

# Old Hickory Community Center Master Plan Scoping Documents

7.31.18



Acknowledgments



- Council District 11: Residents
- Council Representatives: Larry Hagar
- Metro Parks: Director, Monique Odom
- Metro Parks: Recreation and Planning Staff
- Consultants: Collier Engineering and EOA Architects

OLD HICKORY COMMUNITY CENTER & PARK



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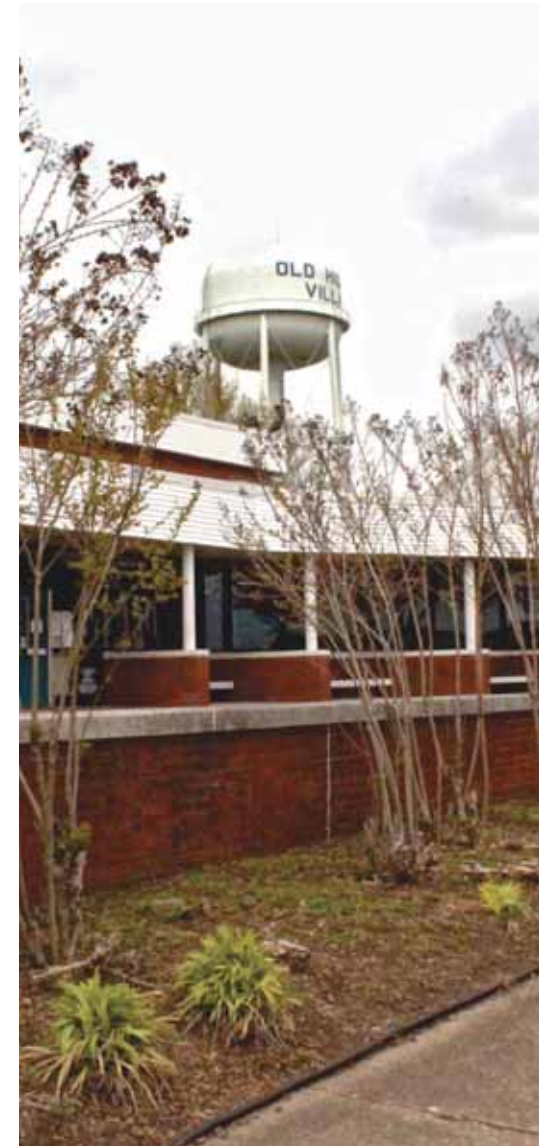
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# Site Inventory



# Existing Conditions

## Playground



Equipment is older but in good condition. Surfacing requires routine maintenance to ensure proper depths. Layout and materials do not meet current ADA guidelines for accessibility.

## Tennis Courts



The existing courts have extensive cracking and are in need of resurfacing. They are also not regulation size.

## Steep Slopes



The existing site has slopes that range from 15% - 28%. The majority of open space that is currently mowed is at an average grade of 4%.

## Stream



Litter and debris are prevalent along the stream banks.

## Parking Lot



The existing parking does not have accessible routes to the building and pavement is in poor condition.

## Water Treatment Facility



The existing Water Treatment Facility and sub-ground tanks are to be demolished and removed by Metro Public Works Department before the land is officially turned over to Metro Parks.

## Water Service Buildings



The existing metal buildings are to be relocated to an offsite location. The relocation of these buildings will be part of this contract.

## Entrance



The entrance to the existing parking lot is narrow and not well identified.

### Natural Light



There aren't many windows, limiting the amount of natural light into the interior spaces.

### Entry Lobby



The existing entrance sequence could be more engaging with a more prominent and open point of entry.

Entry lobby has outdated interior finishes and fixtures.

### Finishes and Fixtures



There are outdated interior finishes and fixtures throughout the existing building, as well as harsh built-in furniture.

### Multipurpose Rooms



Existing multipurpose rooms are too small to accommodate growing after school programs

### Game Rooms



The existing Teen Room / game room near the entrance is large and well used, but it isn't very flexible for any other uses.

Many of the rooms located in the basement of the existing building have limited, or no access to natural light and views.

### Gymnasium



### Meeting Rooms



The existing meeting room has an inadequate amount of natural light coming into the space.

The existing meeting room has outdated and nonperforming equipment, such as the room divider curtain.

### Kitchen



Existing kitchen space and equipment is outdated and inefficient.

### Building Entrance



The existing entrance sequence could be more engaging with a more prominent and open point of entry.



More active program elements should be located near main entrance to activate the Donelson Street edge.

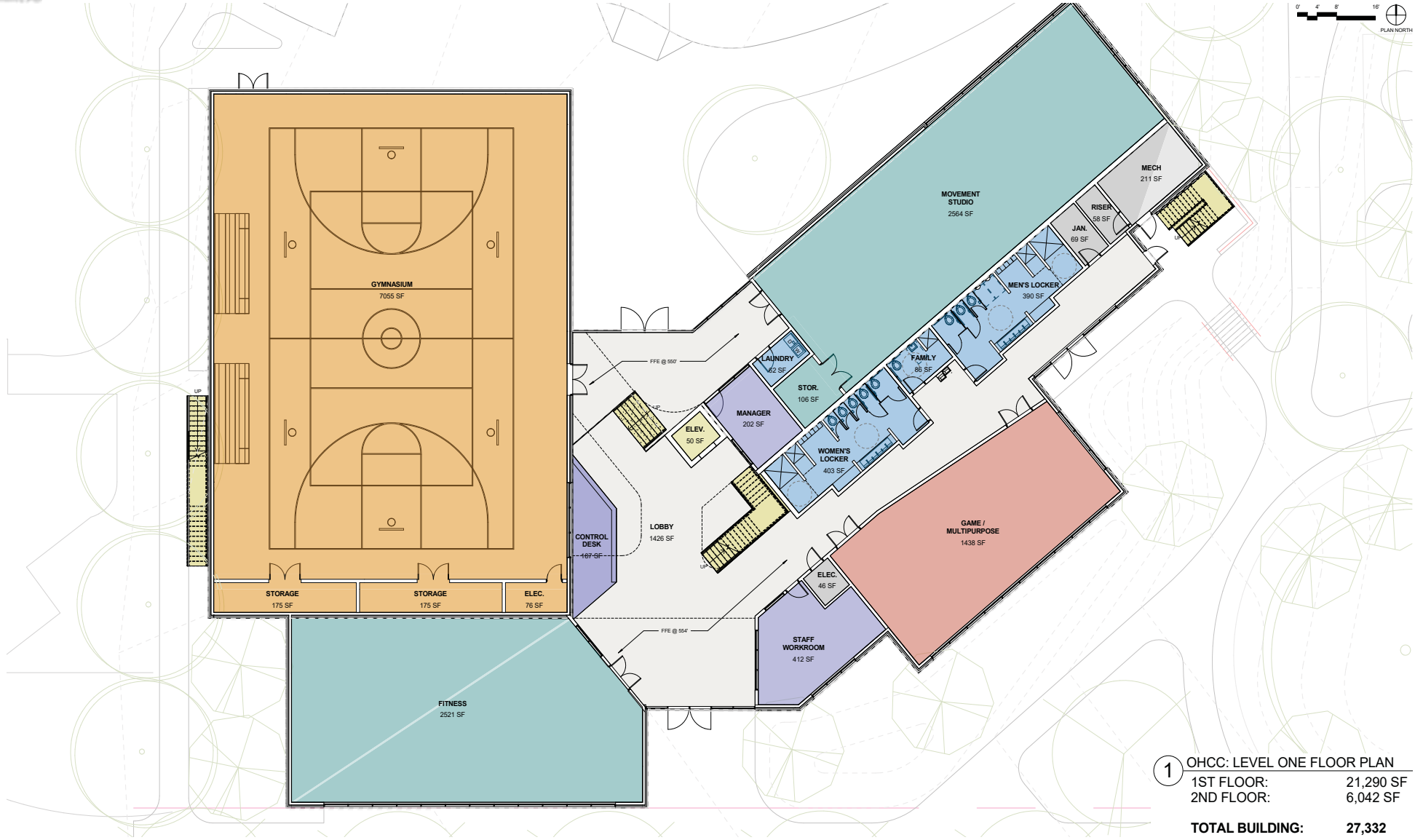




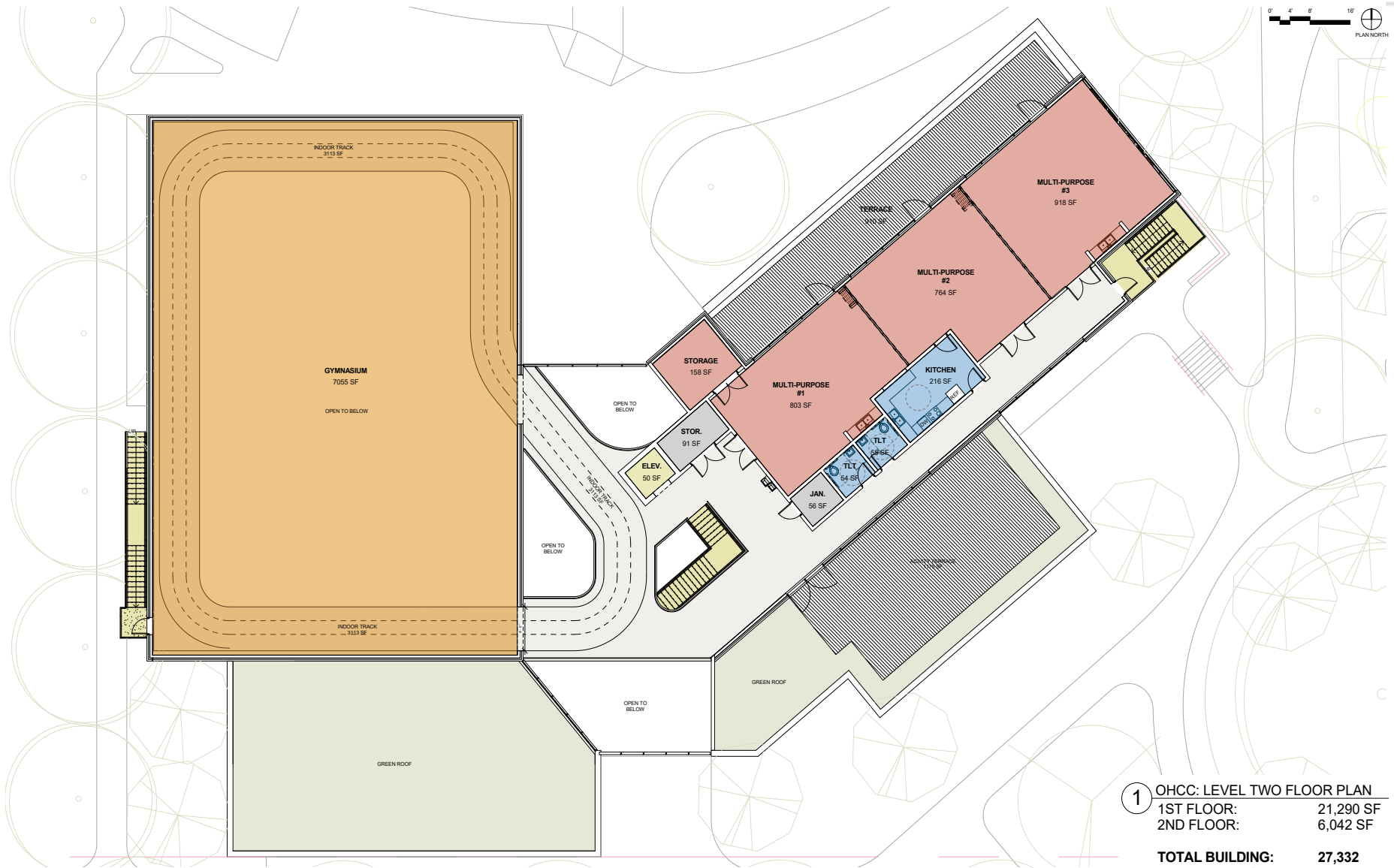
# Building Plan

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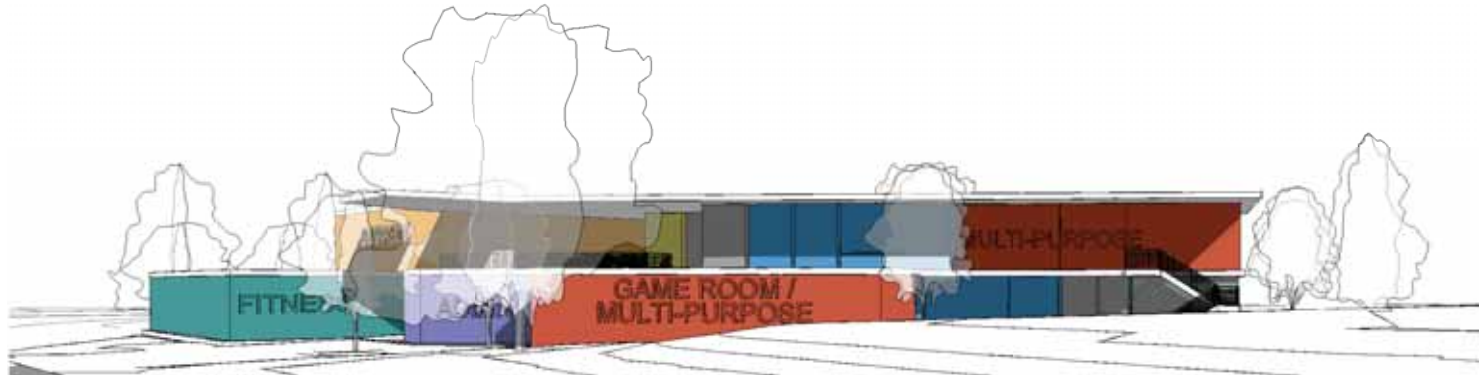
Proposed Building Plan - First Floor



<b>1</b>	<b>OHCC: LEVEL ONE FLOOR PLAN</b>	
	1ST FLOOR:	21,290 SF
	2ND FLOOR:	6,042 SF
	<b>TOTAL BUILDING:</b>	<b>27,332</b>



<b>1</b>	<b>OHCC: LEVEL TWO FLOOR PLAN</b>	
	1ST FLOOR:	21,290 SF
	2ND FLOOR:	6,042 SF
	<b>TOTAL BUILDING:</b>	<b>27,332</b>



