGER

CME 550 DRILL RIG

HAMMER TYPE Auto

REMARKS:

Drawn by: AGB	Checked by: BJS	App'vd. by:
Date: 8/18/14	Date: 8/29/14	Date: 9/4/14

GEOTECHNOLOGY INC
FROM THE GROUND UP

Subsurface Exploration
New Police Station and Parking Garage
Creve Coeur, Missouri

LOG OF BORING: B-5

Project No. J023346.01

Surface Elevation: _____ Completion Date: 8/13/14

Datum: _____

DEPTH IN FEET	DESCRIPTION OF MATERIAL	GRAPHIC LOG	DRY UNIT WEIGHT (pcf) SPT BLOW COUNTS CORE RECOVERY/RQD	SAMPLES
	Very stiff, tan, silty CLAY - CL			
			5-7-9	SS1
			6-6-6	SS2
5	Boring terminated at 5 feet.			

SHEAR STRENGTH, tsf

Δ - UU/2 ○ - QU/2 □ - SV

0.5 1.0 1.5 2.0 2.5

STANDARD PENETRATION RESISTANCE

▲ N-VALUE (BLOWS PER FOOT)

(ASTM D 1586)

WATER CONTENT, %

PL 10 20 30 40 50 LL

GROUNDWATER DATA

X FREE WATER NOT ENCOUNTERED DURING DRILLING

DRILLING DATA

___ AUGER 3 3/4" HOLLOW STEM

WASHBORING FROM ___ FEET

BLS DRILLER SHN LOGGER

CME 550 DRILL RIG

HAMMER TYPE Auto

REMARKS:

Drawn by: AGB	Checked by: BJS	App'vd. by: JP
Date: 8/18/14	Date: 8/29/14	Date: 9/4/14

GEOTECHNOLOGY INC
FROM THE GROUND UP

Subsurface Exploration
New Police Station and Parking Garage
Creve Coeur, Missouri

LOG OF BORING: B-6

Project No. J023346.01

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

LOG OF BORING 2002 WL J023346.01 - CREVE COEUR GOVT CTR.GPJ 00 CLONE ME.GAN 8/29/14

BORING LOG: TERMS AND SYMBOLS

GENERAL NOTES

1. *Information on each boring log is a compilation of subsurface conditions based on soil or rock classifications obtained from the field as well as from laboratory testing of samples. The strata lines on the logs may be approximate or the transition between the strata may be gradual rather than distinct. Water level measurements refer only to those ob - served at the times and places indicated, and may vary with time, geologic condition or construction activity.*
2. *Relative composition and Unified Soil Classification designations are based on visual estimates and are approximate only. If laboratory tests were performed to classify the soil, the unified designation is show in parenthesis.*
3. *Value given in Unit Dry Weight/SPT Column is either a unit dry weight in pounds per cubic foot, if adjacent to a ST sample designation, or blows per 6-inch increment if adjacent to a SS sample designation.*

ABBREVIATIONS

UU/2	*Shear Strength from Unconsolidated – Undrained Triaxial Test (ASTM D2850)*
QU/2	*Shear Strength from Unconfined Compression Test (ASTM D2166)*
SV	*Shear Strength from Field Vane (ASTM D2573)*
PL	*Plastic Limit (ASTM D4318)*
LL	*Liquid Limit (ASTM D4318)*

LEGEND

CS	Continuous Sampler
GB	Grab Sample Taken From Auger Cuttings Or Wash Water Return
NX 100/42	NX Rock Core with Percent Recovery/R.Q.D. Given In Adjacent Column
PST	Three Inch Diameter Piston Tube Sample
SS	Split Spoon Sample (Standard Penetration Test)
ST	Three Inch Diameter Shelby Tube Sample
*	Sample Not Recovered
SV	Field Vane Test

SPLIT – BARREL SAMPLER DRIVING RECORD

Blow Per Foot (N-Value)	*Description*
25	*25 blows drove sampler 12 inches after initial 6 inches of seating.*
75/10"	*75 blows drove sampler 10 inches after initial 6 inches of seating.*
50/S3"	*50 blows drove sampler 3 inches during initial 6 inch seating interval.*

NOTES: 1. To avoid damage to sampling tools, driving is limited to 50 blows during any six inch interval.
2. N-Value (Blow Count) is the standard penetration resistance based on the total number of blows, using a 140-lb hammer with 30-inch free fall, required to drive a split spoon the last two of three, 6-inch drive increments. (Example: 4/7/9, N = 7 + 9 = 16). Values are shown as a summation on grid plot and may be shown as 4/7/9 in Unit Dry Weight – SPT column.

RELATIVE COMPOSITION

Trace.....0-10 %
With/Some.....11-35 %
Soil modifier such..... > 35 %
As silty, clayey, sandy, etc.

DENSITY OF GRANULAR SOILS

Descriptive Term:	***N—Value***
Very Loose	*0 - 4*
Loose	*5 - 10*
Medium Dense	*11 - 30*
Dense	*31 - 50*
Very Dense	*> 50*

STRENGTH OF COHESIVE SOILS

Consistency	Undrained Shear Strength Tons Per Sq. Ft.	Field Test	Approximate N-Value Range
Very Soft	*less than 0.12*	*Thumb will penetrate soil more than 1"*	*0 - 1*
Soft	*13 to 0.25*	*Thumb will penetrate soil about 1"*	*2 - 4*
Medium Stiff	*0.26 to 0.50*	*Thumb will penetrate soil about ¼"*	*5 – 8*
Stiff	*0.51 to 1.00*	*Thumb hardly indents soil*	*9 – 15*
Very Stiff	*1.01 to 2.00*	*Thumb will not indent soil, but readily indented with thumbnail*	*16 – 30*
Hard	*greater than 2.00*	*Thumbnail will not indent soil*	*> 30*

