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**MADISON
 PARKS**

**Warner Park Community
 Recreation Center Expansion
 Pre-Design Study **DRAFT****

January 6, 2023



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Project Team

City of Madison Engineering

Amy Scanlon, AIA

Project Manager

City of Madison Parks Division

Mike Sturm
Zach Watson
Chad Norquist

Landscape Architect
WPCRC Facility Manager
WPCRC Maintenance Mechanic

Design Team

Engberg Anderson, Inc.

Architecture

Jim Brown, AIA
Drew Kemp-Baird, RA

JSD Professional Services

Civil Engineering & Landscape Architecture

Kevin Yeska, PLA
Andrew Geffert, PE

**Oneida Total Integrated
Enterprises (OTIE)**

Structural Engineering

James Hall, PE, SE

Hein Engineering Group

**Mechanical, Electrical, Plumbing, & Fire Protection
Engineering**

Michael Hein, PE
Brian Cheney

**Middleton Consulting &
Contracting, Inc.**

Cost Estimating

Tom Middleton, CPC

EXECUTIVE SUMMARY

Introduction

A consulting team led by Engberg Anderson was selected by the City of Madison in August 2022 to provide pre-design, design, bidding assistance, and construction administration for the expansion of the Warner Park Community Recreation Center. Before design work began, the design team led a robust public engagement process consisting of analyzing previous studies and facility use data along with leading stakeholder meetings and conducting an online survey. Key takeaways from the public engagement exercises which were shared during the public information meeting are listed below:

- Warner Park Community Recreation Center continues to uphold the mission enacted 25 years ago when the building first opened.
- Space use is constant throughout the day. However, programming and the spaces used are markedly different between the morning and afternoon.
- Changes to the Center should create equitable, interactive, and multipurpose spaces with patrons of all ages and backgrounds in mind.
- The Center needs to adapt as community needs change.
- The current space and storage layout limits the programming that community partners can provide at the Center.
- Changes should not preclude the future addition of a pool.

Value and Goal Statement

Three guiding principles were identified by the core team coming out of the public engagement process and presented during the public information meeting. These principles are to guide and influence all projects at the Center going forward:

- The WPCRC will serve as a gathering place and beacon for the community, culture, and diversity represented on Madison's Northside.
- The WPCRC will host activities and provide services for a multitude of community groups representing patrons of all ages and backgrounds.
- The WPCRC will evaluate and respond to physical and functional deficiencies throughout the facility to invest in long-term success.

Five project goals, specific to the scope and funds available for this expansion project, were extrapolated from the guiding principles. These were presented during the public information meeting:

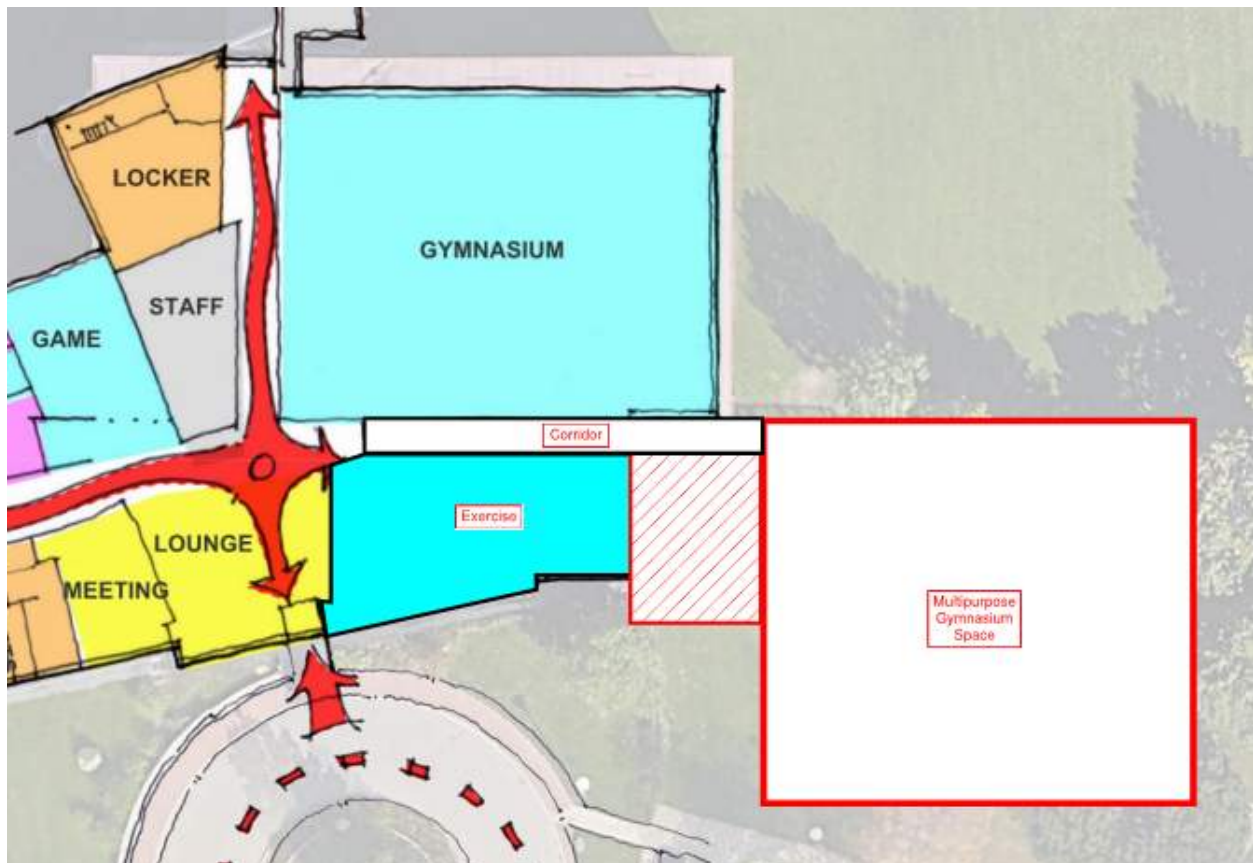
- Equip the Center to host events of all types and sizes, whether they require one small meeting space or the entire facility.
- Create adaptable, multi-use spaces.
- Provide multipurpose activity spaces for individuals and groups of all ages to play, study, learn, connect, and grow.
- Design spaces and services which provide necessary and appropriate levels of comfort and accessibility.
- Investigate, identify, prioritize, and remedy deficiencies which came up through the information gathering process.

Description of Design Scheme

Following the public engagement phase, the project team determined that the expansion project will address three key components: add a second multipurpose gymnasium space, renovate the existing locker rooms, and replace the chiller which is at the end of its useful life. The second gymnasium space will be configured and finished to host the wide range of classes, events, and sports which were identified of interest by stakeholders and building users. The current locker room configuration will be replaced with small locker alcoves near the gymnasiums. The existing locker rooms will be reconfigured to provide individual shower/change rooms and both separate gender and single-use restroom facilities.

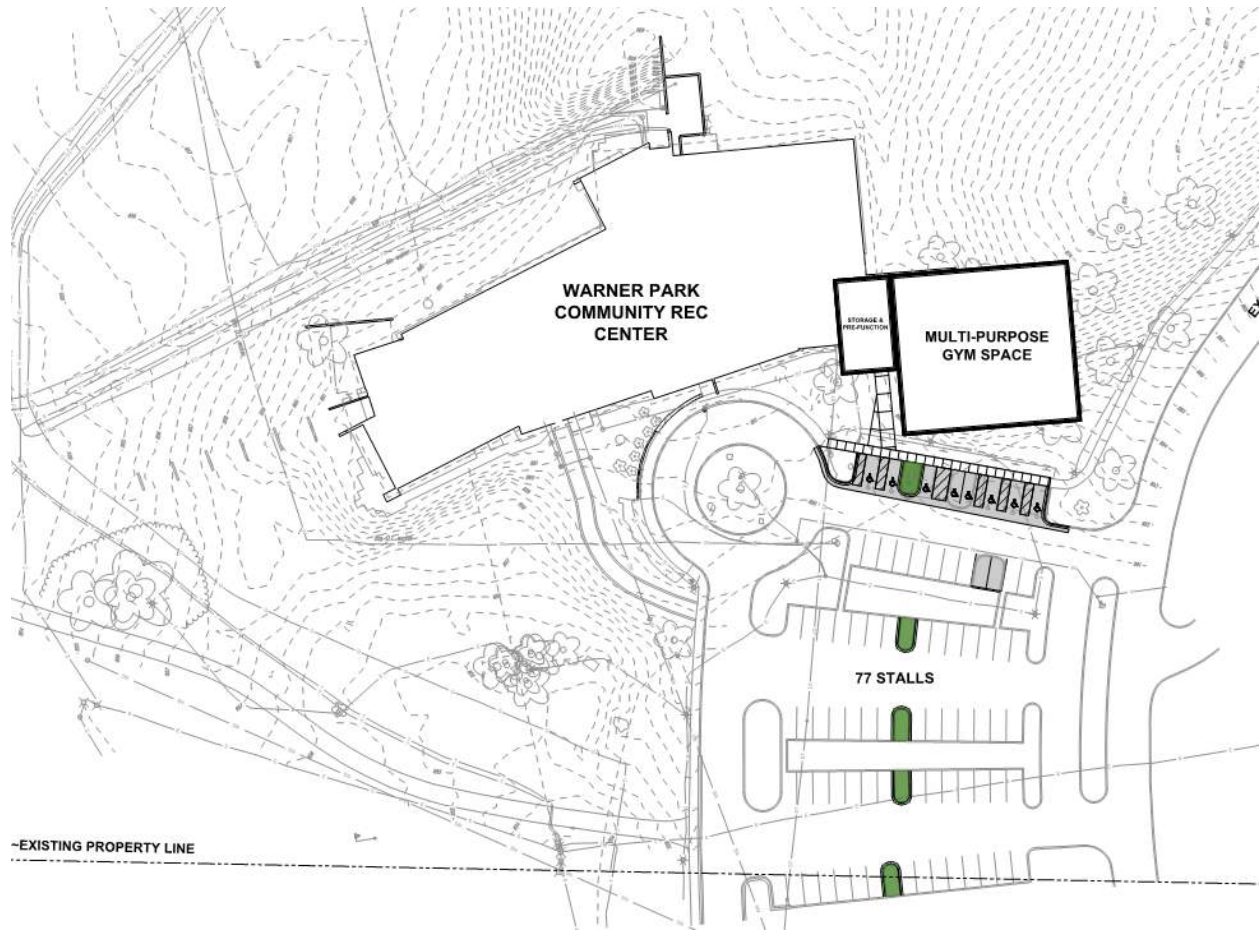
Placing the second gymnasium down a corridor adjacent to the existing gymnasium will maintain existing building circulation around the front desk. The preferred architectural design scheme builds the second gymnasium off the southeast side of the existing building and extends a corridor from the front desk to the expansion. The existing fitness center and gym storage space are reconfigured to create the corridor and connect to the expansion. Additional space for storage and egress to the main roundabout are placed at the connection to the existing building. A mechanical mezzanine is created for the air handler which serves the expansion. Plumbing and fire protection systems are reconfigured to accommodate new and renovated areas. The fire alarm system is at capacity and will be replaced.