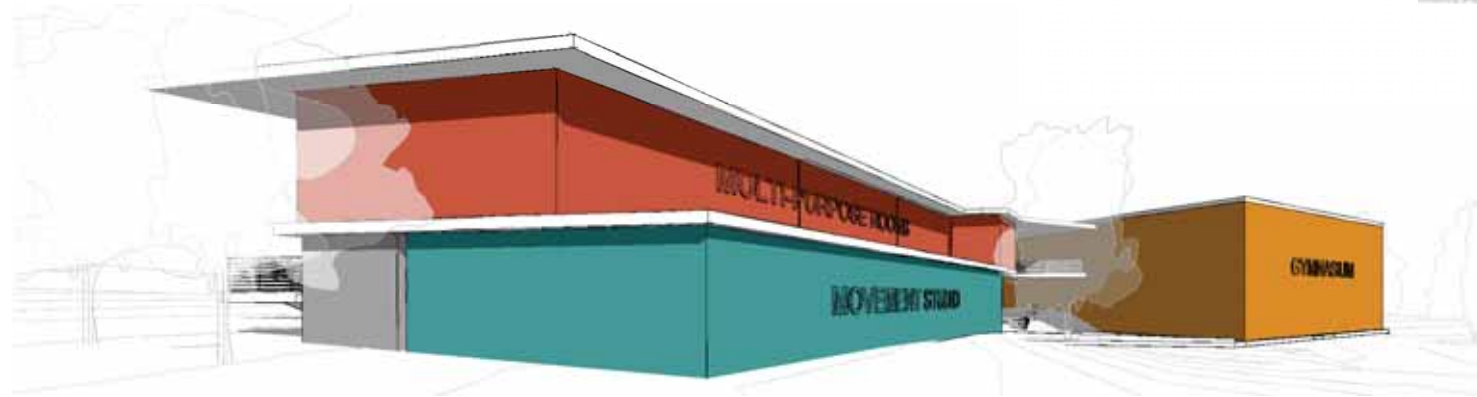
East View Approach Along Donelson Ave



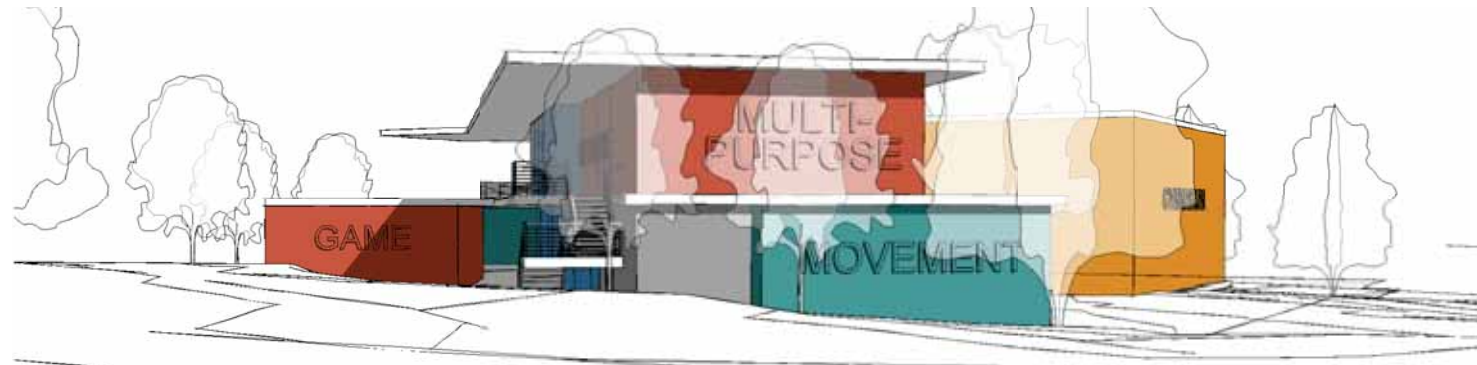
View North from Donelson Ave



View South from Nature Park and Parking Lot



View West from Park and Outdoor Courts



View West from Playgrounds



West View Approach Along  
Donelson Ave

# Proposed Building Program



Space Names	Prelim. Program				EOA Program Remarks	SEVIER PARK			EAST PARK			HADLEY PARK			MADISON			SMITH SPRINGS		
	# Occ./Space	No. of Spaces	Sq. Ft./space	Net Sq. Ft.		No. of Spaces	Sq. Ft./space	Net Sq. Ft.	No. of Spaces	Sq. Ft./space	Net Sq. Ft.	No. of Spaces	Sq. Ft./space	Net Sq. Ft.	No. of Spaces	Sq. Ft./space	Net Sq. Ft.	No. of Spaces	Sq. Ft./space	Net Sq. Ft.
<b>Initial Programmed Spaces</b>																				
<b>Gymnasium Area</b>																				
Court Area	1	7055	7,055	Floor space of Gym. Typical (6) basketball goals, scoreboard, wall pads, volleyball and basketball striping. Court could have striping for shuffleboard. Need to include room for bleachers & divider curtain	1	6000	6,000	1	7500	7,500	1	5055	5,055	1	7617	7,617	1	7131	7,131	
Second Court Area	0	0	-	Floor space for pickle ball & larger movement programs and less formal "games"																
Storage	2	175	350	General gym equipment storage - adjacent to floor with direct access	1	200	200	1	250	250	1	268	268	2	77	154	1	196	196	
Closets	0	0	-	Other storage - adjacent to floor with direct access	1	75	75	1	75	75	1	156	156	2	67	134	0	0	-	
<b>TOTAL GYM AREA</b>				<b>7,405</b>				<b>6,275</b>	<b>7,825</b>	<b>5,479</b>	<b>7,905</b>	<b>7,327</b>								
<b>Dedicated Senior Areas</b>																				
Senior Living Room	0	0	-	A dedicated Senior Program room will not be provided here as this use would be accommodated within any of the multi-purpose rooms	0	0	-	1	700	700	1	734	734	0	0	-	0	0	-	
Toilets	0	0	-		0	0	-	1	80	80	2	48	96	0	0	-	0	0	-	
Senior Director's Office	0	0	-		0	0	-	1	0	-	1	162	162	0	0	-	0	0	-	
<b>TOTAL SENIOR</b>				<b>-</b>				<b>-</b>	<b>780</b>	<b>992</b>	<b>-</b>	<b>-</b>								
<b>Other Program - All Community Space</b>																				
Gameroom	1	1438	1,438	The game room would serve as a large flexible space at the entry level. Although this would be a room that serves as a dedicated space for table games such as ping-pong, foosball, and pool; it could also be more of a larger multi-purpose area to serve a variety after-school programs.	1	530	530	1	750	750	1	706	706	0	0	-	0	0	-	
Arts & Crafts Room	0	0	-	No dedicated "art room" but fuction and closet would exist in a meeting room with dedicated storage closets	0	0	-	1	700	700	1	63	63	0	0	-	0	0	-	
Kiln Room	0	0	-	No dedicated kiln room.	0	0	-	1	63	63				0	0	-	0	0	-	
Ceramics Room	0	0	-		0	0	-	1	700	700				0	0	-	0	0	-	
Kitchen	1	216	216	Including pantry, stove/range, dishwasher, sink, ice maker with serving counter. Include fire supression at range hood. Provide roll-up doors at Multi-Purpose Rooms.	1	125	125	1	170	170	1	300	300	1	178	178	1	255	255	
Multi-Purpose Room #1	1	803	803	Meeting Room #1 could be open to #2 with a partition - could have direct access to outside. Includes area to stack partition. Square footage includes storage closets adjacent to each room.	1	750	750	1	800	800	1	872	872	1	498	498	1	732	732	
Multi-Purpose Room #2	1	764	764	Each room to have casework and sink for events and arts/crafts.	0	0	-	0	0	-	0	0	-	1	432	432	1	711	711	
Multi-Purpose Room #3	1	918	918	Larger room perhaps with door to exterior (separate A/C) for events and larger rentals. Room to have casework with sink.	0	0	-	0	0	-	0	0	-	1	543	543	1	607	607	
Performing Arts Room	0	0	-	No dedicated performing arts space	0	0	-	120	10	1,600				0	0	-	0	0	-	
Table Storage	1	91	91	Accessed from hallway.	1	80	80	1	113	113	1	113	113	2	65	130	3	30	90	
Movement Studio	1	2,564	2,564	Wood flooring at room with mirrors, sound system and appropriate acoustics.	1	1,350	1,350	1	1,200	1,200	1	1,224	1,224	1	1,936	1,936	1	1,918	1,918	
Movement Closet	1	106	106		1	1,350	1,350	1	1,200	1,200	1	1,224	1,224	0	0	-	1	50	50	
Fitness	1	2,521	2,521	Room for athletic equipment and weight training.	1	1,800	1,800	1	2,200	2,200	1	2,416	2,416	1	2,126	2,126	1	2,458	2,458	
Fitness Closet	1	250	250		1	1,800	1,800	1	2,200	2,200	1	2,416	2,416	0	0	-	0	0	-	
Track at Second Floor	1	3,113	3,113	Located above Gym and other areas.	1	3,800	3,800	1	3,600	3,600	1	6,127	6,127	1	3,086	3,086	1	2,599	2,599	
<b>TOTAL OTHER</b>				<b>12,784</b>				<b>11,585</b>	<b>15,296</b>	<b>15,461</b>	<b>8,929</b>	<b>9,420</b>								
<b>Pool</b>																				
Pool Equipment Room	0	225	-	A pool area will not be provided at this facility.	0	0	-	1	225	225	1	275	275	0	0	-	1	138	138	
Pool Office	0	75	-		0	0	-	1	75	75	1	89	89	0	0	-	1	96	96	
Pool Lobby	0	150	-		0	0	-	1	100	100	1	154	154	0	0	-	1	167	167	
Pool Area	0	4,500	-		0	0	-	1	2,900	2,900	1	5,441	5,441	0	0	-	1	4,087	4,087	
<b>TOTAL POOL</b>				<b>-</b>				<b>-</b>	<b>3,300</b>	<b>5,959</b>	<b>-</b>	<b>4,488</b>								

Space Names	Prelim. Program				EOA Program Remarks	SEVIER PARK		EAST PARK		HADLEY PARK		MADISON		SMITH SPRINGS						
	# Occ./ Space	No. of Spaces	Sq. Ft./ space	Net Sq. Ft.		No. of Spaces	Sq. Ft./ space	Net Sq. Ft.	No. of Spaces	Sq. Ft./ space	Net Sq. Ft.	No. of Spaces	Sq. Ft./ space	Net Sq. Ft.	No. of Spaces	Sq. Ft./ space	Net Sq. Ft.			
<b>Initial Programmed Spaces</b>																				
<b>Administration &amp; Entry</b>																				
Director's Office		1	202	202	Adjacent to Control Desk with view of main entry and lobby.	1	120	120	1	100	100	1	117	117	1	145	145	1	94	94
Control Desk		1	150	150	Located with views into all entries to major program elements.	1	120	120	1	200	200	1	210	210			-			-
Staff Workroom		1	412	412	Direct access to Control Desk. Need equipment list for what is typically in this area. Casework to be located along one wall.	1	220	220	1	290	290	1	367	367	1	189	189	1	185	185
Office Closet		0	45	-	Direct access to offices - locate computer server.	0	0	-	1	45	45	1	43	43			-	0	0	-
Staff Toilet		0	100	-	Direct access from office.	0	0	-	1	45	45	1	43	43	0	0	-	0	0	-
Main Lobby Area		1	1638	1,638	Area around Control Desk (include areas for computer workstations); include air locks at entry	1	1500	1,500	1	1000	1,000	1	1596	1,596	1	1415	1,415	1	2162	2,162
<b>TOTAL ADMIN &amp; ENTRY</b>				<b>2,402</b>			<b>1,960</b>		<b>1,680</b>		<b>2,376</b>		<b>1,749</b>		<b>2,441</b>					

<b>Building Support</b>																				
Main Electrical Room		1	76	76	Adjacent to Gym.	1	75	75	1	175	175	1	173	173	1	69	69	1	98	98
Electrical Closet		1	46	46	Remote electrical room for second panel - can be interior.	1	45	45	1	45	45	1	46	46	1	47	47	1	70	70
Sprinkler Riser Room		1	58	58	Direct access from exterior	1	20	20	1	20	20	1	19	19	1	59	59	0	0	-
Building Mechanical Room		1	211	211	Direct access from exterior	1	120	120	1	300	300	1	298	298			-	1	114	114
Second Mechanical Room		0	80	-	Direct access from exterior	1	80	80	1	150	150	1	162	162			-			-
Janitor Closet		2	58	116	Near Toilets (1 up and 1 down)	2	40	80	1	40	40	1	46	46	1	74	74			-
Elevator		2	50	100	1 per floor	2	65	130	1	65	65	1	67	67	1	58	58	1	58	58
Elevator Equipment Room		0	75	-	Adjacent to elevator - first floor (Possibly machine room less)	1	40	40	1	40	40	1	40	40			-			-
Laundry		1	62	62	Near administration area - residential washer/dryer.	1	30	30	1	15	15				1	48	48	1	101	101
Men's Toilet/Locker/Showers		1	390	390		1	260	260	1	450	450	1	464	464	1	462	462	1	551	551
Women's Toilet/Locker/Showers		1	403	403		1	325	325	1	650	650	1	460	460	1	462	462	1	551	551
Other Toilets		0	0	-		2	50	100	2	50	100	2	55	110	2	45	90	2	52	104
Family Locker Room		1	86	86	ADA accessible. Shower, sink, toilet, bench.	1	110	110	1	120	120	1	120	120	1	81	81	1	90	90
<b>TOTAL SUPPORT</b>				<b>1,548</b>	* Need 2 drinking fountains		<b>1,415</b>		<b>2,170</b>		<b>2,005</b>		<b>1,450</b>		<b>1,737</b>					

<b>Subtotal</b>				<b>24,139</b>																
<b>Circulation ( 15% of total space)</b>				<b>3,621</b>																
<b>TOTAL ENCLOSED</b>				<b>27,760</b>	Typical Regional Community Center is 40,000 sf		<b>21235</b>		<b>31051</b>		<b>32272</b>		<b>20033</b>		<b>25413</b>					

<b>Site Amenities</b>																				
Programmable Roof Terrace		2	1000	2,000	Second floor event and activity terraces with direct access from multi-purpose rooms and common areas.															
Green Roof		2		3,345	Green roofs with southern sun exposure															
				<b>5,345</b>																

EOA  
ARCHITECTS  
PROPOSED BUILDING PROGRAM - Concept Images

### Game Room



The game room would serve as a large flexible space at the entry level. Although this would be a room that serves as a dedicated space for table games such as ping-pong, foosball, and pool; it could also be more of a larger multi-purpose area to serve a variety after-school programs.

### Arts and Crafts



Although there will not be a dedicated arts and crafts space, any of the multi-purpose rooms will be able to accommodate these activities.

### Meeting Room



In the proposed Old Hickory Community Center, the meeting rooms would also serve as multipurpose rooms. They could accommodate a variety of uses and have the ability to divide one large room into multiple spaces. These rooms will also have direct access to a second floor terrace to provide a connection and views to the outdoors.

### Indoor Track



An indoor walking and running track would circle the gymnasium, as well as other common spaces, on the second floor.

### Movement Studio



A movement studio is a space for group exercise and dance. It would be a dedicated room with wood flooring, mirrors, a sound system, and storage for programs such as yoga, aerobics, dance, and other group classes. There would also be a movement terrace located on the second floor for outdoor fitness classes.



## Gymnasium



The full-size gymnasium would be dedicated to community sports such as basketball, volleyball, pickle ball, and shuffleboard. It may also be designed as more of a flex space to service multi-purpose needs such as an auditorium, performance space, etc. It will include a divider curtain and scoreboard.

## Fitness Facility



The fitness facility would be a dedicated space to include adult only areas for treadmills, athletic equipment, and weight training.

## Multipurpose Rooms



The multi-purpose rooms will have no dedicated use but, instead will provide spaces for a variety of user groups, events, and after-school programs.

## Kitchen



There would be a small teaching kitchen with casework and residential scaled equipment located near to the meeting / multi-purpose rooms to support a range of events and classes.

# LEED Requirements

Metro Parks has made a commitment to promoting green building practices. All buildings over two million dollars shall achieve the Leadership in Energy and Environmental Design (LEED) Silver Certification as administered by the US Green Building Council. As part of this process the design team will be required to create an Owner's Project Requirement (OPR). This OPR shall outline the goals for the project and will identify what points to be achieved. This document should be compiled through a collaboration of the design team, Metro Parks Project Manager, and Metro Parks Maintenance Staff. At that time the correct rating system will need to be identified and the LEED Project Checklist or "score card" shall be populated. Included in this document is an example score card from Madison Community Center which was completed in May 2018.