SOIL GRAIN SIZE

U.S. STANDARD SIEVE

12"	3"	¾"	4	10	40	200	
BOULDERS	COBBLES	GRAVEL		SAND			SILT / CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	
300	76.2	19.1	4.76	2.00	0.42	0.074	0.002

SOIL GRAIN SIZE IN MILLIMETERS

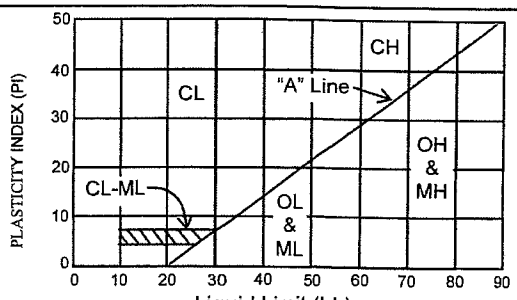
SOIL STRUCTURE

Calcareous *– Having appreciable quantities of carbonate.*
Fissured *– Containing shrinkage or relief cracks, often filled with sand or silt; usually more or less vertical.*
Slickensided *– Having planes of weakness that appear slick and glossy. The degree of slickensidedness depends upon the spacing of slickensides and the ease of breaking along those planes.*
Layer *-- Inclusion greater than 3 inches thick.*
Seam *– Inclusion 1/8 inch to 3 inches thick extending through the sample*
Parting *– Inclusion less than 1/8 inch thick.*
Pocket *– Inclusion of material of different texture that is smaller than the diameter of the sample.*
Interlayered *– Soil samples composed of alternating layers of different soil types.*
Intermixed *– Soil samples composed of pockets of different soil types and a layered or laminated structure is not evident.*
Laminated *– Soil sample composed of alternating partings or seams of different soil type.*

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			SYMBOL	DESCRIPTION
Coarse-Grained Soils (More than 50% Larger than No 200 Sieve Size)	Gravel and Gravelly Soils	Clean Gravels Little or no Fines	GW	Well-Graded Gravel, Gravel-Sand Mixture
			GP	Poorly –Graded Gravel, Gravel-Sand Mixture
		Gravels with Appreciable Fines	GM	Silty Gravel, Gravel-Sand-Silt Mixture
			GC	Clayey-Gravel, Gravel-Sand-Clay Mixture
	Sand and Sandy Soils	Clean Sands Little or no Fines	SW	Well-Graded Sand, Gravelly Sand
			SP	Poorly Graded Sand, Gravelly Sand
		Sands with Appreciable Fines	SM	Silty Sand, Sand-Silt Mixture
			SC	Clayey Sand, Sand-Clay Mixture
Fine-Grained Soils (More than 50% Smaller than No 200 Sieve Size)	Silts and Clays	Liquid Limit Less Than 50	ML	Silt, Clayey Silt, Silty or Clayey Very Fine Sand, Slight Plasticity
			CL	Clay, Sandy Clay, Silty Clay, Low to Medium Plasticity
			OL	Organic Silts, or Silty Clays of Low Plasticity
	Silts and Clays	Liquid Limit More Than 50	MH	Silt, Fine Sandy or Silt Soil with High Plasticity
			CH	Clay, High Plasticity
			OH	Organic Clay of Medium to High Plasticity
	Highly Organic Soils		PT	Peat, Humus, Swamp Soil

PLASTICITY CHART



RELATIVE PLASTICITY

Nonplastic	Cannot Roll Into Ball
Trace Plasticity	Barely Roll Into Ball
Medium Plastic	Can be Rolled Into Ball
Highly Plastic	No Rupture by Kneading

VISUAL DESCRIPTION CRITERIA*

TABLE 1: CRITERIA FOR DESCRIBING ANGULARITY OF COARSE-GRAINED PARTICLES

Description	Criteria
Angular	Particles have sharp edges and relatively plane sides with unpolished surfaces
Subangular	Particles are similar to angular description but have rounded edges
Subrounded	Particles have nearly plane sides but have well-rounded corners and edges
Rounded	Particles have smoothly curved sides and no edges

TABLE 2: CRITERIA FOR DESCRIBING PARTICLE SHAPE

Description	Criteria
Flat	Particles with width/thickness X3
Elongated	Particles with length/width X3
Flat and Elongated	Particles meet criteria for both flat and elongated

TABLE 3: CRITERIA FOR DESCRIBING MOISTURE CONDITION

Description	Criteria
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp, but no visible water
Wet	Visible free water, usually soil is below the water table

TABLE 4: CRITERIA FOR DESCRIBING REACTION WITH HCL

Description	Criteria
None	No visible reaction
Weak	Some reaction, with bubbles forming slowly
Strong	Violent reaction, with bubbles forming rapidly

TABLE 6: CRITERIA FOR DESCRIBING CEMENTATION

Description	Criteria
Weak	Crumbles or breaks with handling or little finger pressure
Moderate	Crumbles or breaks with considerable finger pressure
Strong	Will not crumble or break with finger pressure

TABLE 8: CRITERIA FOR DESCRIBING DRY STRENGTH

Description	Criteria
None	The dry specimen crumbles into powder with mere pressure of handling
Low	The dry specimen crumbles into powder with some finger pressure
Medium	The dry specimen breaks into pieces or crumbles with considerable finger pressure
High	The dry specimen cannot be broken with finger pressure. Specimen will break into pieces between thumb and a hard surface.
Very High	The dry specimen cannot be broken between the thumb and a hard surface

TABLE 9: CRITERIA FOR DESCRIBING DILATANCY

Description	Criteria
None	No visible change in the specimen
Slow	Water appears slowly on the surface of the specimen during shaking and does not disappear or disappears slowly upon squeezing.
Rapid	Water appears quickly on the surface of the specimen during shaking and disappears quickly upon squeezing.

