

DARIEN PUBLIC SCHOOLS

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To: Dr. Alan Addley, Superintendent of Schools
Cc: Richard Rudl, Director of Finance & Operations
Kevin Munrett, Director of Facilities
From: Colleen Thompson
Re: Darien High School; Auditorium Upgrade Memo
Date: 1/21/23

Dr. Addley-

The attached document provides more information about the Auditorium Upgrade project proposed in the Capital Facilities Budget for FY 24. Information is provided in each section as to how each upgrade ties into the curriculum. The project has been proposed to be completed over two years, utilizing a phased approach, which allows us to improve the space while maintaining functionality for classes, summer school, and performances.

The chart below summarizes the proposed upgrades and costs for the 2 year project, and lists the year 1 upgrades in priority order. We may choose to space out the upgrades over the span of several years; however, splitting up the project may impact our ability to achieve the best possible pricing.

Year 1:

Element	Cost
Priority 1 - Audio Improvement: Microphones, Speakers, Controls	\$400,000
Priority 2 - Video, streaming and recording: Video system and Deca Tree Mounting	\$53,000
Priority 3 - Communications and Intercom	\$25,000
Priority 4 - Video Wall, Projector, Projection Screen	\$370,000
Priority 5 - Confidence Monitor	\$25,000
Total Year 1	\$873,000

Year 2:

Element	Cost
Lighting: LED Fixtures and Control	\$375,000
Staging: Drapery and stage apron	\$14,000
Total Year 2	\$389,000

DHS Auditorium Technology Upgrades

FY 2024 Priorities

Priority 1: Audio Improvement

Upgrades needed:

- Microphones: Add a new 12-channel system for both handheld and body-pack microphones and a piano condenser microphone
- Speakers: Replace existing speakers with updated line array speakers to deliver high quality sound throughout the venue
- Controls: Replace old audio control system with fully digital touchscreens

Estimated cost: \$400,000

Summary of needs:

- The existing wireless microphones were delivered 15 years ago, of which only 3 are still operational (2 handhelds and 1 wireless). The existing recording microphones for piano and vocals are equally as aged, and do not deliver the quality that is expected upon today's standards. In a space as large as our current auditorium, we need to have enough high quality microphones placed in several locations on stage to properly amplify our musicians.
- The space's current speakers are original to the building, and were designed to deliver speech and presentations in the space, not music or theatrical productions. We need to replace these with line array speakers to ensure that audience members in every seat in the auditorium can hear our student performers during concerts and productions.
- The existing audio control system is outdated and complicated, requiring highly trained operators for every event. By replacing the audio control system with a fully-digital touch screen, we can pre-set channels to turn on microphones for smaller meetings and events with the touch of a button, reducing the need for trained audio technicians at every event. With this system, our music and theater students will be able to design and control the sound for concerts and productions with excellence.

Impact on curriculum: The audio upgrades will have wide-reaching benefits to our students to the nearly 1,900 students who perform every year in the DHS auditorium. Access to this high quality audio equipment will positively impact our music curriculum by providing students with the ability to more accurately and effectively produce and analyze music. Our music and theater technology students will be able to study sound design more effectively on this upgraded system, giving them a better understanding of how the creation and manipulation of sound can result in a more immersive, dynamic experience that allows the audience to better connect with the performance.

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Priority 2: Video, streaming and recording

Upgrades needed:

- Video system: Replace the existing video system with High Definition cameras, switchers, recorders, and streamers that will deliver upon today's expectations. This system includes (4) robotic cameras controlled from the Control Room, and (1) static cameras located on the center balcony.
- Decca Tree Mounting- The music department has an audio recording device called a Decca Tree that needs to be mounted permanently in the auditorium. A Decca Tree is a type of microphone array that is used to improve the recording quality of live performances.

Estimated cost: \$53,000

Summary of needs:

- The current streaming and recording system is low-resolution and was designed for broadcast to the standard definition public TV station. This system does not provide acceptable video or audio quality for streaming and recording. We currently rely on DAF media to stream events, which they are only able to do if they are not already booked to stream another event in-district. We often rely on ipads set up on a stand or parent volunteers to record our concerts on a phone.
- The Decca Tree was used to record one concert last year and provided superior sound quality. It was temporarily mounted on a stand in the center of the stage, and while it provided excellent sound quality, the positioning blocked sight lines to the stage and it was labor-intensive to set up and tear down. By mounting it permanently in front of the stage, it can be used to provide high-quality sound recording for every concert without blocking sight lines or requiring extensive set-up and tear-down.

Impact on curriculum: It is vitally important that we have the ability to make high quality video and audio recordings of our performances in the auditorium. Students and teachers use these recordings to analyze their performance, tracking growth over time and identifying areas of improvement for future performances. Teachers often submit these recordings to professional organizations to apply for audition-only festival performances, and students use them for college applications. Recording and live-streaming our concerts allows us to share performances with a larger audience and provide a permanent record of performances to share with future generations.

