

Standard 5 Indicator 12

Narrative Program Summary

Policies and procedures at GLTHS are readily available to all personnel and to the public through the school website and on-site on campus. These policies and procedures are available in English, Spanish, Khmer, and Portuguese. These policies include:

- Bullying policy and procedures for reporting an incident
- Guidance and Admissions policy for new and transferring students
- Academic and Program of studies for 9-12 grade levels
- Athletic policies including academic and health requirements as well as ineligibility
- SPED, ELL, TITLE I, and 504 policies that are reviewed and signed yearly
- Conflict of Interest policies which are required to be reviewed and signed yearly
- Restraint Policy
- ALICE and Fire Drill, and building evacuation policy
- Stair Chair Training and Area of Safe Refuge policy
- Staff and Student Emergency procedure
- Facility Rental policy
- School ID policy
- In-Kind Donation policy
- Collective Bargaining agreements

Sources of Evidence

- self-study

Standard 5 Indicator 13

Narrative Program Summary

The School Improvement Plan at GLTHS is written with input from administration, academic and technical instructors. School council, including student members, as well as the school advisory boards are provide an opportunity for input. The school improvement plan includes three goals and strategies, as well as timelines for completion, person(s) responsible, and desired outcomes as measures of success. The main focus is to improve student achievement and to narrow the achievement gap. Participation was encouraged via email from all teachers, including support staff. The SIP was presented by school leadership and accepted by the School Committee.

Accountability measures have been clearly identified in the SIP for each of the three goals. These measures include identified activities for each objective and who in the building is responsible for ensuring they are carried out and meet the desired outcomes in the SIP. For example, SIP goal 1 identifies the Assistant Superintendent/Principal working with Cluster Chairs, Director of SPED and Professional Development works to ensure that GLTHS creates an engaging remote learning environment focuses on daily participation through discussions, projects, and creative assignments that are both rigorous and relevant for all students.

Sources of Evidence

- self-study

Standard 5 Indicator 14

Narrative Program Summary

Students at GLTHS are welcomed, encouraged, and recruited to participate in student government/leadership, regardless of their academics, special needs, or language requirements. Interpreters are provided to students who need language assistance and any student who requires a para-professional is provided one. All extra-curriculars are offered free of charge to students with free transportation and free equipment. Organizations include: student council, student representatives for school committees/school council/tech advisory, class officers, SkillsUSA officers, SkillsUSA delegates, school ambassadors, and sports captains.

Sources of Evidence

- self-study
- panel presentation
- teacher interview
- teachers
- department leaders
- school leadership

Standard 5 Indicator 15

Narrative Program Summary

The school calendar at GLTHS has been designed to minimize the disruptions to the school's educational program. There are two professional development days before school opens each year, and other professional development days on scheduled half days. During the pandemic teachers engaged in a 10 day professional development series to prepare and develop new skills for the demands of digital learning. Regularly, early release or delayed opening rotate to ensure equity in learning opportunities. Class meeting schedule rotates for equity in class attendance. Freshmen attend academics every week. Sophomores, juniors, and seniors have an every other week schedule. Additional support in Math is offered on shop week. MCAS prep is part of the regular school day, along with MCAS "Boot Camp," (after school and morning help). Guidance rarely removes students from classroom instruction.

Sources of Evidence

- self-study

Standard 5 Indicator 16

Narrative Program Summary

GLTHS supports gender equity and individual student's gender expression within all coursework, sports, Skills USA, school leadership/government, and school activities/clubs. In addition, to encouraging and actively recruiting students, GLTHS also uses "gender-friendly" signage and posters that show students engaging in non-traditional occupations and lifestyles, so that students feel represented and welcomed. There is gender equity training for all instructors and this is supported via new teacher training, as well as on-going professional development and support. King and Queen titles for Homecoming have been replaced with "Homecoming Court" and graduation caps and gowns are unisex. Non-traditional participation is encouraged in all sports that do not offer both a male and female teams, including football, wrestling, cheerleading, and hockey.

Sources of Evidence

- self-study
- panel presentation
- teacher interview
- teachers
- school leadership

Standard 5 Commendations

Commendation

The program of studies offers courses that meet individual student learning needs with both intervention and challenging courses (AP, Dual enrollment) for students planning to attend college or seeking more rigorous classroom experiences. (5.2, 5.5)

Commendation

The school culture is made inclusive and safe by all members of the GLTHS community, offering students a nurturing environment full of opportunities to explore themselves and the world around them. (5.1, 5.2, 5.14)

Commendation

The three after-school bus runs organized by the administration provide all students the opportunity to participate in after school sports and activities. (5.2)

Commendation

The Transitional Occupations Program (TOPs) established by the administration provides educational opportunities for students in the surrounding community with a moderate to substantial level of generalized learning problems and intellectual disabilities. (5.2)

Standard 5 Recommendations

Recommendations

Explore ways to address scheduling and counselor assignments in order to make communication more efficient between the counselling department and shop teachers. (5.1, 5.5)

Recommendations

Continue to find and offer opportunities to identify and support teacher-leaders in efforts to deliver professional development as in-service facilitators of best practices, especially in the area of technology tools. (5.3, 5.8)

Recommendations

Reflect on the communication channels in place concerning transportation offerings available to provide students off-site co-op learning opportunities. (7.1)

Standard 6 Indicator 1

Narrative Program Summary

At GLTHS all students have an equal opportunity to achieve the school's learning expectations. GLTHS is an inclusive school, committed to a learning environment that increases student achievement and develops confident learners. GLTHS believes in the philosophy and goals of the Massachusetts Curriculum Frameworks and the Massachusetts Vocational Technical Education Frameworks, this is to ensure students attain the academic and technical skills required to secure employment, post-secondary studies, or to pursue a combination of both. The GLTHS faculty commits to the highest standards of instruction in technical and academic areas and through the opportunity of co-curricular activities that have a positive impact on student's intellectual, physical, social-emotional development to ensure leadership, teamwork and problem solving.

Evidence supporting GLTHS equal opportunity to achieve the school's learning expectations is supported in GLTHS 2020-2021 Student Handbook, reflected in the schools core values: Respect, Effort, Accountability, Commitment, and Honesty (REACH) The following is a list of programs and services to reach GLTHS equal opportunity learning expectations:

- Handicap Accessibility Freshman Welcoming Day
- Attendance Action Plans Reader/Writer Workshop
- English Language Learners Program/Bi Lingual Paraprofessionals
- Student Assistance Team Meetings
- Rise Program
- District Curriculum Accommodation Plan Inclusionary Model Classrooms
- SEPAC Co-Op Placement
- Adjustment Counselors
- Peer Mentors
- Study Skills College Prep Courses
- Credit Recovery Program
- MCAS Support Program
- Before and After School Tutoring
- Home Tutoring
- Summer School Summit
- Academic Support
- Naviance
- STEM Coordinator
- Student Handbook/Parental Online Access Aspen/X2 Parent Liaisons

Sources of Evidence

- self-study
- teacher interview
- department leaders

Standard 6 Indicator 2

Narrative Program Summary

At GLTHS, the physical areas for student support services are appropriate for the particular service and ensure privacy and confidentiality. The school consistently provides timely and pertinent information to families, especially those most in need, regarding information about each program area of student support services.

The School Counseling suite is located on the third floor. As you enter the suite there is one guidance secretary located at the entryway. The School Counselors and Adjustment Counselors each have their own offices, with the exception of one Adjustment Counselor, the office is located outside of the suite. There are eight School Counselors and three Adjustment Counselors. Each counselor takes proactive measures to ensure that student privacy and confidentiality is protected. This is achieved through a variety of methods. Individual conversations are confidential except in the event that the student is speaking about hurting themselves and/or others and/or further parent/guardian intervention is needed.

Within their offices there is a desk, a table to run groups. Some of the offices have a window, phone, and computer. Filing cabinets are provided in individual offices that are fireproof and locked. Offices are also equipped with sound machines for noise cancellation. All office doors have a lock along with the main guidance suite door. Within each individual room, there are windows with blinds and larger tables are located in the guidance conference room. This year as a result of the pandemic, the conference room is being used as a classroom to provide for spacing.

Located on the School Counseling webpage, students can access a virtual tour of their School Counselor or Adjustment Counselors office. Each virtual office is designed like the counselors office within GLTHS. Within the virtual counselors office(s), students can click on labeled items (books, bulletin boards), with a variety of topics ranging from, attendance, Naviance, make an appointment, and post-secondary planning. When the student clicks on the labeled item, the student will be redirected to another page pertaining to what they clicked on.

The School Counselors are broken up by alpha split in grades 9-11, seniors are dictated by shop for the remainder of the 2020-2021 school year. School Counselors will be full alpha split next year for continuity of service and curriculum delivery.

The school nurses have individual offices, privacy screens, and a waiting area for students outside their offices. This allows students to be seen one by one. Additional individual exam rooms or conference rooms are provided as needed to students, parents, and community agencies.

Every counselor and nurse strives to build a rapport with students that is based on trust and support. A great deal of which is achieved by protecting student privacy and confidentiality, as well as being an advocate for the student.

Sources of Evidence

- school support staff

Standard 6 Indicator 3

Narrative Program Summary

The school maintains all student, alumnae, administrative, and personnel records in a confidential and secure manner consistent with federal, state, and local laws or regulations. GLTHS follows all applicable state and federal laws concerning the confidentiality of student records including:

- 603. CMR 23.00: is promulgated to insure parents' and students' rights of confidentiality, inspection, amendment, and destruction of student records and to assist local school systems in adhering to the law. 603 CMR 23.00 should be liberally construed for these purposes
- MGL c. 71. Section 34H
- Family Educational Rights and Privacy Act (FERPA)
- GLTHS provides numerous areas designated to the security of records.

A review of the Student Record Log is provided for school staff as a Confidentiality of Student Records Training PowerPoint. The log indicates the following: A log shall be kept as part of each student's record. If parts of the student record are separately located, a separate log shall be kept with each part. The log shall indicate all persons who have obtained access to the student record, stating: the name, position and signature of the person releasing the information; the name, position and, if a third party, the affiliation if any, of the person who is to receive the information; the date of access; the parts of the record to which access was obtained; and the purpose of such access. Unless student record information is to be deleted or released, this log requirement shall not apply to: (a) authorized school personnel who inspect the student record; (b) administrative office staff and clerical personnel who add information to or obtain access to the student record; and (c) school nurses who inspect the student health record.

Student files are secured within the School Counseling Department as follows:

- Students' cumulative files are kept in locked cabinets in the School Counselor's offices. School Counselors have electronic access to the IEP's and 504 Plans for the students they serve. Student cumulative records are held for 5 years after graduation. Student transcripts are held for 60 years after graduation.
- GLTHS uses an electronic database called Aspen/X2, as the primary source of electronic student records for data. This data includes demographic information, contacts, scheduling, trading, transcripts, assessments, attendance, conduct/discipline health information and other associated data.
- Student health records are kept in locked file cabinets in the second floor Nurse's office. The students who participate in the Transitional Occupations Program (TOP's) have their records stored in the first floor nursing station due to its proximity to the TOP's program areas.
- The nurses are responsible for entering health information from the incoming students' previous schools into the Student Information System on Aspen/X2. Medical emergency information is displayed in the individual teachers' Grade Books through a medical icon.
- The same icon will also indicate to teachers if a student is a 504 or Special Education Student.

All health records are kept confidential and medical information can only be released with the consent of the parent or guardian. The health records are maintained in the Nurse's office until graduation when they become the property of the graduating senior. Special Education records have increased security measures. For example, hard copies of records are secured in a locked/fireproof, supervised area within the Special Education Department. Special education instructors have access to their students' records in this area and records may not be removed.

Aspen/X2 system is utilized by the Special Education Department to create and maintain the instructional modifications and accommodations required for special education students. The system is login restrictive and password protected. Authorized members of the Special Education staff have access to these records. General Education instructors have an icon identification in their Grade Book that alerts them to the fact that there are student instructional considerations for this student. If a general education instructor wishes to review a file, the

file must first be authorized by the Special Education Director and must be read in the secure area and not removed.

At the beginning of each school year, the Special Education Department distributes forms for teachers to review and directions on how teachers can access IEP documents. An icon is displayed in teacher grade books to remind teachers of those students with an IEP. IEP records are held for 7 years after graduation and 504 Plans are held for 5 year years after graduation.

Additional secured files include:

- Alumni files are secured within a locked area in Guidance.
- Administrative files are secured within a locked area in the Superintendent's office.
- Personnel records are secured within a locked area in the Human Resource Office.

Sources of Evidence

- school support staff

Standard 6 Indicator 4

Narrative Program Summary

School/center counseling services have access to adequate number of certified/licensed personnel and support staff who:

- provide academic, career, and personal counseling
- deliver a written, developmental program
- engage in individual and group meetings with students
- deliver collaborative outreach and referral to community and area mental health agencies and social service providers
- provide preventative health services and direct intervention services including emergency care
- conduct ongoing student health assessments
- inform faculty and staff of medical conditions of their students when appropriate
- securely maintain student health records
- use ongoing, relevant assessment data, including feedback from the school/center community, to improve services and ensure each student achieves the school/center's learning expectations.

The School Counseling Department at Greater Lowell Technical High School empowers all students to reach their truest potential by providing academic, technical, and personal support in collaboration with guardians, teachers, and support staff. GLTHS has a total of 8 licensed School Counselors and 2 licensed Adjustment Counselors in the School Counseling Department. These counselors are responsible for delivering a comprehensive developmental guidance curriculum to grades 9-12. Together, they offer a comprehensive developmental counseling program.

Every student is assigned a School Counselor. Adjustment Counselors are assigned based upon student need in grades 9-12. GLTHS School Counseling Department has one male Adjustment Counselor, two Male School Counselors, one bilingual School Counselor and one bilingual Adjustment Counselor.

GLTHS has two licensed school nurses and one licensed practical nurse who provide preventative health services and direct intervention services including emergency care and conduct ongoing student health assessments. Health records are securely maintained in a locked room on the second floor in the LPN's office areas with restricted access to specific personnel.

In addition to the School Counseling Department, the Special Education Department has one licensed School Counselor, four licensed Adjustment Counselors, and two licensed School Psychologists.

All School Counselors in the department have a caseload of approximately 275-300 students, slightly higher than the ASCA recommended counselor to student ratio of 250:1. Student caseloads were reassigned to follow an alpha split model, allowing for consistency for students and better curriculum delivery. Adjustment Counselors have a varying amount of students, based upon need, in grades 9-12, typically around 100 students each and conduct group counseling. Students are able to meet with their counselors at any time by making an appointment or by dropping into the guidance suite. As indicated on the School Counseling webpage, Students should make a meeting with their counselor for any questions or concerns by finding their counselor and clicking on their google classroom. Parents are encouraged to reach out to their student's counselor via email or phone. Virtual meetings can be requested as well by clicking on the virtual school counselor office link for your student's specific counselor which can be found in the sidebar.

During individual appointments counselors will work with students to support their needs relating to academic, career, and personal development. Counselors also deliver lessons to students in a classroom setting using Naviance. Each student's career plan is managed through Naviance. Counselors meet with students yearly to complete student individual learning goals. Throughout the year students work on developing three goals,

academic, career, and personal. Starting in 9th grade students complete a career survey as they complete the Career Interest Profile in Naviance, an assessment that is based on Holland's Code to assist students with their shop selection. As students advance to 10th grade they will continue to use Naviance for Career and College Planning, in 11th and 12th grade they will focus on Goal Setting, post-secondary planning and constructing their Resumes. In addition, the School Counseling Department provides all students with a post-secondary planning guide on their School Counseling webpage, detailing the following topics: options after high school, union information, military options, the college process, Naviance portal, CollegeBoard, Common Application, FAFSA, mefa, and scholarships information.

Each School Counselor in the Counseling Department participates in classroom lessons. There is an informally written guidance program, however, a part of the team goal for the 2019-2020 school year, the department collectively decided to create a consistent and comprehensive developmental guidance program appropriate for all grade levels using Naviance. School Adjustment Counselors run weekly small group counseling sessions for Anger Management and Bereavement.

School Counselors and Adjustment Counselors meet with students individually on a daily basis. The individual planning meetings range from:

- Academic, career, and post-secondary planning
- Technical program planning
- Armed services information and planning
- Scheduling conflicts-Social-emotional support
- Crisis intervention/resources
- Individual and group counseling
- Job placement and career counseling

Frequently the Counseling Department at GLTHS will collaborate with outside agencies. The department has a list of both Local Mental Health Resources as well as specific resources for Substance Use Disorder Treatment and Support Services. In addition, with student safety being a primary concern of the department, counselors will also collaborate with the School Resource Officer, make reports and respond to inquiries from the Department of Children and Families, and provide students and families with the information for Emergency Mental Health Services at Lahey Behavioral Health. In times of crisis, the Mobile Crisis Unit for Lahey Behavioral Health will also send a clinician to the school.

Lahey Behavioral is GLTHS mobile crisis unit. When a student is in crisis, an Adjustment Counselor will consult with Lahey and Lahey will come to GLTHS to assess the student and provide outside resources if needed. GLTHS coordinates with independent outside counselors, putting mental health on the forefront. If a student has an outside counselor, GLTHS will invite the counselor to come in and work with the student. With parent permission, counselors can enter the building, are fingerprinted, provided a space, and are allowed to meet with the student to ensure continuity of care. In addition, GLTHS also collaborates with NFI downtown in Lowell (<https://www.nfima.org/services/behavioral-health/lowell-family-resource-center/>). NFI provides students with community resources, specifically, unaccompanied minors and/or homeless students who need housing, or their basic needs met. GLTHS counselors meet with NFI representatives either in-person or through zoom calls to assist unaccompanied minors who need housing. GLTHS also collaborates with the Lowell food pantry and Caty's Closet for clothing. Students who are in need of steel toed boots or who need additional clothing or toiletries, GLTHS and these outside agencies work together to help students in need.

GLTHS has three full time nurses and one part time substitute nurse. One is a LPN and the other two are RN's. All School Nurses perform yearly vision and hearing screenings, BMI screenings and postural screenings. All staff have access to the medical emergency number, through the School Crisis Staff Handbook and they are posted on the Yellow Emergency Telephone Number Sheet. The Yellow Emergency flip chart is located in every classroom and indicates the following emergency numbers: Pool Emergencies call 911, Medical Emergencies - Nurse ext. 3333 (this extension will ring in all three nurse offices), Discipline Hotline ext. 4444, Discipline Office ext. 4418, and Security ext. 4995. Medical Nurses will see students on an as needed basis for care. They will also serve as the point of contact for parents when students need to be dismissed due to medical illness or need emergency transport to a local hospital. All nurses have their own office. Inside the nurses office there is a privacy screen, cot, medical chart (that locks), computer, desk, phone, fax private line. Only one nurse's office has a bathroom (if a student needs to access the bathroom he/she must use the one down the hall), one room has three separate rooms for students with cots, there are no windows in the offices except for the window on the

door, all offices have air purifiers, and all the doors lock.

School nurses will conduct BMI Screenings, Postural Screenings and Vision and Hearing screenings. (This happens 1x per year, but did not happen this year due to COVID, and the screening is only administered to grade 10 students.) The School Nurses have formed a partnership with Lowell Community Health Teen Clinic. The clinic comes into the school once a month and provides sexual health and wellness services to students. There is also a local physician that the school partners with to help with student sport physicals. Due to COVID, the partnership with Lowell Community Health Teen Clinic has not occurred this past year. Typically, once a month a nurse from Lowell Community Health would come to GLTHS and meet with students in the nurse's office on the second floor. Students are provided a private, confidential space to discuss any questions or concerns related to Reproductive Health. If the team wants to pursue a full exam or birth control, the student has to make an appointment to go downtown to the Lowell Community Health Teen Clinic and follow up with the parent/guardian.

GLTHS uses X2 as their Student Information System. All faculty and staff members have a log in. If students have a medical condition that staff should be aware of, it is listed in the medical icon next to the students name. In addition, if a student sustains a concussion, the School Counselor will email the teacher the concussion protocol that will provide the teachers information on school day accommodations. In the case of infectious diseases, the school nurse will provide a letter on the school letterhead regarding the disease and precautions to be taken if needed.

All school nurses maintain student health records. The files are stored in a secure, locked location within one of the nurse's offices. In addition, the school nurses also have a health view in X2, that requires certain privileges to access.

Student medical files are all stored in one nurses office grades 9-12. One nurses office holds the TOPS students medical records. The files are locked and in a fireproof cabinet. Teachers do not have access to X2 Health View. Nurses have the privileges in X2 Health View to add detailed descriptions of medical conditions, review student physicals, immunizations records, and record all student health visits.

Within each nurse's office you can find all medicine cabinets locked, epi-pens have separate cabinets, an eye wash station in each sink, refrigerator, ice machine, all supplies are locked in medical carts, the floor is tiled, and one window on the door.

Every two years the School Counseling Department assess their goals. Starting in 2018-2019 school counselors assessed their goals by completing a Massachusetts Accountability Report Card (M.A.R.C. Jr.) which is a Massachusetts School Counselor Association (MASCA) report to document continuous improvement for school counseling outcomes. This report is used to assess student outcomes and inform practice. As a department counselors reviewed data from Naviance and evaluated how effective their efforts were. Data indicated the School Counseling Department needed to improve their practice in reaching all students. One of the counseling department goals was to update their website and increase individual services for students. For example, therapeutic homerooms were assigned and created to address student attendance and behavior concerns. Through the utilization of therapeutic (7 minute) homerooms, led by School Counselor and Adjustment Counselors, they were able to connect with students on another platform. Data reflected an improvement in grades, attendance and behavior. Strategies initiated during the therapeutic homeroom included a motivational quote of the day, personal check-in's with each student, and if a counselor identified a student needed additional time, the counselor has the discretion to meet with the student after the allotted time to bring the student back to a better mental space. Students are assigned individual folders and counselors keep track of individual successes for students. Each success is marked with a celebration, and students receive a certificate to acknowledge improvement. For example, if a student's attendance improves, he/she may be allowed to have coffee cakes from the café or balloons.

Sources of Evidence

- self-study

- school support staff
- school website

Standard 6 Indicator 5

Narrative Program Summary

The school/center ensures that students have access to educational media services that are integrated into curriculum and instructional practices. There are an adequate number of personnel and support staff who:

- are actively engaged in the implementation of the school's curriculum
- provide a wide range of materials, technologies, and other information services in support of the school's curriculum
- are responsive to students' interests and needs in order to support independent learning
- conduct ongoing assessment using relevant data, including feedback from the school community, to improve services and ensure each student achieves the school's learning expectations.

GLTHS strives for all students to be college, career and citizenship ready for the twenty-first century; this includes the incorporation of technology and innovation into curriculum and instruction.

The Library is centrally located on the 3rd floor. Although there are no windows, the Graphics Department purchased material and designed posters to hang on the walls of the library. Last month, April was national poetry month. Posters were hung on the walls reflecting poetry, and pendant lights highlighted them. There is shelving and round tables (made by carpentry), non academic chairs, spaced out in the library with carpet tiled flooring (to drown out noise). Pre-COVID they had fish tanks and plants, but had to get rid of them.

There are a total of six square columns in the middle of the library lined up in pairs with lights that hang from the tops (student work is hung from the wires like a clothesline), and the ceiling is made of cement and metal beams. Lights hang from the tops of the columns and change color and bring light to the space.

During teachers' welcome back professional development days the LMC was responsible for Media and Tech presentations/workshops that were held throughout the 10 professional development and planning days. The schedule and links are listed on the PD Web page. All instructional/paraprofessional/support staff should participate in a minimum of two media and tech presentations. (evidence found under September PD for teachers link)

Prior to the start of the 2020-2021 school year, the State of Massachusetts allowed schools to have 10 days before the start of school dedicated to Professional Development on media integration. A total of 14 trained teacher media mentors facilitated the Professional Development committee. An additional Media Integration Aide was hired to provide supervision on the library floor and provide real time assistance for teachers and students who encounter a technology issue. In addition, a new computer application was implemented for students and teachers titled, CLEVER. A digital portal for students to use their Google email credentials to log in on their Chromebook and the display screen will show all available apps students can utilize. For example, Brain pop, library catalog, Google Docs, Google Slides, etc. This app is all in one portal for students to have all their technology in one place. Teachers have the same access for all of their apps. A tab was added to student Chromebooks for easy sign on access. In addition, any student in need of internet access, were provided hotspots, along with teachers and counselors were also given access to Google Voice accounts.

Academic Departments utilize a variety of platforms to support instruction such as Edulastics, Edgenuity for credit recovery, IXL, No Red Ink, SOAR-study skills curriculum. This year 9th grade students are enrolled in CTR-Career Tech Readiness credit course, for the full year, broken down by quarters.

The school's media services are organized through the Library Media Center (LMC). The department is overseen by a licensed Director of Media Services and Professional Development and includes two librarian technicians, a secretary, and a media technician. The LMC supports various classrooms and departments and is open from 7:00 A.M. to 3:00 P.M. for student use must get a pass. If students come before lunch they do not need a pass, if they come during lunch they will need a pass. During this time, Chromebooks and desktop computers are available for students. Pre-Covid the library circulated around 8,000 books. Currently, in the morning the library circulates roughly 150 books. Students will also utilize the library to play with puzzles, card games, and to read

quietly. In addition, the LMC staff assists students with citations, printing, and researching projects. The LMC also has a variety of young adult books for independent reading.

Located in the library is a collection selection box. Students and teachers can make anonymous book suggestions. A book contest with teachers was implemented. Teachers were asked, "What am I reading" and the book covers were printed and taped on teacher classroom doors. All staff participated in this event and allowed students to see what teachers in the building were reading. The books in the library reflect the students in the school. The library has books written by Asian authors, and stories that are reflective of our student populations and cultures.

Books in the library are divided into three levels, elementary, middle and high school. This system is a representation for all reading levels. There are high low reading level books, which are displayed on small shelves. The books do not have colored labels on them, therefore, students do not feel labeled if they are in a high or low reading level. Instead, all books have genre stickers on them. LGBTQ books have genre labels on them, at the end of shelves posters indicate the different genres with a sticker, kids can look for certain genres and find where it is located in the library.

