

ISD 622 John Glenn Middle School Addition and Renovation

Project Narrative December 20, 2019

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Architecture

John Glenn Middle School was originally built in 1961. Capital improvements have been made to the school since the original construction, including a pool addition in 1965 and an addition to the academic wing in 1987. The overall building is a split-level configuration, with the academic wing occupying levels 1 and 3, and the administration offices, cafeteria, gymnasiums and pool on level 2. There is a courtyard that is currently accessible from a single door on level 2. The proposed project includes several additions and a complete renovation of all existing spaces. The new construction includes new classroom spaces (including science and STEM classrooms), special education rooms, new music rooms, secure entry provisions, and a new, larger pool with new locker rooms. The renovated portions of the building include a new, larger cafeteria and food service area, more functional administrative spaces, and enhancements to the courtyard to improve access and functionality. In addition to enhancing the flexibility and functionality of indoor and outdoor teaching spaces, the proposed project emphasizes improving the exterior appearance of the building.

John Glenn Middle School's existing structure is a mix of cast-in-place concrete, masonry, and steel framing with a built-up roofing system. The building's interior construction is masonry and light gauge steel framed walls with gypsum board finish. The building has an aluminum window system. The new exterior envelope/structure includes insulated precast concrete panels down to cast-in-place concrete footings, cast-in-place concrete foundation walls with integral insulation, curtain wall glazing, canopies made of steel framing clad with a fiber cement and phenolic panel system, and a fully adhered EPDM roof system.

Civil and Landscape

Introduction

The site layout and design approach for John Glenn Middle School seeks to utilize the existing layout of the site, but improve safety, circulation, strengthening the building entries and common areas to promote a welcoming sense of place. The focus for the circulation of the site is to separate the student drop-off and bus loading to improve pedestrian safety and traffic flow. Paths and walkways will be maintained or added for circulation throughout the site as well as connections to the surrounding neighborhood. The building entries will be designed in a manner to passively direct circulation and create small discrete areas for gathering while acting as aesthetic extensions of the building architecture.

The site improvements include the expansion of the bus loading area and parking for anticipated growth as well as repurposing of the area surrounding the existing building and proposed building additions. The staff, visitor, and accessible parking stalls are located north of the building with additional parking available in the bus loading lot. The bus loading area will be located on the west side of the site with a driveway entrance from Hazelwood Street. The south driveway to this lot will be relocated further south to accommodate that expanded bussing needs. The student drop-off loop is accessed through a driveway entrance off County Road B.

Earthwork and Site Soils

A geotechnical exploration was conducted, and the report and recommendations will be used to determine the required subgrade preparation for building additions, pavement, and turf areas. Additional boring information will also be obtained and used for the structural design as well as stormwater infiltration requirements. The intent is to use existing topsoil for all planting soil in tree, shrub and perennial areas. If the existing topsoil does not meet requirements for planting, imported planting soil will be used meeting standard best practices.

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Stormwater Management

The design will meet the stormwater management requirements of the City of Maplewood, Ramsey-Washington Metro Watershed District (RWMWD), and NPDES/SDS General Stormwater Permit.

The stormwater management approach for the site consists of two underground stormwater treatment systems to capture runoff from the building roof and parking lot impervious surfaces to maximize their effectiveness in improving stormwater quality. The perforated pipe gallery will allow for infiltration of the stormwater runoff into the subsurface soils, with a piped overflow connection to the nearby storm sewer system.

Landscape Design and Vegetation

The landscape is designed to provide a comfortable, inviting, and beautiful setting for the renovated building, in compliance with the requirements of the local Zoning Code. There are several shrub and perennial planting beds at near main entries and at key locations around the building. Overstory and ornamental trees were added selectively to provide shade, color interest, and frame gathering areas.

The planting plan includes overstory trees, ornamental trees, and several existing trees. Where possible, existing trees will be preserved to maximize canopy coverage. All tree selections will be native or hardy adapted species, suitable for the site conditions. Shrub and perennial planting beds will be planted with native or hardy adapted species and will focus on selections that provide year-round interest, pollinator habitat, and non-toxic, kid-friendly attributes. All planting areas and trees will receive 3" of hardwood mulch and edging for planting areas will be a 4" metal edger where needed. An eighteen-inch maintenance edger of dresser trap rock will be included at the base of the building for ease of maintenance. All perennial and shrub planting areas will be irrigated unless the area is functioning as a stormwater management area.

