Powell
OHIO

RESOLUTION 2026-11

A RESOLUTION ACCEPTING THE FINAL FACILITIES MASTER PLAN AS A GUIDING POLICY DOCUMENT FOR FUTURE CAPITAL AND FACILITY PLANNING.

WHEREAS, the City of Powell entered into a Professional Services Agreement with Champlin | EOP Architecture and to prepare a comprehensive Facilities Master Plan to evaluate the condition, functionality, and long-term needs of selected City facilities; and

WHEREAS, the Facilities Master Plan includes an assessment of existing conditions, departmental needs analysis, and conceptual planning for City facilities, including the Municipal Building, Police Department, Parks and Recreation/Public Works facilities, and the Lechler Storage Facility and

WHEREAS, the consultant team has completed its final deliverable titled *City of Powell Facilities Master Plan – Draft Report, December 15, 2025* (the "Facilities Master Plan"); and

WHEREAS, the Facilities Master Plan is intended to serve as a long-range, advisory planning document to guide future policy discussions, capital improvement planning, and prioritization of municipal facility investments; and

WHEREAS, acceptance of the Facilities Master Plan does not constitute approval, authorization, or funding of any specific project, nor does it obligate the City to implement any recommendation contained therein; and

WHEREAS, any future implementation of projects identified in the Facilities Master Plan shall be subject to separate City Council consideration, appropriations, and approvals through the City's established Capital Improvement Program and budgeting processes.

NOW THEREFORE BE IT RESOLVED BY THE CITY OF POWELL, COUNTY OF DELAWARE, STATE OF OHIO, AS FOLLOWS:

Section 1: That the Council of the City of Powell hereby accepts the *City of Powell Facilities Master Plan – Draft Report, December 15, 2025* as a guiding, advisory policy document.

Section 2: Implementation of any recommendation contained in the Facilities Master Plan shall require future City Council action, including separate appropriations and approvals, as applicable.

Section 3: This Resolution shall be in full force and effect immediately upon adoption.

Heather Karr 1/20/26
Heather Karr Date
Mayor

Elaine McCloskey 1/20/26
Elaine McCloskey Date
City Clerk

EFFECTIVE DATE: January 20, 2026

This legislation has been posted in accordance with the City Charter on this date 1/21/2026.
E McCloskey
City Clerk

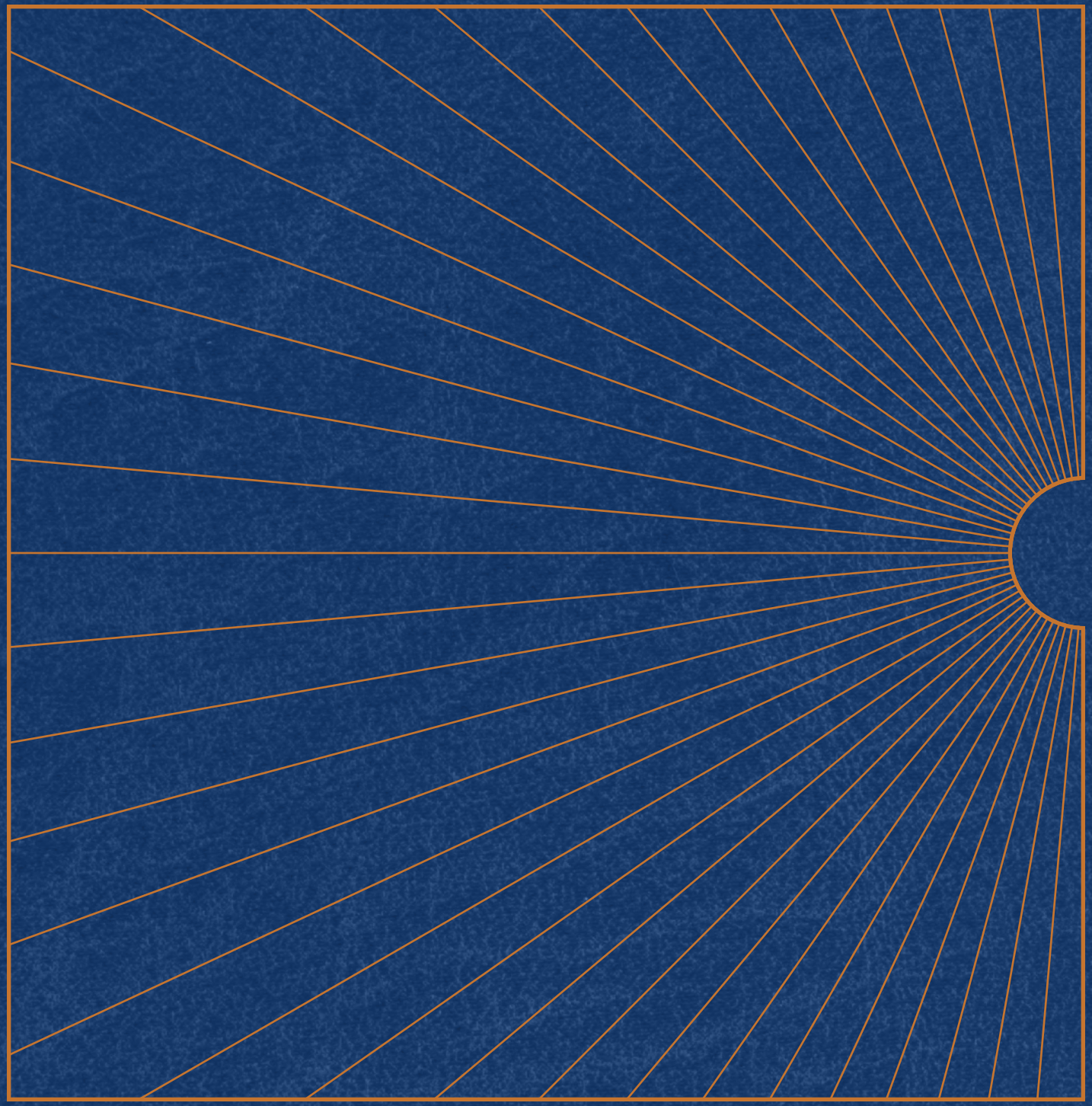
City Council
Heather Karr, Mayor
Kurt Ramsey Leif Carlson David Lester Tom Counts Tyler Herrmann Carlos Crawford

Powell

OHIO

MASTER PLAN 2026

January 20, 2026



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Master Plan

The master plan provides a framework for the physical environments that incorporate the buildings.

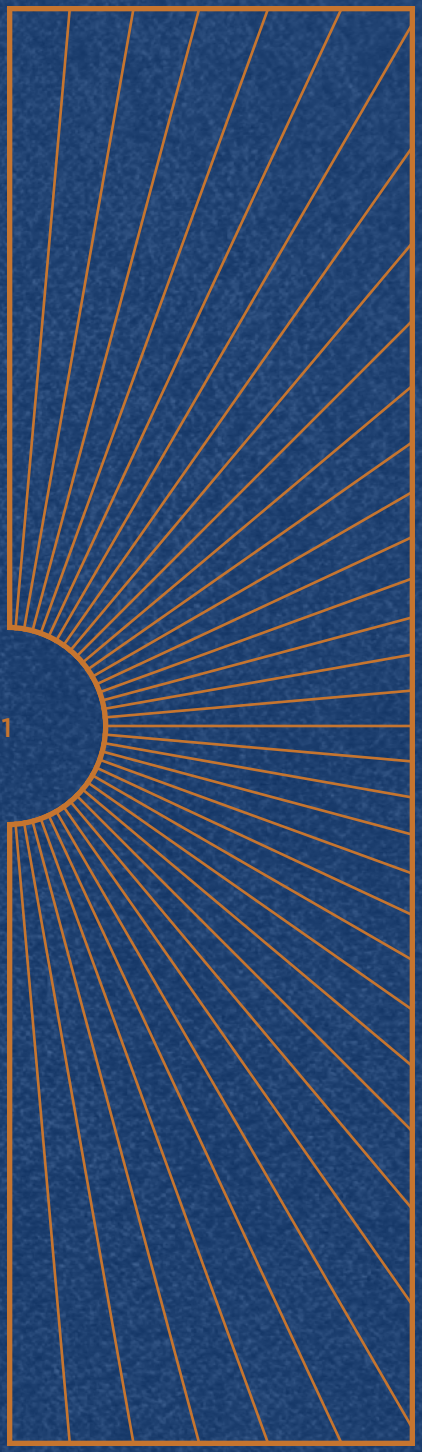
Master planning develops the site-specific integration of programmed elements, natural conditions, and constructed infrastructure and systems at the functional, aesthetic, and temporal levels. The nature of the plan will influence, and be influenced by, the context of the project location beyond the property lines. Alignment with community needs and expectations is a critical factor of this phase.

The development of a master plan starts with alternative organizational configurations, often referred to as scenarios, to accommodate the needs that are identified in the strategic facility plan. These scenarios or alternatives represent differing priorities and criteria, and present choices for organizational and site/facility models.

The master planning process is best accomplished with input from a number of experts and stakeholders. Components of a master plan include: regulatory analysis; infrastructure and transportation planning; amenities and support planning; corporate image; security strategies; phasing plans; cost projections; and environmental design. Expert planners need to ensure the outcome is achievable, yet flexible enough to preserve future options.

— IFMA, Strategic Facility Planning: A White Paper

Introduction



History

"Powell now has an excellent and most promising future..."

—The Worthington News, December 12, 1946

There was a settlement in Powell by 1813, and it was called Middlebury, named after the home of many of the first settlers who came from Connecticut. However, in 1857, Judge Thomas Powell from Delaware, Ohio, established the Village's first post office and the townspeople decided to rename the village in his honor. In 1947, the Village of Powell was recognized as a municipality and nearly 400 residents called it home.

The population remained stable until the early 1980s, when the Greater Columbus metropolitan area began exploring residential development in the village. A trend emerged as the appeal of living in a semi-rural setting amidst the scenic countryside drew new residents to the quaint town.

In 2000, the area outgrew the village status and matured into the prospering City of Powell. Today, the community is home to over 14,000 residents, more than double the population from just a decade ago.

Timeline of Activities

2025.01.09	Master Plan Kick-Off meeting held at the City Municipal Building
2025.06.04	Facility Assessment Kick-off held at the City Municipal Building
2025.06.04	Facility Conditions Assessment walkthrough of the Municipal Building
2025.06.04	Facility Conditions Assessment walkthrough of the Adventure Park Facility
2025.06.04	Facility Conditions Assessment walkthrough of the Lechler Storage Building
2025.08.14	Champlin | EOP met with the Planning Department Director
2025.08.14	Champlin | EOP met with the Economic Development Director
2025.08.14	Champlin | EOP met with the Community Engagement Director
2025.08.14	Champlin | EOP met with the Finance Department Director

2025.08.15 Champlin | EOP met with the HR Department Director and City Administrative Assistant

2025.08.15 Champlin | EOP met with the City Engineer

2025.08.15 Champlin | EOP met with the Parks & Recreation Director

2025.08.15 Champlin | EOP met with the City Services Director and Manager

2025.08.15 Champlin | EOP met with the Police Department

2025.08.19 Champlin | EOP met with the City Council Clerk

2025.08.19 Champlin | EOP met with the Assistant City Manager

2025.08.20 Champlin | EOP met with City Law Director

2025.09.10 Champlin | EOP met with the City Manager

2025.10.10 Champlin | EOP sent out a draft review of the Master Plan programming diagrams and Facility Conditions Assessment report for City review

2025.10.16 Follow up review of the MEP equipment of the facilities

2025.10.21 Champlin | EOP met with stake-holders to review Master Plan programming documents

2025.11.12 Champlin | EOP met with stake-holders and Pizzuti (Village Green Master Plan creators) to review Facilities Master Plan and how it will coordinate with the Village Green Master Plan

2025.11.18 Champlin | EOP met with the City Council Operations Committee to review draft version of the Master Plan report and graphics

Master Plan Purpose

The goal of this Facilities Master Plan is to evaluate the current conditions of the selected City of Powell facilities and the departmental organizational structure within the buildings listed on the following pages.

These buildings were identified as the key facilities for evaluation and study due to their density, condition, and complexity of departmental adjacencies.

This Facilities Master Plan is intended to define City facilities goals, scope, and objectives, and to provide analysis and recommendations based on our departmental survey and interviews. The intent of this process is to find space efficiencies, inconsistencies, and areas for improvement.

Facilities Reviewed

CITY MUNICIPAL BUILDING

47 Hall Street, Powell, OH 43065

- City Executive Offices
  - City Manager's Office
  - Finance Department
  - Human Resources Office
  - City Clerk's Office
  - Engineering Department
  - Planning & Zoning Department
  - Building Department
  - Economic Development Department
  - Community Engagement Office
  - Police Department Headquarters

ADVENTURE PARK BUILDING

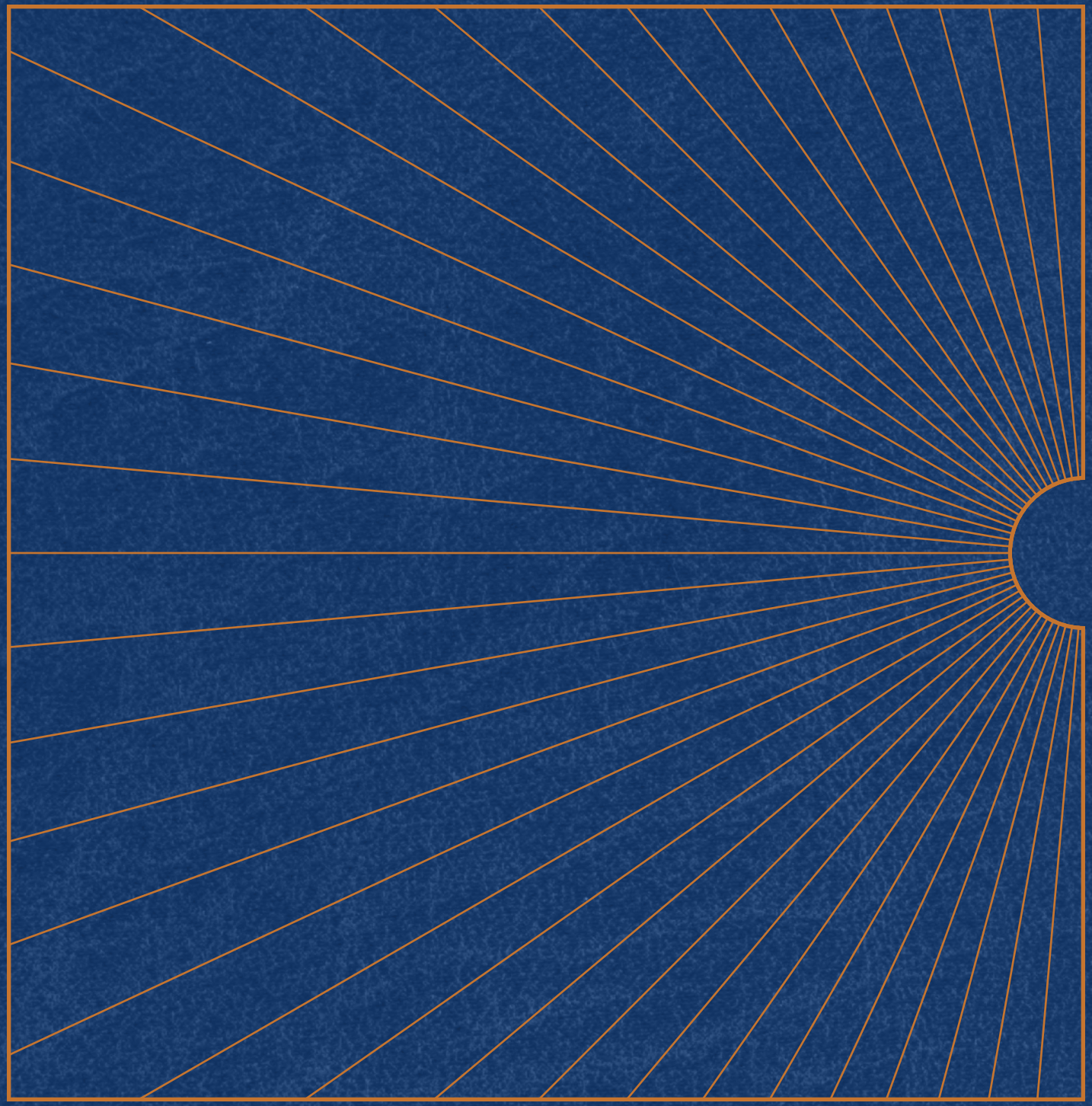
260 Village Park Drive, Powell, OH 43065

- Parks & Recreation Department
- Public Service Department

LECHLER STORAGE FACILITY

453 Murphy Parkway, Powell, OH 43065

- Public Service Storage Facility



Existing Conditions

Assessment & Findings

We analyzed the current condition of each building and reviewed the need for ongoing maintenance and improvement over the span of the next ten years. Our assessment focused on building interior conditions.

BUILDING CONDITIONS

The Champlin | EOP / Korda Engineering / MKSK team provided facility assessment and analysis services in a two-step process:

- **Step 1:** Review the existing facility in person, including interviews of the onsite staff to establish the current state of the facility.
- **Step 2:** Complete an analysis of the facility via a site visit and the firsthand knowledge gained through Step 1 to create an up-to-date facility assessment report that includes the following:
  - Collect information regarding building history with respect to maintenance, renovations, and equipment and system replacements from the Facility Maintenance personnel.
  - Conduct a visual survey of the building to assess general conditions of the major building systems. Major code violations or safety concerns will be noted in building system narratives.
  - Review available reports or studies submitted by previous contractors, service companies, or consultants.
  - High-level review of the facility to identify code violations and non-compliant ADA conditions that do not require significant study or exception determination.
- Please refer to the full Facility Conditions Assessment reports provided in the Appendix on page 67.

Municipal Building

The Municipal Building is, overall, in good condition with no major obvious deficiencies. The common theme throughout this facility would be:

- Exterior wall façade issues, especially around door and window openings to help mitigate moisture intrusion into the building
- Interior areas need a refresh of finishes and rearrangement for more efficient use of the spaces
- Current interior layout is constricted due to the nature of the existing facility into which they were built
- Proper security measures between the municipal office areas and the police areas
- Lack of conference / meeting spaces
- Parking is shared with the public park around the facility

FACILITY ASSESSMENT RECOMMENDATIONS

Corrective measures are separated into immediate needs, near-term items, and long-term items for the purpose of this report.

Immediate Needs

Items that require immediate replacement, repair, or attention to use the building, systems, equipment or fixture as intended by the original design, occupancy, or intended use.

- Exterior
  - Replacement of existing main entry canopy column wood veneer that is rotting at the base
  - Perimeter seals around the windows to be replaced and re-installed
  - Cleaning and re-sealing of the exterior thin brick veneer
  - Painting of rooftop cupulas
- Interior
  - Phase 1 and phase 2 environmental investigation
  - Replacement of any water damaged / stained ceiling tiles
- MEP
  - Provide better air conditioning and quality in the police fitness room / locker rooms to alleviate the existing electric heat load transfer
  - Install a properly suited AC / cooling system for the police IDF equipment area
  - Exit lighting and exit signage replacement or battery upgrades
- Technology
  - As needed replacement of communications equipment shall be budgeted

Near-Term Items

Items that are at the end of life, aged, decaying or rusting that may still be working but from appearance or historical knowledge should be replaced in the next 5 years or less.

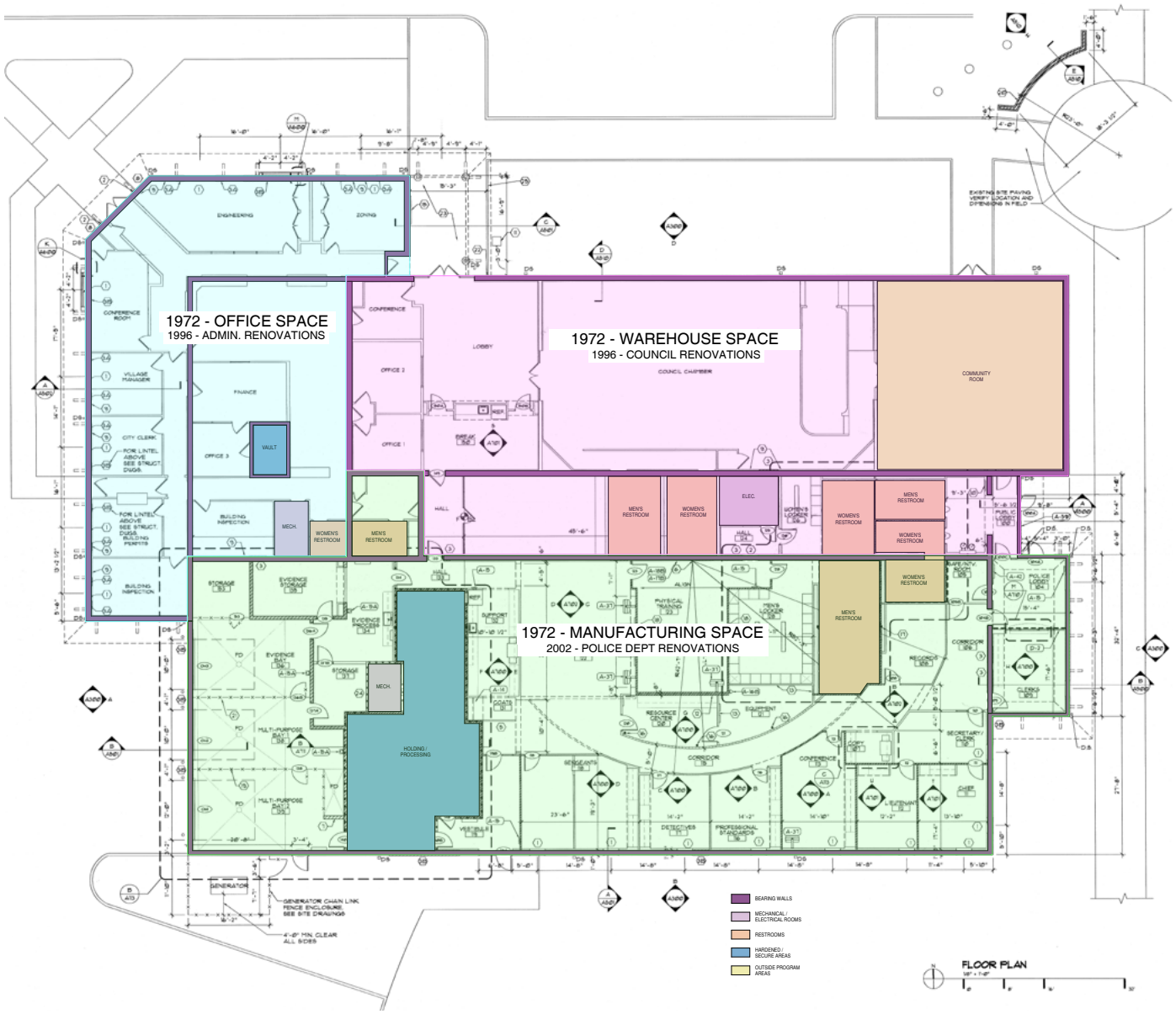
- Exterior
  - Replacement of all glazing wet seals
  - Caulking and repainting of all wood trim pieces
  - Repair of all damaged roof fascia panels that are currently damaged
  - Repainting of all exterior wood trim and soffit areas
- Interior
  - Refresh of the Council Chambers restroom interior finishes
  - Replacement of all ceiling tiles in the municipal office areas, not aging well
- MEP
  - Full replacement of all rooftop HVAC equipment (other than the council chambers unit)
  - Replacement of (3) existing furnace / AC units
  - Replacement of electrical system components older than the year 2000
- Technology
  - Analog CCTV shall be upgraded to a digital system

Long-Term Items

Items that are generally recognized as improvements due to code, industry standard upgrades, modern equipment improvements, etc. These items are not required but should be considered in future renovation or upgrade projects.

- MEP
  - Rework of the existing police garage area exhaust system for better air quality
  - Removal of the non-functioning solar power system
  - Installation of a fully functional fire sprinkler and fire alarm system throughout the facility

EXISTING LAYOUT AND CONSTRAINTS



Adventure Park (P&R and PW Facility)

The Adventure Park Facility is, overall, in okay condition with no major obvious deficiencies. The common theme throughout this facility would be:

- Incorrect department is public facing
- Exterior materials are dated and in need of repair
- Interior spaces are shared amongst staff, with staff co-mingling with summer camp attendees
- Parking is shared with the adjacent public park
- No room for expansion of either department

FACILITY ASSESSMENT RECOMMENDATIONS

Corrective measures are separated into immediate needs, near-term items, and long-term items for the purpose of this report.

Immediate Needs

Items that require immediate replacement, repair, or attention to use the building, systems, equipment or fixture as intended by the original design, occupancy, or intended use.

- Exterior
  - Replacement of all exterior door seals, thresholds, and drip caps; scraping of rust off existing hollow metal frames and repairing them as needed
  - Perimeter seals around the windows to be replaced and re-installed
  - Tuck point mortar joints of all stone masonry (especially at the corners); install proper sealant and backer rod systems between the top stone water table cap and the adjacent siding and or trim
  - Replace fascia boards where rotted or damaged by birds/insects
  - Replace or rebuild roof cupulas
- Interior
  - Replacement of any water damaged / stained ceiling tiles
  - Review of the structural capacity of the 2nd floor for proper storage classification
- MEP
  - Air quality testing to verify the current HVAC system is operating efficiently, with proper moisture removal
  - Exit lighting and exit signage replacement or battery upgrades
- Technology
  - As needed replacement of communications equipment shall be budgeted

Near-Term Items

Items that are at the end of life, aged, decaying or rusting that may still be working but from

appearance or historical knowledge should be replaced in the next 5 years or less.