The LMC is responsive to students' interests and needs to support independent learning. Additional course offerings such as Spanish are available through Edgenuity. Student surveys via an online/in-person suggestion box are available to students, the Director of Media Services monitors the collection for racial and ethnic equity, and media staff attends LGBTQ Club meetings for feedback and recommendations. Students select the books they want to read, and what is reflective of them. Library staff regularly meet with teachers to discuss student interests and reading levels to ensure appropriate materials are available.

Sources of Evidence

- self-study
- school support staff

Standard 6 Indicator 6

Narrative Program Summary

At GLTHS 2,240 students are enrolled, 18.6 percent are identified as Special Education students, 6 percent have 504 plans and 8.8 percent are identified as English Language Learners. The School Counseling department has 1 guidance secretary, 8 licensed School Counselors and 2 licensed Adjustment Counselors. The 8 School Counselors are the 504 case managers for their caseloads and hold meetings annually or as requested. Teachers are invited to attend 504 meetings there's always a few who can attend, but if not all can attend then they send feedback. The School Counselor runs the meeting and the school nurse, parent, and student also attend.

ELA is co-taught in all four grade levels. Some of the pairings have been together for a while (i.e. the ninth grade) while others are new. Teachers plan together when they can - for example, the ninth grade teachers are all off at the same time so it is easier for them to plan during the day. The ELA/ELL cluster chair invites the co-teachers to department meetings so they know what is going on in ELA.

All four English Language Education teachers are trained as ACCESS proctors. Two paras are trained as well. When the ACCESS scores come in at the beginning of the school year, they are reviewed and used to determine placement. During the first EL meeting, the team reviews the scores as a whole to determine trends and set goals for the year. The ELA/ELL cluster chairs meet with each of the teachers individually to review the students they currently have and to discuss each student and their accompanying needs. At the end of the year, they meet and reflect how things went and where we might need to go from there. The chairs also all attend the MATSOL conference and any other PD based off of their goals.

The Title I reading teachers use a program called Language! to help identify needs and trends. The freshmen take the benchmark test three times a year and the same is for the sophomores. They utilize that data to determine what students needs are and develop a curriculum.

Greater Lowell Technical High School offers co-taught classes in Math, English and Science taught by a general education content teacher and a special education teacher. These classes are made up of special education students and general education students. The Special Education department regularly assesses programs to identify trending needs and possible improvements. For example, program review showed that the 2019 MCAS data analysis indicated that many students were struggling with higher order thinking skills. As a result, a school wide emphasis through academic departments and special education was placed upon increasing opportunities for students to practice those skills. Another area examined through survey data is social emotional well being and service delivery. An additional Adjustment Counselor position was added to the department for next year in order to support student's mental health needs and to reduce caseloads allowing for more targeted interventions. The department has a counseling screening referral form and if teachers notice students who may need additional social emotional support, a screening will be conducted. Students are included in co-op opportunities and many students have secured placement at worksites within their chosen field. The partnership with CVS staffed with transitional work site aids allows for students to have supported vocational work experience. These students' needs are assessed through functional vocational assessments and adjustments are made to programming based upon emergent trends in employability and requisite skill requirements.

TOPs students have partnered with the science department to gain experience growing plants in the greenhouse. Some higher functioning special education students require only one service (study skills) in order to support their area of disability. Special Education Liaisons review executive functioning curriculum with students in their study skills classes regularly and report out on student progress with these skills in IEP meetings and student IEP progress reports. They foster student independence instilling the organizational habits and routines necessary for these students to monitor their academic success and progress in the general education curriculum.

Sources of Evidence

- teacher interview
- department leaders

Standard 6 Indicator 7

Narrative Program Summary

The school has a Information Resources and Responsible Use policy that is consistent with its mission. This policy, as well as other policies, are written in the Student and Teacher Handbook which is available in the Superintendent's Office, all school Administration Offices, and published to the District website. GLTHS students sign a resources and responsible use policy and student photo release form which is provided in several languages and located at the end of the student handbook on pages 136-137.

The school has an acceptable use policy, in which students and families are informed, and the school provides information for students and families on the appropriate and ethical use of technology. Parents/guardians must also sign for the family portal sign on link.

In the student handbook under appendix H, students and parents have five unsuccessful log-in attempts will disable the student or parent portal account. In order for students to use the Web Portal again, he/she will need to send an email, from their school provided email account, to students@gltech.org to have their X2 Aspen password reset. The system will automatically log off users that are inactive for more than 20 minutes. All attempts at logging into the system are recorded and monitored, and a full audit trail is tracked on sensitive data. If any problems are encountered with access to your account, please contact your school counselor. P arents/guardians will need to send an email from the registered email account, to parents@gltech.org to have the X2 Aspen password reset. The system will automatically log off users that are inactive for more than 20 minutes. All attempts at logging into the system are recorded and monitored, and a full audit trail is tracked on sensitive data.

Students can check grades in X2/Aspen student family portal. They can access their grades and send emails through the portal or through Google Classroom, students email addresses are based on their student ID number. If students need assistance with technology, supports are in place. Students can access a help desk ticket, password reset, technical support, or family portal help to access help with one of these accounts. All student accounts are monitored through GoGuardian, which will notify the school. Filters block certain accounts, GLTHS has a recording for chat rooms, access to grab IP addresses if it is inside or outside the school.

The School Committee has passed a district wide policy regarding Network/Internet Use (see Appendix D of student handbook). In order to use the internet, students must have a signed Internet Acceptable Use of Policy on file in the LMC. In addition to signing the policy, any student under 18 years of age must have the policy signed by their parent(s)/guardian(s). Students using computers at Greater Lowell Technical High School should not improperly access, misappropriate, or misuse files or data.

Greater Lowell Technical High School policy provides that all technology that is used to access the network will be used in a responsible, legal, and ethical manner. Failure to do so will result in the termination of network and email privileges for the user and/or other disciplinary action including notification of law enforcement authorities. Individual users of the network, both students and adults, are responsible for their use of the network at school, home or at any location. Use of the network must support education and must be consistent with academic actions of the Greater Lowell Technical High School. Its use will be supervised by Greater Lowell Technical High School staff. Use of other organizations' networks or computing resources must comply with the rules appropriate for that network. Use of the network for any illegal or commercial activities is prohibited. As indicated in the student 2020-2021 handbook:

A responsible GLTHS network user will:

- Use language that is considered appropriate
- Be polite
- Not transmit information that other users will find hurtful or offensive
- Conform with copyright laws and always give credit to the author of the material used

- Never reveal personal information about yourself or any user, such as address, telephone number, credit card numbers, social security number, etc.
- Never copy, download or install software without the authorization of the network administrator
- Never use computers for personal communications: gaming, personal email, chat, personal blogs
- Neither tamper with the system nor alter, delete, or destroy anyone else's files, data, or images
- Never access another individual's materials, information, or files without permission or share passwords
- Never use the account or identity of another user
- Never share their username and password with others; you are responsible for all activities done through your account

A responsible GLTHS network user must be aware of the following:

- Use of the network and email is a privilege not a right
- The Greater Lowell Technical High School network is to be used only for educational purposes
- Email is not guaranteed to be private and may be inspected either for cause or due to routine maintenance
- It is important to log off the computer at the end of every session so another user cannot use your account
- Identifying photos of students with their first and last names may not be used on a website
- Violation of this policy will result in the possible loss of Internet privileges and/or disciplinary action pursuant to the Discipline Code and/or prosecution under state and federal law
- Persons issued an account are responsible for its use at all times

Greater Lowell Technical High School requires that you agree to this contract before the district can provide you with access to the internet and email. Once students and parents/guardians read and understand this Appendix, a signature is required at the end of this Handbook to indicate that you agree with these terms.

Sources of Evidence

- school support staff
- school website

Standard 6 Indicator 8

Narrative Program Summary

At GLTHS, an adequate method of student record keeping is in place and individual student files include the following:

- attendance
- technical competency assessment
- academic achievement
- test results
- Individual Education Plan or 504 Plan as appropriate
- safety test documentation
- industry recognized certifications attained.

GLTHS employs adequate methods of student record keeping. The main office staff are responsible for maintaining daily attendance in the Aspen/X2 platform. Trade competencies are recorded by trade instructors onto the Massachusetts DESE Skills Plus Competency site. This same site provides progress monitoring of trade students toward Massachusetts Vocational Technical Education Framework competencies. The data and record keeping platform Aspen/X2 is also where all academic achievement records are uploaded and maintained. Aspen/X2 maintains and produces official student transcripts. Special education IEPs and 504 plans are all kept within the secure portal in Aspen/X2. Digital copies of certificates such as OSHA, ServSafe, CPR, etc. earned in the trades are maintained both in online digital safety folders as well as in physical binders that are clearly labeled in each Trade office. In addition, all safety test documentation are also maintained in physical binders which are stored in the vocational instructor's office. GLTHS takes record security and confidentiality very seriously. They use a log system to denote access to files, including purpose, name of person accessing, and date of access. This log becomes part of each student's record. Older records are stored according to the highest levels of privacy and security under the supervision of the Superintendent. Students can access their grades, scheduling and limited academic information (attendance, historical grades) through the X2 student portal, while teachers can access a broader range of student records, including IEPs and 504 plans on the X2 secure Teacher portal.

Sources of Evidence

- self-study
- teacher interview

Standard 6 Indicator 9

Narrative Program Summary

At GLTHS, graduate follow-up studies are conducted and the resultant data is shared with staff to assist with program and curriculum development. GLTHS completes follow up studies of graduates and shares the data with staff to assist with program and curriculum development. These studies are completed in part by the co-op office, which begins right after graduation each year, reaching out to graduates to find post graduation plans. The data on college attendance is updated in reports produced by Naviance, which syncs with the NCAA platform. Additional anecdotal records are also kept by trade teachers informally as they often reach out to students after graduation to see how they are doing. The Special Education Department has begun contacting graduates of their department and collecting data on special education graduates, and a Senior Survey completed late in 12th grade also provides data that is useful for curriculum adjustment, enhancement, and modification. Individual school departments may also collect data on post graduates to inform and improve school wide practices, such as the Early Childhood Education Department, which partners with Rivier University through an articulation agreement. Rivier University receives many of GLTHS ECE graduates and they keep graduate data which helps inform the ECE program. GLTHS is in the ongoing process of constant curricular evaluation, and the data collected in post graduate surveys and inventories improves instruction for current students.

Sources of Evidence

- self-study
- teacher interview
- teachers

Standard 6 Indicator 10

Narrative Program Summary

An assessment system is available to assist students with the identification of career aptitudes and interests. Trade selection is a highly informed process at Greater Lowell. Freshmen students spend 3/4 of a year investigating trades and make a final decision at the end of their first year. During this first year, students work with their school counselors to complete surveys and inventories in Naviance that help guide them toward a well matched trade. As part of this investigation, students create Career Plans with their school counselor as well as the Career Interest Profiler which helps match a student's personality traits with a career cluster. In addition, students can complete the Strengths Explorer and Career Cluster Finder. Naviance tallies the results of these inventories and suggests career matches individualized to each student. In addition to the aforementioned inventories, the students also complete a long exploratory period during which they eventually whittle down their interest into a final trade selection. This process starts broadly, with each freshman sampling an hour of each trade, then they spend 7 days in 17 different trades. They are evaluated according to a standard rubric which scores their aptitude for a particular trade. This helps students and their families make their final decision. Students make a final decision in April of their Freshman year.

Sources of Evidence

- self-study
- teacher interview
- teachers
- department leaders

Standard 6 Indicator 11

Narrative Program Summary

The school has a comprehensive safety/crisis response plan that ensures:

- students, faculty and staff are trained to assist with emergency situations
- a written crisis intervention plan has been developed and implemented
- evacuation procedures are widely publicized, and regularly scheduled drills are held and results documented.

GLTHS has a carefully constructed plan titled "School Crisis Staff Handbook" which ensures students and faculty safety in the event of a crisis or emergency. The Crisis Team has written a comprehensive plan, complete with protocols for different types of emergencies, including bomb threats, kidnappings, serious injuries, fires, active shooters, etc. These protocols and plans are distributed to each and every staff person at GLTHS in the School Crisis Staff Handbook. The handbook describes appropriate responses for each level of emergency, including safe refuges and evacuation plans and routes.

The Crisis Team consists of educators, administrators, and support staff. In the event of an emergency, the Crisis Team gathers, determines and initiates the proper protocol for the situation. Crisis Team members are trained regularly, and the team initiates school wide rehearsals for certain protocols to give students and staff the opportunity to practice a crisis response. The Crisis Response Team shares data from rehearsals with school staff to improve response time, efficiency and to manage details such as students who are in hallways or bathrooms at the time of a crisis.

Sources of Evidence

- student shadowing
- teacher interview
- teachers
- department leaders

Standard 6 Indicator 12

Narrative Program Summary

Written admissions policy identifies enrollment criteria for students as well as the process for determining student enrollment allotments, if appropriate, from participating/sending schools/centers. GLTHS has a clearly written admissions policy which delineates the enrollment criteria for applicants and also describes the process for determining enrollment allotments. This policy is shared with sending schools to inform them of the criteria and process for 8th grade applicants. The Director of Technology, Enrollment and Information oversees the Admissions Department and the admission process meeting the requirements set forth by the Massachusetts Department of Elementary and Secondary Education. The Massachusetts Department of Elementary and Secondary Education requires all Massachusetts vocational/technical high schools to use a Point Total Admissions Process. This process attributes points to achievement, attendance, discipline and work ethic descriptors completed by each child's school counselor. Information about admissions and enrollment are posted clearly on the school's website in several locations, and are also in the Program of Studies. Parents can apply to GLTHS either online or with a paper application. The application is available in English, Spanish, Portuguese, and Khmer, which are GLTHS top four languages spoken at home. In addition to the application process, GLTHS offers many opportunities for community members and potential students to visit and tour the school in advance of applying. The admissions policy aligns with state mandated standards.

Sources of Evidence

- self-study
- department leaders
- school website

Standard 6 Indicator 13

Narrative Program Summary

Student transportation is scheduled to ensure that all students will arrive and depart from the school/center with minimal loss of time on task. Transportation for GLTHS students is managed by the Main Office, who work directly with the contracted transportation provider. A detailed bus route and pick up times listing is available to all parents online on the School's website under the tab Student Activities. Student transportation is provided to GLTHS students free of charge to stops in student neighborhoods. GLTHS also provides a late bus at 3:00pm and two additional busses later if needed for students remaining after school for activities. If students miss the bus, they can access Lowell Transit Authority public transportation for a small fee. GLTHS has a dedicated stop on the Lowell Transit Authority route. In adherence to McKinney-Vento, if students become homeless at any point in their GLTHS career, transportation will be arranged to get the students to and from school safely so that their education is not disrupted. Transportation services are an example of excellent collaboration between the Main Office, School Counseling, Special Education and the bus company to ensure punctual arrival to school daily for all of GLTHS students.

Sources of Evidence

- self-study
- school website

Standard 6 Commendations

Commendation

The TOPs program which enrolls intellectually impaired students that have access to the culinary trade area for training, transition and support. (6.6)

Commendation

GLTHS for providing transportation opportunities that allow students to stay after school for extra help, IEP accommodations, athletic practices and games. (6.13)

Commendation

Feed your Brain Vending Machine:The vending machine is located in the the lobby, across from the bank. The goal is for teachers to identify a students effort in the classroom, and for the student to receive an immediate reward. The student will receive a token from the bank and enter the token into the vending machine. The student can select a book of his/her choice, along with a hot chocolate packet and a snack.

Standard 6 Recommendations

Recommendation

Review the case load of school counselors to align more closely with the ASCA recommendations to better service students. (6.4)

Recommendation

Reflect on the communication channels in place concerning transportation offerings available to provide students off-site co-op learning opportunities. (6.13)

Standard 7 Indicator 1

Narrative Program Summary

There are a number of school program and services available at Greater Lowell Technical High School (GLTHS). This includes funding for 23 different vocational/technical program, along with core academic offerings that include dual enrollment and AP courses as well. There are also targeted interventions offered both within the school day for academics and through the RISE program for students returning from medical leave, after school programs for academic support, and the MCAS Boot Camp. Further there are substance abuse and behavior interventions and supports in place afterschool as well. Home tutoring, online courses through *Edgenuity* for credit recovery, and summer academic support for integrated technical/math/ELA-project-based curriculums are also available.

GLTHS funds full-time support services for students with disabilities, as well as English Language Learners. Staff supports students in inclusive content area classes, adaptive physical education courses, study skills, and within classes that deliver the general curriculum. Related services such as speech, individual and group problem-solving therapy, and full evaluation services are also provided. Language translation and interpreters are also available through the ELA/ELE-Social Studies Cluster to support parent engagement and access to school services.

Eight School Counselors are on staff, along with a number of medical professionals, including two full time school nurses. Health professionals on staff also provide medication administration, wellness services, referrals, health education, and monitor student compliance with state immunization laws. When needed for special events, the school will supplement nursing coverage with its licensed health assisting instructors who are also registered nurses.

Dependable and consistent budgeting is available to support professional and support staff. Over 85 percent of the budget is spent on salaries, benefits, and instructional supplies to support student learning. Since FY 2016 the budget has increased by 22.5 percent. 50 percent of that increase was specifically dedicated to instruction. Budgeting is also able to respond to programming needs and shifts. For example, expanding the Health Assisting Program by two full time instructors to satisfy student enrollment.

There is a range of technology support and professional development opportunities available at GLTHS. Students have 1:1 technology and teachers have Smart Boards, desktops, and Chromebook carts in the classroom. There is Maker Space with in the school as well. Teachers are given professional development to learn to use new technology equipment at the start of the school year. Teachers are surveyed regarding their preferences and given choices regarding which sessions to attend. Teachers and school leaders would both like to find more time within the school year and the workday for teachers to engage in meaningful professional development, especially within the area of technology equipment and technology teaching tools/platforms.

The school community consistently plans for the future by redesigning and renovating the school facility. 15 custodians maintain the facility daily. GLTHS recently completed a \$65 million construction project that addressed upgrades to major building systems: electrical, plumbing, windows, roofing, and heating, as well as the addition of 13 new science labs. Upgrades have also been made to the gymnasium, pool, exterior lighting, parking areas, and campus grounds.

Safety and security are important at GLTHS. The school employs two full time resource officers that are present on campus at all times, three full time hall monitors, two part time hall monitors, four full time security guards, and three part-time security guards. Additionally, the school has installed 102 cameras and surveillance equipment throughout the buildings and campus, as well as implemented uniform safety practices for visitors and guests in a proactive attempt to protect human life and school property.

Sources of Evidence

- self-study
- facility tour
- teachers
- central office personnel
- school leadership

Standard 7 Indicator 2

Narrative Program Summary

GLTHS is considered its own municipality. The school has its own FEMA and Title I allocations, as well as a bank on campus. Therefore, fiscal reporting is both at the school and district level for the single site. The design and implementation of the Capital Plan, including upgrades, replacements, and repairs are all part of the annual budgeting process. Budgeting for the school facility is done with the input of the Director of Plant Services who manages 15 fulltime custodians and two full time groundskeepers. Regular cleaning and maintenance is scheduled by the Director of Plant Services. Regular maintenance of HVAC, elevators, and pest control is contracted out to local vendors.

New LED lights were installed throughout the campus for increased energy efficiency in partnership with *National Grid and Energy Source*. This project also included an upgrade to the HVAC system and a new lighting system, including new football field lighting. This program has already saved the school \$200,000. However, the track outdoors is reported by teachers as being unsafe and in need of repair.

Technology department staff at GLTHS maintains, evaluates, and redesigns network infrastructure. There are nine full time employees in the technology department, including the Director. All technology equipment is maintained and inventoried by the department.

Sources of Evidence

- self-study
- facility tour
- central office personnel
- school leadership

Standard 7 Indicator 3

Narrative Program Summary

Sufficient funding exists to support long-range planning at GLTHS. There is a long-range Capital Plan and the annual budgeting process. Programs and services reflect the needs of students enrolled. There is also a program to help students to access technology when not on campus. There are a number of partnerships, including one with the *Mass Hire Greater Lowell Workforce Board*, to help students find employment opportunities after school. Further, there are a variety of after school clubs activities, and sports students can participate in. These programs offer free transportation, equipment, and participation to all students.

As enrollment changes and staffing needs change, the annual budget addresses these changes. Funding is paid to GLTHS per student by each sending town and the amount each town pays is set by the state of Massachusetts. Tuition paid takes into account the sending towns' property values, median income, etc. Students with special needs and EL students receive additional funding as well. The difference in funding is complemented by state funding. Title One funding is in addition to these funds.

CTE shops are expanded to meet student need and enrollment. For example, the Health Assisting Program has consistently grown over the past two years, and was expanded to meet student demand. Departments each have targeted enrollment based on space and staffing, with long-term budgeting processes to ensure enrollment changes and staffing needs are met. Technology has been funded to the following shops:

- Career and Technology Readiness
- Design and Visual Communication
- Graphics Communications
- Health Assisting
- Medical Assisting
- Programming and Web Design

Capital improvement funding has been allocated to improve lighting, cabinetry, flooring, furniture, and tiles in the *Artisan Restaurant* and the Library Media Center too. Hallway walls and upgrades to elevators are also consistently funded.

Long-range planning for technology and any network upgrades are included as items in the Capital Plan. The technology department is part of the budgeting process to ensure technology needs for school operations and student learning are consistently met.

Sources of Evidence

- self-study
- facility tour
- central office personnel
- school leadership

Standard 7 Indicator 4

Narrative Program Summary

There is a clear process for budget requests at GLTHS. Faculty submits requests to department chairs. All departments follow the same budget development process. Department heads not only seek input from faculty in this process, but also from technical advisory committees. Budget requests are prepared by department heads and are presented to the Superintendent, School Business Administrator, Assistant Principal, and Principal for approval. Presented budgets can also receive suggestions for revision during these initial meetings. A final budget is prepared and verified at a final meeting with the department chair.

Throughout the year, open purchase orders and account balances are sent to department heads via email. In order to remain in compliance with state per pupil expenditure mandates, department budgets are carefully monitored for both under and over-spending. If there are areas for direct savings or offsetting balances, the business administrator works with the department head. Department heads are encouraged to pool unspent funds for a department purchase before the end of the year.

Sources of Evidence

- self-study
- central office personnel
- school leadership

Standard 7 Indicator 5

Narrative Program Summary

GLTHS is constantly reviewing federal, state, and local guidelines to ensure compliance and the safety of the school facility. GLTHS facilities' staff members conduct regular maintenance on sprinklers, air flow, fire safety, and fire prevention equipment. Waste and trash is removed from the school premises regularly, and there is regular pest prevention maintenance scheduled. The grounds are well manicured as well.

Sources of Evidence

- self-study
- facility tour
- central office personnel
- school leadership

Standard 7 Indicator 6

Narrative Program Summary

While GLTHS is entitled to receive 100 percent of transportation costs reimbursed by the state of Massachusetts, the School Business Administrator reports that the average reimbursement in recent years has been around 60 percent, with the most ever being 85 percent. Transportation is contracted by GLTHS on a three year basis. Buses transport students to sporting events, work study, and production free of charge to students. Busses are also used for bus evaluation drills at four times during the school year. In addition, GLTHS has five passenger vans driven by teachers with appropriate licenses to transport students.

Bussing is available free of cost to all students in grade 9-12 and rules are communicated at the start of the school year to students and families by mail. Bus conduct, rules, pick-up, and destination stops are clearly stated in the student handbook and/or bus schedule.

Sources of Evidence

- self-study
- central office personnel
- school leadership

Standard 7 Indicator 7

Narrative Program Summary

A Title I parent meeting, "In Plain Sight," is held annually to connect with families and explain how the Operational Budget, Capital Plans, and Title I expenditures are budgeted for the school year. There is also a parent portal where parents can access grades and information about their student's education. Parents can become involved in the Parent Organization, Special Education Parent Advisory Council, as well as athletic booster clubs and other activities.

The Title I Facilitator, with parent liaisons and school-based interpreters, works closely to contact parents/families of students at risk of failing at both progress report and report card times. Further, Title I funds are used to support programs to support resume building, game nights, financial literacy, and rocket launches.

The RISE program is available to help students to transition back to school after being out on an extended leave from school. The technology department also provides a program for students to access technology when they are off campus due to extended leave. Hotspots are available to students to have wi-fi access when not on campus from the technology department.

All students have 1:1 Chrome Book devices that are provided by the school and they are allowed to bring devices home to work on school work.

Sources of Evidence

- self-study
- central office personnel
- school leadership

Standard 7 Indicator 8

Narrative Program Summary

GLTHS has a parent partnership called the Greater Lowell Parent Organization (GLPO) which meets each Monday. They hold silent auctions, craft fairs, comedy nights, and fundraising events to support student activities. In addition, there is a Title I annual parent meeting where fiscal resources and expenditures are explained. This event is called, "In Plain Sight."

Community and business partners are part of all technical and career advisory committees. These committees meet in spring and fall. Some businesses include: Lowell 5, CVS, BEA Systems, and Lowell General. These partners provide grants, school site locations, courseware, and created a school pharmacy in partnership with CVS for pharmacy technology training. In addition, an annual municipal breakfast is held to celebrate community partners. Further, both Middlesex Community College, Quincy College, and Rivier University offer dual enrollment programs at no cost to students.

Sources of Evidence

- self-study
- central office personnel
- school leadership

Standard 7 Indicator 9

Narrative Program Summary

Munis is the software hub used for maintaining fiscal records at GLTHS. This software includes copies of all supporting documentation, along with the most recent copy of any document retired or destroyed. Deposits to student activity funds are made the same day. The treasury record is turned into the Business Office for verification. These records are also checked against the department's cash balances and monthly reconciliations.

All funds dispersed are logged and verified via Munis software. If debit or cash advances are used, the disbursement of funds is approved on paper record and then entered into Munis to complete the record of transaction. Requisitions from departments also move similarly through a paper approval process which could be streamlined and made more efficient through the use of electronic approvals embedded within the Munis software.

In addition, the Greater Lowell Community Foundation (GLCF) is a 501(c)3 tax-exempt charitable fund which assists in helping to fund school improvements, scholarships, and and activities with funds received from charitable donations and community partners. The School Business Administrator assists with the annual IRS reporting for this organization as it relates to the school, but the GLCF exists as a completely separate entity from the school itself.

