MADISON HIGH SCHOOL

Master Plan

DRAFT FINAL REPORT

08.02.16

Abridged Version, Sections, 1, 2, 6

opsis architecture | DAO architecture

TABLE OF CONTENTS

Abridged Version, Sections, 1, 2, 6

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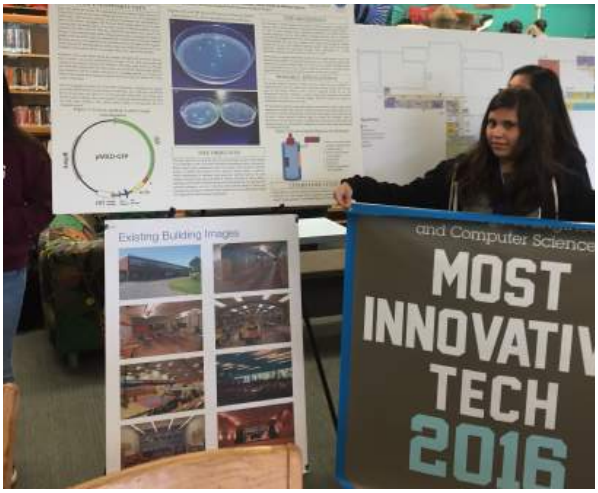
01 EXECUTIVE SUMMARY



Vision Statement

The new Madison High School will be a welcoming, safe and secure place that builds upon the diversity and resiliency of everyone in the Madison High School community – students, parents, teachers and neighbors alike.

In the 21st Century, teaching and learning happens everywhere. As such, the new Madison High School will serve as a rigorous and engaging learning atmosphere that helps students embrace the future and solve real world problems by utilizing flexibility, creativity and the strength of a diverse community.

MPC 01

MPC 02

Education Workshop 01

Executive Summary

The Portland Public Schools (PPS) 2012 School Building Improvement Bond provided funding to master plan three high schools (in addition to funding three high school modernizations). The goal of funding of the master planning was to further the vision of the District's Long Range Facility Plan to prioritize modernization of the District's high schools.

In the spring of 2016, PPS undertook the master planning of Benson, Lincoln and Madison High Schools. This document summarizes the activities of the master plan for the future of Madison High School (MHS) in northeast Portland, Oregon. The vision and key design themes presented in this document reflect the collaborative effort of Madison High School's Master Plan Committee (MPC) and the input received by Madison High School students, teachers, staff, parents, and community members. The intent of this document is to provide guidance to the Design Advisory Group (DAG) and Design Team undertaking the future modernization of Madison High School.

The 31-member MPC is made up of a very diverse stakeholder group of parents, teachers, students, and neighbors. The MPC defined a new vision for a 21st century learning environment at MHS that responds to the needs of everyone who intersects with the school. Engaging in five months of interactive workshops and stakeholder interviews allowed the concepts for the Madison High School Master Plan to develop organically, resulting in a Preferred Design which received support from those involved.

The MPC members worked closely together to learn what a master plan is, what the District High School Educational Specifications v2.6 (Ed Spec) are, to look at MHS, and how they can modernize and transform the site and building to make it the school they want it to become. Specifically, their work – and this report - provides a framework for the proposed project and sets clear goals and strategies that will inform the next phase of design.

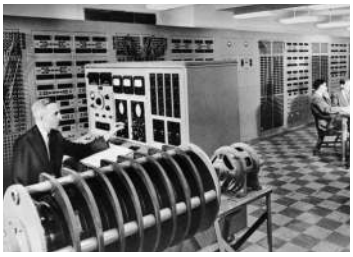
The Madison High School Master Plan Project presented the MPC with a number of

Community Outreach Meeting

challenges to successfully transform not only the school, but the surrounding community. The MPC tackled these challenges actively and developed thoughtful, creative solutions for Madison High School.

Identifying Challenges

- A Diverse Community with an antiquated school building that creates a barrier to connecting across cultures
- Existing building is an opaque space that is not inviting or welcoming, discouraging future students from considering attending MHS
- The building systems are well beyond their life-cycle and are in need of replacement to increase efficiency, reduce operating costs, and improve occupant comfort
- A lack of “maker space” that enhance innovative learning programs, including urban agriculture, Career Technical Education (CTE), computer science, sustainability, and textiles
- Disjointed places of learning that make it difficult to integrate the site and building, thereby hindering community connections and safety
- Building does not meet current seismic, ADA, or safety codes
- A significant lack of athletic facilities for students who are not on formal MHS teams
- Insufficient facilities for the student and community valued, wrap-around services



then

digital media

now

maker space

learning spaces

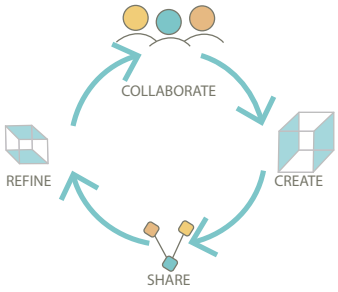
Guiding Principles

The MPC studied national trends in 21st century school design and married those trends with their own understanding of the particular needs and goals for the MHS community. The resulting Guiding Principles formed the basis for the Preferred Design.

The Preferred Design developed through a collaborative process of interactive workshops, MPC 01 through MPC 06, where teams "built" learning communities and school designs by moving "playing cards" representing learning and gathering spaces across large boards. The Design Team, inclusive of architects and engineers, built upon the central themes of the MPCs, shared the outcome with the group and refined the design to align with Guiding Principles. Through a consensus process, the MPC settled on a Preferred Design for the new MHS that best matched their goals with a realistic view of what is possible within the context of the site, scope, and program requirements. From this process, the committee then defined a number of Preferred Design Strategies.

These values and considerations came together to create this document, and reflect well the PPS district-wide goals:

"Provide the opportunity and inspiration to passionately pursue learning at any age; honor and exhibit the achievements of all students; and provide users of all needs, abilities, and backgrounds with vibrant, comfortable, healthy learning environments that bring the world of resources to the classroom."



MPC Guiding Principles

- Create State-of-the-Art 21st Century Learning Environments – Transform the school's facilities to stimulate learning
- Community Connections – Make the school the heart of the neighborhood and a "beacon" to 82nd Avenue
- Social and Academic Connections – Reflect the diversity of the students, teachers and neighborhoods surrounding MHS
- Indoor / Outdoor Connections – Create stronger connections between the school's interior and outdoor courtyards and gardens
- Example of Sustainability – Connect the new facility to natural and environmental systems. Inspire students and the community to embrace sustainable action
- Accessibility and Security – Create safe and convenient access points for students on foot, bike, bus, and car
- Improve Connectivity Within the Building – Create visual landmarks, open sightliness and improve access and flow
- Site Environment – Optimize the school's topography and adjacent amenities and views, while enhancing the building's use of solar
- Building Systems – Modernize the school's structural, mechanical, electrical, and technological systems

Preferred Design Strategies

- Recognize diversity by making connections
- Welcome with transparency
- Common space builds community
- Support diverse learning styles
- Prioritize spaces to collaborate
- Integrate Science Technology Engineering Art and Math (STEAM) and Career Technical Education (CTE)
- Embrace outdoor learning
- Make flexible for the future
- Celebrate the wrap-around services

02 Process

The Madison High School Master Plan follows a series of key planning efforts made by Portland Public Schools during the last five years to set the stage for the modernization of the District's facilities to meet 21st century teaching and learning standards. The PPS 2013 Education Facilities Vision sets forth the District's vision for this transformation:

"Portland Public Schools seeks to be the best urban school district in this country. In the 21st century, learning takes place everywhere, all the time, and buildings play a critical supporting role in ensuring all of our students emerge as lifelong learners ready for the world that awaits them. We seek to create learning environments that nurture, inspire and challenge all students, regardless of race or class. We aspire to provide safe, healthy, joyful, beautiful, and sustainable and accessible school environments that foster productive relationships year-round for all children, families, staff and their communities. We promote public confidence through strategic engagement and investments that support student achievement and reduce operating costs.."

The PPS 2015 District-wide Comprehensive High School Ed Spec provides a program for comprehensive high schools that strives to provide facility parity at each school. The Ed Spec notes that there will be a certain variability between schools, and that the program for each will be modified to suit the specific needs of each school. The Comprehensive High School Ed Spec is based on a 1,700-student enrollment per school and includes detailed floor area and room specifications for all spaces within comprehensive high schools. During the next phase of the design process the renovations and additions will follow the District Design Standards which specify materials and systems that ensure a long lasting, maintainable, and sustainable building for decades to come.

03 Existing Conditions

The original 1955 design represents a very pure concept from that time period of the streamlined modern 'machine for learning' which included long corridors lined with classrooms. The cafeteria and gym were placed at the perimeter of the building, reflecting a decreased emphasis on creating spaces that build a sense of community.

The location of the school's entry at the far end of the northeast classroom wing is not well placed with regard to ease of movement and may be a reflection of the 'standard high school plan' of the era.

The long, linear classroom wings and the courtyards provide a high level of daylight into most classrooms. The courtyards are not connected to many building program spaces and are underutilized as learning or community gathering spaces. The main hallways, while quite wide, are lined with lockers and have very little natural light or visual connections to either the outside or into any of the program spaces. The result is an interior devoid of character or connection to the academic programs. Many of the corridors do not connect to create a sense of community and thus create safety and supervision issues with the presence of numerous exterior entry points.

The steep slope of the site results in a serious ADA access issue and a disconnect between the many levels of the building. Currently, those entering from the lower southern parking level have no accessible route to the main levels of the building. The one existing elevator is a service elevator which only accesses three of the schools five levels and requires staff assistance to operate.

The school is set on a relatively tight site when considering the slope and the vehicular access points off 82nd Avenue results in number of conflicts with pedestrian traffic and safety issues.

The Design Team completed an evaluation of the building's systems through a review of the original design documents and a walk-through of the facility. Unlike many of the District's buildings, the existing Madison High School was designed and constructed as a single facility in 1955, opening in 1957, and has had no additions and only minor modifications over the last 61 years. In many ways this simplifies the analysis of the infrastructure, but also means that almost every building system is beyond its expected life-cycle.

The modernization plan assumes the complete replacement of all the mechanical, plumbing, electrical, and low voltage systems with new systems that meet current codes and standards.

The exterior facade of the building has almost no insulation and has extensive areas of single paned glass, resulting in a very energy inefficient building. The renovation envisions replacing all of the windows and adding insulation to the walls and roofs. Likewise, the interior finishes of the school do not meet current District Design Standards, are worn in many locations. In many areas of the building, the location of interior walls do not align with the Ed Spec program sizes or space configurations and will be removed and replaced with new interior walls as allowed by the current floor plate of the building.

The existing building is constructed with a combination of concrete and steel to the codes in effect in 1955. While not as significant an issue as in earlier turn-of-the-century unreinforced masonry school buildings, our understanding of seismic design and the resulting seismic codes have changed significantly over the last 60 years. The initial seismic evaluation of the building indicates that the cafeteria and gym roofs utilized large "bent frame" steel long-span structures that may be more economical to remove and replace than to strengthen. In other areas of the building, wider seismic joints will be required to meet current codes. Additional shear strength, or strengthening against a sliding force (i.e. an earthquake), will also be added as required throughout the building.

04 Vision Development

Over the course of several months, six MPC meetings, two building tours, two Education Workshops, one Open House and multiple stakeholder interviews, the 31-person MPC envisioned the future of Madison High School. To guide their decision making process and remain true to the unique identity of the students, faculty, staff, and neighboring communities, the Guiding Principles were created. Each principle has been developed to guide the future design process, stating a clear outcome behind each Guiding Principle.

05 Program Development

The PPS Comprehensive High School Ed Spec is based on a base program area of 281,000 square feet. At 284,400 square feet, the existing Madison High School appears to match the suggested total area. However, a deeper review of the current building to the Ed Spec reveals a number of areas in the building that are significantly larger in area than recommended, while other areas are smaller or non-existent. For instance, the large, 1,200 seat auditorium and supporting spaces are approximately 14,000 square feet larger than the 600 seat theater of the Ed Spec. The MPC considered reducing the size of the theater to be closer to the Ed Spec, however this was determined to be more costly than renovating the existing, larger space providing little benefit to the school.

On the other hand, many CTE, science, and other technical spaces are undersized according to contemporary standards. For example, the existing science labs require a

larger area and prep spaces with extensive infrastructure. As a result, these spaces are best built from the ground up, as new construction.

Lastly, most of the lowest level of school below the locker rooms is currently a leased space for SchoolHouse Supplies. This space is not an Ed Spec program space therefore, it is disconnected from the main academic portions of the building and is not ideal for uses other than expanded athletics space or to remain as a rental or storage space.

The resulting Preferred Design program accommodates very closely the Ed Spec program, however due to the larger size of some of the existing spaces noted above, results in a total area of approximately 315,000 square feet.

06 Planning Concept

The Preferred Design was developed through multiple collaborative workshops between the Design Team, Master Planning Committee, and community members. Through a consensus process, the MPC settled on a Preferred Design that best matched their goals for the project with a realistic view of what is possible within the context of the site, scope, budget, and the Ed Spec program requirements. The MPC built the concept around a number of Preferred Design Strategies that evolved from the MPC Guiding Principles. These design strategies were combined with an in-depth assessment of the Ed Spec adjacency and program requirements, a thorough analysis of the site, and a consensus desire from a programming standpoint to reimagine Madison High School in its current physical, pedagogical, and social context.

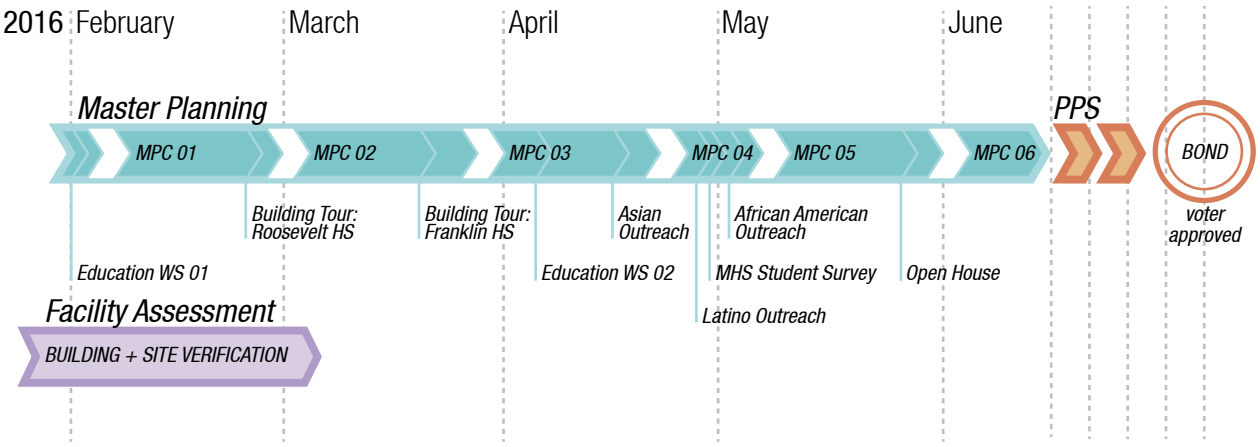
07 Implementation

A Conceptual Budget was prepared by DCW Cost Consultants based on the Preferred Design drawings and narratives provided each design and engineering discipline. The cost estimate is conceptual in nature and considered at a high level cost-per-square-foot basis for light renovation, heavy renovation, new construction and site costs. The costs are based in current year dollars (2016) and all soft costs above the direct construction costs including escalation, contingencies, permits, fees, Furniture, Fixtures, Equipment (FFE) have been provided by PPS to ensure a uniformity between these estimates for the three high schools currently being master planned.