Expanding to the southeast will not require the addition of a fire lane wrapping around the building, though a hydrant will be added within 500' of the expansion. Landscaping around the building will need to be kept in compliance with local zoning ordinances, which will include scope such as replacing any trees displaced by the addition and adding islands in the existing parking lot. Stormwater management strategies will be explored further in schematic design, depending on the amount of impervious square footage which the project adds.



Conceptual floor plan of preferred expansion option

Site Plan



Project Schedule

Schematic Design	Begin January 3, 2023	End February 10, 2023
Design Development	Begin February 13, 2023	End March 24, 2023
Construction Documents	Begin March 27, 2023	End May 5, 2023
Bidding	Begin May 8, 2023	End July 28, 2023
Construction Contract	Begin July 31, 2023	End September 22, 2023
Construction Administration	Begin September 25, 2023	End July 26, 2024

INTRODUCTION

In August 2022, a consulting team led by Engberg Anderson, Inc. was hired by the City of Madison to provide public engagement, programming and pre-design, preparation of bid documents, assistance in the bid process, construction administration, and warranty administration for an expansion project at the Warner Park Community Recreation Center at 1625 Northport Drive on Madison's Northside. The team includes JSD Professional Services as civil engineer / landscape architect, Oneida Total Integrated Enterprises (OTIE) as structural engineer, and Hein Engineering Group as mechanical / electrical / plumbing / fire protection / technology engineers.

Relevant Facts

The Warner Park Community Recreation Center was originally constructed in 1998 and is 29,136 G.S.F. on one story. The building has two mechanical mezzanines totaling 3,157 G.S.F., one above the locker rooms and one above the kitchen and restrooms. The WPCRC provides the following facilities in its current footprint:

- Gymnasium with hardwood floor and retractable bleachers
- Locker rooms
- Fitness center
- Game room
- Meeting room
- (3) community rooms separated by folding partitions
- Kitchen
- Dry and wet craft rooms
- Childcare suite (repurposed since the COVID-19 pandemic)
- NewBridge suite
- Staff support spaces

Documentation of Methodology Used

The project direction was determined through an information gathering process which included program verification, reviewing prior studies, and leading a robust public engagement process to determine the most effective long-term use of the budget anticipated by the City. A public information meeting served as the culmination of the public engagement process and highlighted how input from stakeholders and building users would influence the final design of the expansion. Input was gathered through six avenues:

- Facility Mission Statement
- Building Systems Assessment
- Facility Use Data
- Stakeholder Input
- Intercept Interviews
- Online Survey Results

Facility use data from November 2021 through November 2022 was provided by WPCRC event planning staff. The online survey was prepared by Engberg Anderson in conjunction with the project team and distributed by the Parks Division in October 2022. Detailed results are shown in the public information meeting slides, which are included in the appendix.

All six means of information gathering influenced the key takeaways listed below and presented during the public information meeting:

- Warner Park Community Recreation Center continues to uphold the mission enacted 25 years ago when the building first opened.
- Space use is constant throughout the day. However, programming and the spaces used are markedly different between the morning and afternoon.

- Changes to the Center should create equitable, interactive, and multipurpose spaces with patrons of all ages and backgrounds in mind.
- The Center needs to adapt as community needs change.
- The current space and storage layout limits the programming that community partners can provide at the Center.
- Changes should not preclude the future addition of a pool.

Value and Goal Statement

Two means of turning public input into action items were presented during the public information meeting: guiding principles and project goals. Guiding principles are applicable to all future projects at WPCRC—they define policies and ideologies going forward as all-encompassing values to realize the potential of the community. Project goals are specific to this expansion project—they define a scope in line with the expectations and budget as tangible improvements to realize the guiding principles.

The public information meeting identified three guiding principles which were influenced by conclusions drawn during the information gathering process, along with five project goals which were each connected to a guiding principle:

- Guiding Principle: The WPCRC will serve as a gathering place and beacon for the community, culture, and diversity represented on Madison’s Northside.
 - Project Goal: Equip the Center to host events of all types and sizes, whether they require one small meeting space or the entire facility.
 - Project Goal: Create adaptable, multi-use spaces.
- Guiding Principle: The WPCRC will host activities and provide services for a multitude of community groups representing patrons of all ages and backgrounds.
 - Project Goal: Provide multipurpose activity spaces for individuals and groups of all ages to play, study, learn, connect, and grow.
 - Project Goal: Design spaces and services which provide necessary and appropriate levels of comfort and accessibility.
- Guiding Principle: The WPCRC will evaluate and respond to physical and functional deficiencies throughout the facility to invest in long-term success.
 - Project Goal: Investigate, identify, prioritize, and remedy deficiencies which came up through the information gathering process.

Data Analysis Conclusions

Following the public engagement process, the project team determined that this expansion project would contain the following scope to address the key takeaways, guiding principles, and project goals:

- A flexible, multipurpose gymnasium/event space
- Renovated locker rooms
- Replacement of the existing chiller

With tangible project scope identified, the design team took a closer look at constraints due to existing conditions and presented concepts for expansion. These concepts were reviewed by the core team and the City of Madison Development Assistance Team (DAT) to ensure that the expansion integrates with current operations at the Center and complies with local ordinances and requirements.

Long-term planning is an important part of any project. It was anticipated that the public engagement process would identify more “wants” from building users and the community-at-large than the project budget would allow, such as an aquatic center. Ensuring that the expansion would not preclude the future implementation of these elements was highlighted during the public information meeting and taken into account when developing the expansion concepts.

Project Phases and General Scopes of Work

The general scope of work will be to add a multipurpose gymnasium/event space, renovate the locker rooms in their existing footprint, and replace the chiller which is at the end of its useful life. The expansion will have its own dedicated mechanical system, leaving the existing air handlers and distribution system in place. See the design narratives for specific project requirements.

The Center will remain open and operational during construction. The bid documents will outline phasing and staging guidelines for the contractor to follow. It is advised that construction begin as early as possible in 2023 to allow for foundations to be poured before frost. The chiller can be replaced in January or February 2024 without impacting existing building system operations. See the project schedule for additional information.

The construction staging area should be kept near the entry drive to avoid impacting the natural park setting. WPCRC event planners will take construction noise and staging into account when scheduling events for 2024.

EXISTING SITE PLAN*Existing Site Plan (Full Parcel)*

The 37-acre parcel, located at the southwest quadrant of Troy Drive and Northport Drive, largely consists of pedestrian amenities including two soccer fields, waterfront access (lagoon), a playground, two basketball courts, access drives, pedestrian pathways and the Warner Park Community Recreation Center. Additionally, a portion of the Mallards Stadium bisects the southern property line of the 37-acre parcel. The parcel is bordered to the west by single-family residential homes, commercial/retail uses to the northwest and multi-family housing to the northeast. A 77-stall parking lot and drive up drop-off area exists south of the main entrance to the Center.

Drainage and Grading

Assuming it was constructed in accordance with the 1998 project manual, the existing parking lot is 3.5" thick asphalt with 8" of compacted aggregate base. The 2017 facility assessment noted the presence of rutting in areas of the parking lot, suggesting that some settling of the subgrade has occurred. The parking lot curbs lack a concrete gutter. Water draining to the parking lot perimeter has caused sediment accumulation at the joint between the curb edge and asphalt surfacing. Water infiltrating below the pavement at this location is likely undermining the pavement and contributing to rutting within the parking lot.

The downspouts on portions of the building have been fitted with black corrugated plastic drain pipe to convey water away from the building foundation. There are several low points near the building foundation that need regrading to direct stormwater away from the building. In some areas, concrete pavement settling has slowed surface drainage, causing sediment deposition on the settled slabs.

The existing stormwater drainage system consists of a storm sewer on the south side of the building that extends beneath the parking lot and outlets to a rain garden on the south side of the site. The parking lot is surface drained via one curb cut to the same rain garden. The rain garden overflows to a culvert which runs beneath the adjacent road and outlets in the turf area adjacent to the Mallards Ballpark. Undeveloped portions of the site to the north and west of the building consist primarily of turf grass which infiltrates / drains stormwater via overland flow to the Warner Park Duck Pond.



Existing Site Plan (Building Detail)

Utilities

The Utility Plan (Sheet LA2.1 from the initial Warner Park Community Recreation Center construction drawings prepared by JJR Incorporated and issued for bidding January 12, 1998) shows the location of existing utilities on the site. Subsurface water, gas, electric, telephone, and sanitary sewer lines extend throughout the site, but are found in the highest concentration to the west and north of the building. Water, gas, and electric lines connect to the building on the north side near the outdoor amphitheater. The sanitary sewer exits the building beneath the main entrance.