TABLE 10: CRITERIA FOR DESCRIBING TOUGHNESS

Description	Criteria
Low	Only slight pressure is required to roll the thread near the plastic limit. The thread and the lump are weak and soft.
Medium	Medium pressure is required to roll the thread to near the plastic limit. The thread and the lump have medium stiffness
High	Considerable pressure is required to roll the thread to near the plastic limit. The thread and the lump have very high stiffness

TABLE 12: IDENTIFICATION OF INORGANIC FINE-GRAINED SOILS FROM MANUAL TESTS

Soil Symbol	Dry Strength	Dilatancy	Toughness
ML	None to low	Slow to rapid	Low or thread cannot be formed
CL	Medium to high	None to slow	Medium
MH	Low to medium	None to slow	Low to medium
CH	High to very high	none	High

*NOTES: 1. Tables adapted from ASTM D2488 "Description and identification of Soils" (Visual-Manual Procedure)

ROCK CORE DESCRIPTIONS

GENERAL NOTES

A field description should be very specific and cover all aspects of rock mass. Field logs should include coring times, notes on water losses and color, rod drops, and notes as to the locations and thickness of voids and/or seams. As a minimum, a field description should include the following, preferably in sequential order:

TERM	REFERENCE
Hardness	Table 1
Color	(1)
Crystallinity	Table 2
Bedding	Table 3
Weathering	Table 4
Fabric (if applicable)	Table 5
Jointing (including filling)	Table 6
Voids	Table 7
RQD	Table 8
Sorting Criteria	Figure 1
Angularity Criteria	Figure 2

(1) Color should be as descriptive as possible, so as to distinguish the stratum from that which surrounds it. Common colors are gray, brown, black and white and may be modified by adjectives such as light and dark. Exotic colors such as aqua, cobalt, amber, and magenta may be used when necessary. If one or more colors are present, it should be noted.

TABLE 1: ROCK HARDNESS

DESCRIPTION	CRITERIA
Very Soft	- Easily indented with the thumb
Soft	- Able to be scratched with a fingernail
Moderately Hard	- Easily scratched with a knife; Cannot be scratched with the fingernail
Hard	- Difficult to scratch with a knife
Very Hard	- Cannot be scratched with a knife

TABLE 2: ROCK CRYSTALLINITY

DESCRIPTION	CRITERIA
Aphanitic (Micritic)	- Crystals cannot be distinguished with the naked eye
Very Finely Crystalline	- Crystals are barely discernable with the naked eye
Finely Crystalline	- Crystals are easily discernable with the naked eye
Medium Crystalline	- Crystals are medium size; up to 1/8" in diameter
Coarsely Crystalline	- Crystals are 1/8" to 1/4" in diameter
Very Coarsely Crystalline	- Crystals are larger than 1/4" in diameter

TABLE 3: ROCK MASS BEDDING

DESCRIPTION	CRITERIA
Parting	- Less than 0.02 foot (< 0.60 cm)
Band	- 0.02 to 0.2 foot (0.60 to 6.1 cm)
Thin Bed	- 0.2 to 0.5 foot (6.1 to 15.2 cm)
Medium Bed	- 0.5 to 1.0 foot (15.2 to 30.5 cm)
Thick Bed	- 1.0 to 2.0 foot (30.5 to 61.0 cm)
Massive	- Greater than 2.0 foot (> 61 cm)

TABLE 4: ROCK WEATHERING

DESCRIPTION	CRITERIA
Fresh	- No visible signs of decomposition or discoloration
Slightly Weathered	- Slight discoloration inward from open fractures
Moderately Weathered	- Discoloration throughout, slight loss of strength, texture intact
Highly Weathered	- Specimens can be broken by hand, texture indistinct, fabric intact
Completely Weathered	- Specimens easily crumbled, minerals decomposed to soil
Residual Soil	- Advanced state of decomposition - resulting in plastic soil

TABLE 5: ROCK FABRIC

DESCRIPTION	CRITERIA
Equigranular	- Grains essentially of equal size
Porphyritic	- Mixed coarse and fine grains
Amorphous	- No definite crystal form (Glass)
Platy	- Schistose or foliated, planar

TABLE 6: ROCK JOINTING

DESCRIPTION	CRITERIA	
Very Wide	> 3.25 ft.	(> 3 m)
Wide	1.1 – 3.25 ft.	(1 – 3 m)
Moderately Wide	0.3 - 1.1 ft.	(0.3 – 1 m)
Close	0.05 - 0.3 ft.	(0.05 – 0.3 m)
Very Close	< 0.05 ft.	(< 0.05 m)

TABLE 7: ROCK VOIDS

DESCRIPTION	CRITERIA
Dense	- Usually not discernable with the naked eye
Pit (Pitted)	- Discernable to 1/4"
Vug (Vuggy)	- 1/4" to diameter of core
Cavity	- Larger than 6" in diameter

TABLE 8: ROCK QUALITY

PERCENT RQD	QUALITY
90 to 100	Excellent
75 to 90	Good
50 to 75	Fair
25 to 50	Poor
0 to 25	Very Poor