Sources of Evidence

- self-study
- central office personnel
- school leadership

Standard 7 Indicator 10

Narrative Program Summary

Funds received at the GLTHS Business Office are deposited daily by staff from the GLTHS Business Office into an FDIC insured bank account at Lowell 5, the on-campus bank or locked in a district safe, if the bank has closed already for the day.

Revenues received from departments or at points of sale are collected and reported by teachers, administrative assistants, or club advisors to the department secretary. Revenue is then verified and deposited to Lowell Bank 5 onsite by the department secretary directly. If the bank is closed, revenues are dropped off at the Business Office and locked in a district safe. Copies of revenue and deposit slips are maintained by the department chair as well as the GLTHS Business Office.

There is a reconciliation process in place for funds that are incurred on a monthly basis for student activities, revolving funds, and cash accounts. During this process, pooled cash collected is compared to accounting records. Discrepancies are corrected at this time. There are frequent deposits throughout cash collection periods, with the intermediary reconciliation of funds throughout the given period of cash collection. There is a safe locked storage container for cash at points of sale and events. This process safeguards GLTHS against loss and promotes the accurate recording of all collected funds.

Due to the Covid-19 pandemic and the team's virtual visit, these procedures and protocols reported in both the self-study and during staff interviews were unable to be observed firsthand.

Sources of Evidence

- self-study
- central office personnel
- school leadership

Standard 7 Indicator 11

Narrative Program Summary

An appropriate system of checks and balances is in place at GLTHS to ensure the that funds are collected and dispersed properly. In addition, audit reports are sent to staff annually and they look for areas of improvement or places to increase efficiency.

The GLTHS School Committee, through the direction of the Superintendent, maintains responsibility for fiscal operations. The School Business Administrator reports directly to both the Superintendent and the School Board regarding budgets and fiscal matters. In addition, the School Business Administrator prepares reports and communicates with the state of Massachusetts regarding Title I and all state funding that is received.

There are multiple people reviewing and approving all accounting activities, especially cash handling itself. There is a protocol in place at the building level that separates the collection of funds, approval to collect, and entering of receipts into a central accounting system. However, due to COVID-19 pandemic, this process was not able to be observed firsthand. Only the Superintendent, Treasurer, or Asst. Treasurer may approve the distribution of funds. Requisitions generate at the department level and are submitted by department chairs to administration for approval.

Sources of Evidence

- self-study
- central office personnel
- school leadership

Standard 7 Indicator 12

Narrative Program Summary

The GLTHS School Business Administrator is responsible for all accounting and district reporting to the Superintendent, School Board and the State of Massachusetts. There is a 3rd party independent auditor who conducts an annual audit of school accounting and operating expenses, as well as grant funding. All transfers in the Operating Budget must be approved by the School Board. There is no discretionary fund beyond an excess contingency fund which is not to exceed 5 percent of the the total budget. These funds can come from any surplus remaining at the end of a school year, as long as the state minimum per pupil has been spent. Otherwise, funds must be spent immediately to meet state mandated spending requirements. These excess contingency funds can be used by the school and are unrestricted, but still must be approved for use by the School Board. Currently, this fund can contain up to \$2.5 million. The school most recently purchased lights for the sports' fields using this fund. In addition, there are audits every three years by an external auditor and internally every other year on all student activities' funds.

Sources of Evidence

- self-study
- central office personnel
- school leadership

Standard 7 Commendations

Commendation

The 1:1 technology provided to all students by the technology department to support 21st century teaching and learning both on and off campus. (7.1)

Commendation

The security updates to the campus by the administrative team to create a safe and secure learning environment. (7.3, 7.5, 7.6)

Commendation

The redesign and renovation investments by the School Board and school leaders to maintain, properly ventilate, and protect/secure school property (7.2, 7.3)

Commendation

The program "In Plain Sight," facilitated by the Superintendent and School Business Administrator to promote a culture of trust and accountability between the school's administration, parent/families, and community stakeholders. (7.7, 7.9, 7.11)

Standard 7 Recommendations

Recommendation

Improving the efficiency of the purchase requisition process by moving away from antiquated accounting methods to procedures that use all features and functions of the updated software GLTHS has invested in. (7.2, 7.9, 7.10, 7.12)

Recommendation

Providing additional time and resources for strategic professional development to provide teachers with training in the tools and equipment necessary to teach in the 21st century. (5.5, 7.1, 7.3)

Recommendation

Reflect on the communication channels in place concerning transportation offerings available to provide students off-site co-op learning opportunities. (7.1)

English Language Arts

Narrative Program Summary

The ELA department consists of 19 classrooms located in different areas of both the second and third floors of the building. Class size is approximately 23:1. The physical dimensions of classrooms varies. All classrooms appear to offer a clean, safe, and healthy teaching and learning environment for both teachers and students. Evacuation signs are posted next to the entrance in clear view. There is signage posted for each classroom outside the doors as well. The overall appearance to visitors is that this department is a well maintained, safe, and clean place to learn. All teachers have access to technology via the Library/Media Center. Each teacher has a Google Chromebook Cart, Smart Board, desktop computer, and personal printer. Technology equipment is regularly updated and professional development opportunities are offered to teachers on how to incorporate technology into their lessons to prepare students with 21st century skills. Google Classroom is used as a digital platform for lesson delivery to students, calendars, and family/student contact. Teachers have the autonomy to decorate their classroom as they chose to build a welcoming and an engaging environment for students and visitors. They do this through using posters specific to ELA strategies, authors, or novels. In addition, teachers use lighting and other classroom decorations, such as a "wall of celebration" to promote examples of exemplary student work and celebrate student achievement.

19 instructors make up the ELA department. There are 16 female and 3 male instructors. The curriculum content and instruction are aligned in grades 9-12 with the *Massachusetts Curriculum Frameworks*. Courses are offered include both College and Career Prep and Honors English I, II, III, and IV. In addition, there is a Dual enrollment course offered in English Composition with a local college. Further, Advance Placement courses in both English Language and Literature, as well as English Literature and Composition are offered.

The ELA department's competency-based curriculum is developed by classroom teachers and reviewed continually by the department staff in collaboration with the department chair during monthly department meetings. The ELA department also includes common formative assessments to assess the delivery of the curriculum by teachers, as well as student progress. Teachers work collaboratively to revise the curriculum maps, as well as the curriculum's scope and sequence. There is no pacing guide and teachers are not required to submit formal lesson plans for review, but grade level teams do work together to stay on pace to help ease transitions for students who switch CTE groups. This work is overseen by the department chair. Currently, teachers are reviewing curriculum resources for rigor and relevance to both 21st century skills and the Core Values of the school. Performance expectations are aligned to the MCAS standardized assessment, as well as the *College Board AP* assessments students in AP courses take. While the school offers the *SAT School Day* exam, that data is not used to set performance expectations within the department, only when conferencing with individual students.

Teachers are constantly reflecting upon their practice both individually and with their grade level partners. Lessons are student-centered and represent adjustments made after teachers review both standardized tests and common formative assessments for student progress and opportunities to reteach. Most reflection is done during monthly department meetings. Students are taught using best practices with both modelled, guided, and independent practice built into lessons plans. There is adequate time for group work and Socratic discussions as well. Overall, students are encouraged to think creatively and spend time both thinking and writing about text. Students read both novels and non-fiction texts from a variety of different genres and authors. In addition, appropriate consideration is given for the inclusion of support staff into classroom lessons to support atypical learners. Support staff input is both welcomed and appreciated by ELA teachers. Support staff is used to both manage classroom behaviors, as well as to support teachers in tiering and/or modifying instruction to meet the needs of all learners in the classroom.

Technology is fully integrated into the ELA curriculum. Lessons are delivered and stored on the Google Classroom for students to reference with all resources and links used in class. In addition, a number of

technology tools (Kahoot, EdPuzzle, Quizziz, No Red Ink, etc.) are used to further engage students interactively in digital content. The department chair has invested in the premium version of both "Actively Learn" and "No Red Ink" which offer teachers the opportunity to co-plan shared digital and interactive content.

While there is no formal integration of CTE in to the academic program, teachers are working on interdisciplinary teams to build these kinds of opportunities in the future. This work has begun on the "Literacy Action Team" to create universal rubrics which can be used building wide regarding writing. The hope is that this work will help to build a common language and understanding around the important elements of writing across disciplines, including within CTE classes. English teachers, reading teachers, a dean, paraprofessionals, and the ELA department chair currently serve on this committee.

Student progress is regularly assessed using common formative assessments that are developed by the ELA department. In addition, students take the MCAS (Grade 10 Math, Language Arts, and Science), PSAT, SAT, and AP assessments. Teachers also meet to reflect upon lessons and co-plan strategies and activities to deliver lesson content. Data is disaggregated by skill competency using common formative assessments. In addition, universal assessments, and course specific rubrics are used by teachers in the classroom to assess students' progress. This information is used to inform student instruction to both meet the learning needs of students and alignment between the written and taught curriculum.

Lesson objectives are clearly stated and posted for all assignments for students to refer to during lessons. Students read and review rubrics with their teachers before beginning new projects to ensure they understand the expectations and can ask clarifying questions. Students work is reviewed by teachers independently and within grade level teams to both calibrate grading practices and ensure the written curriculum is being delivered. Teachers provide timely and specific feedback to students using classroom rubrics, as well as individual student conferences.

There appears to be no formal review process in place to revise and reflect upon curriculum. It seems to be driven by teachers in the ELA department. A "Literacy Action Team" has been formed to begin to develop rubrics that would be used school-wide across the curriculum. Currently, while literacy and writing data is and discussed in depth via ELA grade level teams year to year, this same vertical articulation has not reached beyond the department to other academic areas and CTE areas. The ELA would like to support these efforts moving forward to better support students in other content areas using skills they practice and learn in ELA.

Students are celebrated yearly with an award in ELA. They can also receive Honors or High Honors. However, most celebrations of student achievement in ELA are classroom-based. For example, one teacher has created a "Wall of Celebration" to celebrate students who complete an assignment successfully. On this wall, exemplary student work is posted and can be reviewed by both classmates and visitors. In addition, students take the AP assessments and many successfully pass the exam to earn college credit.

Most professional development revolves around the revision and alignment of curriculum during department meeting times, as well as the development of common formative assessments within the department. Many teachers attend workshops both online and in-person during their own time to build new skills. In addition, there was a professional poet who visited the school and modelled lessons to teachers regarding poetry writing. Teachers were able to observe and work with this professional on-site. Teachers really benefitted from this onsite, job embedded professional development experience and would like to have more time to do curriculum revision and reflection work during more job-embedded professional development beyond just their monthly department meeting time.

Overall, there is an "open-door" policy regarding professional development for technology tools among teachers in the building in all disciplines. Recently, there has been the addition of more formal workshops offered after school by teachers who are starting to specialize in using specific technology tools. Common language is developing around technology tools across the disciplines in much the same way the department would like to see conversations regarding writing and literacy develop outside their ELA department.

There is a new ELA teacher being added to the team for SY 2021-22. This teacher will help to lower classroom size from 23:1. The department appears to have sufficient resources and funding. Teachers report that there are

enough resources for novels and other resources. The department chair has purchased "No Red Ink" and "Actively Learn" premium subscriptions for the entire department. In addition, teachers are using Edulastic, Nearpod, PearDeck, Quizziz, Kahoot, and EDPuzzle to deliver digital content to students.

The overall climate of the department appeared to be friendly and professional. The ELA department clearly enjoys reflecting on teaching and learning together to adjust to meet the needs of their students as a team. They both respect and value the contributions of both their colleagues in ELA and the SPED support staff who work to accommodate the students they have in class. They recognize the importance of collective input in decision-making regarding curriculum. They also enjoy autonomy at the classroom level to make decisions and further engage students. Teachers lament that there is not more time to work collaboratively or that the proximity of their classrooms prevents them from spending more time even informally collaborating as they pass each other in the hallway or stand at their doors. The climate created by staff appears to welcome and celebrate diversity among students. There is also a desire to make students' experiences within the department more diverse, whether to build a more global awareness among students or to celebrate students' cultures and backgrounds.

English Language Arts Commendations

Commendation

The commitment by members of the ELA department to redesign the curriculum to ensure both rigorous and relevant learning opportunities for all students. (2.1, 2.7, 4.8, 5.8)

Commendation

The creation of a trusting, safe, and welcoming professional climate by ELA teachers working collaboratively to better support all students. (5.1, 5.8)

Commendation

The addition of one new ELA teacher by school leadership to lower classroom size from 23:1 in SY 2021-22 to better support the needs of atypical learners. (2.6, 4.8)

Commendation

Dual Enrollment and Advanced Placement courses offered by qualified ELA staff to create a culture of high expectations for students who want to attend college or who are seeking more rigorous classroom learning activities. (2.1, 2.3, 2.6)

Commendation

The initial development of school-wide analytic rubrics by the "Literacy Action Team" to better support students with common language around writing across the disciplines. (2.2, 2.5, 4.7, 4.8)

Commendation

The investment of fiscal resources into digital content by the Department Chair to provide opportunities for digitally interactive and engaging lessons for students. (3.3, 5.3)

Commendation

Commendation

Commendation

Commendation

English Language Arts Recommendations

Recommendation

Provide the ELA team with more opportunities for embedded PLC and professional development time to support ongoing curriculum revisions to better support changing student needs. (2.3, 2.5, 2.7, 4.8)

Recommendation

Consider reassigning physical classroom locations so that teachers are in closer proximity to one another to support collaboration and informal opportunities to interact regarding content and curriculum. (7.5)

Recommendation

Find opportunities to incorporate CTE into ELA classroom content/texts to motivate student learning. (2.2, 2.3)

Recommendation

Health / Physical Education

Narrative Program Summary

The Greater Lowell Technical High School Physical Education and Health Department is comprised of ten faculty members. Three members teach the health courses, and the other seven members teach the Physical Education classes. One of the health teachers is also the Athletic Trainer for the school. Students take Physical Education all four years and Health for three years. Ninth graders take it for the full year while the eleventh and twelfth-grade students take each for half the year. Neither class is required for graduation. There is an Adaptive Physical education class for students with physical or mental disabilities and every year these students participate in the Special Olympics game day.

The health courses are taught in three separate classrooms, all of which are equipped with technology that includes a SMART Board, a teacher workstation, and printers. In addition, all students currently have a school-issued Chromebook.

The Physical Education classes utilize a wide variety of resources both inside and outside of the building. Inside facilities include a swimming pool, a weight room, a cardio-fitness area, the main gymnasium, and the auxiliary gymnasium. Outside facilities include a track, two softball fields, a football field, a soccer field, tennis courts, an outdoor ropes course, a cross country trail, outdoor basketball courts, and the newly installed Outdoor Climbing Project Adventure Wall.

Both the health classrooms and the Physical Education facilities are clean and well maintained, however, the condition of the track is a concern. All the proper signage is in place and clear evacuation routes are displayed in all areas. All equipment is inspected, replaced, and updated as needed.

The curriculum for Physical Education and Health is based on the Comprehensive Health Curriculum frameworks developed by the Department of Elementary and Secondary Education. It aligns with the core values and the overall mission of the school. It incorporates a variety of units that focus on fitness, skill development, decision making, awareness, and independent health choices. These frameworks have not been updated since 1999. Instructors, however, continue to educate themselves through research and professional development opportunities to stay up to date on new information and trends.

Ninth and tenth-grade classes are scheduled during the academic cycle and eleventh and twelfth-grade classes are scheduled during the shop cycle. In grade nine, students are required to take "Teen Health" which is designed to give students a foundation of health and wellness to focus on preventing, delaying, and reducing risky behaviors. In physical education, students participate in team sports and aquatics.

The tenth-grade curriculum, for both physical education and health, is presented through the school's Project Adventure Course. It focuses on team building, problem-solving, critical thinking, respect, and leadership concepts based on the Outward Bound program model. In addition, students also participate in swimming, and CPR, AED, and First Aid training.

Eleventh and twelfth-grade students take "Upper Health" which is a continuation of "Teen Health". This course focuses more on overall wellness, making decisions, and the application of concepts. In Physical Education, the focus is on Lifetime activities.

There is a clear alignment of the curriculum from grade nine to grade twelve in both Health and Physical Education. The scope and sequence of the curriculum clearly outline the strand and standard for topics to be covered, the objectives, instructional format, resources, and assessment methods to deliver instruction. The scope and sequences are continuously reviewed and updated to ensure that it aligns with new standards and practices. In addition, through the partnership with the Lowell Community Health Center, monthly Teen Clinics are offered to students at the school.

Instructional practices are continuously examined to ensure consistency with the mission, core values, and learning expectations of the school. Instruction is designed to reach all levels, abilities, and learning styles. Teachers offer a variety of activities and incorporate a variety of instructional strategies to allow for student success. Activities are both individualized as well as group-based.

Instruction is engaging, student-centered, and differentiated with positive feedback and open communication. Instruction is constantly monitored and adjusted based on student needs and all IEP and 504 Accommodation plans are adhered to.

Teachers collaborate, review data, evaluate test scores, and share best practices to help improve instructional practices and ultimately student success and improvement. Through monthly department meetings and the evaluation process, the Health and Physical Education cluster chair can support the achievement of the Health and Physical education learning outcomes.

Teachers use a variety of both formative and summative assessment strategies to assess student progress. Some of these include quizzes, tests, projects, presentations, Pre and post-assessments, exit tickets, and mid-term and final exams. Physical performance exams based on time and skill are implemented in Physical Education.

Teachers provide timely feedback to students through both google classroom and the electronic grade book. Student progress is communicated to parents through X2 Aspen grades, quarterly progress reports, report cards, parent meetings, IEP and 504 meetings, and the end-of-year awards ceremony.

Health and Physical Education teachers meet monthly to discuss and analyze student assessment results, evaluate methods of instruction, and review student progress. Changes to the current curriculum and program design are made based on findings if necessary.

Greater Lowell Technical High School offers a wide variety of sports teams for both boys and girls in the Fall, Winter, and Spring seasons. Individual and team success and accomplishments are recognized at the end of each season at a sports banquet. A most improved player, a most valuable player, and a coach's award are presented to chosen athletes for each sport.

The Health and Physical Education teachers also nominate Student of the Month candidates and choose students to be recognized at the end of the year awards ceremony.

The Greater Lowell Technical High School Physical Education and Health Department is comprised of ten faculty members. Three members teach the health courses, and the other seven members teach the Physical Education classes.

Instructors stay up to date with certifications, current trends, and information in Physical Education and Health by attending re-certification training, workshops, conferences, and professional development opportunities.

Instructors are involved in other aspects of the school community. They coach varsity and junior varsity sports, supervise intramurals, assist in organizing fundraisers, mentor new teachers, are advisors, one of the health instructors is also the school's Athletic Trainer.

The Health and Physical Education department seems to have sufficient resources and staff members to run successful programs however, there seems to be an inequity in staffing as there are seven instructors for physical education and only three for health. In addition, because of the number of students that are scheduled at one time in a full class, the number of machines in the weight room is not conducive to the number of students and cannot service the current class sizes.

The Health and Physical Education department is a diverse group of both male and female teachers who have created a positive, supportive culture in their classrooms. The Physical Education teachers support each other and work collaboratively to provide students a program that is self-paced and based on skill development. Teachers set expectations at the beginning of the year, utilize a wide variety of methods and teaching styles, and

make accommodations when necessary so students can be successful.

All classes are co-ed and all students are treated equally. There is no evidence of harassing language or behavior. Positive reinforcement and positive feedback are evident in all areas and students generally have a positive experience in these areas.

The three Health teachers are still working on developing the health program but have found it difficult at times due to the lack of common planning time. Classes have 30 or more students enrolled at times, which makes it difficult to differentiate instruction and provide support to students. A challenge for both health and physical education is that it is not a graduation requirement, so students are often pulled out of class for guidance appointments, meetings, the RISE program, or taking extra courses. Teachers feel that health and physical education is not viewed as an important part of the student's education. Students are told these classes are not needed to graduate and do not need to be made up in the summer. As a result, some students do not give effort and fail the course. When this happens, the instructors need to provide make-up work or extra credit so the students can pass to participate in the cooperative program.

Health / Physical Education Commendations

Commendation

The Adaptive Physical Education class offers students with disabilities an opportunity to be physically active and participate in the Special Olympics. (Standard 1.1,3.2)

Commendation

The Greater Lowell Technical High School partnership with the Lowell Community Health Center offers monthly Teen Clinics students can participate in at the school.

(Standard 1.3, 5.1,5.3, 6.4,7.1)

Commendation

The Project Adventure Curriculum provides students with opportunities to build self-esteem, leadership skills, and respect which directly relate to the school's mission and core values.

(Standard 1.2, 5.1)

Commendation

The athletic facilities are extensive and well maintained. This offers students a wide variety of opportunities both instructional time, extra-curricular activities, and interscholastic sports.

(Standard 1.3, 2.1,3.2,5.1)

Commendation

Staff, in the department, maintain multiple certifications above their teaching license and contribute to many other aspects of the school community in various roles.

(Standard 2.3,3.5,5.3)

Health / Physical Education Recommendations

Recommendation

Seek out additional resources to ensure all students have consistent access to Chromebooks to facilitate learning (7.2)

Recommendation

Improve support for the physical education and health classes that reflect an understanding of the contributions these programs provide to the physical, social and emotional development of students. (Standard 5.1)

Recommendation

Investigate ways to provide common planning time for health teachers to continue to develop and update the health curriculum (Standard 5.3)

Recommendation

Reduce class sizes in both Physical Education and Health to increase the quality of instruction for student achievement. (Standard 3.2)

Recommendation

Develop schedules, student rosters, and duties that are fair to all teachers in the department to improve the overall climate. (Standard 5.2)

Recommendation

Repair the current condition of the Track to ensure it is safe for students to use. (Standard 7.2)

Mathematics

Narrative Program Summary

There are seven classrooms on the second floor and sixteen on the third floor. In most cases, the classrooms are clustered near each other. The classrooms range in size. Most of them allow for flexible seating/grouping arrangements, and one classroom uses standing desks for increased student engagement. All classrooms contain a smartboard and a classroom set of TI-30X scientific calculators. Each student has their own chromebook. Almost all classrooms have their own chrome carts. Many classrooms also have document cameras. In addition, five classrooms include a set of TI-84+ graphing calculators. To foster a positive climate, teachers often refer to classroom posters that are welcoming, encourage tolerance, promote positive attitudes and a growth mindset. In addition, making mistakes and taking risks are promoted as learning tools and to create a welcoming climate.

There are 18 different math courses ranging from PreAlgebra to AP AB Calculus. They are developing an AP Statistics course based on feedback from students. The course should be ready in Fall of 2021 or Fall of 2022. There are 24 math teachers who are supported by eight special education instructors, one paraprofessional, one STEM instructor, and one math tutor.

Most students take either CP or Honors courses with about 15 in AP AB Calculus and around 40 in remedial math classes. Incoming freshmen are placed in their grade nine math course based on his or her middle school math performance, MCAS data, and district-administered assessments. Students may choose to transition to high or lower levels during the school year or between years. These decisions involve the student, parents/guardians, teacher, guidance, and support staff. A "Step-Up Program" is offered during the summer for students who want to move up a level.

The curriculum is developed by the teachers within each course team and is outlined in a comprehensive scope and sequence document that identifies all student learning expectations. The curriculum includes essential questions at the introduction of each unit. The curricula are vertically aligned. Each course team meets once a month after school to evaluate lessons and assessments, make recommendation for student movement, and review curriculum. A department meeting is held once a month after school, vertical alignment is addressed at these meetings. The Massachusetts Math Framework changed in 2017 and the math department will be meeting over the summer to realign the curriculum with the Framework.

Teachers are not required to submit lesson plans, but spontaneous walk throughs by cluster chair, director of curriculum, and principal are used to evaluate lesson alignment with curriculum.

The math department engages in differentiation within each classroom. Options include modified methods of instruction such as one-on-one, group, or self-paced videos; increased rigor for higher performing students; projects; and student group competitions. In inclusion classrooms, paper and pencil versus technology based activities are available. Students are encouraged to participate in enriching activities including peer collaboration and communication. Formative assessments are used to provide students and instructors with feedback on learning. Computer activities and calculators are used to enhance lessons. The Flipped Classroom format is also used to differentiate instruction. Inclusion classrooms have a special education support staff. Classes are taught in 44 minute blocks. Students in need of remediation have 88 minute blocks which covers both remediation and course curriculum. In addition, TOPS students take a life skills math class, some transition beyond that to Algebra 1.

During the monthly team meetings teachers discuss results from common assessments, including a thorough item analysis for midterm exams. The department utilizes a common form to highlight areas of low performance along with subsequent decisions and modifications to the curriculum and/or instruction going forward. For example Exit Tickets might be revised to address topics that most students did not answer correctly. Performance data that is analyzed in the beginning of the school year, is often used to transfer students to

classes better suited to meet individual students' needs.

Classroom management is achieved through engaging lessons starting with immediate work in the form of warmups, clearly written, discussed, consistent expectations, and consequences. If cooperating teachers are present, they also help manage classroom behavior. Each teacher is aware of who they notify for assistance as needed.

The math department assesses student progress through warm ups, exit tickets, rotations in the classroom, competitive games, quizzes, projects, unit tests, midterm and final exams. During the monthly team meetings, Item analysis is conducted on common assessments and the midterm exam. Open ended questions are graded by several teachers for consistency. Lessons and assessments are adjusted accordingly as a team. Feedback is provided via Google Classroom individual responses, email, and parent portal.

The Math Club meets two to three times per month after school. There are around 15 participants, all grades being represented. A math teacher advises the club, which is open to students of all math proficiency levels. Students participate in an offsite competition with other technical high schools as part of the New England Math League. Additionally, the math club hosts in-house competitions that are open to the broader student population. In addition, the teachers for each course select two students annually to receive awards, one is for academic achievement and one for either most improved or overcoming a specific hardship.

All faculty have access to sufficient funds to meet required professional development. Funding is available for additional professional development opportunities beyond requirements. The department engaged in Google Classroom training over the last two years as well training in Growth Mindset principles.

Each math teacher serves as a team leader for a particular course, and coordinates the course curriculum decisions, monthly team meetings, and common assessments. This role may rotate depending on assigned courses. Additional leadership opportunities arise for curriculum development and school improvement initiatives, as well as coaching opportunities and advisorships. Finally, all math instructors have opportunities to present to and train their colleagues on new assessment tools and curriculum during department and team meetings. Several math teachers serve as mentors to newer faculty for the first year.