Utilities that do not serve the building run beneath it. A gas line is located beneath the building's eastern half, and an MG&E electric line lies beneath its western half. This expansion project will likely impact at least one utility, but expansion of the northeastern façade of the building would result with the fewest underground utility conflicts.

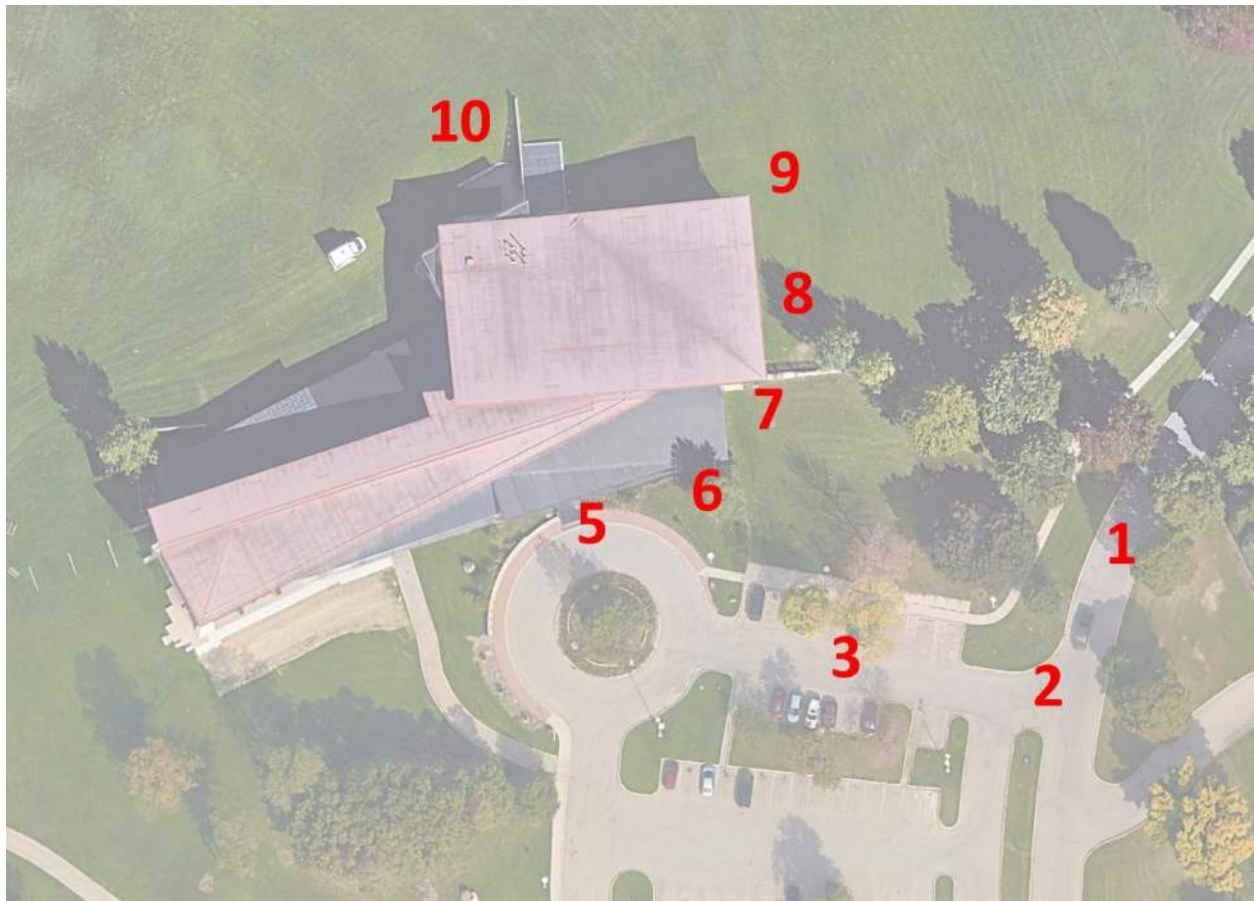
Geotechnical Investigation

Per the geotechnical report prepared by Soil & Engineering Services, Inc. prior to the Center's original construction, the soil borings revealed that the native soil in the building area consists of a surface layer of topsoil with a clay stratum extending to depths of 2'6" to 5'0" below grades. Below the clay stratum, the soil was primarily silty fine to medium sand with gravel. Soils under the pavement contain a surface layer of fill overlying native soil to depths varying from 2'9" to 5'0" below grade. The fill material varied between borings, but generally consisted of a combination of fine sand and lean clay.

Groundwater was encountered in 12 of the 18 soil borings and within one of two groundwater monitoring wells. The approximate groundwater elevation is between +0.5' and -0.5'. The geotechnical report recommended design elevation for groundwater was +0.5' (more than 15' below the existing finish floor elevation). In general, the site can be characterized as having well drained soils below the surface fills and lean clays.

PHOTOGRAPHS

Exterior



Exterior View Location Key



Figure 1: Entry drive into Warner Park, due east of WPCRC.



Figure 2: Turn from entry drive into WPCRC parking lot.



Figure 3: WPCRC parking lot.



Figure 4: WPCRC parking lot and circle drive at building entry.



Figure 5: WPCRC building entry, southeast corner, and south wall of gymnasium.



Figure 6: WPCRC southeast corner and south wall of gymnasium.



Figure 7: Southeast corner of gymnasium.



Figure 8: East wall of gymnasium.

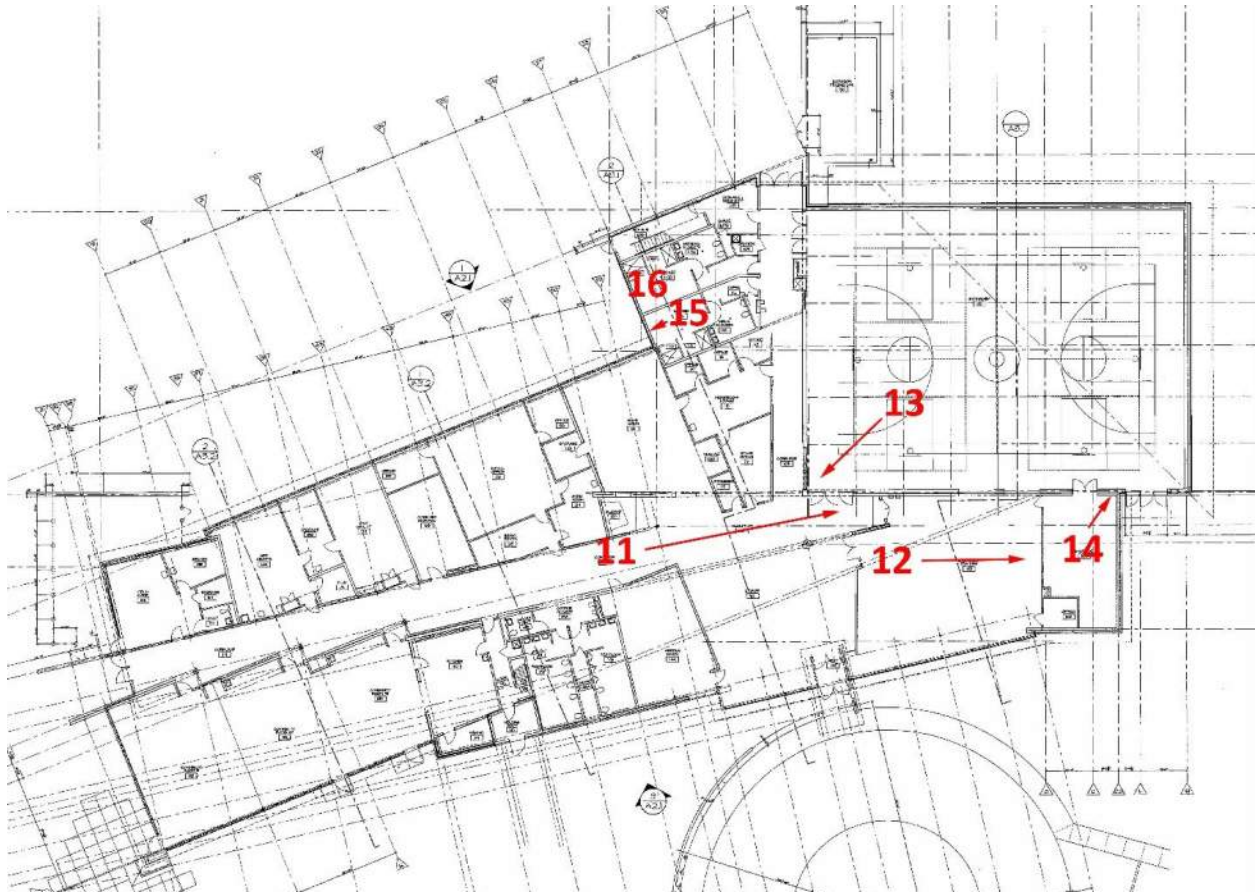


Figure 9: Northeast corner of gymnasium.



Figure 10: North wall of gymnasium and chiller pit.

Interior



Interior Photo Location Key



Figure 11: East-west corridor looking toward front desk, lobby, and exercise room.



Figure 12: Exercise room, looking east.



Figure 13: Gymnasium, looking southwest toward front desk.



Figure 14: Storage room, looking northeast.