- Exterior
  - Replacement of all glazing wet seals or full replacement of window systems
  - Caulking and repainting of all wood trim
  - Exterior louvers to be cleaned or replaced
  - Exterior metal trim pieces to be inspected and repaired as required
  - Roof penetrations to replace flashing boots
- Interior
  - Refresh of the existing finishes and separation of existing restrooms
  - Repair and replacement of gypsum ceiling in 2nd floor storage room
  - Cleaning and re-sealing the garage floor areas
  - Install 2nd handrail on stairwell to the 2nd floor to meet code requirements
- MEP
  - Removal of the existing Modine unit for the garage as it is not in use
  - Replacement of existing fluorescent lighting fixtures to LED

Long-Term Items

Items that are generally recognized as improvements due to code, industry standard upgrades, modern equipment improvements, etc. These items are not required but should be considered in future renovation or upgrade projects.

- Interior
  - New paint throughout the facility
- MEP
  - Existing Trane system to be reviewed for replacement in the near future
  - Installation of a fire sprinkler for the garage area, along with proper fire alarm system due to the occupancy types in the building
- Technology
  - Review for a future door access control system to separate the Public Works and Parks/Rec areas

Lechler Storage Facility

The Lechler Storage Facility is, overall, in poor condition with major obvious deficiencies. The common theme throughout this facility would be:

- Facility is run down and not large enough for equipment storage needs
- In wrong location as it relates to the main public works facility
- This facility has an expansion project on the books to extend the lifespan of the facility for an additional 1–3 years; this project will address many of the concerns listed in this report and is currently in the funding stages with Council

FACILITY ASSESSMENT RECOMMENDATIONS

Corrective measures are separated into immediate needs, near-term items, and long-term items for the purpose of this report.

Immediate Needs

Items that require immediate replacement, repair, or attention to use the building, systems, equipment or fixture as intended by the original design, occupancy, or intended use.

- Exterior
  - Replacement of all exterior door seals, thresholds, and drip caps
  - Perimeter seals and windows to be replaced
  - Inspect and repair overhead garage doors and lintels
  - Western lean-too structure to be rebuilt to significant water damage
- Interior
  - Replacement of any water damaged / stained ceiling tiles
  - Review of the structural capacity of the 2nd floor for proper storage classification
  - New interior finishes of the office / storage areas
  - Phase 1 and phase 2 environmental investigation
- MEP
  - Air quality testing to verify the current HVAC system is operating efficiently, with proper moisture removal
  - Exit lighting and exit signage replacement or battery upgrades

Near-Term Items

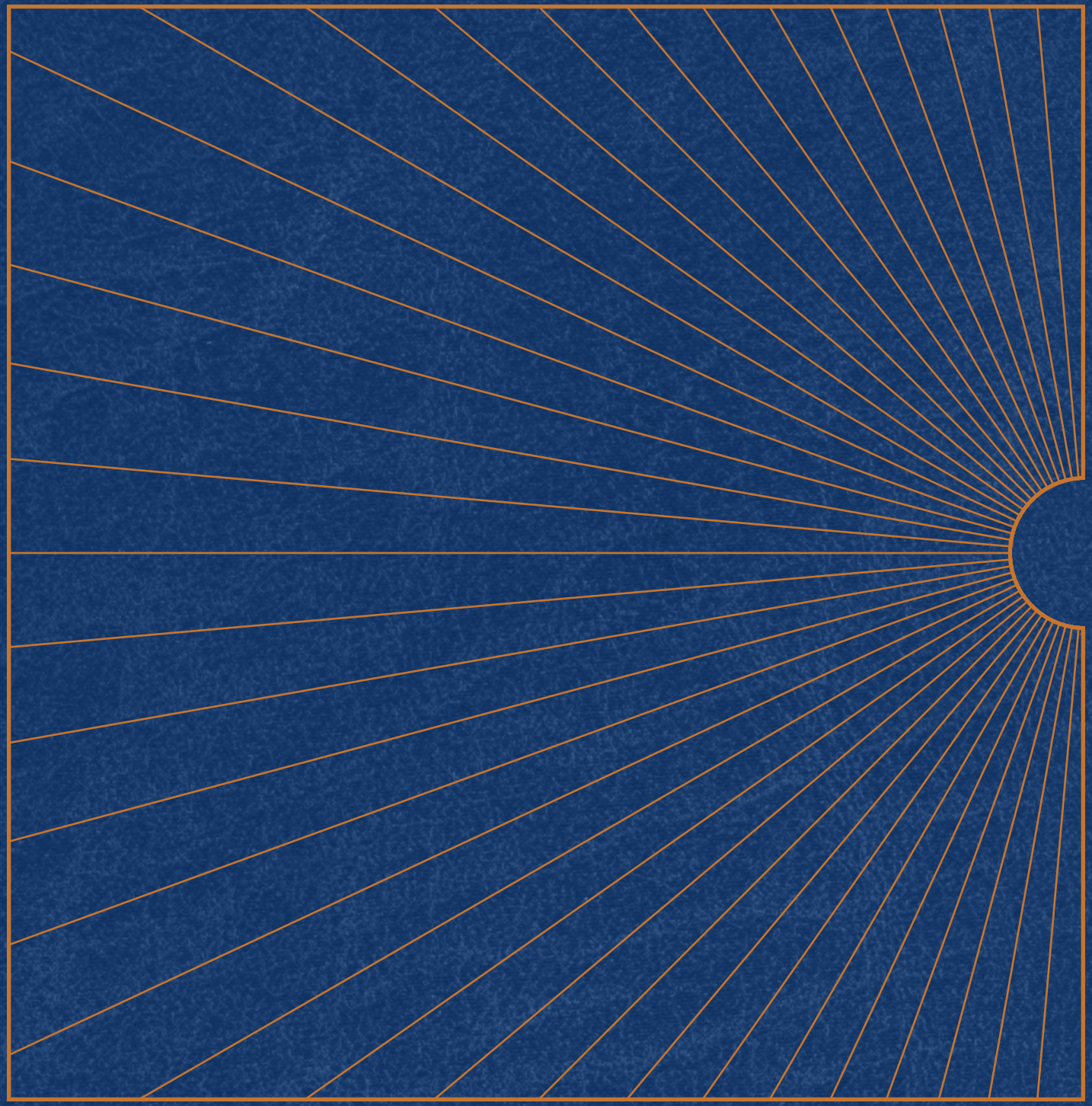
Items that are at the end of life, aged, decaying or rusting that may still be working but from appearance or historical knowledge should be replaced in the next 5 years or less.

- Exterior
  - Caulking and repainting of all wood trim pieces
  - Sanding/scrapping and repainting of the exterior
  - Exterior metal trim pieces to be inspected and repaired as required
- Interior
  - Refresh of the existing finishes and separation of existing restrooms
  - Repair and replacement of gypsum ceiling in 2nd floor storage room
  - Cleaning and re-sealing the garage floor areas
- MEP
  - Replace existing gas fired heaters
  - Replace existing original electrical service

Long-Term Items

Items that are generally recognized as improvements due to code, industry standard upgrades, modern equipment improvements, etc. These items are not required but should be considered in future renovation or upgrade projects.

- Interior
  - Clean and repaint throughout the facility



Survey and Interviews

Methodology

Initially, surveys of identified departments were utilized as a data-gathering tool prior to departmental interviews. A survey was sent to the identified departmental contact for each department involved in the master plan. These were followed up with interviews as a primary way of understanding the interrelationships of the various departments within the City that make up the municipal core of services. This two-step approach proved valuable in identifying themes from department to department.

Questions in the survey were divided into categories related to personnel, departmental interactions and adjacencies, outside visitors, filing and storage needs, work areas, and security. These were used as a reference and to develop follow-up questions for the interview to further explore information discovered by the survey.

Each interview began with a general discussion about the goals for the facilities master plan. These include:

- "Rightsizing" departmental space to fit current and future needs
- Improving efficiencies in services to the public and with other City departments
- Increasing productivity and functionality in work environments
- Identifying planned technology changes
- Enhancing security for staff and the public

Overall Themes

Several common themes emerged from these surveys and interviews, including:

- *Parking (for staff and for the public)*
- *Storage (secure and non-secure)*
- *Departmental adjacencies and public access*
- *Staffing*
- *Insufficient conference and meeting spaces*
- *Location of facilities within the City boundaries*

PARKING

Several departments have fleets of vehicles that require nearby parking. These vehicles take away spaces which would otherwise be available for the public and employees, causing frustration. However, a balance must be struck between the distance at which fleet vehicles are parked and the amount of time spent getting to them.

FILE AND EQUIPMENT STORAGE

Paper record storage takes up space within departmental offices in varying proportions from department to department. Each department is aware of the legal obligations for maintaining records, and many are forced to keep copies of records that are now electronic because of these legal requirements. Additionally, sorting of records for retention versus destruction requires time and

manpower. Most departments are now operating without enough staff to dedicate to this task. Therefore, aging paper records sit within valuable, potentially usable space. It is important to note that most departments must keep some records on site for their day-to-day operations. We believe that an investment in a complete review of records retained within departments as well as off site would benefit all departments.

With regards to equipment storage, some departments need to access specific equipment to properly carry out their charged duty. As this equipment takes up usable space inside a facility, we recommend a complete review of these items and their storage be conducted to allow for right-sizing the area requirements.

The need for secure vs non-secure storage requirements by department was also discussed. The majority of the departments in review only have need of localized storage, but the Finance and HR departments require secure paper storage, and the Community Engagement Department needs secure equipment storage.

ADJACENCIES AND PUBLIC ACCESS

Interactions between departments are often critical for day-to-day operations. Many departments are strategically located because of their interaction with each other. Proximity of these departments is a function of in-person activities, the requirements of which will not change.

Other departmental adjacency requirements relate to community access and access to departments for City employees from department to department. Necessity of this access has been meticulously reviewed with each department director.

STAFFING

Most departments see their staffing having a reasonable amount of growth in response to increase in services provided and a growing population; however, some are projecting more significant growth based on the needs of the community.

CONFERENCE / MEETING SPACES

A recurring theme throughout all of the conversations with stakeholders and staff was the lack of conference rooms and configurable spaces for other meetings. Currently, there is a need for more spaces not only for internal meetings but also to allow meetings with locals or outside entities.

- Municipal Building
  - Large space for City Council but not configurable to smaller usable spaces when the council chambers are not in use
  - A large conference area is delineated inside council chambers, but this is not usable during large events or council sessions
  - No private council conference room in which to hold executive sessions or meetings
  - City staff must utilize the large conference room in the police department side of the facility
- Police Department
  - One large conference room that is shared with the adjacent municipal staff
  - A large ready room that is just big enough for staff but open to the rest of the facility (as it is also part of the main movement corridors of the facility)
- Public Works / Parks & Rec
  - Utilize their offices for meetings
  - Public Works utilizes the open areas inside the vehicle garage for meetings and daily briefings

As it stands, there is no real means to meet with the general public privately inside any of these facilities without affecting other departments or events.

LOCATION OF DEPARTMENTS

The current locations of the facilities were also a main topic of discussion in the stakeholder interviews. The questions brought up were:

1. Does the Municipal Building stay in its current location based on the finding of the Village Green Master Plan?
2. Does the Police Department stay with the Municipal Building, or does it become its own building?
3. Does the Parks & Recreation Department stay within the same facility as Public Works, or do we split the departments into two facilities?

And more broadly:

4. If these facilities/departments were to relocate, where do they go?

Ultimately, the findings of this review suggest that, due to the required growth presented as well as the constraints and age of the current buildings, the optimal solution is to relocate these facilities rather than continue to utilize the existing buildings. Thus this report focuses on exploring relocation needs and options.

Findings by Department

MUNICIPAL BUILDING

Council Chambers

- Space is too large in footprint for only small times of usage
- Dias areas make the room unsuitable for other uses
- Main facility restrooms must be accessed through the Council Chambers Space
- Small facility conference area is not usable during large events
- Adjacent Community Room cannot be utilized during large events in the Council Chambers space due to the sound transmission inadequacies between the two rooms

City Manager's Office

- Could consider adding shell space to a future building to accommodate unpredicted staff growth
- Conference/meeting space is needed; must consider how City Council would use meeting space during the day and in evenings
- Desk or office sharing isn't plausible, however, remote meetings and work from home should be considered

Finance Department

- Needs a larger secure storage area to house financial records; can share with HR
- Needs a small conference or huddle room located in the department
- Needs access to a larger (20) person conference room to host leadership meetings

Human Resources Office

- Needs larger secure storage area for personnel records data; could share space with Finance records
- Needs a small conference or huddle room located in the department
- Would like to be near the Finance Department

Engineering Department

- Desire to remove glass partition walls from the area as they make the staff feel as if they are constantly watched
- Additional office area needed for the Public Works Director when they stop in for meetings and department conversations
- Would like to be adjacent to the Planning, Zoning, and Building departments for better collaboration
- Would like to be able to schedule conference spaces for meetings with internal staff

Planning and Zoning Department

- Need for additional conference room space to allow for small- to medium-sized meetings with internal staff and outside visitors
- Department staff can be co-located with the Building and Engineering Departments' staff
- Currently moving from a paper file and access system to an all-electronic one
- Currently not a public-facing entity, but would prefer to be more public-facing like a "one stop" solution

Economic Development Department

- Would like to be more accessible to the general public
  - Public connection outweighs the staff/ departmental collaboration
- Need of additional conference room space to allow for small- to medium-sized meetings with internal staff and outside visitors

    - A large space that can be converted into smaller spaces would be more efficient use of the square footage
- Currently scheduled to relocate to a COhatch facility off campus
- Would like to be adjacent to the Planning, Zoning, and Building departments for better collaboration

Community Engagement Office

- Needs access to all departments, therefore a central location within facility is preferred
- Need for a small secure storage area for digital and A/V equipment
- Needs additional regular storage for branded items and swag for staff; this can be offsite or in a shared on-site room/area

POLICE DEPARTMENT HEADQUARTERS

- Security issues municipal area staff have access to the police department
    - Utilizing police department conference rooms for meetings when current facilities are booked
- Female locker room is too small
- Fitness facilities need to grow
- Police policy/procedure has changed and there is no longer a need to hold a person at this facility, so the secure holding cell area can be allocated for another use
- Need to increase the number of secure interview rooms
- Entry of police staff is not conducive to the location of their locker rooms and their offices; the carrying of duty bags and other equipment through the entirety of the facility is causing interior finish damages

- Processing and evidence storage is constricted and needs to grow to be more efficient
- Need for a dedicated roll call / duty room that is not also being used as a circulation space
- Need for a larger room to host emergency operations or training

PARKS & RECREATION / PUBLIC WORKS ADVENTURE PARK FACILITY

- Need to separate the two functions so that PW staff are not mingling in the same areas as P&R or the summer camp participants
- Separate entries to these spaces
  - P&R would also like an exterior area for car rider drop-off and pick-up
- P&R needs to be more public-facing, and PW needs to be more back-of-house facing
- Separate storage requirements
- Expansion of both departments is requested to better fit the needs of the community
  - P&R would like to have more of a community center setup that allows them to expand their program offerings
  - P&W needs to expand for the type of equipment and storage growth required to service the growing community
- Parking and flow of traffic in and around the facility is hampered by the number of patrons to the park

LECHLER PUBLIC WORKS STORAGE FACILITY

- Currently in a prime location for other development
- In the south end of town, away from the Adventure Park Building on the north end, thus must traverse town to get equipment
- Facility is run down and no longer meets the storage requirements for the City

Preliminary Program: City Hall

Department / Team	Employee Current	Employee Future	Employee Total (Curr.+Fut.)	PO-2 Exec Office 12×14	PO-1 Office 10×12	WS-1 Full 6×8	WS-2* Part-Time 6×8	WS-3* Intermediate 6×6	WS-4 Touchdown 6×6	Employee Total	Total SF	Notes
City Manager	2	2	4	2	2					4	576	Note 2
Clerk of Council	1	1	2		1	1				2	168	
Engineering	3	2	5		2	3				5	384	Note 8
Human Resources	2	0	2	1		1				2	216	Note 2
Finance	4	2	6		2	4				6	432	Note 7
Community Engagement	2	1	3		1	2				3	216	
Economic Development	1	2	3		1	2				3	216	Note 7
Planning	2	2	4		1	3				4	264	Note 8
Building Official	3	2	5		1	4				5	312	
Legal	1	0	1			1				1	48	
Intern/Visitor	1	0	1			1				1	48	
Department Subtotal	**22**	**14**	**36**	**3**	**11**	**22**	**0**	**0**	**0**	**36**	**2,880**	

Notes

* shared workspaces

1. One of these storage rooms is common use and one is secured for Finance and Human Resources.
2. Include a small table for 4 in the office space.
3. One of these rooms is to be near the entrance to the Council Chambers for use by Council members.
4. Locate this room between administration area (City Mgr's office and Council Chambers so it can be used for executive session.
5. Intent is for most of this square footage to serve as a public lobby for interaction between public and various public-facing departments.
6. One pair of toilet rooms is to be located near lobby/Council Chambers and one pair is to be staff only within administration area.
7. Located in the executive suite near the City Manager's office.
8. Adjacent to Building Department.

Shared Support Spaces	Length (ft.)	Width (ft.)	SF	Qty	Total	Notes
Huddle Room (4 Person)	10	12	120	2	240	
Open Work/Collaboration Area	12	14	168	1	168	
Sm. Conference Room (6–10 Person)	12	16	192	2	384	Note 3
Md. Conference Room (10–14 Person)	*14*	*18*	*252*	*2*	*504*	
Md. Conference Room (14–16 Person)	16	20	320	0	0	
Lg. Conference Room (16–20 Person)	16	30	480	1	480	Note 4
Council Chambers (30–40 Person)	30	40	1,200	1	1,200	
Training Room (30–40 Person)	*30*	*40*	*1,200*	*0*	*0*	
Visitor Entry / Vestibule / Security	*20*	*30*	*600*	*0*	*0*	*Note 5*
Copy / Print / Supply Area	10	12	120	1	120	
Storage Room	10	12	120	2	240	Note 1
Mother's Room / Wellness Room	10	10	100	1	100	
Focus / Phone / Zoom Room	8	8	64	2	128	
Workcafé / Breakroom / Employee Hub			600	1	600	
Coffee / Pantry / Hospitality Area	*12*	*14*	*168*	*0*	*0*	
Women's Restroom	12	20	240	2	480	Note 6
Men's Restroom	12	20	240	2	480	Note 6
IDF Room	10	10	100	1	100	
Shared Support Spaces Subtotal					**5,224**	

Totals		
Subtotal Usable Square Feet		8,104
Circulation Factor	40%	3,242
Total Usable Square Feet		11,346
Building Grossing Factor	10%	1,135
Estimated RSF		**12,480**

Preliminary Program: Police

Department / Team	**Employee** Current	**Employee** Future	**Employee** Total (Curr.+Fut.)	**PO-2** Exec Office 12×14	**PO-1** Office 10×12	**WS-1** Full 6×8	**WS-2*** Part-Time 6×8	**WS-3*** Intermediate 6×6	**WS-4** Touchdown 6×6	**Employee Total**	**Total SF**	**Notes**
Office (Chief)	1	0	1	1						1	168	
Office (Deputy Chief)	1	0	1		1					1	120	
Office (Clerks)	3	0	3			3				3	144	Notes 1 & 3
Office (Patrol Sargeants)	4	0	4			4				4	192	Note 2
Office (Detectives)	3	0	3			3				3	144	Note 1
Department Subtotal	**12**	**0**	**12**	**1**	**1**	**10**	**0**	**0**	**0**	**12**	**768**	**Note 12**

Notes

* shared workspaces

1. Shared office for 3.
2. Shared office for 4.
3. Requires adjacency to public lobby.
4. One conference room dedicated to detectives' use.
5. Conference room dedicated to Chief's use.
6. Relocate existing high density storage system.
7. Storage for outdoor equipment and bulk materials not used in the office.
8. To be located at staff entrance.
9. Space for 4 terminals for officer use.
10. Assumes 6'-0" x 75'-0" lane, approximately 30'-0" behind lane for bullet capture and service, and 20'-0" for firing lane and circulation.
11. Main entrance lobby.
12. This departmental total doesn't include patrol officers.
13. Adjacent/contiguous with sallyport.
14. Covered but not attached to building.

Shared Support Spaces	Length (ft.)	Width (ft.)	SF	Qty	Total	Notes
STAFF SUPPORT/AMENITY SPACES						
Huddle Room (4 Person)	10	12	120	0	0	
Resource Area	12	14	168	1	168	Note 9
Sm. Conference Room (6–10 Person)	12	16	192	2	384	Note 4
Md. Conference Room (10–14 Person)	14	18	252	1	252	Note 5
Md. Conference Room (14–16 Person)	*16*	*20*	*320*	*0*	*0*	
Lg. Conference Room (16–20 Person)	*16*	*30*	*480*	*0*	*0*	
Break Room	*12*	*15*	*180*	*0*	*0*	
Copy / Print / Supply Area	10	12	120	1	120	
Mother's Room / Wellness Room	*10*	*10*	*100*	*0*	*0*	
Focus / Phone / Zoom Room	8	8	64	2	128	
Workcafé / Breakroom / Employee Hub	10	20	200	1	200	
Coffee / Pantry / Hospitality Area	*12*	*14*	*168*	*0*	*0*	
Women's Restroom	12	20	240	1	240	
Women's Shower (2)	8	10	80	1	80	
Women's Lockers (15 total)	16	16	256	1	256	
Men's Restroom	12	20	240	1	240	
Men's Showers (2)	8	10	80	1	80	
Men's Lockers (30 total)	16	28	448	1	448	
LAW ENFORCEMENT SPECIFIC SPACES						
Roll Call (30–40 Person)	30	40	1,200	1	1,200	
Secure/Staff Entry Vestibule	8	10	80	1	80	
Sallyport	16	24	384	1	384	
Processing Room	8	10	80	1	80	
Processing Toilet Room	8	8	64	1	64	
File Storage Room	16	24	384	1	384	
Evidence Storage	10	20	200	1	200	Note 6
Vehicle Evidence Storage	16	24	384	2	768	

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Shared Support Spaces	Length (ft.)	Width (ft.)	SF	Qty	Total	Notes
Evidence Processing	8	16	128	1	128	
Equipment Storage	6	16	96	1	96	Note 7 & 13
Bicycle Storage	8	10	80	1	80	Note 13
In Duty Bag Storage	4	10	40	1	40	Note 8
Weight/Exercise Room	30	40	1,200	1	1,200	
Mat Room	40	35	1,400	1	1,400	
Armory	8	10	80	1	80	
Gun/Ammunition Storage	8	10	80	1	80	
Firing Lane	6	130	780	4	3,120	Note 10
Covered Police Vehicle Parking	10	20	200	16	3,200	Note 14
PUBLIC INTERVATION SPACES						
Visitor Entry / Vestibule / Security	15	15	225	1	225	Note 11
Interview Room	8	10	80	2	160	Note 3
OTHER						
IDF Room	10	10	100	1	100	
Shared Support Spaces Subtotal					**15,665**	

Totals		
Subtotal Usable Square Feet		16,433
Circulation Factor	40%	6,573
Total Usable Square Feet		23,006
Building Grossing Factor	10%	2,301
Estimated RSF		**25,307**

Preliminary Program: Public Service

Department / Team	Employee Current	Employee Future	Employee Total (Curr.+Fut.)	PO-2 Exec Office 12×14	PO-1 Office 10×12	WS-1 Full 6×8	WS-2* Seasonal 6×8	WS-4 Touchdown 6×6	None	Employee Total	Total SF	Notes
Administrative												
Parks & Recreation	4	2	6		2	4				6	432	
Public Works	11	6	17		2	3			12	17	816	Note 1
Seasonal Staff	12	3	15				4		9	13		Note 2 & 3
Department Subtotal	**27**	**11**	**38**	**0**	**4**	**7**	**4**	**0**	**21**	**36**	**1,248**	

Notes

* shared workspaces

1. One workstation is for a vehicle mechanic and would be within the garage space.
2. Seasonal staff desks can be shared by seasonal staff and year round part time staff.
3. Current seasonal staff count is 7 for Parks & Rec and 5 for Public Works.
4. Large conference room in proximity to garage for use as morning briefing room.
5. Room to be dividable into a 6–8 person conference room and a 10–12 person conference room that can be used concurrently.
6. Sized for a full size basketball court. Court size to be 84′ × 50′ (high school size) with 10′-0″ buffer around full perimeter.
7. Provide with a sprung floor system.
8. 6 lane track ringing the gymnasium. Track could be elevated which would reduce space requirement. Assume 25′-0″ added to perimeter of gym space.
9. Includes front and back counters and seating at front facing tables for 16.
10. Locker room space calculated at 10 SF per rec center SF.
11. Assume Vehicle Storage is not fully conditioned (heat only).
12. Capacity for 1500 tons of salt, on property but not attached to building.
13. Attached and adjacent to the salt dome.