The school funds all resources for the math department. The school does not mandate a "one-size-fits-all" approach to technology, but rather encourages teachers to implement their own professional decisions such as using laptops, IPADS, or desktop computers. The department budget supports a variety of curriculum choices. Each team works with the department chair to choose what curriculum best meets the needs of the course. There is no mandate to use specific curricula throughout the department. For example, the Algebra 2 Honors course uses Pearson's *enVision Algebra 2 Common Core*; the Algebra 1 CP team uses curriculum from *All Things Algebra*. There are also funds available for software tools such as Kuta Software, IXL, Illuminate Education, Quizlet, Gizmos, Newsela and additional tools as requested by individual instructors.

The department is inclusive and welcoming and works to maintain its positive atmosphere through professional collaboration and social activities. Math colleagues often attend professional development workshops together in groups. The department also maintains a faculty-supported annual "Sunshine Fund" to recognize life milestones and organizes social events such as in-school potluck lunches, and out-of-school social events. Participation in social events is never mandated and is always inclusive.

The department's mathematics classrooms mirror this positive atmosphere. Instructors develop a personal connection to their students, allow students to work collaboratively, discuss what the REACH (respect, effort, accountability, commitment, honesty) attributes look like in their classrooms, and consistently embrace diversity.

Mathematics Commendations

Commendation

The use of item analysis on Midterm exams by the math department to address areas of concern and improves instruction practices.(3.4, 4.6)

Commendation

The math awards presented to two students in each course by the teachers to acknowledge student learning and resilience.(5.1)

Commendation

The In house Math Club competitions run by the math department encourage inclusivity and student learning by welcoming all students.(5.1)

Commendation

The creation of the Step-Up program which provides students a chance to be challenged in more rigorous courses. (3.3)

Mathematics Recommendations

Recommendation

Consider adding team collaboration times during the work day to vertically align curriculum. (2.4)

Recommendation

Consider providing time within the work day for team meetings.

Recommendation

Consider adding additional sections of inclusive classroom to decrease the student teacher ratio.

Music

Narrative Program Summary

1. Department/Program Basics. Are there any obvious safety or health issues? Does the area appear to be clean? Is there proper signage? Is there a clear evacuation route? What's the overall appearance to visitors?

The Math Department consists of 23 classroom on the second and third floors on the school. Most classroom are clustered together on those two floors. Classroom vary in size. All classrooms have a SmartBoard and a set of TI-30X scientific calculators. Many classrooms have document cameras and five classrooms have TI-84 graphing calculators. In order to create a positive climate, teachers have posters displayed in their classrooms about inclusion, tolerance, positivity, and growth mindset. In addition, teachers set a tone where mistakes and risk taking and opportunities to learn.

2. Curriculum (Standard 2).

o What is taught? By whom? To whom? Where does the curriculum come from? Is it aligned with the Core Values of the School/Center? [Standard 2, Indicator 1]

Courses ranging from Pre Algebra to Advanced Placement AB Calculus are taught. Based on student requests, they are implementing an AP Statistics course either fall 2020 or fall 2021. The mathematics department has twenty-four math instructors and one STEM coordinator. In addition, there are eight special education instructors and one paraprofessional that support the department.

o What is the format of the curriculum? [Standard 2, Indicator 2]

o What are the performance expectations? Is the curriculum competency-based? [Standard 2, Indicator 3]

o Are teachers using lesson plans that are aligned with the curriculum? [Standard 2, Indicator 4]

o Is the curriculum aligned from grade 9 through grade 12? [Standard 2, Indicator 5]

o How often is the curriculum reviewed? What is the review process? [Standard 2, Indicator 7]

3. Instruction (Standard 3).

o How do teachers reflect upon their learning practices? [Standard 3, Indicator 1]

o When you observe instruction, how are students being taught? Are lessons student-centered? Is the instruction differentiated for mixed-ability learners? Is technology integrated into the instruction? If so, to what extent? To what extent is curriculum from the Academic Department integrated into CTE programs? [Standard 3, Indicator 2]

o To what extent do you see evidence of differentiated instruction? To what extent do you see evidence of problem-solving and higher-order thinking by students? [Standard 3, Indicator 3]

o Do you see effective use of classroom management strategies? [Standard 3, Indicator 2]

o Does the instructor make accommodations for students on IEPs or Section 504 Plans? [Standard 3, Indicator 3]

o Do teachers use student achievement data or feedback from students or other professionals to improve their instructional practices? [Standard 3, Indicator 4]

4. Assessment (Standard 4).

- o How does the program assess student progress? [Standard 4, Indicator 1]
- o To what extent is assessment data disaggregated and used to inform instruction? [Standard 4, Indicator 2]
- o How are assessment results communicated to students and parents? [Standard 4, Indicator 2]
- o Are the lesson objectives clearly stated? [Standard 4, Indicator 3]
- o Do teachers employ a range of assessment strategies, including both formative and summative assessments? [Standard 4, Indicator 4]
- o To what extent are rubrics used to assess student achievement? [Standard 4, Indicator 4]
- o Do teachers provide specific and timely feedback to ensure students revise and improve their work? [Standard 4, Indicator 5]
- o Do teachers regularly use formative assessments to inform and adapt their instruction to improve student learning? [Standard 4, Indicator 6]
- o What evidence of student learning do teachers look at to improve instructional practice? [Standard 4, Indicator 7]
- o Is there evidence of a systematic program review being conducted periodically to improve program design? [Standard 4, Indicator 8]

5. Student Clubs and Awards. What is the level of student involvement in co-curricular activities such as Honor Society? If students take part in subject matter competitions, to what extent have they been successful? [Standard 4, Indicator 7]

6. Faculty. How do instructors in the Academic Department keep up-to-date in their field? Do they receive adequate professional development? How do they demonstrate professional leadership and other teacher responsibilities? [Standard 3, Indicator 5]

7. Adequacy of Department/Program Resources. In your professional judgment, does the department/program appear to have sufficient resources? Is there sufficient staff? Is the equipment and technology consistent with current education practice? If not, what is missing? Is all the equipment working properly? Does the program appear to receive a budget large enough to implement the curriculum? [Standard 2, Indicator 6]

Note: Comments on safety concerns or major defects in the structure of the physical plant (i.e., condition of the roof, walls, lighting, heating, ventilation, bathrooms, signage, personal protective equipment, handicapped accessibility, etc.) should also be included in the Visiting Team's Report under Standard 7, Indicator 5.)

8. Climate in the Department/Program. What is your sense of the culture/climate/atmosphere in the Department or Program? Is there a welcoming, all-inclusive atmosphere? Is it collaborative? Is there any evidence of harassing language or behavior? Is the climate gender-neutral? [Standard 1, Indicators 1; Standard 1, Indicator 3; and Standard 3, Indicator 1]

Science

Narrative Program Summary

The Science department at Greater Lowell is located on the third floor of the school. There are six classrooms/labs that are grouped in two sets of three located on opposite ends of the floor. Most rooms are equipped with Smart Technology and/or a Chromebook cart, but with the pandemic a one to one device has been issued. Three science classrooms have an Aquaponics system maintained by students. Science rooms are appointed with proper safety equipment, which are clearly marked. Rooms are clean, organized, and evacuation routes are clearly marked.

Greater Lowell has a graduation requirement of two credits in science and a passing grade on Biology MCAS. There are currently eight science courses offered which include both college prep (CP) and honors level. Environmental Science and Biology offer an Advanced Placement option. Chemistry offers a dual enrollment option in conjunction with Quincy Community College. Science courses incorporate laboratory-based activities, higher order thinking skills, authentic performance tasks, and the integration of technology.

The science department has sixteen science teachers and one STEM coordinator. Curriculum is written in a common format for all courses, was created by the science department team, and is supported by the 2006 MA STE Standards and MA Literacy and Common Core Standards. Greater Lowell uses 21st century learning objectives in order to set expectations for student learning. Performance assessments are included within the curriculum show evidence of learning throughout the academic year.

Teachers consistently use a common curriculum for all science courses. Daily objectives and agendas are posted in the classroom. The science department uses the curriculum to consistently ensure teachers are on a similar pace for their students. Students take common summative assessments at the end of units in each also have common midterms and finals. Collaborative work is done on a monthly basis during meetings which provide valuable time to better implement the curriculum and share/evaluate student data.

Science teachers consistently examine and revise instructional practices. An evaluation system is in place to ensure teachers are meeting evaluative standards. Science teachers are evaluated by their department chair. The monthly department meetings provide time to collaborate and improve instructional strategies, however there is no ongoing common planning time during the school week for teachers. Other opportunities, such as professional development and workshops provide more instructional resources to the staff.

The science department implements differentiation of instruction across the curriculum and individually in the classroom. 504 plans and IEPs are followed to ensure identified students are being serviced. Furthermore, science classrooms are co-taught and/or supported when mandated. Assignments are differentiated based on course level and specific student's needs.

The department often integrates technology. While some classrooms have a Chromebook cart, this is not the case for all rooms. This year, students were given a one to one device due to the pandemic. That being said, the hope is this will become standard and the need for sharing a Chromebook cart will disappear. Teachers consistently use technology to provide real time feedback to students. Three classrooms have student operated Aquaponics systems providing a student driven hands-on technology. Furthermore, the department uses the scientific and classroom technical equipment to better their instruction at Great Lowell.

Students who have IEPs or 504s have scheduled meetings to discuss achievement towards student goals. Science teachers also regularly communicate with guardians via phone, email, and/or parent-teacher conferences.

Teachers individually and collectively use a range of assessment strategies in their classrooms. Both summative and formative assessments are consistently used. Teachers also use pre and post testing, MCAS test

preparation style assignments, and hands on labs to ensure student achievement.

The science department provides specific, timely, and ongoing feedback to students to ensure student reflection and success. Students are encouraged to revise work for better understanding.

Beyond professional development offered at the school, science department teachers maintain expertise as adult learners through various workshops and graduate coursework. The school provides opportunities at both the school and individual level.

The annual department budget accommodates needs for permanent and consumable supplies and equipment for the department. Science class size has increased with a larger freshman class. Science classes are capped at 25 students unless a teacher specifically allows additional enrollment.

The science department is a collegiate department that is welcoming and all-inclusive. Collaboration takes place on regular basis with a drive for professional development and student success. The co-taught classrooms are effectively structured and clearly planned. The department works in cooperation to better curriculum, assessment, and instruction.

Science Commendations

Commendation

The collaborative and focused work of the department which has resulted in strong curriculum, assessment, and instruction. (3.4)

Commendation

The consistently funded departmental budget which provides students with the necessary scientific tools and resources for learning (7.1)

Science Recommendations

Recommendation

Investigate ways to provide additional time for teachers to collaborate during the regular school day (5.5)

Recommendation

Seek out additional resources to ensure all science classrooms have consistent access to Chromebooks to facilitate learning (7.2)

Social Studies

Narrative Program Summary

The Social Studies department is located throughout the building with instructors teaching on different floors and hallways. There are a total of eleven social studies instructors in the department. Each classroom is equipped with SMARTBoards, computers, speakers, printers and access to Chromebook carts. Overall the Social Studies department classrooms are neat, clean, well-organized, and well-equipped. There is proper signage and clear evacuation routes posted in each classroom.

At Greater Lowell Technical High School (GLTHS), the curriculum is purposefully designed to ensure that all students practice and achieve each of the school's learning expectations. GLTHS offers different levels of college prep and honors courses. Each grade level maintains common grading percentages and categories which are discussed during department meeting times. The social studies department meets twice a month for collaboration, grading alignment, examining data, and any other departmental needs.

The written and taught curriculum is designed to result in all students achieving 21st Century expectations for student learning. It includes a purposefully designed set of learning opportunities that reflect the schools mission, core values, beliefs, and learning expectations. The curriculum in Civics is currently being updated to offer a statewide mandated Civics Project. Some assessments include project based assignments, open response prompts, and Document Based Questions (DBQs). There is a clear alignment between the written and taught curriculum; posted student learning objectives, use of recommended primary sources, and the inclusion of the Massachusetts Curriculum Frameworks standards on each question found on the midterm and final exams. Unit plans and scope and sequence documents all contain learning objectives and standards that each unit will cover. There is a clear alignment between the written and taught curriculum.

The curriculum is supported by instructional materials, technology, equipment, supplies, facilities, and educational media resources to fully implement the curriculum, co-curricular programs, and other developmentally appropriate learning opportunities. Teachers all have access to Chromebooks and SMARTBoards. Instructors voiced a need for more online materials in order to support their students. Therefore, virtual textbooks with online supplemental materials were highly recommended by faculty members. Resources such as NewsELA and a video database help students visualize and retain concepts that are taught in the classroom. Each teacher has his or her own classroom. However, the recent influx of students taking a social studies courses their freshman year has led to a concern in class size. There are no co-taught classes or paraprofessionals in the History Department with the exception of the United States history topics course.

Teachers take graduate courses or participate in professional development in order to stay abreast of current research and practices, however they do so on their own time. The district does not offer professional development on social studies content.

Realigning and creating curriculum units based on the new Massachusetts Curriculum Frameworks with the Social Studies and the English department is still in progress. Curriculum teams continue to meet to share instructional practices and examine curriculum.

The quality of instruction is the single most important factor in students' achievement of the schools 21st Century learning expectations. Instruction is responsive to student needs, deliberate in its design and delivery, grounded in the schools mission, core values, beliefs and learning expectations. Teachers post learning objectives in the classroom for students. In each classroom, the school's core values of R.E.A.C.H which stands for Respect, Effort, Accountability, Commitment, and Honesty are posted to ensure consistency.

Although teachers are differentiating instruction, there are currently no co-taught classes with special education or English language learners instructors present in the Social Studies classes. Instructors provide written and verbal feedback to students and students self-assess through the use of rubrics and ASPEN. Technology is incorporated often in instruction.

Instruction is supported by research in best practices. Teachers are reflective and collaborative about their instructional strategies with their colleagues in order to improve instruction. At GLTHS, teachers continually reflect and examine their practices. Through midterm and final exam item analysis, teachers adjust their teaching practices. During department meetings and curriculum team meetings, teachers examine student data on a variety of formative and summative assessments in order to adjust instructional practices to more effectively engage students in lessons.

Assessment informs students and stakeholders of progress and growth toward meeting the schools learning expectations. Assessment results are shared and discussed on a regular basis to improve student learning. Assessment results inform teachers about student achievement in order to adjust curriculum and instruction. Instructors at GLTHS communicate to students the learning expectations and the unit-specific learning goals to be assessed.

Teachers provide specific and timely feedback to ensure students revise and improve their work. Teachers have seven days from the end of the academic week to return grades or provide feedback to students. Students then have the option to revise their work with the teacher to ensure learning objectives and state frameworks have been met. Teachers are also available for after school help at least one day a week for students to revise and improve their work or to receive additional support.

The overall climate of the department is friendly and professional. Instructors voiced their concerns regarding class sizes being larger for ninth graders and smaller for the upperclassman. Instructors also expressed how smaller class sizes would result in more individualized instruction with timely feedback. Instructors commended the administration and expressed how they felt supported.

Social Studies Commendations

Commendation

Creating a culture of high expectations for all students by offering Advanced Placement courses to better support students who want to attend college or who are seeking more rigorous classroom learning activities. (2.1)

Commendation

Redesigning curriculum to meet the needs of students as a department to increase both rigor and relevance in the classroom. (2.1)

Social Studies Recommendations

Recommendation

Explore a plan for co-teaching in Social Studies classrooms to support for both Special Education and English Language Learners as needed for differentiation and accommodations to be met with fidelity (3.1)

Recommendation

Continue to seek additional resources for digital tools and materials to better support instructors in their content areas. (7.1)

Recommendation

Investigate ways for teachers to meet and collaborate more than twice a month to develop curriculum and reflect on student needs. (4.7, 5.5)

Recommendation

Consider strategies for reducing class size in grade nine social studies classrooms. (2.6)

Recommendation

Offer content specific professional development to continue to stay current in best practices. (3.4)

Other Academic Program

Narrative Program Summary

In addition to all of the other areas of Academics, Greater Lowell Technical High School (GLTHS) provides additional services and opportunities to their students body through the following:

Athletics

English Language Education (ELE)

Special Education

Student Activities

Transition Occupations Program

Reading Title 1

Athletics

The Athletic program at GLTHS is well established and has a long history of success. The department boasts a pool, a track, 2 soccer fields, baseball and softball fields, a football field, and 2 auxiliary fields used for lacrosse or field hockey, and a main football stadium. The Department offers 23 sports annually with levels of freshmen, Junior Varsity and Varsity teams as necessary. Rosters are always full at GLTHS, and sports serve about 1,000 students annually. The Athletic Department continuously adds new sports or new levels of sports in response to student demand, or simply to add opportunities for more students. Recently, the department added Girl's Lacrosse, and in Fall of 2021 Girl's Field Hockey will begin. When the new Athletic Director took over 9 years ago, an effort was made to rebrand the Athletic department, which included streamlining into two single GLTHS logos. Now all athletic apparel has a uniform look, including items sold in the school store. This initiative has had a positive impact on the school and greater Lowell community, and now GLTHS Griffins and Griffin supporters can be easily identified in the school and community. The Athletic Director believes that this has added to school pride and belonging.

The Athletic Department understands the demographics of GLTHS, and to that end Athletics are free to all students. Uniforms are supplied, and transportation, with the exception of infrequent night games, is provided. When late afternoon games occur, the Department contracts with Aramark to provide bagged lunches or snacks free to the students. Graduating students donate used equipment which is maintained by the Equipment manager and given to students as needed. The department is proud to have never turned away a student from a sport due to lack of equipment. The donated equipment ranges from track cleats to golf clubs and everything in between.

Student support for Athletic games and events is strong. Many students remain after school to cheer on teams. When special events are scheduled, such as the Homecoming game, Student Activities collaborates with the Athletic Department to offer after school activities such as a movie and pizza to feed and entertain the student audience before the game. The Athletic Department also offers intramural sports each year. In a typical year, intramural sports might include softball, floor hockey, baseball, weightlifting and running clubs.

The Athletic facilities range from beautiful, modern and new, to over 50 years old. As part of the schools recent multi-million dollar upgrades, GLTHS gym got new flooring, new scoreboards, lighting and bleachers. An extensive donation from the New England Patriots paid for a Division III level weight room. The soccer field, baseball field, basketball court, pool and auxiliary fields are all in great condition and are newer, however the main stadium is original to the school and is over 50 years old. It is not ADA accessible, and is under equipped, not modernized, and in need of a major upgrade. The outdoor track is also in disrepair and only has 2 or 3 usable lanes. At this point, track meets need to occur at other local schools, and GLTHS track can only be used for

practice. With nearly half of the school population involved in sports at GLTHS, it seems like these are worthwhile upgrades that would serve the school for decades to come.

The Athletic Department has consistent and adequate funding annually and has the full support of the Superintendent. New initiatives are supported and there is trust and a willingness to expand and be creative. Noteworthy is that the Superintendent attends various games weekly and is a major Athletics Department supporter.

English Language Education (ELE)

The English Language Education Program at GLTHS is a well established program serving the language proficiency needs of approximately 220 students. The students receive language development instruction through the ELE course, which is taught by one of the 4 EL certified instructors with support from 3 shared paraprofessionals. These paraprofessionals also support some students in their academic areas. The ELE department has 5 dedicated spaces for small group and class instruction which is fully equipped with modern technology, curriculum support materials, and young adult literature. The most common primary languages spoken in GLTHS homes are English, Spanish, Brazilian Portuguese, and Cambodian Khmer. Several ELE instructors are multilingual in those languages, and ELE paraprofessionals as well. In addition, the district contracts with an Interpreter service to communicate all manner of home/school communication in the families preferred language. The ELE instructors describe their teaching space and classroom styles as a supportive culture. This is supported by high numbers of EL students "opting in" to coming to school during the duration of the pandemic shut down.

The students take an annual exam adhering to both Federal and State standards as outlined by the Massachusetts Comprehensive Assessment System (MCAS). The Assessing Comprehension and Communication in English State-to-State for English Language Learners (ACCESS for ELLS) test is based on the World-Class Instructional Design and Assessment (WIDA) language proficiency standards, which are highly regarded across the nation. The annual assessment evaluates language proficiency in speaking, listening, reading and writing and provides composite scores in comprehension, language production, and overall.

The ELE team uses score reports received each Spring to place students appropriately into leveled ELE courses for the following year. There are three levels, Basic, which serves the needs of level 1 and 2 students, Intermediate, which meets language needs of high 2 and 3 students, and Advanced ELE which provides instruction to higher level EL students who are level 4 and close to exiting ELE instruction. ELE courses focus on bolstering academic vocabulary so that students can be successful in their trade and content areas. ELE courses are taught in double or triple periods during the academic cycle. ELE class sizes range from 5-17, but average about 8-10 students per class. There is no formalized support for EL students in the vocational/technical areas at this time. ELE instructors report that many EL students are drawn to certain trades, but that could be due to many variables, which would be worth exploring. There could be climate and culture issues at play or perhaps with additional language supports all 23 trades could appeal to EL students.

The ELE department does not currently use the co-teaching model or provide any formalized support for ELs in the content areas. In some cases ELE paraprofessionals do provide some support in the content area, but largely the students are unsupported in their academic and theory courses. Beginning in 2014, Massachusetts Department of Elementary and Secondary Education (MDESE) Office of Educator Licensure requires all new teachers be endorsed in Sheltered English Immersion (SEI). Beginning in July 2021, all EL students must be placed in classes and trades with an SEI endorsed instructor (or the instructor has one year to complete the online course). So in this way, there is some level of assurance that teachers are at least basically skilled to accommodate ELs, however dedicated collaboration with ELE instructors could keep those skills fresh and up to date and continue to build instructor capacity and student success.

The department does experience some frustration with the general education and vocational teachers understanding the role of the ELE course. The ELE course is not a study hall or a place to complete assignments from other content areas, and sometimes there is confusion around that. The role of the vocational and academic teacher is to build their own skill set learning to make their content comprehensible to EL students. The ELE department provides consult as needed, but generally does not jump in and offer to support students on specific assignments. This is a valuable boundary to draw, as once the door opens to helping students complete assignments, dedicated ELE time dwindles and takes a back seat to triage and work completion, which are not

one in the same. It is a commendable and difficult boundary to set and maintain. It seems that perhaps additional professional development beyond SEI would be beneficial so that teachers can continue to build their skill sets. This dilemma also supports the need for collaboration between the ELE and general academic and vocational departments.

Special Education

The Special Education Department at GLTHS is a massive department that provides a wide range of services tailored to the individual needs of their students. The department is fully staffed complete with 21 certified special education instructors, 13 paraprofessionals, a scheduler, a speech and language therapist, counselors, 2 clerical staff, and a Director of Special Education. The department serves approximately 500 special education students ,including TOPS (see below) . There is good staff retention and the department is described as a “happy place” and a “great place to work”. The special education teachers teach, plan, communicate with families, hold formal and informal meetings, and document student learning and progress, but are not burdened with copying, mailing, or scheduling meetings. The department has dedicated classrooms where the focus of instruction is on the new executive function curriculum and the study skills curriculum which have been recently purchased by GLTHS.

Special education teachers who co-teach are offered twice monthly department meetings, one with a focus of the whole department and one with the focus of the content area they co-teach in. GLTHS affords co-planning time synchronously scheduled between co-teachers to the highest degree possible. The teachers reported feeling very comfortable, organized and in sync with their co-teaching partner. Co-teachers both volunteer and occasionally are asked to fulfill the role in a contracted one year commitment interval. They receive training in co-teaching and generally each co-teaching pair designs a model that works best for them. Special Education co-teachers teach in a single academic area class daily in English Language Arts , science, or math classes. There is no co-taught history at this time. Not all identified students require co-taught classes, and those students attend fully inclusive academic courses without additional support. Placement decisions are made on a case by case basis and students are monitored closely. These students can participate in the after school homework program which is staffed in part by special educators who can provide additional supports to these students as needed.

Special education students do not have direct special education support during trade, although support is provided on an as needed basis. A unique feature of trade instruction is that the theory portion of trade is taught during academics as a course. Since special education services are provided during academics, this provides the opportunity to support students in the theory part of trade, but that support is limited due to scheduling conflicts, so it is implemented more on an as needed basis. Collaboration with trade instructors is informal, there is no consistent formal dedicated time set aside for special educators to collaborate with trade instructors. Current practices look more like triage, addressing and responding to issues as they arise. Although this strategy may work, it seems like there is room for improvement and that this would be a worthwhile area to work on developing.

The teachers report that the department feels equitable to them in terms of supplies, facilities, technology, scheduling and administrative responsiveness. They report that special education students are a part of every area of the school from SkillsUSA to sports to Co-op. The school has a long history of inclusion and the staff believe that part of their success is due to an atmosphere of general acceptance and tolerance. The school has clubs and after school activities aimed at providing enrichment and support to all students in the various areas (math club, book club, Gender Sexuality Alliance, Drama Club, Biology Club, Anime Club, etc).

The department works hard to analyze assessment data and the 2019 results from MCAS English and Math identified that higher order thinking was a general weakness for special education students. Both Math and ELA departments have been working to embed more opportunities to include lessons that stimulate higher order thinking. The special education department also will include more of a focus on higher order thinking in their study skills classes. The department would like to continue to focus on analyzing all curricula for similar opportunities.

The Self Study highlighted a future focus for the department of developing an in-house attendance protocol just for special education students. The school uses the RISE protocol for all students with absenteeism due to hospitalizations or mental health illnesses which includes home visits, parent meetings and potential credit recovery programs to try to re-integrate students after extended absences, and the special education department would like to develop a similar but less intense protocol to help re-energize truant students and give them a

pathway for re-entry. The department does not report higher than average attendance issues, but still feels it is a worthwhile protocol to develop to further individualize programmatic options for their students.

Student Activities

Student Activities are an important and vibrant part of the Greater Lowell Technical High School (GLTHS) community. GLTHS believes strongly that offering a comprehensive array of after school activities is part of developing well rounded students. Through after school and co-curricular activities, students participate in the Arts, civic groups, community outreach groups, support groups, technology, self-expression groups, and academic learning activities, etc. GLTHS believes student involvement fosters a connectedness to school that promotes their core values as well as positively impacts school performance. The diversity and robustness of the programs and opportunities available to all GLTHS students embodies this belief. GLTHS students are offered a comprehensive and intentionally designed education that meets both learning and emotional needs.