The estimated costs for direct construction in today's dollars are shown below:

New Construction:	$40,201,211
Heavy Renovation:	$33,078,362
Light Renovation:	$14,496,400
Site Development:	$11,624,247
Total Direct Construction:	$99,400,219

02 PROCESS



Master Planning Committee Meetings Introduction

The development of the Madison Master Plan has been the result of a highly interactive process involving the community members, teachers, staff, and students. The goal of this inclusive process was to discover the unique aspects of MHS and its community as a foundation for the creation of a 21st century high school. The process was centered on the 31-person Master Plan Committee (MPC) made up of a diverse group of community members who include MHS parents, students, teachers, feeder school parents, and the community at-large. The committee met for six sessions during the winter and spring of 2016 to craft a vision for the master plan and guide the development of a Preferred Design outlined in this report.

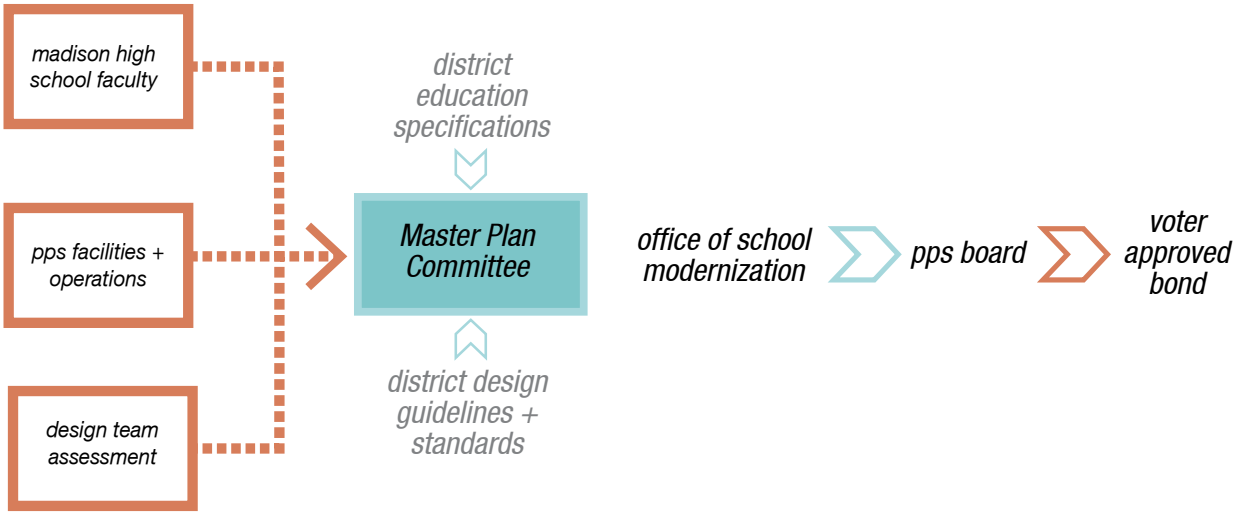
Each MPC meeting included a hands-on workshop where committee members worked together in groups of three to five people to discuss MHS as a community, learn about new teaching/learning design models, set priorities for redevelopment, and develop a range of Preferred Design Strategies.

The final master plan represents the consensus of the MPC work and is meant to serve as a framework for future planning of the Madison High School Modernization. While many specific design elements are indicated in the Preferred Design, the Design Team informed the MPC that the these elements were meant to illustrate the Vision and Guiding Principles, and that when the project is funded and moves to a design phase all of these details will be revisited in greater detail with the reconvened Design Advisory Group.

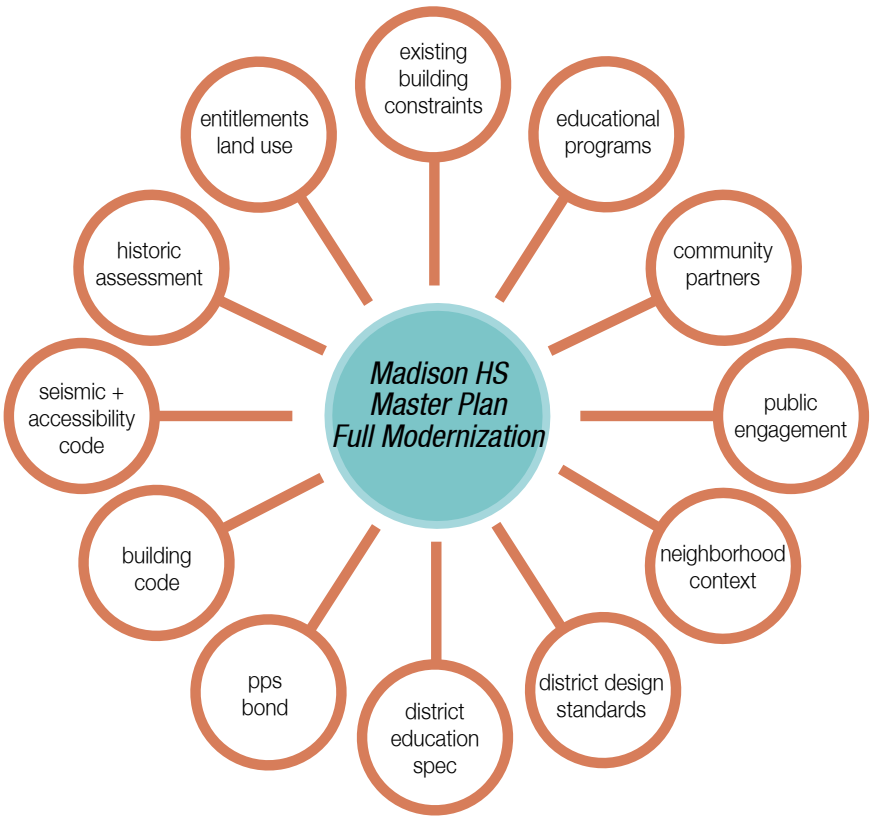
Goal Setting

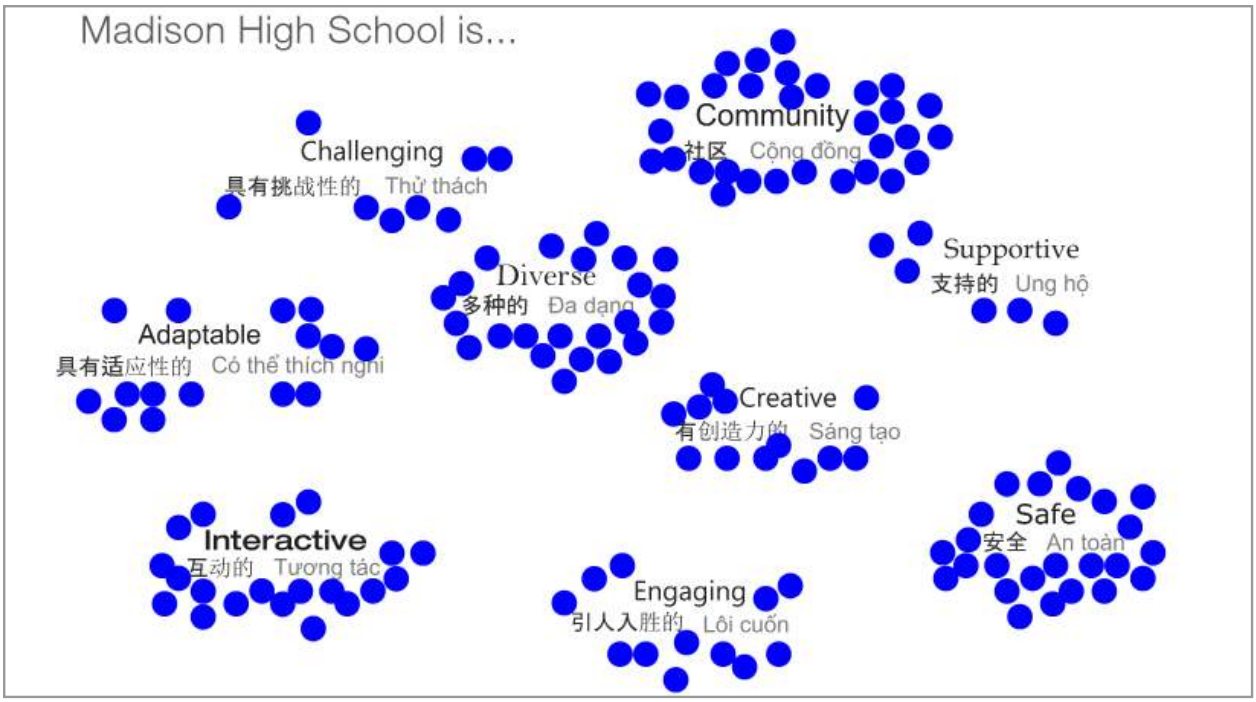
The goal of the Madison High School Master Plan is to develop a comprehensive, equitable, integrated and visionary high school campus master plans with authentic school and community engagement.

Master Plan Process
A simplified diagram illustrates how the MHS Master Plan is the culmination of several years of planning and experience that in turn is voted on by the PPS Board for the potential of becoming a future bond project.



Voices of the Master Plan
The Madison High School Master Plan is informed by a wide array of sources.





A "dot voting" exercise during MPC 01 defines what "Madison High School is..."

MPC 01 : Introductions

Meeting Date: February 16, 2016

The goal of the first MPC was to introduce the Design Team, PPS staff, and the MPC members. The MPC was tasked with selecting co-chairs and those interested indicated their desire and relevant experience. The Design Team described the purpose of the master plan, what it is and what it is not. A history of PPS planning, including the Long Range Facility Plan and Educational Specifications, was reviewed. A schedule for the master plan was presented and PPS staff reviewed how the Madison High School Master Plan fits within the overall planning process. The School Board is working towards a possible November 2016 facility bond.

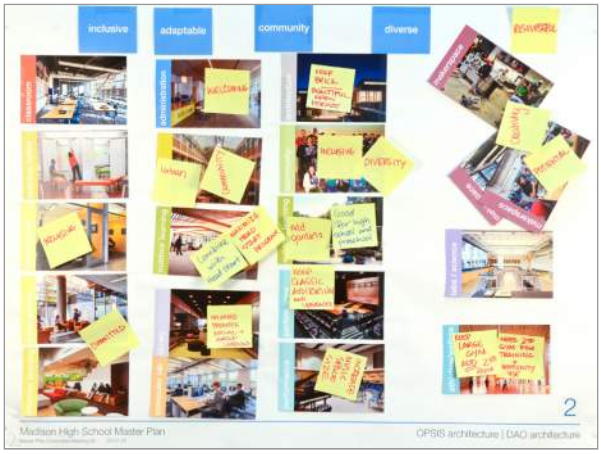
Marcia Latta, a consultant hired by PPS to review the previous community engagement processes for Faubion, Franklin, and Roosevelt high school modernization projects, presented her findings and included the importance of making the expectations of the design process clear to all committee members.

Additional findings included the need for more communication, greater community outreach and better access to instructional staff as part of the process.

Following the review of the committee's responsibilities, the group began its work with an interactive "dot-voting" session, focused on defining the key characteristics of MHS:

- What words best describe Madison High School as a place and culture?
- What would a modernized Madison High School look like?
- What space and program characteristics resonate with the Madison High School culture?

Note: All MPC meeting presentations, agendas, meeting minutes, and graphic presentation boards can be found in the Appendix of this document.



MPC 02 : Breakout
The interactive workshop divided the MPC into six groups to "Make a 21st Century Learning Space" by taking the learning models and arranging them with key "learning words" to diagram the relationships between spaces, people and learning opportunities.

Imaging a 21st Century Learning Space using "learning words" to diagram space relationship

MPC 02 : Make a 21st Century Learning Space

Meeting Date: March 07, 2016

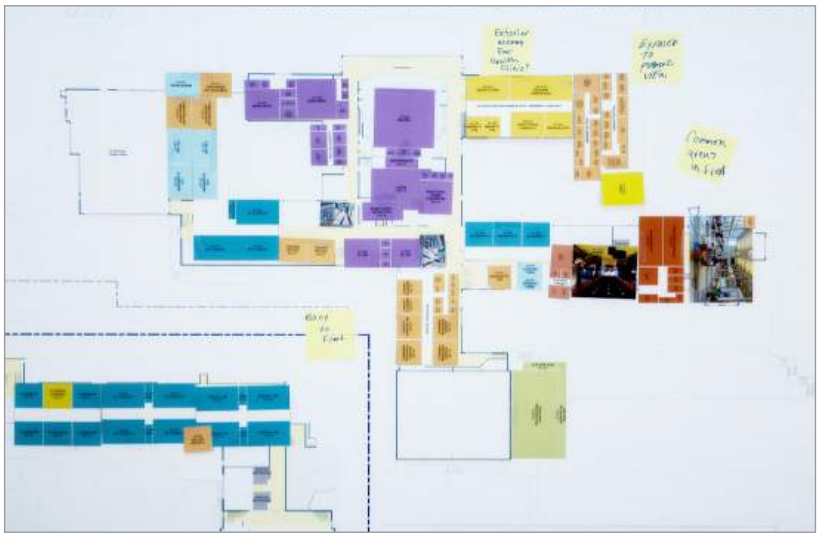
The goal of the second MPC meeting attempted to create a more detailed understanding of the master plan itself, including the end goals and deliverables. The Design Team stressed that this process is a "high level" overview to establish the needs and possible solutions to fully modernize the school. The recently completed Grant High School Master Plan was used as an example, though it was noted that the Grant High School modernization project is already funded in the current bond and that the master plan will proceed directly into the design phases. The adopted PPS Comprehensive High School Ed Spec, a district-wide list and description of spaces needed to deliver a comprehensive high school program within PPS, was presented as a framework from which the committee could develop a MHS specific educational program and design.

The Design Team presented modern learning teaching methods showing the transition from the 'assembly line' Industrial Age mindset (to which MHS was designed) to the collaborative student-centered 21st century model. The newer teaching and learning approaches accommodate multiple learning opportunities including informal learning spaces, small group work areas, hands-on maker space, and commons areas that encourage student interaction and engagement.

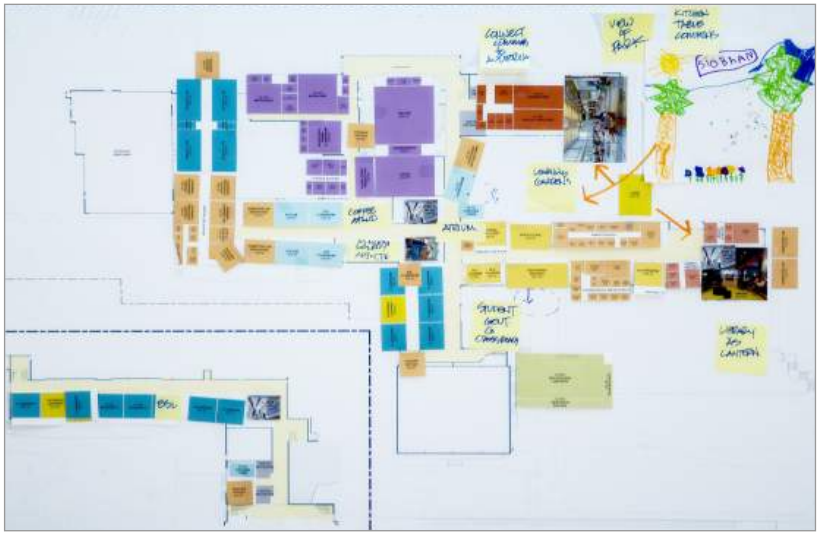
MPC 02: Central Themes

- The school needs a "heart"
- Madison High School is a "hidden gem" from the community around it
- Learning should be everywhere
- After-school spaces are key to community
- Circulation flow is important for support student interaction and to break down barriers between students and educational programs
- MHS integrates the needs of all students through the support of wrap-around services, special needs, and non-native speakers
- Openness, transparency, and natural light are desired

MPC 03 : Table 01
This group considered the option of placing the maker space 'on display' - a unique program composed of open space where students learn and create in a collaborative environment.