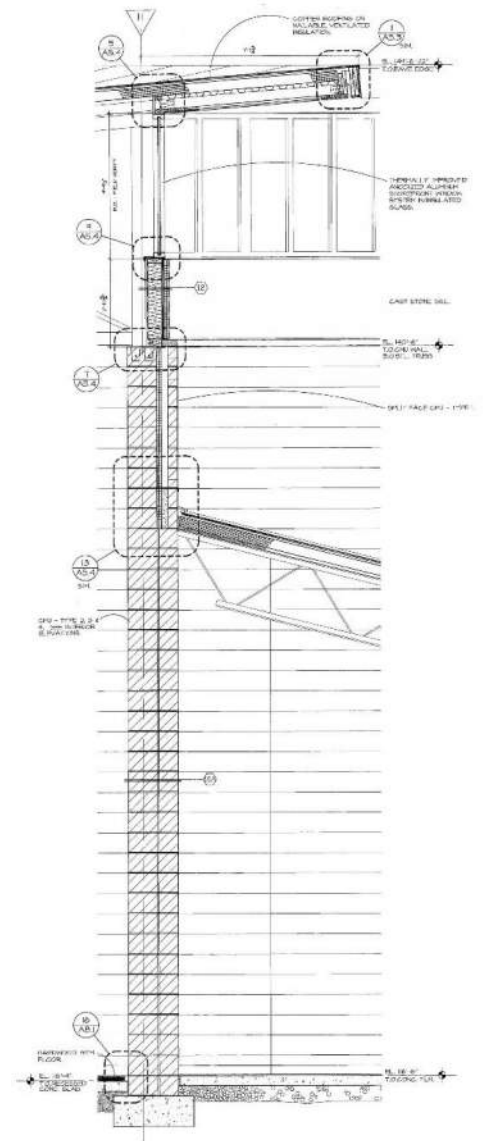


Figure 15: Men's locker room, looking east.



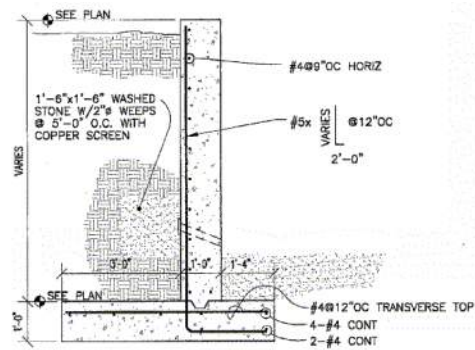
Figure 16: Typical accessible locker room shower stall.

BUILDING SECTIONS



Existing Gymnasium Wall Section

T.O. Foundation: 96'-6" at exterior
98'-8" at interior
Floor Construction: 4" reinforced concrete slab
over 12" granular fill
Finished Floor: 100'-0"
Joist Bearing: 124'-0"
T.O. Roof: 133'-2 1/2"



Existing Retaining Wall Section

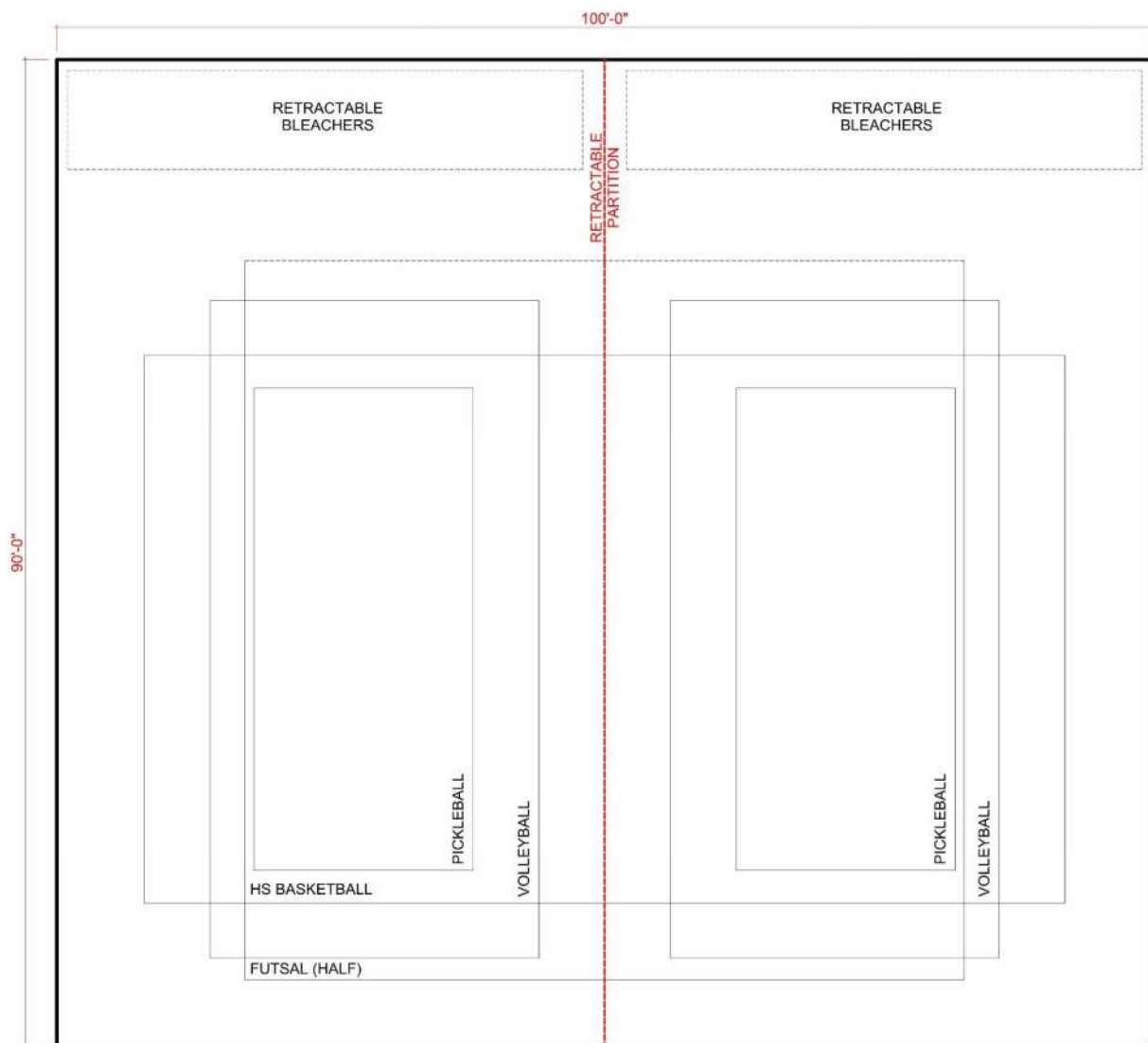
T.O. Foundation: 96'-6"
T.O. Wall: 108'-0"

PROGRAM REQUIREMENTS

Multipurpose Gymnasium Space

During the public engagement process, all stakeholders expressed opportunities to use a second gymnasium space. The current gymnasium is very heavily programmed, having been reserved for 81% of its available hours in the facility use data provided by WPCRC planning staff. The existing gymnasium is used for fitness classes, open gym time, building-wide events, and practices/tournaments organized by community basketball and volleyball leagues. WPCRC staff is currently turning away 3-4 gym rentals per day due to a shortage of available space and time slots.

A second multipurpose gymnasium space would provide much-needed services for the Center to improve and grow its program offerings for the community. Installing a “sport court” floor instead of mimicking the hardwood floor in the current gymnasium will allow for a wider range of fitness activities to be held in the space. A second gymnasium is required for larger basketball and volleyball tournaments to be held on weekends. Pickleball and futsal were also cited by stakeholders as potential sport offerings, as were retractable nets for baseball practice.



90' x 100' gymnasium layout with sizing for basketball, volleyball, pickleball, and (half) futsal courts

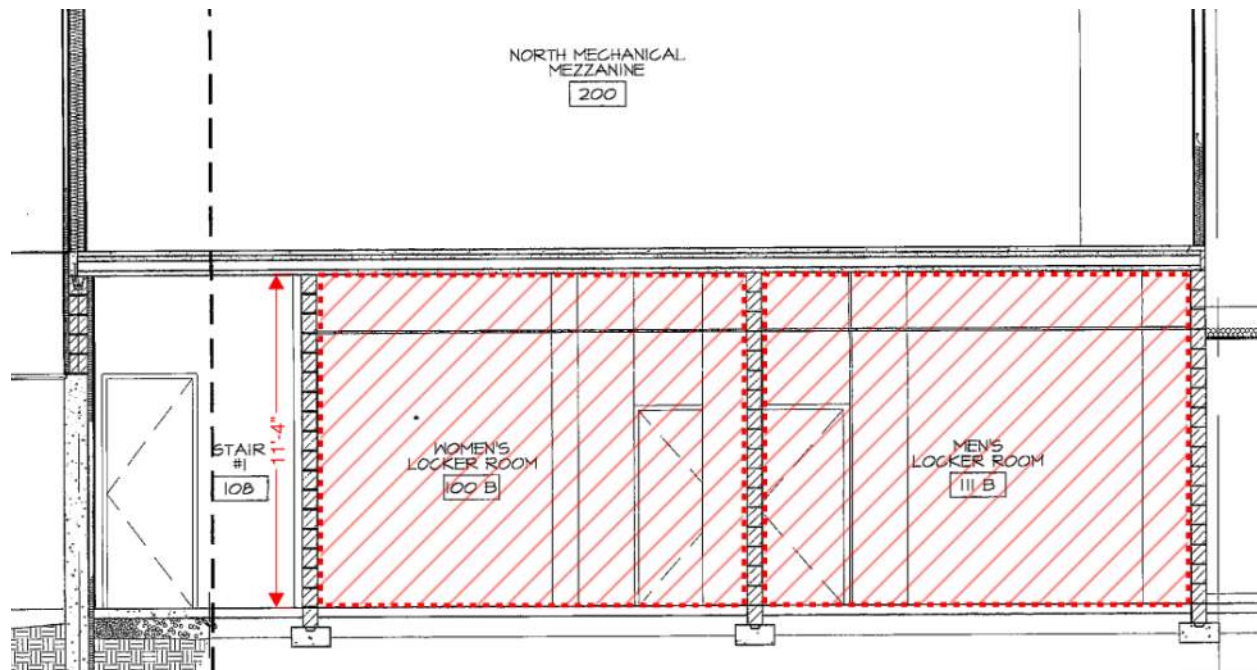
The current gymnasium is 74' deep by 100' wide and includes retractable bleachers, sound system, and scoreboard. It is recommended that the new gym be enlarged to 90' x 100' to provide 6' clear around the volleyball courts for jump serving. Other services in the existing gymnasium will be re-created in the new space. Clear height to the underside of structure is recommended at 25' per athletic court standards; however, the exterior height above grade of the gymnasium should not exceed 30' to avoid requiring ladder truck access for the fire department. Locations for additional storage, accessible from common-use corridors, should be considered in the expansion footprint.