# Example Scorecard



## LEED v4 for BD+C: New Construction and Major Renovation Project Checklist

Y	?	N
1		

Credit Integrative Process 1

<b>1</b>	<b>0</b>	<b>15</b>	<b>Location and Transportation</b>	<b>16</b>
0	0	0	Credit LEED for Neighborhood Development Location	16
1			Credit Sensitive Land Protection	1
		2	Credit High Priority Site	2
		5	Credit Surrounding Density and Diverse Uses	5
		5	Credit Access to Quality Transit	5
		1	Credit Bicycle Facilities	1
		1	Credit Reduced Parking Footprint	1
		1	Credit Green Vehicles	1

<b>7</b>	<b>0</b>	<b>3</b>	<b>Sustainable Sites</b>	<b>10</b>
Y			Prereq Construction Activity Pollution Prevention	Required
1			Credit Site Assessment	1
2			Credit Site Development - Protect or Restore Habitat	2
1			Credit Open Space	1
		3	Credit Rainwater Management	3
2			Credit Heat Island Reduction	2
1			Credit Light Pollution Reduction	1

<b>5</b>	<b>0</b>	<b>6</b>	<b>Water Efficiency</b>	<b>11</b>
Y			Prereq Outdoor Water Use Reduction	Required
Y			Prereq Indoor Water Use Reduction	Required
Y			Prereq Building-Level Water Metering	Required
1		1	Credit Outdoor Water Use Reduction	1
3		3	Credit Indoor Water Use Reduction	6
		2	Credit Cooling Tower Water Use	2
1			Credit Water Metering	1

<b>8</b>	<b>0</b>	<b>25</b>	<b>Energy and Atmosphere</b>	<b>33</b>
Y			Prereq Fundamental Commissioning and Verification	Required
Y			Prereq Minimum Energy Performance	Required
Y			Prereq Building-Level Energy Metering	Required
Y			Prereq Fundamental Refrigerant Management	Required
		6	Credit Enhanced Commissioning	6
7		11	Credit Optimize Energy Performance (7 Points = 18% ASHRAE 90.1-2010)	18
		1	Credit Advanced Energy Metering	1
		2	Credit Demand Response	2
		3	Credit Renewable Energy Production	3
1			Credit Enhanced Refrigerant Management	1
		2	Credit Green Power and Carbon Offsets	2

Project Name: Madison Community Center

Date: July 2017

Prepared By: greenSTUDIO, division of Hastings Architecture Associates, LLC

Zip Code: 37115

<b>9</b>	<b>0</b>	<b>4</b>	<b>Materials and Resources</b>	<b>13</b>
Y			Prereq Storage and Collection of Recyclables	Required
Y			Prereq Construction and Demolition Waste Management Planning	Required
3		2	Credit Building Life-Cycle Impact Reduction	5
1		1	Credit Building Product Disclosure and Optimization - Environmental Product Declarations	2
2			Credit Building Product Disclosure and Optimization - Sourcing of Raw Materials	2
1		1	Credit Building Product Disclosure and Optimization - Material Ingredients	2
2			Credit Construction and Demolition Waste Management	2

<b>13</b>	<b>0</b>	<b>3</b>	<b>Indoor Environmental Quality</b>	<b>16</b>
Y			Prereq Minimum Indoor Air Quality Performance	Required
Y			Prereq Environmental Tobacco Smoke Control	Required
2			Credit Enhanced Indoor Air Quality Strategies	2
3			Credit Low-Emitting Materials	3
1			Credit Construction Indoor Air Quality Management Plan	1
2			Credit Indoor Air Quality Assessment	2
1			Credit Thermal Comfort	1
2			Credit Interior Lighting	2
		3	Credit Daylight	3
1			Credit Quality Views	1
1			Credit Acoustic Performance	1

<b>6</b>	<b>0</b>	<b>0</b>	<b>Innovation</b>	<b>6</b>
5			Credit Innovation	5
1			Credit LEED Accredited Professional	1

<b>0</b>	<b>0</b>	<b>4</b>	<b>Regional Priority</b>	<b>4</b>
		1	Credit Regional Priority: Daylight (2 points); Optimize (13 points)	1
		1	Credit Regional Priority: Surrounding Density (2 points); Quality Transit (1 Point)	1
		1	Credit Regional Priority: Rainwater Management (2 points)	1
		1	Credit Regional Priority: Reduced Parking Footprint (1 point)	1

<b>50</b>	<b>0</b>	<b>60</b>	<b>TOTALS</b>	<b>Possible Points: 110</b>
Certified: 40 to 49 points, Silver: 50 to 59 points, Gold: 60 to 79 points, Platinum: 80 to 110				

## Furniture, Fixtures, and Equipment Requirements

Old Hickory Community Center FF&E Responsibility Table					
Item Description	Responsibility				Requirements
	Owner Furnished	Contractor Furnished	Contractor Installed	Installed by Other	
<b>Lobby Area</b>					
1	Control Desk and Counter		✓	✓	Coordinate Storage needs with Parks staff
2	Computer, Desk top	✓			✓
3	Clock	✓			✓
4	Credit Card Machine	✓			
5	Defibrillator	✓			
6	Marker board		✓		
7	Tack board		✓		
8	Telephone	✓			
9	Water Fountains		✓	✓	Bottle filler type
10	Vending Machines	✓			✓ Coordinate requirements with Parks
<b>Manager's Office</b>					
1	Coat Hook		✓	✓	
2	Computer, desk top	✓			✓
3	Window Covering		✓	✓	
4	Telephone	✓			✓
Note: Coordinate any storage requirements with Parks					
<b>Staff Work Room</b>					
1	Coat Hook		✓	✓	
2	Computer, Desk top	✓			✓
3	Copier/Printer	✓			✓
4	Telephone	✓			✓
Note: Coordinate any storage requirements with Parks					
<b>Fitness</b>					
1	Fitness Equipment	✓			✓ Equipment requirements and space needs to be coordinated
2	Cubbies		✓	✓	
3	Television	✓			✓ Requirement to be coordinated
4	Telephone				
5	Clock	✓			
6	Mirrored walls		✓	✓	
7	Window Covering		✓	✓	
Note: Coordinate any storage requirements with Parks (Equipment storage will be required in this space)					

The following tables are a brief overview of the different types of equipment and/or furnishings that will be included in this project. This table was created to delineate whose responsibility it will be to provide and install the listed items. This is a brief overview and is not to be considered a comprehensive list. Instead this should be used to start a conversation between the design team and Metro Parks staff to determine the specific requirements for this Center.

Items that are not included in this document but shall be provided:

**Free standing furniture:** All freestanding furniture for example desks, chairs, and tables will be provided and installed by the Metro Parks Department.

**Low voltage Items:** All low voltage wiring such as such wiring for phones, cable, and the internet will be included in the construction documents. The design will need to be coordinated and reviewed by the Metro ITS project manager who will be assigned to this project. The low voltage will be separated out and will be bid separately, but through the General Contractor. This whole process as well as installation during construction will be over seen by the Metro ITS Project Manager.

**Building Security System:** Which includes but not limited to Fire Alarm, Security Cameras and Exit Door Alarms will need to be designed by the Electrical Engineer. It will then be provided and installed by the Contractor.

Furniture, Fixtures, and Equipment Requirements

Old Hickory Community Center FF&E Responsibility Table						
Item Description	Responsibility				Requirements	
	Owner Furnished	Contractor Furnished	Contractor Installed	Installed by Other		
<b>Movement Studio</b>						
1	Audio / Visual		✓	✓		In-wall connections for television and sound system
2	Recessed Ceiling Speakers		✓	✓		
3	Clock	✓			✓	
4	Cubbies		✓	✓		
5	Mirrored walls		✓	✓		
6	Ballet Bar		✓	✓		
7	Window Covering		✓	✓		
8	Telephone	✓			✓	
Note: Coordinate any storage requirements with Parks (Equipment storage will be required in this space)						
<b>Game Room</b>						
1	Television	✓			✓	
2	Telephone	✓			✓	
3	Window Covering		✓	✓		
Note: Coordinate any storage requirements with Parks (Equipment storage will be required in this space)						
<b>Gymnasium</b>						
1	Basketball Goals		✓	✓		Complete basketball goal assembly (i.e. backboards, goal, net etc..) vertical adjustability for the goal and ability to raise and lower. Goals should have the capability of being adjusted by one key panel.
2	Divider Curtain		✓	✓		Should also be controlled by same key panel as goals
3	Bleacher; 3 tiered		✓	✓		
4	Score Boards		✓	✓		
5	Volleyball		✓	✓		Volleyball standards with anchor system. Coordinate all equipment requirements.
6	Wall Protection		✓	✓		
Note: High School level gym, per TSAA standards; control natural light; Coordinate any other type of courts that may be required by Parks; Court layouts with dimensions are required as part of drawings; Coordinate any storage requirements with Parks						
<b>Walking Track</b>						
1	Cubbies		✓	✓		
2	Fans for air circulation		✓	✓		
3	Water Fountains		✓	✓		Bottle filler type

Old Hickory Community Center FF&E Responsibility Table						
Item Description	Responsibility				Requirements	
	Owner Furnished	Contractor Furnished	Contractor Installed	Installed by Other		
4	Window Covering (if needed)		✓	✓		
Multi-Purpose Room						
1	Movable Partition Walls		✓	✓		
2	Televisions	✓			✓	Requirments to be coordinated
3	Cabinet, Counter top and sink		✓	✓		Provide locks on cabinet doors and drawers; Coordinate location with Parks
Note: Provide storage for all tables and chairs for Multi-Purpose Room						
Men's Locker Room						
1	Wall mounted partitions		✓	✓		
2	Lockers; 2-tier		✓	✓		no metal lockers
3	Bench		✓	✓		
4	Mirrors		✓	✓		
5	Trough type sink		✓	✓		
6	Antibacterial Gel Dispenser		✓	✓		
7	Soap Dispenser		✓	✓		
8	Grab bars		✓	✓		
9	Handryer		✓	✓		
10	Paper towel dispenser		✓	✓		
11	Waste Receptacle		✓	✓		
12	Toilet Paper Dispenser		✓	✓		
13	Toilets		✓	✓		
14	Urinals		✓	✓		
15	Shower unit		✓	✓		Built-in and provide changing area in front of stall w/ shelf or bench
16	Anti-microbial shower curtain w/ rod and hooks		✓	✓		
17	ADA shower seat		✓	✓		Must have a 400lb weight capacity
18	Robe hooks		✓	✓		Place hooks with-in toilet stalls, locker room, and changing area
19	Diaper Changing Station		✓	✓		
Note: All toilet accessories need to be specified from Parks pre-approved list or equal						
Women's Locker Room						
1	Wall mounted partitions		✓	✓		

Furniture, Fixtures, and Equipment Requirements

Old Hickory Community Center FF&E Responsibility Table						
Item Description		Responsibility				Requirements
		Owner Furnished	Contractor Furnished	Contractor Installed	Installed by Other	
2	Lockers; 2-tier		✓	✓		no metal lockers
3	Bench		✓	✓		
4	Mirrors		✓	✓		
5	Trough type sink		✓	✓		
6	Antibacterial Gel Dispenser		✓	✓		
7	Soap Dispenser		✓	✓		
8	Grab bars		✓	✓		
9	Handryer		✓	✓		
10	Paper towel dispenser		✓	✓		
11	Waste Receptacle		✓	✓		
12	Toilet Paper Dispenser		✓	✓		
13	Tampon disposal		✓	✓		
14	Toilets		✓	✓		
15	Shower unit		✓	✓		Built-in and provide changing area in front of stall w/ shelf or bench
16	Anti-microbial shower curtain w/ rod and hooks		✓	✓		
17	ADA shower seat		✓	✓		Must have a 400lb weight capacity
18	Robe hooks		✓	✓		Place hooks with-in toilet stalls, locker room, and changing area
19	Diaper Changing Station		✓	✓		
Note: All toilet accessories need to be specified from Parks pre-approved list or equal						
Family Locker Room						
4	Mirrors		✓	✓		
5	Wall Mounted Sink		✓	✓		
6	Antibacterial Gel Dispenser		✓	✓		
7	Soap Dispenser		✓	✓		
8	Grab bars		✓	✓		
9	Handryer		✓	✓		
10	Paper towel dispenser		✓	✓		
11	Waste Receptacle		✓	✓		
12	Toilet Paper Dispenser		✓	✓		

Old Hickory Community Center FF&E Responsibility Table						
Item Description		Responsibility				Requirements
		Owner Furnished	Contractor Furnished	Contractor Installed	Installed by Other	
14	Toilets		✓	✓		
15	Shower unit		✓	✓		Built-in
16	Anti-microbial shower curtain w/ rod and hooks		✓	✓		
17	ADA shower seat		✓	✓		Must have a 400lb weight capacity
18	Robe hooks		✓	✓		
19	Diaper Changing Station		✓	✓		
Note: All toilet accessories need to be specified from Parks pre-approved list or equal						
Toilet Rooms						
1	Handryer		✓	✓		
2	Paper towel dispenser		✓	✓		
3	Waste Receptacle		✓	✓		
4	Toilet Paper Dispenser		✓	✓		
5	Toilet		✓	✓		
6	Soap Dispenser		✓	✓		
7	Mirrors		✓	✓		
8	Wall Mounted Sink		✓	✓		
9	Robe hooks		✓	✓		
Note: All toilet accessories need to be specified from Parks pre-approved list or equal						
Kitchen						
1	Cabinets / Counter top		✓	✓		Provide locks on all doors and drawers
2	Range or Cooktop w/ Oven	✓		✓		
3	Range Hood	✓		✓		
4	Microwave	✓			✓	
5	Sink		✓	✓		
6	Refrigerator	✓			✓	
7	Ice Maker	✓			✓	
8	Roll up window		✓	✓		
9	Serving Counter		✓	✓		
10	Telephone	✓			✓	
11	Paper towel dispenser		✓	✓		
Note: Appliances need to be selected by the Design team and approved by Parks for coordination purposes; verify all ADA requirements are met						

Furniture, Fixtures, and Equipment Requirements

Old Hickory Community Center FF&E Responsibility Table						
Item Description	Responsibility				Requirements	
	Owner Furnished	Contractor Furnished	Contractor Installed	Installed by Other		
Laundry Room						
1	Clothes washing machine	✓			✓	Requirments to be coordinated
2	Clothes dryer	✓			✓	Requirments to be coordinated
3	Shelving					
Note: Appliances need to be selected by the Design team and approved by Parks for coordination purposes; verify all ADA requirements are met, coordinate with parks on any other space or power requirments needed in the space						
Computer / Telecommunications Room						
1	Router/Switch	✓			✓	
2	Telecommunications Backboard	✓	✓	✓	✓	
3	Telecommunication Equipment/Hub/Multiplexer	✓			✓	
4	Telephone	✓			✓	
Note: Drawings will need to be coordinated with Metro ITS						
Exterior / Site Furnishings						
1	Benches		✓	✓		
2	Trash Recepticals		✓	✓		
3	Drinking Fountains		✓	✓		
4	Bike Racks		✓	✓		
5	Directional Signage		✓	✓		
6	Infromational Signage		✓	✓		







# Site Plan

Site Program Images

**B** Outdoor Classroom



Nestled in the trees will be an outdoor classroom that can provide a natural setting for gatherings, after school activities, and other events. This will be a small scale space that utilizes existing grade and materials that may be re-purposed from on-site.

**F** Paved Nature/Fitness Trail



A paved nature trail will connect the various activities in the more wooded areas of the site. A paved loop will also be provided for walking or running laps.

**N O** Sports Court



Sports courts will be designed so that they can accommodate various uses such as tennis, basketball, and pickleball.

**C** Fitness Stations



Multiple fitness stations will be placed around one of the nature trail loops and provide users an opportunity to perform circuit training.

**H J** Pavilion



Two medium sized pavilions (approximately 34'x24') will be available on-site rentable for private parties. A smaller pavilion (approximately 20' x 20') is within the playground.