MPC 03 : Table 02
Table Two imagined the commons at the southeast corner and placed the CTE groupings near the current cafeteria. SPED program was relocated to the heart of the school.



MPC 03 : Table 03
Table Three created a diagram placing the library at the southeast corner of the building as a 'beacon'. The connection of the commons to the park was an additional theme explored by the group.

Note: Refer to Appendix section 01 Master Planning Committee Meeting for greater detail.

Starting with a blank slate, groups create ideal program arrangements for MHS

MPC 03 : Envision a Future MHS

Meeting Date: March 28, 2016

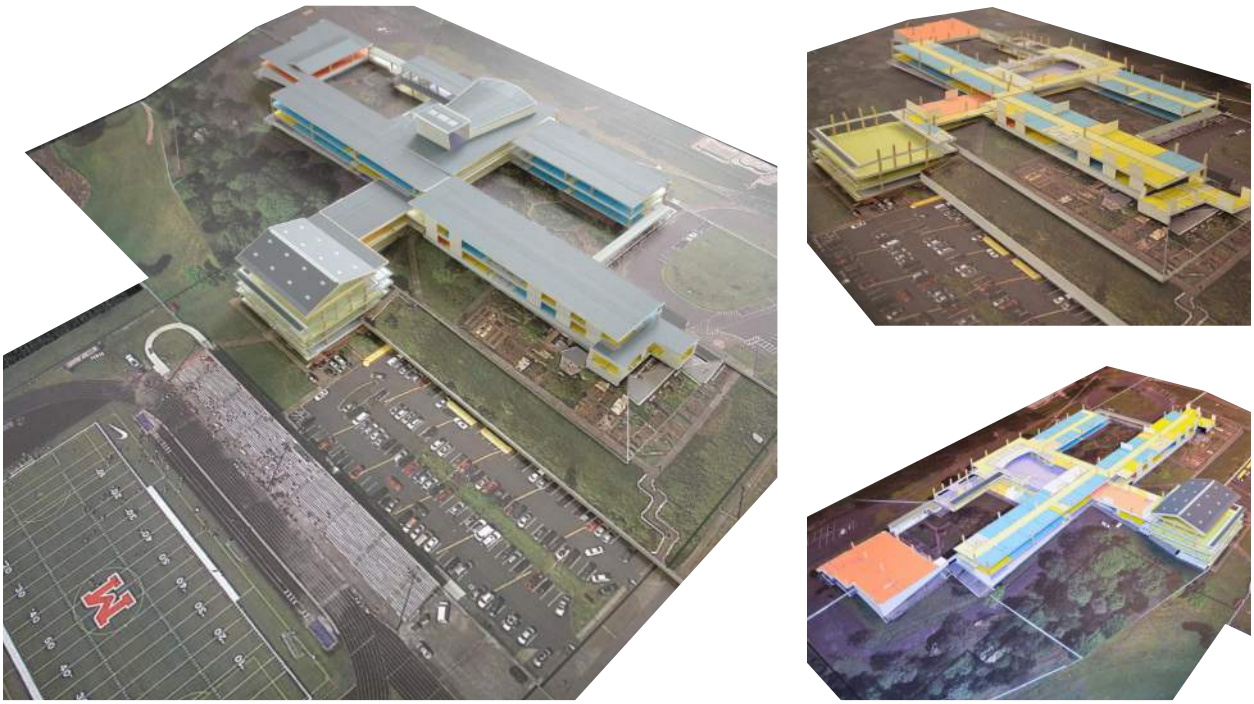
The goal of the third MPC meeting was to become familiar with the existing building conditions, the Ed Spec program, and the organizing principles developed in the PPS Long-Range Facility Plan. Diagrams of the existing site and building issues were reviewed, noting the many long corridors, multiple entries, lack of presence to the street, and the lack of visual connectivity between floors. The Design Team reviewed in general the program/space types in the Ed Spec.

The interactive workshop divided the MPC members into five groups to overlay the MHS programs onto a "blank slate" plan of the existing MHS site. As a starting point, the Design Team indicated that the structural issues identified in the existing cafeteria building provides an opportunity to locate a new commons/cafeteria in a more central location of the school, as the "heart" of the school.

MPC 03: Central Themes

- Make the Commons or Library "beacons" to the community by making them visible to 82nd Avenue
- Make the building more open and transparent
- Connect school with the park – possibly with commons
- Make a campus "Crossroads" and cut openings in floors and ceilings to connect floors
- Place the maker space "on-display" near the entry
- Group spaces by discipline to allow for shared support spaces
- Build science labs in new construction for improved infrastructure
- Bring art and performing arts closer together
- Disperse teacher offices
- Make wrap-around and other community support services easily accessible
- Improve accessibility from field level to main level of the building

MPC 04 : Breakout
The interactive workshop divided the MPC into groups to discuss which option - 1, 2A, or 2B, would support the vision and principles created in prior MPC meetings. Refer to Appendix section 01 Master Planning Committee Meeting for greater detail.



Site model of the existing conditions at MHS

MPC 04 : Site Planning

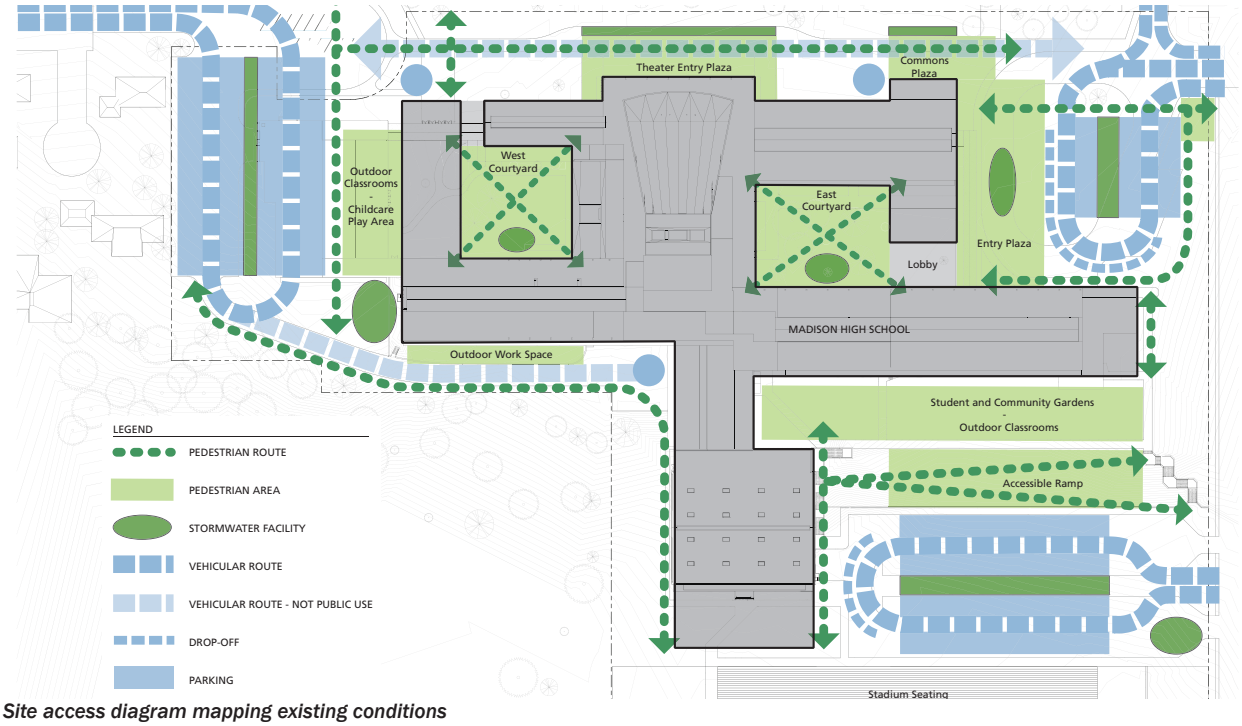
Meeting Date: April 25, 2016

The goal of the fourth MPC meeting was to dive deeper into the site and landscape issues of the school, including building entries, outdoor learning spaces, service, and vehicular access. A number of traffic issues were discussed including safety problems coming in and out of the site onto 82nd Avenue. The visual character of the site upon arrival, dominated by roads and parking spaces, leaves much to be desired. The current interior courtyards are a significant resource, but the lack of direct access and hard surfaces to be used for activities during the rainy season limits their use during much of the school year. The south facing hillside is one of the most dominate public views of MHS and is now only ground cover. The slope hides the majority of school, community gardens and courtyards from view.

The interactive workshop divided the MPC into five groups to evaluate three options developed by the Design Team based on the MPC 03 workshop central themes and the work of the Education Workshops with MHS teachers. All of the options located the commons at the main entry to create a significant new main entry on the east side of the building. The groups discussed how the different options would best support the vision and Guiding Principles of the project. The options included:

- Option 1 – Commons at the edge of the east courtyard and Library along 82nd Avenue
- Option 2A – Commons at the edge of the east courtyard, but shifted to also front Glenhaven Park and the library to remain at the center of the school
- Option 2B – Similar to 2A but with the library in new construction moved to front the south facing gardens

The consensus of the committee formed around Option 2A .



Site access diagram mapping existing conditions

MPC 05 : Preferred Design Refinements

Meeting Date: May 9, 2016

The goal of the fifth MPC meeting was to review further refinements made by the Design Team to Option 2A. A more detailed landscape plan was presented that worked with the building plan to develop a series of interconnected outdoor spaces and improved circulation, and parking. A key feature of the revised plan was the further development of the “Crossroads” at the center of the school where all of the previously disconnected main circulation paths come together. The Crossroads concept opens the floor and ceiling of the main floor to create a three-level atrium connecting the school through a new, open stairway.

The interactive workshop divided the MPC into five groups to review several draft options of the Vision Statement and Guiding Principles. The draft statements were developed from central themes that were articulated through the previous MPC meetings and distilled by the Design Team.

Site model of MHS Preferred Design

MPC 06 : Vision & Guiding Principles

Meeting Date: June 6, 2016

During the sixth MPC, the group discussed the success of the Open House event and reviewed feedback provided by the various groups who attended. The intent of the meeting was to review the structure of the Master Plan Report and discuss in greater detail the development of the Table of Contents and Executive Summary. The MPC members provide the Design Team with a number of suggestions. Overall, the group wanted to stress that Madison High School is unique and that its diversity, academic offerings and community support are a great asset to the community.

The Design Team reviewed changes to the Preferred Design. The Conceptual Budget was presented as the first pass at pricing for the Preferred Design. The option of utilizing the existing library as a cost savings measure was reviewed. It was determined that the Preferred Design would show the new library on the east side of the building adding that the layout, access to, and views to and from the library were important improvements to the existing facility. Additionally, options for reducing the scope of the site improvements were discussed. These included scaling down the sloped walkways on the south hillside, eliminating improvements to the south delivery drive and scaling down the current athletic field grandstand, which in its current state requires significant improvements.

Following discussion of the report, the Design Team reviewed the next steps for the MPC and the potential of an upcoming bond measure referral by the Board of Education.

Madison Community Outreach

Latino Community Outreach

African American Community Outreach

Community Outreach Meetings Introduction

Madison High School is a uniquely diverse school. Many communities within this diversity are historically under-served by PPS and under represented in master planning efforts. In an effort to engage under-served communities in the MHS cluster about the future design of Madison High School, the Design Team, with the assistance of MPC members, set out to identify community groups and organizations that could provide voices representing the larger minority communities.

The Design Team and MPC members hosted meetings with the Asian community (sponsored by IRCO), the Latino community (sponsored by Latino Network) and the African-American community (sponsored by the Highland Christian Center). In all stakeholder engagements, the Design Team and PPS staff provided feeder schools with fliers about the community meetings and distributed emails to all parents about upcoming meetings. Meeting participants were provided with translators and a variety of visual plans and diagrams to

Asian Community Outreach

maximize engagement by attendees. Meetings were held at locations that were proximate and supportive to stakeholders.

As a matter of documenting lessons learned, the Design Team recognized Portland is fortunate to have a number of organizations, community groups and religious institutions that provide support to and advocate on behalf of minority members of the community. Members of these organization often look to the leadership or other members of the organization to identify important issues for their community. It is often difficult to engage members of these organizations outside regularly scheduled meetings or events. The outreach efforts of this project were more successful when they were scheduled as part of an existing meeting or event. Attempts to schedule meetings targeting input from specific cultures (African American) without the benefit of working in concert with a partner organization produced low turnout. In the case of the Asian community, while the Design Team worked with IRCO in developing the logistics of a meeting, the lack of a messaging from leaders in the Asian community also produced low turnout. All three meetings were advertised in local papers, (The Skanner, Portland Observer, Chinese Times for example). None of the participants to the meetings noted seeing an advertisement in a local newspaper as the reason for attending the meeting. Outreach for any future design work should engage existing organizations as part of regularly scheduled meetings or events.

Asian Community Outreach:

Meeting Date: April 02, 2016
Location: Immigrant & Refugee Community Organization

The Design Team worked closely with outreach organizations who have relationships across the Vietnamese and Chinese communities in southeast Portland, both of which are well represented in the Madison High School community. On a Saturday morning at the Immigrant and Refugee Community Organization (IRCO) headquarters. The meeting attendance was low but the parents who participated were able to express their hopes and dreams for MHS for their children.

Latino Community Outreach

The group expressed a hope that MHS would continue to improve beyond its tough reputation from the past. Special after-school activities in the library, cafeteria, and the gym/athletic fields have helped keep their kids interested in learning and staying in school versus video gaming for instance. The large Theater space historically was frequently used by the Vietnamese group for community and festival events. Two possibilities for more community involvement is for the members of the business community to use the school facilities as teaching or mentoring locations and make these spaces more visible, such as computer labs, sewing and other maker spaces, culinary arts, and gardening.

For the newly arrived immigrant parents, the language issue is often a barrier for the family. ESL classes, SUN School programs and other wrap-around services at the school are crucial community resource for both parents and children. This furthers educational knowledge and increases family bonds which are two priorities for these immigrant parents.

Latino Community Outreach:

Meeting Date: April 20, 2016
Location: Madison High School

The MPC worked in tandem with the Latino Network, who currently has an active community presence at MHS. The group had a thoughtful and engaged conversation with all of the attendees when took place almost entirely in Spanish, allowing each participant to articulate their ideas and concerns more comprehensively, without the fear of being misunderstood.

The issues of key concern to the Latino community included a deep desire for a more "safe" school, with cameras, monitors, more locks on entry/exit ways, etc. Additionally, the Latino parent community is very active at MHS and so community space is critical to this group. They expressed a need for adequate air conditioning and spoke at length about how uncomfortable the building is when the weather heats up. Finally, because many members of this community use the wrap-around services available at MHS, they were interested in ensuring that those facilities were upgraded when the school is modernized.

African American Community Outreach

African American Community Outreach:

Meeting Date: May 03, 2016
Location: Highland Christian Center

The Design Team and MPC members hosted a conversation for African American families in the Madison High School cluster. The Design Team invited the Madison High School Black Student union and other community based African American organizations to attend the event and encouraged these organizations to spread the word. The conversation was held at the Highland Christian Center and, while turn-out was small, the discussion was productive and engaging. Though no current MHS students or families attended the gathering, key issues of note from this conversation included a desire to make the school more inviting. Concern over inadequate athletic facilities was also expressed. The participants stated that students choose not to attend this neighborhood high school because it is an imposing, opaque building. The group was reassured that touring the building would confirm that MHS has a lot to offer. The suggestion was made to better engage elementary school students to increase future attendance.

Asian Community Outreach

African American Community Outreach

MHS faculty and staff discuss the future programming of the high school

Educational Workshops

Introduction

The Design Team held two meetings with teachers, staff and administrators during the master planning process. The Education Workshops allowed the faculty and staff of Madison High School to share their experiences and ideas on the unique characteristics of the school and how the redevelopment of the school can reinforce the mission and values of the community. Importantly, these workshops provided direct feedback from a teaching and learning viewpoint. The majority of MHS teachers participated in the two workshops. Additionally, the Design Team met individually with representatives from the departments and various programs to gain a better understanding of specific needs.