The second gymnasium should be kept adjacent to the existing gymnasium to maintain existing building flow and function. General building traffic will still run through the main entry by the front desk so staff can maintain control of check-ins. Placing the two gyms in the same circulation path will allow those spaces to hold athletic events while the rest of the building is used for different events. It is not anticipated that the second gymnasium will require additional staffing to be added.

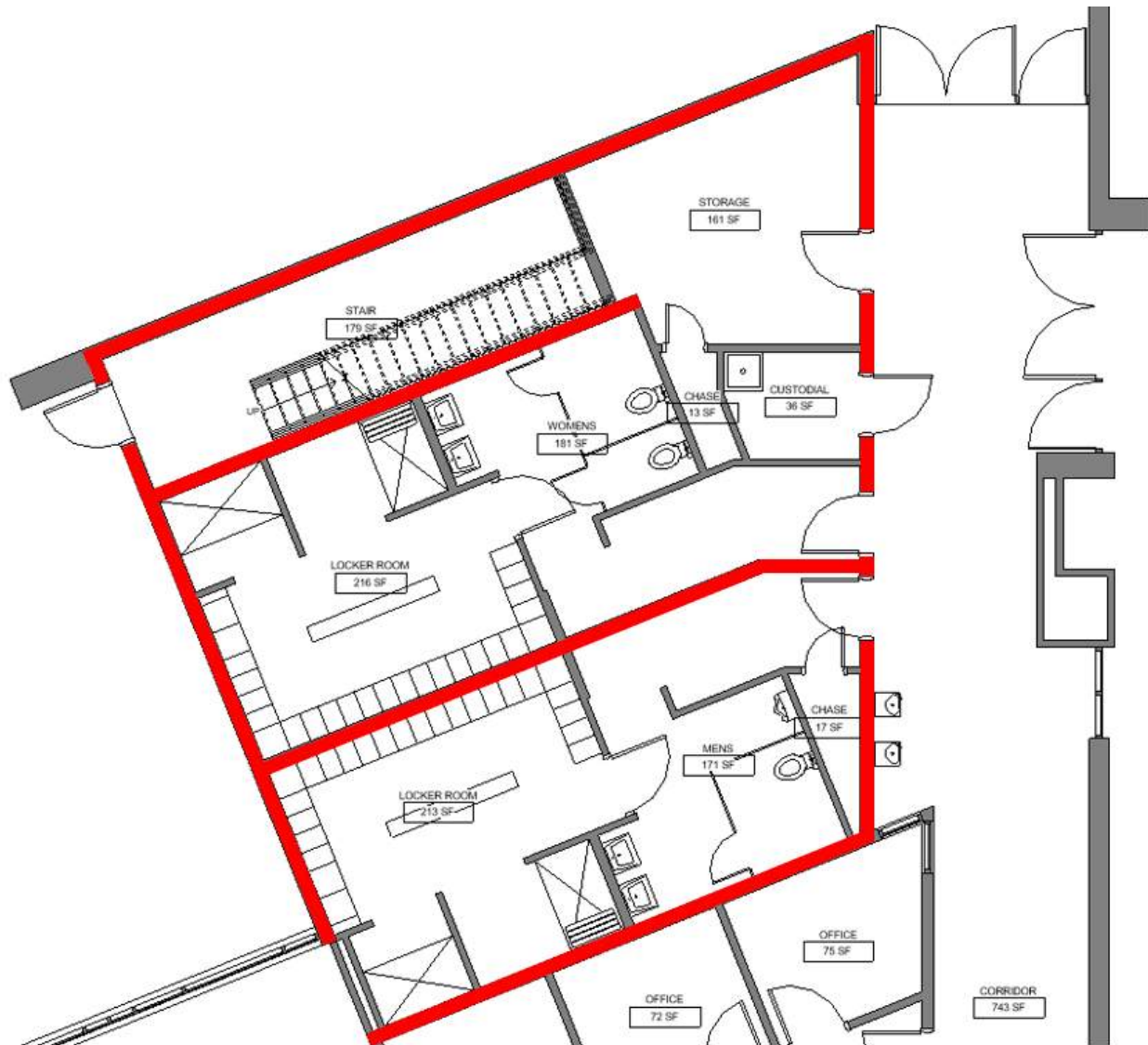
Locker Rooms, Restrooms, and Shower Rooms

The locker rooms, restrooms, and shower provided in the Center's original construction have not kept up with the evolved use of the building. Most visitors using the fitness center or taking fitness classes come to the Center in their workout clothes and have little to no need for lockers, changing space, or showers. Water closets were cited by multiple stakeholders as mounted uncomfortably low for seniors to use. Open-ended questions in the public input survey regarding which spaces in the center work well and need improvement revealed a much lower adequacy of the restrooms and locker rooms than of any other space in the building.

The existing locker rooms, shower rooms, and restrooms on the north side of the building (roughly 900 SF) will be demolished as part of the expansion project. Load-bearing walls along the corridor and between the two locker rooms will be maintained; the clear height to the underside of the precast concrete floor for the mechanical mezzanine is 11'-4". The number of plumbing fixtures will increase to accommodate the increased occupant load due to the second gymnasium. Plumbing will be reconfigured to serve the new layout, though existing chase spaces serving fixtures outside the locker room footprint should be left as-is.



Building section through existing locker rooms



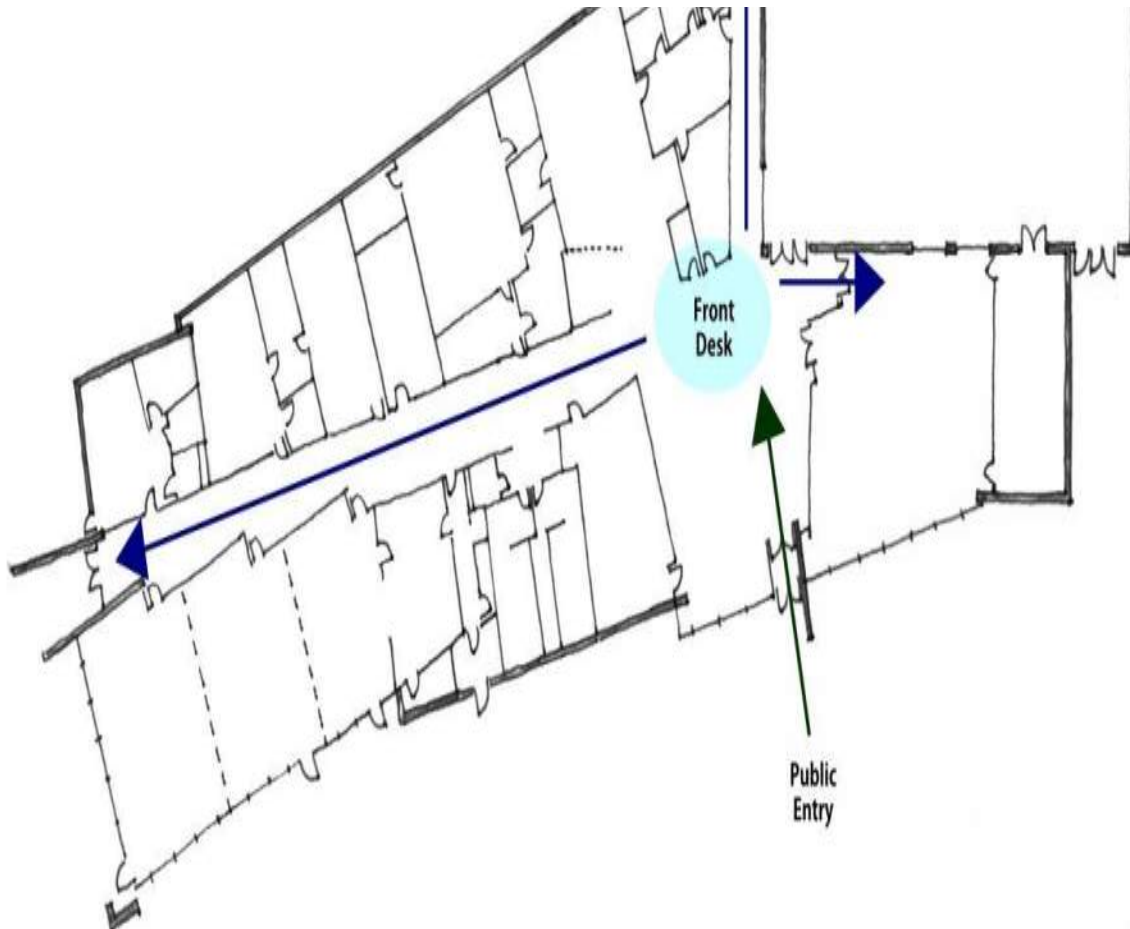
Existing locker room floor plan with bearing walls highlighted in red

In addition to added plumbing fixtures, the renovation will create multiple accessible single-use restrooms and individual shower/changing rooms. All restrooms and shower rooms will be accessible for users with disabilities to the extent required by current building codes. New finishes will be provided in renovated spaces. Alcoves with 4-6 lockers each will be provided in corridors adjacent to the gymnasiums and fitness center in lieu of rebuilding locker rooms in the current location. This program change better serves the evolved use of the Center and opens up additional square footage for single-use restrooms and shower/changing rooms.