The majority of student activities groups take place after school as extracurricular activities. All of the activities are overseen by at least one adult advisor, although depending on the needs and focus of the group, the advisor may have different levels of direct participation. Once an activity is fully approved, teacher advisors are provided a modest stipend for their responsibilities related to the activity. GLTHS also offers several co-curricular activities such as National Honor Society and SkillsUSA.

Currently GLTHS offers twenty one different activities to their students. The activities are open to all students, and are only withheld from students who are serving school suspensions. Students are able to take either the 3pm or the 5pm late bus home, depending on the time demands of the activity. Activities are required to meet weekly throughout the year, and are required to have planned activities, take attendance, and submit monthly activity reports that are reviewed by the Activities Coordinator and Assistant Principal, who work together to oversee Student Activities. Although community service activities are encouraged, they are not required.

Funding for Student Activities is provided by the GLTHS general fund, but individual groups are required to fund raise to cover any incidental expenses the group may incur as part of their activities. Participation is at no expense for students, but if there is a cost, for example if the Outing Club has to pay entrance to a local museum, those funds would be covered by the fundraised money to minimize the expense to students. There is a Student Assistance Fund available as well to offset expenses for students with financial needs.

It is important to GLTHS that Student Activities incorporate equitable, culturally relevant and sensitive practices at every opportunity. This is evidenced through the types of clubs (English Language Education Book Club, Anime (with a focus on Japanese culture), Gender Sexuality Alliance, and Project Purple are good examples of GLTHS supporting equitable and culturally responsive elements in their Student Activities. Club ideas are generated by a combination of staff and students, and there is a clear protocol written which guides the process. All ideas are heard and given equal consideration. After moving through the process, new clubs are given a "soft" approval to pilot run for one year. Monthly activity reports and attendance are monitored to see if a club has enough momentum to reach full club status. Clubs are re-evaluated annually for popularity and relevance.

Covid-19 challenged GLTHS to be creative in their implementation of Student Activities. The Student Activities Coordination Team worked hard to curate an abbreviated list of activities that could work remotely. Throughout the pandemic shut down, GLTHS continued to offer 11 Student Activities to students to enrich and provide stimulation during the shut down.

Excluding co-curricular clubs, the after school activities involve about 600 students annually. Students are welcome to participate in more than one club and can choose from any available club on any given day. Most weekdays have about 6 clubs scheduled after school.

SkillsUSA is an area of tremendous pride for GLTHS. They are a total participation school, meaning every student is a member. This eliminates the potential financial barrier of joining SkillsUSA for economically disadvantaged students. GLTHS is beginning to use the SkillsUSA career readiness curriculum and associated assessments to measure growth and inform instruction to meet the SkillsUSA trade competencies. For 6 years in a row, the school has achieved National Model Of Excellence status by SkillsUSA for their comprehensive and exemplary involvement in the program.

Transition Occupations Program (TOPS)

Students with more intense special needs access GLTHS through the Transitional Occupation Program for Students (TOPS) . This program has been in existence for over 20 years, and has evolved into an high quality integrated program meeting the academic, functional, vocational and transition needs of students with intellectual disabilities. The program currently serves 60 undergraduate and postgraduate students. Students have the option to receive a graduation certificate at the close of year four, or the student and their family can choose to continue on to the school's Transition Training program which focuses on functional skills and vocational training until the student turns 22. TOPS is staffed by 4 full time Special Education teachers, 3 paraprofessionals, and two work site aides in addition to the Transition Coordinator, TOPS Counselor, and a Program Supervisor. The program is overseen by the Director of Special Education. TOPS has strong community partnerships with local retailers like Aramark and community support services such as the Department of Social Services, Massachusetts Rehabilitation Commission, and the Department of Developmental Services. In addition, TOPS partners with retailers like Aramark and CVS to provide job training and employment opportunities to students aged 18-22.

TOPS students have access to the full range of services and opportunities that GLTHS provides all students. They try out for sports teams, join after school clubs, and can explore a variety of trades, and complete an MCAS portfolio as an alternative summative assessment of their knowledge and skills. Within the program, there is tremendous opportunity for individualized programming according to personal preference, so the student voice is heard and they are an integral part of directing their own education and vocation. The only limitation is that the majority of opportunities for TOPS students at GLTHS occurs within the hotel and culinary industries. Students are welcome in all trades, however not all trades are appropriate for all students. If a student voices an interest in a different trade, the opportunity is explored. Many students try different trades on a trial basis, but the largest part of trade access occurs through the Culinary and Hospitality trades.

The program mirrors the typical student experience of a weekly rotation between academics and trade. If appropriate, TOPS students can participate in inclusion classes, but generally TOPS students work on academics tailored to their abilities. While numeric grading is not a program requirement, in the spirit of equity the students receive a typical report card with numeric grades. The report card indicates that accommodations and modifications were required. This is a standard practice for all GLTHS students. The TOPS counselor provides young adult specific instruction to help TOPS students manage typical adolescent problems and issues, including cyberbullying, social skills, mental health and wellness. When in academics, TOPS students take English and Math consistently, which focus on preparing them for future employment. They spend an additional three hours a day in academics working on soft skills, additional vocational instruction, life and wellness skills, and preparing the students for the complex skills they will need to work in the school's Cafe.

The Cafe opened three years ago and has exceeded expectations of TOPS students, staff, and the entire school community. The Cafe recently achieved Chapter 74 status and now it is considered a certified trade at GLTHS. The Cafe serves light foods and beverages to school students and staff and to the community. TOPS students run the Cafe in collaboration with the Culinary students. The Cafe is a fully inclusive place, with TOPS Culinary and typical Culinary students working together in all areas. Students rotate through different stations weekly so they have the opportunity to practice all levels of Culinary skills. They rotate from front end assignments of greeting and prepping coffee to-go, to mid-house activities like the panini station, smoothie and soup stations, to the back stations which are where cooking and oven work is included. The TOPS students also work in the "way back" where they run dishwashers and the industrial linens stations. GLTHS purchased state of the art industrial washers and dryers and TOPS students wash, dry, fold and deliver laundry to all trades and athletics. All of these responsibilities prepare students very well for work in the Culinary or Hospitality industries.

The Program has plans to continue to expand, possibly opening up a restaurant or cafe in the Greater Lowell community in partnership with the Department of Developmental Services and the Massachusetts Rehabilitation Commission. The program accepts 10-12 new students a year consistently, and demand for the program will likely continue. Adding additional work site aides and paraprofessionals would give the program more flexibility and allow more students to pursue more vocational opportunities outside of the Cafe. Currently, in addition to the Cafe, students work within the embedded mock CVS located at GLTHS, and transition to actual CVS retail stores for work opportunities as well. Additional staffing however would allow students to self-determine their career paths, instead of being limited by what opportunities GLTHS currently has staff supports.

Reading/Title 1 Program

Great Lowell Technical High School receives Title 1 federal funds in order to support and remediate literacy for students who are not proficient on the Common Core Standards. At this time, GLTHS uses Title 1 resources primarily to provide literacy support and instruction to prepare students to meet the demands of their grade level curriculum. This support is delivered through reading and literacy interventions delivered primarily in the academic cycle, however 9th grade students receiving support receive that support 44 minutes per day, every day in both cycles. Currently the department has 4 Reading Specialists and two Literacy paraprofessionals, and is about to hire an additional reading specialist to expand services. Dually identified students present the biggest scheduling challenge. In general, when students required Title 1 support, they forfeit physical education and/or social studies to make room in their schedule.

Ninth grade students are evaluated using multiple data points, including teacher recommendations, MCAS scores, lexile levels and performance on the Stanford Achievement 10 which is administered to new students. Each year the Literacy Support Coordinator determines a cut score, which is typically close to an 800 lexile level. Students performing below that level qualify for Title 1 interventions. Students complete benchmark assessments three times annually, which are embedded in the instructional materials "Language Exclamation" program. Students who reach the 800 lexile cut off are exited from the program, and quickly replaced by another student. The Title 1 program currently serves 160 students at GLTHS, with another 20-30 kids annually qualifying but not receiving services. Student placement in the program begins with the lowest performing students, and moves upward, often reaching capacity before all students are placed. Students most commonly qualifying and not receiving services are students who score within 20-50 points of the cut score. Knowing that qualifying students are not receiving interventions is a major frustration to the department. These students are pulled in as soon as space opens up.

To rectify this unfulfilled service need, the Title 1 coordinator currently has four of her staff taking the accelerated Literacy Coach certification course at Lesley College. The goal is to build capacity within the school as high needs students is an increasing trend. Furthermore, the Literacy coordinator makes a concerted effort to track students who qualify but do not receive services to be sure that they maintain success at GLTHS.

Long range goals for the Program include 1) creating a three year literacy action plan with goals and 2) developing a school wide writing curriculum complete with a standardized writing rubric. Both of these initiatives are attempts at resolving inconsistencies in service delivery, content overlap, and an unclear vision between ELA, Reading, Literacy and Title 1. The program is hopeful that by having five trained Literacy coaches, that all students will benefit from improved literacy. There is inconsistent ability and awareness of literacy across the school, and by having trained literacy coaches assigned to individual departments and trade clusters, there is hope that literacy instruction will be delivered uniformly in every setting.

Other Academic Program Commendations

Commendation

Special Education:

Meeting the comprehensive vocational/technical needs for high needs Special Education students in the TOPS program through the Chapter 74 Cafe is a model for other technical schools. (6.1)

Commendation

English Language Education

Providing important documents and daily communication to families in their home languages of Khmer, Spanish and Portuguese.(7.7)

Commendation

Student Activities

The breadth and variety of Student Activities choices demonstrates a respect for diversity, equity and inclusion. (5.1 , 5.2 & 6.5)

Commendation

Student Activities

Total School Participation in SkillsUSA provides an excellent opportunity to all GLTHS students and demonstrates commitment to maximizing student benefits from the program. (7.8)

Commendation

Student Activities

The careful and thoughtful curating by the Student Activities Coordination Team of activities available remotely during the Covid-19 shut down demonstrates a commitment to student enrichment and social emotional learning. (6.5)

Commendation

Student Activities

Named a National Model of Excellence for 6 years in a row by SkillsUSA for their exemplary implementation of the SKillsUSA program. (7.8)

Other Academic Program Recommendations

Recommendation

Special Education:

Consider adding additional work site aides and paraprofessional support staff to the TOPS program to provide more varied vocational opportunities for 18-22 year old students. (7.1)

Recommendation

Special Education/English Learner Education:

Consider adding dedicated collaboration time between special education staff and vocational staff to facilitate student success in all trades.(6.6)

Recommendation

:

Consider adding dedicated collaboration time between special education staff and vocational staff to facilitate student success in all trades (6.6)

Recommendation

Athletics

Consider long range planning to fund updates to the main stadium and outdoor track continue to meet the needs of student athletes (7.2, 7.3)

Recommendation

Consider scheduling alternatives that protect EL, Special Education and Title 1 students from loss of physical education or social studies courses in order to receive support services (5.1, 5.2)

Graphic Arts (Communication, Design, Printing)

Narrative Program Summary

The Graphic Arts department is located on the second floor on the east side of the campus building. The main entrance to the graphic communication shop area is located on the second floor, adjacent to the boy's restroom. The Graphic Arts department is taught by three instructors specializing in their respective content areas. There are approximately 63 students enrolled in the program, not counting Freshmen, which at the time were still in the exploratory rotation. The target number of Freshmen accepted into the program is a consistent 20 students per year. It is a popular program and is expanding. The student population in the program is evenly balanced between females and males. Currently there are six students in co-op.

The physical layout of the graphic communications department is congested. Machines on the shop floor are clustered by function. Students congregate in the seating area once their specific task is completed to await for a new one or continue with online assignments. Additional space includes a classroom for the theory class held in a separate area outside the shop. The instructor desk is located at the far end of the room, facing the students. Behind the instructor is a room that leads into the copy center, which is run by two students on a weekly rotation. The shop contains posters depicting the school's core values, along with examples of work performed by the students.

The main areas of focus for the department are theory, printing, digital printing, dye sublimation printing, and prepress/digital computer lab. The observation video showcased the production/printing lab. All evacuation signs were visible, the shop appeared very clean, despite the heavy usage and large number of students observed working and operating the machines.

The Graphic Arts' curriculum is driven by current industry practices and trends as directed by their 10 member Program Advisory Committee, as well as the Massachusetts Vocational Technical Education Frameworks. There are three instructors covering grades

The Graphic Communications curriculum is purposefully designed to ensure that all students practice and achieve proficiency as required by industry standards. The Graphic Arts department utilizes both Apple and PC computers. Each student has been assigned their own computer to access lessons, in particular for remote learning circumstances. A SMART Board is used for PowerPoint presentations and subject content-related videos, as well as to display the weekly agenda.

The department formally meets twice a month and informally on a consistent basis. The Graphic Arts program is project based. Students were observed working on machines to complete live work orders. The work order forms are distributed during the shop's morning meetings and contain details of their assignment based on the client/customer needs.

Shop projects are self-paced, and competency based. Adjustments are made after teachers review the final product as a formative assessment detailing it's quality and correctness. Students are taught using best practices utilizing guided and independent platforms built in to the lesson plans. Mid year and final exams are administered to the students as stated in the school's core values. The students exhibited great pride in their work while showing their progress to the instructor.

The Graphics Arts program does not meet or need any required licenses and/or certifications in the field. OSHA 10 certification is required for a co-op placement. The program does not have any existing articulation agreements with higher education or industry trainers. Placement rates for the most recent year were not available.

The instructors maintain their level of expertise and teach cutting edge technology in the trade through the guidance of their advisory committee members. The members consist mostly of local small and large business owners. Professional Development is also offered to all faculty throughout the school, with emphasis on Social Emotional Learning, use of technology in the classroom, remote teaching, assessment and grading instruction.

Future initiatives for the program include the establishment of a certification program with Konica Minolta. The program will allow students to have real world experience in the digital print industry. This certification consists of 11 courses. Upon successful completion of each course, students will receive a certificate of completion. Students will then have an opportunity to interview and train as field techs with Konica Minolta. Another initiative is to offer an Adobe Creative Cloud certification to become an Adobe Certified Associate (ACA). This certification is industry-recognized, and validates mastery in Adobe digital-media software and will allow students to be more marketable in the workforce.

Graphic Arts (Communication, Design, Printing) Commendations

Commendation

The ample involvement within the community partnering with variety of local businesses within the Graphic Arts program. (5.3)

Commendation

Utilizing student foreman positions to bolster leadership and management experience (ie, student run copy centers) within the shop. (3.2)

Graphic Arts (Communication, Design, Printing) Recommendations

Recommendation

Investigate ways to increase shop space due to increased numbers as well as to alleviate the cramped task stations machine/user locations for a safer learning environment. (7.2, 7.3)

Recommendation

Continue seeking industry recognized certifications and credentials for students to increase employment options. (2.10)

Design and Visual Communication

Narrative Program Summary

The Design and Visual Communications Program (DVC) is a new and popular program. It was established in 2016-2017 school year. This space offers a unique opportunity to learn about traditional fine art as well as Digital Design using Adobe® Creative Cloud software. Students perform a variety of tasks including; concept development, applying the design process to create two and three dimensional work. There are three instructors who cover the curriculum. One instructor is assigned to exploratory program, the second works with sophomores and the third covers the Juniors and Seniors as well as advanced placement art.

The freshmen exploratory program and the theory classes are located in a separate 838 square foot room. This space is quite small for 29:1 student teacher ratio occupying the room. Students work on a variety of simulated projects as well as live work for non profit customers. The primary 1,760 square foot computer lab, is well organized and welcoming. The student's display their work for both decorative and critiquing purposes. There is an area where students display their work and join together to critique one another's work. This develops the necessary skills to apply design vocabulary, and create camaraderie and teamwork. This collaborative exercise ultimately improves the final project being delivered. The environment is demonstrably creative. Resources for continuing education and job market trends are available in a reading area in the classroom.

The space also has drafting/drawing tables for drawing and art projects along with a small photo studio nook which provides space for photography, video filming, or independent study. The room has a group learning area with a smart board and student seating. Staff and students are working on both mac and pc platforms. The program is well equipped with digital photo equipment and state of the art drawing tools and tablets.

All three instructors develop and implement curriculum, which is focused on introducing students to industry practices, guiding them through creative strategies and solutions, and helping them develop a purposeful body of work which is contained in a career or college portfolio. The student population in the program amounts to between 60-63 students, not including the freshmen who explore the program. On average, there are two females per every male enrolled in the program.

In order to support creating final design solutions that meet industry standards, the students learn color theory, design theory and the basics of Photoshop, Illustrator, InDesign, Animate, Dreamweaver, and other programs as they relate to creating content for visual communications. The students also practice foundational skills such as; drawing, painting, sculpture, videography, photography, and composition.

The DVC program uses Google Classroom to manage lessons and to communicate with students. Curriculum is mapped using a department-wide scope and sequence. The advanced placement curriculum aligns with the College Board's course and exam description. Instruction is organized in units and by concept. DVC students learn, practice, experiment, and implement the skills which are expected in industry. The competency-based curriculum aligns with the Massachusetts Vocational Technical Education Frameworks. Students have opportunities to collaborate with other technical areas within the school, such as the graphic communications and programming and web development programs. Field trips are planned to visit art and design institutions. Representatives from colleges and industry are active participants in providing meaningful feedback to the students.

Instructors vertically aligned curriculum from grades nine to twelve. Instructors annually review curriculum, usually through analyzing midterm and final exam questions and responses, to address new trends in the industry and areas where students demonstrate weakness. Students complete either a 10-hour OSHA Safety Training Program or a 10-hour Career Safe Training.

Design and Visual Communication Commendations

Commendation

For the continuous collaboration with outreach to other departments in developing artwork. (5.3)

Commendation

Showing creative work in the form of exhibitions by students that has resulted in local, state and national awards and recognition. (3.2, 3.3)

Commendation

For extending curriculum related to graphic design into interactive output/applications by instructors , to align with the Middlesex County DA's Task force. (2.3, 3.6)

Commendation

An advanced level curriculum was developed by teachers to create an AP Art program to challenge advanced learners. (2.3)

Commendation

Extending the output of concept, graphic design into inter

Commendation

Extending the output of concept, graphic design into interactive applications such as developing the interface for an app for safety.

Design and Visual Communication Recommendations

Recommendation

Continue to work to attain & retain employers in the community for the cooperative education program. (2.6)

Recommendation

Continue to recruit a wider variety of members from post-secondary education and industry and involve students to expand the membership of the Advisory Committee. (2.8)

Recommendation

Create a plan to expand space and resources for the freshmen exploratory, junior and senior environment due to overcrowding and increased student enrollment. (7.2,7.5)

Recommendation

Consider allocating space for a separate AP art classroom due to the rigors of the AP curriculum. (7.2, 7.5)

Cosmetology

Narrative Program Summary

Cosmetology students are prepared to meet licensing requirements for cosmetology by the state of Massachusetts. Students accumulate 1,000 hours of training needed to become licensed and must pass a written and practical state board exam. The department consists of four main shop areas, a theory room, and three dispensaries for salon supplies. The rooms are located on the first floor with a combined area of 5,645 square feet. The space is adequate to service the student body and clients. Three of the main salon areas have two dispensaries and accommodate the freshmen, junior and senior clinical shop activities. The sophomore shop area has one dispensary and is located at the end of the hall. All shop areas have 16 student stations, 48 in total. There are four shampoo sinks with chairs in the freshman shop, four in the senior shop and four in the sophomore shop. There are large cabinets in the salon areas to store clean towels. Additional equipment includes a shared towel warmer, ten mobile hair dryers, one mobile microdermabrasion machine, 16 shared mobile facial steamers and magnifying lamps, and ten shared portable manicuring tables. The theory room can accommodate up to 24 students, has a chromebook cart to hold 30 computers and a mounted large-screen monitor. The junior shop area has a mounted large screen monitor and a shared chromebook cart that holds 32 computers sufficient for the junior and senior class. There is a SMART board in the senior shop area. The sophomore shop area has a chromebook cart that holds 20 computers and a mounted large screen monitor. The salon is newly renovated with full mirrors and neat stations. The overall appearance is pleasant, clean, organized and gender neutral. Safety signs and emergency phone numbers are posted and an evacuation route binder is mounted and visible. There is a centrally located fire extinguisher and eyewash station. The visitor/staff bathroom is adjacent to the junior shop and student bathrooms are on the second floor. The salon area adheres to the Massachusetts COVID 19 guidelines and safety standards for hair salons.. All students wear masks. Stations are spaced three feet apart with plexiglass dividers in between stations. Sanitation and disinfection has been adjusted and includes disinfecting station areas before and after school. All students are required to wear safety glasses, gloves, and masks when practicing skills on other hairdressing students. At this time, appointments are restricted for clients and students outside of the shop.

Being a popular shop, enrollment is consistent. There are 32 new students enrolled in the program by the last quarter of freshman year. Out of 82 students in the sophomore, junior and senior class, 12.8 percent are ELL students. Although males are encouraged to enroll in cosmetology, students are predominately female. During the past five years, seven male students graduated from the program. Currently, there are four male students enrolled in the program. Since COVID, students have returned to school 100 percent. There is one student who is remote and joins the class virtually.

Students are trained for a variety of career opportunities in the hair, nail, and skincare industry. Students are taught industry standard techniques and theory lesson to successful pass the written and practical cosmetology state board exam. Students learn a variety of cosmetology topics including the history of cosmetology; safety and sanitation; the structure, function, disorders and diseases of the skin, hair and nails. Practical instruction and theory lessons in professional salon practices consists of, wet and thermal hairstyling, haircutting, shampooing and conditioning, haircolor techniques, chemical texturizing, facials, make-up application and nail care. There are four instructors; three female and one male. Instruction is driven by the Massachusetts Cosmetology State Board and MA CVTE frameworks in the form of a scope and sequence of planned level instruction. Instructors developed a tracking tool, called The Competency Tracker that is used as a testing tool to break down areas of need and calculates the required additional training needed. The tracker and rubrics are stored in a shared folder in google drive. The exploratory rotation is in line with the new 2019 MA CVTE exploratory frameworks. In sophomore year students are split into two rotating cycles of A week and X week. One week students attend shop as well as health or gym class and on the rotating week they attend academics. Upperclassmen frameworks were last edited and updated in 2014. All updates are recorded in the competency tracking program. Curriculum is student driven and instructors design the curriculum guided by the Milady textbook objectives. Freshman students enrolled in the program are taught safety and basic skills; Sophomore year students focus on

foundational practices. At the end of junior year students are expected to meet competencies and senior year advanced techniques are introduced to keep students competitive in the field.

Students learn through a variety of methods. There is a combination of hands-on instruction, SMART board presentations, instructor demonstrations, videos, and on-line resources such as Milady Pro and Mindtap, electronic testing tools, google drive and google online testing. Lessons are student driven and objectives are clearly stated and listed on the SMART board, google classroom and white board and are often referred to throughout the lesson. Handouts with pictures, diagrams and steps are utilized during teacher demonstration to reinforce learning objectives. Advanced skills are built upon from foundational practices and questions to activate prior knowledge are utilized as a review during demonstrations. Evidence of student engagement was observed. Students listen, ask and answer questions demonstrating comprehension and follow instructions. Teachers ask critical thinking questions during demonstrations and observation of student learning. Instructors provide positive feedback during instruction. Various google applications are used in the instructional delivery system which organizes instructional techniques, strategies, modifications and accommodations. Differentiated instruction ensures that multiple learning styles are met and accommodations are applied for students with IEP's and 504's through the program X2. Examples of accommodations and modifications provided are preferential seating, extra time, or any other listed accommodations. Collaboration with special education liaisons and guidance counselors ensure student success. Instructors created an electronic simulated licensure testing system that is state-of-the-art and drives instructional strategies by providing data to the instructional staff. Remediation can be addressed immediately giving the student the opportunity to achieve success. Administrators and supervisors perform formal and informal observations, and learning walks to evaluate and provide feedback for instructional practices. Teachers provide grading policies and classroom expectations to all students, parents and guardians through emails, remind app and google classroom. All parents are linked to google classroom

Daily assessments take place on both formative and summative basis. Based on data driven by the electronic testing system, individual task quizzes in google classroom accommodate all learning needs. The testing program is the motivation for disaggregating and aggregating individualized instruction. Assessment results are communicated to parents and students through google classroom, X2 portal, progress reports, report cards and parent/student meeting. Teachers employ a range of assessment strategies such as thumbs up, down, sideways; quizzes, trade tracking program, games, worksheets, fill in the blanks, and exams to monitor student understanding. Practical skills are taught through hands on and oral instruction. Industry standards determine competency in these areas. Rubrics are used for most practical and written work and uploaded on google classroom with the assignment. They are used to assess student achievement and identify areas of weakness. Instructors provide feedback and students may revise work if necessary. Students are given a pre-assessment, mid-term and final examination to monitor student understanding, provide evidence of student learning, and to drive and adjust instructional practices. The program adequately prepares students to meet requirements set by the MA state board of cosmetology. The program has a 98 percent pass rate for students on their first attempt. Instructors remediate students who fail or are not prepared to take the boards. Teachers encourage post graduates to stay in contact and will assist them at any time to pass the boards if needed. In addition to the cosmetology state license, students are trained and earn their OSHA card certification, Barbacide COVID 19 certification, receive Career Safe Employability Training, and industry professional certifications that vary every year.

There is a 100 percent participation rate in SkillsUSA. All students complete the written exam and ten percent participate in competitions. Students are encouraged to be involved in all student activities aligning with the school's core values and mission statement. Currently, three students are members of the National Honor Society and many are involved in cheerleading, athletics, and school clubs.

Recently, Massachusetts state cosmetology board decreased the age when students can start accruing hours to age fifteen and implemented an apprenticeship program. Since then, students have increased access to co-op and industry opportunities. Advisory board members are partnered with the cooperative learning program and currently employ five students. Most students who participate in co-op placement remain with the salons after graduation. To increase co-op opportunities, salon owners are invited as guest speakers and meet the students. This provides students with opportunities to network and meet potential employers and understand the industry marketplace.