**S** Multi-Use Lawn



Lawn will be located below the parking lot level, and sloping grades leading down to the lawn may be utilized to provide an internal amphitheater space with the lawn acting as the "stage".



- A** Existing Sidewalk
- B** Outdoor Classroom
- C** Fitness Stations
- D** Sloping Lawn/Amphitheater Area
- E** Pedestrian Bridge
- F** Paved Nature/Fitness Trail
- G** Trailhead Kiosk
- H** Medium Pavilion (34'x24')
- I** Raised Pedestrian Crossing/Speed Hump
- J** Small Pavilion (20'x20')
- K** Community Center Pervious Parking
- L** Pickup/Drop-off Area
- M** Community Center
- N** Multi-Sport Court
- O** Kids Flex Court
- P** Cell Tower (To Remain)
- Q** Playground
- S** Multi-Use Lawn
- T** Retaining Wall
- U** Bioretention
- V** Improved Streetscape with Parallel Parking

# Playground Concept Images

## A Natural Play



Weaved throughout the fenced playground area will be a more naturalistic play space. Elements of the natural play can range from boulders, logs, and a water element.

## B 6-23 Month Old Playground



Younger children will be given their own play area, one for 6 to 23 month old and another for 2-5 year old, separate from the more traditional playground designed for an older age group. Surfacing in this area will be poured-in-place rubber.

## C 2-5 Year Old Playground



## D Traditional Playground (5 to 12 Years Old)



A large "traditional" play area targeted to 5-12 year old children is proposed to take advantage of existing shade by preserving existing trees. This zone should provide a mixture of play experiences and meet the principles of universal design. The surfacing will be poured-in-place rubber.

# Illustrative Playground Plan

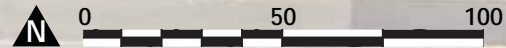


- A** Nature Play
- B** 6-23 Month Old Playground
- C** 2-5 Year Old Playground
- D** 5-12 Year Old Playground
- E** Small Pavilion (20'x20')
- F** Kids Flex Court
- G** Fence (4' Ornamental or Vinyl Coated)
- H** Park Entry Sign
- I** Seat Wall

**Legend**

- Lawn
- Asphalt Paving
- Concrete Paving
- Conservation Buffer
- Community Center Parking
- Existing Stream
- Property Line
- Proposed Canopy Tree
- Proposed Ornamental Tree
- Proposed Street Tree
- Existing Tree

Donelson Ave







# Appendix

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# Appendix - Stakeholder Input and Public Meeting Summary

For generations the residents of Old Hickory have utilized the Old Hickory Recreation Center, located in the heart of the community, as a recreational resource and meeting place. When the Old Hickory Utility District was dissolved in 2011, the Center and surrounding 12 acres of public land was transferred to the Metro Government of Nashville and Davidson County. This land was later bestowed to Metro Parks & Metro Water Services.

Since the center's original construction in the 1960's, the community center has received some minor improvements; however, it has largely remained unchanged, leaving Metro Parks with an outdated facility in need of modernization. In 2017 Plan to Play, the county wide parks and greenways master plan, identified Old Hickory Community Center to be upgraded from a Neighborhood Center to a Regional Center. To advance the Plan to Play recommendations at the Old Hickory site, Metro Parks tasked Collier Engineering and EOA Architects with the development of concept plans for the renovation of the community center and the surrounding parkland.

To date, these planning efforts have included an assessment of existing site conditions, a structural analysis of the existing facility, and gathering information from stakeholders. Additionally, Collier and Metro Parks developed conceptual plans for an expanded framework for outdoor programming that would meet the requirements of a neighborhood park.

During an initial meeting and site visit with the Metro Parks Project Manager and Recreation staff (1/19/2018), the following existing conditions and priority site elements were determined:

- **Renovation v. Rebuild:** Discussed cost/benefit impact of renovating the existing facility and expanding with additional SF versus demolishing current facility to build a new facility entirely.
- **Facility Access & Parking:** Discussed existing parking service challenges, including disjointed lot arrangement, poor striping, and accessibility challenges for elderly and/or disabled park users.
- **Exterior Campus:** Discussed frequency of use and condition of exterior park elements, determined the park could best benefit from an expanded campus that would include park elements on the adjacent grounds (formerly Metro Water Services).

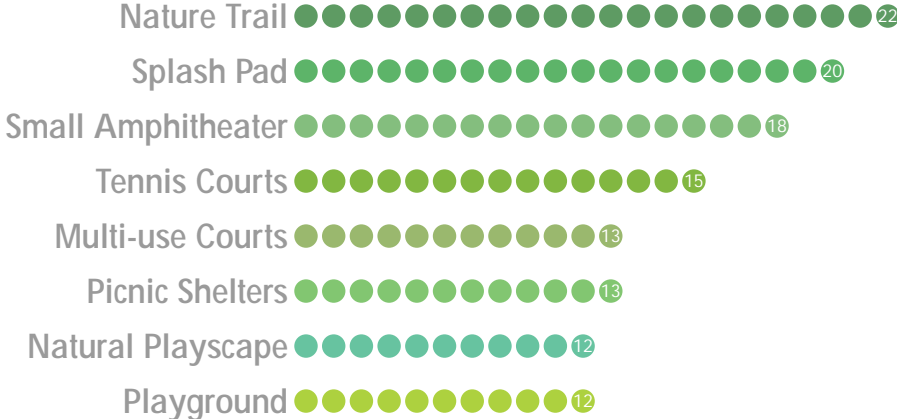
A key outcome of this initial assessment was the execution of a structural analysis of the facility to determine cost and construction feasibilities. The full analysis is included in the appendix of this document, but the principle recommendation calls for demolition & reconstruction of the entire facility. This is primarily attributed to the work required to bring the existing facility up to current building codes.

To gather more information on the community's history, Collier/EOA met with local historians Kris Brummett (former employee of DuPont Manufacturing) and Jerry Barns (generational resident and active business owner). During this meeting, the history of DuPont was discussed with respect to its influence on the evolution of the Old Hickory community as a whole and the transition of the Community Center from former YMCA facility to present day Metro Parks facility.

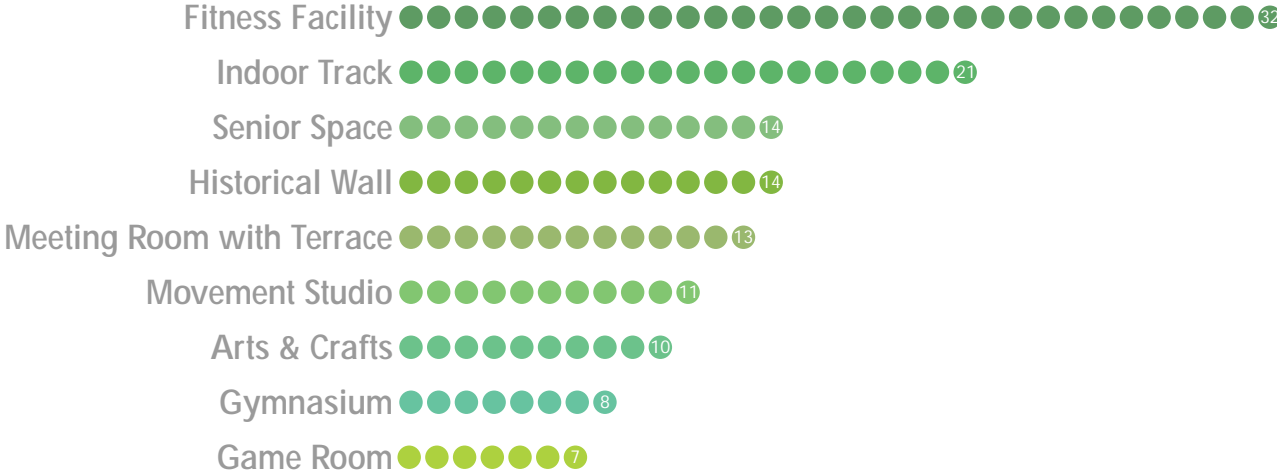
This deep history, along with the discovery of an abundant historical archive, has led to the decision to implement some type of display in the new facility to celebrate the history.

After accumulating information from Metro Parks staff and evaluating the existing facility, future facility and programming possibilities were presented at a public meeting (1/30/2018). At this meeting, a community dialogue and poll identified significant park needs and desirable additions to the new community center. This information and feedback is summarized within this document and will serve as the driving force to shape the eventual master plan for Old Hickory Park and Regional Center.

## Exterior Programming



## Interior Programming





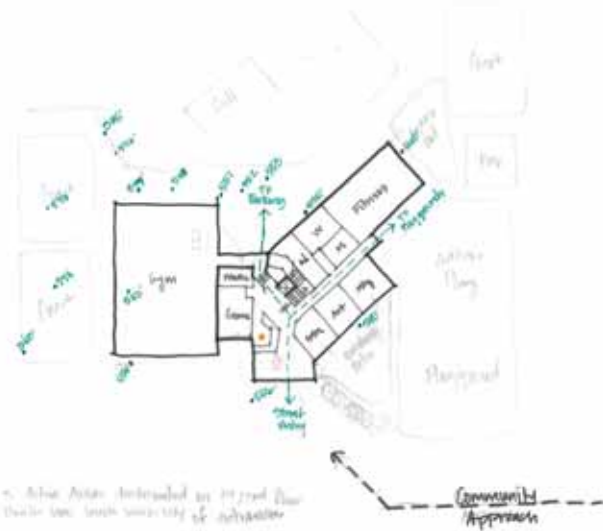
# Community Center Concepts

The goal of the new community center plan development is to organize program spaces that prioritizes flexibility, visibility, points of activation, and park views. The existing topography plays a huge role in defining the footprint of the new building. Because the site has significant slopes, it allows for a split-level building with a 4 ft difference of finish floor levels on the first floor. The new building is also angled towards the direction of the community approach to provide a welcoming and open gesture to all users.

Due to the existing community center also providing a hub for a variety of multi-purpose uses and after-school programs, it was a goal to give a clear separation between active zones and quiet zones. All of the noisy and highly active spaces would be located on level 1 and the meeting/ multipurpose rooms would live on level 2. Along with programming highly flexible multi-purpose rooms on Level 2, the addition of flexible roof terraces will also provide expanded spaces for fitness, or event activities. The main activity areas such as the gym, fitness room, movement studio, and game room are located in areas that will activate each quadrant of the building, as well as bring life and activity to the public street edge.



21

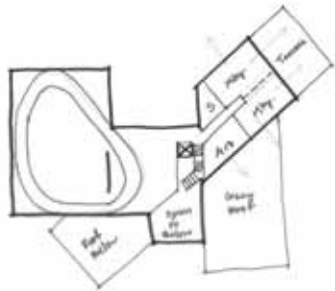


22 - Active Area: Intended as a shared space for the use of the community of residents

Community Approach



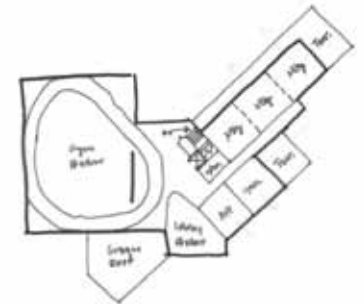
23 - All Active program on first floor - (to be used for other purposes)



24 -  
25 -  
26 -



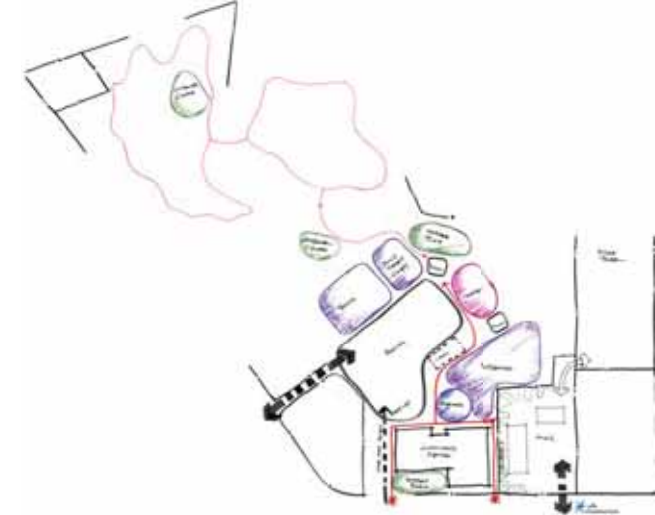
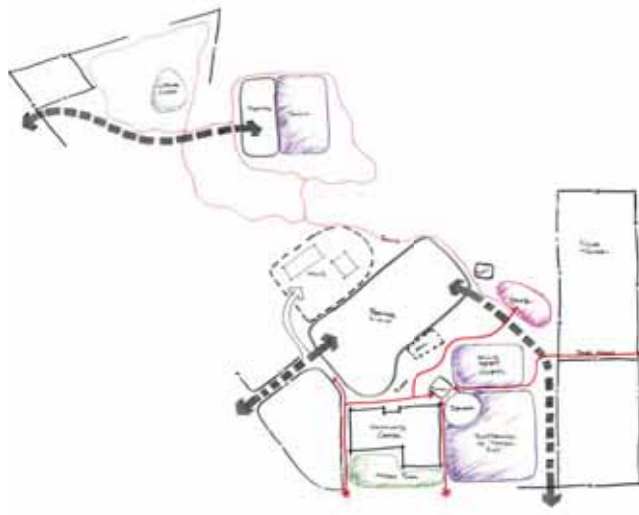
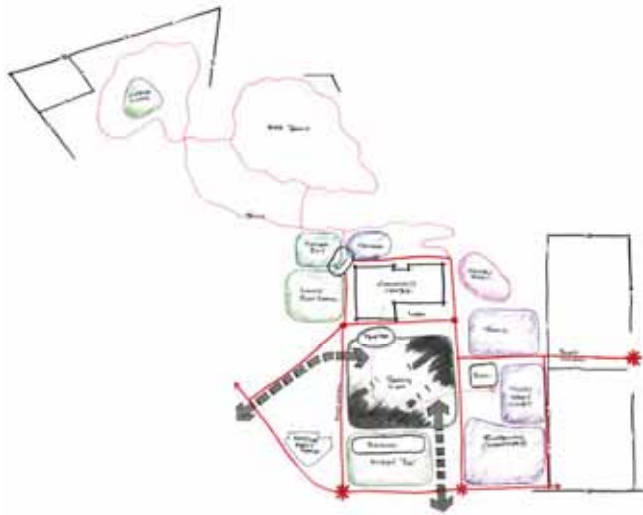
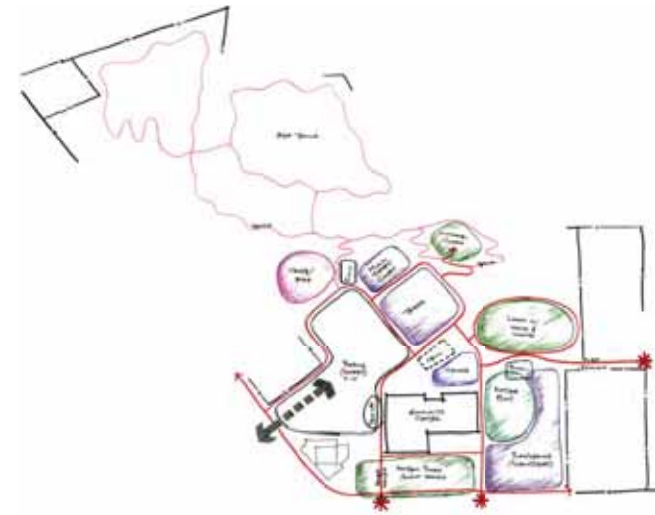
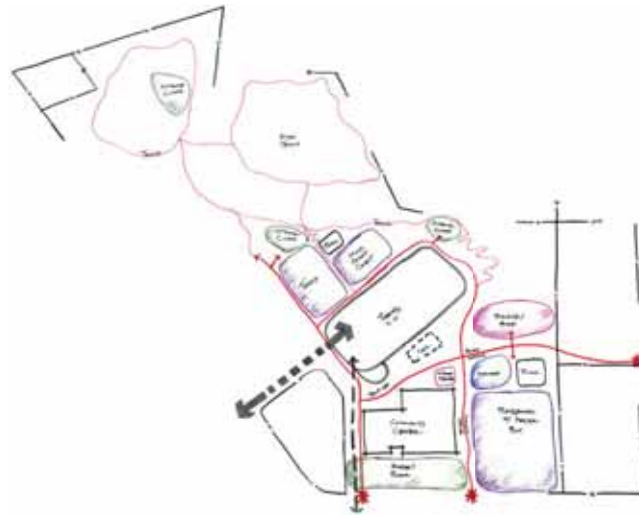
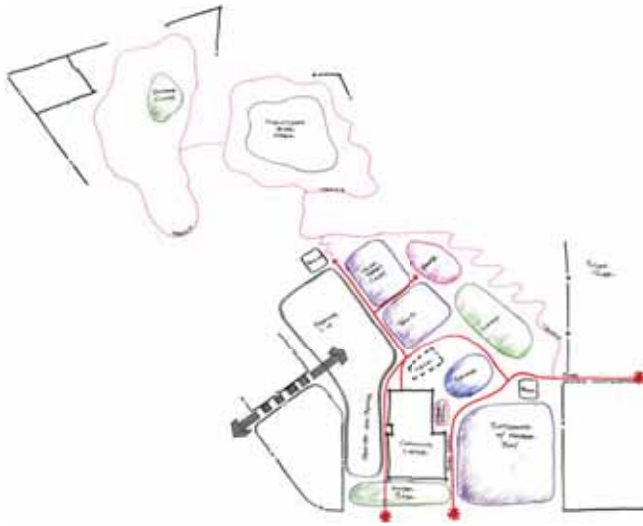
27 -  
28 -