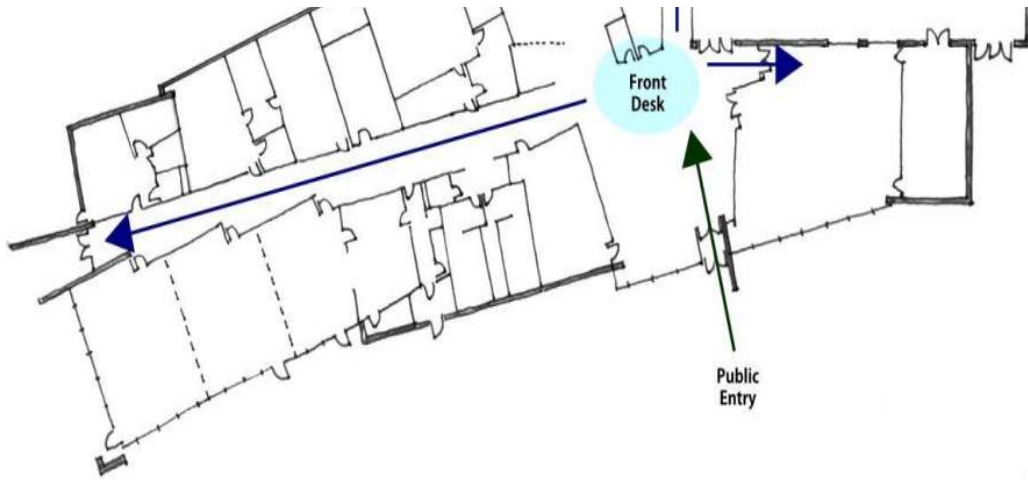
Preliminary Concept Drawings and Flow Diagrams

All visitors to the WPCRC, no matter what service they are using, are directed to the front desk for check-in. The expansion should keep this existing circulation intact. Athletics should also be kept separate from the classroom and community room spaces to avoid interruptions if multiple events are occurring simultaneously. Expanding to the north or southeast is most conducive to maintaining both circulation and clear delineation of activities.

Scope, schedule, and budget for an aquatic center are yet to be determined, though this expansion will not preclude its future incorporation into the Center's services. Existing corridors leading north and west from the front desk are maintained to provide a seamless connection for those elements in the future.



Expansion Option 1: Grow the building to the north



Expansion Option 2: Grow the building to the southeast

DESIGN NARRATIVES

Site Statement and Zoning Requirements

The parking lot has six (6) accessible stalls with a total of 77 stalls, which meets minimum code guidelines. However, accessible and senior parking are routinely at capacity. A van accessible parking stall should be provided, since none of the existing stalls fulfill this requirement. Accessible parking should have a maximum slope of 2%.

The proposed expansion east of the building will offer direct entry/exit opportunities to and from the existing parking lot. The expansion's finished floor elevation will need to be closely evaluated to provide for accessibility ingress/egress. The expansion will be built into the existing hillside and a number of trees will be impacted. The design team will work diligently to preserve trees wherever possible. New perennial planting areas and replacements for any removed planting beds will be proposed as low maintenance to meet the time and funding constraints of staff. Perennial plantings are to be concentrated near the main building entrance and entrance to the proposed addition, where funds have been allocated. See the preliminary site plan in the appendix for additional information.

The design team met with Zoning and Urban Design Commission staff as part of the Development Assistance Team (DAT) and learned that the improvements will require review/approval by the Urban Design Commission and that a Conditional Use permit will be needed via the Land Use application process. The recreation/community center was a Conditional Use under the previous Conservancy zoning and is a Conditional Use under the current Parks and Recreation Zoning. The addition will require an Urban Design Commission review with a minor alteration to the existing Conditional Use. This will be followed by a minor alteration and site plan review, which will be staff level and not require review by the Plan Commission.

Since the building expansion will increase the building footprint by more than 10%, landscaping throughout will need to be brought up to compliance. It was agreed upon by Zoning and UDC staff that the full, 37-acre parcel will not be looked at for code compliance but the parking lot immediately to the south of the building should be studied. A number of parking rows are found to be in excess of (12) contiguous stalls and lack tree islands; therefore, additional islands will be added as proposed on the preliminary Site Plan (see appendix). Any existing light poles and fixtures throughout the parking lot will only need to be reviewed if impacted by the proposed development.

The design team met with Bill Sullivan, Madison Fire Protection Engineer, to review site access and hydrant constraints. The existing building is currently served by one (1) hydrant adjacent to the drop-off zone. To comply with the City of Madison's Fire Apparatus Access and Fire Hydrant Worksheet a second hydrant will need to be added within 500' of the building addition. See the fire access exhibit in the appendix for additional information.

At this time, it is assumed that the site and building addition will not exceed 20,000 square feet of new impervious area to where Chapter 37.06(3) will be mandated. The Parks Department has informed the design team of a desire to implement stormwater management strategies if the added impervious area(s) begin to exceed 15,000 square feet. Final direction will be established at Schematic Design. It is assumed that the expansion will create site disturbance in excess of 4,000 square feet; therefore, a design team will need to apply for an Erosion Control permit through the City of Madison to mitigate soil loss during construction.

No hazardous materials have been identified at this time.

The project scope will address civil and landscape concerns as they pertain to the building expansion and DAT meeting comments. Refer to site plans in the appendix for additional information:

- Increase the number of accessible parking stalls, including a van accessible stall.
- Replace bicycle parking spaces to the south of the proposed addition.
- Add parking islands where parking rows are in excess of (12) contiguous stalls.
- Add a hydrant off the existing 6" water main south of the Mallards' stadium.
- Maintain the prairie plantings adjacent to the drop-off. Add perennial planting areas and replacements for any removed planting beds. Replace existing trees where impacted by the expansion footprint.
- Implement stormwater strategies if the added impervious area(s) begin to exceed 15,000 square feet.

Lower-priority site improvements identified in the 2017 report may be considered for inclusion in the project scope if funds allow:

- Repave the parking lot to address rutting and settling concerns.
- Add a concrete curb and gutter on the downslope side of the parking lot for more effective water conveyance.
- Remove weedy vegetation around the building and extend maintenance strips past the roof dripline.
- Regrade near the foundation to direct stormwater away from the building.

Code Analysis

Applicable Building Codes:	Wisconsin SPS 361, 362, 366 2015 International Building Code 2015 International Existing Building Code
Accessibility Code:	ICC / ANSI 117.1 – 2009
Fire Safety Code:	Wisconsin SPS 314 NFPA 1 – 2012
Plumbing Code:	Wisconsin SPS 381 – 387
Electrical Code:	Wisconsin SPS 316 NEC 2011 NFPA 70
Mechanical Code:	Wisconsin SPS 364 2015 International Mechanical Code
Energy Code:	Wisconsin SPS 363 2015 International Energy Conservation Code
Fuel Gas Code:	Wisconsin SPS 365 2015 International Fuel Gas Code

The gymnasium expansion is treated as an addition per Chapter 11 of the International Existing Building Code. The locker room renovation is treated as a Level 2 alteration per Chapter 5 of the International Existing Building Code.

The main occupancy of the Center is Assembly Group A-3 (community halls) with a Business Group B accessory occupancy at the NewBridge suite and staff support areas. Existing building construction is noncombustible with the exception of the roof; load-bearing members are all steel (some wrapped in faux wood finishes), CMU, or concrete. Exterior walls are nonrated, meaning the building falls under Type IIB construction per IBC Table 601. Combustible materials are permitted for roof construction including girders, trusses, framing, and decking in Type IIB buildings per IBC 603.1(1.3).

The allowable area of a sprinklered, one-story A-3 building of Type IIB construction is 38,000 SF, but this number increases to roughly 42,000 SF with the frontage increase calculation per IBC 506.3. The proposed expansion, plus the existing gross square footage of 29,136 SF, will not exceed 42,000 SF. Existing and proposed mezzanines shall not contribute to the building area or number of stories per IBC 505.2.

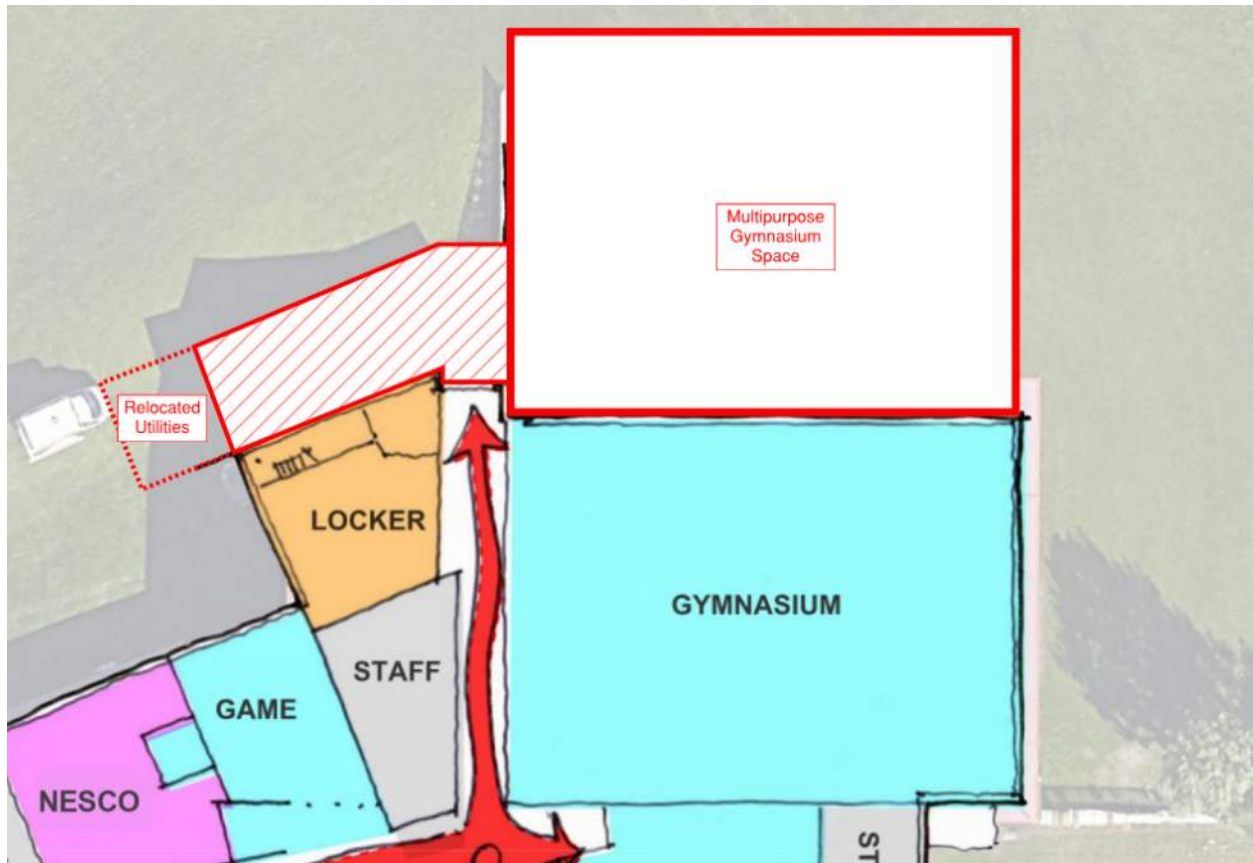
The expansion will be configured such that the means of egress requirements of IBC Chapter 10 are maintained for the facility. Fire resistance ratings are not required for corridors in sprinklered assembly occupancies, nor for exterior walls in Type IIB construction. The facility occupant load will exceed 1,000 so four exits will be required per IBC Table 1006.3.1. The gymnasium, as a room or space used for assembly purposes, will be required to comply with applicable portions of IBC 1029. The expansion and renovated locker rooms will comply with the accessibility requirements of IBC Chapter 11 and ICC A117.1.