Shared Support Spaces	Length (ft.)	Width (ft.)	SF	Qty	Total	Notes
COMMON/SHARED						
Huddle Room (4 Person)	10	12	120	2	240	
Open Work/Collaboration Area	12	14	168	1	168	
Sm. Conference Room (6-10 Person)	12	16	192	2	384	
Lg. Conference Room (16-20 Person)	16	40	640	1	640	Note 4 & 5
Visitor Entry / Vestibule / Security	20	30	600	1	600	
Copy / Print / Supply Area	10	12	120	1	120	
Storage Room	10	12	120	1	120	
Mother's Room / Wellness Room	10	10	100	1	100	
Women's Restroom (P&R staff)	12	20	240	1	240	
Men's Restroom (P&R staff)	12	20	240	1	240	
Women's Restroom (PW staff)	8	8	64	1	64	
Men's Restroom (PW staff)	12	20	240	1	240	
Women's Shower (PW staff)	4	13	52	1	52	
Men's Shower (PW staff)	4	13	52	2	104	
Women's Lockers (15 total)	16	20	320	1	320	
Men's Lockers (5 total)	8	10	80	1	80	
IDF Room	8	8	64	1	64	
PUBLIC WORKS						
Sign Shop	15	30	450	1	450	
Sign Shop Storage	15	8	120	1	120	
Welding Shop	20	30	600	1	600	
Welding Shop Storage	20	8	160	1	160	
Carpentry Shop	20	30	600	1	600	
Carpentry Shop Storage	20	8	160	1	160	
Loading Dock	12	20	240	1	240	
Salt Dome	50	80	4,000	1	4,000	Note 12
Brine Solution Making Area	10	20	200	1	200	Note 13

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Shared Support Spaces	Length (ft.)	Width (ft.)	SF	Qty	Total	Notes
RECREATION CENTER						
Gymnasium	104	70	7,280	1	7,280	Note 6
Dance/Fitness Studio	20	30	600	1	600	Note 7
Exercise/Equipment Room	40	60	2,400	1	2,400	
Indoor Walking Track			11,200	1	11,200	Note 8
Multi-purpose Room	20	30	600	8	4,800	
Art Room	20	30	600		600	
Demonstration Kitchen	25	25	625	1	625	Note 9
Demonstration Kitchen Storage	8	25	200	1	200	
Men's Lockers (public)			1,500	1	1,500	
Women's Lockers (public)			1,500	1	1,500	Note 10
Men's Restroom (public)	12	20	240	1	240	Note 10
Women's Restroom (public)	12	20	240	1	240	
Men's Shower (public)	4	13	52	4	208	
Women's Shower (public)	4	13	52	4	208	
Public Lobby/lounge	30	50	1,500	1	1,500	
SUBTOTAL					**33,101**	
INDOOR VEHICLE STORAGE						
Indoor Parking			8,000	1	8,000	Note 11
Vehicle Repair Bay with lift	15	40	600	1	600	
Vehicle Wash Bay	15	40	600	1	600	
Shared Support Spaces Subtotal					**52,607**	

Totals		
Subtotal Usable Square Feet		53,855
Circulation Factor	40%	21,542
Total Usable Square Feet		75,397
Building Grossing Factor	10%	7,540
Estimated RSF		**82,937**

Vehicle Programming

	Outdoor #	Covered #	Indoor #	Parking Space Width	Parking Space Length	Parking Space Area	EV	Inventory Number/Notes
WORK VEHICLES								
A work vehicle is any vehicle an employee is not likely to use more than minimally for personal purposes because of its design								
Plow Truck			8	15	37	4440		101, 102, 103, 104, 105, 105, 122, 123
Tractor / Trailers	1			25	65			A201
Trailer	1			9				A204 — length unknown
MOBILE EQUIPMENT								
Additional equipment required to be stored in the yard								
Rubber Tire Tractor /Front End Loader			4	9	20	720		A205, A208, A225, A226
Walk Behind Mower/Bunker Rake			5	6	8	240		A207, A212, A214, A215, A219
Riding Mower			3	6	8	144		A216, A220, A221
Skid Steer Loader with Trailer			1	9	20	180		
Utility Vehicle			5	8	12	480		A210, A211, A213, A222, A223
POOL/COMMUTER								
A staff/pool vehicle is assigned for a specific business need and is generally parked at a City location during nights and weekends								
Medium Duty			9	9	20	1620		107, 108, 109, 110, 111, 112, 113, 120, 124
Personal Vehicles	28			9	20			24 Public Works (future) + 4 Parks & Rec (future)
Visitor Vehicles	12			9	20			
Subtotal Indoor Parking Area						**7824**		

Overall Recommendations and Diagrams

Recommendations

The design team was able to evaluate the building utilizations based on post-interview walkthroughs with each department and by accessing the electronic drawing data that is maintained by the City of Powell.

In review of all the different data sets collected (stakeholder interviews, departmental program requirements, existing facility condition assessments), the design team has come to the following conclusions:

- During departmental interviews, opportunities for program consolidation were identified, but some departments with increasing needs would require additional building space that is not currently available in the existing facilities.
- Each facility reviewed has reached the end of its usable lifespan:
  - Current probable cost of rectifying past deferred maintenance items plus the cost of the discussed growth of each department, would outweigh the probable cost to construct a new facility.
    - MEP equipment is at the end of its lifespan, thus full replacement of these items is recommended, which is a high dollar capital replacement cost that would not benefit the growth needs.
  - There is not enough open available usable square footage in each facility to meet the growth needs of each department.

- Current locations of each of the facilities is not conducive to the growth and accessibility needs of the community.
    - The Municipal Building is located in an area being reviewed as part of the redevelopment as part of the Village Green Master Plan.
    - The Police Department is located in an area that has accessibility issues to the major transportation arteries / thoroughfares of the community.
    - The Adventure Park Parks & Recreation / Public Services facility is landlocked in a growing community park area and accessibility and storage issues at this location causes the City to utilize multiple locations for city storage.
    - The Lechler City Public Works storage facility is located away from the main facility across town. While it serves its purpose, this distance causes response delays.

Based on our review of the data collected, we recommend that the existing functions at each facility be relocated into a future new facility at a site selected by the City. The following items and diagrams work through how each facility could be set up based on the consolidation of space, the growth of the existing departments, and the interconnectivity of those departments with each other and the community at large.

City Municipal Building

The design team's recommendation is that the City of Powell Municipal Building be relocated from its current constrained facility and site to a more visible and accessible location. While the current facility has served its purpose, a new location will allow for proper future growth of the city services being offered as well as an increase in collaboration between internal departments and with the local community.

This recommendation also includes the separation of the City municipal departments from the police headquarters. Either by a physical building location separation or a hard physical separation, these two entities need to be able to function without the current degree of access between them, as it creates a security and chain-of-custody issue.

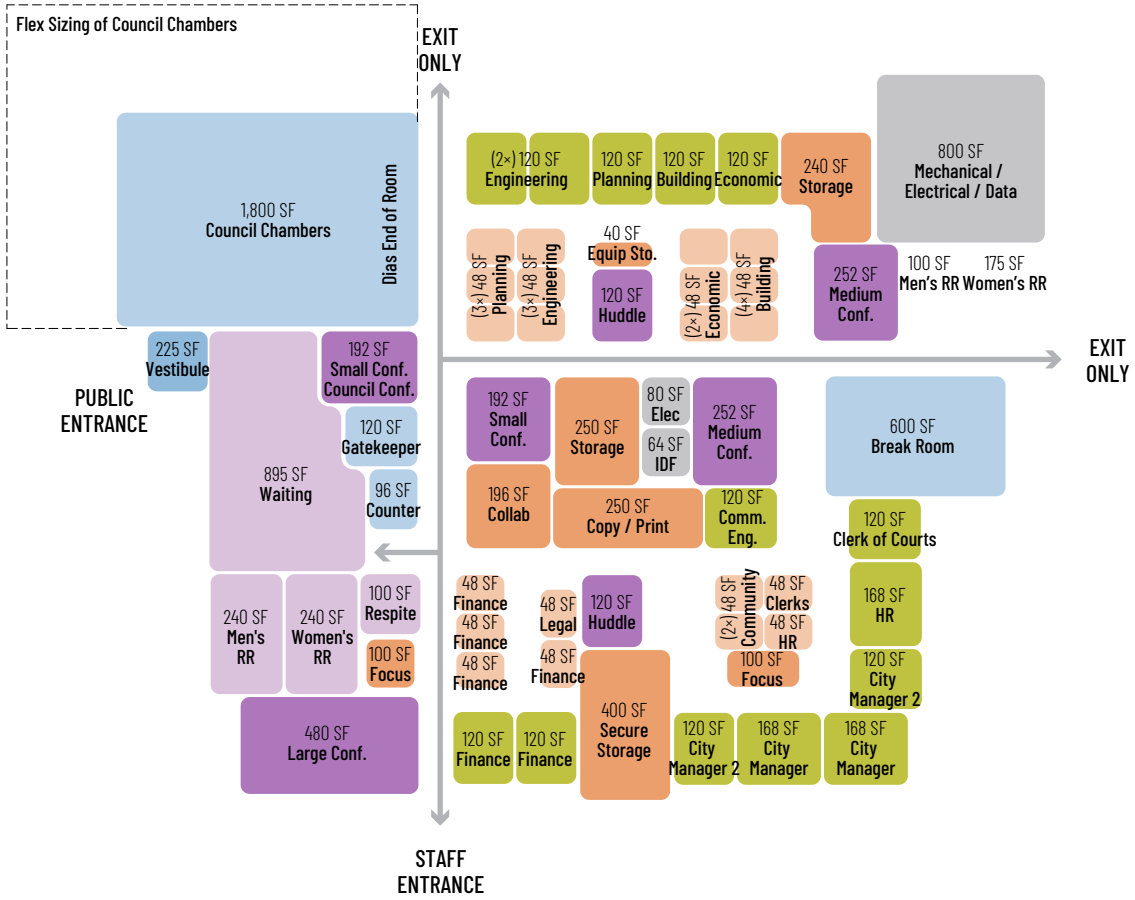
The intention of this design concept is to provide a one-stop center for the general public to be able to access city services (building, planning, zoning, and economic development) and allow for better outreach of the City to the general public, all while allowing for proper growth of internal City departments (HR, Finance, Community Outreach, etc.) as the City continues to grow.

As part of the design concept there shall be additional studies exploring the idea of a single-story versus a two-story building in response to the locations being considered for this new facility.

- If the facility is to be relocated to be more adjacent to the city center area, then a two-story facility concept with a minimal footprint shall be investigated.
- If the facility to be relocated on a larger expanse of land, then a single-story concept shall be investigated.

This relocation will allow for the increase in amenities and access to the Village Green Park area, which is reflected in the Village Green Master Plan document, currently being created by Pizzuti and the City of Powell, which is still in the master planning and review process.

BUBBLE DIAGRAM



SITE PLAN

Site Areas

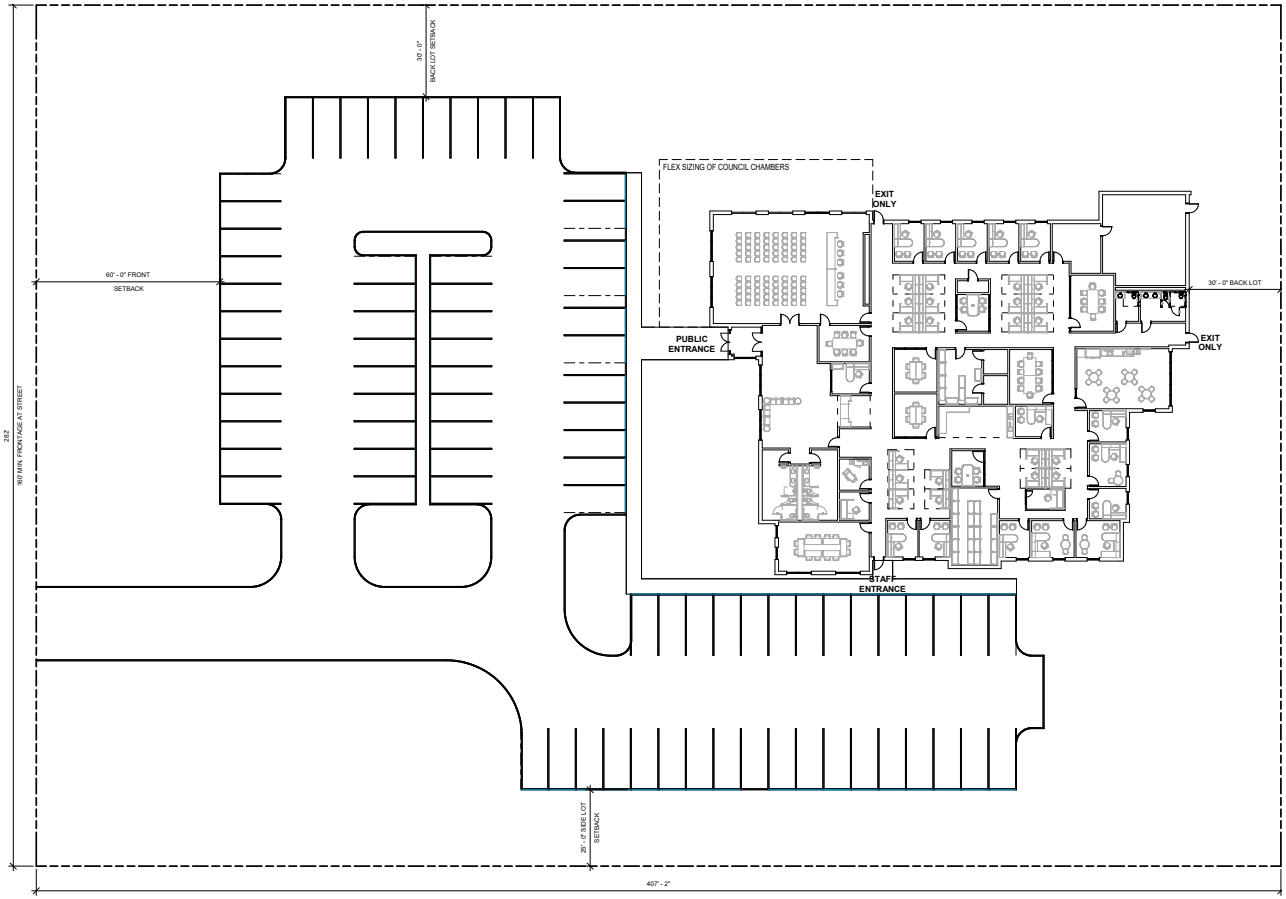
Building	15,842 SF
Pavement	33,220 SF
Subtotal	49,062 SF

Lot Area

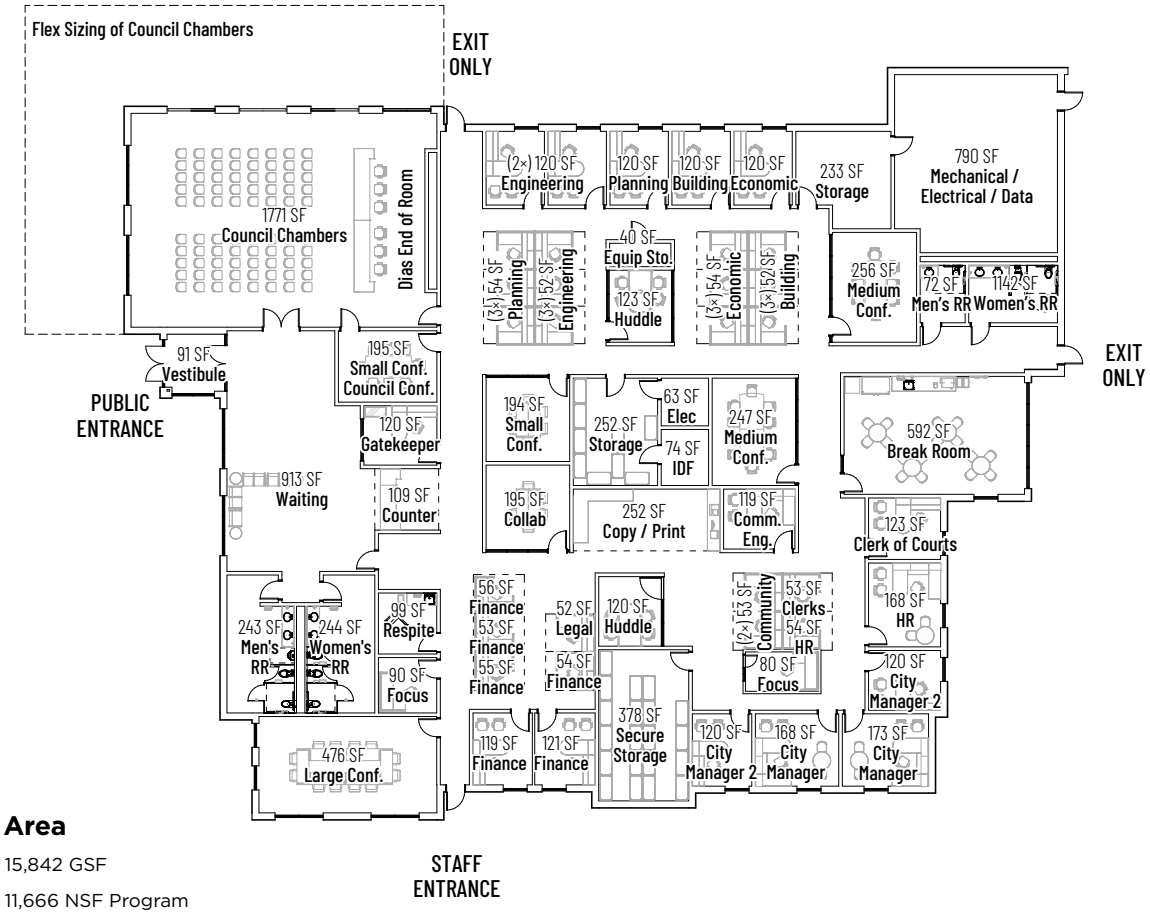
Lot size w/ min. setbacks	114,695 SF/ 2.62 acres (42% lot coverage)
Lot size w/ max lot coverage	245,310 SF/5.63 acres (20% lot coverage)

*Based on PO-planned office district and PC-planned commercial district as requirements and building types are most compatible with these zones

**The zoning code requirements based on specific road locations (Powell Road west of Sawmill Road and/or Sawmill Parkway) have not been included in the lot sizes above.



SCHEMATIC PLAN



Area

15,842 GSF

11,666 NSF Program

2,666 NSF of Circulation

MEP DESIGN NOTES

- Building to be fully suppressed, with a concept idea of concealed sprinkler heads in common public spaces, exposed downturn heads in back-of-house areas, and upturn heads in any exposed ceiling conditions.
- A fully addressable fire alarm system shall be designed and installed in this facility.
- Plumbing system design to require a 2" diameter service main at a minimum.
- Mechanical design should be to utilize roof top units with a VAV terminal box zoning system for more accurate user temperature control.
  - Any IDF or Technology Closets to be independently cooled utilizing a local mini-split system.
  - Building should be set up with BAS control system with interfacing to the City's current monitoring/control system.

- Electrical system shall be designed to meet the requirements of a 480/277 volt system or 208/120 volt 3-phase system, whichever is being provided to the property.
    - A small backup generator shall be included in the initial design to maintain municipal technology and life safety systems as required.
    - All lighting shall be LED type.
    - All outlets in public spaces (including conference / meeting spaces) to also have USB ports for convenient charging.
- As it relates to the height of the designed facility, a possible Lighting Protection System shall be reviewed for inclusion to the building.
    - A Emergency Responder Radio Antenna/ Repeater System (ERRS) shall be included in the design discussions pending review with the local Emergency Services.
- Low-voltage systems shall be reviewed with the Client prior to design work, this includes all A/V, communications systems, and security system requirements.
    - Include door access controls with the Client as part of the concept design.

Police Department

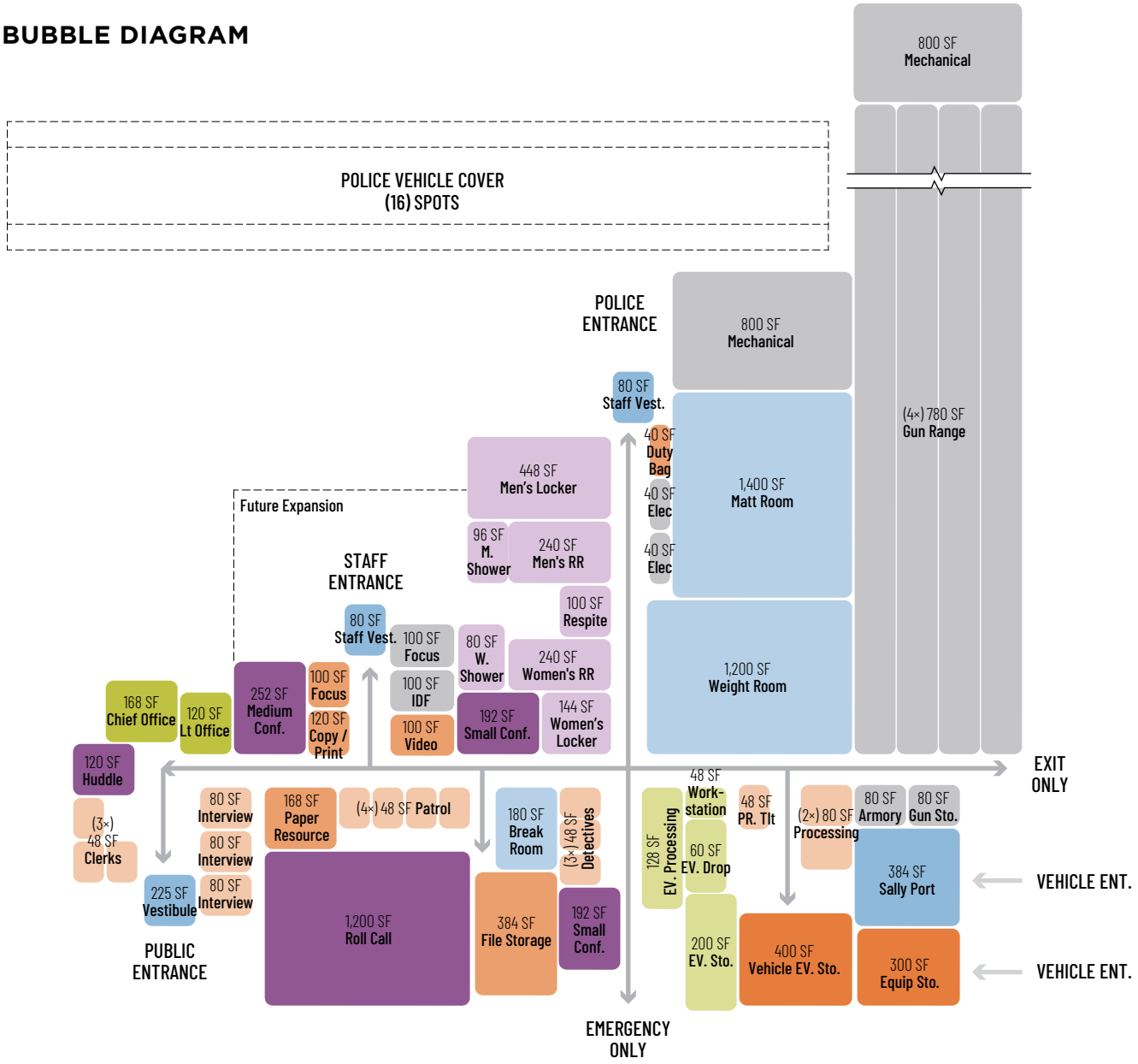
The police department needs to be its own entity and in its own location. Due to the change in policy/procedure, some of the current spaces are not required or are being used in a different manner than was originally intended. Additionally, inefficiencies in the current layout of the facility that create roadblocks to collaborate amongst police staff. There are also constraints regarding how the police department would like to operate in the current facility that a new facility can alleviate.

It is the design team's recommendation that a new facility be constructed either at the south end of the Village Green Park, where there is better access to the main roads without having to deal with congestion to the main road, or to the north in the Seldom Seen Park area, which is more central to the entire city population.