Education Workshop 01 : 21st Century Learning Spaces

Meeting Date: February 01, 2016

The focus of the first workshop was to introduce the key concepts of a 21st century learning space design. Additionally, the stakeholders were briefed on the previous PPS planning efforts including the Long Range Facility Plan and the PPS Comprehensive Educational Specification v2.6. The interactive workshop broke participants into ten groups and asked them to create an ideal small learning community with an emphasis on the particular needs of the MHS students and community.

Overall, the groups expressed interest in a variety of spaces including common spaces for students and community, small group spaces, maker spaces and inside/outside connections indicating these spaces would facilitate improved teaching and learning for the uniquely diverse MHS student body.

Workshop 01: Central Themes

- Common space builds community
- Support diverse learning styles
- Spaces to collaborate
- Lots of small group space
- maker space engages studies
- Inside/outside connections

Tables position "learning words" during workshop exercise to imagine a future MHS

Education Workshop 02 : Build the Future Madison High School

Meeting Date: April 11, 2016

The second workshop began with an open discussion around the major program areas of the school. The MPC reviewed how these spaces might be defined uniquely for MHS, including commons/cafeteria, library, theater, academic departments, teacher offices, special education, and wrap-around services. The interactive exercise asked the groups to "Build the Future Madison High School" by arranging major program elements on a "blank-slate." A set of common ideas emerged which then lead to the development of the Preferred Design in subsequent MPCs.

Workshop 02: Central Themes

- Locating the commons to the east would create a welcoming front door to the community and provide a central "heart"
- A new addition at the southeast corner of the school, either the library or STEM programs, would create a beacon to the community on 82nd Avenue acknowledging the 21st century learning at MHS
- Better connections and transparency between academic areas can encourage student exploration and discovery
- Outdoor space should be 'true' learning space, supporting the CTE or other environmentally-focused programs
- Special Education and academic support spaces are distributed now, leading to better integration of students; however, co-location of these spaces enable better servicing through shared resources
- The existing large theater is a valuable assets for the school; however, the support spaces and smaller performance spaces are in need of a full renovation
- The school needs a secondary gym space to accommodate a wider diversity of

MHS Open House event

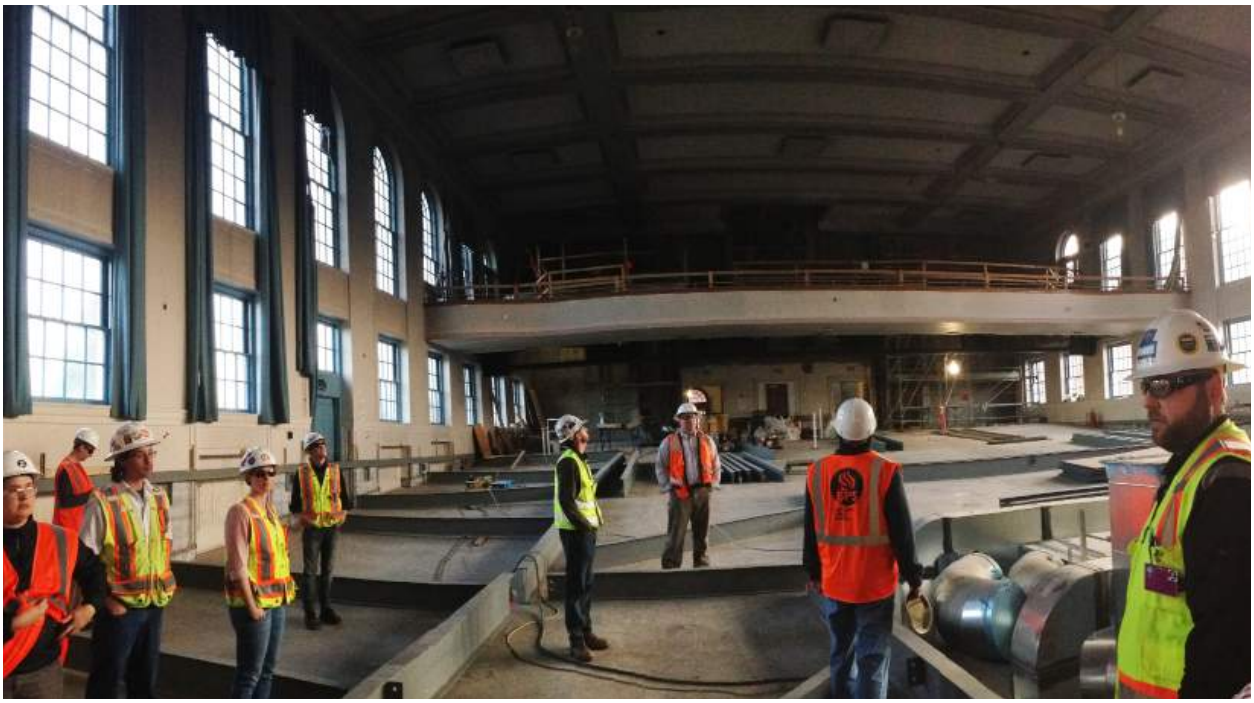
MHS Open House event

Open House

Meeting Date: May 23, 2016

The Open House event for Madison High School Master Plan was held from 3:00 pm to 8:00 pm at Madison High School and saw a variety of attendees including students, parents, alumni, future MHS students, and MHS faculty and staff. Members of the MPC were given the opportunity to share the previous months of work and the development of the Preferred Design. A model of the building site was updated to reflect the MPC's work to date and became a central point for discussion with many attendees. The Design Team provided a variety of visuals - plans, diagrams, precedent images, and spacial renderings - in order to demonstrate the development of the MPC's Preferred Design.

Students and faculty highlighted a number of interests including the quantity of classrooms, connectivity internally and to outdoor spaces, size and location of the commons and STEAM. In general, the attendees were pleased with the proposed updates and glad to see a positive discussion centered on the future of MHS.



Roosevelt High School

Building Tours

Roosevelt: February 25, 2016
Franklin: March 22, 2016

Introduction

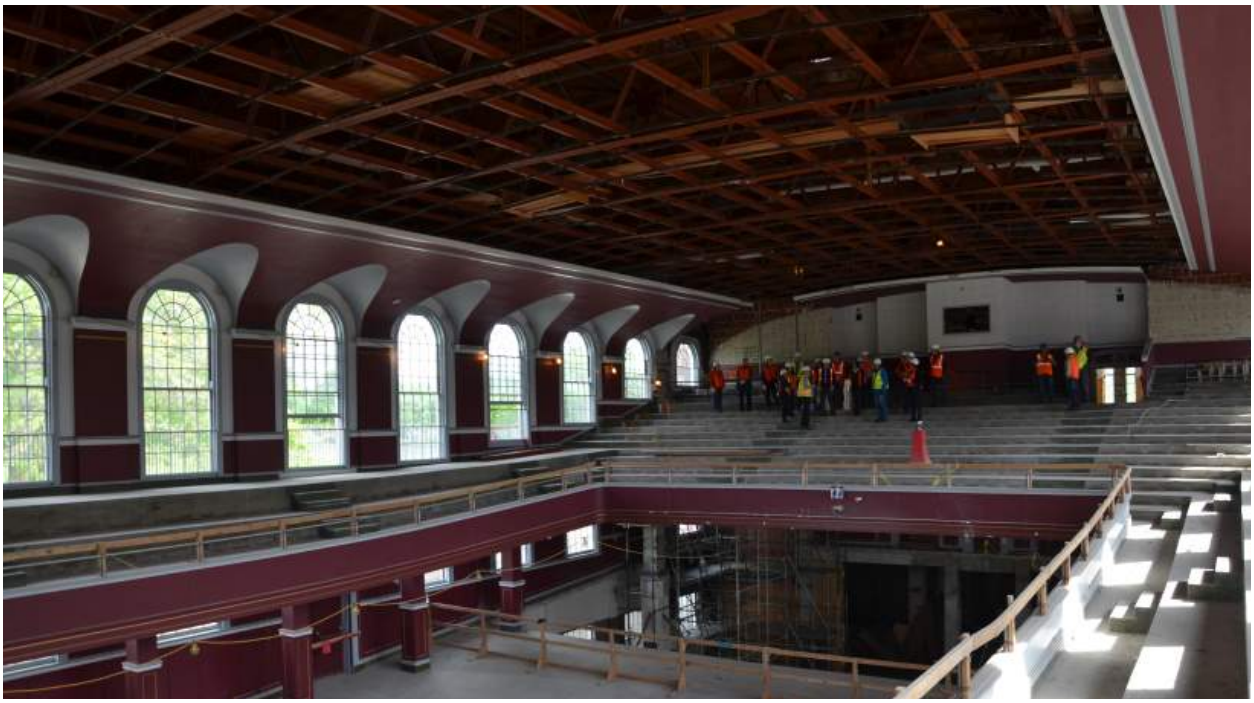
The District scheduled tours of the high schools currently under construction. These were open to all master plan teams including the Design Teams and MPC members. The intent was to help teams understand the scale and impact of a complete modernization as well as learn how other schools implemented the Ed Spec at their sites.

Roosevelt High School

The Roosevelt High School modernization project is being conducted in two phases with students remaining on-site throughout construction. Phase 1 included demolishing the old gymnasium and boiler building. A new gym/aux-gym, with science labs along the south edge, are under construction. The teacher collaboration areas were built smaller than in the Ed Spec but were distributed more frequently. A new theater and black-box theater matching the Ed Spec is being built behind the current auditorium. The historic theater was much larger than the Ed Spec and is being re-purposed to the library. The theater seismic upgrade included very large footings, new shear walls and considerable bracing. The new commons/student center is being constructed between the theater, gym, and original school. Students will move into the new building components in September 2017 and then renovation of the original building will begin. The need to deliver major building components in the first year on an occupied site were among the key construction criteria for Roosevelt.

Franklin High School

The students have been relocated to the Marshall campus so construction is not phased. Work includes demolition of the gymnasium, boiler building and the southwest wing. The original building was completely gutted and hazardous materials abated. The contamination of soils under the building was not fully anticipated. The original building requires extensive seismic upgrades including new footings, shear walls, and strapping. Historic framing methods and past renovations became evident after the plaster was removed. The



Franklin High School former auditorium under conversion to library

historic building is quite narrow and does not accommodate two full-size teaching spaces so the new plan will shift the corridor with full-size rooms on one side and smaller offices and extended learning on the opposite side. Like Roosevelt, the historic theater was much larger than the Ed Spec so it will be re-purposed to the library. The new commons/student center is being constructed in the southeast corner with direct street access. A new theater and black-box/dance studio are being built in the southwest corner with good public access. The dominant site change is realignment of the football field to a north-south direction that fits the site better. This stretches the school north toward Division Street. The school wanted more stadium seats than the Ed Spec to accommodate a traditional Senior Day event; however, code requirements for restrooms appeared to make this an unaffordable endeavor. A new gym/aux-gym is being constructed with a few labs in the northeast corner of the site. This is somewhat remote from the main school and requires students to walk outside.

MHS students review and vote on precedent images demonstrating different programs and space qualities

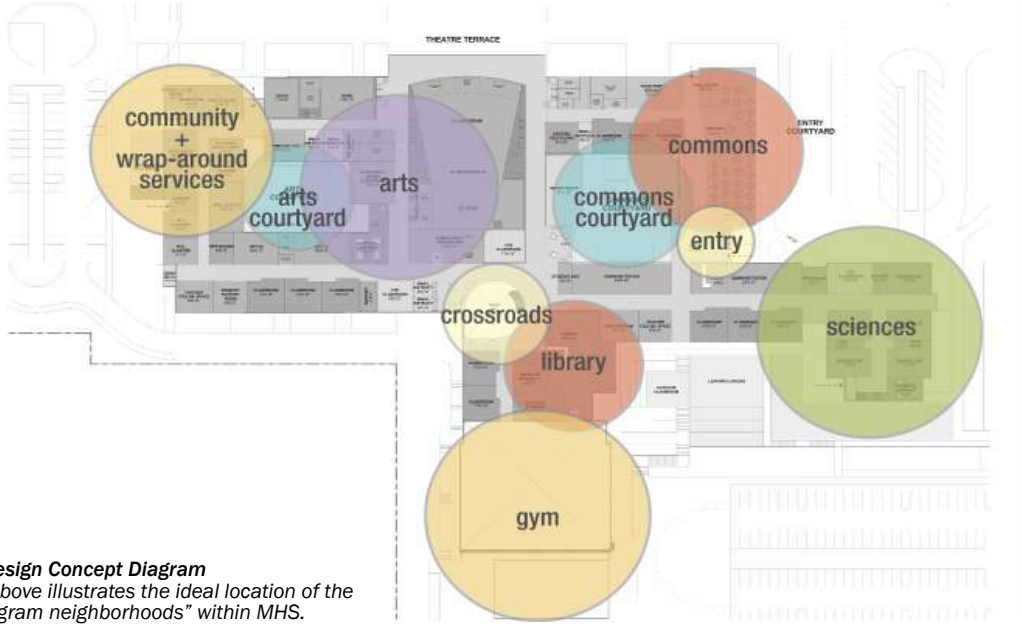
Madison High School Student Outreach Survey

Survey Date: April 28-29, 2016

The District initiated a student engagement process during the master plan effort consisting of interviews with student clubs. In addition, project boards showing master planning vision materials, plans and voting boards were displayed at the crossroads for two days during flex time. Paper surveys were distributed several days prior to this event which included questions for both teachers and students. The goal of the survey was to increase awareness of the proposed modernization and to gain feedback from current students. A summary of this survey can be found in the appendix of this document.

Note: The full MHS Student Survey and a summary of the results can be found in the Appendix.

06 PLANNING CONCEPT



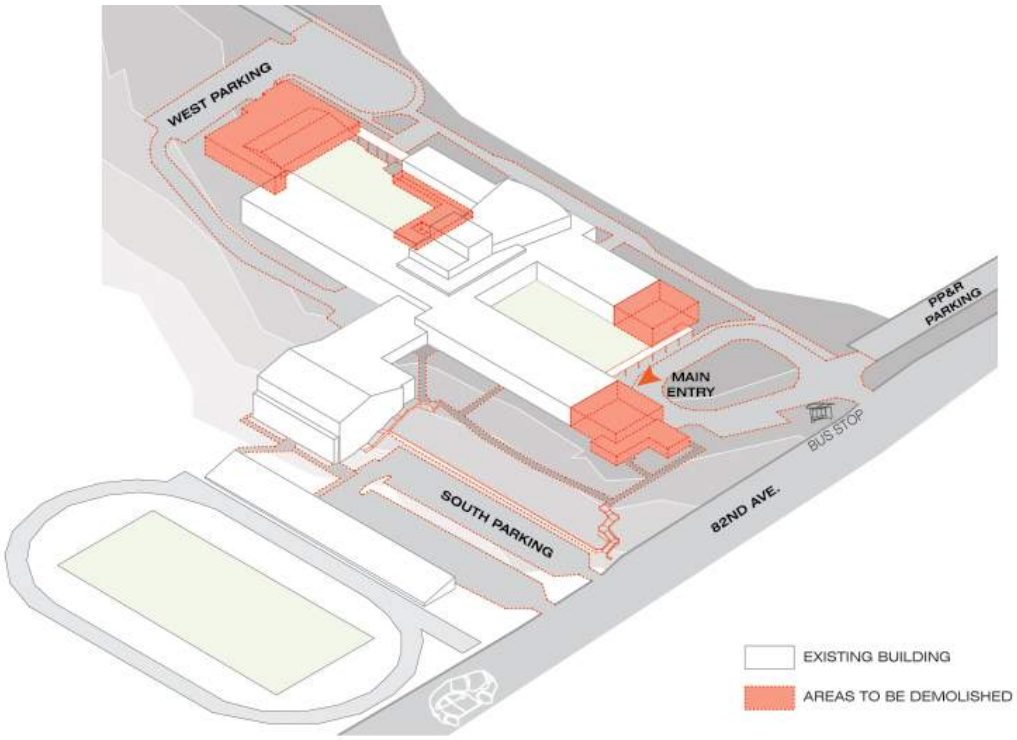
Preferred Design Concept Diagram
The image above illustrates the ideal location of the diverse "program neighborhoods" within MHS.