Graduation rates are tracked through post-secondary surveys. In the school year 2016-2017, there were twenty nine students that graduated from the program. Of those students, 43 percent enrolled in higher education, 25 percent are employed in related industry, 32 percent are employed in a non-related industry, and 0 joined the military.

The credentials for instructors are up to date. All instructors have current licensure at DESE and are cosmetology board and S.E.I. endorsed. To remain current with industry changes and trends, instructors develop five year professional development plans, participate in continuing education classes, service clients, and attend professional trade shows and workshops. The school supports and funds advanced training and teacher credentials such as the lash tinting and lifting advanced training and certification. The information obtained from professional development and conferences is integrated into instructional practices and recorded into the scope and sequences and edited yearly. Instructors have a positive relationship, work well together and collaborate often. Formal department meetings are held monthly.

The department has adequate resources. Based on the advisory board recommendations, all shop areas have been recently renovated to meet standards and the Massachusetts Cosmetology and Barbering State Regulations. The budget is sufficient and allows for equipment to be replaced when needed and replenish supplies using a purchase order system.

The salon is closed for production this year due to COVID 19. Typically, the senior and junior shop are open to staff and outside customers for services. The salon is easily accessible for guests. Senior citizens from local centers are accommodated. Participation in community and group services are held at the school as well as senior citizen events. Twice a year senior citizens attend spa days and receive spa services and lunch at the school's Artisan Cafe. Services include hair care, aesthetic, and nail services. The salon is open during school hours, September through June on Tuesday through Friday from 8:30-1:00. The salon averages two to six clients per day. The salon is run as a traditional salon and students have specific roles and jobs such as receptionist, manager, and stylist. They utilize an online booking system. The manager is responsible for keeping students on track with their jobs throughout the day. All jobs and responsibilities are listed on a clipboard for the manager to check. Students are assigned sanitation jobs and accountability is student directed. Health and safety for students and clients is a priority while providing a realistic salon environment.

Instructors support one another and share instruction. The climate is welcoming to all students but it is still perceived as a traditionally female shop. There appears to be mutual respect among students and teachers. Teachers and students seem to be happy in the shop and enjoy what they are doing. Teachers provide continual positive feedback during lessons. Classroom rules, grading policy are posted as part of the classroom management plan. The core values poster is visible. Student uniforms and shoes are directed by state board regulations.

The program has a consistent and active advisory committee that meets twice per year. Members consist of salon owners and managers that employ students in co-op job placements. The board currently has a student and a parent representative who serve for two years during the junior and senior years. The student offers suggestions on the current program and the parent gives feedback from their perspective. School wide advisory board meetings are often scheduled during working hours limiting member availability. Because meetings were held virtually this year and were more flexible, there was a better turnout and a more active meeting. The department relies on the board for suggestions and recommendations relating to budget, equipment, industry trends and standards.

Cosmetology Commendations

Commendation

The Competency Tracker System developed by the teachers that is used as a testing tool to break down areas of need and calculates the required additional training needed. (3.4)

Commendation

Ninety eight percent pass rate on the state licensure exam on the first attempt by Cosmetology students who are prepared by the teachers to enter the workforce upon graduation (4.8)

Commendation

Electronic simulated licensure testing system created by the teachers to drive instructional strategies by providing data to the instructional staff. (4.4)

Commendation

Creating a team that supports one another, share instructional strategies and displays camaraderie providing a good example to the students aligning with the core values of the school. (5.1)

Commendation

Advanced training for certifications by the teachers so they can teach advanced trends to students making them more marketable. (5.3)

Cosmetology Recommendations

Recommendation

Continue efforts to increase participation in the Trade Advisory Committee meetings by offering flexible schedules and times for meeting to accommodate work schedules. (2.8)

Recommendation

Consider adding a smart board in the freshman salon to support instruction. (7.3)

Recommendation

Consider renovating the theory Room to include painting, replacing old chalkboards with white boards to make it more conducive to learning. (7.1)

Marketing, Management, and Entrepreneurship

Narrative Program Summary

The marketing program is located on the first floor near the main office and is often referred to as the Marketing Mall Area. There are four Marketing Mall stores that each resemble a brick and mortar store, along with one kiosk. The varsity store contains school items with the GLTHS logo. The students, with guidance from the teachers, select items of interest for the school's students who are their target market. The holiday store is a seasonal store displaying items appropriate to the season. The gift store sells specialty items such as stuffed animals, coffee mugs, and additional overflow seasonal items from the holiday store. The mall area also has a CVS store stocked with donated items from CVS through a partnership facilitated by an alumni of GLTHS and the marketing education program. The kiosk is typically placed in the entrance of the school and items are rotated for display based on sales promotions, such as, the senior class sweatshirt or used as a flower kiosk. All stores are handicap-accessible, including a handicap accessible elevator from mall store to upper mall classrooms. Stores are managed by students on a rotating basis. They meet with vendors, determine target market, select items to order, and open and close the store using a checklist. There is an official Lowell Five Bank on the premises with a branch manager on site to train students in banking and finance. The bank is open to the public and trained students work as tellers and perform duties to satisfy banking needs.

There are four classrooms each equipped with SMART Boards. One of the classrooms is a computer room with twenty-four desktop personal computers installed with Microsoft Office software suite and Adobe software suite (Photoshop, DreamWeaver, and AfterEffects). The other classrooms have access to Google Chromebooks and Microsoft Surface tablets.

The areas are clean and inviting. Students are assigned sanitation jobs to maintain the area. The stores are neat and organized with attractive, eye-catching displays. An official CVS sign was donated by CVS Corporation in 2020 and is mounted above the GLTHS CVS Store. Each store has a visible notice that reads "This is a Student Operated Business" to promote the store's operation. The classrooms have visible, mounted evacuation binders and first aid kits, posted emergency phone numbers, and colorful, interesting bulletin boards relating to marketing and branding.

The department accepts thirty students per year. In total there are 93 students; 38 sophomores, 26 juniors and 29 seniors. Male students account for 45 percent of the total shop population and female students 55 percent. In the last few years the shop attracted more male students than in the past and since 2016, the department is filled with first choice students and has had a waiting list for the last several years. The reason for the increase is because the instructors reinvented the curriculum bringing new life and more engagement with active learning to exploratory teaching the four Ps of marketing (promotion, product, place and pricing), marketing plans, print and video advertising and social media marketing. They also interviewed student representatives to gain insight of student interests in the marketing field.

The curriculum consists of seven marketing courses; Marketing Exploratory, Marketing Shop 1, Marketing Shop 2, Marketing Shop 3, Marketing Theory 3, Marketing Theory 4-Business Plan and Entrepreneurship. It is driven by the Massachusetts Marketing frameworks, the teachers, and the Advisory Committee. Students are expected to perform shop functions independently and with proficiency, based on the frameworks standards. The curriculum is reviewed and updated on a quarterly basis and the advisory committee performs a bi-annual review comparing industry standards and expectations, leadership, and technical competition results. Internal reviews are based on daily operations of the school stores meeting customers needs. Curriculum is competency based. Students are given opportunity to progress at their own rate by use of competency based projects and methods of instruction. Underclassmen have the opportunity to participate in a mentoring program with junior and senior level students in a variety of job-site situations. Competency-based learning materials provide activities that allow each student the opportunity to participate and perform tasks appropriate to marketing occupations. The curriculum builds on the previous grade and level.

The marketing curriculum is aligned to VTE Frameworks. Students are provided with direct instruction, small group assignments, modeling and demonstration, mentoring, individual work, team work, presentations and active learning. Assignments are differentiated based on student needs, prior knowledge, and skill mastery. Students with prior knowledge are challenged with more complex mastery work. Synchronous learning was observed for distant and in person students during theory lesson. Questions to encourage critical thinking and tapping into prior knowledge keep students engaged. Strategies to manage classrooms effectively include seating plans, activity stations, clear objectives, positive pairing with classmates, and classroom rules and expectations are utilized by all instructors. Objectives were clearly stated on the smart board and align with curriculum framework. Technology is authentic to the industry and includes a 360 degree video camera, high definition camcorders and cameras and go pros. Stores and the bank are equipped with point of sale system. All students have access to adobe premiere. Students have the opportunity to become certified in microsoft office. Strategies used for accommodations include chunking information, wordbanks, pre-teaching, visuals, use of calculators, extended time, oral exams, agenda books, cuing, reminders, check ins, preferred seating and positive pairing.

Instructors assess student progress using performance-based written tests, verbal tests, projects, both formative and summative assessments, and employer and internship reviews to assess student progress. Assessments are communicated to students and parents using X2 Aspen, through conversations, and classroom review. Positive behavior is also recognized and communicated to parents. Rubrics are used for learning assignments to provide clear expectations and grading criteria. Instructors ensure that students attain skills by providing study guides, allowing test corrections, providing after school help to accommodate additional support, practice performance tasks prior to summative assessments, and receive timely feedback to improve results before grade is issued. The VTE Frameworks prepares students to be competitive in the Skills USA District, State, and National Competitions. Students earn their OSHA certification at the beginning of their junior year.

Skills USA is 100 percent school sponsored. All students complete the qualifying exam. Approximately ten percent of students participate in Skills USA competitions each year. A sophomore student who is now a senior won the silver medal in the national competition. For two consecutive years, students placed 1st, 2nd and 4th in the district competition. Junior students annually compete in the Bank Bowl sponsored by the Massachusetts School Bank Association and placed fourth out of twenty seven teams. Six junior students are members of the honor society. The OutReach Challenge is an in school competition among the shops conducted annually and marketing won second place two consecutive years.

Four junior students intern at the in-school Lowell Five Bank. Recently, 62 percent of students participated in cooperative work opportunities. A partnership with CVS and Marketing was formed by the Senior Advisor of Workforce Initiatives for CVS, an alumni of GLTHS, as part of the CVS give back program for transitional occupation. CVS provides an in school training program once per month, and employs many students in the marketing department under 18 years of age. Students visit the Rhode Island CVS main headquarters at the company's expense to select products for the in-school CVS store. The program offers corporate training to students in four of their stores. Instructors perform co-op visits to support students and co-ops. They have articulation agreements with Middlesex Community College.

Graduation rates are tracked through post-secondary surveys. Recently, 24 students graduated from the program; 78 percent went on to higher education studying accounting, marketing, management and retail; 4.35 percent are employed in a related field, 13.04 percent are employed in a non-related field and 0 percent are in the military.

There are two theory instructors and two shop instructors. All teachers have their Sheltered English Immersion endorsement. Instructors have administered the state marketing teacher exam. All instructors take graduate courses and participate in professional development. Teachers receive adequate professional development.

There is a fifteen-to-one student teacher ratio. Equipment is updated based on advisory board recommendation. All equipment is in working order. Textbooks are current. Students have access to the programs Mindtap and Google Suite. The annual budget is sufficient and based on the advisory board recommendation. The budget is managed and approved by the cluster chair.

The climate and culture is positive. Instructors work well as a team sharing responsibilities, and engage in daily team meetings. Consistency with classroom management is valued. Instructors demonstrate the school's core values; REACH.

The advisory board meets bi-annually in the fall and spring. The board consists of alumni, current students, teachers and co-op employers. The department relies and values the feedback on student skills, industry trends, curriculum and technology that assists in driving the curriculum, the budget and improvements.

Marketing, Management, and Entrepreneurship Commendations

Commendation

Reinventing the curriculum bringing new life and more engagement to the exploratory program by interviewing student representatives to gain insight of student interests to increase enrollment resulting in a full shop with first choice students and a wait list. (2.7)

Commendation

Providing state of the art technology authentic to the industry that includes a 360 degree video camera, high definition camcorders and cameras, go pros, point of sale system, adobe premiere and the opportunity to become certified in microsoft office. (6.5)

Commendation

Establishing solid partnerships with Lowell Five Bank and the CVS give back program for transitional occupation offering employment, corporate training, in-school business training and many co-op opportunities inclusive of all students. (6.6)

Commendation

Providing students with real world experience in brick and mortar school stores and a bank designed to allow the students exposure to all aspects of marketing, business, management and entrepreneurship. (3.2)

Marketing, Management, and Entrepreneurship Recommendations

Recommendation

Continue to implement the advisory board recommendations to remain current with technology and standards in the industry. (7.1)

Carpentry

Narrative Program Summary

The Carpentry program is located on the first floor and consists of four rooms: two large shop areas, an exploratory shop, and a theory classroom. Shop equipment is available in all areas, except for the classroom. Exits and evacuation routes are clearly marked. Lockers and locking cabinets are provided for students' tools. There are no bathrooms located within the shop. Fifteen Chromebooks are provided in the theory classroom. The overall appearance to visitors is good.

Carpentry students are enrolled in grades 10-12. Thirty students are typically accepted in grade 9 at the end of the Exploratory program. Numbers remain steady/consistent from year to year. The carpentry shop is very popular among the student body. The demographic average each year is 83% male and 17% female students.

There are four instructors, one for each grade level. Grades 11/12 theory is taught by the Grade 9 instructor. Curriculum is driven by the Massachusetts Vocational Technical Educational Frameworks (MA-VTEF) and aligns with the school's core values. The curriculum is presented through lessons and projects that contain trade content and a focus on skill development. Students engage in problem-solving, exploration, creativity, higher-order thinking, teamwork, communication, on and off campus learning, and use of technology. The curriculum is competency-based and aligned with the MA-VTEF. Student competencies are recorded in the Skills Plus program. The program's curriculum is scaffolded for different levels of learning. Curriculum review occurs annually based on assessment results and changes in industry standards. Changes are discussed during monthly Professional Learning Community (PLC) meetings and revisions are made to the curriculum prior to the start of the next school year.

Students attain their OSHA Construction ten-hour card during their junior year. Two five-hour workshops are used to deliver OSHA content via certified, technical instructors.

Instructors consistently review instructional practices and also discuss them during monthly departmental PLC meetings. Changes deemed necessary are made then. Competency-based lessons and/or projects are created using the MA-VTE Frameworks. During projects, instructors check in with students to ensure understanding. Some students require differentiation in order to understand objectives. Peer tutoring and group projects are used as learning aids. Instructors review all student IEPs and 504 plans annually, at the start of each school year. Accommodations are listed in the reports and are implemented within the shop and in theory class. Instructors review student work and revise assignments as needed. Students are encouraged to provide feedback on lessons to instructors to be considered in future lesson planning.

Written and Performance Safety testing begins in Grade 9 and is continued in Grade 10 for all shop equipment and tools. Grades 11 and 12 students review safety lessons at the start of every school year. Students on all shop levels are monitored for safe operating skills during the entire year. Tests are kept on file and each shop instructor maintains a Safety Log. All grades conduct Monday morning safety talks and check for student comprehension orally. Safety Data Sheets (SDS) are a topic of these Monday morning talks. Hazardous chemicals are very rarely used in the carpentry shop.

Student skills and credentials are recorded using the Skills Plus system. The measures of attainment levels include Introduced, Attempted not Attained, Attained and Demonstrated in Field. Assessment results are communicated orally in shop or class to all students, or in writing if students need guidance to revise an assignment to achieve a passing grade. Parents can access student assessment results in the Aspen X2 parent portal. Assessment data is reviewed regularly at department meetings and that data is used to determine which lessons or skills need to be re-taught or reviewed. In most cases, lesson objectives are clearly stated. The carpentry instructors are currently creating and/or revising lesson plans and agendas. Lessons begin with an essential question, a learning objective and frameworks covered. Student assessment consists of formative and summative assessment. Rubrics are used in the shop and theory classrooms for various assignment grades.

There is a Daily Performance Grade rubric and a Weekly or Daily Shop Project rubric. There is also a thorough weekly review of tests/answer keys. Students can improve an earned grade by attending the extra help time after school on a designated day once a week. This day is communicated with all students at the start of every semester. Additional extra help time can be scheduled individually at the convenience of both the student and the instructor. While project work is in progress, instructors use performance assessment to ensure that all students understand the task or competency being attempted and that the work is completed correctly based on rubric and/or code standards. Formative and summative assessments and rubrics are reviewed at department meetings and at the beginning of each school year. Instructors make adjustments to assessments and rubrics based on student work and skill attainment.

The carpentry department is currently working with the Carpenter's Union to sign an articulation agreement which will give students one years credit and allow them to enter into the Carpenter's Union as a second year apprentice

All students are SkillsUSA members, and take a schoolwide exam on employability skills and safety. In December the shop holds an in-house carpentry competition where students engage in practical/hands-on tasks and a written exam. The top four students advance to the SkillsUSA District competition which is held in March. If a student finishes in the top three at districts they advance to the SkillsUSA state competition May. Top finishers in states have the opportunity to compete on a national level in June. Carpentry students have competed at the state level in the past.

Students participate in the school's co-op program to gain real-world experience. The majority of these students are seniors. Total shop hours completed, OSHA 10 hour completion, carpentry grades and skills attainment, conduct, attendance, and academic grades are all factors considered prior to co-op placement. In February, junior students become eligible for the co-op program provided that they meet all requirements. Currently there are 17 carpentry students working a Coop job. Seniors 12 of 28 -- Juniors 5 of 30.

Carpentry currently has no articulation agreements in place with Post Secondary schools.

Graduation rates are tracked by the school. According to the 2018 Graduate Follow-up Survey, of the 23 graduates, 20 responded: 5 students are employed in the trade, 1 student enlisted in the military, 5 students continued their education and 9 students are employed in a non-trade related field. 2020 Data is being compiled and not available at the time of the visit.

The teacher-to-student ratio maximum is currently 1:15 in grades 10, 11 & 12 Shop and Theory. Freshman exploratory and Grade 9 is 1:30. There are no safety concerns observed and all equipment and tools are currently working properly. Damaged and broken equipment are locked / tagged and repaired or replaced by an outside vendor. Current budget appears to be sufficient for educational materials and supplies.

The carpentry shop completes on campus projects for the school and off campus projects for the sending communities. Past production work examples include the annual float for the City of Lowell Festival of Lights Parade, MIT Police Department, Megan's House, Habitat for Humanity, Dracut Senior Center, YMCA's Camp, and the Town of Dunstable. Due to the pandemic off campus projects have been put on hold. The instructors are confident they will continue once restrictions are lifted. Habitat for Humanity has been a successful partner in the past and will hopefully continue.

The culture of the department is one that fosters learning. The instructors are all graduates of the schools Carpentry program and work well together. They are an exemplar for students in the program and for school pride. Students acknowledge this bond and it serves as a model for how to create an appropriate atmosphere with colleagues. A "welcoming strategy" begins at the ninth grade level. Instructors believe that the exploratory program and instruction of potential freshmen candidates is vital to the success of the program.

The Carpentry Advisory committee, consists of shop staff members, current students and their parents, post-grad students, co-op employers, industry professionals and trade groups. Their task is to keep the department informed of current labor and industry trends and make recommendations for new equipment for the school. The meetings are scheduled twice in a school year, once in the fall and once in the spring. Recent participation has been low due to remote meetings and the pandemic.

Carpentry Commendations

Commendation

The creation of online curriculum and resources by the carpentry instructors to accommodate student online instruction during remote learning to the pandemic. (2.1, 2.5, 2.7)

Commendation

The redesigned shop projects and tasks assigned to students by the carpentry teachers which allowed hands-on learning to continue during the pandemic. (2.1, 3.3)

Carpentry Recommendations

Recommendation

Expand opportunities to for off campus projects. (7.1)

Recommendation

Continue to implement strategies to increase the number of non-traditional students in the program. (5.16)

Recommendation

Explore ways to increase advisory membership and participation. (7.8)

Electricity

Narrative Program Summary

The electrical shop includes four shop areas and one related room. The electrical program is located on the second floor. This is the only construction trade located on the second floor. All equipment for the electrical shop is located in the storage rooms and brought into the shop areas as needed. There are no obvious safety and health issues. The shop appears to be clean. Proper signage is displayed and there is a clear evacuation route. The electrical shop does not have individual lockers for students. There is a bathroom located outside of the electrical theory room. The electrical shop received a Chromebook cart at the start of the 2019-2020 school year with thirty Chromebooks. The overall appearance of the shop is clean and organized.

The program currently has approx. 90 students in grade 10-12 and typically accept 30 grade 9 students each year. There is a high demand for the program with students on a waiting list each year. This is also a high demand skill in the region. Non-traditional students currently make up 5 percent of the program.

Students curriculum follows the VTE Framework. Grade 10 introduces students to basic electrical safety with hand and power tools. It also introduces students to NM cable, MC cable, EMT, and PVC. Grade 11 builds off of what was learned in grade 10. They learn more advanced wiring techniques with NM cable, MC cable, EMT, PVC and are introduced to SMR and electrical services. Grade 12 continues with safety and is focused more on doing off campus projects outside of the shop. This curriculum is provided by electricity instructors to electricity students and comes from the curriculum comes from the VTE Framework. The electrical program's goal involves helping students reach their full potential with engaging and rigorous curriculum and instruction. This is aligned with the school's core values and with the school's mission to help students be prepared for their post-secondary goals and education. Students participate in an on-site residential building project and co-op employment. The Electrical program has created a set of "Power Standards" for each student to ensure each is proficient in that skill. The curriculum is reviewed during after school professional learning communities. The program is designed to prepare students for the licensing requirements of the Massachusetts Board of Electricians.

Instructional practices are continuously examined to ensure consistency with the school's mission, core values, beliefs, and learning expectations. Students are taught using personalized and differentiated instruction. Instructors put an emphasis on communications skills and provide feedback to students in a timely manner and encourage students to revise work to encourage skill attainment. Three of four electrical instructors completed the Massachusetts Sheltered English Instruction Teacher Endorsement Course. Math and English are integrated into class on a daily basis.

The teachers in the electrical program adjust their instructional practices to meet student needs. Formative assessment, differentiated instruction, and other methods are used within the shop/classroom. Project based learning is often used. Instructors engage students and have strong classroom management skills. Projects are often collaborative and focus on the student.

All electrical students receive safety instruction in NFPA 70E (Electrical Safety in the workplace), instruction in hazardous chemical awareness (safety data sheets), and written and applied safety testing. Junior electrical students obtain their OSHA 10 Construction Card.

Electrical instructors provide feedback to parents and students in a timely manner to ensure students revise and improve their work. One of the main communication tools is X2/Aspen. All grades are posted in X2/Aspen for students and parents to see. Lesson objectives are posted and rubrics are used. Electrical teachers and administrators examine student data to improve instructional practice. Junior electricity students earn an OSHA 10 card, and all electricity students have the opportunity to compete in SKILLS USA. Electricity students graduate with 300 of the required 600 related hours needed and approximately 1,800 of the 8,000 work hours needed. The electricity shop consciously and continuously builds a safe, positive, respectful, and supportive culture and

promotes student responsibility for learning.

Electrical students compete in an in-house Skills USA competition. The top four students move on to compete at the next level of competition. SkillsUSA district results for the past 3 years: 2017 – Electricity students placed 4th, 11th, and 15th 2018 – Electricity students placed 8th 2019 – Electricity students placed 2nd, 12th, 13th, and 15th

The electrical program does very well placing students into cooperative education. The numbers are as follows:
Year Junior Students Senior Students 2017/18 13 end of May 12 end of April 2018/19 11 end of May 17 end of April 2019/20 0 14 end of February
The electricity shop has a partnership with the Greater Boston Joint Apprentice Training Center's (JATC). This is the training center for IBEW Local 103. The shop also has long-standing relationships with co-op employers. The electricity shop does not have any articulation agreements with higher education facilities.

Instructors stay proficient in their field. They attend monthly Massachusetts Electrical Contractor (MECA) meetings and code update classes. Teachers stay in contact with co-op employers to keep up with industry trends and adjust instructional practices as needed. Instructors receive adequate professional development through course work and in school PD sessions.

The electrical programs current student/teacher ratio in the freshman shop is 30:1 and 1:15 in grades 10-12. The freshman shop was designed to accommodate 24 students and has only 24 workstations. The equipment and technology is consistent with current practice. All equipment is working properly. The shop utilizes the 2020 NEC code books. The textbooks that go along with the code book are not ready at this time, but will be purchased when they become available. The current budget appears to be sufficient at this time for efficient student learning.

The electrical program performs on/off campus projects for the school and the sending communities. Past projects include; lighting on the school-built float for the Lowell City of Lights parade, installation of electrical wiring for several Habitat for Humanity houses.

The culture/climate/atmosphere in the electricity shop is strong. The four electrical instructors work together effectively. In order to create a welcoming and inclusive atmosphere, instructors like to meet students at the door and welcome them into the shop/classroom.

The program works with a Program Advisory Committee. Stakeholders are represented in the committee. The committee meets twice a year. The electrical advisory committee provides feedback on existing equipment, facilities, and resources to better prepare students for the trade.

Electricity Commendations

Commendation

A home based hands on learning curriculum developed by the electrical instructors that included a work board, materials and tools to complete hands on projects while remote. (2.1, 2.2, 2.3, 2.7, 3.1, 3.2, 3.3, 3.4)

Electricity Recommendations

Recommendation

Create and implement opportunities to increase off campus projects to provide students with real world experience. (7.1)

Recommendation

Continue to implement strategies to increase the number of non traditional students in the program. (5.16)

Recommendation

Create and implement a program to increase Advisory membership and participation to help guide instructors to keep their program current. (7.8)

Heating, Ventilation, Air Conditioning and Refrigeration

Narrative Program Summary

The HVAC/R shop has three shop areas and one theory room. The Sophomore, Junior, and Senior shops are separate from the main body of the school. It is the only construction trade shops located on this side of the bus tunnel. The equipment is located in the storage rooms and brought into the shop areas as needed. There are no visible safety concerns. The HVAC shop does not have lockers for students; it has tool rooms, and a tool cabinet for student use. Junior and senior shops have bathrooms. Every student in the HVAC shop has a school issued Chromebook. The overall appearance is the shop looks organized. The training stations appear to be outdated. There is a wide variety of equipment in the storage area outside, which can appear as though it is cluttered.

The HVAC student/teacher ratio is as follows - Freshman shop 12 /1 ratio; Sophomore shop 12/1 ratio; and Junior/Senior shop is a 24/1 ratio. Exploratory is a 25-30/1 ratio. The program has four grade Levels 1.2.3.4 (Level 1 being freshman and Level 4 being seniors). Student population averages 70 students for grades 10-12 and 24 for grade 9 each year. The average for nontraditional students has been 3 percent with 97 percent male. The HVAC program over the past years has seen a steady increase in the amount of first choice students that are selecting and completing the HVAC program. Feedback received from female exploratory students is that their parents wanted them to pick a more traditional shop.