Since the expansion will increase the building occupant load by more than 20 percent, the plumbing fixture count will need to be verified with the new building occupant load per IEBC 810. It is anticipated that (5) water closets will have to be added to accommodate the increased occupant load per IBC Table 2902.1. Single-use toilet rooms can contribute to the overall fixture count for assembly occupancies per IBC 2902.1.2.

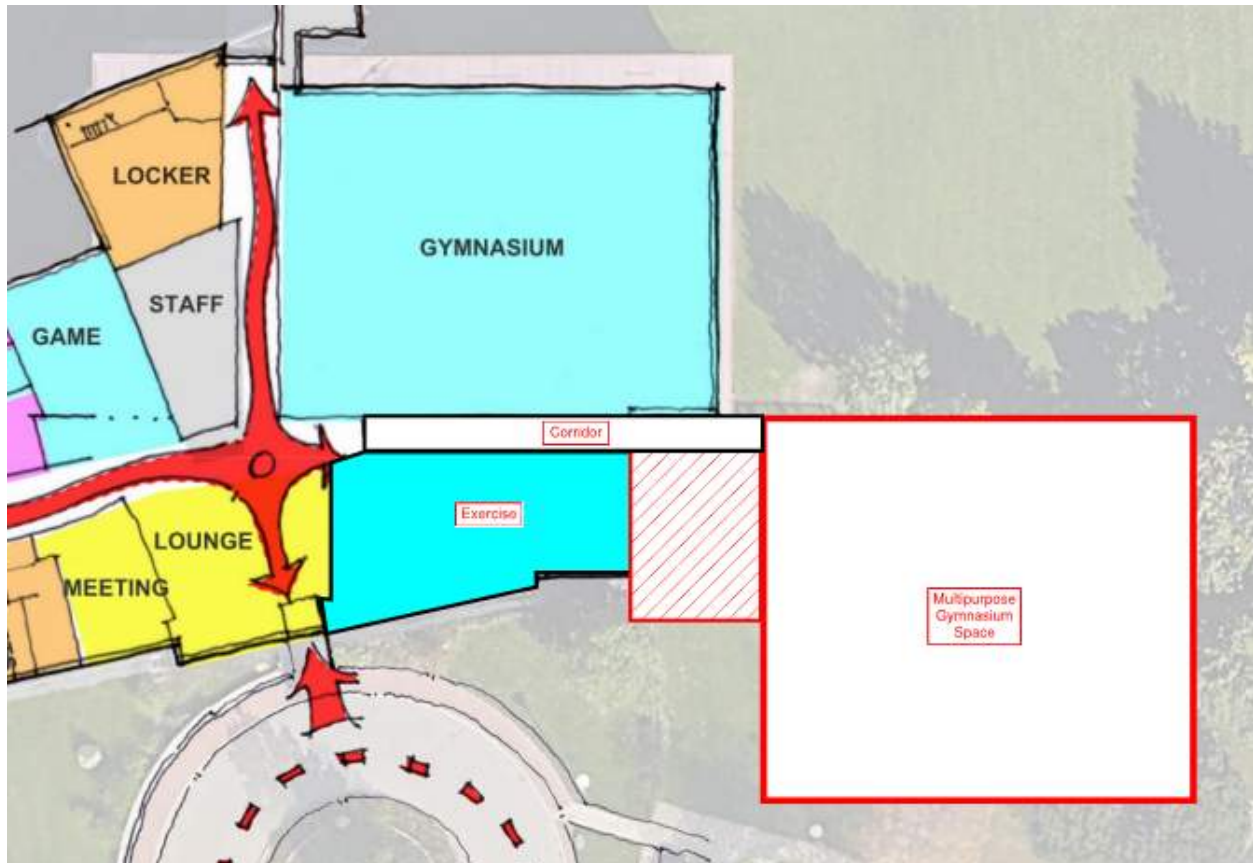
Architectural Design Schemes

The design team explored two options for the location of the second gymnasium to discuss advantages and disadvantages with the project team. Existing site constraints and building functionality meant the most practical growth opportunities were to the north and southeast. Growth to the northwest would require rerouting all the utilities entering the building, and growth to the west or southwest would not coincide with the existing building program and block views toward Warner Park.

Option 1: Expand to the North



Option 1 expands the Center to the north of the current building footprint. The expansion would be at the same floor level as the existing gymnasium, requiring some cut and fill along with regrading. The corridor running north would be extended to maintain access from the front desk. A small expansion to the north of the existing locker rooms would hold storage space on the first floor and mechanical equipment on the second floor (the existing mechanical mezzanine would be extended). Option 1 limits the amount of exterior wall construction by allowing the gymnasiums to share a bearing wall, and avoids adding a third mechanical mezzanine. This option also requires relocating the chiller, gas meter, and transformer and adding a fire lane off the park entry drive for fire department access.

Option 2: Expand to the Southeast

Option 2 places the second gymnasium off the southeast corner of the Center. A corridor would extend along the south wall of the existing gymnasium, connecting the front desk to the expansion. The second gymnasium would be at the same floor level as the existing Center, requiring some cut and fill along with regrading. Storage space accessible from the corridor would have a mechanical mezzanine above. Option 2 keeps the active uses of the building grouped together and provides opportunities to create accessible storage solutions. This option will require alterations to the existing fitness center and gym storage room to create the corridor, and several existing trees will have to be replaced.

After weighing the benefits and constraints of both options, the project team determined that Option 2 is in the Center's best interest. Additional storage on the corridor will improve building functionality, and avoiding construction of a fire lane will help maintain the park setting. Placing the smaller storage room structure at the building connection point and isolating the gymnasium structure will be simpler from a construction standpoint. Per comments from the DAT meeting, the expansion should maintain a similar iconic architectural style to the existing Center.

Structural Design Schemes

Structural design requirements are identical for both design options 1 and 2.

General Structural Design Parameters

Occupancy Risk Category II

Wind and Seismic: per requirements of ASCE 7 (American Society of Civil Engineers).

Wind speed = 115 mph

Snow loading: per requirements of ASCE 7. Both basic and drifted snow requirements.
Madison area ground snow load = 30 psf

Allow for photovoltaic panel arrays, even if part of a future project.

Steel Design in accordance with the latest edition of the American Institute of Steel Construction.

Concrete Design in accordance with the latest edition of the American Concrete Institute code and commentary.

Floor Live Loading

First floor public areas and corridors = 100 psf Live

Foundations

Standard Foundations (Assumed): Cast-in-place concrete spread footing on medium / loose undisturbed native soil with a bearing pressure of 4000 psf based on a previous soils report by SES, #11243 R2, Dated 12/16/1997. Assume 10% of overall area to require over-excavation for poor soils.

Slab on Grade

Typical: 4 inches of concrete over a 15 mil vapor retarder over a 6 inch layer of freely draining granular base course meeting the requirements of ASTM D2940. Concrete will be reinforced using a macro-polypropylene synthetic fiber reinforcing as part of the mix design. Jointing of slab will be 8 to 12 feet on-center in each of the two orthogonal directions with panel aspect ratio 1.5:1 or less.

Gymnasium: 5 inches of concrete over a 15 mil vapor barrier over 6 inch layer of freely draining granular base course meeting the requirements of ASTM D2940. Concrete will be reinforced using a macro polypropylene synthetic fiber reinforcing as part of the mix design with jointing of slab being 10 to 15 feet on-center in each of the two orthogonal directions with panel aspect ratio 1.5:1 or less. Alternatively, if a jointless slab is desired, replace fiber reinforcement with heavy welded wire fabric (WWF) or an orthogonal layer of reinforcement bars at 18 inches on-center.

Shell

Typical Roof Framing: ½ inch steel roof deck supported by open-web steel bar joists.

Multipurpose Gym Roof Framing: 3 inch steel roof deck supported by deep long span open-web steel bar joists spaced upwards of 8 feet on center supported by reinforced concrete masonry unit walls.

Exterior Walls: The exterior walls will be a non-load bearing 12" CMU with reinforced vertical cells. Where required to span significantly horizontally between steel columns, these backup walls will also be reinforced with horizontal bond beams at intervals approximately 4'-0". CMU back-up walls will be connected to the main steel frame as required to adequately brace these elements.

Lateral Resistance: Lateral systems to resist the forces due to wind and seismic will primarily be reinforced CMU exterior walls.