Preferred Design

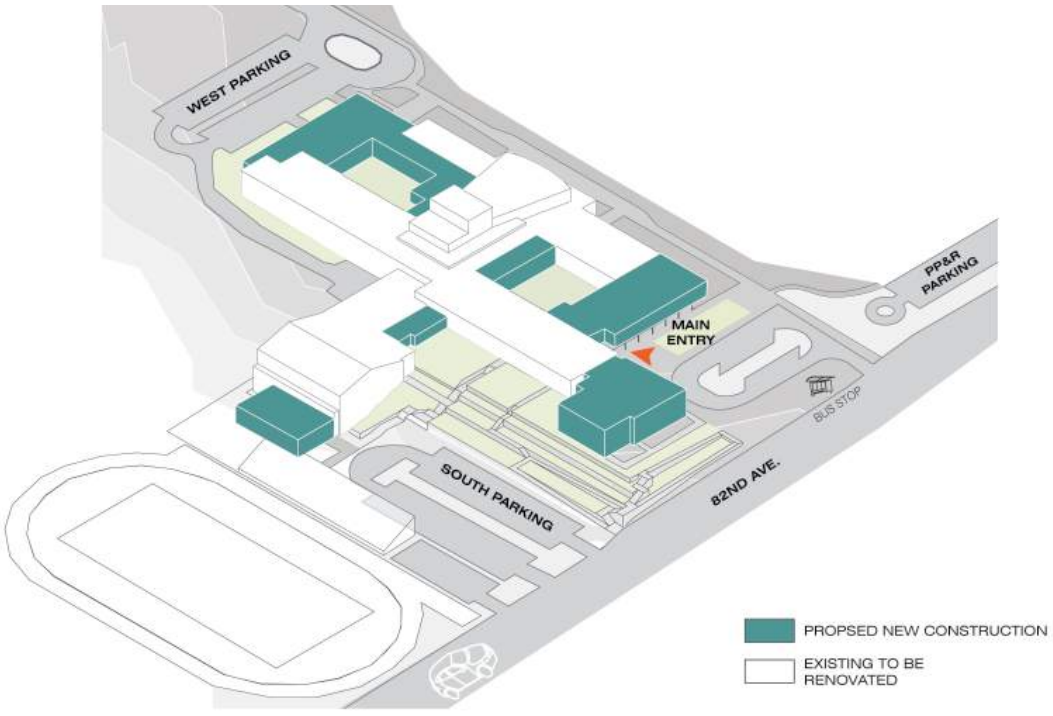
The Preferred Design was developed through multiple collaborative workshops between the Design Team, Master Planning Committee, and community members. Through a consensus process, the MPC settled on a Preferred Design that best matched their goals for the project with a realistic view of what is possible within the context of the site, scope, budget, and the Ed Spec program requirements. The MPC built the concept around a number of Preferred Design Strategies that evolved from the MPC Guiding Principles. These design strategies were combined with an in-depth assessment of the Ed Spec adjacency and program requirements, a thorough analysis of the site, and a consensus desire from a programming standpoint to reimagine Madison High School in its current physical, pedagogical, and social context.

Preferred Design Strategies

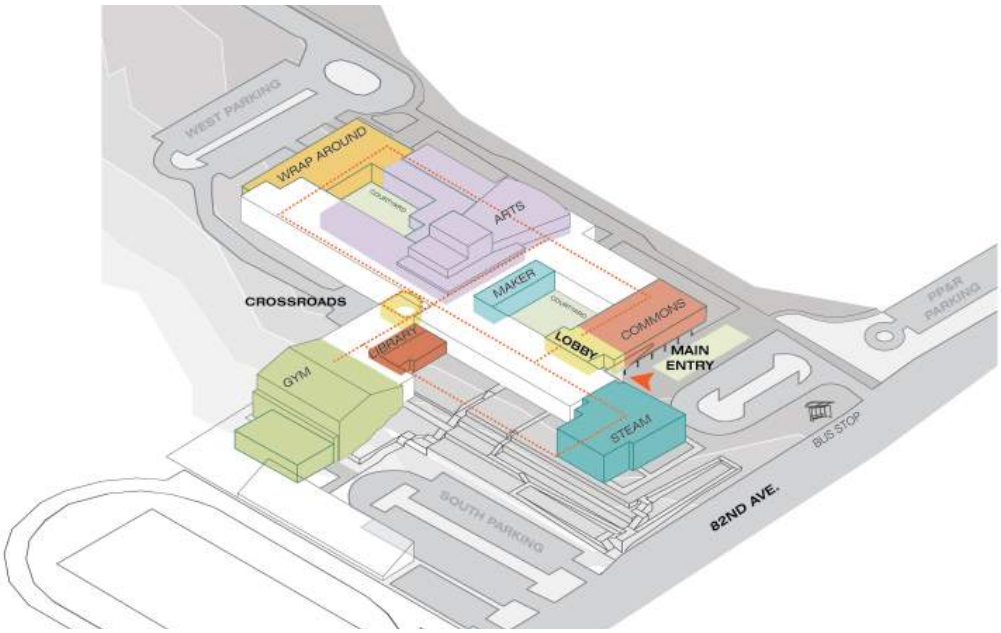
- » Recognize diversity by making connections
- » Welcome with transparency
- » Common space builds community
- » Support diverse learning styles
- » Prioritize spaces to collaborate
- » Integrate Science Technology Engineering Art and Math (STEAM) and Career Technical Education (CTE)
- » Embrace outdoor learning
- » Make flexible for the future
- » Celebrate the wrap-around services



Demolition Diagram
Areas of demolition occur in perimeter zones, to be addressed with modernized new construction areas.



Areas of Proposed New Construction
The areas of proposed new construction are located to efficiently address as many modernization goals as possible.



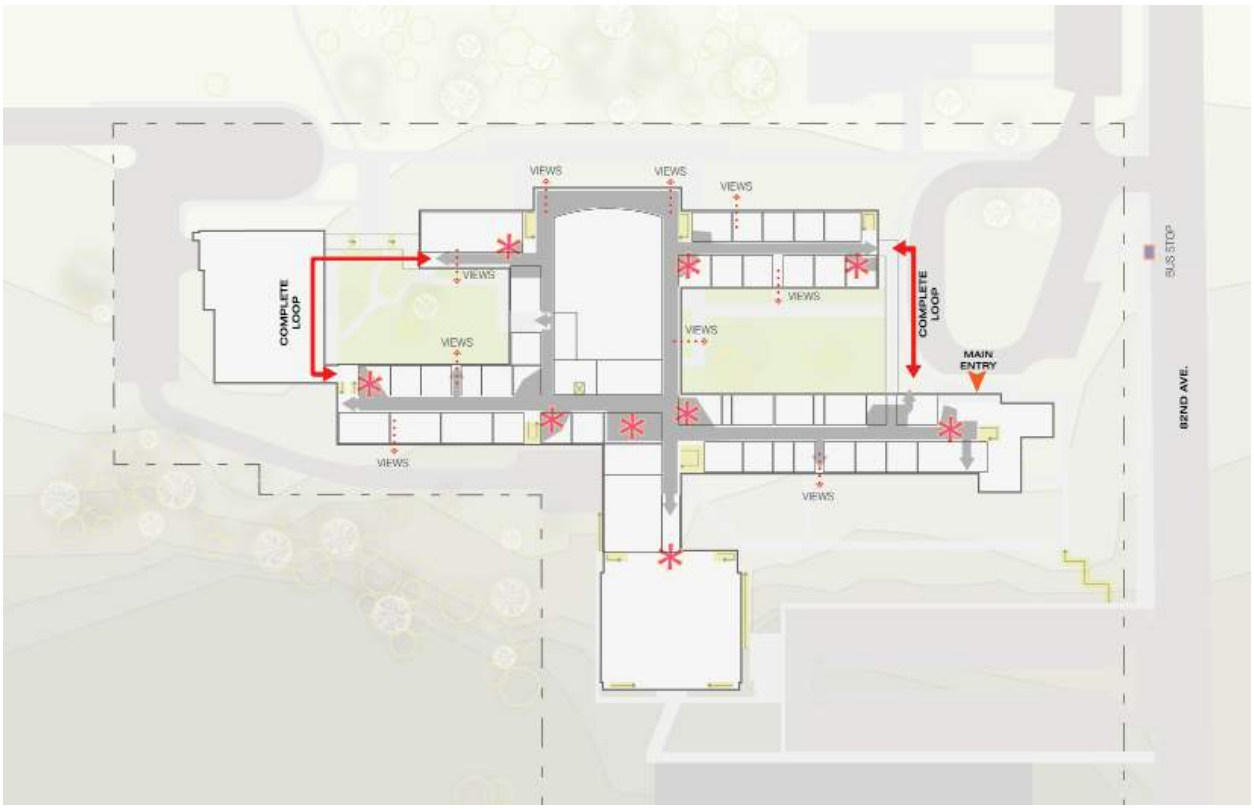
Program Neighborhoods
Program districts anchor each wing of the building and surround the outdoor learning courtyards and southern terraced gardens.

Architectural Design

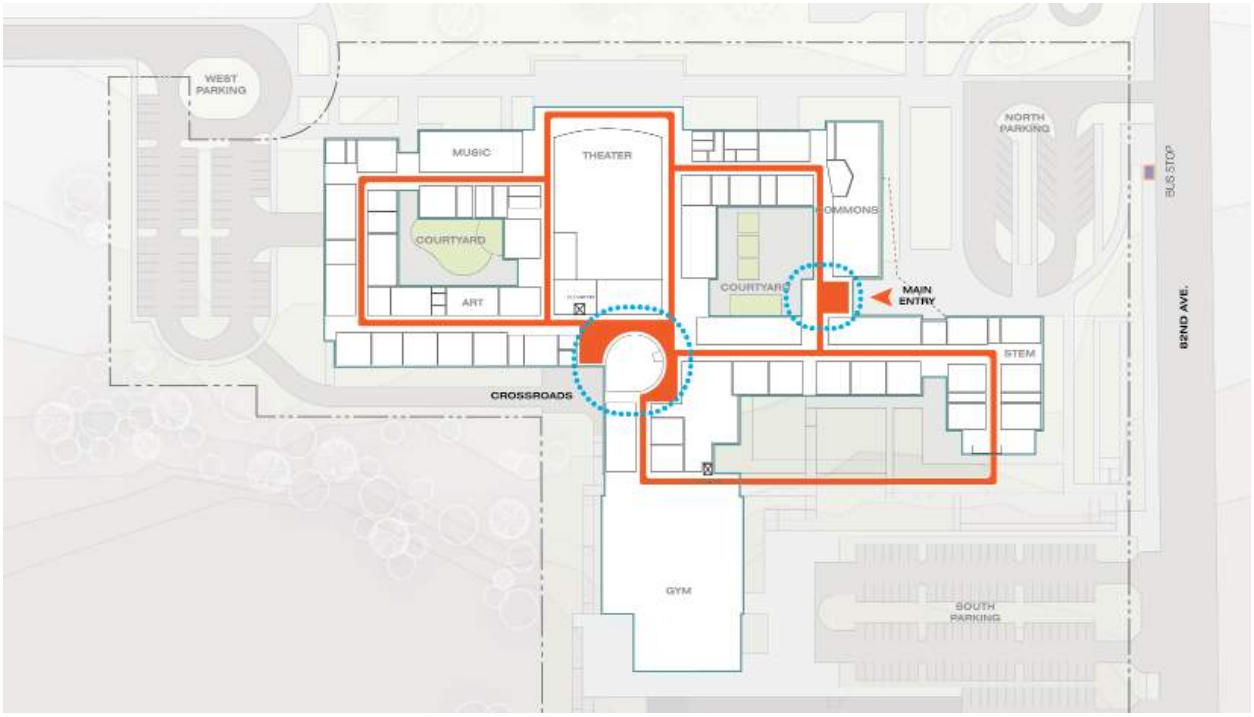
The Preferred Design seeks a balance of removing antiquated portions of the existing building, while adding strategically located new construction that improves circulation, wayfinding, programmatic distribution and architectural presence along 82nd Avenue. New construction will resolve poor existing circulation and wayfinding by completing existing partial "loops" while enclosing the existing east and west courtyards to secure and program them to complement adjacent spaces. The existing nondescript east end of the building will be removed to allow for new built extensions whose identity will be on full display along 82nd Avenue, thus creating a new, vibrant front door for MHS. This new composition of renovated existing building, new construction, improved circulation and wayfinding, and revitalized street and community presence, will set the framework for the establishment of "program neighborhoods." Each neighborhood, including the STEAM wing, commons, CTE, library, gymnasium, arts, and wrap-around services, will enjoy a strong individual identity while simultaneously contributing to the overall success of Madison High School.

Main Entry

The Preferred Design proposed main entry is relocated to allow direct access to the adjacent commons to the north, east commons courtyard to the west, and academic/ administration wing to the south. It will be marked by a distinctive canopy above, creating an inviting porch for both students and the surrounding community. The design of the entry includes a secure vestibule adjacent to the administration front desk to provide the appropriate level of entry security not currently afforded in the existing building, while greatly enhancing wayfinding for first-time students, parents, and community visitors.



Completing the Loop
Several main corridors dead-end causing program and people to be disconnected and isolated within the building. Completing the circulation loops will better unify the campus and improve circulation dramatically.



Crossroads
Connecting the circulation loops throughout the building and activating these with open, daylit, common centers will improve flow, wayfinding, and enhanced orientation.

Architectural rendering demonstrating the Crossroads three-level connection

The Crossroads

The new three-level Crossroads is at the major intersection and geographical center of the school. By opening the floors to above and below the main level, the school becomes more spatially connected as a community by incorporating a memorable social space that will dramatically improve wayfinding and encourage interaction between students and faculty. Surrounding the Crossroads on multiple levels, informal study spaces and group study rooms with a communicating stair offers a variety of places for students to gather outside the classroom.

Loop Circulation

Currently, dead-end corridors and "incomplete" loops at MHS make wayfinding very challenging and inefficient. The circulation concept diagram proposes completing the "double loop", thereby minimizing dead-end conditions while encouraging students to move more fluidly through the building in order to experience the school's diversity as they stroll through "program neighborhoods." The completion of the loops also enhances security by enclosing courtyards and minimizing direct entry points.