29 -  
30 - All 'Grand' program on second floor - (to be used for other purposes)

# Site Concepts

During the conceptual planning and design phase of the project the design team combined feedback gathered from the community and stakeholders with the findings of our site analysis to help guide the conceptual design. Armed with this critical information we developed several different scenarios that could work on the site that would work with the site. Each concept took a different approach to incorporating the key program elements on the site. This included varying locations and orientations of the new community center building and parking. Each of these concepts was reviewed with the Stakeholders to refine our solutions and narrow it down to the final design concept represented in this master plan.



# Appendix - Existing Structural Analysis

The Existing Old Hickory Community Center was originally constructed in 1966 without significant updates. A full assessment of the existing building's structural, mechanical, electrical, plumbing and fire protections systems, as well as the handicapped accessibility renovations required was completed by the design and engineering team. In order for the existing building to be brought up to today's code and accommodate the newly proposed and expanded program activities, there would need to be significant costly modifications to the structural and mechanical, electrical, plumbing and fire protection systems.

For example, the inclusion of an indoor running track is a priority element for this community and the roof joists in the existing gym do not have the structural capacity to support a running track hung from below. Additionally, the roof deck structure does not meet current building design codes related to wind loads and seismic design requirements. This would require major modification to the structural elements in this part of the building. The most expensive structural modification would be to the existing CMU walls, where the gym walls do not have the capacity to resist horizontal wind or seismic loads per today's code (even without a track). It was determined that the cost for modifications to the existing structural elements would exceed the construction costs to build a new gymnasium structure.

The mechanical, electrical, plumbing and fire protection systems are also in fair to poor conditions. Most of the HVAC system is in need of replacement and the electrical infrastructure has already been used past its recommended life expectancy. These systems will require replacement if any major renovations are done to the existing building. Additionally, all plumbing fixtures, as well as supply and waste pipes will need to be replaced.

Due to the magnitude of required modifications of the existing community center, Metro Parks, along with the design team and their consultants, pronounced that a newly constructed community center would be the most economically feasible route for this project – as compared to a very cost prohibitive renovation that would be very limiting.



Ms. Tracey Ford  
EOA Architects  
515 Main Street  
Nashville, Tennessee 37206

**RE: Old Hickory Community Center Gym Study  
EMC Project No. 18900**

Dear Tracey:

The purpose of this study is to evaluate the structure of the Gym portion of the Old Hickory Community Center. This study is to be used by the Owner and Architect in their preliminary design of a new or renovated center.

The Old Hickory Community Center was constructed in 1966. A copy of the original drawings, dated 1966, was provided to us by your firm. The drawings indicate that the structure has load-bearing, non-reinforced CMU walls. The low roofs are constructed of steel bar joists and metal deck. The main floor over the partial basement is constructed of precast channel with a concrete topping slab. The floor of the Gym is a concrete slab-on-grade. The roof over the Gym is constructed of deep bar joists supporting a Bulb-T and Porex (Tectum) deck system.

We visited the facility during the first two weeks of January 2018 to observe the structure. One crack in the exterior veneer was found at the wing wall at the northwest corner entry to the basement level. No other visible evidence of structural distress was observed.

Chapter 34 of the 2012 IBC governs the additions, alterations, and repairs to existing buildings; a copy of the structural section of this chapter is included at the end of this report. If the gym structure is to be modified and reused in a new center, the gym structure will be required to meet the structural requirements of the 2012 IBC for gravity, wind, and seismic loads. A code analysis of the 2012 IBC for a gym structure was performed. The results are as follows:

**Design Loads**

- 1. Floor Loads: (Reducible as allowed by code)  
Public Spaces, Stairs, Tracks 100 psf

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January 16, 2018  
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- 2. Track Floor Dead Loads:
  - Miscellaneous M.P.E 10 psf
  - Floor Structure 40 psf
  - Total 50 psf
  
- 3. Roof Live and Snow Loads:
  - Live (reducible per code) 20 psf
  - Ground Snow Load 10 psf
  - Snow Exposure C .9
  - Snow Importance 1.0
  - Thermal Factor C 1.0
  - Flat Roof Snow Load 10 psf
  
- 4. Roof Dead Loads:
  - Roofing 1 psf
  - Insulation 1 psf
  - Metal Deck 2 psf
  - Roof Joists 4 psf
  - Sprinklers 2 psf
  - Miscellaneous M.P.E. 5 psf
  - Total 15 psf
  
- 5. Wind Loads:
  - Basic Wind Speed 115 mph (3-second gust)
  - Exposure B
  - Importance Factor 1.0
  - Out-of-Plane Wall Forces 14 psf and 21 psf corner
  
- 6. Seismic Loads:



Ms. Tracey Ford  
 EMC Project No. 18900  
 January 16, 2018  
 Page 3

Seismic Use Group	II
Importance Factor	1.0
Sds	.24
Sd1	.16
Site Class	C (Assumed)
Seismic Design Category	B
Response Modification Factor R	1.5
Seismic Response Coefficient C	.160
Seismic Force Resisting System	Unreinforced Masonry
Analysis Procedure	Equivalent Lateral Force Procedure
Base Shear	190 kips
Out-of-Plane Wall Forces	11.0 psf

We performed a structural analysis to determine the structural capacity of the roof joists for gravity loads, roof deck for diaphragm loads, exterior walls for wind loads, load bearing walls for gravity loads, and all walls for seismic loads. The following is a result of our analysis:

40 LA10 Roof Joists Gravity Load = 215 pounds-per-foot  
 Porex Roof Deck Diaphragm = No capacity as diaphragm  
 Exterior Wall Wind Loads = 9.0 psf ult. from 90 mph wind speed  
 Load-Bearing Walls Gravity Loads = 12,000 pounds-per-foot  
 Walls Seismic Loads = 9.0 psf ult.

The following structural modifications will be required to the Gym structure to meet the requirements of the 2012 IBC:

- The roof joists do not have the capacity to support a running track hung from the joists. A new 40LH10 long span joist will need to be added at 10'-0" O.C. to carry the hangers for the track.
- The existing Porex roof decking is not rated as a structural diaphragm; therefore, the Porex deck will need to be replaced with a 20-gage 1.5" steel roof deck.
- The unreinforced CMU walls do not have the capacity to resist horizontal wind or seismic loads. The walls will need to be reinforced by adding #6 rebar in grouted cells at 32" on center per the attached detail.

EMC Structural Engineers, P.C. appreciates the opportunity to be of service to you and the Metro Board of Parks on this project.

Ms. Tracey Ford  
 EMC Project No. 18900  
 January 16, 2018  
 Page 4

Please call if you have any questions or if I may be of additional assistance.

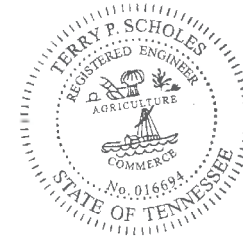
Sincerely,

**EMC Structural Engineers, P.C.**

*Terry P. Scholes*  
 Terry P. Scholes, P.E.  
 Principal

TPS/pjs

Enclosure



## CHAPTER 34

### EXISTING BUILDINGS AND STRUCTURES

#### SECTION 3401 GENERAL

**3401.1 Scope.** The provisions of this chapter shall control the alteration, repair, addition and change of occupancy of existing buildings and structures.

**Exception:** Existing bleachers, grandstands and folding and telescopic seating shall comply with ICC 300.

**3401.2 Maintenance.** Buildings and structures, and parts thereof, shall be maintained in a safe and sanitary condition. Devices or safeguards which are required by this code shall be maintained in conformance with the code edition under which installed. The owner or the owner's designated agent shall be responsible for the maintenance of buildings and structures. To determine compliance with this subsection, the building official shall have the authority to require a building or structure to be reinspected. The requirements of this chapter shall not provide the basis for removal or abrogation of fire protection and safety systems and devices in existing structures.

**3401.3 Compliance.** Alterations, repairs, additions and changes of occupancy to, or relocation of, existing buildings and structures shall comply with the provisions for alterations, repairs, additions and changes of occupancy or relocation, respectively, in the *International Energy Conservation Code*, *International Fire Code*, *International Fuel Gas Code*, *International Mechanical Code*, *International Plumbing Code*, *International Property Maintenance Code*, *International Private Sewage Disposal Code*, *International Residential Code* and *NFPA 70*. Where provisions of the other codes conflict with provisions of this chapter, the provisions of this chapter shall take precedence.

**3401.4 Building materials and systems.** Building materials and systems shall comply with the requirements of this section.

**3401.4.1 Existing materials.** Materials already in use in a building in compliance with requirements or approvals in effect at the time of their erection or installation shall be permitted to remain in use unless determined by the building official to be unsafe per Section 116.

**3401.4.2 New and replacement materials.** Except as otherwise required or permitted by this code, materials permitted by the applicable code for new construction shall be used. Like materials shall be permitted for repairs and alterations, provided no hazard to life, health or property is created. Hazardous materials shall not be used where the code for new construction would not permit their use in buildings of similar occupancy, purpose and location.

**3401.4.3 Existing seismic force-resisting systems.** Where the existing seismic force-resisting system is a type that can be designated ordinary, values of  $R$ ,  $\Omega_p$ , and  $C_e$  for

the existing seismic force-resisting system shall be those specified by this code for an ordinary system unless it is demonstrated that the existing system will provide performance equivalent to that of a detailed, intermediate or special system.

**3401.5 Dangerous conditions.** The building official shall have the authority to require the elimination of conditions deemed dangerous.

**3401.6 Alternative compliance.** Work performed in accordance with the *International Existing Building Code* shall be deemed to comply with the provisions of this chapter.

#### SECTION 3402 DEFINITIONS

**3402.1 Definitions.** The following terms are defined in Chapter 2:

**DAINGEROUS.**

**EXISTING STRUCTURE.**

**PRIMARY FUNCTION.**

**SUBSTANTIAL STRUCTURAL DAMAGE.**

**TECHNICALLY INFEASIBLE.**

#### SECTION 3403 ADDITIONS

**3403.1 General.** Additions to any building or structure shall comply with the requirements of this code for new construction. Alterations to the existing building or structure shall be made to ensure that the existing building or structure together with the addition are no less conforming with the provisions of this code than the existing building or structure was prior to the addition. An existing building together with its additions shall comply with the height and area provisions of Chapter 5.

**3403.2 Flood hazard areas.** For buildings and structures in flood hazard areas established in Section 1612.3, any addition that constitutes substantial improvement of the existing structure, as defined in Section 202, shall comply with the flood design requirements for new construction, and all aspects of the existing structure shall be brought into compliance with the requirements for new construction for flood design.

For buildings and structures in flood hazard areas established in Section 1612.3, any additions that do not constitute substantial improvement of the existing structure, as defined in Section 202, are not required to comply with the flood design requirements for new construction.

**3403.3 Existing structural elements carrying gravity load.** Any existing gravity load-carrying structural element for which an addition and its related alterations cause an increase in design gravity load of more than 5 percent shall be strengthened, supplemented, replaced or otherwise altered as needed to carry the increased gravity load required by this code for new structures. Any existing gravity load-carrying structural element whose gravity load-carrying capacity is decreased shall be considered an altered element subject to the requirements of Section 3404.3. Any existing element that will form part of the lateral load path for any part of the addition shall be considered an existing lateral load-carrying structural element subject to the requirements of Section 3403.4.

**3403.3.1 Design live load.** Where the addition does not result in increased design live load, existing gravity load-carrying structural elements shall be permitted to be evaluated and designed for live loads approved prior to the addition. If the approved live load is less than that required by Section 1607, the area designed for the non-conforming live load shall be posted with placards of approved design indicating the approved live load. Where the addition does result in increased design live load, the live load required by Section 1607 shall be used.

**3403.4 Existing structural elements carrying lateral load.** Where the addition is structurally independent of the existing structure, existing lateral load-carrying structural elements shall be permitted to remain unaltered. Where the addition is not structurally independent of the existing structure, the existing structure and its addition acting together as a single structure shall be shown to meet the requirements of Sections 1609 and 1613.

**Exception:** Any existing lateral load-carrying structural element whose demand-capacity ratio with the addition considered is no more than 10 percent greater than its demand-capacity ratio with the addition ignored shall be permitted to remain unaltered. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces in accordance with Sections 1609 and 1613. For purposes of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces and capacities shall account for the cumulative effects of additions and alterations since original construction.

**3403.5 Smoke alarms in existing portions of a building.** Where an addition is made to a building or structure of a Group R or I-1 occupancy, the existing building shall be provided with smoke alarms in accordance with Section 1103.8 of the *International Fire Code*.

#### SECTION 3404 ALTERATIONS

**3404.1 General.** Except as provided by Section 3401.4 or this section, alterations to any building or structure shall comply with the requirements of the code for new construction. Alterations shall be such that the existing building or structure is no less complying with the provisions of this code

than the existing building or structure was prior to the alteration.

#### Exceptions:

1. An existing stairway shall not be required to comply with the requirements of Section 1009 where the existing space and construction does not allow a reduction in pitch or slope.
2. Handrails otherwise required to comply with Section 1009.15 shall not be required to comply with the requirements of Section 1012.6 regarding full extension of the handrails where such extensions would be hazardous due to plan configuration.

**3404.2 Flood hazard areas.** For buildings and structures in flood hazard areas established in Section 1612.3, any alteration that constitutes substantial improvement of the existing structure, as defined in Section 202, shall comply with the flood design requirements for new construction, and all aspects of the existing structure shall be brought into compliance with the requirements for new construction for flood design.

For buildings and structures in flood hazard areas established in Section 1612.3, any alterations that do not constitute substantial improvement of the existing structure, as defined in Section 202, are not required to comply with the flood design requirements for new construction.