HVAC students are taught curriculum that are aligned with the Massachusetts CVTE Framework. Grade 10 students complete basic safety with hand and power tools, and equipment used in the program. Written and performance tests are completed and a safety log is kept by all instructors. Students are then introduced to electrical, refrigerant handling, and sheet metal safety. Grade 11 students attain their OSHA 10 cards in preparation for cooperative education employment. Students in the program learn how to navigate the National Electrical Code and how to read basic electrical prints and specifications. Proper handling techniques of refrigerants according to the rules set by the Department of Transportation and the Environmental Protection Agency. Authentic learning opportunities both in and out of school are achieved by working at the on site house building project and co-op employment. The HVAC program has also developed a set of Power Standards for students in each level to become proficient at. The curriculum in the HVAC program is reviewed on a monthly basis during the department's PLC meetings. The curriculum is developed, evaluated, and revised using formative and summative assessments to check for student content understanding of specific task / competency being covered. All students are prepared to complete the Massachusetts 608 certification exam. Passing this exam allows students to legally handle refrigerant and work on refrigeration equipment up to ten tons. This is a benefit for students looking to begin a co-op employment. Students that complete 2000 hours of apprenticeship at an HVAC company, along with verification of completion of a CH 74 HVAC program will be admitted for examination for the Massachusetts Refrigeration Technicians Licensure exam. The HVAC instructors are currently working on creating a more streamlined program that combines on-line curriculum, and shop projects. The goal of the program is to align the theory portion of the program, with the projects being worked on in shop. Teachers are working to transfer the majority of our written materials on-line, so it can be more easily accessed by the students.

Instructional practices are consistently examined to ensure consistency with the school's mission, core values, beliefs, and learning expectations. All of the HVAC instructors have completed their Massachusetts Sheltered English Immersion Teacher Endorsement Course. Technology is integrated into the instruction as needed. Math and English are integrated into the curriculum on a daily basis used for measuring, calculating pressures, and temperatures, and English for filling out daily time cards, stock list, and reflection papers. Instructors adjust their instructional practices to meet the needs of each student by using formative assessments, differentiated instruction resources and by providing additional support and alternative strategies when needed. Written summative assessments are given in the form of written tests, quizzes, and hands on project rubrics. Instructors

review student IEPs and Section 504 plans in the beginning of the year and implement the accommodations and resources when applicable. Instructors regularly use student achievement data and feedback from students or other professionals to improve their instructional practices.

Assessment results are shared and discussed in the HVAC program on a regular basis to improve student learning. Assessment results inform teachers about student achievement in order to adjust curriculum and instruction. Instructors provide specific and timely feedback to parents and students in a timely manner to ensure students revise and improve their work using ASPEN/X2. All grades are posted in a timely manner for students and parents to see. Instructors and administrators collaboratively examine a range of evidence of student learning for the purpose of improving instructional practice. Instructors consciously and continuously support a safe, positive, respectful, and supportive culture that fosters student responsibility for learning and results in shared ownership, pride, and high expectations for all.

Grade 11 HVAC students earn an EPA card, and all HVAC students compete in SkillsUSA. Both of these are nationally recognized in the industry. HVAC students graduate with 700 hours of practical shop hours.

The HVAC Program co-op currently has 10 out of 50 eligible students out working for Coop employers. COVID has reduced the opportunities at this time. There is currently no articulation agreements with higher education. Post graduation data was not available at the time of the visit.

The HVAC program is successful and equipment is all in working order. Materials are sufficient for student learning and the current budget appears to be sufficient to fund the materials and equipment needs.

IT was observed that instructors work well with students. There are currently three HVAC instructors with one new instructor this year. They appear to work well together. They meet the students at the door and welcome them into the shop/class room. Professional development is achieved by completing continuing education for licensure and by working in the field during summer breaks.

There are currently no off campus projects for the foreseeable future and no pathway to attain any. Some on campus work has been completed.

The Program Advisory Committee appears to be comprised of only a few co-op employers. The Advisory Committee should include representatives from several areas; students, parents, industry professionals, trades people, post secondary education, people of diverse backgrounds and disabilities. To be effective in the role they serve.

Heating, Ventilation, Air Conditioning and Refrigeration Commendations

Commendation

The creation of online curriculum and resources by the HVAC/R instructors to accommodate student online instruction during remote learning due to the pandemic. (2.1, 2.5, 2.7)

Heating, Ventilation, Air Conditioning and Refrigeration Recommendations

Recommendation

Create and implement strategies to increase off campus project opportunities to enhance student learning. (7.1)

Recommendation

Continue to implement strategies to increase the number of non-traditional students in the program. (5.16)

Recommendation

Explore ideas to increase advisory membership and participation to keep current with industry trends. (7.8)

Recommendation

Explore ideas to increase Cooperative Education employment to create real-life opportunities for students. (3.2)

Masonry and Tile Setting

Narrative Program Summary

The masonry program has three shop areas; a grade 11/12 theory class, a grade 9 /exploratory, and a grade 10-12 instructional area. Proper signage, such as exit signs, are clearly posted, but the evacuation sign is obstructed with air handler machinery and is also outdated, reflecting an older layout of the floor plan. Evacuation routes are clear with painted outlines and unobstructed pathways to the exits. There are no safety concerns at the time of the visit and the areas were clean. The shop spaces appear to be used very efficiently and work areas were clearly defined.

As a whole, the program is dedicated to the Massachusetts Trowel Trades Association. The MTTA is a non-profit organization that was started in 1998 by masonry instructors in Massachusetts Vocational Schools. Today, there are seven participating schools that aid in helping fund new and existing masonry programs. The association has the support of many masonry suppliers from around the state who are generous with donations which aid in teaching students. Association members meet monthly and provide the opportunity to share best teaching practices. Members organize a yearly masonry competition that affords masonry students a chance to get to know others in the trade, network with employers, show off their skills, and enjoy some friendly competition for tool box prizes and bragging rights. Any and all profits at the year's end is turned into scholarship money for students that excel within each program.

The masonry program currently has 24-30 students per grade level in grades 10-12 and typically accepts 24 students into grade 9. The number of students choosing masonry has been steadily increasing and there are currently students on a waiting list. This is likely the result of the instructors making changes in the exploratory project a few years back. There are both traditional and nontraditional students enrolled in the shop with 7 percent female and 93 percent male.

Masonry instructors have divided the Masonry and Tile Setting Vocational Technical Education into 4 grade levels. The curriculum is aligned and approved by administration. The curriculum has textbooks that provide students with essential questions, concepts, and content in the classroom and include units of competency-based written instructions with rubrics for hands-on projects. The curriculum is aligned from grade nine through grade twelve. Performance expectations are used for students to attain competency in the strands and standards that are being taught throughout the program. Instructors review the program's curriculum during monthly PLC team meetings. The program's instructors look at scope and sequences and discuss changes or updates that could be made.

Instructional practices are examined often through team meetings, evaluations and professional development opportunities. Lesson plans are student centered. Instructors provide differentiated instruction based on students' IEPs and 504's. Teachers assist students who have difficulty with the material when needed. All lessons are competency based and aligned with the program's learning standards. Teachers report using differentiated instruction. Classroom strategies used throughout the program include personalized instruction, self-assessment, repetition of concepts, use of technology, and group discussion and activities. Instructors review student data weekly through shop project photos and theory class assessments. Instructors review self-assessments and student feedback for reflective practice and lesson redesign if required. Safety instruction is provided by having Keller Safety Talks at the start of each week, along with multiple safety textbook studies and OSHA training.

Instructors assess students through pre-tests, mid-term and final exams, along with weekly assignments and use the data from these for reflection. Teachers report that assessments are modified as needed to ensure they accurately reflect student achievement. Instructors communicate assessment results to parents and students through X2 Aspen as well as by email, personal conversations, and phone calls. Lesson objectives are printed clearly on each lesson plan and also communicated through teacher instruction and demonstration. Rubrics accompany all student self-assessments. The same rubric is then used for teacher assessment and compared with students' assessments for all grades posted in X2 Aspen. Instructors provide additional feedback to students

throughout the course of each weekly assignment.

Students earn state, national, and industry recognized credentials by competing in SkillsUSA and Massachusetts Trowel Trades Association events. All three of the program's instructors are members of the Massachusetts Trowel Trades Association, whose sole purpose is to validate the trade of masonry by making it a licensed trade.

The program currently has four students employed in the cooperative education program and is always pursuing employers. Previous years have had more or less students involved, depending on students with licenses and vehicles. Instructors are actively pursuing pathways to increase co-op employment opportunities. No Graduation data was provided at the time of the visit.

The instructors in the program work on various jobs throughout the year. This includes working for employers and, other times, contracting their own jobs. Instructors also remain current by taking part in professional development opportunities, workshops and certification courses.

Students are held to high employability expectations. Employability counts for forty percent of students' weekly grade and its importance is communicated regularly during group discussion, individualized conversation, and it is taught by example. Their main focus is work ethic while they are completing a task.

The teacher-to-student ratio is 1:18 and can reach 1:30 for the freshman instructor. Equipment and technology is current and operable. Textbook copyrights range from 1970-2013 and online resources include Pearson Trainee Guide, Levels 1-4. The program's budget currently appears to be sufficient for materials and equipment and is developed by the Cluster Chair.

The Program Advisory Committee appears to be comprised of only a few members and instructors are looking for ways to increase membership. The Advisory Committee should include representatives from several areas; students, parents, industry Professionals, trades people, post secondary education, people of diverse backgrounds and disabilities.

Currently there are no Off campus project opportunities, but the instructors are pursuing ways to attain community based projects.

Masonry and Tile Setting Commendations

Commendation

The creation of online curriculum and resources by the masonry instructors to accommodate student online instruction during remote learning due to the pandemic. (2.1, 2.5, 2.7)

Commendation

Pursuing funding sources to enclose the outdoor storage area which allows for additional student project space. (7.2, 7.3)

Masonry and Tile Setting Recommendations

Recommendation

Create and implement strategies to increase off campus project opportunities. (7.1)

Recommendation

Continue to implement strategies to increase the number of non-traditional students in the program. (5.16)

Recommendation

Explore ideas to increase advisory membership and participation. (7.8)

Recommendation

Explore ideas to increase Cooperative Education employment opportunities to enhance student learning. (3.2)

Recommendation

Review staffing needs for grades 11 and 12 to allow for staff and students to participate in off campus projects.
(2.6)

Painting and Design Technology

Narrative Program Summary

The Painting and Design (P&D) lab/shop and related theory room are located opposite each other on the first floor on Street D on the east side of the building. The entire department occupies a total of eight spaces; two main instructional areas and five storage areas. There are no student lockers or bathrooms located in the shop. The teacher desk is strategically placed so that the instructor's line of sight encompasses the entire area.

The shop and classroom are visually appealing, it contains proper safety signage and posters depicting the school's core values alongside motivational quotes. A clear evacuation route is posted. Students are assigned lockers in the adjacent hallway near the common area bathrooms. This causes congestion outside of the shop in the D street hallway. Currently no hallway lockers are being utilized due to COVID-19 protocols, so students are without a place to store their belongings when in the shop. There are bathrooms accessible through the adjacent hallway and students must leave the shop to use them.

The Painting & Design program is a production/competency based shop, and both areas are heavily utilized. Guests and faculty are generally impressed by the quality and variety of work performed by the students at any given time. An array of projects come and go on a weekly basis. All classes are taught by 2 full time instructors. The department formally meets twice a month and informally on a consistent basis.

Student numbers run between 30-36 respectively minus the freshmen. The program typically accepts 10-12 freshman yearly, totaling 45-50 students overall. There are usually 16-18 students learning or working in the shop area each week, and the freshmen in explore are stationed in the related classroom. There are currently 5 male students and 28 female students. The total numbers are consistent and together they typically maximize all the available space in both instructional areas..

Both exploratory and related instruction are taught by one instructor in the related classroom, and the other instructor takes charge in the production shop area. Freshmen groups explore P&D for seven days, for two periods. Their introductory program focuses on teaching the basic skills and procedures utilized in the finishing trades. The freshmen work on multi-level projects, meaning they must complete each level to achieve proficiency status before moving on to the next level. The instructors rely on their scope and sequence, relevant textbooks and approved online resources to augment their curriculum. The curriculum for the upperclassmen is driven by current industry practices and trends as directed by their robust Program Advisory Committee ensuring conformance with the Massachusetts Vocational Technical Education Frameworks.

Upperclassmen earn a supplementary Ladder/Staging Safety certification from the American Ladder Company, as well as mandated OSHA 10 hour certifications. These certifications are a requirement to qualify for Co-op opportunities within the trade. The P&D program does not meet or need any required licenses and/or certifications to be successful in the field. The students in the program participate in SkillsUSA and constantly bring back medals proving the instruction and execution of their skills learned in their shop is stellar!

Students assigned in the main shop area receive hands-on live work instruction. The shop has twelve designated practice modules or mock-up rooms for student use. A SMART Board is used for PowerPoint presentations and subject content-related videos, as well as to display the weekly agenda. Shop projects are self-paced, and competency based. Adjustments are made after teachers review the final product as a formative assessment detailing it's quality and correctness. Students are taught using best practices utilizing guided and independent platforms built in to the lesson plans. Mid-year and final exams are administered to the students as stated in the school's core values. Differentiated instruction occurs on an ongoing basis to accommodate different learning styles and to make sure all students understand the lessons.

The program is supported by a quite a few community partnerships, (ex: National Parks Dept., Friend Lumber, Top Coat Painting, Lynch Paint Co. etc.) that hire students inco-op placements on a yearly basis. The shop generally has more co-op positions available than students able to fill the positions. This is due to student transportation issues, they are unable to get to job sites on their own. The shop does not currently have any

articulation agreements with higher education. Two students are currently in the co-op program. Placement rates for the most recent year were not available.

The instructors keep up-to-date with their skills by working in the field, maintaining relationships with industry suppliers and professionals, training in technology, and through the program advisory committee. Professional Development is also offered to all faculty throughout the school, with emphasis on Social Emotional Learning, use of technology in the classroom, remote teaching, assessment and grading instruction. Both instructors are fully licensed and certified within the state guidelines.

Future initiatives for the program include purchasing more sign making equipment and creating a sign making lab within their space geared for students to become more proficient in sign making, as specified in the P&D frameworks. This initiative will allow students to have real world experience in the sign making and installation industry and will lead to more job placements and co-op opportunities.

Painting and Design Technology Commendations

Commendation

For creating an updated sign making lab with cutting edge sign making technology by the instructors to augment their curriculum and better align with their frameworks. (3.3, 3.4)

Painting and Design Technology Recommendations

Recommendation

Investigate ways to improve the lighting and add additional electrical service outlets inside the shop and exploratory/related theory room for better visual clarity. (7.2)

Recommendation

Investigate ways to purchase/create space for student shop lockers and student bathroom access from within the shop for convenience, safety and student accountability. (7.2)

Recommendation

Investigate ways to acquire new furniture for the P&D exploratory/related theory class for increased function. (7.2)

Plumbing

Narrative Program Summary

The plumbing program is comprised of four shop areas and one related room. There are no obvious safety or health issues, and the area is clean with proper signage and a clear evacuation route. The plumbing shop does not have individual lockers for students; it has a tool cabinet for students use. There are no bathrooms on Street 2 of the first floor. Many students will use the restrooms located on Street 1 near automotive. The Plumbing shop received a Chromebook cart at the start of the 2019-2020 school year with 30 Chromebooks. The related program uses the cart daily. An iPad cart (with 15 devices) facilitates documentation of student work in the shop.

The plumbing program currently has 89 students in grades 10-12 and typically accepts 30-32 students into grade 9. The program has a waiting list every year due to the popularity of the shop and the demand for plumbers in the region. The population of male students is 87 percent and female students is 13 percent.

All plumbing students receive safety instruction at the beginning of each school year. Student mastery of safety training is tracked in each students Safety binder. Instructors also provide training in hazardous chemical awareness (safety data sheets). Students must pass written exams on trade-specific and general-construction best practices. Plumbing students are exposed to curriculum from strands 1, 2, 3, 4, 5, and 6 taken from the VTE Framework: grade 10 introduces students to basic plumbing safety with hand and power tools. Students are also exposed to basic materials and installation techniques. The curriculum in Grade 11 expands on skills learned in the previous grade with students also obtaining their OSHA 10 cards. Plumbing principles are introduced during grade 11 and students receive an introduction to drainage and venting concepts as well as proper sizing of systems. Various hands-on projects address water supply installation, installation of gas piping systems, sizing, and code requirements. Grade 12 continues with additional safety and focuses more on doing on/off campus projects outside of the shop. Live work strengthens the concepts obtained during grade 11 shop projects. Plumbing projects include work around the school and outside community based projects like Habitat for Humanity. The curriculum aligns with the core values of the school. The plumbing program's goal involves helping students reach their full potential with engaging and rigorous curriculum and instruction. The program devotes extensive time to employability skills, emphasizing the school slogan of REACH as well as job and life preparedness.

Instructors are working to create a complete electronic online curriculum with lesson plans, assessments and resources. The department constantly integrate technology and academics into the classroom. The curriculum includes units of study with essential questions, concepts, content, and skills. The curriculum contains developmentally appropriate instructional strategies and assessment practices. The plumbing program has also developed a set of Power Standards for each student to master in each shop and in related theory. Instructors review the curriculum in the plumbing program on a monthly basis. This occurs during department PLC meetings and at advisory committee meetings which are held biannually. Instructors develop, evaluate, and revise the curriculum using formative and summative assessment to check for student improvement in regards to understanding of specific concepts. Instructors document student skill mastery in Skills Plus, which is updated biannually.

Instructors accommodate students with IEPs and 504s by providing varied assessments and accommodations. Feedback is provided via the X2/Aspen platform in a timely matter to all students and parents.

The department continuously reassesses their program by using a mix of data and feedback. Multiple stakeholders are consulted before making decisions on curriculum, instruction, and professional development.

Plumbing instructors design and refine their program using student achievement data from a variety of formative and summative assessments, examining student work, using feedback from a variety of sources, such as students, other teachers, supervisors, and parents, examining current research, and engaging in professional discourse focused on instructional practice.

Plumbing instructors provide specific and timely feedback to parents and students in a timely manner to ensure students revise and improve their work. One of the main tools used by the plumbing instructors is X2/Aspen. All grades are posted in X2 for students and parents to see. Students are encouraged to revise work to achieve a better mastery of content.

The plumbing program prepares students to meet the licensing requirements of the Massachusetts Board of Plumbers and Gasfitters. Students can receive up to 1,700 shop hours and 220 hours (2 tiers) of code towards a journeyman's license. All plumbing students at Greater Lowell participate in a local Skills USA competition with top competitors moving on to a higher competition level.

Cooperative education is a top priority of the Plumbing department. All students have the opportunity to participate in coop with nearly 50% eligible this year. The plumbing shop has a relationship with local organizations and labor allowing additional opportunities and waivers of membership fees. Two students have been recently accepted into residential apprenticeship programs. Currently there are no articulation agreements with higher education institutions in the plumbing department.

Post Graduation data is available from the school's follow-up survey. Two of the plumbing instructors teach adult education night school. Over the past two years, approximately 50 percent of graduating seniors have continued their plumbing related hours.

To ensure teachers are staying in trend with industry standards, plumbing instructors continue to work directly in the industry. Consistently updated licensing requirements, professional development, and relationships with local employers allows the department to best serve their students . The school provides appropriate professional development for the department.

The plumbing program's equipment and technology is current and in proper working condition. The grade 10 shop has been completely redesigned to better allow for student safety and work space. Current budget appears sufficient for efficient student work task and competency attainment. The four plumbing instructors work very well together in developing and implementing a curriculum that best prepares students for a career in industry with minimal overlapping. Instructors deliberately work to facilitate strong bonds among students and teachers, taking time to get to know each individual.

The plumbing department has a strong Program Advisory Committee that meets regularly. It is well developed and includes members of the community from organized labor, local employers, and parents and students. The Advisory Committee regularly reviews equipment, curriculum, and standards.

Over the past few years the plumbing students completed several small jobs around the school under the supervision of the senior shop instructor. The plumbing program participates in numerous on/off campus projects for the school and sending communities strengthening the relationship between all stakeholders.

Plumbing Commendations

Commendation

The reconfiguration of the grade 10 shop space by the plumbing instructors which provided for the safe return of students to in person learning. (3.3)

Commendation

Maintaining a strong program advisory committee by the teachers resulting in an up to standards shop and strong community connections. (3.4)

Plumbing Recommendations

Recommendation

Create and implement strategies to increase off campus project opportunities to enhance student learning. (7.1)

Recommendation

Investigate new strategies to increase the number of non traditional students in the program. (5.16)

Early Education and Care

Narrative Program Summary

The Early Childhood Education program consists of one standard classroom and one laboratory classroom. The standard classroom is used for junior and senior theory classes, as well as the freshman exploratory. The laboratory classroom holds the on-site preschool and serves as the classroom for sophomores and juniors. Seniors who are not out on cooperative education experiences also work in the laboratory classroom. Both classrooms are located on the first floor on the west side of the building. The theory classroom is approximately four classrooms down from the laboratory classroom.

The theory classroom is clean and organized. Proper signage and evacuation routes are posted. The classroom contains a Chromebook cart equipped with Chromebooks for each student. There is a locked cabinet for student's cell phones as cellphones are not allowed in the preschool due to safety issues. There are no obvious safety issues.

Currently, there are twenty-three sophomore students, twenty-nine junior students, and twenty-six senior students enrolled in the Early Childhood Education program. In previous years, the program limited enrollment to twenty-five students per grade level, but has seen consistent student increase and the cap was raised to thirty students per grade level. Students in the program are primarily female, which is consistent with the industry. There are presently two non-traditional students in the program and both are in their senior year.

Early Childhood Education instructors continually use strategies to promote an inclusive culture in which all students feel welcome and validated. Classrooms are decorated with symbols that promote diversity and the welcoming of many cultures. The students are encouraged to share their cultural practice with the class. Bulletin boards that represent inclusiveness are put up monthly.

One Instructor teaches freshman exploratory, junior Early Childhood Education theory, and senior Early Childhood Education theory. One Instructor teaches Early Childhood Education sophomore shop. A third Instructor teaches Early Childhood Education junior shop and senior shop. There is one Early Childhood Education assistant teacher for the junior shop and the preschool.

The Early Childhood Education curriculum aligns with the core values of the school with challenging, measurable learning expectations. Instruction and assessment is student-driven. Instructors review and revise curriculum based on current research and data. The bulk of the Early Childhood Education curriculum draws from the text *Working with Young Children*, supplemented by online activities and Early Childhood Education trade publications. Curriculum in Early Childhood Education comes in multiple formats. Theory classes consist of units of study with essential questions, concepts, content and skills. There is direct correlation between theory taught and practical application in the preschool or co-op experience. All curriculum aligns with the MA Vocational Technical Education Frameworks for Early Education and Care.

All curriculum in the program is competency-based. Theory classes emphasize indicators such as develop, communicate, describe, observe, identify, and explain. These competencies are mastered by students while working as teacher assistants in the on-site preschool, and by obtaining cooperative education positions in local child care centers and preschools.

Instructors develop, evaluate, review and revise the curriculum on a yearly basis by reviewing current industry research and trends. Each teacher in the program reviews the curriculum of the courses that they teach, and then collaborates with team members to ensure that high quality, rigorous, developmentally appropriate practice and instruction is taking place.

The Early Childhood Education program utilizes a gradual release model. Students spend their sophomore year primarily in the classroom learning about the foundation of education and child development as well as the

components of the teaching profession, and by junior year, the students are working full-time in the lab preschool. In senior year, instructors no longer observe students full-time as students are in the community working in local schools. Those seniors not on cooperative placement, remain with juniors for theory classes and work in the on-site preschool.

Continual formative and summative assessments including journal writing and reflections, presentations, projects, classwork, observations, quizzes, and tests measure student progress. Assessment data is used to inform instruction on a daily basis, but more formally during pre-assessment, midterm, and final exams administration.

Students and parents have the ability to view assessment information through the X2/Aspen parent portal, as well as Google Classroom. In addition, midterm progress reports are mailed home.

Formative assessments provide real time classroom assessment of comprehension and the opportunity to have a class discussion or reteach content. Students also participate in optional after-school help sessions when needed.

Every sophomore and junior student completes an Early Childhood Education safety test at the beginning of each year. Students also participate in weekly safety talks, which address specific industry safety concerns. All juniors participate in OSHA 10-Hour General Industry Training. Sophomore and senior students receive training and certification in adult and pediatric first aid, CPR, and AED. The Early Childhood Education program adequately prepares students to achieve certification as an infant/toddler and/or preschool teacher by the MA Department of Early Education and Care upon graduation.

Early Childhood Education(ECE) students are eligible to participate in Cooperative Education experiences during the last term of junior year (April) and all of senior year. The program has multiple partnerships with local child care centers, and private preschools. Early Childhood Education currently have more jobs available than students to fill them. In December of 2019, the program reported 82 percent of students enrolled in Cooperative Education.

The ECE department has also secured an articulation agreement with Rivier University, allowing students to begin taking evening college level Early Childhood Education courses during their junior and senior years of high school at a reduced tuition cost. Rivier University faculty are invited in to give professional development workshops to the students throughout the school year.

Not every graduating ECE senior is recommended for preschool teacher certification through the Massachusetts Department of Early Education and Care. Successful completion of the program consists of active participation and at least an 80 percent average in all required theory and shop classes. Students must also complete 100 hours of practical experience sophomore year and 300 hours junior year in their on-site preschool. Senior students must complete at least 550 hours in a Cooperative Education experience at a licensed child care center, preschool program, or an early learning public or private classroom. If a senior does not go out on co-op, then instructors may not recommend them for certification. Seniors who do not go out on co-op typically are students who do not meet the grade or attendance requirements or are students who have not met competencies and instructors would not be comfortable sending them to work in a preschool program.

