November 6, 2024

To: Shrewsbury School Committee

From: Ms. Karen Ares, SHS Career and Technical Education Coordinator
Mr. Todd Bazydlo, Principal, Shrewsbury High School
Ms. Angie Flynn, SHS Director of School Counseling
Mr. David Hruskoci, SHS Director of Science & Engineering
Dr. Jane O. Lizotte, Assistant Superintendent for Community Partnerships & Well-Being

Re: Career Technical Education and Innovation Career Pathways Update

Educational Excellence Priority 3: Advance Career and Technical Education
Strengthen all students' postsecondary preparedness by expanding access to career and technical education, evaluating course offerings, and exploring pathway opportunities

The mission of the Shrewsbury Public Schools highlights the importance of partnering with the community, as we support each of our students to become creative thinkers, empowered learners, communicators, problem solvers, responsible contributors, courageous individuals, and empathetic human beings: **The Shrewsbury Public Schools, *in partnership with the community*, will provide students with the skills and knowledge for the 21st century, an appreciation of our democratic tradition, and the desire to continue to learn throughout life.** In our roles as coordinators, directors, principals, and assistant superintendents, we are committed to advancing Career Technical Education and Innovation Career Pathways, strengthening community partnerships, and broadening SHS course offerings, while endeavoring to help our students develop the skills and knowledge needed to pursue meaningful careers before they graduate from SHS. We strive to support workforce development to address the skills gap in the job market while designing strong partnerships with employers. In doing so, we are better equipped to provide meaningful exposure to school and career opportunities.

Career Technical Education Update

This past summer, **126** SHS students participated in virtual, paid internships and project experiences through the Work-Based Learning Alliance (WBLA). The goal of WBLA is to provide equitable, paid, career-connected learning experiences to high school students. Of the 126 students, 27% were rising sophomores, 24% were rising juniors, 41% were rising seniors, and 4% were recent graduates. Student interns worked virtually with a team of other MA high school students with an industry mentor on a specific task. For example, students analyzed demographic data to aid in a potential industry expansion, designed recreational spaces with specific constraints and budgets and created marketing materials with clear and concise messages. Some student feedback about their experiences is **here**. This work continues throughout the school year, as WBLA offers fall, spring, and summer internships and project experiences. The fall cohort began the week of October 21st. There are 29 students participating this fall. In the coming weeks, announcements and informational meetings will be held for students wishing to register for the spring cohort. The goal is to prioritize students who need this experience the most as well as supporting WBLA's mission to provide industry connected learning experiences while addressing the needs of historically marginalized and underrepresented student populations.

Innovation Career Pathways at SHS

On September 25th, SHS students in the Manufacturing Pathway, along with students in the PLTW Computer Integrated Manufacturing class (22 students), joined SHS educator, Rick Doherty, and CTE Coordinator, Karen Ares, at the Massachusetts Manufacturing Mashup at Gillette Stadium. This event is available free of charge to MA Innovation Career Pathway (ICP) schools. Students were greeted by the MA Secretary of Education, Dr. Patrick Tutwiler and engaged in a variety of hands-on workshops (i.e.-programming robotic arms to simulate a manufacturing assembly line, designing a new product for a global company, building a portable and sturdy bed for shelters). They also had an opportunity to meet with vendors at the "Innovation Expo" to learn about school and career opportunities and specific products made by Massachusetts companies. Lastly, during lunch, students listened to a keynote speaker, Captain Barrington Irving, who was very inspiring and passionate about his work. It was a great day of hands-on learning outside of the classroom; students would probably say the highlight of the day was the pizza bar for lunch!

SHS now has six Pathways: Manufacturing, Biomedical Science, Computer Science, Business, Early Childhood Education and TV Production/Film. Students (Gr. 9 and 10) have been enrolled in these pathways during course selection this past spring. Enrollment chart is below:

Pathway	Number of students- Gr. 9 (class of 2028)	Number of students- Gr. 10 (class of 2027)
Manufacturing (ICP)	4	6
Biomedical Science (ICP)	17	7
Business	10	3
Computer Science	9	None at this time
TV Production/Film	None at this time	1
Early Childhood Education	None at this time	None at this time

Students in Pathways have been placed in corresponding Advisories. This will facilitate communication moving forward with such items as career awareness activities, speakers, etc. Mrs. Ares has met with the teachers and directors for the 6 Pathways to discuss courses, career connection/exploration activities and events and ways to grow enrollment in the Pathways that will be forthcoming.