As part of the design concept, the following upgrades to the flow and efficiency of the facility should be considered:

- Properly covered exterior parking areas for the marked and unmarked police vehicles
  - This canopy area should not be made of solar panels as a structure but could incorporate solar panels on top of a proper roof structure
- Better access to the facility for the general public and separate access for staff
- Additional interview rooms and meeting / training spaces
- Additional secure storage for files, evidence, and a proper armory area
- Clear separation between the administrative areas and operational areas as it pertains to the security and movement of person(s) and evidence

BUBBLE DIAGRAM



SITE PLAN

Site Areas

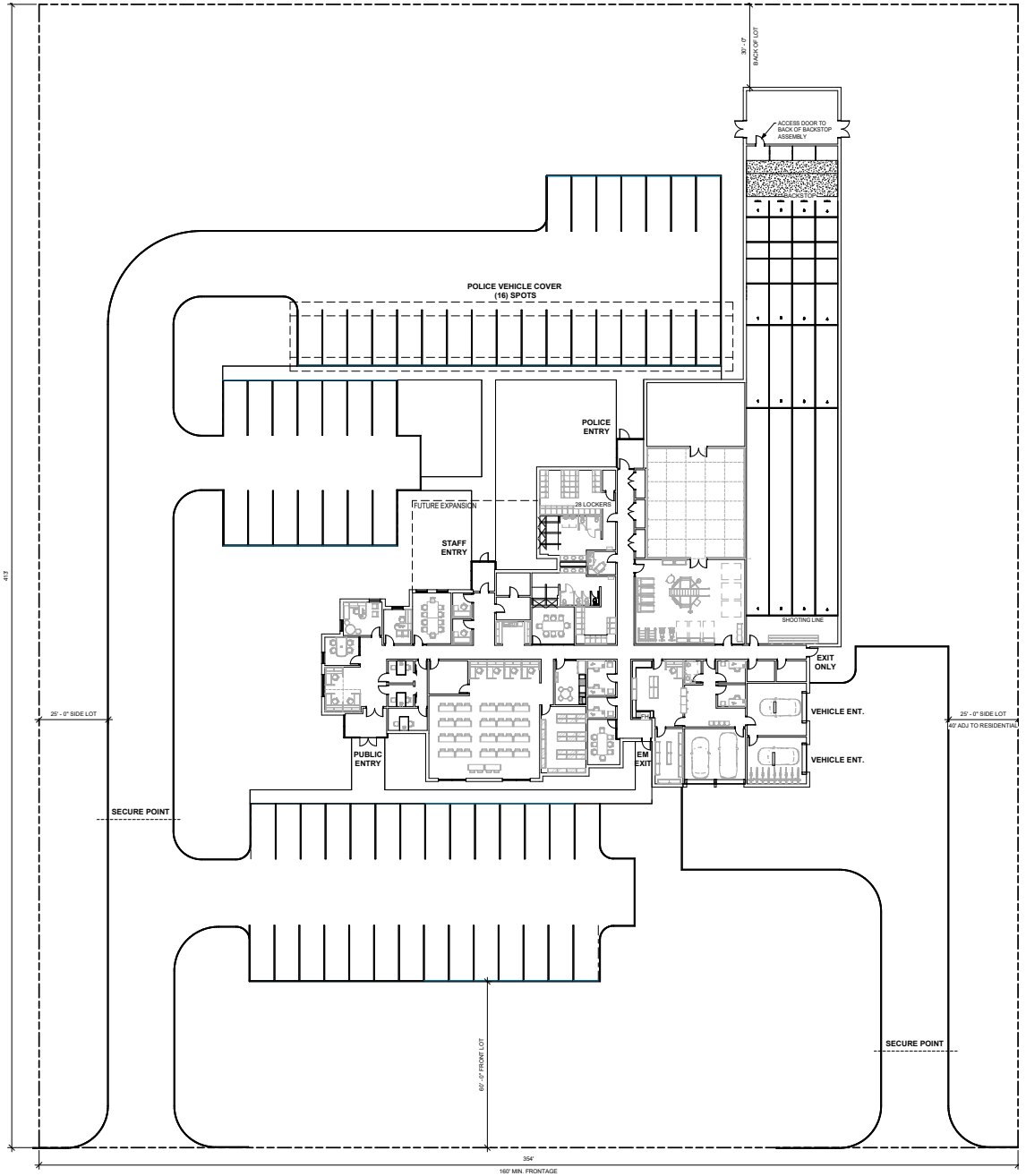
Building	26,104 SF
Pavement	21,947 SF
Subtotal	48,051 SF

Lot Area

Lot size w/ min. setbacks	138,954 SF/ 3.2 acres (64% lot coverage)
Lot size w/ max lot coverage	442,015 SF/10.14 acres (20% lot coverage)

*Based on PO-planned office district and PC-planned commercial district as requirements and building types are most compatible with these zones

**The zoning code requirements based on specific road locations (Powell Road west of Sawmill Road and/or Sawmill Parkway) have not been included in the lot sizes above.



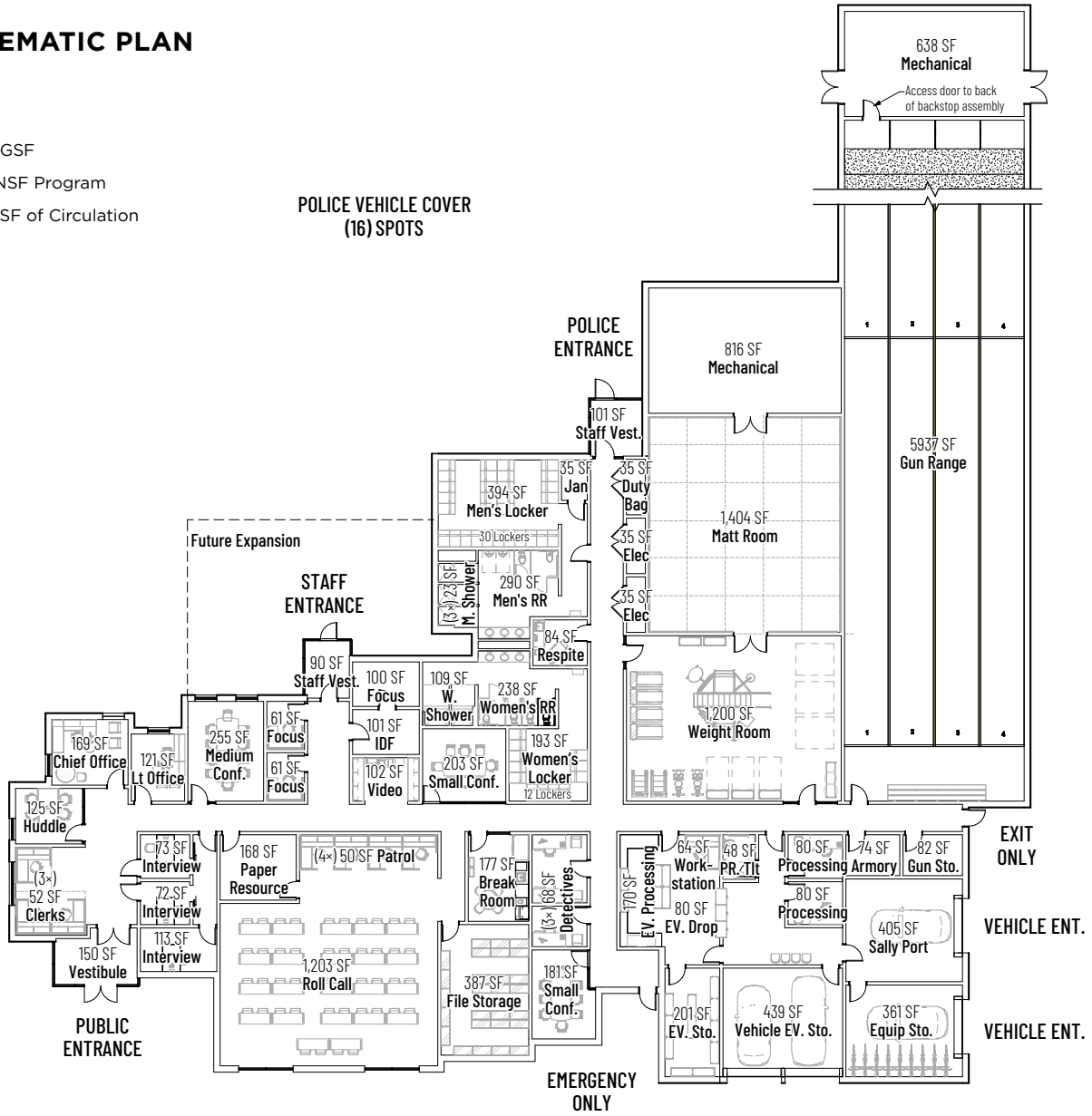
SCHEMATIC PLAN

Area

22,568 GSF

17,997 NSF Program

1,998 NSF of Circulation



MEP DESIGN NOTES

- Building to be fully suppressed, with a concept idea of concealed sprinkler and upturn heads in any exposed ceiling conditions. Wet system throughout, but in vehicle storage and main electrical / IT communications area a “dry system” shall be considered.
- A fully addressable fire alarm system shall be designed and installed in this facility.
- Plumbing system design to require a 2″ diameter service main at a minimum.
- Mechanical design should be to utilize roof top units with a VAV terminal box zoning system for more accurate user temperature control.
  - Any IDF or Technology Closets to be independently cooled utilizing a local mini-split system.
  - Building should be set up with BAS control system with interfacing to the City’s current monitoring/control system.

- Electrical system shall be designed to meet the requirements of a 480/277 volt system or 208/120 volt 3-phase system, whichever is being provided to the property.
  - A medium-sized backup generator shall be included the design to maintain all technology for the facility, consider this a 24/7 facility with Emergency Operations Command capabilities.
  - All lighting shall be LED type.
  - All outlets in public spaces (including conference / meeting spaces) to have USB ports for convenient charging.
- Due to the 24/7 Emergency Action Center, a Lighting Protection System shall be provided.
  - A Emergency Responder Radio Antenna/ Repeater System (ERRS) shall be included in the design with location properly coordinated for maximum signal strength.
- Low-voltage systems shall be reviewed with the Client prior to design work, this includes all A/V, communications systems, and security system requirements.
  - Door access controls is a must and shall be coordinated with the Client as part of the design.

Parks & Recreation / Public Works Building

The shared facility of the Parks & Recreation Department and the Public Works Department brings about its own challenges. The two entities couldn't be more different, but there is some crossover in management of these departments. Hence why the concept for this facility becomes more linear in nature.

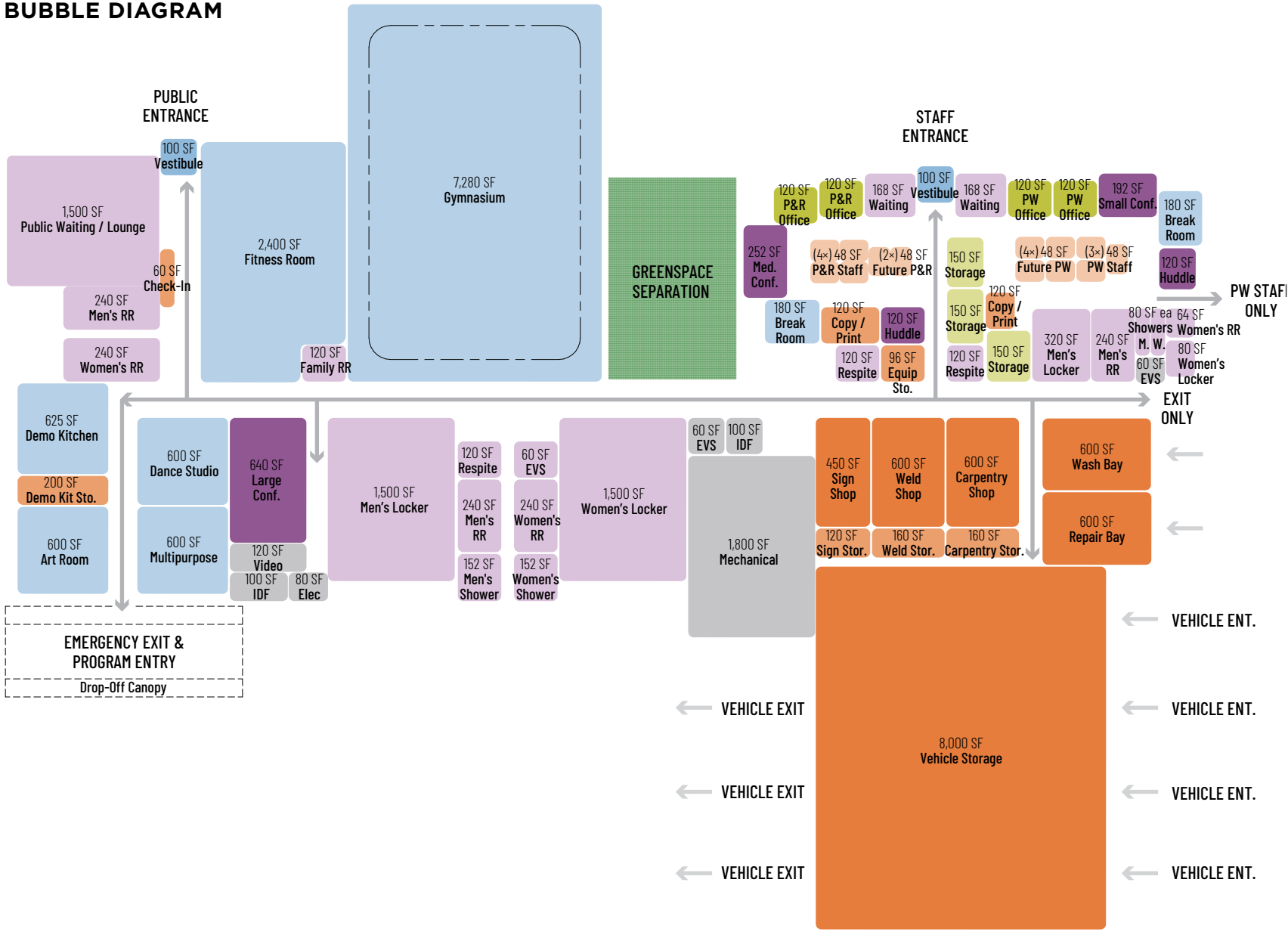
The team's recommendation is that a new facility should be constructed that creates a more formal public front image on the Parks & Recreation side as compared to the Public Works department's more service-oriented nature. The layout of this facility shall be such that the two entities can reside together or as separate facilities.

Per the design concept, the design team is indicated that one side of the facility could be a Community Center that would meet the program needs of the Parks & Recreation Department and the other side could be dedicated to Public Works. As the concept drawings show, this design concept could be a singular facility linear in fashion, or possibility these could be two separate facilities located in close proximity to each other on a larger site.

As part of the design concept the following upgrades to the flow and efficiency of the facility should be considered:

- Drop-off canopy for program participants on the P&R side of the facility based on the increase in program participants over the years and requests for future growth of offered programs
- A public side of the facility vs a services side of the facility with clear separation between the two entities
- Additional public and offered program amenities
- Expansion of the storage needs for the Public Works department
    - Inclusion of a larger salt dome and brine-making stations

BUBBLE DIAGRAM



SITE PLAN

Site Areas

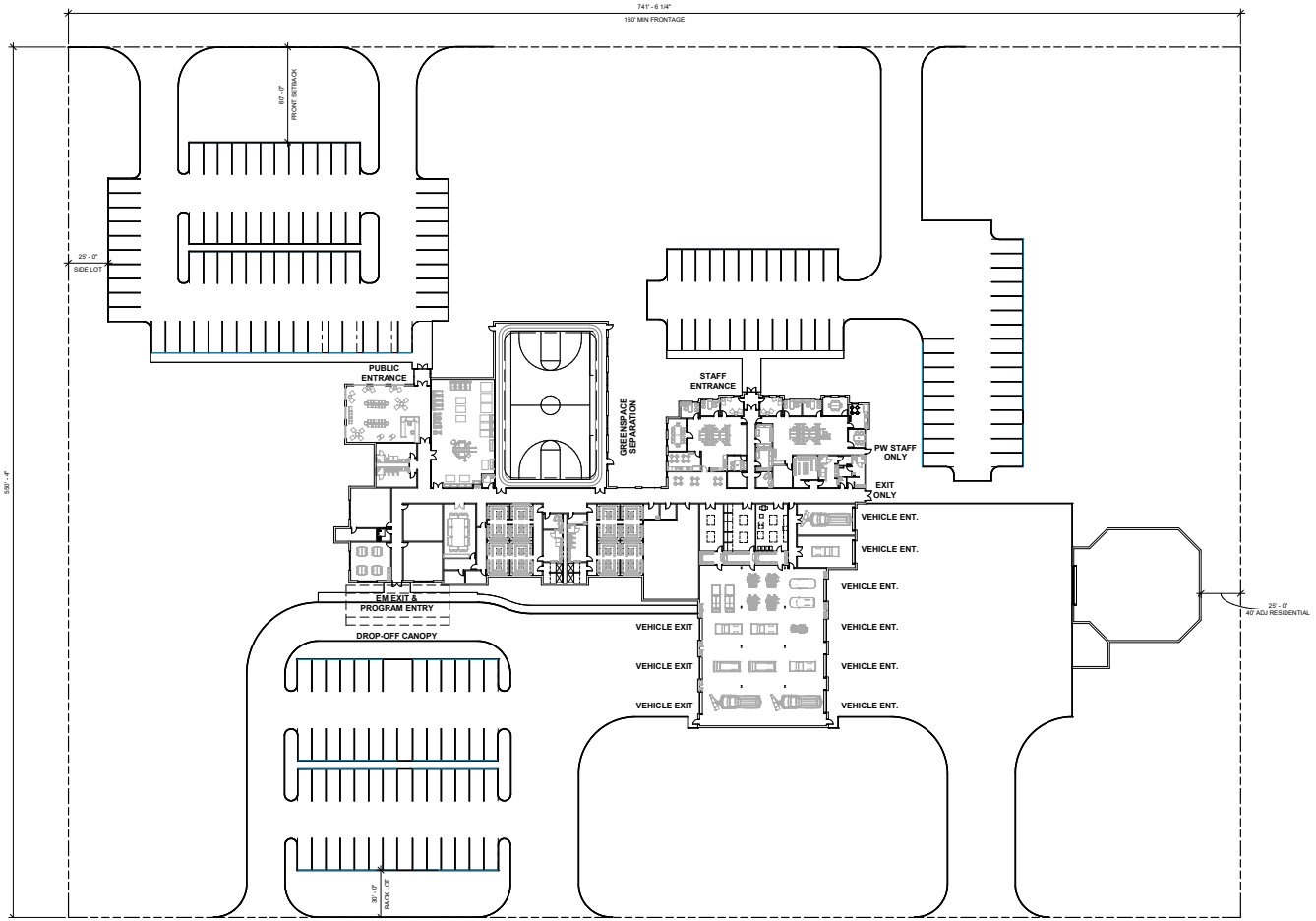
Building	47,933 SF
Pavement	124,995 SF
Subtotal	172,928 SF

Lot Area

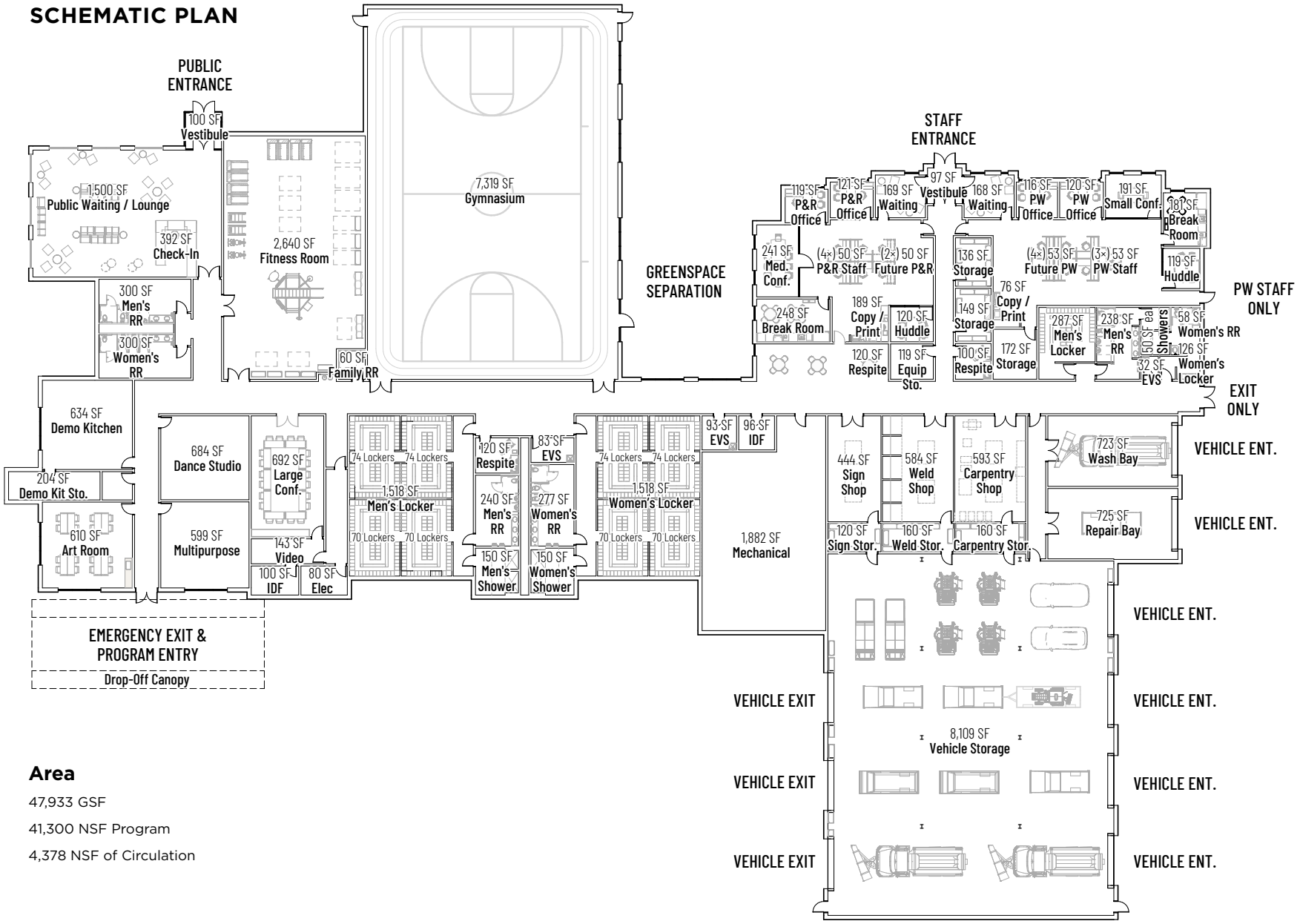
Lot size w/ min. setbacks	408,081 SF/ 9.4 acres (43% lot coverage)
Lot size w/ max lot coverage	864,640 SF/20 acres (20% lot coverage)

*Based on PO-planned office district and PC-planned commercial district as requirements and building types are most compatible with these zones

**The zoning code requirements based on specific road locations (Powell Road west of Sawmill Road and/or Sawmill Parkway) have not been included in the lot sizes above.



SCHEMATIC PLAN



Area

47,933 GSF

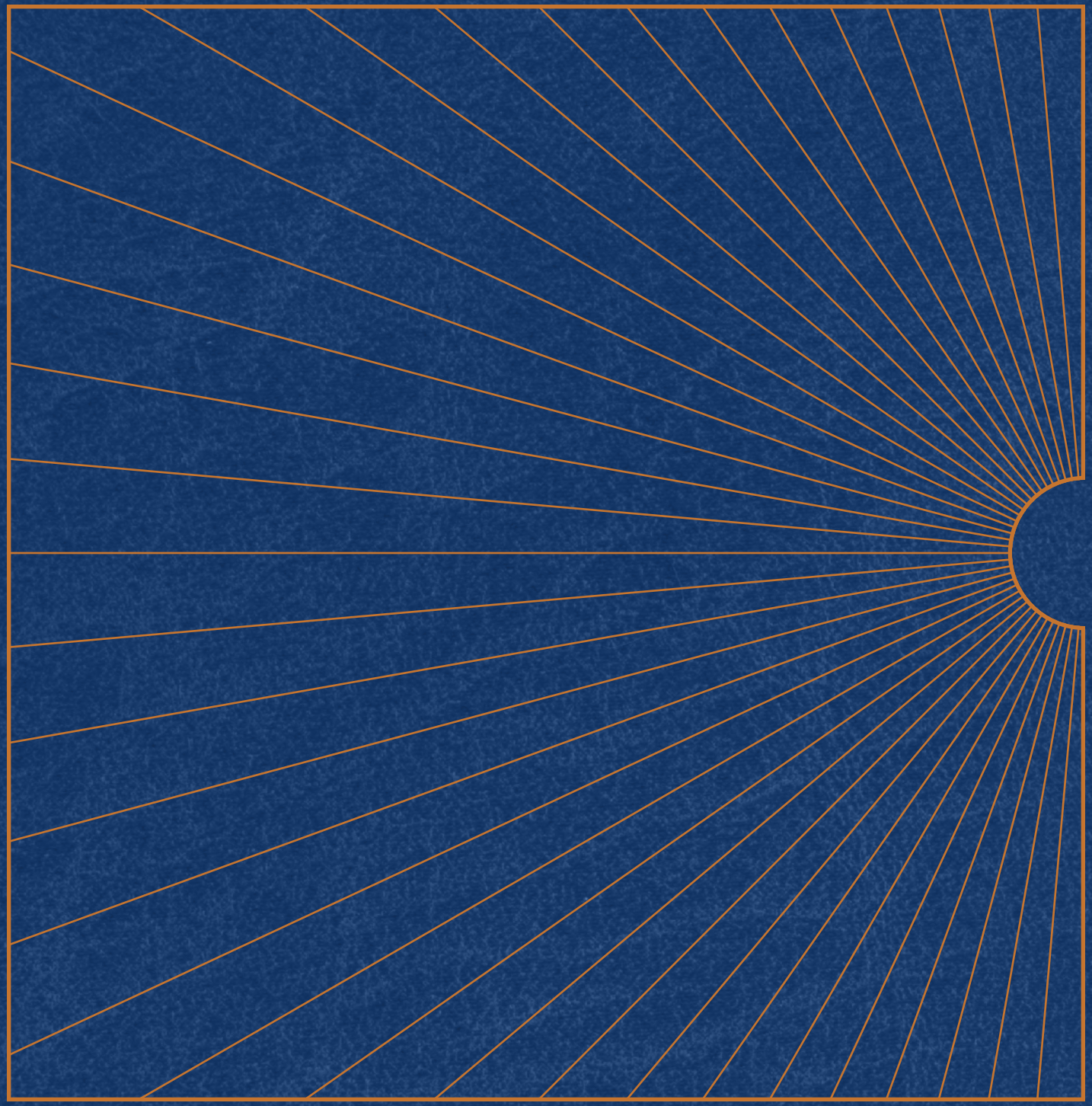
41,300 NSF Program

4,378 NSF of Circulation

MEP DESIGN NOTES

- Building to be fully suppressed, with a concept idea of concealed sprinkler and upturn heads in any exposed ceiling conditions. Wet system throughout, but in vehicle storage and main electrical / IT communications area a “dry system” shall be considered.
- A fully addressable fire alarm system shall be designed and installed in this facility.
- Plumbing system design to require a 2” diameter service main at a minimum.
- Mechanical design should be to utilize roof top units with a VAV terminal box zoning system for more accurate user temperature control.
  - Larger rec spaces may require large ground mounted units but these shall be located and screened from view.
    - Including any large chiller requirements.
  - Any IDF or technology closets to be independently cooled utilizing a local mini-split system.
  - Building should be set up with BAS control system with interfacing to the City’s current monitoring/control system.