Entry Plazas

The main public entry at the north end of the building and along the bus drop-off area on the west will be planted to enhance the building design and provide a welcoming experience. These spaces are designed to provide small gathering spaces with seating. The main building entry will be accentuated by having a charcoal gray colored concrete plaza that aligns with the building overhang and extends to the curb line. The bus entry will be emphasized by have a matching colored concrete under the building overhang. All concrete within the entry areas will be scored in a decorative manner that complements the building and landscape design. The main entry plaza features a small stepped turf amphitheater/seating area that is a total of eighteen inches in height. All key entry points will also feature at-grade planters that will be planted with ornamental grasses. Benches are set along the edges of the planters to provide small gathering areas.

Courtyard Design

The courtyard will be improved to work with the approximate five-foot grade change in a series of terraces and a sloped walk to provide access across the courtyard that complies with ADA standards. The sloped walk terminates with a cast-in-place concrete eighteen-inch-high seat wall/monumental stair that can double as an outdoor classroom. The courtyard will be designed to include seating towards the cafeteria side of the building, flexible outdoor classroom space towards the classrooms and labs, and shaded lawn and sensory gardens in between to provide a soft divide between uses. The walkable courtyard surfacing will be a decorative scored concrete that meets ADA standards and provides a durable surface that is easily maintained. The planted areas will be a combination of turf lawn, trees, and perennials. Bollard lighting will enhance the courtyard for evening and winter use.

Site furnishings

Pre-cast concrete benches provide durable seating at the main entry plaza, the pool entry, the bus drop off and in the courtyard. Bike racks are located near the main entry and cafeteria entry. Trash/recycling receptacles are provided near all main entry points to the building.

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Electrical, Communication, Life Safety & Security

Introduction

The following description of Electrical and Technology design elements reflects the design team's approach to the conceptual design vision, and material and equipment standards set forth by the project team.

The overall project scope of work for electrical and technology is intended to replace all existing systems and distribution to provide complete, new infrastructure for all systems to accommodate flexibility and growth for the foreseeable future.

Exterior Scope

The electrical and technology exterior scope of work will include perimeter, pedestrian, and parking lot lighting; trenching & concrete pads for primary utility distribution; secondary utility distribution (underground); emergency generator; and telecommunication & special systems distribution.

Interior Scope of Work

The electrical and technology exterior scope of work will include raceway systems and conductors; power distribution (e.g., lighting, HVAC, receptacles, special equipment); Lighting and Lighting Control Systems; Emergency Power (life safety and equipment), including a Smoke Control System for a designated Atrium; Telecommunication Cabling Infrastructure; Integrated Communications (Public Address/Intercommunications); Classroom Scheduling System; Clock System; Audio Visual Systems; Digital Signage; Security Management System and Devices (Access Control, Intrusion Detection, and Video Surveillance); and Digital, Addressable Fire Alarm.

Electrical and Telecommunication Site/Utility

A new electrical service and modified telecommunication service will be provided as part of the site upgrades to the facility. Site area lighting shall utilize LED modules to complement site security cameras, and energy efficiency, with building-mounted exterior lighting consisting of wall packs that are full cutoff (utilizing LED modules). All exterior lighting shall be controlled by the Network Lighting Control System.

Electrical System

The new electrical service shall consist of a service entrance switchboard and associated distribution equipment to provide power throughout the facility. The service and distribution system shall be designed with sub-metering of electrical infrastructure to provide better operational awareness (i.e., where energy is being utilized in the building).

A complete grounding electrode system will be provided, which will include connection to building steel, underground metal water piping systems, and building Ufer ground. All electrodes shall comply with NEC article 250. A continuous equipment grounding conductor will be installed in all power/lighting conduit systems and all distribution equipment will have ground buses.

The electrical distribution system will accommodate a new 150 kW natural gas generator that will serve Life Safety Power (Exit signs and egress lighting throughout the building; fire alarm system; Smoke Control System) and Optional Standby Power (food service coolers and freezers, select receptacles, network equipment, IT Room cooling equipment, and other Owner directed equipment).

The facility lighting design approach will be to utilize LED drivers and all components shall be energy efficient and in compliance with local energy codes. Minimum lighting levels in all areas will conform to IES-NA standards (industry standard, supplemented by any Owner or project specific modifications). The design team will look at the option of utilizing Power Over Ethernet (lighting fixture power and controls over a single data cable) approach with Owner to evaluate if a more cost-effective solution may be achieved for the project.