FIGURE 1: Sorting Criteria

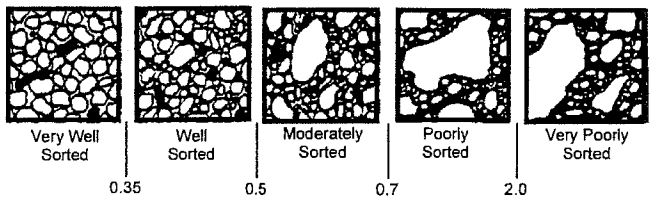
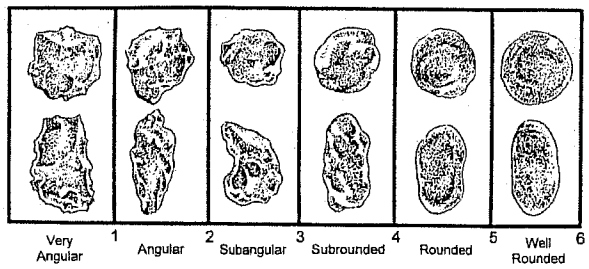


FIGURE 2: Angularity Criteria



TYPE SPECIFIC CHARACTERISTICS

CHARACTERISTICS OF DETRITAL SEDIMENTARY ROCKS

ROCK TYPE	CHARACTERISTICS
	COARSE-GRAINED
Conglomerates	- Rounded fragments of any type rock; cementing agent chiefly silica, but iron, clay, and calcareous material also common.
Breccia	- Angular fragments of any type rock; resulting from glaciation, rock falls, cave collapse, and/or fault movements
	MEDIUM-GRAINED
Sandstones	- Predominantly quartz grains cemented by silica, iron, clay or carbonate material. Color depends on cementing agent; porous and pervious; hard and generally thickly bedded.
Arkose	- Similar to sandstone, but at least 25% feldspar
Graywacke	- Angular particles of a variety of minerals in a clay matrix; indurated, impure sandstone
	FINE-GRAINED
Siltstone	- Composition similar to sandstone, but at least 50% of grains 0.002 – 0.02mm in size. Rarely forms thick beds, but often hard.
Shale	- Predominant particles, < 0.002mm; a well defined fissile fabric. Commonly interbedded with sandstone and relatively soft.
Argillites	- Hard, indurated shales devoid of fissility.
Clay shale	- Moderately indurated shales.
Claystone (Mudstone)	- Clay-size particles compacted into rock without a fissile structure (stiff to hard consistency).

CHARACTERISTICS OF NON-DETRITAL SEDIMENTARY ROCKS

ROCK TYPE	CHARACTERISTICS
	COARSE-GRAINED
Limestone	- Contains more than 50% calcium carbonate. The calcite can be precipitated chemically, organically, or it may be detrital in origin. Reacts violently with dilute HCL.
Coquina	- Weak porous rock consisting of lightly cemented shells and shell fragments.
Chalk	- Soft, porous, and fine-textured; composed of shells of microscopic organisms; usually white.
Dolomite	- Harder and heavier than limestone. Forms by alteration of limestone or by direct precipitation from sea water. Reacts with dilute HCL only when powdered; hardness >5.
Gypsum	- An evaporate, commonly massive, white and soft.
Anhydrite	- An evaporate, harder than gypsum; normally white with a pearly luster and splintery fracture.
Halite	- An evaporate; a crystalline aggregate of salt.
	ORGANIC ORIGIN
Coal	- Composed of highly altered plant remains and varying amounts of clay, generally black.
	BIOGENIC AND CHEMICAL ORIGIN
Chert	- Formed by silica deposited from solution in water. May occur as nodules or as relatively thick beds; hardness of 7
Diatomite	- Soft, white, very light, porous rock.

CHARACTERISTICS OF IGNEOUS ROCKS

ROCK TYPE	CHARACTERISTICS
	COARSE-TO MEDIUM-GRAINED
Pegmatite	- Chiefly quartz and feldspar, occurring separately as large grains; abundant as dikes in granite.
Granite	- Most common igneous rock; normally equigranular and light in color; chiefly quartz and feldspar.
Syenite	- Light colored rock, similar to granite but contains no quartz; almost entirely feldspar.
Diorite	- Equigranular and gray to dark gray; composed of plagioclase feldspar and at least one ferromagnesian mineral.
Gabbro	- Dark colored rock composed of ferromagnesian minerals and plagioclase feldspar.
Peridotite	- Dark colored rock composed almost entirely of ferromagnesian minerals, readily altered.
Dunite	- Very dark green; major constituent is olivine. Readily alters to serpentine.
Dolerite	- Dark colored rock, intermediate in grain size.
	FINE-GRAINED
Andesite	- Generally dark gray, green or red, fine-grained rock; occasionally porphyritic.
Basalt	- Most abundant extrusive rock; variable colors; fine-grained with a dense structure.
Rhyolite	- Microcrystalline equivalent of granite; usually white, gray or pink with a few phenocrysts.
Felsite	- A finely-crystalline variety of quartz-porphyry
	GLASSY ROCKS
Obsidian	- Solid natural glass devoid of all crystal form.
Pumice	- Extremely vesicular glass; sponge structure.
Scoria	- Rock which has equal void space and solid mass.

CHARACTERISTICS OF METAMORPHIC ROCKS

ROCK TYPE	CHARACTERISTICS
	FOLIATED FABRIC
Gneiss	- Coarse-grained rock with imperfect foliation resulting in slabbing. Chief minerals are quartz and feldspar.
Schist	- Fine-grained rock with a well-developed foliation. Mainly consists of platy minerals and commonly garnet.
Amphibolite	- Consists largely of amphibole with a schist-like foliation. Commonly hard and very dense.
Phylite	- Soft, with a satin luster and extremely fine schistosity; very unstable cut slopes.
Slate	- Extremely fine-grained (micritic) with a very well-defined cleavage; generally hard.
	MASSIVE FABRIC
Meta-conglomerate	- Similar to conglomerate in appearance but has been fused and deformed by heat and pressure.
Quartzite	- Extensively altered sandstone; individual sand grains have been fused together.
Serpentine	- A green, soft, compact rock with a waxy luster and splintery fracture.
Soapstone	- Derived from talc; generally green in color and easily cut with a sharp knife; resists the action of heat and acids.
Hornfels	- Rocks baked by contact metamorphism into a hard aphanitic material, with concoidal fracture and generally dark gray to black in color.
Migmatite	- A complex intermixture of metamorphic and granular igneous rocks fromed by injection of granite magma into foliated rocks.
Mylonites	- Produced by intense metamorphism; variable fabric due to deformation of original minerals. Common along the base of overthrust sheets.