- Electrical system shall be designed to meet the requirements of a 480/277 volt system or 208/120 volt 3-phase system, whichever is being provided to the property.
    - A small backup generator shall be included in the initial design to maintain municipal technology and life safety systems as required.
    - All lighting shall be LED type.
    - All outlets in public spaces (including conference / meeting spaces) to have USB ports for convenient charging.
- As it relates to the height of the designed facility, a possible Lighting Protection System shall be reviewed for inclusion to the building.
    - A Emergency Responder Radio Antenna/ Repeater System (ERRS) shall be included in the design discussions pending review with the local Emergency Services.
- Low-voltage systems shall be reviewed with the Client prior to design work, this includes all A/V, communications systems, and security system requirements.
    - Include door access controls with the Client as part of the concept design.



Appendix

Municipal Building
Conceptual Engineering Design Narrative

By: Korda/Nemeth Engineering
Issue 1
Korda File: 2024-0225
November 10, 2025

I. INTRODUCTION

This version of the design narrative (Issue 1) is being written in the Master Planning phase. Hence, the information that exists at this point regarding the building size and configuration is both of a preliminary and general nature. Our team has assembled our recommendations for the MEP systems with the information provided to date. The final design may need to be adjusted if the final design of the building is not conducive to a design solution that is recommended in this narrative.

Although all aspects of the design are subject to Owner review and approval, there are some items that we would like to draw specific attention to. These might be items of a controversial nature, or simply items we believe deserve more detailed attention and discussion. **These items are presented in bold face in this document.**

Also in bold face are items that go beyond the basic system requirements and thus may be considered enhancements. While there can be many such "bells and whistles" we recommend that the ones we included in this narrative be given serious consideration and be eliminated only if overriding financial considerations so require. We expect that this review will come at a later stage of the development of the project, when the team will be in a better position to weigh all budgetary considerations.

As the design develops, further versions of the narrative will be published and should be broadly reviewed by all the people who are involved in this project.

II. CODES, REGULATIONS AND DESIGN STANDARDS

All design will satisfy the applicable portions of the following codes, regulations and standards:

A. IBC 2015, International Building Code

B. International Plumbing Code

C. International Mechanical Code

D. International Fire Code (IFC)

E. Local Code Amendments

F. Guidelines for Design and Construction of Hospitals and Health Care Facilities (AIA/DHHS)

G. Ohio Department of Health Requirements

H. Joint Commission Requirements

I. National Fire Protection Association (NFPA)

J. NFPA 101, Life Safety Code

K. ASHRAE Standards

L. National Electrical Code (NEC)

M. Illuminating Engineering Society Recommended Practice (IES)

N. Underwriters Laboratories, Inc. (UL)

O. National Sanitation Foundation (NSF)

P. Factory Mutual (FM)

III. FIRE PROTECTION SYSTEMS

A. Sprinkler Systems

1. The facility will be fully protected with a wet-pipe sprinkler system, with the exception of those areas that must be provided with a dry pipe sprinkler system, **or main electrical room that is exempted by OBC. Specific areas that would require a dry pipe system or frost proof heads (such as canopy overhangs with combustible items located underneath and unconditioned attics requiring sprinkler coverage) have yet to be developed, but will be provided with a dry sprinkler system.**

2. Telecommunication room closets will be provided with a smoke detector to provide early notification of a fire before the fusible link on the sprinkler head breaks.

3. A fire pump is not expected to be required.

4. All administrative and public spaces will be protected as Light Hazard Occupancy 0.10 gpm/ ft^2 over the most remote 1500 ft^2; the maximum sprinkler coverage will be 225 ft^2/head. All storage, mechanical, electrical, and shell spaces will be protected as Ordinary Hazard I Occupancy 0.15 gpm/ft^2 over the most remote 1500 ft^2; the maximum sprinkler coverage will be 130 ft^2/head.

5. Concealed pendant quick response sprinklers with white cover plate will be used in all “front of house” aesthetic areas and semi-recessed sprinkler heads will be used in the remainder of the building. Brass upright quick response sprinklers will be used in all storage, mechanical, electrical and shell spaces. **Flexible sprinkler drops will be allowed.**

6. All wet piping less than 2″ will be schedule 40 black steel with rolled grooved victaulic-type fittings.

Schedule 40 piping shall be used for piping 2″ and higher. All dry-pipe system piping will be black steel with hot-dipped zinc (galvanized) coating.

B. Fire Alarm System/Sprinkler Piping Interface

1. Electronically supervised shutoff valves will be provided on all valves in the fire protection system. Electronically supervised shutoff valves and waterflow detection switches will be provided for each zoned sprinkler area on all floor connections between sprinklers and standpipes. Alarm signals from these devices, as well as from alarm valves, will be routed to the building fire alarm panel. The sprinkler system will be zoned to a maximum area of 50,000 square feet for each light hazard area.

IV. PLUMBING SYSTEM

A. Domestic Cold Water System

1. It is anticipated that the building will require a 2″ domestic water service. The domestic water service will be provided with a meter and reduced pressure backflow preventer. **Additional reduced pressure backflow preventer assemblies will be provided as required for coffee machines, ice makers, and irrigation systems.**

2. A domestic water booster pump is not expected to be required.

3. Exterior wall hydrants will be provided at various locations along the perimeter of the building at a maximum of 250 feet apart. Roof hydrants will be provided on the roof for rooftop equipment maintenance.

4. The domestic cold water will be distributed with type L copper piping with soldered wrought copper pipe

fittings for piping 2" and less. 2½" and larger piping will be copper with brazed wrought copper fittings. **The use of press type fittings will be allowed for piping up to 3".** All domestic cold water piping will be insulated with fiberglass insulation with an all service jacket. Exposed piping below 8 feet will be covered with PVC jacket.

5. System isolation and shut-off valves will be provided at the main water service, all equipment connections, and each branched main serving group plumbing fixtures and departmental areas.

B. Domestic Hot Water System

1. The domestic hot water will be generated by one gas fired tank type water heater. A temperature regulating assembly will be provided to deliver 125°F water for distribution throughout the building to the plumbing fixtures that require hot water. Additional temperature regulation will be provided at public hand washing limiting temperature to a maximum of 105 deg F to comply with current codes.

2. A domestic hot water recirculation system will be provided.

3. Alternatively, two smaller gas fired water heaters may be provided in dedicated closets near each of the restroom groups. In this scenario, a domestic hot water recirculation system would not be required.

4. The domestic hot water will be distributed with type L copper piping with soldered wrought copper fittings for piping 2" and less. 2 1/2" and larger piping will be copper with brazed wrought copper fittings. **The use of press type fittings will be allowed for piping up to 3".** All domestic hot water piping will be insulated with fiberglass insulation with an all service

jacket. Exposed piping below 8 feet will be covered with PVC jacket.

C. Sanitary Waste and Vent System

1. The sanitary drainage system will be sized to serve the loads of the proposed facility. A system of sanitary waste and vent piping will be routed throughout the building to vent and collect the discharge from all of the plumbing fixtures and drains. The sanitary piping will be collected within the building and will be extended to 5 feet outside of the building separately for connection to the site sanitary sewer system. It is anticipated that the building will require a 4" sanitary main.

2. Floor drains will be provided in all large public toilet rooms and in all mechanical rooms. **Single restroom facilities will not have floor drains.** All floor drains will have a means of positive trap seal as required by code. Mechanical differential pressure type or barrier type will be provided.

3. The sanitary vent piping will be collected within the building and will be extended through the roof at various locations Vents will be located away from building and rooftop equipment fresh air intakes..

4. **At this time, it is assumed that there will not be a sewage ejector for the building.**

5. **All below and above grade sanitary waste piping will be either service weight cast iron or Schedule 40 PVC. All sanitary vent piping (not in areas of the building with a return air plenum) will be Schedule 40 PVC.**

D. Stormwater System (Flat Roof Areas Only)

1. The stormwater piping from the flat roof areas will be collected within the building and routed to 5 feet outside the building for connection to the site storm sewer system. Stormwater from the upper levels will be discharged

to the site storm sewer system by gravity flow.

2. The secondary storm water system will be a completely independent system and collected by separate roof drains that to the exterior of the building where the piping is terminated above grade at the building façade as required by code. **This system is assumed to be piped from the roof drains to the first floor exterior wall about 30" above grade.**

3. **All below and above grade stormwater piping will be either service weight cast iron or Schedule 40 PVC (only in areas without a return air plenum). All horizontal storm piping and all of the secondary storm piping will be insulated with fiberglass insulation with all service jacket.**

4. For sloped roofs, storm drainage will be handled via gutters and downspouts.

E. Plumbing Fixtures

1. Public water closets: Wall mounted, elongated bowl, white vitreous china, with open front self-closing elongated seat, manual flush valves/automatic dual flush (battery type will not be used). The water closet will be accessible, 16½" high.

2. Staff: Wall mounted, elongated bowl, white vitreous china with open self-closing seat, manual flush valve/ automatic dual flush (battery type will not be used). The water closet will be accessible, 16½" high.

3. Urinals: Wall hung, white vitreous china, with sensor operated "ultra-low" flush valves.

4. Handwashing lavatories in public spaces: Wall hung, white vitreous china, with sensor or manually operated faucets.

5. Countertop sinks: Stainless steel drop in sink. Faucets will have laminar flow; wing handles and gooseneck spout.

6. Electric water coolers: Accessible, Wall hung, hi-low self-contained with bottle filler.

7. Service/mop sinks: Monolithic, floor-mounted with mixing valve faucet and wall protection.

F. Natural Gas Piping System

1. Natural gas will be supplied from the gas utility main. A gas service line will be stubbed out 5 feet from the building. A gas meter/regulator setting will be provided outside the building, extended into the building, and distributed to equipment as required. Gas regulators will be provided at individual pieces of gas fired equipment where required.

2. All natural gas piping will be Schedule 40 black steel with threaded, flanged, or welded fittings. **The use of press type fittings will be allowed for piping up to 4" for pressures less than 5 psig.**

V. HEATING, VENTILATING, AND AIR CONDITIONING SYSTEM

A. Design Conditions

1. Outdoor Design Conditions:

Winter Dry Bulb	0°F
Summer Dry Bulb	94°F
Summer Wet Bulb (mean coincident)	74°F
Summer Wet Bulb (maximum value, independent of dry bulb)	78°F

2. Indoor Design Conditions:

Winter Dry Bulb	70°F
Winter Minimum Humidity	Not Controlled
Summer Dry Bulb	74°F
Summer Maximum Humidity	60% RH

3. Equipment Operating Temperatures:

Supply air (Rooftop Unit leaving air temperature)	55°F

B. Heating Hot Water Systems

1. The building is not anticipated to have a heating hot water system, but this can be explored as a means of providing reheat at terminal boxes and heating in entry vestibules and other areas with high skin loss.

C. Packaged Rooftop Units

1. The team recommends packaged rooftop units for the Municipal Building, which will require areas of flat roof to be available for proper mounting and service. If the size and layout of the building is not conducive to this design solution, grade mounted rooftop units should be explored.

2. It is anticipated that the building will have at least two packaged rooftop units.

    a. The first rooftop unit will be dedicated to the office portion of the building, which is anticipated to operate under normal business hours. This unit will be approximately 30 tons.

b. The second rooftop unit will be dedicated to the public and council chambers portion of the building, which may operate outside of normal business hours. This unit will be approximately 15 tons.

3. The commercial packaged DX cooling and gas heat rooftop units for the building will be located on the flat roof area. Placement will be coordinated with the architect to limit visibility. In general, the rooftop units will be high efficiency and variable volume, with DX cooling, an economizer section with enthalpy control, MERV 13 air filters, gas heat, and bottom discharge. The supply fans will be provided with variable frequency drives, or will have electrically commutated motors, to modulate the air volume. The supply fan air volume will be varied to maintain a constant duct static pressure in the ductwork 2/3 of the way down the supply air main. The return fan air operation will be controlled by building pressure.

4. Main ducts will distribute cool air to the terminal boxes. The terminal boxes will house a volume damper and an electric reheat coil whose operation will be controlled by a thermostat mounted in the space served by the box. When cooling is required, the electric reheat will not operate and the volume damper will modulate the discharge cold air into the space at the rate to satisfy the temperature setting. When cooling is not required, the volume damper will modulate to a predetermined minimum airflow rate. Refer to Paragraph E, “Zone Control”, for information on thermal zoning via terminal boxes.

D. Air Distribution

1. The air will be distributed throughout the building with high velocity (less than 2,300 FPM) supply ductwork. Generally, the ductwork will be single

wall galvanized duct. The supply ductwork will have external insulation. The supply and return air ductwork for the first 30 feet (nominally) from the rooftop unit will be double wall ductwork with internal duct liner that is covered with a mylar sheet under the inner perforated metal wall. This is done to attenuate fan noise. All building exhaust air will be ducted. The building will utilize a return air plenum, and this will be coordinated with the plumbing piping material installed within the ceiling spaces.

E. Zone Control

1. Zone control will be provided by Variable Air Volume (VAV) terminal boxes with electric reheat coils located throughout the building. **All corner rooms and large conference rooms will be provided with individual temperature control. Other than these, as many as four small interior rooms of similar function and load may be grouped into one zone.**

2. The controls for the terminal boxes will be DDC and will be connected into the Building Automation System (BAS) network.

3. Entry vestibules will be heated.

4. The main electrical room will have a ventilation system or a dedicated split system cooling unit, depending on heat output from the equipment.

F. Special Heating Systems

1. Where high skin loss is anticipated (such as rooms with a significant amount of glass), baseboard electric heating will be provided.

G. Exhaust Systems

1. Toilet rooms and janitor closets will be provided with continuous exhaust during occupied hours. The exhaust fans will be located on the discharge

end of the system (on the roof), such that all ductwork is under negative pressure to prevent leakage out of the exhaust ductwork.

2. Electrical rooms and closets will be ventilated to prevent overheating.

H. Supplemental Cooling Systems

1. The telecommunications rooms will be cooled by dedicated split system cooling units.

I. **Temperature Control Systems**

1. **A Building Automation System (BAS) will be used to control all the HVAC equipment, interface with the fire alarm systems, the building lighting, and security. The system will be a web-based open protocol architecture, which will allow for multiple vendors' equipment to be connected to the system. Computer connections to the BMS system will be through any personal computer (PC) that has access to the data network and has password rights to the control system. As well as monitoring and controlling equipment, the BMS system will also include the facility for remote electronic metering which will allow accurate assessment of energy consumption and prompt billing, and also identifies areas for efficiency improvement.**

2. **Control devices including terminal boxes and small valves located on the floors will be by low voltage electric actuation.**

VI. ELECTRICAL SYSTEMS

A. Site Utilities

1. The electrical service will be at **either 480/277volt or 208/120volt 3 phase** via a utility owned exterior pad mounted transformer and metered on the secondary side. **The cost/benefit for service voltage choice should be considered.**

2. Two 5″ conduits in a concrete encased ductbank, will run from the utility company point of connection at the property line, to the location of the exterior utility owned pad mounted transformer near the building. This transformer will be located at least 20 feet away from any building wall or door and have 10 feet clear in front. The utility meter will be connected to the load side of the transformer.

3. The secondary voltage service lateral will consist of multiple 4″ conduits encased in a concrete ductbank running underground to the service switchboard in the main electrical room. The service conductors shall be aluminum alloy with high crimp compression connector lugs on the ends.

B. Normal Power Equipment

1. The Main service switchboard will feed mechanical equipment at either 480 or 208volt 3 phase, distribution panels at 480/277volt or 208/120v 3 phase, lighting panels at 277volt, and power panels at 208/120volt 3 phase.

2. The main service switchboard will be standard NEMA 1 enclosure with bolted on covers, a main circuit breaker with single phase protection, and arc flash energy reduction maintenance bypass switch. The main circuit breaker will be a fixed mount insulated case type with full function electronic trip. A full function metering unit for owners usage will be in the main section, that

can be monitored by the Building Management System

3. The branch distribution sections will have full size horizontal buss with circuit breakers that are molded case with electronic or thermal-magnetic trip depending on size. In general, circuit breakers larger than 225 amps shall have electronic trip sensors. Smaller circuit breakers shall have standard thermal-magnetic trip sensors. Branch circuit breakers larger than 1100amp shall have arc flash energy reduction maintenance switch to permit safe opening of live equipment.

4. Distribution panelboards shall have bolt-on branch circuit breakers and a door-in-door cover design for safe access.

5. Lighting panelboards will have bolt on thermal-magnetic trip molded case circuit breakers rated for switching duty.

6. Small appliance (power) panelboards will have bolt on thermal-magnetic trip molded case circuit breakers rated HACR for HVAC equipment. GFCI, shunt trip, circuit breakers for appropriate circuits as needed.

7. Bussing within switchboard and panelboards will be tin plated aluminum.

8. Step down transformers if needed will be dry tupe 80 degree C rise, with voltage of 208/120volt 3 phase.

9. Motor controllers shall consist of combination fusible disconnect switch type with integral across-the-line magnetic starter with solid state overload relays with phase loss protection, H-O-A switch and control transformer with fusing and pilot lights.

10. Variable Frequency Drives will be provided by Division 23.

C. Normal Power Distribution

1. Distribution feeders run out from the switchboard shall be through schedule 40 PVC conduits where under slab, or within EMT conduit when overhead. Conduits coming down below 8 feet shall be rigid galvanized steel.

2. Feeder conductors shall be aluminum alloy for 100amp and greater run between electrical equipment only. All other feeders, to mechanical equipment, elevators, pumps, etc., shall be of copper conductors.

3. EMT conduits will use set screw connectors.

4. Rigid galvanized steel conduits will be threaded.

D. Branch Circuits and Conduits

1. All branch circuit wiring shall use stranded copper conductors (#12 and #10 awg may be solid).

2. Each branch circuit shall have separate full size neutral conductor; shared neutrals are not permitted.

3. Only 4 circuits shall be permitted together in one conduit.

E. Emergency Power System

1. **An emergency generator is not anticipated for this facility. However a small unit should be considered in lieu of using battery backup emergency egress lighting fixtures.**

F. Grounding

1. The grounding electrode system shall consist of all of the following components exothermically bonded together: the main domestic water service pipe ahead of any meter, and within five feet of entry into the new building; two driven ground rods; Ufer rebar in footer; a bond to nearest steel column or reinforcing rod every 100 feet around building. Single Point

Ground Bus Bar – An insulated main grounding bus bar will be installed adjacent to the service entrance switchgear with each grounding electrode system component listed above bonded to it.

2. Telecommunication rooms shall have a grounding system extended to it sized in accordance with BISCI standards.

G. Transient Voltage Surge Suppression

1. Transient voltage surge suppression devices (TVSS) will be placed in a multi-stage arrangement at the switchboard, and at selected panelboards. TVSS devices will utilize metal oxide varistors (MOV) in enclosed replaceable modules. Each TVSS unit will provide seven modes of protection consisting of each phase: line to neutral, each phase: line to ground and neutral to ground. Units located at switchboards will be rated at 150,000 Amperes per mode, and units located at panelboards will be rated at 50,000 Amperes per mode.

H. Wiring Devices and Outlets

1. 20amp 120volt duplex receptacle outlets will be provided throughout the building as required for specific equipment, and for convenience.

2. GFCI outlets will be located in restrooms, break room, within 6 feet of sinks, for electric drinking fountains, vending machines, and exterior to the building.

3. GFCI type circuit breakers will be used on branch circuits where outlets located behind the appliance would be considered inaccessible.

4. Selected duplex outlets will have USB ports for convenience in recharging portable electronic devices.

5. Dedicated outlets will be used for designated equipment.

6. Recessed wall outlet boxes will be used behind wall mounted video monitors.

7. Floor recessed outlets in the slab-on-grade level for power and data devices will be located in council chambers, and meeting rooms.

8. Plates will be stainless steel.

I. Lighting System

1. The lighting system will consist of fixtures and controls to provide appropriate illumination levels for tasks, matching the architectural finishes and aesthetics, minimize glare, and having a long life expectancy with minimal maintenance.

2. All luminaires will have LED type light sources.

3. Light fixtures will be located in all areas within and around the building in quantities as necessary to provide light levels in accordance with IES Guidelines, Recommended Practice RP-29-16.

a. In general, average maintained light levels will be as follows:

i. Offices 50 Footcandles

ii. Conference /Meeting Room 50 Footcandles

iii. Mechanical/Electrical Rooms 20 Footcandles

iv. Corridors 20 Footcandles

v. Lobbies 20 Footcandles

vi. Utility Rooms 30 Footcandles

vii. Exterior Entries 5 Footcandles

viii. Restrooms 20 Footcandles

ix. Break Room 50 Footcandles

x. Reception Areas 30 Footcandles

xi. Storage Rooms
20 Footcandles

xii. Council Chambers
70 Footcandles

xiii. Secure Storage
30 Footcandles

xiv. Parking Lot 2 Footcandles

xv. Emergency Egress Paths
1 Footcandle Minimum

4. Exterior lighting is proposed as follows:

   a. Parking Lot pole mounted cut-off type fixtures on 20 to 30 foot tall poles (in accordance with zoning restrictions).

   b. Walkway pole mounted decorative fixtures on 12- to 15-foot-tall poles

   c. Surface or recessed fixtures in exterior canopies.

   d. Wall mounted area fixtures around building for security

   e. Wall mounted down lights over exterior egress doors

   f. Flagpole lighting fixtures will be mounted to the pole

   g. Signage fixtures will be ground mounted shielded type

5. **Interior lighting throughout the building needs to be discussed but is proposed as follows:**

   a. Ceiling recessed flat panel fixtures will be used in offices

   b. Ceiling recessed contoured fixtures will be used in corridors, storage, workrooms.

   c. Suspended direct/indirect fixtures will be used in Council Chambers, and conference and meeting rooms.

d. Suspended open industrial type fixtures with will be used in mechanical/electrical, utility rooms

e. Lobbies will have recessed can fixtures and suspended pendant type decorative.

f. Exit signs will have green letters on acrylic edge lit panels in lobbies and main areas, and aluminum face with plastic body in other areas.

g. Specialty lighting fixtures will be provided in selected areas TBD.

h. Ceiling recessed linear wall washers and mirror lighting fixtures in restrooms.

6. Dimmable fixtures are proposed as follows:

   a. Offices, Council chambers, conference, meeting

   b. Parking lot pole fixtures (code required with motion sensor control)

   c. Daylight harvesting areas (photosensor control).

   d. All exterior fixtures will have 4000-degree Kelvin color temperature. Interior fixtures will have 3500-degree Kelvin.

7. Emergency egress lighting will be provided by dual head 12volt unit battery pack fixtures with 90 minute capacity (with nominal 24 hour recharge time) located in the egress paths. In selected areas such as lobbies where battery pack units are not desired, AC inverter units will be used to power selected normal fixtures to bypass lighting controls and make these emergency egress fixtures in a power outage. Exit sign fixtures will have integral 90 minute power supplies.

8. Emergency egress dual head 12-volt unit battery pack lighting fixtures will be provided in electrical, generator, large restrooms as code required

9. Lighting control shall be as follows:

    a. A networked computer based low voltage control system will be provided with relay panels, sensors, and control units.

    b. Lobbies, waiting areas, corridors and open spaces will be controlled via relay panels with automatic time clock on/off, and local switches for afterhours override.

    c. Offices, smaller conference rooms and other private spaces will be controlled via vacancy sensor with integral dimmer.

    d. Exterior security lighting generally will be controlled via relay panels controlled by roof mounted photocell with dusk to dawn operation.

    e. Some exterior lighting fixtures will have integral photocell control for dusk to dawn operation.

    f. Parking lot pole fixtures will have integral photo sensor/ motion detector/dimmer, and will dim to 50% level when no motion is sensed beneath it.

    g. Conference/ meeting rooms will be controlled by a wall mounted scene controller with vacancy sensors.

    h. Daylight harvesting areas will be multilevel dimmed by local photo sensors upon levels of daylight present.

    i. Restrooms, storage, utility rooms will be controlled via ceiling mounted occupancy sensor.

j. Electrical, mechanical, telecom rooms shall be switched at the door.

J. Fire Alarm System

1. A standalone, analog addressable fire alarm system will provide life safety protection and consist of the following:

a. Manual pull stations at all exit doors from a floor.

b. Duct mounted smoke detectors in air handling units return air side.

c. Smoke detectors at the main and remote panels

d. Duct mounted smoke detectors at each smoke damper to close upon detection.

e. Heat detectors in mechanical/ electrical rooms.

f. Audible/visual and visual alarm units (with synchronized flash rate) throughout the building meeting ADA requirements.

g. Waterflow and tamper switch supervision.

h. Monitoring of ERRS system.

i. Vav terminal units will have duct mounted smoke detectors to shut down.

2. Remote monitoring of the fire alarm system will be necessary by a third party. The owner will have to subscribe to a service.

3. The fire alarm system will have a main control panel located in the electrical room, and booster panels in selected electrical closets.

4. A remote annunciator will be located at the fire department entrance to the building, and in the main office,

5. All air handling units and return air fans will shut down when smoke is detected

by duct mounted smoke detectors. Remote test stations with visual indication and reset will be provided for all duct mounted smoke detectors.