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Interior Lighting Systems will include the following general concepts:

- Office Areas (Administrative) and Classrooms: Private office and classroom room lighting shall 2'x2' LED lay-in fixtures, occupancy sensor control.
- Cafeteria Lighting: Linear LED suspended mounted up/down lights, occupancy sensor control.
- Gymnasium Lighting: 21" diameter LED suspended high bay fixtures, occupancy sensor control.
- Corridors: 2'x2' LED flat panels, time-sweep control
- Toilet Rooms: Provide 1'x 4' lay-in, LED fixtures at/near walls, and LED downlights for ambient lighting. Ceiling mounted occupancy sensors shall be provided for lighting control.
- Exit Signs: Brushed Aluminum housing, universal mounting. Illuminated LED exit signs with red directional arrows will be provided at all exit doors and along the egress path.
- Storage, Mechanical, Electrical, and Janitor Rooms: 1x4 lensed LED strip fixtures, chain mount. Electrical and mechanical areas shall at least one fixture circuited to the emergency system.

The facility will receive a new network lighting control system that will provide local dimming/scene set controls will tie into an overall facility time schedule (directed by the building automation system). General components of the system include Building wide time-sweep control; Indoor photoelectric sensors; Indoor occupancy/vacancy sensors; Low Voltage Switches; System control interface with Audio Visual System Controller(s); and accommodations to interface with Building Automation System.

Communications and Life Safety & Security

The building will receive a new Main Distribution Frame (MDF) where new Telecommunication Utility demarcation shall be established via a dedicated wall field, and a new Equipment Room layout will occur. This MDF shall then distribute via backbone cabling to the Intermediate Distribution Frame (IDF) Rooms. The MDF shall receive a dedicated cooling system that will be connected to the generator for always-on design, along with a dedicated electrical panelboard connected to the generator. The building will receive IDF Rooms as required to maintain a horizontal cable maximum length of 100 meters (required for certification) and sized to accommodate cabling distribution equipment. The IDF shall receive a dedicated cooling system that will be connected to the generator for always-on design. Communication Backbone Cabling shall consist of fiber optic and unshielded twisted pair (UTP) cabling to meet BICSI TDMM and ISD 622 requirements.

Public Address, Intercommunication, and Clock systems shall utilize the existing District Standard Telecor XL system. The facilities' current Telecor XL head end is recently installed and shall be modified for reuse in the renovated facility.

A new Security Management System (SMS) and associated equipment devices for a fully functioning security system aligning with ISD 622 security standards will be provided. Specific components of the SMS include Access Control System; Intrusion Detection, SMS software; and Surveillance Camera System Interface.

A new Fire Alarm System shall be provided, meeting all requirements for an Education and Business Occupancy design setup. The new facility will contain an Atrium condition, with the appropriate smoke control system being required to evacuate the atrium of all smoke for a period of time.

Wellness and Sustainability

The electrical, communication, and life safety and security systems designs shall incorporate sustainable design features, utilize an integrated approach to reduce overall energy use, and provide the Owner with an environmentally friendly facility. Items that will be included in the design:

- Light Pollution Reduction – The design of the interior/exterior lighting will include requirements for full cutoff fixtures on the exterior, and coordination with the architectural features to reduce interior light leak to the exterior.

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- Energy Efficiency – The electrical design will meet or exceed all the latest ASHRAE 90.1 requirements for energy efficiencies. Lighting design will include rebates from Marshall Municipal Utility.
- Quality of Lighting – The interior lighting design will incorporate controls, and IESNA lighting levels to promote a healthy working and learning environment.

Conclusion

The proposed project for John Glenn Middle School includes several additions and a complete renovation of all existing spaces. The new construction includes new classroom spaces (including science and STEM classrooms), special education rooms, new music rooms, secure entry provisions, and a new, larger pool with new locker rooms. The renovated portions of the building include a new, larger cafeteria and food service area, more functional administrative spaces, and enhancements to the courtyard to improve access and functionality. In addition to enhancing the flexibility and functionality of indoor and outdoor teaching spaces, the proposed project emphasizes improving the exterior appearance of the building.

The site improvements are driven by the School District's increased educational needs to expand and realign program in the building as well as the need for improved site circulation. By separating the bus loading and unloading, staff and visitor parking, and student drop-off areas the proposed plan will increase student and visitor safety while improving necessary sight lines across the campus. Landscaping and lighting for the site will enhance site safety while complementing the education experience and building aesthetic.

The proposed building additions and renovations for John Glenn Middle School will allow School District 622 to best meet the needs of their rapidly expanding student population while improving the overall safety and the student/teaching experience.