GEOLOGIC DEFINITIONS

ARENACEOUS – A term applied to rocks that have been derive from sand or contain abundant, > 30%, sand in composition

ARGILLACOUS – A term applied to all rock or substances composed of clay minerals or having a notable portion, > 30% clay in composition

BRECCIATED – A rock texture which is composed of angular fragments which correspond in size to gravel and/or pebbles.

CONGLOMERATIC – A rock texture which is composed of rounded fragments which correspond in size to gravel and/or pebbles.

FABRIC – The factor of the texture of a crystalline rock which depends on the relative sizes, shapes, and arrangement of the component crystals.

FISSILITY – A property of splitting along closely spaced parallel planes.

OOLITIC – A spherical or ellipsoidal texture, 0.25 – 2.0mm in diameter, with a concentric or radial structure.

PHANERITIC – A textural term applied to those igneous rocks in which all the grains are essentially the same size.

PORPHYRITIC – A textural term applied to those igneous rocks which have larger crystals set in a fine matrix.

SLICKENSIDE – A polished or striated surface on or within a rock or compact soil.

STYLOLITE – A term applied to parts of certain limestones which have a columnlike development that is grooved, sutured, or striated and irregular i cross-section.

APPENDIX C

ROCK CORE PHOTOGRAPH

J023346.01 New Police Station and Parking Garage B-1

BORING B-1

RUN	DEPTH, FT	RECOVERY, %	RQD, %
1	13-14	100	0
2	14-19	100	10
3	19-23	60	19

J023346.01 New Police Station and Parking Garage B-4

BORING B-4

RUN	DEPTH, FT	RECOVERY, %	RQD, %
1	18-19.5	67	28
2	19.5-24.5	83	65
3	24.5-29.5	73	43

J023346.01 New Police Station and Parking Garage B-4

BORING B-4

RUN	DEPTH, FT	RECOVERY, %	RQD, %
3	24.5-29.5	73	43
4	29.5-33.0	100	57

MEETING MINUTES

GOVERNMENT CENTER ASSESSMENT TASK FORCE
WEDNESDAY, APRIL 23, 2014

CITY OF CREVE COEUR MULITIPURPOSE ROOM
300 N NEW BALLAS ROAD, CREVE COEUR, MISSOURI 63141

I. CALL MEETING TO ORDER AND ROLL CALL

Task Force Chair Ken Balk called the meeting to order at 5:30 p.m.

Task Force members present:	Ken Balk, Chair Al Schopp, Vice-Chair Dick Kutta, James Faron, Jeff Rosenthal, Beth Kistner, Barry Glantz, Mayor, Ex - Officio Dr. Bob Hoffman, Council Liaison
Absent members:	Kevin Rejent Fran Cantor

With (5) members in attendance, a quorum was present.

Staff member present:	Mark Perkins, City Administrator Jeff Hartman, Police Sergeant Jim Heines, Director of Public Works Paul Langdon, AICP, Director of Community Dev. George Seifried, Project Manager

Also Present: Art Bond and Sue Pruchnicki, Bond Architects.

II. MEETING MINUTES

1. Election of Chair And Vice Chair

Mark Perkins opened with stating the Task Force needs to elect a Chair and Vice Chair. The Chair will run the meetings, but in his absence the Vice Chair will fill in for the Chair.

Dick Kutta nominated Ken Balk for Chair. The motion was seconded and unanimously approved.

Al Shopp volunteered for the Vice Chair position. A motion was made to appoint Mr. Schopp as Vice Chair and unanimously approved.

Mr. Perkins turned the meeting over to the Mr. Balk.

Ken Balk states it's his understanding we are going to hear a presentation from the Architect.

2. Discussion/Review of March 26 Building Tour

Mr. Perkins asked for any comments in reaction to the tour provided to the Task Force members on March 26.

- Ken Balk States the building is a mess, and someone could get lost in here.
- Beth Kistner stated the building is far worse than she had imagined.

Mr. Kutta stated he is looking forward to hearing the Architect's comments. He made a list of technical items he has questions about, but he suspects the Architects will cover them.

Sue Pruchnicki, Bond Architects states they will cover most of the items and open up for questions.

3. Presentation – Bond Architects

Art Bond and Sue Pruchnicki with Bond Architects.

Mr. Bond explains background information for Bond Architects.

Mr. Bond explained the system they used in proposing changes to the building to allow it to function better from an employee and a visitor's point of view.

Mr. Bond discussed settlement issues. The building is masonry construction and is not designed for high winds and seismic events. They did not explore retrofitting the building for this because it would not be cost feasible.

Ms. Pruchnicki discussed the overall deficiencies with the building and areas which need improvements.

Ms. Pruchnicki presented solutions that can be made to correct the building deficiencies. Solutions include Option 1A: Renovation to existing building without upgrading major building systems and adding a second drive to the rear of the parking lot. Option 1: Is the same as option 1A but also includes upgrading to major building systems.

Mr. Kutta discusses his thoughts on the energy efficiency of the HVAC System and how well it performs considering the age of the systems.

Ms. Pruchnicki continues presentation and discussion of options 1 and 1A.

Mr. Balk stated in these options we have taken roughly 6 areas and made corrections while the rest of the building is still chaos.