Mechanical Systems

Heating, Ventilating and Air Conditioning

The facility is heated, cooled and ventilated by three (3) air handling units:

- AH-1 is located in the north mechanical mezzanine and serves the Gym 105 as a single zone constant volume system. The air handler is provided with a return fan and economizer operation.
- AH-2 is located in the north mechanical mezzanine and serves the north side of the facility with twelve (12) variable volume terminals and hot water reheat. The air handler operates as a variable volume unit with a VFD controlling fan speed. The air handler is provided with a return fan and economizer operation.
- AH-3 is located in the south mechanical mezzanine and serves the south side of the facility with seven (7) variable volume terminals and hot water reheat. The air handler operates as a variable volume unit with a VFD controlling fan speed. The air handler is provided with a return fan and economizer operation.

The facility heating plant consists of two (2) sealed-combustion, fired hot water boilers (AERCO BMK 1500) rated at 1500 MBH input, 1410 MHB output each and 94% efficiency.

- The hot water heating system serves hot water coils in the air handling units, VAV terminal reheat coils, unit heaters, cabinet heaters and convectors.
- The hot water is circulated through the facility by two (2) vertical inline constant volume centrifugal pumps (3 HP) rated at 68 GPM and run in parallel.
- The air handler heating coils are provided with coil pumps.
- The boilers are provided with boiler pumps.

The facility cooling plant consists of air-cooled chiller rated at 102 tons located on the north side of the facility within an enclosure. The chiller is provided with 40% glycol to operate year-round without freezing with 4" supply and return lines into the north mechanical mezzanine.

- The chilled glycol cooling system serves cooling water coils in the air handling units with a 3-way valve.
- The chilled glycol is circulated by two (2) floor-mounted constant volume centrifugal pumps (5 hp) rated at 117 GPM and run in parallel.
- The chiller operates on R22 refrigerant which is no longer manufactured.
- The chiller is at the end of its life and has had one compressor overhaul to date.

The facility controls have been upgraded to the City Honeywell network with DDC sensors and controls installed on all HVAC equipment. The HVAC equipment appear to be original and installed in 1998. Air handlers and boilers are in good condition. Circulation pumps are nearing replacement or overhaul. The air cooled chiller is at the end of its useful life and in need of replacement and a refrigerant upgrade.

The project scope will include decommission and replacement of the existing air-cooled chiller with a new 130 ton air-cooled chiller with scroll compressors providing 6-step capacity control and R410a refrigerant with a remote tube-shell heat exchanger inside the north mechanical mezzanine:

- Eliminate the glycol solution for chiller operation and replace with treated water for better efficiency in pumping and heat transfer, while eliminating the high glycol maintenance costs. Two (2) sets of refrigerant lines from the chiller will follow the removed glycol piping to the north mechanical mezzanine routing.
- Replace the floor-mounted chiller pumps with redundant pumps, providing 100% capacity for back-up and rotation for even wear.
- The chilled water 3-way valves will be converted to 2-way valves and the chilled water pumps will be provided with a VFD drives for variable capacity control.
- A new 3" chilled water line will be extended from the north mechanical mezzanine to the new gym mechanical mezzanine air handler.
- Horizontal chilled water expansion tank will be replaced with a bladder-type floor-mounted expansion tank.
- Air handler unit and pump controls will be added to the Honeywell control network.

The project will replace the inline hot water pumps with redundant pumps that provide 100% capacity for back-up and rotation for even wear.

- The hot water 3-way valves will be converted to 2-way valves at the air handlers, VAV reheat coils and booster coils and the hot water pumps will be provided with a VFD drives for variable capacity control.
- Extend new 1-1/2" hot water supply and return piping to the new gym air handler unit located in a mechanical mezzanine at the southeast gym location.
- Horizontal hot water expansion tank will be replaced with a bladder-type floor-mounted expansion tank.
- Pump controls will be added to the Honeywell control network.

The project will provide a new 9,000 CFM air handler in the new mechanical mezzanine to serve the southeast gym addition.

- The air handler will be provided with plenum supply fan with mixing box, air blender, filter section (MERV 13 filters), cooling coil, heating coil and fan section with integral exhaust relief fan mounted on top at the mixed air section.
- Provide overhead ductwork and low return grille similar to existing gym HVAC.
- Provide CO2 sensor with 900 PPM limit to reduce fresh air during periods of low occupancy - ventilation demand control.
- Air handler unit will be added to the Honeywell control network.

Electrical

The facility is serviced by a 1600-amp, 3-phase 120/208 volt electrical service to an exterior termination cabinet and main floor interior main switch and main switchboard distribution at the north mechanical mezzanine. The electrical utility transformer is located at the chiller enclosure on the north side. Lighting in the locker room and gym sections are provided with fluorescent fixtures. Emergency egress lighting is provided by battery pack lights.

Remodeling of the existing locker room and toilet area will require demolition and replacement of lighting and receptacles for the space. New lighting will consist of LED lighting with occupancy sensor controls. New battery back-up egress lighting will be provided along with exit lights.

The new multipurpose gym will include high bay LED lighting with high-low occupancy dimming and occupancy controls divided into 2 sections.

- Provide new receptacles and motor connections for new equipment (motorized backboards and curtain).
- Provide new 200-amp feeder and distribution panelboard to service this area.

The existing feeder and 600-amp breaker in the main switchboard serving the existing chiller will be removed. The project will provide a new 700-amp breaker and feeder to the new chiller. Existing motor connections at the hot and chilled water pumps will be replaced with new VFD connections and motor connections to the new pumps.

Plumbing

The existing facility is served by a 2-1/2" potable water tee from the 4" combination water service with a 2" water meter and pressure reducing valve downstream. Hot water is softened by a 1-1/2" single water softener located in the north mechanical mezzanine. Hot water is generated by two (2) sealed combustion gas-fired water heaters adjacent the water softener in the north mechanical mezzanine rated at 150 MBH each input. Hot water is circulated at 120 deg F through out the facility from a 1-1/2" hot water main line with a 1" hot water recirculation line and inline pump controlled by an aquastat.

Sanitary drainage is served by an underground 4" line exiting the facility from the south with an exterior grease trap connection serving the kitchen. The facility has a tile drain around the foundation which collects at a sump pump located in storage room at the southeast corner of the building and pumps clear water storm through an underground

line south outside the facility to a site storm collection system. Clear water waste from the north mechanical mezzanine HVAC condensate waste and roof drains serving the mezzanine roof discharge to grade at the north side. Clear water waste from the south mechanical mezzanine HVAC condensate waste discharges underground with a 4" line to a site storm collection system. Natural gas service is provided at the north side of the inside the chiller enclosure and enters the building at the north mechanical mezzanine.

The new addition will require connecting new foundation drains to the existing clear water sump pump. A new 2" waste line and 1/2" cold water line will be required to serve the new gym with a drinking fountain. The waste will be connected to the 3" underground line in the Exercise/Training Room 102 and the water line can be connected to a 3/4" water line serving a wall hydrant in Storage 104. A new vent line serving the drinking fountain will be connected to an existing vent in the Exercise/Training Room 102. Remodeling of the Locker & Toilet rooms will require demolition of existing fixtures and overhead water lines, along with cutting and patching the floor for demolition and new fixture connections. The existing cold, hot and recirculation water lines, waste and vent lines serving this area will be reused. The lavatories in the new Toilet rooms will require recirculation within 2 ft of hot water rough-ins per the current IECC code.

Fire Protection Systems

The existing facility is fully sprinklered with a wet automatic fire sprinkler system on one zone. The existing 4" combination water service enters the facility from the north side with double check valve backflow preventer.

The existing fire suppression system can be extended to the new gym addition with the single zone coverage (<50,000 SF). A 3" sprinkler main connection to existing extended to the gym addition and mechanical mezzanine is anticipated. Remodeling the locker & toilet rooms will require demolition of existing heads and relocation with the new plan.

Security Features

Communications

The existing MDF and data rack in Storage Room 120 serves structured cabling voice and data for the facility and is provided with a fiber optic service. The facility currently has a paging system with speakers throughout the facility. The existing gym has a sound system with four (4) microphone and one (1) music input with a central speaker. The Gym sound system is integrated into the Paging system to override the input and provide announcements.

Data drops are not anticipated for the addition and remodel area. A new sound system will be needed in the new gym with microphone and music inputs, as well as Bluetooth inputs for wireless connectivity from handheld devices. The new sound system will need to interface with the existing Paging system for announcements.

Electronic Safety and Security

The existing fire alarm system has two (2) annunciator loops and is currently unable to add new fire alarm devices. The fire alarm control panel will need to be replaced with this project to handle the new gym devices. The existing facility has an access control system for perimeter door monitoring and unlocking with wireless readers. The facility currently has a CCTV system with digital video recorder and video management system on a server. Surveillance is primarily at perimeter access areas.

The fire alarm control panel will be replaced to expand the number of devices and will include capabilities for covering the new air handling unit and related smoke and heat detectors with the new multipurpose gym addition. The access control system will be expanded to monitor exterior doors for the new multipurpose gym. New security cameras are not anticipated for this addition project.

Sustainability

The project shall meet and exceed the City of Madison’s policy requiring “green” building certification requirements by achieving a LEED v4 Silver rating. The project team and design team will review the LEED checklist beginning in schematic design.

There is potential to add solar photovoltaics to the addition to increase the size of the existing PV system. A more detailed estimate of solar PV potential, optimal sizing, and potential electrical savings will be explored during the schematic design phase. Both systems would have to be combined into a single service, as only one renewable service can be brought into the electrical distribution system.

A geothermal system is not applicable for this expansion project.

PROJECT SCHEDULE

DAT Meeting	Occurs during pre-design
Schematic Design	4 weeks (total duration)
Cost Estimate + SD Review	2 weeks
Begin UDC / Minor Alt review process upon delivery of Schematic Design deliverables	
Design Development	4 weeks (total duration)
Cost Estimate + DD Review	2 weeks
Construction Documents	4 weeks (total duration)
Cost Estimate + CD Review	2 weeks
Bidding	12 weeks (total duration)
Review / Advertise Bid	4 weeks
Bidding	6-8 weeks
Construction Contract	8 weeks
Begin Construction	September 25, 2023
Construction Completion	July 26, 2024