Advancing Career and Technical Exploration and Education Opportunities for Students

Shrewsbury High School CTE Coordinator, Karen Ares, has collaborated with school counselors to identify students who would benefit from exploring trade and other postsecondary career options. This year Mrs. Ares has developed the following schedule mainly for Grade 11 and 12 students. Additional new experiences will be added as they are scheduled. On Friday, October 25, Wayne J. Griffin Electrical visited SHS to discuss their electrician apprentice program, along with SHS Alumnus Michael Campbell (Class of 2019), who is currently in his third year of the program.

10/25/24	Advisory Info session- Wayne J. Griffin Electrician Apprentice program
11/21/24	Advisory Info session- Diesel Mechanic
12/4/24	Tour/Info session- Green Jobs Academy, Marlboro
12/11/24	Tour/Info session- Porter & Chester Institute, Worcester
1/27/25	Workshop day- Blackstone Valley Hub for Workforce

	Development, Whitinsville
Feb 2025	Workshop day- New England Carpenters Training Fund, Millbury
To be scheduled:	Info sessions: HVAC Plumbing Sonography Cosmetology

SHS has continued its partnership with BVHUB's Partnered Schools Program this year. To date, Karen has attended monthly meetings (labeled ICY meetings on the calendar) intended for school career counselors/internship coordinators, etc. as a networking opportunity. The updated calendar is here. We are awaiting communication from the BVHUB about these events and opportunities. One item to note is the Youthworks program, which offers paid employment and career enrichment opportunities for students who meet certain criteria. This program is available regardless if SHS is a partnered school, as it is a state-funded program. The students who participate in the RISE program are paid through the Youthworks program. The second round of applications will open in mid-November and Mrs. Ares will work with counselors, teachers (specifically special education and ELE) to identify students who may be eligible and able to participate in this program.

Additionally, Mrs. Ares is working with industry partners to pilot a small cohort of grade 12 internships this spring semester. More information will be provided as these experiences and partnerships are solidified.

The School Counseling department continues to expand its curricular offerings into classrooms to support student exploration of potential college and career pathways. The school counseling curriculum consists of a schedule of events, activities, individual and classroom presentations that address social, personal, and academic/career development and each session is tailored to different grade levels. For example, 9th graders start with high school orientation activities, including creating a vision board and attending meet and greet sessions with their assigned school counselor, while 10th grade students engage in personality career assessments and goal-setting workshops. Junior year includes activities for post-secondary planning that includes career exploration and college searches. Counselors also meet one-on-one with students in grade 11 for the initial post-secondary planning process. Senior year activities include post-secondary planning, life skills workshops, and exit interviews ensuring that all students are prepared for life after graduation.

In the 2023-2024 school year, Shrewsbury High School received a grant from the Department of Elementary and Secondary Education (DESE) in the amount of $5500 to implement My Career

and Academic Plan (MyCAP). MyCAP is a comprehensive curriculum framework for students in grades 9-12 designed to help students develop self-awareness, academic planning, and career readiness. The curriculum covers three main domains: Personal & Social Development, Career Development and Education, and Academic & College/Career Planning. For each grade level, specific objectives and activities are outlined that align with the school counseling curriculum. For the 2024-2025 school year, MyCAP curriculum will be implemented in the grade 9 Pathway advisories by school counselors. Grade 9 will focus on self-awareness in the personal social domain, by creating a four-year plan with short and long-term goals and creating a vision board for their future. The career development domain will include students completing a learning style inventory, and the academic and college/career planning domain will include students completing a four-year course planning document.

Project Lead the Way (PLTW) courses provide the course sequence for the Innovation Career Pathways and our additional Computer Science Pathway. Sequences are:

Biomedical Science	Principles of Biomedical Science (PBS) Human Body Systems (HBS) Medical Interventions (MI)
Manufacturing	Introduction to Engineering Design (IED) Principles of Engineering (POE) Computer Integrated Manufacturing (CIM)
Computer Science	Computer Science Principles (CSP) Computer Science A (CSA) Cybersecurity

The investment in these courses, curriculum, equipment, and teacher professional development is significant. Course enrollment for the 2024-25 school year is **here.**
On October 28th, PLTW teachers and the CTE Coordinator attended the annual fall conference in Framingham. It was an opportunity to learn more about specific course curriculum, collaborate with teachers from other schools in MA, and learn about opportunities for our students (i.e. student showcase events and industry connections) that are a key part of the PLTW community.