6. Doors with magnetic holders or electro-mechanical closer holders will be wired to the fire alarm system and will release doors on alarm or power failure. Door holders will be released locally by wiring them through auxiliary relays in smoke detector bases.

7. Fire Alarm System will monitor the Emergency Responder Radio Repeater ERRS system.

8. Visual alarm units will be located in restrooms, conference, and other public use spaces.

K. Lightning Protection System

1. A Lightning Protection System will be provided for a complete UL listed and labeled, certified Master Label "C" Lightning Protection System. It will be provided for the roof area(s) per UL Code 96A. System will include air terminals, cable connectors, down connectors, counterpoise ring, etc. Installation will have an "A" label on each air terminal and "B" label at 10′-0″ spacing along all conductors.

2. Each parking lot site lighting pole will have a supplemental driven ground rod installed in its base and bonded to the pole to divert lightning strikes to earth.

L. Emergency Responder Radio Antenna/ Repeater System (ERRS)

1. Upon substantial completion of the building, a signal strength survey shall be performed using an RF Spectrum Analyzer to determine if the signal strength of portable radios used by Emergency Responder Staff meets code. If required, a complete and operating Emergency Responder Radio Antenna/Repeater System will

be provided and tested. An allowance will be provided for this work in the bid. This includes rough-ins and roof penetrations.

2. The system will consist of Roof antenna, bi-amplification equipment rack, 24hour battery backup system, horizontal cabling above ceilings on all floors to antennas in ceilings and located in non-ceiling areas.

3. The system will support the Fire Department radio system and other first responders. The system is not intended to support cell phone carriers, the Owner's private security, and maintenance personnel radio systems, now or in the future.

M. Rough-Ins for Low-Voltage Systems

1. The Division 26 Contractor shall provide outlet boxes, conduits, cable tray, and raceways for voice/data/audio/video/security low-voltage systems.

2. Three 4" conduits shall be provided from the property line to the Main Technology Room (MTR) for service cables from the low voltage utility companies.

3. MTR and Technology Rooms shall be about 10' x 10' in size and located on each floor so that horizontal cabling shall not exceed 90 meters in length. The rooms walls will connect via cable tray and conduit sleeves through walls and floors.

4. Outlet boxes for data/voice cabling shall 4-11/16 square with 1 inch conduit stub ups to above ceiling.

5. Outlet boxes for audio/video cabling shall 4-11/16 square with 1- 1/4-inch conduit stub ups to above ceiling.

6. Outlet boxes for security cabling shall 4-11/16 square with ¾ inch conduit stub ups to above ceiling.

7. Television and monitor locations shall use a recessed TV box for both power and low voltage, so there is a place to coil up excess cable.

8. Wire basket cable tray will be provided above corridor ceilings running from the telecom rooms to most areas of the building to route the low voltage cabling. In areas where there are few cables, j-hooks will be installed to support these cables.

N. Electric Vehicle Charging Equipment (EVSE) **if desired**

1. Level 2 Electric Vehicle chargers will be provided in the parking lot, with at least one located at an ADA parking spot. Chargers will be rated 7.2Kw at 208volt 1 phase and can accommodate one vehicle at full charging capacity or two vehicles in a sharing arrangement.

2. A post mounted emergency power off EPO switch located in a Knox box will be located within 50 feet of the chargers for fire department use to turn off the power to all chargers. This switch will be wired to shunt trip type circuit breakers feeding the charging equipment.

3. Appropriate signage will be located to clearly indicate this emergency power off switch.

4. Each charger will have concrete filled steel bollards adjacent to it for vehicle impact protection.

VII. COMMUNICATIONS SYSTEMS

A. Data/Video/Voice Cabling Infrastructure

1. A complete Structured Cabling System will be provided for all network cabling and infrastructure to support the low-voltage systems.

2. System shall include Data Network backbone and horizontal cabling, connectivity outlets, and equipment racks. Data network infrastructure will include connectivity for all data outlets, phone outlets (phone system equipment by Owner), security cameras, door controllers, intercoms, and A/V equipment.

VIII. AUDIO/VIDEO SYSTEMS

A. Overhead Paging System

1. This system will include a public address system to be provided in the public areas, corridors, and staff work areas.

2. Speakers will be assigned to zones to allow for proper distribution of overhead pages (e.g., public areas, staff-only areas, or all-page). The system will be tied to the phone system to allow for paging from the phones.

3. The system will include all amplifiers, ceiling speakers, phone system paging adaptor, and cabling.

B. Local Audio/Video Systems

1. Audio and video for local systems shall be provided in Council Chambers, conference and meeting rooms.

2. An HDMI wall plate input shall be installed to allow auxiliary video input. For large conference rooms, the audio from the system shall play through the distributed audio speakers in the ceiling of the room.

3. The system shall include all monitors and mounts, projectors and mounts, projection screens, cabling and signal transport devices, equipment storage racks/panels, A/V wall plates, A/V receivers, and speakers.

IX. SAFETY AND SECURITY SYSTEMS

A. Access Control System

1. An access control system will be provided

2. Credential Readers shall be provided at applicable doors for local control and access monitoring.

3. Hardwired access control doors to include the following locations:

a. Exterior Entries

b. Select Corridor Passage Doors

c. Storage Rooms

d. Staff Lounges

B. Video Surveillance System

1. A Video Surveillance System with IP-based CCTV cameras will be provided.

2. The new cameras shall be IP cameras and located to provide appropriate

coverage. Storage will be via Network Video Recorders.

3. All required components necessary for the Video Surveillance System shall be utilized including but not limited to the video management software (VMS), network video recorder (NVR), cameras, licensing, fiber optic cables and media converters (or Ethernet extenders) for all site cameras beyond 90 meters cable distance from the nearest TR, and integration with the Access Control System.

Police Building
Conceptual Engineering Design Narrative

By: Korda/Nemeth Engineering
Issue 1
Korda File: 2024-0225
November 10, 2025

I. INTRODUCTION

This version of the design narrative (Issue 1) is being written in the Master Planning phase. Hence, the information that exists at this point regarding the building size and configuration is both of a preliminary and general nature. Our team has assembled our recommendations for the MEP systems with the information provided to date. The final design may need to be adjusted if the final design of the building is not conducive to a design solution that is recommended in this narrative.

Although all aspects of the design are subject to Owner review and approval, there are some items that we would like to draw specific attention to. These might be items of a controversial nature, or simply items we believe deserve more detailed attention and discussion. **These items are presented in bold face in this document.**

Also in bold face are items that go beyond the basic system requirements and thus may be considered enhancements. While there can be many such "bells and whistles" we recommend that the ones we included in this narrative be given serious consideration and be eliminated only if overriding financial considerations so require. We expect that this review will come at a later stage of the development of the project, when the team will be in a better position to weigh all budgetary considerations.

As the design develops, further versions of the narrative will be published and should be broadly reviewed by all the people who are involved in this project.

II. CODES, REGULATIONS, AND DESIGN STANDARDS

All design will satisfy the applicable portions of the following codes, regulations and standards:

A. IBC 2015, International Building Code

B. International Plumbing Code

C. International Mechanical Code

D. International Fire Code (IFC)

E. Local Code Amendments

F. Guidelines for Design and Construction of Hospitals and Health Care Facilities (AIA/DHHS)

G. Ohio Department of Health Requirements

H. Joint Commission Requirements

I. National Fire Protection Association (NFPA)

J. NFPA 101, Life Safety Code

K. ASHRAE Standards

L. National Electrical Code (NEC)

M. Illuminating Engineering Society Recommended Practice (IES)

N. Underwriters Laboratories, Inc. (UL)

O. National Sanitation Foundation (NSF)

P. Factory Mutual (FM)

III. FIRE PROTECTION SYSTEMS

A. Sprinkler Systems

1. The facility will be fully protected with a wet-pipe sprinkler system, with the exception of those areas that must be provided with a dry pipe sprinkler system, **or main electrical room that is exempted by OBC. Specific areas that would require a dry pipe system or frost proof heads (such as canopy overhangs with combustible items located underneath and unconditioned attics requiring sprinkler coverage) have yet to be developed, but will be provided with a dry sprinkler system.**

2. Telecommunication room closets will be provided with a smoke detector to provide early notification of a fire before the fusible link on the sprinkler head breaks.

3. A fire pump is not expected to be required.

4. All administrative and public spaces will be protected as Light Hazard Occupancy 0.10 gpm/ ft^2 over the most remote 1500 ft^2; the maximum sprinkler coverage will be 225 ft^2/head. All storage, mechanical, electrical, and shell spaces will be protected as Ordinary Hazard I Occupancy 0.15 gpm/ft^2 over the most remote 1500 ft^2; the maximum sprinkler coverage will be 130 ft^2/head.

5. Semi-recessed quick response sprinklers will be used throughout the building in areas with ceilings. Brass upright quick response sprinklers will be used in all storage, mechanical, electrical and shell spaces. **Flexible sprinkler drops will be allowed.**

6. All wet piping less than 2″ will be schedule 40 black steel with rolled grooved victaulic-type fittings. Schedule 40 piping shall be used for piping 2″ and higher. All dry-pipe

system piping will be black steel with hot-dipped zinc (galvanized) coating.

B. Fire Alarm System/Sprinkler Piping Interface

1. Electronically supervised shutoff valves will be provided on all valves in the fire protection system. Electronically supervised shutoff valves and waterflow detection switches will be provided for each zoned sprinkler area on all floor connections between sprinklers and standpipes. Alarm signals from these devices, as well as from alarm valves, will be routed to the building fire alarm panel. The sprinkler system will be zoned to a maximum area of 50,000 square feet for each light hazard area.

IV. PLUMBING SYSTEM

A. Domestic Cold Water System

1. It is anticipated that the building will require a 2". The domestic water service will be provided with a meter and reduced pressure backflow preventer. **Additional reduced pressure backflow preventer assemblies will be provided as required for coffee machines, ice makers, and irrigation systems.**

2. A domestic water booster pump is not expected to be required.

3. Exterior wall hydrants will be provided at various locations along the perimeter of the building at a maximum of 250 feet apart. Roof hydrants will be provided on the roof for rooftop equipment maintenance.

4. The domestic cold water will be distributed with type L copper piping with soldered wrought copper pipe

fittings for piping 2" and less. 2½" and larger piping will be copper with brazed wrought copper fittings. **The use of press type fittings will be allowed for piping up to 3".** All domestic cold water piping will be insulated with fiberglass insulation with an all service jacket. Exposed piping below 8 feet will be covered with PVC jacket.

5. System isolation and shut-off valves will be provided at the main water service, all equipment connections, and each branched main serving group plumbing fixtures and departmental areas.

B. Domestic Hot Water System

1. The domestic hot water will be generated by one gas fired tank type water heaters. A temperature regulating assembly will be provided to deliver 125°F water for distribution throughout the building to the plumbing fixtures that require hot water. Additional temperature regulation will be provided at public hand washing limiting temperature to a maximum of 105 deg F to comply with current codes.

2. A domestic hot water recirculation system will be provided.

3. Alternatively, one larger water heater may be provided for the locker area, and a smaller heater for the restroom in the processing area. In this scenario, a domestic hot water recirculation system would not be required.

4. The domestic hot water will be distributed with type L copper piping with soldered wrought copper fittings for piping 2" and less. 2½" and larger piping will be copper with brazed wrought copper fittings. **The use of press type fittings will be allowed for piping up to 3".** All domestic hot water piping will be insulated with fiberglass insulation with an all service jacket.

Exposed piping below 8 feet will be covered with PVC jacket.

C. Sanitary Waste and Vent System

1. The sanitary drainage system will be sized to serve the loads of the proposed facility. A system of sanitary waste and vent piping will be routed throughout the building to vent and collect the discharge from all of the plumbing fixtures and drains. The sanitary piping will be collected within the building and will be extended to 5 feet outside of the building separately for connection to the site sanitary sewer system. It is anticipated that the building will require a 4" sanitary main.

2. Floor drains will be provided in all large public toilet rooms and in all mechanical rooms. **Single restroom facilities will not have floor drains.** All floor drains will have a means of positive trap seal as required by code. Mechanical differential pressure type or barrier type will be provided.

3. The sanitary vent piping will be collected within the building and will be extended through the roof at various locations Vents will be located away from building and rooftop equipment fresh air intakes.

4. **At this time, it is assumed that there will not be a sewage ejector for the building.**

5. **All below and above grade sanitary waste piping will be either service weight cast iron or Schedule 40 PVC. All sanitary vent piping (not in areas of the building with a return air plenum) will be Schedule 40 PVC.**

D. Stormwater System (Flat Roof Areas Only)

1. The stormwater piping from the flat roof areas will be collected within the building and routed to 5 feet outside the building for connection to the site storm sewer system. Stormwater from the upper levels will be discharged

to the site storm sewer system by gravity flow.

2. The secondary storm water system will be a completely independent system and collected by separate roof drains that to the exterior of the building where the piping is terminated above grade at the building façade as required by code. **This system is assumed to be piped from the roof drains to the first floor exterior wall about 30" above grade.**

3. **All below and above grade stormwater piping will be either service weight cast iron or Schedule 40 PVC (only in areas without a return air plenum). All horizontal storm piping and all of the secondary storm piping will be insulated with fiberglass insulation with all service jacket.**

4. For sloped roofs, storm drainage will be handled via gutters and downspouts.

E. Plumbing Fixtures

1. Public water closets: Wall mounted, elongated bowl, white vitreous china, with open front self-closing elongated seat, manual flush valves/automatic dual flush (battery type will not be used). The water closet will be accessible, 16½" high.

2. Staff: Wall mounted, elongated bowl, white vitreous china with open self-closing seat, manual flush valve/ automatic dual flush (battery type will not be used). The water closet will be accessible, 16½" high.

3. Urinals: Wall hung, white vitreous china, with sensor operated "ultra-low" flush valves.

4. Handwashing lavatories in public spaces: Wall hung, white vitreous china, with sensor or manually operated faucets.

5. Countertop sinks: Stainless steel drop in sink. Faucets will have laminar flow; wing handles and gooseneck spout.

6. Electric water coolers: Accessible, Wall hung, hi-low self-contained with bottle filler.

7. Service/mop sinks: Monolithic, floor-mounted with mixing valve faucet and wall protection.

8. Note that required plumbing fixtures in the processing areas will need coordination with the Police Department.

F. Natural Gas Piping System

1. Natural gas will be supplied from the gas utility main. A gas service line will be stubbed out 5 feet from the building. A gas meter/regulator setting will be provided outside the building, extended into the building, and distributed to equipment as required. Gas regulators will be provided at individual pieces of gas fired equipment where required.

2. All natural gas piping will be Schedule 40 black steel with threaded, flanged, or welded fittings. **The use of press type fittings will be allowed for piping up to 4" for pressures less than 5 psig.**

V. HEATING, VENTILATING, AND AIR CONDITIONING SYSTEM

A. Design Conditions

1. Outdoor Design Conditions:

Winter Dry Bulb	0°F
Summer Dry Bulb	94°F
Summer Wet Bulb (mean coincident)	74°F
Summer Wet Bulb (maximum value, independent of dry bulb)	78°F

2. Indoor Design Conditions:

Winter Dry Bulb	70°F
Winter Minimum Humidity	Not Controlled
Summer Dry Bulb	74°F
Summer Maximum Humidity	60% RH

3. Equipment Operating Temperatures:

Supply air (Rooftop Unit leaving air temperature)	55°F

B. Heating Hot Water Systems

1. The building is not anticipated to have a heating hot water system, but this can be explored as a means of providing reheat at terminal boxes and heating in entry vestibules and other areas with high skin loss.

C. Packaged Rooftop Units

1. The team recommends packaged rooftop units for the Police Building, which will require areas of flat roof to be available for proper mounting and service. If the size and layout of the building is not conducive to this design solution, grade mounted rooftop units should be explored.

2. It is anticipated that the building will have one or two rooftop units, as well as a makeup air unit for the indoor gun range.

    a. The building can be conditioned by a single rooftop unit, approximately 35 tons, or two smaller units that are each approximately 17.5 tons.

b. The indoor gun range will require a dedicated makeup air unit due to the exhaust system that will be required for the range. Further calculations need to be completed for the gun range, but it is estimated that the cooling requirements will be in the range of 30 tons, and the heating requirements will be in the range of 350 MBH.

3. The commercial packaged DX cooling and gas heat rooftop units for the building will be located on the flat roof area. Placement will be coordinated with the architect to limit visibility. In general, the rooftop units will be high efficiency and variable volume, with DX cooling, an economizer section with enthalpy control, MERV 13 air filters, gas heat, and bottom discharge. The supply fans will be provided with variable frequency drives, or will have electrically commutated motors, to modulate the air volume. The supply fan air volume will be varied to maintain a constant duct static pressure in the ductwork 2/3 of the way down the supply air main. The return fan air operation will be controlled by building pressure.

4. The gun range makeup air unit will be DX cooling and gas heating, and will be a single zone, variable volume unit. The temperature requirements of the indoor gun range will need to be coordinated with the Police Department, but the unit can provide either fully conditioned air or partially tempered air.

5. For the main building rooftop unit(s), main supply air ducts will distribute cool air to the terminal boxes. The terminal boxes will house a volume damper and an electric reheat coil whose operation will be controlled by a thermostat mounted in the space served by the box. When cooling is required, the electric reheat will not operate and the volume damper

will modulate the discharge cold air into the space at the rate to satisfy the temperature setting. When cooling is not required, the volume damper will modulate to a predetermined minimum airflow rate. Refer to Paragraph E, "Zone Control", for information on thermal zoning via terminal boxes.

6. For the gun range makeup air unit, supply air ductwork will be located at the end of the range where the shooter stands, and will be directed down the range toward the targets, in compliance with OSHA and building code requirements.

D. Air Distribution

1. The air will be distributed throughout the building with high velocity (less than 2,300 FPM) supply ductwork. Generally, the ductwork will be single wall galvanized duct. The supply ductwork will have external insulation. The supply and return air ductwork for the first 30 feet (nominally) from the rooftop unit will be double wall ductwork with internal duct liner that is covered with a mylar sheet under the inner perforated metal wall. This is done to attenuate fan noise. All building exhaust air will be ducted. The building will utilize a return air plenum, and this will be coordinated with the plumbing piping material installed within the ceiling spaces.

E. Zone Control

1. Zone control will be provided by Variable Air Volume (VAV) terminal boxes with electric reheat coils located throughout the building. **All corner rooms and large conference rooms will be provided with individual temperature control. Other than these, as many as four small interior rooms of similar function and load may be grouped into one zone.**

2. **The controls for the terminal boxes will be DDC and will be connected**

into the Building Automation System (BAS) network.

3. Entry vestibules will be heated.

4. The main electrical room will have a ventilation system or a dedicated split system cooling unit, depending on heat output from the equipment.

F. Special Heating Systems

1. Where high skin loss is anticipated (such as rooms with a significant amount of glass), baseboard electric heating will be provided.

2. The vehicle storage area will provided with gas fired infrared tube heaters.

3. If vehicle maintenance will be performed in this area, a carbon monoxide/nitrogen dioxide ventilation system will be required.

G. Exhaust Systems

1. Toilet rooms and janitor closets will be provided with continuous exhaust during occupied hours. The exhaust fans will be located on the discharge end of the system (on the roof), such that all ductwork is under negative pressure to prevent leakage out of the exhaust ductwork.

2. Electrical rooms and closets will be ventilated to prevent overheating.

H. Indoor Gun Range

1. The gun range must have a specific ventilation system to comply with OHSA, NIOSH, and building code safety standards to effectively remove lead from the building, consisting of a dedicated exhaust fan and makeup air unit. Exhaust air inlets must be located at the target end of the range, while supply air must be provided at the opposite end of the range where the shooter stands. Supply air must be discharged at a minimum air velocity of 50 feet per minute directed down the range, and it is recommended to design for air

velocity of 75 feet per minute. All exhaust air must pass through HEPA filters prior to discharging to the outdoors. The total volume of exhaust air must be 10% higher than the total amount of makeup supply air. While further design calculations need to be completed, it is expected that the range will require approximately 5,000 CFM of exhaust.

I. Supplemental Cooling Systems

1. The telecommunications rooms will be cooled by dedicated split system cooling units.

J. **Temperature Control Systems**

1. **A Building Automation System (BAS) will be used to control all the HVAC equipment, interface with the fire alarm systems, the building lighting, and security. The system will be a web-based open protocol architecture, which will allow for multiple vendors' equipment to be connected to the system. Computer connections to the BMS system will be through any personal computer (PC) that has access to the data network and has password rights to the control system. As well as monitoring and controlling equipment, the BMS system will also include the facility for remote electronic metering which will allow accurate assessment of energy consumption and prompt billing, and also identifies areas for efficiency improvement.**

2. **Control devices including terminal boxes and small valves located on the floors will be by low voltage electric actuation.**

VI. ELECTRICAL SYSTEMS

A. Site Utilities

1. The electrical service will be at 208/120volt 3 phase via a utility owned exterior pad mounted transformer and metered on the secondary side. It can be considered to have a service voltage of 480/277volt 3 phase.

2. Two 5″ conduits in a concrete encased ductbank, will run from the utility company point of connection at the property line, to the location of the exterior utility owned pad mounted transformer near the building. This transformer will be located at least 20 feet away from any building wall or door and have 10 feet clear in front. The utility meter will be connected to the load side of the transformer.

3. The secondary voltage service lateral will consist of multiple 4″ conduits encased in a concrete ductbank running underground to the service switchboard in the main electrical room. The service conductors shall be aluminum alloy with high crimp compression connector lugs on the ends.

B. Normal Power Equipment

1. The Main service switchboard will feed mechanical equipment at 208volt 3 phase, distribution panels at 208/120v 3 phase, lighting and power panels at 208/120volt 3 phase.

2. The main service switchboard will be standard NEMA 1 enclosure with bolted on covers, a main circuit breaker with single phase protection, and arc flash energy reduction maintenance bypass switch. The main circuit breaker will be a fixed mount insulated case type with full function electronic trip. A full function metering unit for owners usage will be in the main section, that can be monitored by the Building Management System

3. The branch distribution sections will have full size horizontal buss with circuit breakers that are molded case with electronic or thermal-magnetic trip depending on size. In general, circuit breakers larger than 225 amps shall have electronic trip sensors. Smaller circuit breakers shall have standard thermal-magnetic trip sensors. Branch circuit breakers larger than 1100amp shall have arc flash energy reduction maintenance switch to permit safe opening of live equipment.

4. Distribution panelboards shall have bolt-on branch circuit breakers and a door-in-door cover design for safe access.

5. Lighting panelboards will have bolt on thermal-magnetic trip molded case circuit breakers rated for switching duty.

6. Small appliance (power) panelboards will have bolt on thermal-magnetic trip molded case circuit breakers rated HACR for HVAC equipment. GFCI, shunt trip, circuit breakers for appropriate circuits as needed.

7. Bussing within switchboard and panelboards will be tin plated aluminum.

8. Motor controllers shall consist of combination fusible disconnect switch type with integral across-the-line magnetic starter with solid state overload relays with phase loss protection, H-O-A switch and control transformer with fusing and pilot lights.

9. Variable Frequency Drives will be provided by Division 23.

C. Normal Power Distribution

1. Distribution feeders run out from the switchboard shall be through schedule 40 PVC conduits where under slab, or within EMT conduit when overhead.

Conduits coming down below 8 feet shall be rigid galvanized steel.

2. Feeder conductors shall be aluminum alloy for 100amp and greater run between electrical equipment only. All other feeders, to mechanical equipment, elevators, pumps, etc., shall be of copper conductors.

3. EMT conduits will use set screw connectors.

4. Rigid galvanized steel conduits will be threaded.

D. Branch Circuits and Conduits

1. All branch circuit wiring shall use stranded copper conductors (#12 and #10 awg may be solid).

2. Each branch circuit shall have separate full size neutral conductor; shared neutrals are not permitted.

3. Only 4 circuits shall be permitted together in one conduit.

E. Emergency Power System

1. Emergency and standby power will be provided by a 208/120-volt 3 phase diesel fueled engine driven electrical generator located outside in a weatherproof housing. **The unit will sit upon a subbase fuel tank sized for 72hours of generator run time.** The generator will be enclosed by a 6-foot-high locked chain link fence with protective concrete bollards as code requires.

2. The generator will be self-contained and automatically started. It will have a remote annunciator to be located in the building next to the fire alarm panel displaying status of various parameters.

3. The generator will have one output circuit breaker, directly feeding the temporary generator docking station (3-way triple maintenance switch) located on the exterior of the building as code requires. This docking station will have the capability to connect a

portable generator to the building emergency electrical system for use during times of main generator maintenance, repair, and load bank testing. The docking station will be full size for 100% generator load bank testing.

4. **The docking station will have circuit breakers for the NEC 700 Life Safety Branch as code requires, and a second circuit breaker sized for the entire electrical service, as the generator will be sized to carry the entire building load.**

5. The emergency life safety branch automatic transfer switch will feed a panel that will power exit signs, emergency egress lighting, fire alarm panels, emergency responder radio repeater system, emergency paging. It will transfer within 10 seconds.

6. The second branch will have a service entrance rated ATS and feed into the main electrical service to back up the whole building.

F. Grounding

1. The grounding electrode system shall consist of all of the following components exothermically bonded together: the main domestic water service pipe ahead of any meter, and within five feet of entry into the new building; two driven ground rods; Ufer rebar in footer; a bond to nearest steel column or reinforcing rod every 100 feet around building. Single Point Ground Bus Bar — An insulated main grounding bus bar will be installed adjacent to the service entrance switchgear with each grounding electrode system component listed above bonded to it.