East Commons Courtyard

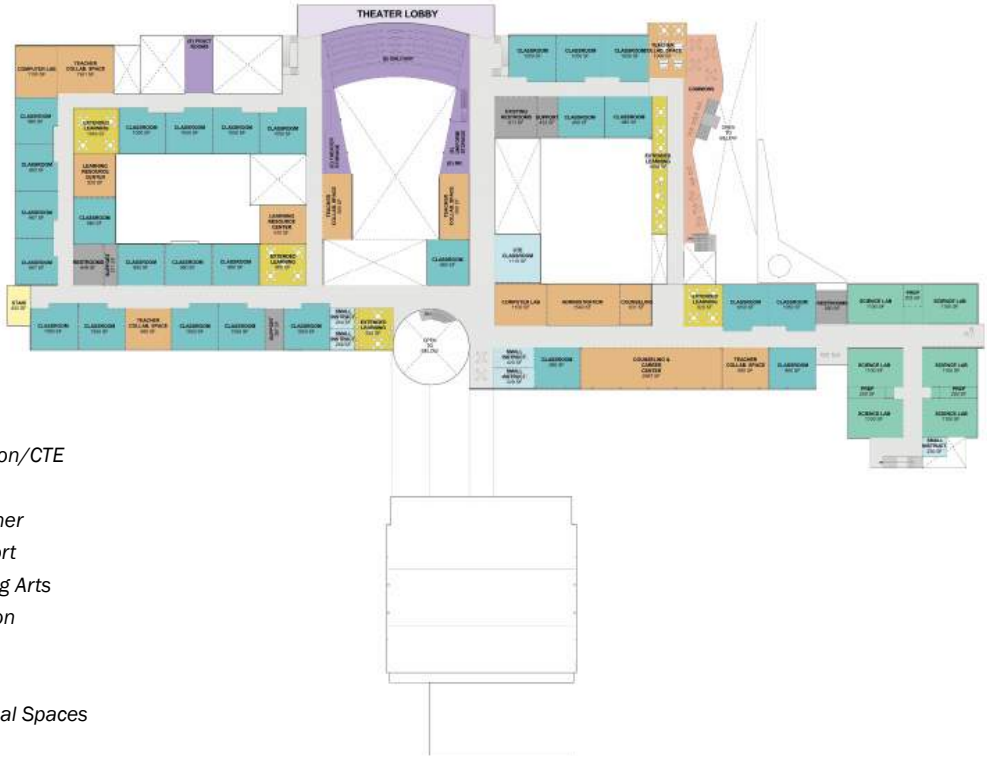
The currently underutilized courtyard entry garden is envisioned as an active learning space and informal gathering place to build a stronger school community. The new east commons courtyard would be visible and directly accessed from the main entry. The commons and maker space could open up to the courtyard creating a vibrant, programmable space for a variety of events and learning opportunities.

West Arts Courtyard

The west arts courtyard will open to fine arts and performing spaces and could include a possible amphitheater that utilizes the new black box theater as a stage. A less formal arts courtyard creates a softer environment compared to the more active commons Courtyard where students can study, practice, or simply catch a breath of fresh air.

Madison High School: Preferred Design

Upper Level



Departments

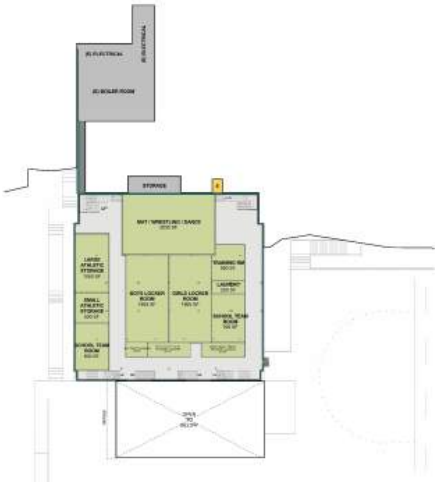
- *Athletics*
- *Career Preparation/CTE*
- *Commons*
- *Community Partner*
- *Education Support*
- *Fine + Performing Arts*
- *General Education*
- *Library*
- *Science Labs*
- *Small Instructional Spaces*
- *Support*

Main Level

Lower Level

Basement 02

Basement 01



Upper Level Commons

science labs

athletic/wellness

maker space

classrooms

informal learning

outdoor learning

computer lab

performing arts

Campus Commons

The new Campus Commons located at the main entry facing 82nd Avenue provides a dynamic, welcoming identity for Madison High School to students and surrounding community. This new two-level addition will complete the east commons courtyard along its east side, and will be multi-functional, incorporating food service, school and community events, and informal learning spaces. High levels of transparency facing 82nd Avenue will encourage students and citizens alike to engage this truly public space beyond just normal school hours so that it becomes a community amenity during the evenings and weekends as well.

CTE/STEAM Wing

As a focal point of many of Madison High School's innovative programs, the new CTE wing is located at the very visible south east corner of the school where it will present a "beacon" of new and innovative learning opportunities within. The new wing's direct adjacency to the south gardens will encourage outdoor learning, bridging the gap between the building's interior lab environment and nature's exterior environment. The influence of CTE and sciences will be extended to a common use maker space on the west end of the commons courtyard, large two-story flexible lab that will integrate hands-on learning into the heart of the school experience.

Library at the Core

As a core resource and quiet study place, the library remains at the heart of the school, adjacent and highly visible to the new Crossroads atrium. The Preferred Design proposes an option to expand the library space to the east to allow greater access to natural light and views out to the MHS community and adjacent learning gardens, as well enhancing the library's visual presence along 82nd Avenue as a fundamental component of the school's educational mission.

Athletics and Wellness

Located at grade level adjacent to the stadium, the new auxiliary gym is envisioned as a multi-purpose space. A new entry to the school at this level and a proposed new elevator on the north side of the gym will provide much needed ADA access from the athletic fields and existing multi-level athletic spaces and gym, to the main levels of the school.

Arts Integration

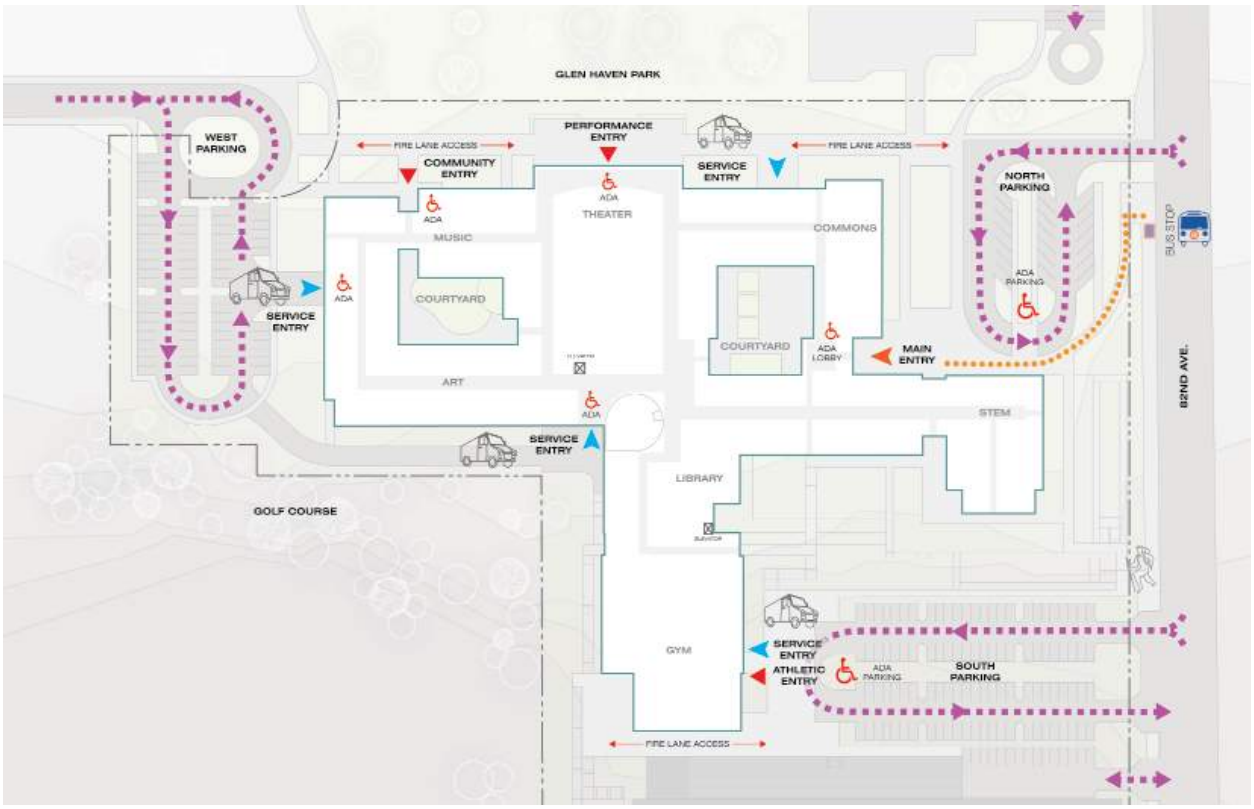
The plan relocates the fine arts spaces from the lower level to the main level, integrating them with other key academic programs while providing access to natural light and the adjacent arts courtyard. They will also be located adjacent to music and theater, creating an academic community neighborhood around the arts that are increasingly becoming cross-disciplinary with the addition of new technologies and methods of creating.

Small Learning Communities

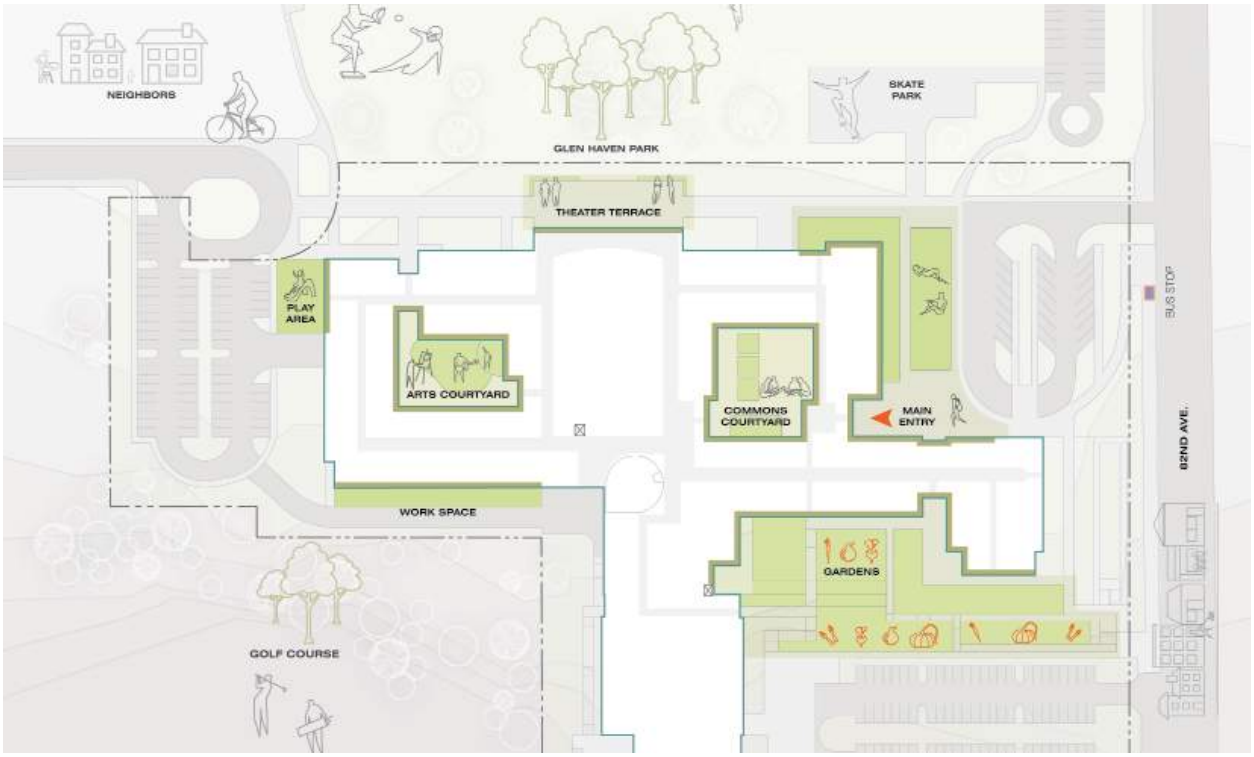
The plan organizes the school with the idea of small learning communities of four and five classrooms, likely within a discipline, centered around an extended learning space. This open, informal learning space will provide immediately adjacent break-out, study and hands-on learning spaces.

Wrap-Around Services

To increase ease of access to the range of wrap-around services, including the Teen Parent Services, health clinic and food pantry, they are located in a new west wing adjacent to the new west parking lot and drop-off.



Site Access
Reorganized access, parking, and service areas, with delineated pedestrian and vehicular circulation zones, will enhance accessibility, safety, visibility, and school identity.



Outdoor Spaces
Connections to the outdoors are enhanced with blended interior/exterior zones on the courtyard perimeters, at building entries, and at the southern garden terraces, creating numerous and varied opportunities for outdoor learning.

Special Education (SPED)

The Preferred Design groups most of the SPED classrooms and support spaces in the new west wing where they will have easy access to the new bus drop-off. Future planning may consider whether some of the SPED spaces should be dispersed through other areas of the school.

Site Design

Today, Madison High School has a nearly non-existent presence along 82nd Avenue despite its location at the top of a large south facing bluff. Sitting back from the street and distanced by deep parking lots, the school's east façade and main entry are unwelcoming and almost unrecognizable when traveling north and south along 82nd Avenue. The Preferred Design will strengthen connections to the community along 82nd Avenue, residential neighborhoods to the west, and Glenhaven Park, through a comprehensive system of routes that allow safe and clear access to the school and athletics facilities. ADA accessibility is provided on three sides of the site. The pedestrian system links many flexible outdoor spaces of varying sizes for different activities. These include areas for exhibits, spectator events, large gatherings, classrooms, performances, small group gatherings, laboratories, gardening and workshops. These outdoor spaces will ultimately complement MHS adjacent indoor programs.

Main Entry/East Parking/Drop-Off

The proposed main entry concept creates a more prominent front door to the school with a new two-story commons facing out to a landscaped entry plaza with a reconfigured drop-off and seated waiting area framed with a lawn, shade trees and benches. The new layout of roads, parking and sidewalks will improve safety and efficiency and provide accessible routes to the heavily used TriMet stop on 82nd Avenue. One option proposed by the MPC for increasing vehicular safety suggests the removal of the connecting drive entry to the Glenhaven Park parking lot, eliminating traffic back-up at the main entry to MHS.

East Courtyard

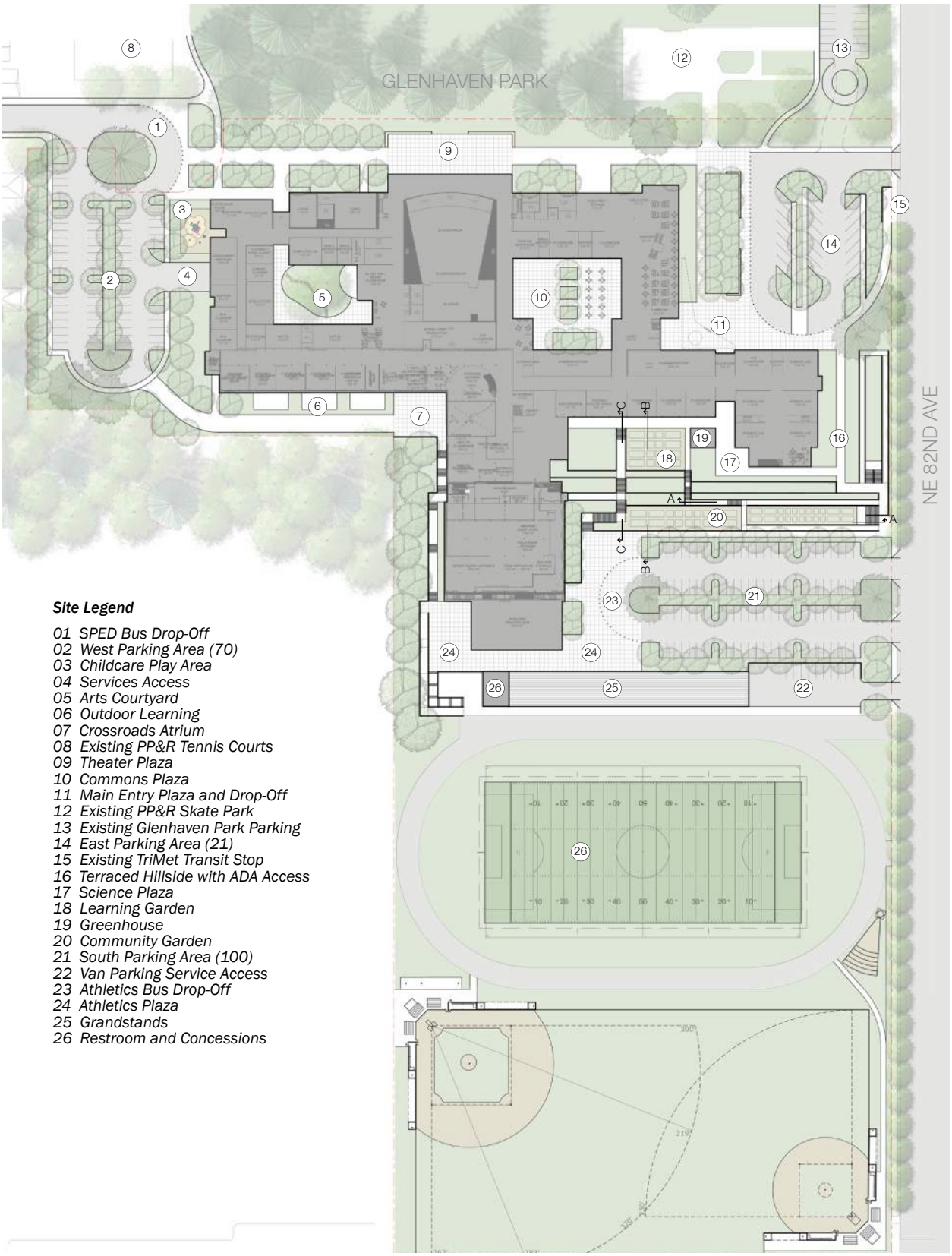
The east courtyard, enclosed by the commons, is paved to support dining outside the commons and a work area outside the maker space. Pedestrian activities flow throughout the courtyard. Trees provide shade, help separate the uses and soften the character. A design goal is to preserve two existing oak trees while accommodating existing grades and protecting tree roots during construction.