Advancing Community Partnerships

Shrewsbury High School's **Lunch and Learn** program continues on Fridays during all lunch periods. Lunch and Learn provides students with opportunities to learn about different career paths by interacting with guest speakers in a small group format. The program aims to create a relaxed and interactive environment where students can ask

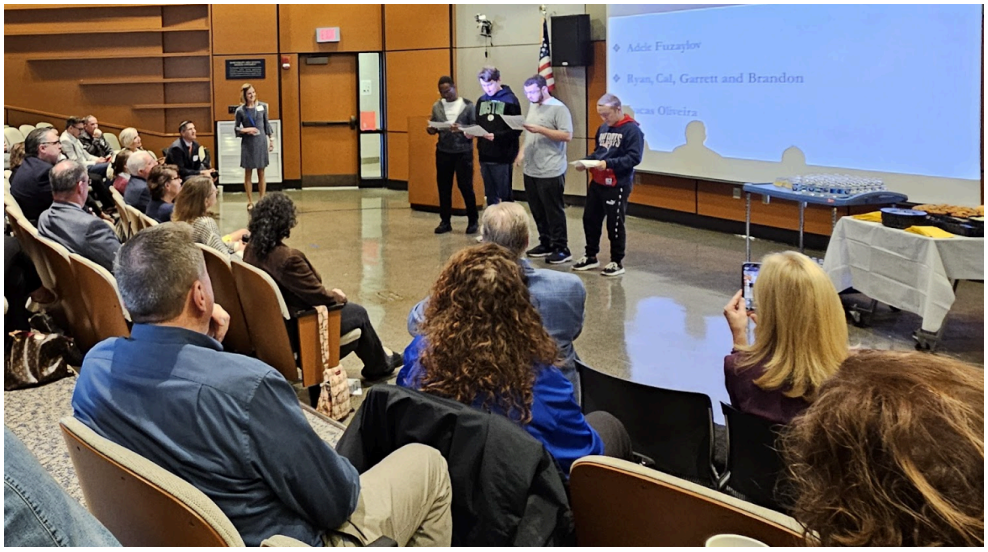
questions, gain insights, and connect with professionals from various fields. Kathleen Keohane, SPS's Director of Alumni Development and Community Relationships, has scheduled volunteers including SPS alumni and community partners through May, 2025. The SHS Lunch and Learn schedules are here for **October** and **November**. These opportunities have been expanded to include all seventh and eighth grade students at Oak Middle School beginning on Friday, November 8th.

Shrewsbury High School hosted a **Community Partnership Breakfast** on Thursday morning, October 10th. Approximately 35 community partners, 17 school and district staff, and six students were in attendance. The community partners are listed below. Participants shared and learned ways in which the Shrewsbury Public Schools is seeking to strengthen career exploration, Career and Technical Education, and Innovation Career Pathways experiences for students. We are very grateful to these individuals for taking time from their busy schedules to join us. The students in attendance shared their school to work experiences with those in attendance. Some students continued conversations with potential employers immediately following the event. This is one example of a win-win opportunity for students and community members alike.

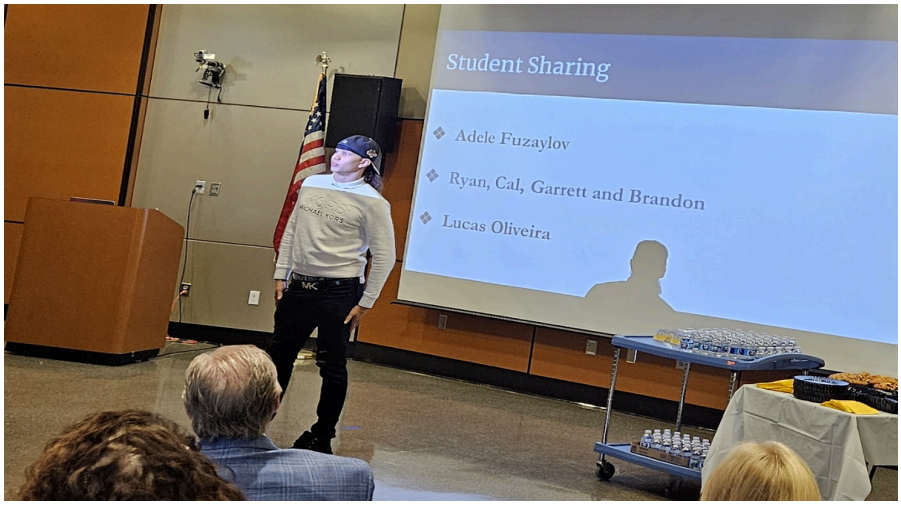
Community Partner Breakfast Attendees- October 10, 2024