2. Telecommunication rooms shall have a grounding system extended to it sized in accordance with BISCI standards.

G. Transient Voltage Surge Suppression

1. Transient voltage surge suppression devices (TVSS) will be placed in a multi-stage arrangement at the switchboard, and at selected panelboards. TVSS devices will utilize metal oxide varistors (MOV) in enclosed replaceable modules. Each TVSS unit will provide seven modes of protection consisting of each phase: line to neutral, each phase: line to ground and neutral to ground. Units located at switchboards will be rated at 150,000 Amperes per mode, and units located at panelboards will be rated at 50,000 Amperes per mode.

H. Wiring Devices and Outlets

1. 20amp 120volt duplex receptacle outlets will be provided throughout the building as required for specific equipment, and for convenience.

2. GFCI outlets will be located in restrooms, locker rooms, wet locations, kitchens, food service, within 6 feet of sinks, for electric drinking fountains, vending machines, and exterior to the building.

3. GFCI type circuit breakers will be used on branch circuits where outlets located behind the appliance would be considered inaccessible.

4. Selected duplex outlets will have USB ports for convenience in recharging portable electronic devices.

5. Dedicated outlets will be used for fitness equipment, kitchen equipment and mechanical equipment.

6. Recessed wall outlet boxes will be used behind wall mounted video monitors.

7. Floor recessed outlets in the slab-on-grade level for power and data devices will be located in conference, meeting, board and multi-purpose rooms.

8. Floor recessed poke through fittings for power and data will be located on

elevated slabs in conference, meeting, board, and multi-purpose rooms.

9. Plates will be stainless steel.

I. Lighting System

1. The lighting system will consist of fixtures and controls to provide appropriate illumination levels for tasks, matching the architectural finishes and aesthetics, minimize glare, and having a long life expectancy with minimal maintenance.

2. All luminaires will have LED type light sources.

3. Light fixtures will be located in all areas within and around the building in quantities as necessary to provide light levels in accordance with IES Guidelines, Recommended Practice RP-29-16.

a. In general, average maintained light levels will be as follows:

i. Offices 50 Footcandles

ii. Conference /Meeting Rooms 50 Footcandles

iii. Mechanical/Electrical Rooms 20 Footcandles

iv. Corridors 20 Footcandles

v. Lobbies/Sallyport 20 Footcandles

vi. Utility Rooms 30 Footcandles

vii. Exterior Entries 5 Footcandles

viii. Restrooms/ Locker Rooms 20 Footcandles

ix. Break Room 50 Footcandles

x. Reception Areas 30 Footcandles

xi. Storage Rooms 20 Footcandles

xii. Gun Range 50 Footcandles

xiii. Weight Room 30 Footcandles

xiv. Parking Lot 2 Footcandles

xv. Emergency Egress Paths
1 Footcandle Minimum

4. Exterior lighting is proposed as follows:

   a. Parking Lot pole mounted cut-off type fixtures on 20 to 30 foot tall poles (in accordance with zoning restrictions).

   b. Walkway pole mounted decorative fixtures on 12- to 15-foot-tall poles

   c. Surface or recessed fixtures in exterior canopies.

   d. Wall mounted area fixtures around building for security

   e. Wall mounted down lights over exterior egress doors

   f. Flagpole lighting fixtures will be mounted to the pole

   g. Signage fixtures will be ground mounted shielded type

5. **Interior lighting throughout the building needs to be discussed, but is proposed as follows:**

   a. Ceiling recessed flat panel fixtures will be used in offices

   b. Ceiling recessed contoured fixtures will be used in corridors, storage, workrooms.

   c. Suspended direct/indirect fixtures will be used in conference and meeting rooms.

   d. Suspended open industrial type fixtures with will be used in mechanical/electrical, utility rooms

   e. Lobbies will have recessed can fixtures and suspended pendant type decorative.

   f. Exit signs will have green letters on acrylic edge lit panels in lobbies

and main areas, and aluminum face with plastic body in other areas.

g. Specialty lighting fixtures will be provided in selected areas TBD.

h. Ceiling recessed linear wall washers and mirror lighting fixtures in restrooms.

i. Wet location surface mounted fixtures in showers, and locker rooms.

6. Dimmable fixtures are proposed as follows:

   a. Offices, conference, meeting, multipurpose

   b. Gymnasiums and exercise rooms

   c. Parking lot pole fixtures (code required with motion sensor control)

   d. Daylight harvesting areas (photosensor control).

7. All exterior fixtures will have 4000-degree Kelvin color temperature. Interior fixtures will have 3500-degree Kelvin.

8. Emergency egress lighting will be provided by connecting selected fixtures in the egress paths and the exit signs to the generator life safety branch power distribution system.

9. Lighting control shall be as follows:

   a. A networked computer based low voltage control system will be provided with relay panels, sensors, and control units.

   b. Lobbies, waiting areas, corridors and open spaces will be controlled via relay panels with automatic time clock on/off, and local switches for afterhours override.

   c. Offices, smaller conference rooms and other private spaces will be

controlled via vacancy sensor with integral dimmer.

d. Exterior security lighting generally will be controlled via relay panels controlled by roof mounted photocell with dusk to dawn operation.

e. Some exterior lighting fixtures will have integral photocell control for dusk to dawn operation.

f. Parking lot pole fixtures will have integral photo sensor/ motion detector/dimmer, and will dim to 50% level when no motion is sensed beneath it.

g. Conference/ meeting rooms will be controlled by a wall mounted scene controller with vacancy sensors.

h. Daylight harvesting areas will be multilevel dimmed by local photo sensors upon levels of daylight present.

i. Restrooms, storage, utility rooms will be controlled via ceiling mounted occupancy sensor.

j. Electrical, mechanical, telecom rooms shall be switched at the door.

J. Fire Alarm System

1. A standalone, analog addressable fire alarm system will provide life safety protection and consist of the following:

a. Manual pull stations at all exit doors from a floor.

b. Duct mounted smoke detectors in air handling units return air side.

c. Smoke detectors at the main and remote panels

d. Duct mounted smoke detectors at each smoke damper to close upon detection.

e. Heat detectors in mechanical/ electrical rooms, kitchens.

f. Audible/visual and visual alarm units (with synchronized flash rate) throughout the building meeting ADA requirements.

g. Waterflow and tamper switch supervision.

h. Monitoring of ERRS system.

i. Vav terminal units will have duct mounted smoke detectors to shut down.

2. Remote monitoring of the fire alarm system will be necessary by a third party. The owner will have to subscribe to a service.

3. The fire alarm system will have a main control panel located in the electrical room, and booster panels in selected electrical closets.

4. A remote annunciator will be located at the fire department entrance to the building, and in the main office,

5. All air handling units and return air fans will shut down when smoke is detected by duct mounted smoke detectors. Remote test stations with visual indication and reset will be provided for all duct mounted smoke detectors.

6. Doors with magnetic holders or electro-mechanical closer holders will be wired to the fire alarm system and will release doors on alarm or power failure. Door holders will be released locally by wiring them through auxiliary relays in smoke detector bases.

7. Fire Alarm System will monitor the Emergency Responder Radio Repeater ERRS system.

8. Visual alarm units will be located in restrooms, conference, and other public use spaces.

K. Lightning Protection System

1. A Lightning Protection System will be provided for a complete UL listed and labeled, certified Master Label "C" Lightning Protection System. It will be provided for the roof area(s) per UL Code 96A. System will include air terminals, cable connectors, down connectors, counterpoise ring, etc. Installation will have an "A" label on each air terminal and "B" label at 10'-0" spacing along all conductors.

2. Each parking lot site lighting pole will have a supplemental driven ground rod installed in its base and bonded to the pole to divert lightning strikes to earth.

L. Emergency Responder Radio Antenna/ Repeater System (ERRS)

1. Upon substantial completion of the building, a signal strength survey shall be performed using an RF Spectrum Analyzer to determine if the signal strength of portable radios used by Emergency Responder Staff meets code. If required, a complete and operating Emergency Responder Radio Antenna/Repeater System will be provided and tested. **An allowance will be provided for this work in the bid.** This includes rough-ins and roof penetrations.

2. The system will consist of Roof antenna, bi-amplification equipment rack, 2 4-hour battery backup system, horizontal cabling above ceilings on all floors to antennas in ceilings and located in non-ceiling areas.

3. The system will support the Fire Department radio system and other first responders. The system is not intended to support cell phone carriers, the Owner's private security, and maintenance personnel radio systems, now or in the future.

M. Rough-Ins for Low-Voltage Systems

1. The Division 26 Contractor shall provide outlet boxes, conduits, cable tray, and raceways for voice/data/audio/video/security low-voltage systems.

2. Three 4" conduits shall be provided from the property line to the Main Technology Room (MTR) for service cables from the low voltage utility companies.

3. MTR and Technology Rooms shall be about 10′ × 10′ in size and located on each floor so that horizontal cabling shall not exceed 90 meters in length. The rooms walls will connect via cable tray and conduit sleeves through walls and floors.

4. Outlet boxes for data/voice cabling shall 4-11/16 square with 1 inch conduit stub ups to above ceiling.

5. Outlet boxes for audio/video cabling shall 4-11/16 square with 1- 1/4-inch conduit stub ups to above ceiling.

6. Outlet boxes for security cabling shall 4-11/16 square with ¾ inch conduit stub ups to above ceiling.

7. Television and monitor locations shall use a recessed TV box for both power and low voltage, so there is a place to coil up excess cable.

8. Wire basket cable tray will be provided above corridor ceilings running from the telecom rooms to most areas of the building to route the low voltage cabling. In areas where there are few cables, j-hooks will be installed to support these cables.

N. Electric Vehicle Charging Equipment (EVSE) **if desired**

1. Level 2 Electric Vehicle chargers will be provided in the parking lot, with at least one located at an ADA parking spot. Chargers will be rated 7.2Kw at 208volt 1 phase and can accommodate one vehicle at full charging capacity or two vehicles in a sharing arrangement.

2. A post mounted emergency power off EPO switch located in a Knox box will be located within 50 feet of the chargers for fire department use to turn off the power to all chargers. This switch will be wired to shunt trip type circuit breakers feeding the charging equipment.

3. Appropriate signage will be located to clearly indicate this emergency power off switch.

4. Each charger will have concrete filled steel bollards adjacent to it for vehicle impact protection.

VII. COMMUNICATIONS SYSTEMS

A. Data/Video/Voice Cabling Infrastructure

1. A complete Structured Cabling System will be provided for all network cabling and infrastructure to support the low-voltage systems.

2. System shall include Data Network backbone and horizontal cabling, connectivity outlets, and equipment racks. Data network infrastructure will include connectivity for all data outlets, phone outlets (phone system equipment by Owner), security cameras, door controllers, intercoms, and A/V equipment.

VIII. AUDIO/VIDEO SYSTEMS

A. Overhead Paging System

1. This system will include a public address system to be provided in the public areas, corridors, and staff work areas.

2. Speakers will be assigned to zones to allow for proper distribution of overhead pages (e.g., public areas, staff-only areas, or all-page). The system will be tied to the phone system to allow for paging from the phones.

3. The system will include all amplifiers, ceiling speakers, phone system paging adaptor, and cabling.

B. Local Audio/Video Systems

1. Audio and video for local systems shall be provided in conference and meeting rooms.

2. An HDMI wall plate input shall be installed to allow auxiliary video input. For large conference rooms, the audio from the system shall play through the distributed audio speakers in the ceiling of the room.

3. The system shall include all monitors and mounts, projectors and mounts, projection screens, cabling and signal transport devices, equipment storage racks/panels, A/V wall plates, A/V receivers, and speakers.

4. Interrogation rooms shall have High-Definition cameras and microphones for video and voice recording. Secure and expandable digital storage for recordings shall be provided.

IX. SAFETY AND SECURITY SYSTEMS

A. Access Control System

1. An access control system will be provided

2. Credential Readers shall be provided at applicable doors for local control and access monitoring.

3. Hardwired access control doors to include the following locations:

   a. Exterior Entries

   b. Select Corridor Passage Doors

   c. Storage Rooms

   d. Staff Lounges

B. Video Surveillance System

1. A Video Surveillance System with IP-based CCTV cameras will be provided.

2. The new cameras shall be IP cameras and located to provide appropriate coverage. Storage will be via Network Video Recorders.

3. All required components necessary for the Video Surveillance System shall be utilized including but not limited to the video management software (VMS), network video recorder (NVR), cameras, licensing, fiber optic cables and media converters (or Ethernet extenders) for all site cameras beyond 90 meters cable distance from the nearest TR, and integration with the Access Control System.

C. Video Intercom System

1. A network-based video intercom communication system will be provided for visitor use to request entry.

2. The intercom door stations shall be provided at main entries and select protected interior passages. Doors with intercoms will be configured

to provide remote release via master stations.

3. The desktop master stations shall be provided at reception desks.

4. The system will be configured to ring a primary call group with failover to a secondary call group.

5. The system will include master station(s), door stations, and relay adapters for remote door release.

D. Duress Alarm System

1. Duress alarms shall be located at the reception desk and other “high priority spaces”, which will tie into the security system.

2. Alarms will be added under countertops or on the wall and will be accessible by the staff working at each location.

3. All required components and security wiring will be provided.

Adventure Park
Conceptual Engineering Design Narrative

By: Korda/Nemeth Engineering
Issue 1
Korda File: 2024-0225
November 10, 2025

I. INTRODUCTION

This version of the design narrative (Issue 1) is being written in the Master Planning phase. Hence, the information that exists at this point regarding the building size and configuration is both of a preliminary and general nature. Our team has assembled our recommendations for the MEP systems with the information provided to date. The final design may need to be adjusted if the final design of the building is not conducive to a design solution that is recommended in this narrative.

Although all aspects of the design are subject to Owner review and approval, there are some items that we would like to draw specific attention to. These might be items of a controversial nature, or simply items we believe deserve more detailed attention and discussion. **These items are presented in bold face in this document.**

Also in bold face are items that go beyond the basic system requirements and thus may be considered enhancements. While there can be many such "bells and whistles" we recommend that the ones we included in this narrative be given serious consideration and be eliminated only if overriding financial considerations so require. We expect that this review will come at a later stage of the development of the project, when the team will be in a better position to weigh all budgetary considerations.

As the design develops, further versions of the narrative will be published and should be broadly reviewed by all the people who are involved in this project.

II. CODES, REGULATIONS, AND DESIGN STANDARDS

All design will satisfy the applicable portions of the following codes, regulations and standards:

A. IBC 2015, International Building Code

B. International Plumbing Code

C. International Mechanical Code

D. International Fire Code (IFC)

E. Local Code Amendments

F. Guidelines for Design and Construction of Hospitals and Health Care Facilities (AIA/DHHS)

G. Ohio Department of Health Requirements

H. Joint Commission Requirements

I. National Fire Protection Association (NFPA)

J. NFPA 101, Life Safety Code

K. ASHRAE Standards

L. National Electrical Code (NEC)

M. Illuminating Engineering Society Recommended Practice (IES)

N. Underwriters Laboratories, Inc. (UL)

O. National Sanitation Foundation (NSF)

P. Factory Mutual (FM)

III. FIRE PROTECTION SYSTEMS

A. Sprinkler Systems

1. The facility will be fully protected with a wet-pipe sprinkler system, with the exception of those areas that must be provided with a dry pipe sprinkler system, **or main electrical room that is exempted by OBC. Specific areas that would require a dry pipe system or frost proof heads (such as canopy overhangs with combustible items located underneath and unconditioned attics requiring sprinkler coverage) have yet to be developed, but will be provided with a dry sprinkler system.**

2. Telecommunication room closets will be provided with a smoke detector to provide early notification of a fire before the fusible link on the sprinkler head breaks.

3. A fire pump is not expected to be required.

4. All administrative and public spaces will be protected as Light Hazard Occupancy 0.10 gpm/ft^2 over the most remote 1500 ft^2; the maximum sprinkler coverage will be 225 ft^2/head. All storage, mechanical, electrical, and shell spaces will be protected as Ordinary Hazard I Occupancy 0.15 gpm/ft^2 over the most remote 1500 ft^2; the maximum sprinkler coverage will be 130 ft^2/head.

5. Semi-recessed quick response sprinklers will be used throughout the building in areas with ceilings. Brass upright quick response sprinklers will be used in all storage, mechanical, electrical and shell spaces. **Flexible sprinkler drops will be allowed.**

6. All wet piping less than 2″ will be schedule 40 black steel with rolled grooved victaulic-type fittings. Schedule 40 piping shall be used for piping 2″ and higher. All dry-pipe

system piping will be black steel with hot-dipped zinc (galvanized) coating.

B. Fire Alarm System/Sprinkler Piping Interface

1. Electronically supervised shutoff valves will be provided on all valves in the fire protection system. Electronically supervised shutoff valves and waterflow detection switches will be provided for each zoned sprinkler area on all floor connections between sprinklers and standpipes. Alarm signals from these devices, as well as from alarm valves, will be routed to the building fire alarm panel. The sprinkler system will be zoned to a maximum area of 50,000 square feet for each light hazard area.

IV. PLUMBING SYSTEM

A. Domestic Cold Water System

1. It is anticipated that the building will require a 2″ or 2½″ domestic water service. The exact size must be coordinated with the water use requirements of the vehicle wash bay and the number of public showers and restrooms available. The domestic water service will be provided with a meter and reduced pressure backflow preventer. **Additional reduced pressure backflow preventer assemblies will be provided as required for coffee machines, ice makers, and irrigation systems.**

2. A domestic water booster pump is not expected to be required.

3. Exterior wall hydrants will be provided at various locations along the perimeter of the building at a maximum of 250 feet apart. Roof

hydrants will be provided on the roof for rooftop equipment maintenance.

4. The domestic cold water will be distributed with type L copper piping with soldered wrought copper pipe fittings for piping 2″ and less. 2½″ and larger piping will be copper with brazed wrought copper fittings. **The use of press type fittings will be allowed for piping up to 3″.** All domestic cold water piping will be insulated with fiberglass insulation with an all service jacket. Exposed piping below 8 feet will be covered with PVC jacket.

5. System isolation and shut-off valves will be provided at the main water service, all equipment connections, and each branched main serving group plumbing fixtures and departmental areas.

6. The water requirements of the wash bay will need to be coordinated with facilities staff.

B. Domestic Hot Water System

1. The domestic hot water will be generated by one or two gas fired tank type water heaters. A temperature regulating assembly will be provided to deliver 125°F water for distribution throughout the building to the plumbing fixtures that require hot water. Additional temperature regulation will be provided at public hand washing limiting temperature to a maximum of 105°F to comply with current codes.

2. A domestic hot water recirculation system will be provided.

3. Alternatively, two smaller gas fired water heaters may be provided in dedicated closets near each of the restroom groups. In this scenario, a domestic hot water recirculation system would not be required.

4. The domestic hot water will be distributed with type L copper piping

with soldered wrought copper fittings for piping 2″ and less. 2½″ and larger piping will be copper with brazed wrought copper fittings. **The use of press type fittings will be allowed for piping up to 3″.** All domestic hot water piping will be insulated with fiberglass insulation with an all service jacket. Exposed piping below 8 feet will be covered with PVC jacket.

C. Sanitary Waste and Vent System

1. The sanitary drainage system will be sized to serve the loads of the proposed facility. A system of sanitary waste and vent piping will be routed throughout the building to vent and collect the discharge from all of the plumbing fixtures and drains. The sanitary piping will be collected within the building and will be extended to 5 feet outside of the building separately for connection to the site sanitary sewer system. It is anticipated that the building will require a 4” sanitary main.

2. Floor drains will be provided in all large public toilet rooms and in all mechanical rooms. **Single restroom facilities will not have floor drains.** All floor drains will have a means of positive trap seal as required by code. Mechanical differential pressure type or barrier type will be provided.

3. The sanitary vent piping will be collected within the building and will be extended through the roof at various locations Vents will be located away from building and rooftop equipment fresh air intakes.

4. **At this time, it is assumed that there will not be a sewage ejector for the building.**

5. **All below and above grade sanitary waste piping will be either service weight cast iron or Schedule 40 PVC. All sanitary vent piping (not in areas of the building with a return air plenum) will be Schedule 40 PVC.**

D. Stormwater System (Flat Roof Areas Only)

1. The stormwater piping from the flat roof areas will be collected within the building and routed to 5 feet outside the building for connection to the site storm sewer system. Stormwater from the upper levels will be discharged to the site storm sewer system by gravity flow.

2. The secondary storm water system will be a completely independent system and collected by separate roof drains that to the exterior of the building where the piping is terminated above grade at the building façade as required by code. **This system is assumed to be piped from the roof drains to the first floor exterior wall about 30" above grade.**

3. **All below and above grade stormwater piping will be either service weight cast iron or Schedule 40 PVC (only in areas without a return air plenum). All horizontal storm piping and all of the secondary storm piping will be insulated with fiberglass insulation with all service jacket.**

4. For sloped roofs, storm drainage will be handled via gutters and downspouts.

E. Plumbing Fixtures

1. Public water closets: Wall mounted, elongated bowl, white vitreous china, with open front self-closing elongated seat, manual flush valves/automatic dual flush (battery type will not be used). The water closet will be accessible, 16½" high.

2. Staff: Wall mounted, elongated bowl, white vitreous china with open self-closing seat, manual flush valve/ automatic dual flush (battery type will not be used). The water closet will be accessible, 16½" high.

3. Urinals: Wall hung, white vitreous china, with sensor operated “ultra-low” flush valves.

4. Handwashing lavatories in public spaces: Wall hung, white vitreous china, with sensor or manually operated faucets.

5. Countertop sinks: Stainless steel drop in sink. Faucets will have laminar flow; wing handles and gooseneck spout.

6. Electric water coolers: Accessible, Wall hung, hi-low self-contained with bottle filler.

7. Service/mop sinks: Monolithic, floor-mounted with mixing valve faucet and wall protection.

F. Natural Gas Piping System

1. Natural gas will be supplied from the gas utility main. A gas service line will be stubbed out 5 feet from the building. A gas meter/regulator setting will be provided outside the building, extended into the building, and distributed to equipment as required. Gas regulators will be provided at individual pieces of gas fired equipment where required.

2. All natural gas piping will be Schedule 40 black steel with threaded, flanged, or welded fittings. **The use of press type fittings will be allowed for piping up to 4″ for pressures less than 5 psig.**

V. HEATING, VENTILATING, AND AIR CONDITIONING SYSTEM

A. Design Conditions

1. Outdoor Design Conditions:

Winter Dry Bulb	0°F
Summer Dry Bulb	94°F
Summer Wet Bulb (mean coincident)	74°F
Summer Wet Bulb (maximum value, independent of dry bulb)	78°F

2. Indoor Design Conditions:

Winter Dry Bulb	70°F
Winter Minimum Humidity	Not Controlled
Summer Dry Bulb	74°F
Summer Maximum Humidity	60% RH

3. Equipment Operating Temperatures:

Supply air (Rooftop Unit leaving air temperature)	55°F

B. Heating Hot Water Systems

1. The building is not anticipated to have a heating hot water system, but this can be explored as a means of providing reheat at terminal boxes and heating in entry vestibules and other areas with high skin loss.

C. Packaged Rooftop Units

1. The team recommends packaged rooftop units for the Adventure Park Building, which will require areas of flat roof to be available for proper mounting and service. If the size and layout of the building is not conducive to this design solution, grade mounted rooftop units should be explored.

2. It is anticipated that the building would ideally have three packaged rooftop units.

    a. The first rooftop unit will be dedicated to the office portion of the building, which is anticipated to operate under normal business hours. This unit will be approximately 17.5 tons.

b. The second rooftop unit will be dedicated to the public portion of the building, which may operate outside of normal business hours. This unit will be approximately 25 tons.

c. The third rooftop unit will be dedicated to the gymnasium, which will likely operate outside of normal business hours. This unit will be approximately 25 to 30 tons.

3. The commercial packaged DX cooling and gas heat rooftop units for the building will be located on the flat roof area. Placement will be coordinated with the architect to limit visibility. In general, the rooftop units will be high efficiency and variable volume, with DX cooling, an economizer section with enthalpy control, MERV 13 air filters, gas heat, and bottom discharge. The supply fans will be provided with variable frequency drives, or will have electrically commutated motors, to modulate the air volume. The supply fan air volume will be varied to maintain a constant duct static pressure in the ductwork 2/3 of the way down the supply air main. The return fan air operation will be controlled by building pressure.

4. For the office and public rooftop units, main ducts will distribute cool air to the terminal boxes. The terminal boxes will house a volume damper and an electric reheat coil whose operation will be controlled by a thermostat mounted in the space served by the box. When cooling is required, the electric reheat will not operate and the volume damper will modulate the discharge cold air into the space at the rate to satisfy the temperature setting. When cooling is not required, the volume damper will modulate to a predetermined minimum airflow rate. Refer to Paragraph E, “Zone Control”,

for information on thermal zoning via terminal boxes.

5. For the gymnasium unit, this will be a single zone system, and main ducts will distribute conditioned air directly to air devices within the space. Varying of air flow and temperature will be done directly at the rooftop unit without the use of terminal boxes.

D. Air Distribution

1. The air will be distributed throughout the building with high velocity (less than 2,300 FPM) supply ductwork. Generally, the ductwork will be single wall galvanized duct. The supply ductwork will have external insulation. The supply and return air ductwork for the first 30 feet (nominally) from the rooftop unit will be double wall ductwork with internal duct liner that is covered with a mylar sheet under the inner perforated metal wall. This is done to attenuate fan noise. All building exhaust air will be ducted. The building will utilize a return air plenum, and this will be coordinated with the plumbing piping material installed within the ceiling spaces.