**3404.3 Existing structural elements carrying gravity load.** Any existing gravity load-carrying structural element for which an alteration causes an increase in design gravity load of more than 5 percent shall be strengthened, supplemented, replaced or otherwise altered as needed to carry the increased gravity load required by this code for new structures. Any existing gravity load-carrying structural element whose gravity load-carrying capacity is decreased as part of the alteration shall be shown to have the capacity to resist the applicable design gravity loads required by this code for new structures.

**3404.3.1 Design live load.** Where the alteration does not result in increased design live load, existing gravity load-carrying structural elements shall be permitted to be evaluated and designed for live loads approved prior to the alteration. If the approved live load is less than that required by Section 1607, the area designed for the non-conforming live load shall be posted with placards of approved design indicating the approved live load. Where the alteration does result in increased design live load, the live load required by Section 1607 shall be used.

**3404.4 Existing structural elements carrying lateral load.** Except as permitted by Section 3404.5, where the alteration increases design lateral loads in accordance with Section 1609 or 1613, or where the alteration results in a structural irregularity as defined in ASCE 7, or where the alteration decreases the capacity of any existing lateral load-carrying structural element, the structure of the altered building or structure shall be shown to meet the requirements of Sections 1609 and 1613.

**Exception:** Any existing lateral load-carrying structural element whose demand-capacity ratio with the alteration

considered is no more than 10 percent greater than its demand-capacity ratio with the *alteration* ignored shall be permitted to remain unaltered. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces per Sections 1609 and 1613. For purposes of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces, and capacities shall account for the cumulative effects of *additions* and *alterations* since original construction.

**3404.5 Voluntary seismic improvements.** *Alterations* to existing structural elements or additions of new structural elements that are not otherwise required by this chapter and are initiated for the purpose of improving the performance of the seismic force-resisting system of an *existing structure* or the performance of seismic bracing or anchorage of existing non-structural elements shall be permitted, provided that an engineering analysis is submitted demonstrating the following:

1. The altered structure and the altered nonstructural elements are no less conforming with the provisions of this code with respect to earthquake design than they were prior to the alteration.
2. New structural elements are detailed as required for new construction.
3. New or relocated nonstructural elements are detailed and connected to existing or new structural elements as required for new construction.
4. The alterations do not create a structural irregularity as defined in ASCE 7 or make an existing structural irregularity more severe.

**3404.6 Smoke alarms.** Individual *sleeping units* and individual *dwelling units* in Group R and I-1 occupancies shall be provided with *smoke alarms* in accordance with Section 1103.8 of the *International Fire Code*.

#### SECTION 3405 REPAIRS

**3405.1 General.** Buildings and structures, and parts thereof, shall be repaired in compliance with Section 3405 and 3401.2. Work on nondamaged components that is necessary for the required *repair* of damaged components shall be considered part of the *repair* and shall not be subject to the requirements for *alterations* in this chapter. Routine maintenance required by Section 3401.2, ordinary repairs exempt from *permit* in accordance with Section 105.2, and abatement of wear due to normal service conditions shall not be subject to the requirements for *repairs* in this section.

**3405.2 Substantial structural damage to vertical elements of the lateral force-resisting system.** A building that has sustained *substantial structural damage* to the vertical elements of its lateral force-resisting system shall be evaluated and repaired in accordance with the applicable provisions of Sections 3405.2.1 through 3405.2.3.

##### Exceptions:

1. Buildings assigned to *Seismic Design Category A, B, or C* whose *substantial structural damage* was

not caused by earthquake need not be evaluated or rehabilitated for load combinations that include earthquake effects.

2. One- and two-family dwellings need not be evaluated or rehabilitated for load combinations that include earthquake effects.

**3405.2.1 Evaluation.** The building shall be evaluated by a *registered design professional*, and the evaluation findings shall be submitted to the *building official*. The evaluation shall establish whether the damaged building, if repaired to its pre-damage state, would comply with the provisions of this code for wind and earthquake loads.

Wind loads for this evaluation shall be those prescribed in Section 1609. Earthquake loads for this evaluation, if required, shall be permitted to be 75 percent of those prescribed in Section 1613.

**3405.2.2 Extent of repair for compliant buildings.** If the evaluation establishes compliance of the pre-damage building in accordance with Section 3405.2.1, then repairs shall be permitted that restore the building to its pre-damage state, based on material properties and design strengths applicable at the time of original construction.

**3405.2.3 Extent of repair for noncompliant buildings.** If the evaluation does not establish compliance of the pre-damage building in accordance with Section 3404.2.1, then the building shall be rehabilitated to comply with applicable provisions of this code for load combinations that include wind or seismic loads. The wind loads for the repair shall be as required by the building code in effect at the time of original construction, unless the damage was caused by wind, in which case the wind loads shall be as required by this code. Earthquake loads for this rehabilitation design shall be those required for the design of the pre-damage building, but not less than 75 percent of those prescribed in Section 1613. New structural members and connections required by this rehabilitation design shall comply with the detailing provisions of this code for new buildings of similar structure, purpose and location.

**3405.3 Substantial structural damage to gravity load-carrying components.** Gravity load-carrying components that have sustained *substantial structural damage* shall be rehabilitated to comply with the applicable provisions of this code for dead and live loads. Snow loads shall be considered if the *substantial structural damage* was caused by or related to snow load effects. Existing gravity load-carrying structural elements shall be permitted to be designed for live loads *approved* prior to the damage. Nondamaged gravity load-carrying components that receive dead, live or snow loads from rehabilitated components shall also be rehabilitated or shown to have the capacity to carry the design loads of the rehabilitation design. New structural members and connections required by this rehabilitation design shall comply with the detailing provisions of this code for new buildings of similar structure, purpose and location.

**3405.3.1 Lateral force-resisting elements.** Regardless of the level of damage to vertical elements of the lateral force-resisting system, if *substantial structural damage* to gravity load-carrying components was caused primarily by

wind or earthquake effects, then the building shall be evaluated in accordance with Section 3405.2.1 and, if noncompliant, rehabilitated in accordance with Section 3405.2.3.

##### Exceptions:

1. One- and two-family dwellings need not be evaluated or rehabilitated for load combinations that include earthquake effects.
2. Buildings assigned to *Seismic Design Category A, B, or C* whose *substantial structural damage* was not caused by earthquake need not be evaluated or rehabilitated for load combinations that include earthquake effects.

**3405.4 Less than substantial structural damage.** For damage less than *substantial structural damage*, *repairs* shall be allowed that restore the building to its pre-damage state, based on material properties and design strengths applicable at the time of original construction. New structural members and connections used for this repair shall comply with the detailing provisions of this code for new buildings of similar structure, purpose and location.

**3405.5 Flood hazard areas.** For buildings and structures in *flood hazard areas* established in Section 1612.3, any *repair* that constitutes *substantial improvement* of the *existing structure*, as defined in Section 202, shall comply with the flood design requirements for new construction, and all aspects of the *existing structure* shall be brought into compliance with the requirements for new construction for flood design.

For buildings and structures in *flood hazard areas* established in Section 1612.3, any *repairs* that do not constitute *substantial improvement* or *repair* of *substantial damage* of the *existing structure*, as defined in Section 202, are not required to comply with the flood design requirements for new construction.

#### SECTION 3406 FIRE ESCAPES

**3406.1 Where permitted.** Fire escapes shall be permitted only as provided for in Sections 3406.1.1 through 3406.1.4.

**3406.1.1 New buildings.** Fire escapes shall not constitute any part of the required *means of egress* in new buildings.

**3406.1.2 Existing fire escapes.** Existing fire escapes shall be continued to be accepted as a component in the *means of egress* in existing buildings only.

**3406.1.3 New fire escapes.** New fire escapes for existing buildings shall be permitted only where exterior *stairs* cannot be utilized due to lot lines limiting *stair* size or due to the sidewalks, alleys or roads at grade level. New fire escapes shall not incorporate ladders or access by windows.

**3406.1.4 Limitations.** Fire escapes shall comply with this section and shall not constitute more than 50 percent of the required number of *exit* nor more than 50 percent of the required *exit* capacity.

**3406.2 Location.** Where located on the front of the building and where projecting beyond the building line, the lowest landing shall not be less than 7 feet (2134 mm) or more than 12 feet (3658 mm) above grade, and shall be equipped with a counterbalanced stairway to the street. In alleyways and thoroughfares less than 30 feet (9144 mm) wide, the clearance under the lowest landing shall not be less than 12 feet (3658 mm).

**3406.3 Construction.** The fire escape shall be designed to support a live load of 100 pounds per square foot (4788 Pa) and shall be constructed of steel or other *approved* noncombustible materials. Fire escapes constructed of wood not less than nominal 2 inches (51 mm) thick are permitted on buildings of Type V construction. Walkways and railings located over or supported by combustible roofs in buildings of Type III and IV construction are permitted to be of wood not less than nominal 2 inches (51 mm) thick.

**3406.4 Dimensions.** *Stairs* shall be at least 22 inches (559 mm) wide with risers not more than, and treads not less than, 8 inches (203 mm) and landings at the foot of stairs not less than 40 inches (1016 mm) wide by 36 inches (914 mm) long, located not more than 8 inches (203 mm) below the door.

**3406.5 Opening protectives.** Doors and windows along the fire escape shall be protected with  $\frac{1}{2}$ -hour opening protectives.

#### SECTION 3407 GLASS REPLACEMENT

**3407.1 Conformance.** The installation or replacement of glass shall be as required for new installations.

#### SECTION 3408 CHANGE OF OCCUPANCY

**3408.1 Conformance.** No change shall be made in the use or occupancy of any building that would place the building in a different division of the same group of occupancies or in a different group of occupancies, unless such building is made to comply with the requirements of this code for such division or group of occupancies. Subject to the approval of the *building official*, the use or occupancy of existing buildings shall be permitted to be changed and the building is allowed to be occupied for purposes in other groups without conforming to all the requirements of this code for those groups, provided the new or proposed use is less hazardous, based on life and fire risk, than the existing use.

**3408.2 Certificate of occupancy.** A certificate of occupancy shall be issued where it has been determined that the requirements for the new occupancy classification have been met.

**3408.3 Stairways.** An existing *stairway* shall not be required to comply with the requirements of Section 1009 where the existing space and construction does not allow a reduction in pitch or slope.

**3408.4 Seismic.** When a change of occupancy results in a structure being reclassified to a higher risk category, the

OPEN WEB STEEL JOISTS, LA-SERIES

STANDARD LOAD TABLE LA-SERIES

Based on Allowable Stress of 22,000 psi

Joist Description	Approx. Wt. in Lbs. per Linear Ft.	Depth in Inches	Maximum End Reaction Lbs.	CLEAR OPENING OR NET SPAN IN FEET															
				49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
				274	266	258	250	243	236	229	223	217	211	205	199	194	189	184	179
32LA07	21	32	6,800	322	312	302	293	284	275	267	259	252	245	238	231	225	218	212	207
32LA08	23	32	8,003	351	340	329	319	309	300	291	282	274	266	259	252	245	238	232	225
32LA09	25	32	9,796	394	382	369	358	346	336	326	316	306	297	289	280	272	265	258	250
32LA10	27	32	10,637	428	415	402	390	378	367	356	346	336	326	317	308	299	294	287	276
32LA11	29	32	12,034	485	469	454	439	426	413	400	388	375	365	355	345	335	326	317	308
32LA12	31	32	14,043	566	554	537	520	504	488	473	459	445	432	420	408	396	385	375	365
32LA13	33	32	15,061	606	595	583	572	561	543	526	512	495	480	465	452	439	426	414	403
32LA14	35	32	15,878	639	627	615	603	592	581	570	560	551	542	532	522	512	502	492	482
32LA15	37	32	17,314	697	683	670	657	645	633	622	611	600	590	580	571	562	553	543	533
				57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72
36LA08	23	36	7,685	267	259	252	246	239	233	227	221	216	210	205	200	195	190	186	182
36LA09	25	36	8,319	290	282	275	267	260	254	247	241	235	229	223	218	213	207	203	198
36LA10	27	36	9,437	327	318	309	301	293	285	277	270	263	256	250	244	238	232	226	221
36LA11	29	36	10,215	354	345	336	327	318	310	302	295	287	280	273	267	260	254	248	242
36LA12	31	36	11,596	402	391	380	370	360	350	341	332	324	316	307	300	292	285	278	271
36LA13	33	36	13,709	475	462	450	437	426	414	403	393	383	373	364	355	346	337	329	321
36LA14	35	36	15,398	534	519	504	490	476	463	450	438	427	415	405	394	384	375	365	356
36LA15	37	36	16,744	581	571	561	552	542	532	522	509	498	482	467	453	440	428	416	404
36LA16	39	36	18,396	638	627	617	606	597	587	578	569	560	551	542	532	522	512	503	493
36LA17	41	36	19,998	680	668	657	646	636	625	616	606	597	588	579	571	563	555	547	538
				65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
40LA09	25	40	8,061	246	240	234	229	224	218	214	209	204	200	195	191	187	183	179	175
40LA10	27	40	9,131	278	271	265	258	252	246	241	235	230	225	220	215	210	205	201	197
40LA11	29	40	9,851	300	293	286	280	273	267	261	255	250	244	239	234	229	224	219	214
40LA12	31	40	11,224	342	334	325	318	310	303	296	289	283	276	270	264	258	253	247	242
40LA13	33	40	13,269	404	394	385	376	367	358	350	342	334	327	319	312	306	299	293	286
40LA14	35	40	14,948	455	444	433	422	412	402	392	383	374	365	357	349	341	333	326	319
40LA15	37	40	16,801	512	499	487	475	464	453	442	432	422	412	403	394	385	375	366	357
40LA16	39	40	18,977	578	569	561	553	545	537	529	521	514	506	491	479	468	458	448	438
40LA17	41	40	20,338	619	610	601	592	584	576	568	560	552	544	527	516	504	493	482	472
40LA18	43	40	22,010	670	660	651	641	632	623	614	606	598	590	582	574	565	556	547	538
				73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88
44LA10	27	44	8,864	241	235	230	226	221	216	212	207	203	199	195	191	187	184	180	177
44LA11	29	44	9,528	259	253	248	243	238	233	229	224	220	215	210	205	201	197	192	188
44LA12	31	44	10,896	296	289	283	277	271	266	260	255	250	245	240	235	230	226	222	217
44LA13	33	44	12,880	350	342	335	328	321	314	308	302	295	290	284	278	273	267	262	257
44LA14	35	44	14,555	395	386	378	370	361	354	346	339	332	325	318	312	305	299	293	287
44LA15	37	44	16,342	444	434	425	416	407	398	390	382	374	366	359	352	345	338	331	325
44LA16	39	44	18,244	516	505	494	484	473	463	453	444	435	426	417	409	401	393	385	378
44LA17	41	44	20,104	571	564	556	548	539	521	510	500	489	479	470	460	451	442	434	425
44LA18	43	44	22,872	621	613	605	597	589	582	574	567	560	553	542	531	520	504	493	489
44LA19	45	44	24,621	668	659	651	642	634	626	618	610	603	596	589	582	575	568	562	555
				81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96
48LA11	29	48	9,234	226	222	217	212	208	203	199	195	191	187	183	179	176	172	169	166
48LA12	31	48	10,101	260	255	250	245	240	236	231	227	223	219	215	211	207	203	199	195
48LA13	33	48	12,350	307	301	295	290	284	279	274	269	264	259	254	250	245	240	236	231
48LA14	35	48	14,204	348	341	334	328	321	315	309	303	297	292	286	281	276	271	266	261
48LA15	37	48	15,930	390	383	375	368	361	354	347	341	335	328	322	317	311	305	300	295
48LA16	39	48	18,850	454	445	437	428	420	412	404	397	389	382	375	368	362	355	349	343
48LA17	41	48	20,875	511	501	491	482	473	464	455	446	438	430	422	415	407	400	393	386
48LA18	43	48	23,735	581	574	567	561	550	539	528	518	508	498	489	480	471	462	454	445
48LA19	45	48	25,460	624	616	609	601	594	588	581	574	568	562	555	545	535	525	515	506

Figures printed in green to be used for roof construction only.  
 The weight of dead loads, including weight of joists, must be deducted to determine the live load carrying capacities which must be reduced for concentrated loads. Approximate weights per linear foot of joists include accessories.  
 When loads are required in top or bottom chords, the above carrying capacities must be reduced in proportion to reduction of chord areas.  
 The top chords are considered as being stayed laterally by floor slab or roof deck.