Ms. Kistner stated she thinks taking file storage off site would be helpful.

Mr. Perkins stated it is something we have looked at and it is being worked on and converting files to electronic is also being investigated.

Mr. Balk stated we need a document management solution for every department and a document clerk to manage it.

Ms. Pruchnicki reviewed Option 2: This option involves locating the Community Center functions off site. This option would rearrange most of the departments and give them additional space. All police functions will be on one level.

Mr. Perkins states we want to consider space for the West Central Dispatch Center, which is likely to need additional space in the future as a result of expansion. The current facility is small and does not allow for an area to grow.

Ms. Pruchnicki reviewed Option 3: Addresses improvements we already discussed including relocating community center offsite. The back wing would be removed, which is causing a lot of problems with the levels matching up, and then build a new police station onsite. The sally port would become a public works garage; the gun range would remain where it is located now.

Ms. Prunchnicki reviewed Option 4: A completely new building would be built on site, existing building will be demolished. Everyone would have to move out and temporary relocate during construction.

Ms. Kistner ask if the community center functions would move off site.

Ms. Prunchniki states the community center functions preferably would move off site, because of a lack of parking.

Mayor Glantz asked if the vision of a new GC would be the same size.

Mr. Bond states the new GC would be larger because several areas would be enlarged to accommodate the request staff made for additional space needs.

Ms. Prunchniki reviewed Options 5 & 6: Idea of a GC located on a different site, either building a new building or reusing an existing building and remodeling it to suit the City's Needs.

Mr. Perkins stated that most of our office space can function in a general office space and there is plenty of office space available in town. Therefore, an option would be to relocate the general office functions to another existing office building in the city and keep police on this site and renovate the building to suit their needs.

Ms. Kistner says she does not feel we should split up city functions.

Mr. Bond states the department heads echoed city functions should stay together in one building or at least on the same site.

Ms. Kisnter asked if we have any buildings in mind for options 5 &6.

Mr. Perkins states he feels if we keep all the functions together, it will be tough to find a space large and diverse enough to meet our needs.

Dr. Hoffman is in favor to build a separate police building and then renovate this building for the GC.

Mr. Faron asked how often the shooting range is used.

Sgt. Hartman stated the range is used on a daily bases, and we allow other agencies to use it. The range is a relationship builder and no fee is charged.

Dr. Hoffman stated if we are going to build a new building then he feels we should definitely include enough space to include the dispatch center.

Ms. Prunchniki stated no abatement or new furniture or fixtures have been figured for any of the options.

Mr. Heines stated we spent $1 million when the City purchased the building and renovated it. This did not include any abatement in the unfinished wing.

Mr. Balk stated we need to address any future annexation the city may have and make sure the design of the GC will be large enough to accommodate City expansion.

The Task Force continued a general discussion of all the options and kicking around different scenarios for options 3 and 4. Options 3 and 4 are the most desirable and the preferred way to progress with the Space Analysis Study.

III. NEXT SCHEULED MEETING

Wednesday, May 7, 2014 – 5:30 PM

IV. ADJOURNMENT

The meeting adjourned at approximately 7:40 pm

MEETING MINUTES

GOVERNMENT CENTER ASSESSMENT TASK FORCE
WEDNESDAY, MAY 7, 2014

CITY OF CREVE COEUR MULITIPURPOSE ROOM
300 N NEW BALLAS ROAD, CREVE COEUR, MISSOURI 63141

I. CALL MEETING TO ORDER AND ROLL CALL

Task Force Chair Ken Balk called the meeting to order at 5:30 p.m.

Task Force members present:
Ken Balk, Chair
Al Schopp, Vice-Chair
Dick Kutta,
James Faron,
Jeff Rosenthal,
Beth Kistner,
Barry Glantz, Mayor, Ex - Officio
Dr. Bob Hoffman, Council Liaison
Kevin Rejent
Fran Cantor

With (5) members in attendance, a quorum was present.

Staff member present:
Mark Perkins, City Administrator
Jeff Hartman, Police Sergeant
Jim Heines, Director of Public Works
George Seifried, Project Manager

Absent Staff:
Paul Langdon, AICP, Director of Community Dev.
Glenn Eidman, Chief of Police

Also Present: Art Bond and Sue Pruchnicki, Bond Architects.

II. MEETING MINUTES

1. Call to Order

Ken Balk called the meeting to order. Mr. Balk asked everyone to introduce themselves, speak loud and clearly so the meeting minutes could be transcribed.

2. Wednesday, April 23, 2014 Meeting Summery

Mr. Balk asked if anyone had comments regardingwith respect to April 23, 2014 meeting minutes.

Dick Kutta asked about the last minute changes to the minutes.

George Seifried stated the changes to the minutes were request by Mr. Balk. The cChanges were Mr. Balk stated we need a document management solution for every department and a document clerk to manage it. Mr. Balk also stated we need to address any future annexation the city may have and make sure the design of the Government Center (GC) will be large enough to accommodate City expansion.

Task Force continued a general discussion of annexation.

Beth Kistner stated to Mark Perkins she did not think the City had plans for annexation. If annexation is raised then the balancing point should be taken into account.

Mr. Balk asked what she means by balancing point taken into account.

Beth Kisnter stated that annexation is not anticipated at this time for purposes of review options there are no annexation plans to take into account.

Mr. Balk stated he feels there are two schools of thought whether you should plan for the future. One is you plan for the future you put in provisions for growth and instead of growing to the right, you grow to the left, then whatever you did on the right side is wasted. You do what you have to do and if it cost you a little more in the long run at least you don't waste anything by having redundancy. The second thought is perhaps it could be done in a short form using a map, outline an area we may consider annexation. Then using the density do a rough approximation of residential and commercial population then the Police Department could figure out what it would cost to cover that area and then an estimation of how much revenue would be generated from taxes. Using this information if this is going to add 5 more employees and 20 more cars, we may not do anything. Suggest getting some insight, a gut feeling for it and then move on.