E. Zone Control

1. Zone control will be provided by Variable Air Volume (VAV) terminal boxes with electric reheat coils located throughout the building. **All corner rooms and large conference rooms will be provided with individual temperature control. Other than these, as many as four small interior rooms of similar function and load may be grouped into one zone.**

2. The controls for the terminal boxes will be DDC and will be connected into the Building Automation System (BAS) network.

3. Entry vestibules will be heated.

4. The main electrical room will have a ventilation system or a dedicated split

system cooling unit, depending on heat output from the equipment.

F. Special Heating Systems

1. Where high skin loss is anticipated (such as rooms with a significant amount of glass), baseboard electric heating will be provided.

2. The vehicle storage area will provided with gas fired infrared tube heaters.

3. It is recommended to use gas fired forced air heaters in the repair and wash bays due to the makeup air that will be required for the exhaust system needed in the bays, described in the paragraph below.

G. Exhaust Systems

1. Toilet rooms and janitor closets will be provided with continuous exhaust during occupied hours. The exhaust fans will be located on the discharge end of the system (on the roof), such that all ductwork is under negative pressure to prevent leakage out of the exhaust ductwork.

2. Electrical rooms and closets will be ventilated to prevent overheating.

3. The vehicle storage area will be ventilated to provide air movement during the summer months. It is recommended to use one or two wall mounted exhaust fans located on one wall, and motor operated intake louvers located on the opposite wall.

4. The repair bay and wash bay will require an exhaust system that operates based on carbon monoxide and nitrogen dioxide levels in the space. The exhaust fans must be sized for a minimum of 0.75 CFM per square foot of floor area, which is 400 CFM per room based on the current proposed floor diagrams. CO/NO2 sensors must be placed in the bays to activate the exhaust fan as CO and NO2 levels rise. Makeup air must be also provided to the bays, and can be

accomplished through motor operated intake louvers.

5. The sign shop, weld shop, and carpentry shop will need specialized exhaust systems, which will need further coordination with the facilities staff.

H. Supplemental Cooling Systems

1. The telecommunications rooms will be cooled by dedicated split system cooling units.

I. **Temperature Control Systems**

1. **A Building Automation System (BAS) will be used to control all the HVAC equipment, interface with the fire alarm systems, the building lighting, and security. The system will be a web-based open protocol architecture, which will allow for multiple vendors' equipment to be connected to the system. Computer connections to the BMS system will be through any personal computer (PC) that has access to the data network and has password rights to the control system. As well as monitoring and controlling equipment, the BMS system will also include the facility for remote electronic metering which will allow accurate assessment of energy consumption and prompt billing, and also identifies areas for efficiency improvement.**

2. **Control devices including terminal boxes and small valves located on the floors will be by low voltage electric actuation.**

VI. ELECTRICAL SYSTEMS

A. Site Utilities

1. The electrical service will be at either **480/277 volt or 208/120volt** 3 phase via a utility owned exterior pad mounted transformer and metered on the secondary side. **The choices of voltage should be weighed against the cost and lead time of equipment.**

2. Two 5″ conduits in a concrete encased ductbank, will run from the utility company point of connection at the property line, to the location of the exterior utility owned pad mounted transformer near the building. This transformer will be located at least 20 feet away from any building wall or door and have 10 feet clear in front. The utility meter will be connected to the load side of the transformer.

3. The secondary voltage service lateral will consist of multiple 4″ conduits encased in a concrete ductbank running underground to the service switchboard in the main electrical room. The service conductors shall be aluminum alloy with high crimp compression connector lugs on the ends.

B. Normal Power Equipment

1. The Main service switchboard will feed mechanical equipment at either 480volt or 208volt 3 phase, distribution panels at 480/277volt or 208/120volt 3 phase, lighting panels at 480/277 volt 3 phase, and outlet panels at 208/120volt 3 phase.

2. The main service switchboard will be standard NEMA 1 enclosure with bolted on covers, a main circuit breaker with single phase protection, and arc flash energy reduction maintenance bypass switch. The main circuit breaker will be a fixed mount insulated case type with full function electronic trip. A full function metering unit for owners' usage will be in the main section, that

can be monitored by the Building Management System

3. The branch distribution sections will have full size horizontal buss with circuit breakers that are molded case with electronic or thermal-magnetic trip depending on size. In general, circuit breakers larger than 225 amps shall have electronic trip sensors. Smaller circuit breakers shall have standard thermal-magnetic trip sensors. Branch circuit breakers larger than 1100amp shall have arc flash energy reduction maintenance switch to permit safe opening of live equipment.

4. Distribution panelboards shall have bolt-on branch circuit breakers and a door-in-door cover design for safe access.

5. Lighting panelboards will have bolt on thermal-magnetic trip molded case circuit breakers rated for switching duty.

6. Small appliance (power) panelboards will have bolt on thermal-magnetic trip molded case circuit breakers rated HACR for HVAC equipment. GFCI, shunt trip, circuit breakers for appropriate circuits as needed.

7. Bussing within switchboard and panelboards will be tin plated aluminum.

8. Motor controllers shall consist of combination fusible disconnect switch type with integral across-the-line magnetic starter with solid state overload relays with phase loss protection, H-O-A switch and control transformer with fusing and pilot lights.

9. Step-down transformers if needed will be air cooled dry type 80°C rise with 150°C insulation. Voltage will be 208/120volt 3 phase

10. Variable Frequency Drives will be provided by Division 23.

C. Normal Power Distribution

1. Distribution feeders run out from the switchboard shall be through schedule 40 PVC conduits where under slab, or within EMT conduit when overhead. Conduits coming down below 8 feet shall be rigid galvanized steel.

2. Feeder conductors shall be aluminum alloy for 100amp and greater run between electrical equipment only. All other feeders, to mechanical equipment, pumps, etc., shall be of copper conductors.

3. EMT conduits will use set screw connectors.

4. Rigid galvanized steel conduits will be threaded.

D. Branch Circuits and Conduits

1. All branch circuit wiring shall use stranded copper conductors (#12 and #10 awg may be solid).

2. Each branch circuit shall have separate full size neutral conductor; shared neutrals are not permitted.

3. Only 4 circuits shall be permitted together in one conduit.

E. Emergency Power System

1. **An emergency generator is not anticipated for this facility. However a small generator may be considered in lieu of using battery backup for emergency egress lighting.**

F. Grounding

1. The grounding electrode system shall consist of all of the following components exothermically bonded together: the main domestic water service pipe ahead of any meter, and within five feet of entry into the new building; two driven ground rods; Ufer rebar in footer; a bond to nearest steel column or reinforcing rod every 100 feet around building. Single Point

Ground Bus Bar — An insulated main grounding bus bar will be installed adjacent to the service entrance switchgear with each grounding electrode system component listed above bonded to it.

2. Telecommunication rooms shall have a grounding system extended to it sized in accordance with BISCI standards.

G. Transient Voltage Surge Suppression

1. Transient voltage surge suppression devices (TVSS) will be placed in a multi-stage arrangement at the switchboard, and at selected panelboards. TVSS devices will utilize metal oxide varistors (MOV) in enclosed replaceable modules. Each TVSS unit will provide seven modes of protection consisting of each phase: line to neutral, each phase: line to ground and neutral to ground. Units located at switchboards will be rated at 150,000 Amperes per mode, and units located at panelboards will be rated at 50,000 Amperes per mode.

H. Wiring Devices and Outlets

1. 20amp 120volt duplex receptacle outlets will be provided throughout the building as required for specific equipment, and for convenience.

2. GFCI outlets will be located in restrooms, break room, wash bay, repair bay, Sign shop, welding and carpentry shops, within 6 feet of sinks, for electric drinking fountains, vending machines, and exterior to the building.

3. GFCI type circuit breakers will be used on branch circuits where outlets located behind the appliance would be considered inaccessible.

4. Selected duplex outlets will have USB ports for convenience in recharging portable electronic devices.

5. Dedicated outlets will be used for designated equipment, such as in the sign welding and carpentry shops.

6. Recessed wall outlet boxes will be used behind wall mounted video monitors.

7. Floor recessed outlets in the slab-on-grade level for power and data devices will be located in conference and multi-purpose rooms.

8. Plates will be stainless steel.

I. Lighting System

1. The lighting system will consist of fixtures and controls to provide appropriate illumination levels for tasks, matching the architectural finishes and aesthetics, minimize glare, and having a long life expectancy with minimal maintenance.

2. All luminaires will have LED type light sources.

3. Light fixtures will be located in all areas within and around the building in quantities as necessary to provide light levels in accordance with IES Guidelines, Recommended Practice RP-29-16.

   a. In general, average maintained light levels will be as follows:

      i. Offices 50 Footcandles

      ii. Conference /Meeting Rooms 50 Footcandles

      iii. Mechanical/Electrical Rooms 20 Footcandles

      iv. Corridors/lobbies 20 Footcandles

      v. Vehicle Storage/wash bay 20 Footcandles

      vi. Utility and storage rooms 20 Footcandles

      vii. Exterior Entries 5 Footcandles

viii. Restrooms/lockers
20 Footcandles

ix. Break Room 30 Footcandles

x. Reception Areas
30 Footcandles

xi. Gym, dance, and fitness rooms
50 Footcandles

xii. Sign, welding, and carpentry shops 70 Footcandles

xiii. Vehicle repair bay
50 Footcandles

xiv. Parking Lot 2 Footcandles

xv. Emergency Egress Paths
1 Footcandle Minimum

4. Exterior lighting is proposed as follows:

   a. Parking Lot pole mounted cut-off type fixtures on 20 to 30 foot tall poles (in accordance with zoning restrictions).

   b. Walkway pole mounted decorative fixtures on 12- to 15-foot-tall poles

   c. Surface or recessed fixtures in exterior canopies.

   d. Wall mounted area fixtures around building for security

   e. Wall mounted down lights over exterior egress doors

   f. Flagpole lighting fixtures will be mounted to the pole

   g. Signage fixtures will be ground mounted shielded type

5. Interior lighting throughout the building is proposed as follows:

   a. Ceiling recessed flat panel fixtures will be used in offices

   b. Ceiling recessed contoured fixtures will be used in corridors, storage, workrooms.

c. Suspended direct/indirect fixtures will be used in Multi-purpose, conference and meeting rooms.

d. Suspended open industrial type fixtures with will be used in mechanical/electrical, utility rooms, sign shop, welding and carpentry shops, vehicle storage, repair bay.

e. Lobbies will have recessed can fixtures and suspended pendant type decorative.

f. Exit signs will have green letters on acrylic edge lit panels in lobbies and main areas, and aluminum face with plastic body in other areas.

g. Specialty lighting fixtures will be provided in selected areas TBD.

h. Ceiling recessed linear wall washers and mirror lighting fixtures in restrooms.

i. Wet location surface mounted fixtures in showers, lockers rooms, wash bay, and other wet areas

j. Suspended direct or ceiling recessed fixtures in fitness and dance rooms area

k. Suspended direct impact resistant high bay fixtures in gymnasiums

l. Art room to have special high CRI and tunable white color selectable recessed fixtures. Track lighting in display areas.

6. Dimmable fixtures are proposed as follows:

   a. Offices, Council chambers, conference, meeting

   b. Parking lot pole fixtures (code required with motion sensor control)

   c. Daylight harvesting areas (photosensor control).

7. All exterior fixtures will have 4000-degree Kelvin color temperature. Interior fixtures will have 3500-degree Kelvin.

8. Emergency egress lighting will be provided by dual head 12volt unit battery pack fixtures with 90 minute capacity (with nominal 24 hour recharge time) located in the egress paths. In selected areas such as lobbies where battery pack units are not desired, AC inverter units will be used to power selected normal fixtures to bypass lighting controls and make these emergency egress fixtures in a power outage. Exit sign fixtures will have integral 90 minute power supplies.

9. Emergency egress dual head 12-volt unit battery pack lighting fixtures will be provided in electrical, generator, large restrooms as code required

10. Lighting control shall be as follows:

    a. A networked computer based low voltage control system will be provided with relay panels, sensors, and control units.

    b. Lobbies, waiting areas, corridors and open spaces will be controlled via relay panels with automatic time clock on/off, and local switches for afterhours override.

    c. Offices, smaller conference rooms and other private spaces will be controlled via vacancy sensor with integral dimmer.

    d. Exterior security lighting generally will be controlled via relay panels controlled by roof mounted photocell with dusk to dawn operation.

    e. Some exterior lighting fixtures will have integral photocell control for dusk to dawn operation.

f. Parking lot pole fixtures will have integral photo sensor/ motion detector/dimmer, and will dim to 50% level when no motion is sensed beneath it.

g. Conference/ meeting rooms will be controlled by a wall mounted scene controller with vacancy sensors.

h. Daylight harvesting areas will be multilevel dimmed by local photo sensors upon levels of daylight present.

i. Restrooms, storage, utility rooms will be controlled via ceiling mounted occupancy sensor.

j. Electrical, mechanical, telecom rooms shall be switched at the door.

J. Fire Alarm System

1. A standalone, analog addressable fire alarm system will provide life safety protection and consist of the following:

   a. Manual pull stations at all exit doors from a floor.

   b. Duct mounted smoke detectors in air handling units return air side.

   c. Smoke detectors at the main and remote panels

   d. Duct mounted smoke detectors at each smoke damper to close upon detection.

   e. Heat detectors in mechanical/ electrical rooms.

   f. Audible/visual and visual alarm units (with synchronized flash rate) throughout the building meeting ADA requirements.

   g. Waterflow and tamper switch supervision.

   h. Monitoring of ERRS system.

i. Vav terminal units will have duct mounted smoke detectors to shut down.

2. Remote monitoring of the fire alarm system will be necessary by a third party. The owner will have to subscribe to a service.

3. The fire alarm system will have a main control panel located in the electrical room, and booster panels in selected electrical closets.

4. A remote annunciator will be located at the fire department entrance to the building, and in the main office,

5. All air handling units and return air fans will shut down when smoke is detected by duct mounted smoke detectors. Remote test stations with visual indication and reset will be provided for all duct mounted smoke detectors.

6. Doors with magnetic holders or electro-mechanical closer holders will be wired to the fire alarm system and will release doors on alarm or power failure. Door holders will be released locally by wiring them through auxiliary relays in smoke detector bases.

7. Fire Alarm System will monitor the Emergency Responder Radio Repeater ERRS system.

8. Visual alarm units will be located in restrooms, conference, and other public use spaces.

K. Lightning Protection System

1. A Lightning Protection System will be provided for a complete UL listed and labeled, certified Master Label “C” Lightning Protection System. It will be provided for the roof area(s) per UL Code 96A. System will include air terminals, cable connectors, down connectors, counterpoise ring, etc. Installation will have an “A” label on

each air terminal and “B” label at 10′-0″ spacing along all conductors.

2. Each parking lot site lighting pole will have a supplemental driven ground rod installed in its base and bonded to the pole to divert lightning strikes to earth.

L. Emergency Responder Radio Antenna/ Repeater System (ERRS)

1. Upon substantial completion of the building, a signal strength survey shall be performed using an RF Spectrum Analyzer to determine if the signal strength of portable radios used by Emergency Responder Staff meets code. If required, a complete and operating Emergency Responder Radio Antenna/Repeater System will be provided and tested. An allowance will be provided for this work in the bid. This includes rough-ins and roof penetrations.

2. The system will consist of Roof antenna, bi-amplification equipment rack, 24-hour battery backup system, horizontal cabling above ceilings on all floors to antennas in ceilings and located in non-ceiling areas.

3. The system will support the Fire Department radio system and other first responders. The system is not intended to support cell phone carriers, the Owner’s private security, and maintenance personnel radio systems, now or in the future.

M. Rough-Ins for Low-Voltage Systems

1. The Division 26 Contractor shall provide outlet boxes, conduits, cable tray, and raceways for voice/data/audio/video/security low-voltage systems.

2. Three 4″ conduits shall be provided from the property line to the Main Technology Room (MTR) for service

cables from the low voltage utility companies.

3. MTR and Technology Rooms shall be about 10′ × 10′ in size and located on each floor so that horizontal cabling shall not exceed 90 meters in length. The rooms walls will connect via cable tray and conduit sleeves through walls and floors.

4. Outlet boxes for data/voice cabling shall 4-11/16 square with 1 inch conduit stub ups to above ceiling.

5. Outlet boxes for audio/video cabling shall 4-11/16 square with 1¼-inch conduit stub ups to above ceiling.

6. Outlet boxes for security cabling shall 4-11/16 square with ¾ inch conduit stub ups to above ceiling.

7. Television and monitor locations shall use a recessed TV box for both power and low voltage, so there is a place to coil up excess cable.

8. Wire basket cable tray will be provided above corridor ceilings running from the telecom rooms to most areas of the building to route the low voltage cabling. In areas where there are few cables, j-hooks will be installed to support these cables.

N. Electric Vehicle Charging Equipment (EVSE)

1. Level 2 Electric Vehicle chargers will be provided in the parking lot, with at least one located at an ADA parking spot. Chargers will be rated 7.2Kw at 208volt 1 phase and can accommodate one vehicle at full charging capacity or two vehicles in a sharing arrangement.

2. A post mounted emergency power off EPO switch located in a Knox box will be located within 50 feet of the chargers for fire department use to turn off the power to all chargers. This switch will be wired to shunt trip type circuit breakers feeding the charging equipment.

3. Appropriate signage will be located to clearly indicate this emergency power off switch.

4. Each charger will have concrete filled steel bollards adjacent to it for vehicle impact protection.

VII. COMMUNICATIONS SYSTEMS

A. Data/Video/Voice Cabling Infrastructure

1. A complete Structured Cabling System will be provided for all network cabling and infrastructure to support the low-voltage systems.

2. System shall include Data Network backbone and horizontal cabling, connectivity outlets, and equipment racks. Data network infrastructure will include connectivity for all data outlets, phone outlets (phone system equipment by Owner), security cameras, door controllers, intercoms, and A/V equipment.

VIII. AUDIO/VIDEO SYSTEMS

A. Overhead Paging System

1. This system will include a public address system to be provided in the public areas, corridors, and staff work areas.

2. Speakers will be assigned to zones to allow for proper distribution of overhead pages (e.g., public areas, staff-only areas, or all-page). The system will be tied to the phone system to allow for paging from the phones.

3. The system will include all amplifiers, ceiling speakers, phone system paging adaptor, and cabling.

B. Local Audio/Video Systems

1. Audio and video for local systems shall be provided in Council Chambers, conference and meeting rooms.

2. An HDMI wall plate input shall be installed to allow auxiliary video input. For large conference rooms, the audio from the system shall play through the distributed audio speakers in the ceiling of the room.

3. The system shall include all monitors and mounts, projectors and mounts, projection screens, cabling and signal transport devices, equipment storage racks/panels, A/V wall plates, A/V receivers, and speakers.

IX. SAFETY AND SECURITY SYSTEMS

A. Access Control System

1. An access control system will be provided
2. Credential Readers shall be provided at applicable doors for local control and access monitoring.
3. Hardwired access control doors to include the following locations:
    a. Exterior Entries
    b. Select Corridor Passage Doors
    c. Storage Rooms
    d. Staff Lounges

B. Video Surveillance System

1. A Video Surveillance System with IP-based CCTV cameras will be provided.
2. The new cameras shall be IP cameras and located to provide appropriate coverage. Storage will be via Network Video Recorders.
3. All required components necessary for the Video Surveillance System shall be utilized including but not limited to the video management software (VMS), network video recorder (NVR), cameras, licensing, fiber optic cables and media converters (or Ethernet extenders) for all site cameras beyond 90 meters cable distance from the nearest TR, and integration with the Access Control System.

Examples of well-designed building entrances

Landscape Standards Narrative

by: MKSK

BUILDINGS

A well-designed building entrance serves as both a functional threshold and an essential component of a facility's public identity. Entrances communicate purpose, direct and support circulation, and establish a welcoming first impression. As Powell evaluates existing facilities and considers future improvements, several best-practice principles should guide the design of all public-facing entry points.

1. **A Clear and Legible Front Door**: Entrances should be immediately recognizable from primary approach routes, both vehicular and pedestrian. A defined architectural element such as a canopy or enhanced façade treatment helps establish the entrance as the

primary point of arrival. A strong, identifiable "front door" reduces confusion, establishes a civic presence, and ensures visitors intuitively understand where to enter upon arrival.

2. **Programming and Operational Support at Entrances**: For parks and recreation facilities, community centers, and other high-turnover public buildings, entrances should be designed to support daily operations. This includes dedicated areas for drop-off and pick-up, bicycle parking, seating, and clear interior views into lobbies or reception areas. These elements improve flow, enhance safety, and support long-term program participation and growth.

3. **Strong Relationship Between Building, Access Walkways, and Site Features:** Landscaping, pedestrian paths, lighting, and signage should work cohesively to guide visitors naturally toward the entrance from either the public Right-of-Way and/or supporting parking areas. Walkways and entrance plazas should be designed to handle day-to-day foot-traffic but also facilitate larger attendance events such as community meetings and public hearings. Pavements should be of a limited palette and consistent across City buildings. Accent paving such as pavers or specialty concrete can elevate a space and help to identify primary entrances. Trees and plantings should frame the entryway and present a welcoming civic identity while maintaining clear separation between public and service circulation.

4. **Accessibility as a Core Principle**: Universal design must be fully integrated into the entrance experience. Accessible routes should be the primary routes, with appropriate slopes, turning radii, surface textures, door clearances, and lighting to ensure all visitors can reach the entrance with similar effort and dignity.

Building lighting and wayfinding examples

5. **Lighting and Security at Entrances**: Entrances should be well-lit with fixtures that provide visibility without glare. Lighting reinforces safety, supports evening programming, and strengthens architectural presence at night. Security elements, including cameras or controlled-access vestibules, and clear sightlines should be incorporated discreetly but intentionally.

6. **Intuitive Wayfinding from Roadway to Front Door**: Wayfinding should be consistent across all City facilities and communicate clearly which entrance serves functions related to public access, programming spaces, service deliveries, staff entry, or emergency access. Signage and environmental cues should begin at the roadway, continue through parking areas and pedestrian routes, and culminate at a clearly designated front door. Consistency in materials, symbols, and placement reinforces the city's identity and reduces visitor confusion across all municipal facilities.

PARKING

A well-designed parking area serves not only as a functional support for a facility but also as a critical component of the site's overall organization and public experience. Parking influences access, circulation, safety, and the visual character of the property. As Powell evaluates existing facilities and plans for future improvements, several best-practice principles should guide the design of all parking areas to balance efficiency, safety, user convenience, and integration with the surrounding site.

1. **Minimize Footprint, Maximize Efficiency:** Parking areas should be designed to accommodate the expected demand while minimizing impervious surfaces and overall site footprint. Efficient layouts reduce driving distances, improve maneuverability, and support sustainable stormwater management through permeable paving, bioswales, or other low-impact strategies.

2. **Manage Access, Minimize Curb Cuts:** Access points should be limited and strategically located to reduce conflicts with through traffic. Minimizing curb cuts along public streets improves safety, reduces congestion, and maintains a stronger civic streetscape.

3. **Manage Users Effectively:** Where a site has multiple uses, such as recreation facilities, administrative offices, or public amenities parking should be organized to separate user groups and reduce conflicts. Dedicated zones for staff, visitors, program participants, and service vehicles improve efficiency, safety, and user experience.

4. **Ensure Clear Wayfinding:** Signage, pavement markings, and visual cues should clearly indicate parking zones, entry/exit routes, and connections to building entrances. Wayfinding should be intuitive from the roadway to the parking area and continue seamlessly to building entrances, helping all visitors navigate the site with minimal confusion.

5. **Incorporate Landscaping:** Trees, planting beds, and other greenery should be incorporated within and around parking areas to provide shade, reduce heat islands, and create a more

Above: Incorporation of landscaping in parking lots

Right: Parking wayfinding and screening

inviting environment. Landscape features should complement pedestrian circulation and maintain clear sightlines for drivers. Landscape should also be considered first as part of the overall stormwater management approach where feasible.

6. **Screening from Adjacent Uses:** Parking lots should be screened from neighboring properties using landscaping, berms, or fences, balancing visibility for safety with visual separation to protect residential and civic character. Screening can enhance aesthetics while reducing glare, noise, and visual impact.

STORMWATER MANAGEMENT

A thoughtfully designed stormwater system supports both the functionality and environmental sustainability of a facility. Stormwater management requirements will vary from one public facility to the next as building size and site hardscape will vary. As a result, there is not a one-size fits all stormwater solution that can be recommended for new and/or retrofitted facilities. As Powell evaluates existing facilities and plans for future improvements, several best-practice principles should guide the integration of stormwater management into all site designs.

1. **Encourage On-Site Green Infrastructure:** Where feasible, stormwater should be managed on-site and utilize an integrated and connected feature approach to reduce the need for large detention basins or below-grade storage features that can be costly. Examples include bioswales, rain gardens, permeable pavements, green roofs, and vegetated swales. These strategies reduce runoff, filter pollutants, and improve the visual and ecological quality of the site while minimizing overall infrastructure costs.

2. **Safely Convey Stormwater Throughout the Site**: Stormwater should be directed away from buildings, pedestrian areas, and parking lots using swales, curbs, or underground systems. Conveyance systems should be designed to handle both routine and extreme rainfall events, ensuring public safety and minimizing erosion or flooding while integrating visually with the overall site design.

3. **Integrate Stormwater Features with Landscaping and Site Design**: Stormwater management elements should be thoughtfully incorporated into the site's landscape and circulation patterns. Plantings, pathways, and open spaces can work with bioswales and detention areas to create functional, attractive features that enhance site aesthetics, support habitat, and provide educational opportunities while maintaining accessibility and usability.

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