West Courtyard

The west courtyard has a looser, more intimate character. With the removal of the cafeteria wing, the slope and associated ramps are no longer needed. The proposed level courtyard includes an exterior performance area adjacent to the black box theater with a simple lawn and plantings within a paved pedestrian edge. Again, a design goal is to preserve two existing oak trees though careful grading and tree root protection.

West Parking/Drop-Off

The proposed removal of the existing cafeteria building at the west end of the site allows for the redistribution of parking to this area while reducing congestion in the east and south parking lots. A new drop-off area at the northwest corner will support the community wrap-around services, SPED, and performing arts programs located at the west end of the school, allowing for more direct service access to these programs as well as discreet access where needed. Pedestrian connections extend between the parking lot, park and neighborhood beyond to the school building west entry and Teen Parent Services. An outdoor children's play area adjoins the school's daycare program.



Site Legend

01 SPED Bus Drop-Off
02 West Parking Area (70)
03 Childcare Play Area
04 Services Access
05 Arts Courtyard
06 Outdoor Learning
07 Crossroads Atrium
08 Existing PP&R Tennis Courts
09 Theater Plaza
10 Commons Plaza
11 Main Entry Plaza and Drop-Off
12 Existing PP&R Skate Park
13 Existing Glenhaven Park Parking
14 East Parking Area (21)
15 Existing TriMet Transit Stop
16 Terraced Hillside with ADA Access
17 Science Plaza
18 Learning Garden
19 Greenhouse
20 Community Garden
21 South Parking Area (100)
22 Van Parking Service Access
23 Athletics Bus Drop-Off
24 Athletics Plaza
25 Grandstands
26 Restroom and Concessions

Theater Terrace/Glenhaven Park

While Glenhaven Park provides a beautiful foreground to MHS, the relationship between the school and park could be strengthened. Currently, the theater lobby faces the park but has a very informal relationship to it. The skate park at the east end of the park, while popular with the public, is often viewed with concern because of its close proximity to the school. The Preferred Design proposes improving the existing tree-lined east-west walkway (currently serving as a fire access road), by creating a more formal relationship to the park through the incorporation of a large theater plaza for theatrical gatherings, performance space, exhibitions and other large community events. This new plaza is also sized to accommodate an aerial apparatus fire truck along the fire lane between the school and park, a code requirement. The theater entry doors would be relocated to open onto and activate the plaza, providing an engaging outdoor interface between the theater lobby and the park.

Southwest Pedestrian Access

The existing service access drive and service area are intended to allow for primarily pedestrian use. A small pedestrian plaza is adjacent to the interior "Crossroads" use space. Classrooms along the south edge of the west building wing have access to outdoor terraces.

South Gardens

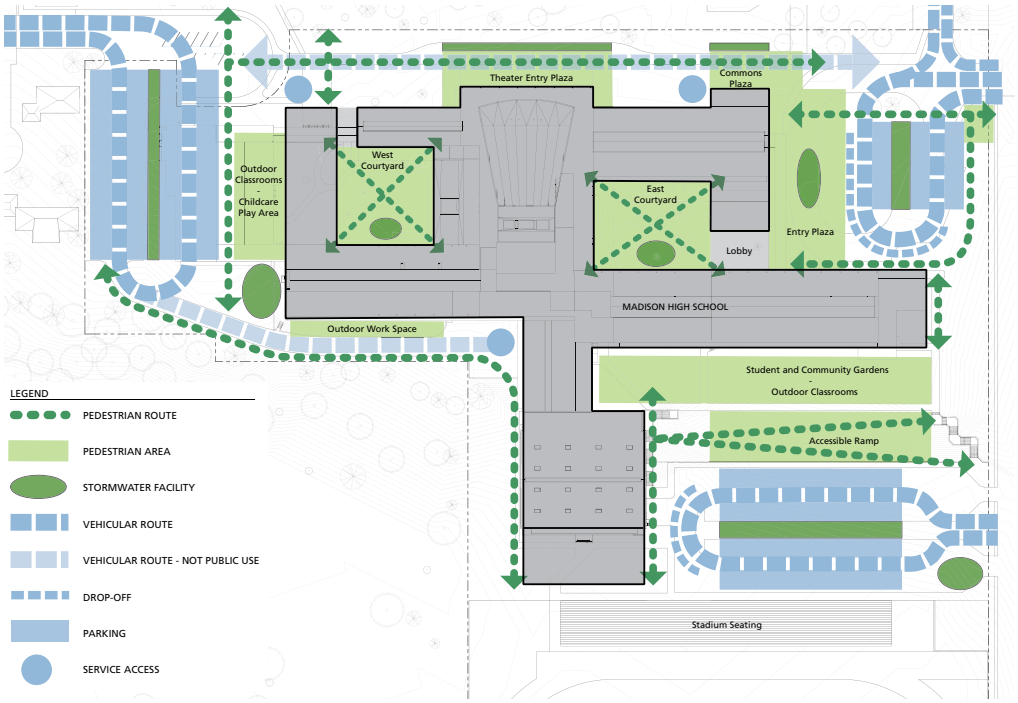
The existing south facing community garden provides a unique resource for the school and community. The Preferred Design Concept improves and expands these gardens and integrates them more directly with the academic programs in the proposed science wing at the southeast corner of the building. The existing vegetable gardens and inaccessible steep hillside along the southeast corner of the school are transformed into a series of terraces connected by stairs and accessible sloped walkways that connect to the athletics plaza, south parking lot and athletic fields below. The lower terrace levels include areas for community garden plots and small gatherings. PPS staff has had initial conversation with PP&R regarding the location of the Madison Community Garden to Glenhaven Park in the event that budget constraints in a subsequent design phase limit the scope of exterior work. The highest terrace, at the same elevation as the building's main floor, includes student garden plots, a greenhouse, a work terrace and a covered outdoor classroom. These highly visible improvements offer one of the best places to physically and visually strengthening community connections.

South Parking/Athletics Plaza

The existing south parking lot is not designed to current code standards and has a number of safety issues. The drive entry and distance to the first parking space is dangerously close, and clearance space for bus drop-off during athletic events is inadequate and needs to be expanded. The Preferred Design proposes an athletics plaza adjacent to the gymnasium and grandstand that will connect the south parking lot and athletics bus drop-off to the stadium and new auxiliary gym, creating a more functional area for ticketing, queuing, and gathering as well as a safe pick-up and drop-off zone for students and athletic event visitors. This area is connected to the field level via stairs and ramps at the west, thus completing the new pedestrian connection between the track and enlarged northwest parking lot.

South Athletics Fields

The southern portion of the athletics complex will be transformed into a large synthetic turf co-used field. Baseball and softball diamonds are located diagonally from each other. Each sport has new dugouts, bullpens, batting cages, press boxes and storage. The turf area will accommodate high school soccer, lacrosse, practice football and multiple smaller youth fields for community use.



Site access diagram

plaza/courtyards




gardens/outdoor learning




stormwater/eco-roofs




canopy




Planting and Irrigation

The proposed planting design must meet goals of safety, low-maintenance, and low water consumption. Due to maintenance constraints, the shrub and groundcover areas are minimized and located mainly at stormwater basins, entries and plazas. Hardy, durable species will be selected for pest-resistance and drought-tolerance.

Where possible, existing healthy site trees are preserved. New trees will be planted throughout the site to define outdoor spaces, create shade and scale the building. The City of Portland's Title 11 Tree Code requires 25 percent tree density, which likely requires planting at least 350 new trees of varying sizes. Given the physical limitations of the site, it is likely the project will pay into the city's tree fund for a portion of the number of required trees. Tree planting is also required in parking lot islands and stormwater basins. Both new trees and existing trees to remain can be credited towards the 25 percent coverage.

An automatic, low water-usage irrigation system is proposed for all lawn, shrub, and tree planting areas, including stormwater facilities. Automatic shut-off water connections are provided in the student and community gardens and in the outdoor play area.

Civil Design

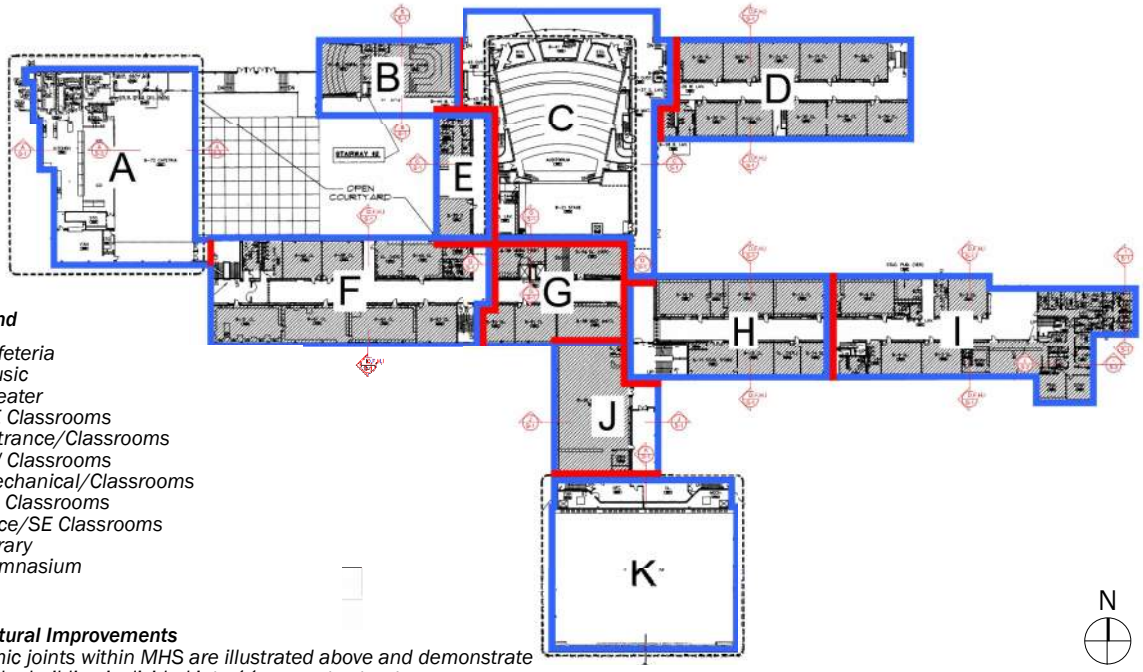
The proposed modernization project will improve vehicle and pedestrian circulation, with a focus on separating high traffic vehicle spaces from pedestrian spaces. Formal drop-off areas will be established at each of the three parking lots near the main entry points to the school. Accessible parking, circulation routes, and ramps will be improved to comply with current code standards. Congestion at the northeast entrance will be addressed through modifying traffic circulation patterns. The proposed site plan will maximize on-site parking, while balancing the need for dedicated pedestrian spaces, buildings, and athletics spaces. Improvements within the NE 82nd Avenue right-of-way are expected to be necessary to improve pedestrian crossings, modernize the TriMet bus stops, and upgrade accessible pedestrian ramps.

The modernization project will upgrade and relocate the existing service areas. The proposed service areas are summarized below.

01 Commons Service Area - Northeast: Includes new covered loading area for kitchen deliveries and new covered waste/recycling enclosure, located at the northeast corner of the building. The waste/recycling enclosure will be screened from view. The new service area replaces the existing kitchen service area located at the west side of the building. Vehicle access will occur from the northeast access point, from 82nd Avenue

02 General Custodial Area – West: Includes new covered loading area for less frequent general deliveries and new covered waste/recycling enclosure, located at the west side of the building. The waste/recycling enclosure will be screened from view. The new service area replaces existing service area located near the boiler room. Vehicle access will occur through the northwest access point, from NE Alameda Street

03 Athletics – Southeast: Includes new covered waste/recycling enclosure for athletics events, located at the east end of the existing grandstands. The new waste/recycling enclosure will be screened from view, and will upgrade the existing waste collection area at the same location.



Legend

A Cafeteria
B Music
C Theater
D NE Classrooms
E Entrance/Classrooms
F SW Classrooms
G Mechanical/Classrooms
H SE Classrooms
I Office/SE Classrooms
J Library
K Gymnasium

Structural Improvements
Seismic joints within MHS are illustrated above and demonstrate how the building is divided into 11 separate structures seismically.

Structural Design

The Preferred Design incorporates areas of existing building removal and new construction. We anticipate the main structural systems for the new construction to be as follows:

Foundation

All new construction to utilize conventional isolated and continuous spread footings pending the findings of a site specific geotechnical report.

Floor and Roof Framing

Ground floors to utilize four-inch reinforced concrete slab on grades.

The new construction will most likely be structured with structural steel composite beams with metal deck and concrete topping. However, alternate structural systems that could be considered are a two-way post tensioned concrete slab system and a heavy timber system (glulam beams and joists with 2x decking overlain with plywood and three-inch structural concrete topping).

Lateral Resisting Systems

All structures will most likely utilize concrete shearwalls for the lateral force resisting systems.

Building Requires Code Seismic Rehabilitation or Retrofit

The 2014 OSSC (Oregon Structural Specialty Code incorporating the 2012 International Building Code with State of Oregon Amendments) along with City of Portland Title 24 Building Regulations govern when an existing building is required to seismically rehabilitated or retrofitted.

In summary, OSSC Chapter 34 (Existing Structures) states the following:

- » Any existing gravity load carrying structural element with an increase of design gravity load of more than 5% shall be strengthened or replaced as required to support the load to the provisions of the OSSC as required for new structures.
- » Any existing gravity load carrying structural

element with an alteration which decreases its capacity shall be strengthened or replaced as required to support the load to the provisions of the OSSC as required for new structures.

» Any alteration or addition to the structure which increases a lateral load resisting structural element's existing demand-capacity ratio by more than 10% shall have that element strengthened or replaced as required to support the load to the provisions of the OSSC as required for new structures.