James Faron asked if we had to provide a speculation approach to annexation and are we obligated.

Mr. Perkins stated we are not obligated unless you want to leave open a possibility for annexation. We have done this every 5 years it is essentially a map plan submitted to St. Louis Boundary Commission. We have submitted consistently and the only area available for annexation is to our north in unincorporated area in the range of 12-15,000. If you look long range it absolutely is a possibility for the City. Is it likely, not in today's environment; the economics don't point toward annexation for example there are some commercial areas to the north, which would provide tax revenue, but its pool tax dollars not point of sale. The Boundary Commission would require we take a certain amount of residential homes as part of the annexation which would equate back to our service levels such as back door trash services, leaf and limb pickup. So the economics are not

real positive toward annexation, but things could change in the future because maybe the sales tax formula changes, maybe St. Louis County tries to make it more attractive for Cities to annex. All those things can change, but they have been pretty consistent for the last 20 years. It is difficult to speculate, and it is not very likely.

Mr. Kutta asked when the annexation documents were done last.

Mr. Perkins stated the map plan does not have a detail analysis of a particular area annexation area. A detailed analysis would be perused if we thought there would be some resalable benefits to the City.

Mr. Kutta stated we are trying to get an idea of how big this grape fruit is. Is it 5 more people and a police car, or is it 20 more people, if this were to occur and if it were to occur would it change our space plan?

Mr. Perkins stated we can certainly provide the service area and what the population of the area is and its substantial, its 12-15,000 and we are 18,000 now. We can pull that kind of data together.

Mr. Balk asked if the annex commission require us to take the whole thing, or just part.

Mr. Perkins stated as long as there are some reasonable breaks they would allow a partial annexation.

Jim Heines stated it could overlap with Maryland heights, what we are looking at to the north; they may be looking at to the south.

Mr. Perkins stated it could be, but plans submitted in the past there has not been overlap. The residences in the past are pretty happy being independent and if there is any lean they seem to be partial toward Creve Coeur. Maryland Heights doesn't seem to show any interest.

Sue Pruchnicki stated they did take in to account as the economy improves some additional staff; a plan reviewer and a building inspector.

Mr. Balk asked if there are any more comments on annexation.

Mr. Balk stated his general consensus was to stay at this site, have a separate building for the police and GC, police parking would be in an underground garage, and main building would be GC, which would beand Administration and Community Center Functions. The circulation of the site is important and we would consider adding a data management study to tie down a use for dead archive and discard old records. The data management study is a priority so it is can be tied into the master plan.

Mr. Balk stated he thought we could move the shooting range to the new building by sawing it into sections and using a building relocation contractor., pick it up on truck and move it.

Ms. Kistner stated the draft report addresses the items Mr. Balk outlined above.

Mr. Kutta stated he feels the draft report was conclusive that we should about demoing the existing building and he is not 100% sure that needs to happen. A; at least a portion of the building is worth recovering.

Ms. Pruchnicki stated our originally it was there opinion was a smaller step would be taken to renovate the existing building; it wasn't until after the hearing Task Force Committee comments at the last meeting the opinion was givenperception for a larger solution was desired. We have to keep in mind the most important component is how the community will perceive the project.One of the most important steps to take is how much the community may be willing to spend on the project.

Mr. Faron asked if the only difference in options 3 and 4 are is obliterating the GC.
completely tearing down the government center.

Art Bond stated option 3 takes in to account a large remodel to the existing GC of for the portion that would remain after the demodemolition.

Mr. Bond stated if you will look at the schedule wethey provided the length of time legthn to do option 3 is about 10 months longer, because you have to shuffle staff around during construction. In option 4 staff willould be moved temporarily moved off site.

Ms. Pruchnicki stated the police would stay in the existing GC until the new building Police Station isfor them was built, then they would move relocate to the new building. After the police move out then demolition and remodeling the GC would startcommence.

Kevin Rejent asked if option 3 includes a newthe gym would be rebuilt as part of the renovationsGC remodel.

Ms. Pruchnicki stated in option 3 the gym would not be rebuilt, but we could find another place to put it.option 3 includes the cost to build a new recreational facility on another piece of ground the city already owns.

Ms. Pruchnicki stated it is there understanding the committee had a strong desire to keep the GC functionsrecreational facility functions onsite.

Mr. Perkins stated keeping the multipurpose room and meeting rooms would be available to the public, but you would lose the gym. It would not make sense to tear down an elementary school size gym and building another elementary school size gym. The project cost start to increase with adding a full size gym and most people are not going to want the gym by itself, they will want other amenities with it. Building a recreation center is a different project itself and has come up over the years.

Mr. Rejent stated if we go down that path then we need to figure out how to allow Parks and Rec. to have a larger budget to deal with the deficit created from larger facilities.

Mr. Kutta asked Ms. Pruchnicki why she feels the gym needs to go away.

Ms. Pruchnicki stated the arrangement of the facility and a lack of parking on the site causes a conflict. Building a gym onsite to the current standards does not allow for enough parking spaces to meet city ordinances.

Ms. Pruchnicki asked if the committee understands its purpose, because Bond Architects is not sure what our role is here. the roll the group will pay in figuring the financial side of the project. Is are main purpose to make a recommendation based on what we feel is the best solution regarding the existing needs for the facility or do we factor in for the financial feasibility. We are not sure what our role is here.

Mr. Perkins stated that is a great question for the Mayor and Council Lesson.