STANDARD LOAD TABLE  
 FOR LONGSPAN OR LA-SERIES JOISTS

Based on Allowable Stress of 22,000 psi

Adopted by the American Institute of Steel Construction, Inc. — July 1, 1961  
 Adopted by the Steel Joist Institute — July 1, 1961

This table is based on 22,000 psi allowable stress for A36 steel. When A7, A245 or A303 steel is used, all load carrying capacities shall be reduced by 10 per cent. Joists designed of steel other than A36 shall be designated by L rather than LA as shown in he table.

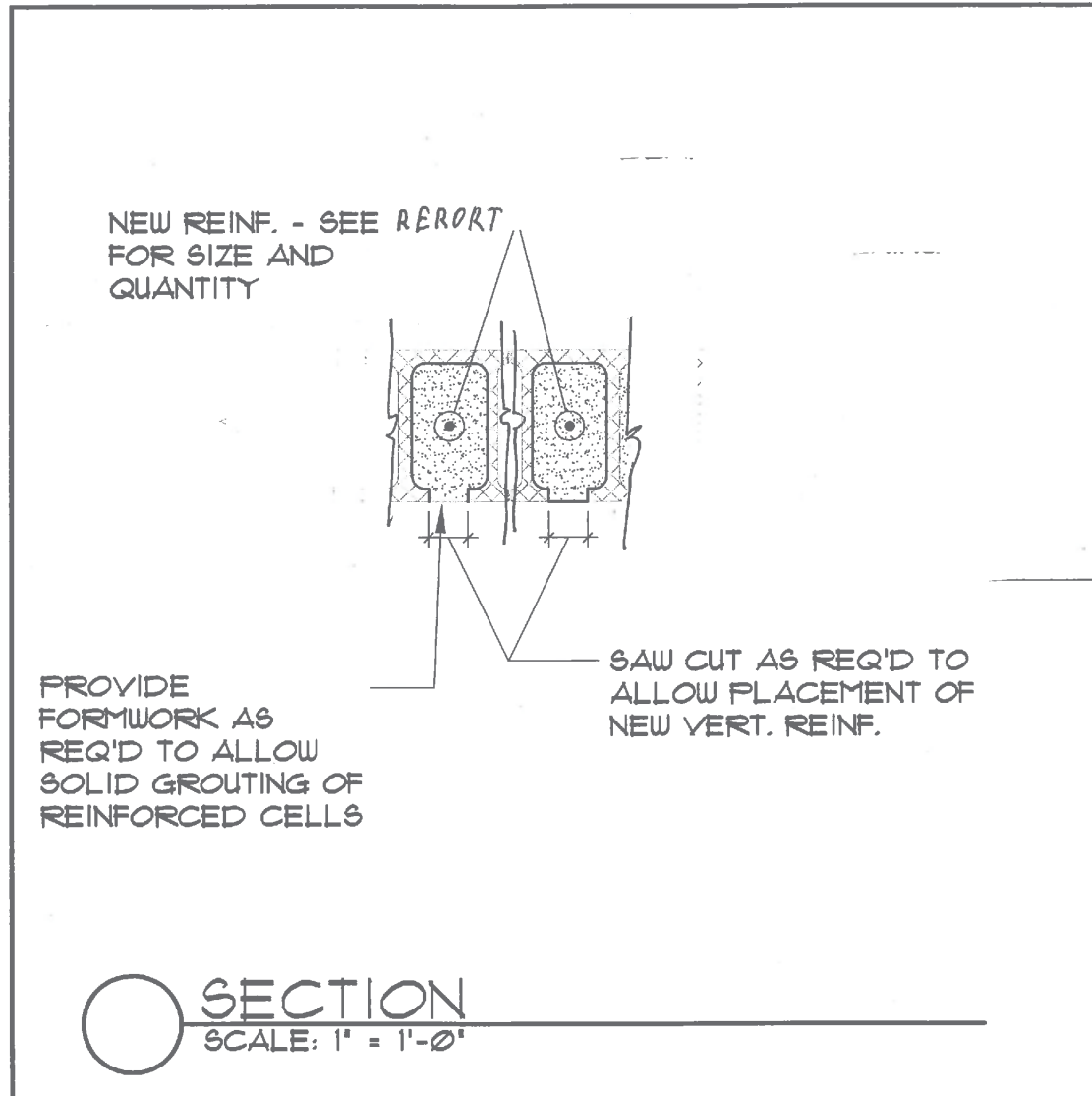
The following table gives the TOTAL safe uniformly distributed load carrying capacities in pounds per linear foot of span.

This load table applies to joists with either parallel chords or standard pitched top chords. When top chords are pitched, the carrying capacities are determined by the nominal depth of the joists at center of the span.

Standard pitch is 1/4" per foot. If pitch exceeds this standard, the load table does not apply.

Loads below heavy stepped line are governed by maximum end reaction.

Joist Description	Approx. Wt. in Lbs. per Linear Ft.	Depth in Inches	Maximum End Reaction Lbs.	CLEAR OPENING OR NET SPAN IN FEET															
				25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
				314	295	278	263	248	235	222	211	200	190	181	172	164	156	148	140
18LA02	13	18	4,031	314	295	278	263	248	235	222	211	200	190	181	172	164	156	148	140
18LA03	14	18	4,549	354	334	318	297	281	266	252	239	227	216	205	196	187	178	169	160
18LA04	16	18	5,493	428	402	378	355	331	316	299	283	268	255	241	228	216	204	192	180
18LA05	17	18	5,970	465	438	413	390	369	349	331	314	298	283	270	257	245	232	220	207
18LA06	19	18	7,135	556	522	490	462	436	411	388	368	348	330	312	295	278	261	244	227
18LA07	18	18	7,648	595	574	540	508	479	453	428	406	385	364	344	326	308	290	272	254
18LA08	23	18	8,334	649	625	602	581	547	516	487	461	436	414	393	373	353	333	313	293
18LA09	25	18	8,611	671	646	623	601	581	562	530	502	475	450	428	406	385	364	343	322
18LA10	27	18	9,217	718	696	666	643	621	601	582	550	520	493	468	444	423	402	381	360
18LA11	29	18	9,539	743	715	690	665	643	622	602	584	567	550	523	497	475	454	433	412
18LA12	31	18	10,216	796	766	739	713	689	666	645	625	607	589	573	544	522	501	480	459
				25	26	27	28	29	30	31	32	33	34						



Appendix - Mechanical Existing Conditions and Design Narrative



BASIS OF DESIGN (BoD) FOR:

**Old Hickory Community Center**  
Old Hickory, TN

PMC PROJECT#:	18012
PREPARED BY:	Gray Adams, Javier de la Rosa
APPROVED BY:	

VERSION	DATE	DESCRIPTION
1	June 12, 2018	Schematic Design

1. GENERAL PROJECT INFORMATION

Project Name	Old Hickory Community Center
Project Address	1050 Donelson Ave, Old Hickory, TN
Building Type	Community Center
Building Size (ft <sup>2</sup> )	27,332 SF
Building Description	Two story recreational facility with movement studio, meeting rooms, multi-purpose rooms, fitness center, gymnasium and elevated indoor track
Owner/Agency	Metro Parks and Recreation
Scheduled Completion Date	TBD
Architect	EOA Architects, PLLC
MEP Engineer	Power Management Corporation
PMC Project #	18012

2. INTRODUCTION

- A. A new community center in is being proposed by Metro Parks and Recreation to serve the Northeastern area of Davidson County. The program consists of 27,332 gross square feet of building area. Upon completion, the building will be occupied by Metropolitan Parks and Recreation for fitness, educational, and community activity functions. The project will achieve a Silver Certification under the BD+C v4 LEED program.
- B. The energy based systems in the facility will be commissioned per LEED BD+C v4 Energy and Atmosphere Prerequisite 1 (EAp1) – Fundamental Commissioning of the Building Energy Systems.
- C. Applicable Codes and Standards
  - 1. 2012 International Building Code
  - 2. 2012 International Mechanical Code
  - 3. 2012 International Fuel Gas Code
  - 4. 2012 International Plumbing Code
  - 5. 2012 International Fire Code
  - 6. 2011 National Electric Code
  - 7. Accessibility and Usability Code, ANSI A117.1, 2009
  - 8. ASHRAE/IESNA STD 90.1-2010, Energy Standard for Buildings
  - 9. ANSI/ASHRAE STD 62.1-2010, Ventilation for Acceptable Indoor Air Quality
  - 10. ANSI/ASHRAE STD 55-2010, Thermal Environmental Conditions for Human Occupancy
  - 11. LEED BD+C v4 Guidelines

3. HVAC SYSTEM

A. Narrative Description of System

1. Exhaust System: The general exhaust for the building will be provided by a roof mounted up blast fan that is 1,500 CFM. The Elevator Equipment Room will be ventilated with a 100 CFM ceiling fan, the Electrical Room ventilated with a 100 CFM ceiling fan, and the Mechanical Room ventilated with a 200 CFM in-line fan, all ducted to the outdoors.
2. System Type: The building will utilize high efficiency (12.2 EER) packaged air-cooled equipment (RTU) located on the roof. Exposed ductwork will be uninsulated spiral or fabric duct. All return will be ducted to associated units. RTU-1,2,3,4 and 6 will have an energy recovery ventilator (ERV) to pre-condition ventilation air. The condensate from all RTUs are to be piped to nearest roof drain. The following units sizes will be used for the facility:
  - **RTU-1 and RTU-2:** Gymnasium –Two 17.5 ton packaged units. Units to have Economizer, HGR, exhaust fan, VFDs on fans, variable capacity compressors, and outdoor airflow measuring stations. Units will be installed on roof of Gym with supply duct transitioning to rigid framed fabric duct and the return ducted in a chase to within 10 feet of the floor. RTU to be equal to Trane YZD210F and ERV equal to Semco FVT-5000
  - **RTU-3:** Movement Studio – 7.5 ton packaged unit. Unit to have Economizer, HGR, exhaust fan, VFDs on fans, variable capacity compressors. Unit to be installed on roof above Movement Room with ducted supply and return and outdoor airflow measuring stations to space. RTU to be equal to Trane YHC092F and ERV equal to Semco SP-2200
  - **RTU-4:** Game/Multipurpose – 5 ton packaged unit. Unit to have Economizer, HGR, exhaust fan, VFDs on fans, variable capacity compressors. Unit to be installed on roof with ducted supply and return and outdoor airflow measuring stations to space. RTU to be equal to Trane YHC060F and ERV equal to Semco SP-2200
  - **RTU-5:** Upper and Lower Lobby – 10 ton packaged unit with economizer, outdoor airflow measuring stations, and variable capacity compressor. RTU to be equal to Trane YHC120E
  - **RTU-6:** Fitness – 10 ton packaged unit. Unit to have Economizer, HGR, exhaust fan, VFDs on fans, variable capacity compressors, and outdoor airflow measuring stations. Unit to be installed on roof above Movement Room with ducted supply and return through a chase to Fitness Room on 1<sup>st</sup> Level. RTU to be equal to Trane YHC120E and ERV equal to Semco SP-2200
  - **RTU-7:** Multi-Purpose Rooms/Kitchen/Restrooms – Upper Level – 12.5 ton packaged unit with economizer, supply fan VFD, exhaust fan, outdoor airflow measuring stations, and variable capacity compressor. Unit will serve variable air volume boxes (8) with electric reheat. RTU to be equal to Trane YZD150F
3. Controls: A Building Automation System will monitor and control the units based on a building occupancy schedule. They system will also monitor outdoor airflow rates to each unit.
4. Efficiency features: The packaged equipment shall have a minimum 12 EER, economizers, energy recovery devices, and controls for set-back and supply temperature reset

5. Outdoor air ventilation strategy: The outdoor air will be delivered to each space based on the ASHRAE-62.1 required volume. The air will be pre-conditioned to most packaged units through an energy recovery ventilator located inside the unit. Demand control ventilation will also be used to limit the amount of raw air to the necessary amount during occupied times.
6. Indoor air quality features: The building will be designed to meet ASHRAE-55, based on the activity level in each space.

B. Reasons for System Selection

1. An air cooled system is selected based on the front end expense of the equipment and the large zones within the facility

C. Load Calculations

1. Load calculation method/software: Carrier HAP v5.11
2. Summer outdoor design conditions: 95°F dry bulb, 78°F wet bulb
3. Winter outdoor design conditions: 10°F dry bulb
4. Indoor design conditions: 70-75°F, 45-60%RH cooling; 70°F heating
5. Internal heat gain assumptions:

Space	Lighting Load	Plug Load	Occupant Load	Infiltration Load	Other:
Upper Lobby	.88 W/Sq Ft		2	.1 CFM Sq/Ft	
Lower Lobby	.88 W/Sq/Ft		2	.1 CFM Sq/Ft	
Gym	.88 W/Sq Ft		250	.1 CFM Sq/Ft	
Movement Studio	.88 W/Sq Ft		40	.1 CFM Sq/Ft	
Fitness	.88 W/Sq Ft		36	.1 CFM Sq/Ft	
Game	.88 W/Sq Ft		34	.1 CFM Sq/Ft	
Manager	.88 W/Sq Ft		1	.1 CFM Sq/Ft	130 Watts
Staff Workroom	.88 W/Sq Ft		2	.1 CFM Sq/Ft	260 Watts
Kitchen	.88 W/Sq Ft		2	.1 CFM Sq/Ft	2 Watts Sq/Ft
Multi-Purpose	.88 W/Sq/Ft		20	.1 CFM Sq/Ft	
Other Spaces	.88 W/Sq Ft		0	.1 CFM Sq/Ft	

6. Calculated cooling loads and system size:

System/ Air Handler ID	Calculated Peak Cooling Load	Selected System Cooling Capacity	Reasons for difference between calculated load and selected system capacity
	TBD	TBD	TBD

## Appendix - Mechanical Existing Conditions and Design Narrative

### D. Sequence of Operations (TBD)

1. Operating schedules
2. Setpoints
3. Demand Ventilation
4. Economizers
5. Other controls features

## 4. PLUMBING SYSTEM

### A. Narrative Description of System

1. A 2-1/2" domestic water line will serve the facility. The backflow prevention will be installed on the site. A 4" sanitary line will exit the building below slab and a 2" low pressure gas line will feed the gas-fired equipment

## 5. DOMESTIC HOT WATER HEATING SYSTEM

### A. Narrative Description of System

1. Domestic hot water will be provided for the restroom facilities by a single 100 gallon storage, high efficiency gas water heater.

### B. Reasons for System Selection

1. The gas storage water heaters were chosen primarily for efficiency.

### C. Water Heating Load Calculations

1. [TBD]

## 6. PLUMBING FIXTURES

### A. Narrative Description of System

1. Plumbing fixtures will be selected to reduce water use by 35% less than the water use baseline.
2. Plumbing Fixture Types:
  - a. Water Closet: Sensor flushometer; 1.28 gpf.
  - b. Urinal: Sensor flushometer; 0.13 gpf
  - c. Lavatory: Autocontrol sensor faucet; 0.1 gallons per cycle or 0.35 gpm
  - d. Kitchen/Breakroom sink: Manual faucet with pull-out spray; 1.5 gpm
  - e. Shower: Hand shower system with pressure balancing mixing valve; 1.5 gpm

## 7. FIRE PROTECTION SYSTEM

### A. Narrative Description of System

1. A 6" underground fire line to a 4" sprinkler riser will serve the building. An automatic wet sprinkler system will be installed throughout the building with brass upright heads in

exposed areas and semi-recessed pendants in all areas with a ceiling. The double detector check valve, fire department connection, and post indicating valve will be installed on the site.