Alyson	Avoglia	Tech Learning Center
Wendy	Brown	Unibank
Nick	Bushati	Unibank
Minnie	Cargill	TJX Companies
Rayanne	Chatrieux	Marvell Semiconductors
Renee	D'Argento	COA outreach
Kris	DeNorscia	CSI Group, Component Sources International, Inc.
Heather	Forchilli	Central One Federal Credit Union
Dave	Garvin	Worcester Chamber of Commerce
Chris	Girardi	SPS
Ian	Gregory	Kiwa Solar
Andrew	Hawkins	Commonwealth of Massachusetts, Department of Conservation and Recreation
Kristin	Hochwarter	Claremont Corp
Lauren	Hopper	Commonwealth of Massachusetts, Department of Conservation and Recreation, various locations
Amelia	Houghton	Worcester Public Health

Karen	Isaacson	Director of Extended Learning, SPS
Dave	Kaiser	Central One Federal Credit Union
Kathleen	Keohane	SPS
Annie Lee	King	SPS Library
Rouyada	Kurdi	TJX Companies
Jammie	Lussier	SHS Counseling
Christopher	Mayen	RH White Construction
Kathy	McSweeney	Realtors Association
Bruce	Mendelsohn	Mass Hire
Mark	Murray	Worcester Business Journal
Don	Musial	WIN Technologies
Irene	Nyanuba	Worcester Public Health
Kristina	Ordung	Town of Shrewsbury
Anjali	Paranjape	Unibank
Sera	Perrotta	Charles River Laboratory
Ragoo	Raghunathan	Neuroscientist
Nathan	Rollins	Kiwa Solar
Owen	Russell	Central One Federal Credit Union
Melissa	Scher	UMASS Medical School
Courtney	Sibinich	Salmon Health and Retirement
Mary	Simone	AC Marriott
David	Snowdon	Town of Shrewsbury
Sharyn	Thomas	Town of Shrewsbury
Dave	Easson	MBI and Chief Manufacturing Officer, Solarea Bio



RISE students, Carl, Brandon, Ryan, and Garrett share internship and work experiences.



SHS student, Lucas Oliveira, shares ways in which his day at Massachusetts Firefighting Academy last spring impacted his interest in becoming an electrician.



Mary Simone, Shrewsbury resident and community partner, describes ways in which SHS students are engaged in a variety of roles at the AC Marriott Hotel.

Efficiencies Through Use of Grants or Alternative Funding in Fiscal Year 2025

As shared with you in the Spring, 2024, the following grants and alternative funds have been awarded through Project Lead the Way and Innovation Career Pathways grant funding through the Massachusetts Department of Elementary and Secondary Education:

- One8 Foundation Project Lead the Way (PLTW) High School Engineering grant funding ($40,000 over 3 years) utilized to offset the costs associated with the Project Lead the Way Engineering program. This includes equipment, technology, and educator training.
- MA Department of Elementary and Secondary Education (DESE) sponsored Innovation Career Pathways Planning Grant Funding ($25,000)
- MA Department of Elementary and Secondary Education (DESE) sponsored Innovation Career Pathways Designation Grant Funding ($75,000-anticipated)

- MA Department of Elementary and Secondary Education (DESE) sponsored MyCAP Grant Funding ($5,500)
- WIN Waste Innovations donation (Spring 2023)-($17,500 earmarked for career exploration programming at SHS)
- PLTW grant sponsored by Lockheed Martin for engineering - $10,000
- PLTW grant sponsored by Arthur Blanchard Charitable Trust - $10,000
- Estimated total use of grants/alternative funds in FY 24 & FY25: ~**$183,000**

SPS continues to apply for additional grant funding to support Innovation Career Pathways and Career Technical Education, and Project Lead the Way.