Mr. Balk stated we have two options. Option 1One this is what we are going to spend and that's it,; you get what you can get for that amount of money, or option 2second you decide this is what are needs are and then decide how you are going to pay for it. Now if you cannot't raise the money to pay for it, then you have to go back and lower your expectations.

Ms. Pruchnicki stated she was hoping this was the approach we wouldwanted to take.

Mr. Perkins statedrecapped on the reason Bond Architects was hired isto tell us what ourwe needs are,. tThen helping us withfigure out the financials position after the needs assessment study is complete.

Fran Cantor stated she wants to know how we are going to handle the politics. Will the project need to come to P&Z, and then go to council; are we going to have all these neighbors organizing and coming in masses to protest. How are we going to handle it.

Al ShoppSchopp asked if we agree a standalone police station is the desire so we can agree on this and move on to the next other things.

Dr. Bob Hoffman stated he is getting thehat impression a standalone Police Station is desired. Politices are important Fran, but I think those issues are the councils problem, not this committees concern. Our goal is to present the best facility that we think we need.

Mr. Kutta stated it helps to know how big the ballpark is, if it's unrealistic to spend $25 Million, then what the number is. We need to give our architect an idea of which direction to go.

Mr. Perkins stated one of the agenda items is a financial discussion.

Mr. ShoppSchopp asked again if everyone will agree to a standalone police station on this site.

Dr. Hoffman asked for a show of hands for who is in favorsupport of a standalone Ppolice Sstation.

Ms. Pruchnicki stated a standalone Ppolice Sstation falls into options 3 and 4.

Mayor Barry Glantz stated the best approach is to start eliminating some of these options and work our way to a solution. Whatever solutions we come up with we get broad community support. For any project with this broad scope we will need community support.

Dr. Hoffman stated Mr. Shopp's question was are we all in agreement on a standalone police station on the north end.

Al ShoppSchopp stated so we are all in agreement for a standalone police station. A show of hands showed the majority rules.

Mayor Glantz stated to play devil's advocate the residence of Magnacarta and Runnymead are going to be fairly vocal in opposition to having access on Magnacarta.

Mr. Rejent stated he is a trustee for the subdivision and he agrees the residences are going to be very vocal.

Mr. Balk asked if there are other options to using Magnacarta as street access. They don't need to be figured out now, but possibly down the road a solution will present itself.

Ms. Pruchnicki suggested a traffic study be done on Magnacarta.

Mr. Balk agreed with Ms. Pruchnicki.

3. Conception Financing Discussion

Mr. Perkins stated he had some information on this topic to review. We looked at the worst case scenario borrowing 20-25 Million, because we can always borrow less. we can always work down from there, but what are our financing options. Local government we are fairly limited to capital funding sources. The city approved in 1997 ½ cent sales tax for capital improvements. Pending voter approval we have a ½ cent parks and storm water sales tax, but it could not be used for this project. We don't have any other sales tax sources available to use toward funding.

Mr. Perkins stated option 1one of our options is a 20 year bond, which is about 1.9 Million a year for the next 20 years. Option 2 is aA special obligation bond would be for 30 years, which it carries a higher interest rate, but would allow the yearly payment to be around reduced to 1.6 Million. A property tax increase pending voter approval could

be used to repay the debt service; these are the twois is the most likely options. Based on an average home cost of $350,000 home this would calculate to an additional this would increase annual property tax by $160.00 per residence.additional property tax annually. Currently the annual property tax rate for a $350,000 home is around $50.00. So tThe total property tax assessment increasegoing to the City would total $210.00 annually.

Dr. Hoffman asked for comparison how much the Ffire Ddepartment wasget recently approved to build their new fire house.

Mr. Perkins stated .25 cents.

Dr. Hoffman stated we are asking for .24 cents, so about the same amount.

Dr. Hoffman stated the finances should be a separate issue from this committee.

The Task Force continued to discuss different options, designs for the building and ways to integrate one option with a different option.

4. Other Business

Ms. Pruchnicki passed out the project timeline for option 3 and 4, which also included the Next Steps Procedures.

Ms. Pruchnicki reviewed the documents with the committee. then began discussed phasing, also passed out was a next steps report.

Ms. Kistner asked what it would take to commission the site survey outlined in the Next Steps Procedures.

Mr. Perkins stated staff would need to get together with Bond Architect to determine where the current scope of their work ends and a new scope of work would begin.

Ms. Kistner asked if the council would support doing the site survey.

Mr. Perkins stated we would defiantly keep the council involved in the process as we move forward.

Ms. Pruchnicki explains the next steps report and the process we could take to move forward after the Space Analysis is complete.

The Task Force continued a general discussion about the nNext Ssteps Proceduresreport.

Mayor Glantz stated he does not want the project to be piecemealed together.

Mr. Balk asked Mayor Glantz to explain.

Mayor Glantz stated he felt getting the task force together was going to give us direction on how we want to go. The next steps are logical and they make sense, but where do we start and where do we stop.

Mr. Faron stated he doesn't understand the committee's role. He feels the committee is getting into more details then they were setup to do.

Dr. Hoffmann stated he thought we needed to at least do the site survey to get a preliminary review to find out if we can build on the north side.

Ms. Pruchnicki stated that is correct.

Ms. Cantor motioned to move forward with the site survey pending Mr. Perkins negotiations with Bond Architects.

Mayor Glantz asked Bond Architects where they are in the scope of work.

Ms. Pruchnicki stated they are almost finished with our scope of work.completed. We have given you reports based on the information we collected and the committee suggestions, we supplied a timeline, phasing, and how much it will cost.

Task Force hadcontinued a general discussion on the site survey.

III. ADJOURNMENT

The meeting adjourned at approximately 6:45 pm