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FY 2024 Priorities

Priority 3: Communications and intercom
<p>Upgrades needed:</p> <ul style="list-style-type: none"> ● Replace inoperable base systems and retrofit the existing system with wireless functionality.
<p>Estimated cost: \$25,000</p>
<p>Summary of needs:</p> <ul style="list-style-type: none"> ● The intercom system allows technical operators in the control room, stage, and catwalks to communicate with each other. ● The existing wired intercom system is original to the building and included (8) wired communication stations, of which (4) are operational. ● The upgrade will replace the inoperable base stations and upgrade the whole system to wireless technology, allowing further flexibility and longevity in the system.
<p>Impact on curriculum: Student technical operators need to be able to communicate with the directors and with each other during musical and theatrical performances. These upgrades will improve the technical quality of our performances and will allow directors and student leaders to more effectively manage the entire tech crew.</p>

Priority 4: Video wall
<p>Upgrades needed:</p> <ul style="list-style-type: none"> ● Replace the existing projection screen with an electric drop-down screen that lowers in front of the main red curtain of the auditorium ● Replace the existing projector with a new 10K lumen projector ● Add an LED Video Wall at the position of the current projection screen, allowing for high resolution, high brightness content and video to be shared and viewable by every seat in the space
<p>Estimated cost: \$370,000</p>
<p>Summary of needs:</p> <ul style="list-style-type: none"> ● Projection: <ul style="list-style-type: none"> ○ The current projection screen is a manual raise/lower, meaning that a technician needs to climb up onto the catwalk every time the screen needs to be raised or lowered. It is also located mid-stage, meaning that it cannot be used when the stage is set up for a concert or theater production. By replacing it with an electric drop-down screen positioned in the front of the stage, it can be used for presentations at any time, even when there is a large production set up on stage, and can be easily lowered and raised without the need for someone to climb up to the catwalk. ○ The current projection screen is an older square aspect ratio (4:3), when the

DHS Auditorium Technology Upgrades

FY 2024 Priorities

majority of content projected is widescreen aspect ratio (16:9), making content difficult to see. The current projector requires lower light levels to be seen adequately, which is not practical for most presentations. By replacing the current projection screen and replacing the existing projector with a new 10K lumen projector, we will be able to project images that are properly formatted and visible in higher light environments.

- LED Video Wall
 - We currently do not typically utilize projection in our music and theater productions because the images are disturbed by the setup on stage.
 - When we do use projection, the images are not visible from some areas of the auditorium and they do not show up well on streams and broadcasts.
 - The video wall will allow us to share clear, bright visual images that are viewable from every seat in the auditorium and on streams and broadcasts. Because LED walls are their own source of light, the images they present appear crisper and more vivid to the viewer. Presenters and performers on stage can be positioned anywhere on stage without disrupting the images or casting shadows.
 - Video walls are becoming the industry standard and are being installed widely in conference rooms, theaters, arenas, and any space where projection is used. They are durable and low maintenance, and can be more cost effective than projection screens as they have a longer lifespan, lower maintenance cost, and are more energy efficient. (See images on next page.)

Impact on curriculum:

- Upgrading our current projection capabilities will have a positive impact on our music and theater programs. We are often limited on the days we can rehearse on stage because we have to keep the front of the stage clear to use the projection screen for presentations. By moving the screen forward, we can utilize full stage set-up at any time of year, increasing the number and quality of our rehearsals before concerts and theater productions.
- Adding an LED video screen would have a huge impact on our theater curriculum because it would allow us to utilize virtual sets. LED video walls are widely used in theater productions to display video content that serves as the backdrop and scenery for a performance. This creates the ability to easily change the background or scene between acts of a show. More importantly, it allows for a more dynamic and versatile set design, providing the opportunity to create special effects, such as lighting and weather effects, that would be impossible to achieve with traditional set design. The use of virtual sets would greatly reduce the cost of building traditional sets.
- This technology would allow students in music and theater tech, art, film, web design, and other STEM classes to collaborate and create innovative digital content. Our students will learn how to design, operate, and manage LED video walls for live events such as concerts, theater productions, and conferences. This training will be invaluable for students applying to college in various fields, such as media, design, business and marketing, engineering, and the arts.

DHS Auditorium Technology Upgrades

FY 2024 Priorities

Examples of LED video screens for music and theater:



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Priority 5: Confidence Monitor

Upgrades needed: Add a video distribution system and camera focused on the conductor and an 86" monitor mounted to the balcony that will allow students to see a video feed of the conductor wherever they are in the space.

Estimated cost: \$25,000

Summary of needs:

- Students don't have good visibility of the conductor during performances
- It is typical to utilize a confidence monitor during a musical theater production in a large theater like ours. The design of our auditorium does not allow for a portable or temporary monitor to be set-up because it would block the main entrance to the theater, so we would have to mount one permanently in the balcony in order for it to be usable
- The monitor could also be used by speakers and presenters in the auditorium, allowing them to maintain eye contact with the audience while accessing speaker notes

Impact on curriculum: Student performers would be able to deliver consistently confident, polished performances because they will be able to use the confidence monitor to communicate with the conductor. Directors can utilize more creative and complicated set design and staging without worrying whether the performers can see the conductor. Students giving speeches and presentations in the auditorium can use the monitor to maintain eye contact with the audience, preparing them to present in professional environments.

Example of confidence monitor: In our theater, the monitor on the floor would be mounted on the balcony.