The City of Portland Title 24 Building Regulations has seismic code requirements for existing structures which are above and beyond those stated in Chapter 34 of the OSSC. In summary, the main portions of the code requirements applicable to the buildings of this needs assessment are as follows:

» All Occupancy classifications have also been assigned a relative hazard classification (1 through 5, with 5 being the highest hazard classification). If more than 1/3 the area of a structure is altered to a different occupancy classification which increases the hazard classification OR if the total occupant load is increased by more than 149 occupants, the structure will be subject to some level of global seismic upgrade.
» If an addition or structural alteration to a seismic force resisting element results in a demand capacity ratio increase of more than 10%, then that element shall be strengthened as required to meet current code.
» If the existing building is part of egress path for an adjacent new building or addition (which is more than 1/3 the area of the existing building or egresses more than 150 additional occupants), then the existing building will be subject to some level of global seismic upgrade.
» If the existing building is part of egress path for an adjacent existing building which is required to be seismic upgraded, then the existing building will be subject to some level of global seismic upgrade.

In summary, the varying buildings/sections of this overall school will NOT REQUIRE localized or global seismic rehabilitation or retrofit if:

» The building does not have a change in occupancy which increases the Hazard classification (per the City of Portland Title 24) by more than 1/3 the area.
» Building does not have an increase in Occupant Load of more than 149 occupants including new egress occupants.
» Any existing building does not have any increased egress occupants or serves as the egress path for any other existing structure/new structure/existing structure required to be seismically upgraded.
» Building does not change its code defined Risk Category (this will likely not occur).
» Lateral resisting elements are not subject to an increase in seismic load by more than 10 percent.
» Lateral Resisting Elements are not altered such that its seismic resistance is decreased by more than 10 percent.

However, please note the following:

» Reference the attached sheet titled "Extent of New Construction, Existing Buildings, and Seismic Joints for Proposed Master Plan" and "Table for Summary of Recommended Seismic Work Costs (Required and Voluntary)" for summary of recommended seismic costs for existing buildings' required seismic work along with recommend potential costs for additional voluntary seismic work.
» Reference the existing building narrative table for items requiring strengthening if a global seismic retrofit were to occur at each of the existing buildings.

Systems Summary:
Mechanical Design

The proposed mechanical system consists of central, high efficiency gas-fired boilers that will provide heating water to air handling units, baseboard heaters, and terminal units throughout the school. Cooling will be provided by central, high efficiency chillers that deliver chilled water to the air handling units mentioned above, which will be located on the roof near the areas they serve. Supply and return air will be ducted from these units either to overhead grilles and diffusers, or using displacement ventilation with low grilles supplying fresh air. Radiant floor slabs will also provide comfortable, energy efficient heating and cooling in large, open spaces like the commons, and these floor slabs will have PEX tubing embedded in the concrete that is served by the chilled and heating water systems mentioned above. Overall, this system will provide a major upgrade in energy efficiency and occupant comfort.

Plumbing

The proposed plumbing system consists of high-efficiency, low-flow fixtures including sensor operated faucets, dual flush toilets, low-flow shower heads, and pint-per-flush urinals. These new fixtures will be served by a new domestic water and sanitary waste and vent piping system, along with central, high-efficiency gas-fired water heaters that provide domestic hot water for the entire school. In addition, the following new systems will be provided: storm drainage piping system, natural gas piping system to serve mechanical and kitchen equipment, a new below grade grease interceptor near the kitchen to meet BES requirements, and an acid neutralization system that serves the new science labs. The incorporation of sustainable strategies, including rainwater harvesting and solar thermal hot water will also be analyzed. Overall, these upgrades will reduce the school's energy and water consumption, while also providing fixtures that are safe and ADA compliant.

Regarding fire protection, a new sprinkler system with a new dedicated fire service line will serve the entire school and will be installed per current local and national code requirements to be NFPA 13 compliant.

Electrical

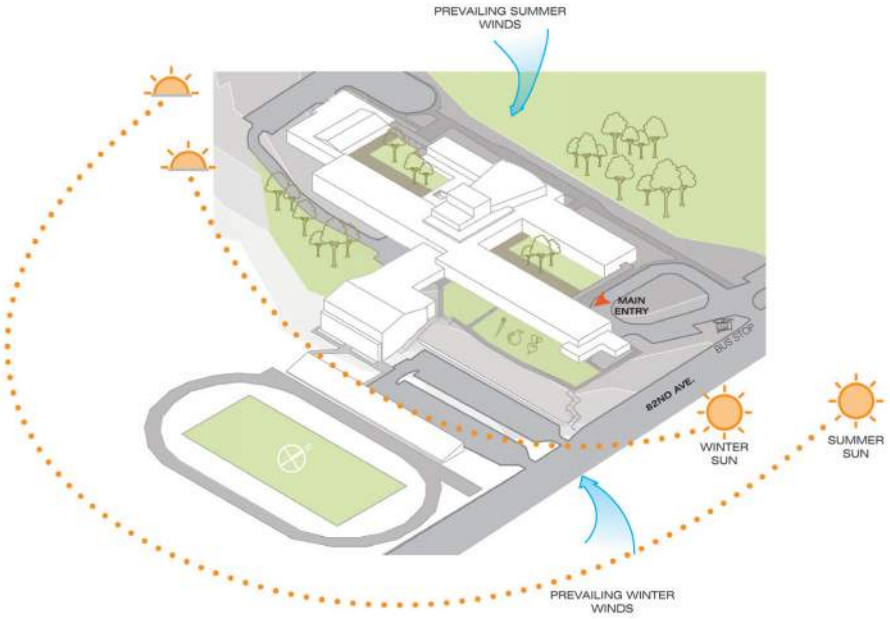
The reconfiguration of interior spaces to better support a modern teaching and student social interaction environment will require new power receptacles and associated circuiting. The new spaces need to support modern teaching methods that utilize digital communications so prevalent in everyday life. The new spaces will require reconfiguration of the lighting to serve these spaces.

01 Provision of the power required to support the new building space configuration will be most cost effectively supported by the replacement of the current electrical power panels with new, strategically located panels. The current location of the building's electrical service transformers and service switchboard is recommended for relocation.

02 The existing classroom and building communications infrastructure is not adequate to support the upcoming digital communications needs. A new internal building, fiber optic backbone, and Category 6 station cable system is required. An enhanced wireless access port system is expected. This new communications system will re-utilize existing bandwidth capabilities in the existing communications site entrance cable system.

03 The new spaces will require reconfiguration of the lighting to serve

these spaces. The current State of Oregon energy code will require the new lighting system to be more efficient in energy use. Also, the State of Oregon energy code will require the controls of the lighting to be more sophisticated in terms of not energizing lights if there is enough natural light or no one is in the space.



Site Environment
MHS's site has numerous favorable environmental attributes, such as east-west building orientation for daylighting, solar access for the school's gardens, and access to the outdoors in the school's courtyards, athletic fields, and Glenhaven Park.

Sustainable Systems Summary

Renovations to Madison High School seek to build upon the resilience of its community and improve the education and community services the school provides today. In addition to programmatic improvements, the Preferred Design shares a number of sustainability goals.

The PPS Design Guidelines & Standards addresses the District's priorities, requirements, and recommendations for sustainable design. The project will meet the requirements of the Design Guidelines and Standards as they pertain to "Modernizations and Major Renovations," and will aspire to the requirements for "New Construction." As such, the facility will be designed to meet a minimum of LEEDv4 Silver but will aspire to LEEDv4 Gold.

Sustainable Priorities

The Design Team has specified the following goals to be reflected in the Preferred Design.

01 Use an integrated design approach to maximize multiple systems working together

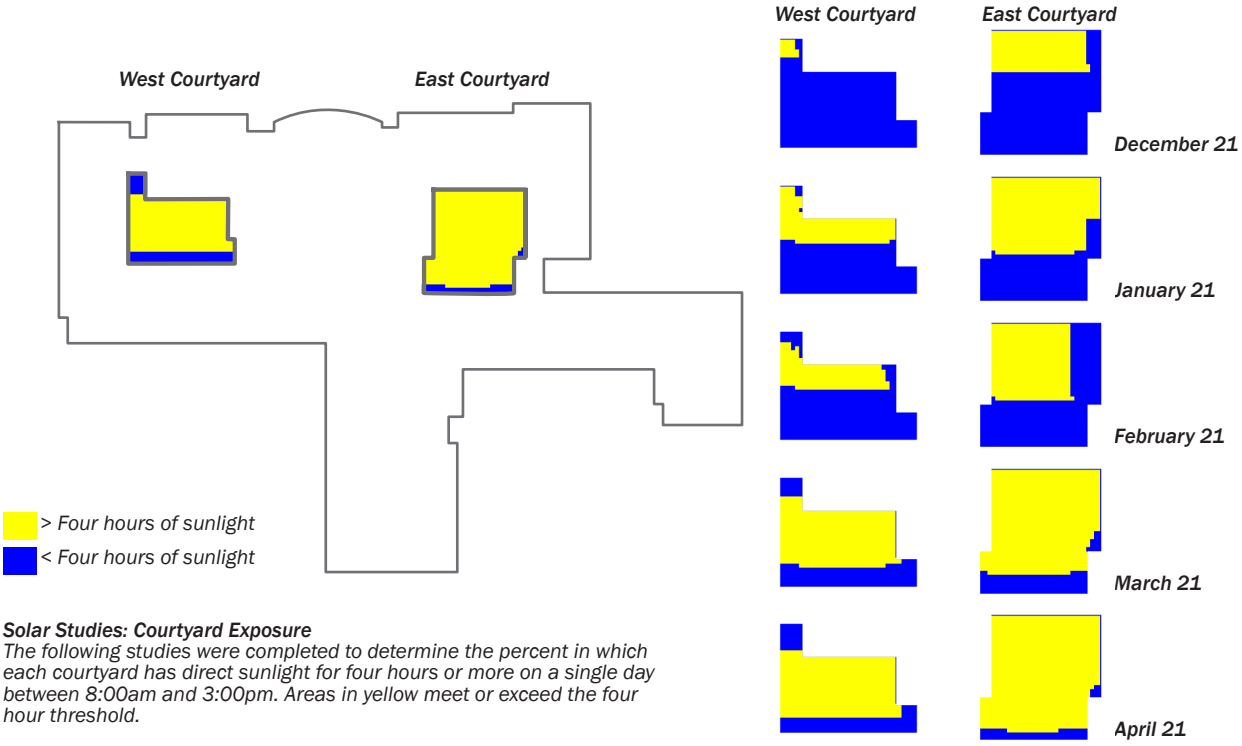
02 Use of passive systems and simple technologies

03 Incorporate biophilic principles

04 Create healthy indoor environments that are conducive to learning by:
- > avoiding use of harmful chemicals
- > using appropriate levels of ventilation, daylighting and electrical lighting

PPS Long Range Facility Plan: Sustainability Principles of Design

High performance buildings are not only about conserving resources but also about maximizing the performance of the building occupants, our students. Portland Public Schools works to incorporate sustainable practices into the design of renovation projects, new schools and its daily operations. The three pillars of sustainability: environmental, social and economics are integrated into the design of our facilities.



Solar Studies: Courtyard Exposure
The following studies were completed to determine the percent in which each courtyard has direct sunlight for four hours or more on a single day between 8:00am and 3:00pm. Areas in yellow meet or exceed the four hour threshold.

> creating an appropriate acoustical environment
> using ergonomic furnishings

05 Incorporate passive and active education tools
> Look for opportunities for the building to support STEAM curriculum
> Design building systems so that their function is apparent and occupants can understand intuitively how they work
> Where aesthetically appropriate, allow occupants to see and understand the mechanics of the buildings where they learn and play
> Strategically use interpretive signage to help building occupants understand how the building functions and identify sustainable features. Emphasis on images over extensive text is preferred
> Use building dashboards to allow students to observe and track energy and water use and production
> Use learning gardens and outdoor classrooms

Daylighting/Solar Exposure

Sunlight is the most important source of light and energy for humans. We need sunlight to produce vitamin D and regulate our circadian rhythm. It plays a crucial role in metabolizing essential minerals and the production of serotonin. Its benefits can be gained through direct exposure outdoors, or indirectly through glazing (windows and skylights) in buildings. Because children spend up to 40 hours per week in school buildings, especially when they participate in after-school activities, it is essential to optimize their exposure to natural light whether indoors or by allowing them to spend more time in outdoor classrooms

Daylight: Additional Recommendations

01 Daylighting analysis: Perform daylighting analysis early in design to determine the optimum daylighting and glazing

strategies for each typical space.

02 Do not bid daylighting strategies as an alternate: The most economic and effective daylighting strategies are ones that are very well integrated into the design from a structural, mechanical, electrical and architectural standpoint.

Water

Indoor Plumbing: New high-efficiency, low-flow fixtures including sensor-operated faucets, dual-flush toilets, low-flow shower heads, and pint-per-flush urinals, together with a new central, high-efficiency gas-fired water heater for domestic hot water, will reduce the school's energy and water consumption.

Exterior Water Use: Shrubs and groundcover areas are minimized, and hardy, durable species will be drought-tolerant to reduce water demand. An automatic, low water-usage irrigation system will be used for all lawn, shrub and tree planting areas, including stormwater facilities. Automatic shut-off water connections are provided in the student and community gardens and in the outdoor play area.

Site Stormwater: The proposed modernization project includes new vegetated stormwater infiltration systems such as swales, planters, and basins. The new vegetated stormwater facilities will be integrated with site landscaping and architecture, and will manage runoff from the redeveloped portions of the site.

Water: Additional Recommendations

Analyze a rainwater harvesting system for further reduction of potable water use and educational purposes.

Analyze solar thermal hot water for additional energy efficiency and contribution to satisfying the Oregon state law, 1.5 Percent for Green Energy Technologies in Public Buildings requirements.

Metering: Provide building-level metering for water and submetering for exterior water use per LEEDv4 requirements. Investigate other opportunities for submetering water use.

Site

Tree Preservation: The design calls for the preservation and protection of the existing oak trees in both the east and west courtyards, and the preservation of existing healthy site trees elsewhere wherever possible. Approximately 350 new trees of varying sizes are required to meet the City of Portland's Tree Code, but given the physical limitations of the site, it is likely the project must pay into the city's tree fund for a portion of the number of required trees. Tree planting is also required in parking lot islands and stormwater basins.

Site: Additional Recommendations

Study further opportunities to add trees that meet the City of Portland's landscape requirements.

Energy

Mechanical: New central, high efficiency gas-fired boilers and new central, high efficiency chillers together with radiant floor slabs will provide a major upgrade in energy efficiency and occupant comfort.

Electrical: LED lighting will be used throughout the school in conjunction with occupancy/ vacancy sensors & daylight dimming. The anticipated efficiency is 30-40 percent better than Oregon Energy Code minimum.

Envelope (Windows): Replace existing windows with insulated glass units (IGUs), high performance glazing and thermally broken frames will help to improve the energy performance of the building.

Envelope (Walls/Roof): Upgrade insulation in

existing roofs and walls to meet or exceed the Oregon Energy Code.

Renewable Energy: The project falls under the requirements of the 1.5 Percent for Green Energy Technologies in Public Buildings. A preliminary analysis indicates the required spending would fund a PV 350kW PV array, which would need approximately 25,125 square foot and produce approximately 398,000 kWh per year.

Energy: Additional Recommendations

Building Commissioning will be required as a part of the PPS Design Guidelines. Additionally, energy savings are targeted to be 10 percent above savings from the current Oregon Energy Code minimum requirements. Strategies to be studied further during design include:

01 Use of light colored roof to reduce cooling loads

02 The existing building is elongated on an east-west axis, an optimal solar orientation to allow for passive heating:
- > Additional study to provide control of the solar income to reduce cooling loads and glare should be performed
- > The existing canopies provide shading for the south façade fenestration and should be kept in place. Study strategies to enhance and expand the canopies to locations that do not currently have exterior shading

03 Geo-exchange system for heating and cooling the school should be considered

04 Consider envelope commissioning to ensure proper installation of water, moisture and air barriers, in order to increase energy efficiency as well as improve occupant comfort, protect good air quality, and extend the life of the building

05 Provide whole-building per LEEDv4 requirements. Investigate opportunities for submetering that complements the building as a teaching tool and augment opportunities to track energy use