Use of Funding

Biomedical Pathway:

- Purchased equipment to expand the program by adding the 3rd course in the PLTW pathway sequence: Medical Interventions.
- Teacher training for the new Medical Interventions course
- Purchased equipment to meet the needs of a growing program from 1 section to 4 sections of Human Body Systems (2nd course in pathway program.)

Engineering Pathway:

- Replaced all existing equipment for Intro to Engineering Design (IED) and Principles of Engineering (POE) to meet current curriculum standards.
- Purchased equipment needed to expand the program by adding the 3rd course in the PLTW pathway sequence: Computer Integrated Manufacturing (CIM)
- Teacher training for new CIM course
- Teacher training for POE course

Projecting Future Resource and Funding Needs

PLTW Engineering and Biomed courses incorporate a multitude of hands-on labs, projects, experiments, and investigations for students. Implementing these experiences requires the purchase of consumable materials each year. Up until now, the consumable costs have been rolled into, and included in, the funding used to start-up the courses and pathways. However, as the program continues, and grant funding subsides, there is an estimated annual expense of $37,000 required to maintain programming each year. Not included in this estimate, and already incorporated into the annual school/department budget, is the annual participation fee that PLTW charges to access software licenses and curriculum materials. This annual fee ranges

from $2200 - $3200 per pathway (Computer Science, BioMed, Engineering) but is capped at a $5400 bundle package.

The following table provides a breakdown of the consumable expenses associated with the 24-25 school year - Again please note that these expenses were included in upstart costs for the program and funded through grant sources.

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PLTW Consumable Expenses For 24-25 School Year

Course	Cost for 1 section	24-25 Sections	Multiplier	* Actual Cost for 24-25
Intro Engineering Design	$2,600.00	2	$5,200.00	$3,900.00
Principles of Engineering	$1,100.00	2	$2,200.00	$1,900.00
Comp. Integrated Manufacturing	$1,100.00	1	$1,100.00	$1,100.00
Principles of BioMedical Science	$3,600.00	3	$10,800.00	$9,300.00
Human Body Systems	$4,700.00	4	$18,800.00	$15,800.00
Medical Interventions	$4,900.00	1	$4,900.00	$4,900.00
		Total	$43,000.00	* $36,900.00

* Multiple sections are able to share some consumable materials which in this case reduced the expected cost by $6,100

Durable equipment (equipment that is used from one year to the next) are one-time expenses that must also be considered in order to sustain the pathway programs over time. For example - the Vex robotics kits that are used in two of the engineering courses cost approximately $5000 each. The new CNC milling machine was purchased for nearly $18,000. As these kits, parts, and units wear down over time, budgeting for replacement cost should be considered. The most immediate need in this regard is to replace the desktop computers that operate the engineering software. Currently we have 24 computers split between two engineering labs. These computers were first purchased around 2015. They were most recently upgraded around 2020. At this time the computers are nearly 10 years old and despite their upgrade, their functionality has been diminished and can be unpredictable. We estimate a cost of $2000 per unit or $48,000 to replace all existing engineering computers. With this said, the 12 computers that operate the Intro Engineering Design, and Computer Integrated Manufacturing courses have the greatest and most pressing need of replacement ($24,000).

Seeking Continued CTE Partnership Grant Funding through DESE

In mid-October, 2024, members of our team submitted a DESE Grant (FC 0412 CTE Partnership Grant) in the amount of $181,020. The purpose of this competitive Career and Technical Education Partnership Grant "is to support regional and local partnerships to expand existing and/or develop new CTE programs and initiatives that increase student access to CTE opportunities, primarily through more effective use and integration of existing capacity and resources. Services provided are to supplement currently funded local, state, and federal programs."

According to DESE, priority will be given to applicants that provide students access to Chapter 74 level programming. This includes districts that can demonstrate success in providing high-quality Chapter 74 state-approved technical education programs, and provide students with a sequence of courses that will lead to technical skill proficiency, an industry-recognized credential, and/or an associate degree.

Potential Partnership between Shrewsbury Public Schools and Leicester Public Schools

The grant funding application described above promotes CTE partnerships between high schools and Chapter 74 vocational technical education programs. The recently proposed *preferred* partnership between Shrewsbury Public Schools and Leicester Public Schools is one example. Please see the additional information regarding that proposal provided in other reports for details.

Thank you for your time.