## 8. ELECTRICAL POWER SYSTEM

### A. Narrative Description of System

1. Metering
  - a. There will be a single utility electrical meter for entire building, located outdoors on the side of the building, adjacent to a CT cabinet
  - b. There will be separate owner metering for the main service and all subfeeds
2. Service Entrance
  - a. A new pole mounted utility transformer will serve the building
  - b. A new underground service lateral from a transformer riser pole will be routed to the CT cabinet on the exterior wall.
  - c. The service voltage will be 277/480-volt, wye connected
  - d. The Service lateral size will be 800-amps, 2 sets of 750 MCM Aluminum
3. Main Distribution Panel (MDP) will be located on first floor main electrical room
  - a. 800 amp, 480/277 volt, 3Ph-4W, SER
  - b. MLO - Aluminum bus
  - c. Integral SPD – 150 kA per mode, UL 1449 3<sup>rd</sup> edition listed
  - d. Each feeder will have networked sub-metering for energy and demand, with a local display on the face of the main panel. The sum total of all feeders will also be displayed as a virtual meter called "Main"
  - e. Distribution:
    - 400/3, 35 kAIC, Fixed TMCB – Panel M
    - 200/3, 35 kAIC, Fixed TMCB – Panel H1
    - 125/3, 35 kAIC, Fixed TMCB – Panel L1 via 75kVA xfmr
    - 70/3, 35 kAIC, Fixed TMCB – Elevator
    - Prov Space – 200-amp
4. Branch Circuit panelboards
  - a. New lighting and appliance panelboards will be located in main electrical room:
    - Panel M: 400 amp MLO, 480/277 volt, 3PH-4W-84P, HVAC loads
    - Panel H1: 200 amp MLO, 480/277 volt, 3PH-4W-42P, lighting loads
    - Panel L1: 250 amp MCB, 480/277 volt, 3PH-4W-84P, receptacle loads (fed from MDP via 75KVA xfmr)
  - b. New lighting and appliance panelboards located in secondary electrical room as follows:
    - Panel H2: 100 amp, 480/277 volt, 3PH-4W-42P for lighting (fed from Panel H1)



## Appendix - Mechanical Existing Conditions and Design Narrative

- Panel L2: 100 amp, 120/208 volt, 3PH-4W-42P for receptacle loads (fed from Panel L1)
5. General Power
    - a. 120 volt general use receptacles in common areas, offices, and support rooms
    - b. 120 volt dedicated receptacles for all office equipment, appliances, control panels, and fitness equipment.
    - c. Neutrals will not be shared on dedicated circuits for fitness equipment.
    - d. All treadmills will have #10 AWG branch circuitry (oversized to prevent excessive voltage drop)
    - e. GFI protected outlets near HVAC equipment, outdoors, above counters, and on outside terrace as required by NEC.
  6. HAVC Power
    - a. Dedicated 480 volt power circuits to roof top units and split units.
    - b. Dedicated 120 volt power circuits to ventilation and exhaust fans.
    - c. Dedicated 120-volt power to BAS controls as required.

### B. Reasons for System Selection

1. Sub-metering and “system” panelboards provided to separate the owner’s lighting, HVAC, and receptacle loads for LEED credit EA-C5.
2. Electrical panels are all located in a central location on the first floor, with two sub-panels located in the second floor closet if needed. This prevents electrical rooms from becoming storage rooms.

### C. Electrical Load Calculations

1. Preliminary load was calculated based on previous community center designs of similar size and scope. Estimated demand load is 12 VA per square foot.

## 9. LIGHTING SYSTEM

### A. Narrative Description of System

1. Fixture type(s)
  - a. LED high bay pendants in gym and main lobby (2 story)
  - b. 2x4 volumetric troffers with LED lamps in admin/office areas with lay-in ceilings
  - c. 4’ heavy duty channels with wireguards for utility areas without lay-in ceilings
  - d. 4-6” LED recessed cans in various locations for accent lighting
  - e. Linear LED wall mounted fixtures or downlights above and below running track
  - f. Decorative LED pendants in corridors and main lobby areas
  - g. Linear suspended direct/indirect LED in movement studio, multi-purpose and fitness rooms
  - h. LED area lighting on 20 foot steel poles in parking lot
2. Lamp and ballast type

- a. All fixtures shall be LED
3. Control type
    - a. Wall mounted vacancy sensor switches in support areas
    - b. Ceiling mounted vacancy sensors with over-ride low voltage switch for offices, multi-purpose rooms, and meeting rooms
    - c. Central lighting control system for lobby and corridors with LV zone switches.

### B. Reasons for System Selection

1. Owner wishes to achieve a 30% reduction in lighting power density, as compared to ASHRAE 90.1.
2. The design should consider maintenance and ladder heights when relamping by maintenance personnel. Utilize longer life LED fixtures to avoid bringing in lifts and tall ladders that may not be readily available.
3. Minimize lamp types to be help in stock by the facility.
4. Try to keep lighting mounting heights well above the reach of an average height person

### C. Interior Lighting Design Criteria

Space Type	Illumination Design Target (footcandles)	Source of Target (e.g. IES Standard, Owner Requirement)	Other Lighting Design Criteria: [e.g. CRI, CCT]
Corridors	20	IES	Automatic on-off via central lighting control panel – manual override via oc sensor after hours
Support Rooms	20	IES	Wall mounted PIR vacancy sensor switch
Multipurpose Rm	30	IES	Ceiling mounted DT occupancy sensors with override switches for Itg reduction control
Fitness	30	IES	Manual on, automatic off via central lighting control panel – manual override
Gym	50	IES	Manual on, Automatic off via central lighting control panel – manual override
Offices	30	IES	Ceiling mounted DT occupancy sensors with toggle switches for Itg reduction control

### D. Interior Lighting Power Design Targets

Space Type (Entire Building Method)	ASHRAE 90.1-2010 Lighting Power	Lighting Power Design Target (watts/ft <sup>2</sup> )

# Appendix - Mechanical Existing Conditions and Design Narrative

- a. All fixtures shall be LED
- 3. Control type
  - a. Wall mounted vacancy sensor switches in support areas
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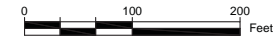
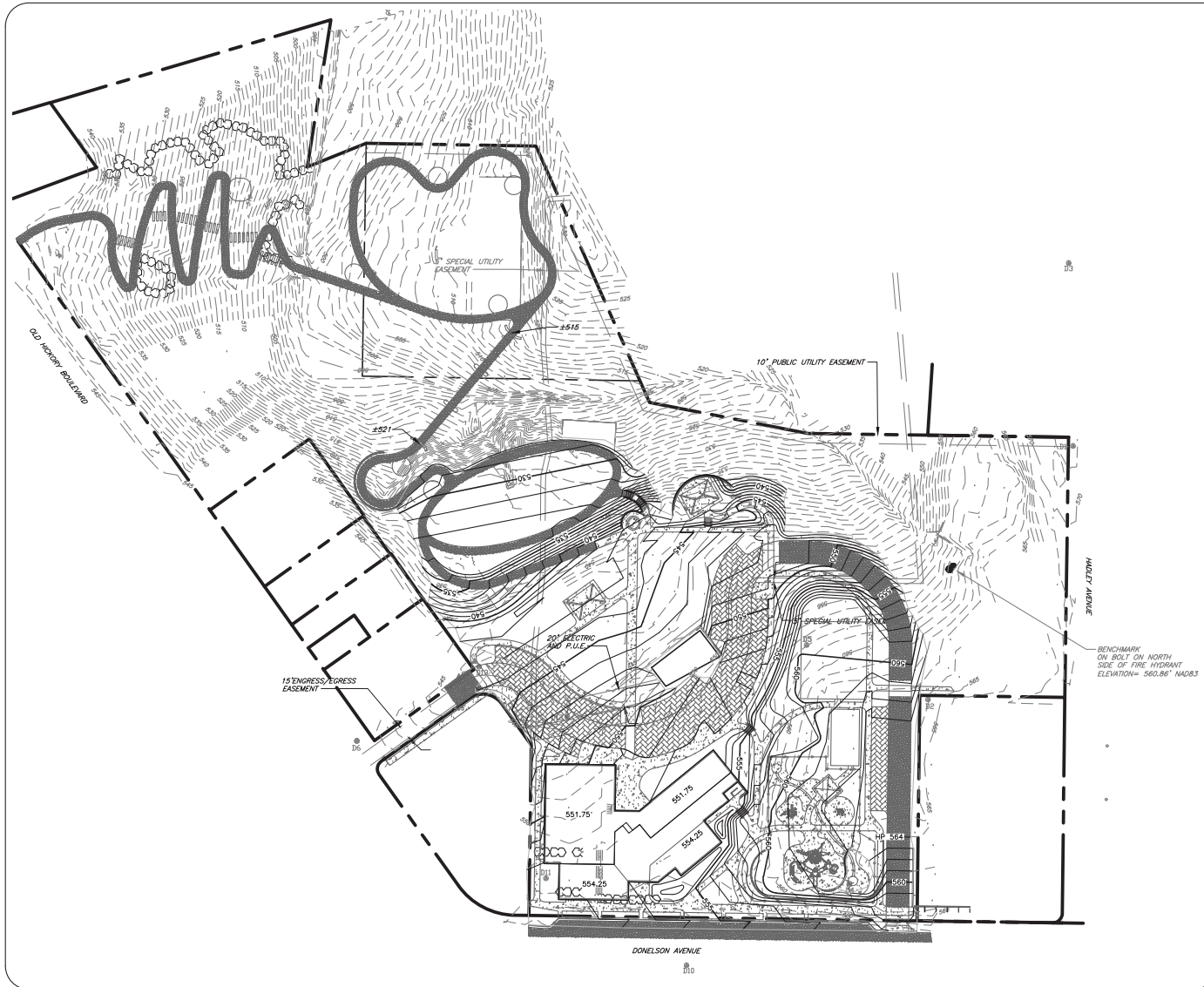
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**D. Interior Lighting Power Design Targets**

Space Type (Entire Building Method)	ASHRAE 90.1-2010 Lighting Power	Lighting Power Design Target (watts/ft <sup>2</sup> )



METROPOLITAN GOVERNMENT OF NASHVILLE & DAVIDSON COUNTY  
DEPARTMENT OF WATER & SEWERAGE SERVICES  
STORMWATER DIVISION

LAYOUT AND GRADING PLAN  
OLD HICKORY CC

DR. CK.	ORIGINAL DRAFT DATE
MCA MJ	06/18/18
REVISION DATES & DESCRIPTION	

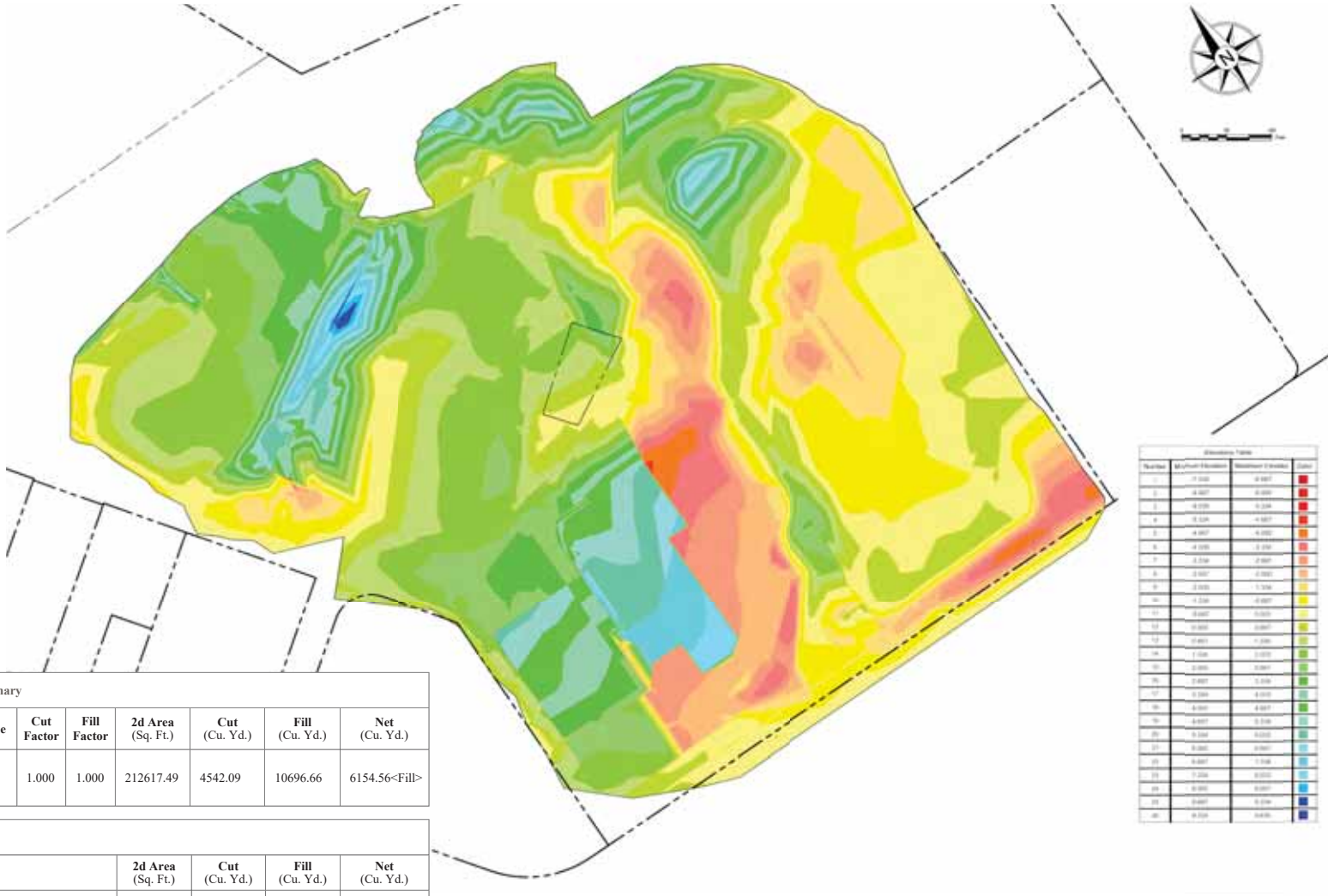
SCALE: 1" = 100'



5560 FRANKLIN PIKE CIRCLE, BRENTWOOD, TN 37027  
PHONE: (615) 331-1441 FAX: (615) 331-1050

PROJECT NO. 17-012	SHEET NO. CONCEPT
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Grading Index Map



Volume Summary							
Name	Type	Cut Factor	Fill Factor	2d Area (Sq. Ft.)	Cut (Cu. Yd.)	Fill (Cu. Yd.)	Net (Cu. Yd.)
Site Volume Surface	full	1.000	1.000	212617.49	4542.09	10696.66	6154.56<Fill>
<b>Totals</b>							
				<b>2d Area (Sq. Ft.)</b>	<b>Cut (Cu. Yd.)</b>	<b>Fill (Cu. Yd.)</b>	<b>Net (Cu. Yd.)</b>
Total				212617.49	4542.09	10696.66	6154.56<Fill>

\* Value adjusted by cut or fill factor other than 1.0