Most recent data after graduation is from 2016 and 2017. In 2016, 31.58 percent of ECE graduates were working in the field, and in 2017, 31.82 percent were working in the field. The 2016 report states that 63.64 percent went on for additional education and in 2017, 63.16 percent went on for additional education.

There is collaboration among the Instructors with theory to practical application being of high importance to all three ECE teachers. Instructors work as a team first, and individually second. Instructors continually collaborate on lessons, curriculum, and projects to ensure quality instruction for all grade levels.

All Instructors place an equal value on social/emotional development and academics. All students are trained in mindfulness as part of social-emotional health and well-being.

Instructors keep up to date in the field by enrolling in graduate coursework, as well as attending professional conferences on best practices in ECE. Instructors also participate in industry webinars, and subscribe to industry journals and reviews.

The program has an advisory committee made up of local child care and preschool center directors, the ECE instructors, and a student and parent representative. Instructors invite members to serve on the advisory committee, and do so on a volunteer basis for a duration of at least one year. Most ECE center directors are those who hire senior students through the cooperative education program. One of those directors serves as the chairperson of the committee. The committee meets twice a year.

The committee sends recommendations and suggestions to the superintendent for consideration and once approved the department budgets for them. Recommendations from the committee are generally seen as positive and necessary and every effort is made to see that they are put into place.

Early Education and Care Commendations

Commendation

Securing the Rivier University articulation agreement which allows juniors and seniors to take evening college courses at a discounted tuition cost. (5.3)

Commendation

The creation of professional development workshops for ECE students by Rivier University faculty to enhance student learning. (3.2, 5.3)

Commendation

Implementing training in mindfulness for all students to enhance their social-emotional health. (5.2)

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Early Education and Care Recommendations

Recommendation

Review the staffing levels to accomodate for the growing number of students in the program. (2.6)

Recommendation

Continue to implement resources to increase the number of non-traditional students in the Early Childhood Education program. (5.16)

Health Technology

Narrative Program Summary

The Health Assisting department is comprised of six classrooms and one clinical lab. Most equipment, such as beds, mannequins, vitals equipment, wheelchairs, walkers, and other supplies, can be found in the lab room. All rooms have proper signage displayed for exits and evacuation routes are posted in each classroom. The rooms are clean and have no obvious safety or health issues. Each student is assigned an individual locker and there are multiple bathrooms available on the second floor in the vicinity of the shop rooms. Each classroom is equipped with a Chromebook cart with thirty Chromebooks each. There are a total of 150 Chromebooks available to students. Upon visiting the classroom via Zoom, all the rooms are clean and bright. There are sufficient desks and chairs available for all students in the classrooms. Teacher to student ratios are as follows: Freshmen Exploratory 1:25, Freshmen Shop 1:20, Sophomore Shop 1:20, Junior Theory 1:20, Junior Shop 1:20, Junior Shop Clinic 1:10, and Senior Shop 1:20 Teachers have built a welcoming, trusting, and rigorous classroom. All students are expected to present themselves at the upmost professional manner within the classroom, lab, internship, and co-op. In general, there are a higher number of students interested in the healthcare fields and the health assisting shop experienced an influx of students requesting this shop. The students are mainly female, but males are strongly encouraged to enter the program. The trend in male/female ratio changes from year to year. With the healthcare industry growing and being in high demand, many students are entering the health industry.

The health assisting curriculum is based on the Massachusetts Department of Elementary and Secondary Education Curriculum Frameworks, Department of Public Health regulations for nurse assisting, and current industry trends. The curriculum aligns with the core values of the school and is designed to ensure that all students practice and achieve technical competencies in each level of the program. The curriculum is written in a common format that includes units of studies with essential questions, concepts, content and skills. The school's learning expectations are developmentally appropriate and include instructional strategies, and a variety of developmentally appropriate evaluation methods. The curriculum emphasizes depth of understanding and application of knowledge at the appropriate developmental levels through: inquiry and problem solving; exploration and creativity; higher order thinking; collaboration and communication; cross disciplinary learning; authentic learning opportunities both in and out of school; and informed use of technology. The curriculum is vertically aligned from grade nine through grade twelve. It is coordinated so that vertical articulation is evident between and among all areas of the program. Instructors review the curriculum annually and revise as necessary based on assessment data and current industry standards.

While observing the classroom, students are allocated to a hospital bed and mannequin. The mannequins offer the simulation that a student would encounter in a hospital setting. Demonstration of health assisting skills are provided by the instructors. Students are expected to practice and demonstrate the skills being taught. Due to having multiple beds and simulation equipment, instructors are able to assign asynchronous assignments pertaining to skills. Student groups work together at the hospital beds practicing and developing their skills. The instructors are able to offer critical thinking pertaining to the skills being developed by students. Example that was observed: "a patient is now breathing erratically. What would be a vital to check?" Agendas and objectives are posted daily and reviewed by students and teachers at the beginning of each day. Students are taught through teacher led instruction. Teachers provide the students with the ability to formulate critical thinking and higher thinking. Instructors employ a range of assessment strategies, including both formative and summative assessments. Rubrics are used to assess student achievement in their skills acquisition and project-based learning. Technology has been integrated in to the program by the use of mannequins that simulate different medical and patient needs. Instructors also use Health Center 21 to promote digital simulation of skills. Effective classroom management was observed during the Zoom visit. Students were diligently working on an assignment as other students were practicing and developing their skills at the hospital beds. Classroom management is implemented by adhering to GLTECH mission and core values, enforcing the importance of demonstrating employability skills, and school rules described in the student handbook.

Lessons are developed with differentiated instruction in consideration of IEP, 504, ELE, and different learning styles. Instructors also modify curriculum in order to be mindful of cultural diversity and economic status. Instructors are aware of the accommodations listed on students' IEPs and 504s, and provide the necessary support to ensure student success (i.e., word banks, class notes, and calculators). Instructors make accommodations as appropriate and collaborate with the students' liaisons, counselors, and academic instructors. The instructors understand that Students learn through different modalities, such as demonstration, PowerPoint, videos, and lecture. Instructors adjust curriculum to both challenge and to assure success for individual students. All classrooms have Chromebooks and Smartboards, along with up-to-date technology that is used in the field. The health assisting department works with many of the academic shops, such as science, math, and English to implement embedded curriculum across several content areas.

The Health Assisting Department assesses students' progress through a variety of formative and summative evaluations. Some examples include pretests, posttests, midterm exams, and final exams. The shop utilizes a variety of written and performance exams. These tests are competency-based and aligned with the Massachusetts Vocational Frameworks and DPH regulations for the Health Assisting Program. Rubrics are used to assess student achievement in their skills acquisition and project-based learning. Students and parents have access to the electronic grading system, X2/Aspen. Instructors communicate skills competencies through Skills Plus. Teachers provide timely feedback and remediation based on their formative assessments to allow students to revise and improve their work. Instructors and administrators use data collected from midterm and final exams, Certified Nursing Assistant pass rates, co-op data, and secure portal data to improve instructional practice. Students are eligible to receive Massachusetts certification for nursing assistant, federal certification for OSHA, home health aide certification, Mental Health supportive home care aide certification, and Cardio Pulmonary Resuscitation certification.

Skills USA is 100 percent school participation. The health assisting students participate in the following categories: nurse assistant, basic health care, medical terminology, medical math, First Aid /CPR, and health knowledge bowl. Many students participate at the district and state level. One of the students is currently the historian for the SkillsUSA Greater Lowell chapter. In the past five years, four students demonstrated strong enough proficiency to make it to the state competition. Many junior and senior students are members of the National Vocational Technical Honor Society.

Junior and senior students in the health assisting program participate in the Cooperative Education Program. Industry partnerships include CVS, Long-Term Care Pharmacy, Palm Center, D'Youville Wellness Center, Wingate at Lowell, Blair House in Tewksbury, New England Pediatrics, Pediatric West, and Benchmark Facilities. Due to Covid, Internship and co-op is not being offered to the junior class this year. Seniors are taking part in their partnership with internship and co-op placements in CVS and local nursing homes. Previous senior co-op data results for Year April 2017 66 percent, April 2018 57 percent, April 2019 54 percent.

The Health Assisting program offers the Massachusetts state articulation agreement between Massachusetts community colleges and Massachusetts chapter 74 approved secondary/vocational technical programs. Health Assisting (Certified Nursing Assistant - CNA) for the Medical Terminology course. Students are awarded three elective credits upon submission of current registration from the Department of Public Health and current Healthcare Provider CPR/First Aid Certification.

The cooperative education department is able to track where graduates go. Between the years 2015-2019, the average graduation pass rate was 97 percent for the health assisting shop. Students that have gone to college in years 2015 83 percent, 2016 44 percent, 2017 72 percent. Students that have gone into the workforce: 2015 13 percent, 2016 44 percent, 2017 28 percent, students that have pursued a military career 2015 0 percent, 2016 8 percent, 2017 0 percent, miscellaneous 2016 3 percent, 2017 4 percent, 2019 percent.

Instructors in the Health Assisting program are required to maintain a current license as a Registered Nurse and obtain the required CEUs for licensure. Four of the seven instructors have professional educator status; three instructors have preliminary license status and are taking the required classes toward professional licensure. Many are professional members of SkillsUSA, the Nursing Honor Society, and the American Nurses Association. Instructors are "train the trainer" certified for CPR/first aid, Alzheimer's care, Home Health aide, supportive

Mental Health Home care Aide, OSHA certified, Labor and Delivery certified, and ServSafe Certified. GLTech offered training for all certifications except for Labor and Delivery.

Instructors demonstrate professional leadership by attending professional development activities outside of the district in addition to the professional development offered at the school. Many of the instructors continue to work in the field of nursing and hold leadership positions within Greater Lowell Tech. One instructor is teaching in the Practical Nursing program at the school and one instructor is teaching at Middlesex Community College. The teachers also exhibit other teacher responsibilities. One instructor is a hall monitor after school. Many of the instructors participate in committees, such as Student of the Month, the Safety Committee, the Social Emotional Committee, the Behavioral Committee, the Advisory Committee, and the mentoring program. In the past, instructors held positions as an Activities Coordinator, Senior Class Advisor, Technology Committee member, National Technical Honor Society Advisor, HOSA Coordinator, Greater Lowell PN program, New Hampshire Technical Institute instructor, and Rivier clinical Instructor. Many of the instructors participated in the interview process of newly hired instructors. Four instructors have received the SEI endorsement.

The Health Assisting program is equipped with Equipment and technology that is consistent with current practice in the field. The department received a Skills capital grant for \$380,000 for the health assisting program to purchase new equipment such as electric beds, side tables, wheelchairs, SIM baby mannequins, SIM child mannequins, and SIM adult mannequins. With this grant the health assisting program has been able to remain up-to-date with technology and prepare students for "real life" scenarios. All equipment is up-to-date with industry standards and maintained yearly and as needed. Each grade level is supplied with adequate and necessary textbooks.

The students were observed engaged in a collaborative and inclusive process to identify and commit to the shop's mission, core values and beliefs about learning. A major strength of the program is that the instructors come from a variety of healthcare backgrounds which serves to enrich the program and student interest. Instructors make an active effort to create a welcoming and inclusive atmosphere with their positive attitudes toward learning and involving students by allowing them to share their experiences. The climate in the classroom is gender-neutral. Students are made to wear a uniform that consist of navy blue scrub top and pants with white clinical shoes and white socks.

Health Assisting currently has an advisory committee that meets twice a year. The community chairperson meets with the general advisory meeting once a year. The advisory board consists of health assistant instructors, parents, students, college personnel, as well as members of the cooperative education partnership. The committee is formed by personal invitation to community partners, students, and parents. Members serve as long as they wish to contribute to the program. Community members hire students through the cooperative education program and make suggestions for acquisition of equipment based on industry standards. Based on reading of the May 7, 2020 advisory minutes, The Health Assisting advisory committee has made a positive impact of this program. Reviewing of the minutes indicated that simulation equipment, bedside equipment, and other required equipment for the new lab. The majority of what was requested has been provided to the Health Assisting Program.

Health Technology Commendations

Commendation

For developing and implementing online curriculum and instruction during remote learning by the teachers that allowed for multiple level learners during the pandemic. (3.1, 3.2,3.3)

Commendation

The instructional learning kits that were developed by the teachers that allowed the students to continue developing their hands on skills while remote learning took place due to the pandemic (3.1, 3.2, 3.3)

Commendation

The implementation of the Pharmacy Technician Certification program sponsored by CVS which provides on site, hands on experience for students. (2.10)

Health Technology Recommendations

Recommendation

To complete the creation and implementation of an expanded curriculum due to a program expansion. (2.6)

Recommendation

Investigate ways to recruit male students to the program to increase non-traditional enrollment. (5.1, 5.7)

Recommendation

Continue making necessary equipment purchases from the Skills grant to enhance student learning. (7.2)

Medical Assisting

Narrative Program Summary

The Medical Assisting space consists of four classrooms and one central laboratory. Three rooms are connected with the laboratory being the central area. The laboratory is shared by all Medical Assisting instructors. The Medical Assisting shop has recently undergone a renovation that includes new exam tables, lab tables, and examination equipment serving each exam table, and 21 microscopes. Also added were numerous electrical outlets which helped the Medical assisting students eliminate the use of extension cords for the microscopes. This has eliminated the danger of students and faculty tripping over extension cords. The classroom also contains an area that is dedicated as a mock CVS pharmacy. The classroom has signage indicating room and trade area. The evacuation route is clearly indicated. The sophomore and junior class have lockers located in close proximity to their class room. There is a Chromebook cart in each classroom with enough Chromebooks for every student. The overall appearance of the shop appears welcoming, functional, and is neat and tidy with equipment in proper storage areas. Posters are on the walls that represent the trade and encouragement quotes for students.

Forty students enroll in each grade level of the medical assisting program. There are typically three to four extra students enrolled as freshman to make up for attrition with the hope of forty students by Junior year. These numbers have been consistent over the years. The majority of students are female with three to four male students per week in any given year. The male-to-female ratio has remained consistent from the inception of the program as have the total student numbers. The shop attracts many students each year but the community cannot accommodate larger numbers as the students reach co-op eligibility. In 2014, the department increased enrollment to sixty students per year, but later abandoned this due to insufficient co-op opportunities for that many students.

Freshman attend exploratory for two consecutive class periods for ten days. Once they have been placed in the shop the curriculum aligns with the frameworks. Curriculum is competency-based, comes from industry-standard textbooks and is aligned to the Massachusetts VTE frameworks. Instructors present curriculum through lecture, smart board, computer, and paper, as well as hands-on activities. Instructors demonstrate each new procedure, then students demonstrate and complete the procedure themselves. This type of feedback ensures the students are grasping and understanding the material and skills. Students often instruct and examine each other which helps to solidify their learning and retention. Attained competencies are tracked via Skills Plus by each instructor. Instructors review tasks and competencies on a yearly basis as a team during monthly department meetings, and revise curriculum and scope and sequences as well as grading policies at the beginning of each year on an individual basis. Instructors also prepare and administer the licensing exams on-site to interested students. Instructors have access to the study guides used by the students each year and review the contents to be sure that they are covering the material. One of the instructors is on the frameworks committee and is involved in the rewriting of the Medical Assisting frameworks. These revised frameworks are not available for general use yet.

The teachers have varying degrees of comfort with technology, and some utilize it more than others in the classroom. Some of the teachers are also paper-free. Due to the academic nature of the curriculum, science, medical math, reading, and writing are included in all levels of instruction. Instructors have incorporated Google classroom into the instruction and students are using this for assignments and assessments. This enables immediate feedback after exams and the online book-work makes the information available to the students from anywhere. There is a Chromebook cart in each classroom with enough Chromebooks for every student. One instructor uses Go Guardian to monitor what is actually happening on the Chromebooks during class while another teacher uses Lanschool to monitor online learning. Instructors differentiate instruction for mixed-ability learners through one-on-one teacher and student work, student buddies, modified written assignments for English language learners and after-school assistance for any student. Medical assisting students are currently using My Dispense as an online resource for pharmacy tech, Google Classroom for classwork, Quizlet for exam preparation, and various other websites. At the onset of every new school year, teachers review plans, sign off,

and make the necessary accommodations that are required to fulfill a student's IEP or 504 plan. Lesson objectives appear in clear view in each classroom and are reviewed with students at the beginning of each class. Teachers conduct safety lessons at the beginning of each year and present a five minute Monday morning safety talk.

Instructors assess student progress daily via classwork, performance procedures and exams, written projects, weekly exams, midterms and final exams. The medical assisting department has chosen to create midterm and final exams based on written multiple choice and short answer questions. This exam style is aligned to the style of the certification exams. Assessment results are communicated to students via Aspen/X2. This is left public so Students and parents have the ability to access this data as soon as it is entered. Many of the practical exams and procedures that students experience throughout the curriculum include rubrics. Students learn the procedure with a rubric that includes safety, beginning and ending procedures, and the actual content of each new task. They often learn the procedure by working with, and testing each other. Assessment feedback includes numerical grades, rubrics that indicate areas where improvement is needed, one -on-one discussion regarding areas that need improvement as well as ways to accomplish it. Students have the opportunity to achieve multiple industry recognized credentials. They choose whether to take the certification exams or not based on future plans and available funds. Students can sit for the National Healthcareer Association (NHA) exam, which requires clinical experience but does not require a specific amount of externship hours. Medical assisting staff proctor the exam in person. Students also sit for certification in Pharmacy Technician, EKG Technician (all students who sat for this exam in 2020 passed), and Phlebotomy Technician (based on the appropriate number of clinical punctures performed on patients rather than mannequins).

The shop always has a high participation in SkillsUSA with yearly winners at the district level in Medical Assisting, Medical Math, Medical Terminology, and First Aid/CPR. The shop usually has one or two students who place at the State competition and have had students who have made it to Nationals in the past. Students are also involved with the National Technical Honor Society and National Honor Society. Many of the students are also involved with sports that are offered at the school.

The students in the medical assisting shop are placed in local area doctors' offices and pharmacies. The number of students participating in co-op increased between 2014 and 2019. Greater Lowell Tech has partnered with CVS pharmacy in employing majority of students. The school has a relatively new pharmacy tech program which trains the student for employment as a pharmacy technician. It also prepares them to take the Pharmacy Technician Certification Board exam. In 2019-2020 co-op sites for the medical assisting program include: MEEL Pediatrics, Bay State Musculoskeletal Chiropractic Office, NE Foot and Ankle, Pelham Healthcare, Long Term Pharmacy Solutions, Oak Clinic Pediatrics, and various CVS pharmacies throughout the region. With the ongoing pandemic, the present senior students have been participating in co-op since March 2020. The program has articulation agreements with Middlesex Community College and Quincy College. Middlesex offers English and Quincy offers chemistry. At this time, the program has thirteen students who have taken, or are now taking dual enrollment English, and seventeen who are taking dual enrollment chemistry.

Graduation rates are tracked through counselor appointments and updated information on Naviance, and the Cooperative Education Department does a comprehensive Senior Survey at the end of the year and then a one year post graduate follow up survey. The Medical Assisting shop has a 97% graduation rate. In 2017 100% graduated, 0% military, 22% straight to working in trade. In 2018 97% graduated, 2.9% military, 23% straight to working in trade. In 2020 93% graduated, 0% military, 27% straight to working in trade

The medical assisting instructors maintain professional licensure and certifications that require ongoing training and education in the field in order to accumulate CEUs (continuing education units). These continuing education courses ensure instructors have current knowledge in practice, technology, trends and research. All of the medical assisting instructors have achieved professional licensure. The instructors in the medical assisting shop are (or recently have) serving/served on multiple committees including: school improvement committee, safety committee, curriculum frameworks revision committee via MAVA, The MA Bay Health Trust, and the social and emotional learning committee. Three of the four instructors have completed the SEI course. The fourth instructor has not yet been enrolled.

Student to teacher ratio is 20:1 in sophomore, junior, and senior years. Freshman student to teacher ratio ranges

from 20:1 (exploratory) to 44:1 (final shop placement). The equipment for the program is consistent with current practice except for the lack of an Electronic Medical Record (EMR) program. The majority of the equipment is in excellent working condition. The microscopes are serviced yearly.

The teachers have developed an environment of compassion, professionalism, and accountability. Teachers recognize diversity as a strength. Students feel free to express themselves in this environment without judgement.

The medical assisting program participates in a Technical Program Advisory Committee. All instructors attend along with members from industry. The industry members include: an office manager, a nurse from primary care, pharmacists, medical assistants, a retired nurse/teacher who created the program and works for teacher testing, as well as students and parents. Meetings are held twice a year and there is also a general advisory committee meeting that the advisory chairperson attends. Student/parent representation is always difficult to maintain and of course the students age out and need to be replaced. Many are initially willing but do not make the meetings. Teachers would also like to seek a more diverse representation from different practices and specialty areas such as: Phlebotomy and EKG. Lastly, they would like more variation of gender and minority groups to more closely match their student population.

Medical Assisting Commendations

Commendation

The co-op placements were maintained through the pandemic for students which allowed them to continue their employability skills.(2.10)

Commendation

Digital learning that was provided by the teachers to introduce, develop and sustain technical skills and related topics. (2.2)

Commendation

One of the instructors has been chosen to teach a pharmacy technician program to adult participants via grant funding (5.3)

Medical Assisting Recommendations

Recommendation

Seek members for the advisory committee that represent a more diverse selection of people from industry which would facilitate exposure to a wider range of potential employers. (7.8)

Recommendation

Purchase and Implement a fully-immersive EMR (electronic medical record) system that can be used in both the administrative and clinical areas.(3.2, 7.1)

Recommendation

Develop

Culinary Arts and Sciences

Narrative Program Summary

Culinary arts is located on the first floor in between Streets One and Two on the west side of the building. The department has approximately 22 rooms, including restrooms, storage rooms, work areas, and classrooms. All equipment is located in production areas of Culinary Arts. Areas include the Café kitchen, the junior instruction kitchen, the senior instruction kitchen, the sophomore instruction restaurant and the freshmen exploratory instruction area. The only health concern is within the exploratory classroom; it is not adequate size for an exploratory class of over thirty students. The area is clean with proper signage. The evacuation routes posted in room 1256 and other areas need to be updated. Due to the pandemic, the Culinary Arts Department students currently have one-to-one devices in the form of Chromebooks. The hope is that this one to one policy will continue into the upcoming school years.

There are five instructors and 85 students enrolled in grades 10-12 (23 12th grade, 30 11th grade, 30 10th grade) and 17 incoming grade 9 freshman. There are students on the waiting list each year, demonstrating a consistent demand for the shop. The current student demographics of the department is 70 percent male and 30 percent female. This brings the student-teacher ratio to approximately 16:1, although this does differ from class to class. Renovations of the culinary arts facilities began approximately four years ago. The renovations include a new cafe area, new flooring throughout the kitchen and dining area, new walk-in refrigeration and freezer unit, new walls in the dining room, a new POS system, new equipment all areas, freshly painted walls, and new grease traps for both dishwashing machines. While the recent upgrades to the department provide a great learning environment, the freezer is currently in need of repair making it difficult to operate the program. The district currently provides a sufficient budget for the current learning needs of the department.

The culinary arts team of five instructors create their own curriculum from a variety of sources, both in print and online. The team is encouraged to use the National Restaurant Association's *Foundations of Restaurant Management and Culinary Arts* textbook as the main resource to develop curriculum. The format of the curriculum varies with each instructor. Most lesson plans follow different physical layouts but include a title, an essential question, objectives, lesson sequences, lesson activities, resources, assessments, and rubrics. All of the curriculum is competency-based and teachers report competencies through Skills Plus on a quarterly basis. The schools' core values are not present in the curriculum. The overall goals of the Culinary Arts curriculum are that students will be ready for post-secondary education, ready for entry level jobs, and productive members of society.

Instructors utilize formative and summative assessments and differentiate instruction for learning activities. Teachers also provide additional support and alternative strategies within the shop/classroom. Instructors use observations to assess hands-on skills and correct students when inaccurate or incorrect techniques are used. Instructors use a variety of methods to engage students and effectively manage classrooms/shop areas. IEPs or Section 504 plans are reviewed by instructors at the beginning of the school year and appropriate accommodations are utilized. The instructors use current student achievement data and feedback from students to improve their instructional practices.

Students receive proper kitchen safety instruction in accordance with ServSafe guidelines which is recognized through the National Restaurant Association. The students receive certification in ServSafe, OHSA-10, and ServSafe Allergen Awareness. They are looking into a fourth certification, the TIPS program.

Greater Lowell is a 100 percent participation chapter with SkillsUSA. All Culinary Arts students will take a series of district exams. Over the past five years, direct involvement in SkillsUSA has dropped significantly, from sending 12 students a year to the district competition, to sending four students across all three competitions related to culinary arts.

In addition to SkillsUSA, a group of select students compete in the Massachusetts Restaurant Association

Education Foundation's Prostart Invitational in the restaurant management section of the competition. Recently, two of these groups have placed second in the competition and were awarded culinary school scholarships. Furthermore, the culinary arts students actively participate in community service by volunteering their time at functions hosted at the school such as The Greater Lowell Health Alliance, Lowell General Hospital Dinner, and CVS district training events.

The Culinary Arts department has several school-industry partnerships. Local restaurants and eateries continue to hire cooperative education students on a yearly basis. Of the 85 students in culinary arts, eight of them are enrolled in the cooperative education program. The Culinary program is very successful at placing students into cooperative education with 32 students working in the field. Greater Lowell has articulation agreements with The Culinary Institute of America, Johnson and Wales University, and Northshore Community College.

Culinary Arts instructors keep up to date with their profession by attending local National Restaurant Association training, by working in the field, and attending workshops. Each instructor is fully qualified with the necessary certification. Teachers use the co-op employers to stay current on industry trends and adjust instructional practices as needed. Faculty has the opportunity for regular in-house professional development in pedagogy, and regularly enroll in college classes. Three of the culinary instructors have received the SEI Endorsement.

The culture/climate/atmosphere of the Culinary department is welcoming and professional. In order to create a welcoming and inclusive atmosphere, instructors meet students at the door and welcome them into their shop/classroom. Teachers act as positive role models for their students in order to best prepare them for the work force.

Participation in the Culinary Arts Trade Advisory Committee is lacking. Department members have worked collaboratively to bring aboard new members with no success. Several options were discussed, including changing the times of the meetings and changing from a face-to-face meeting to a virtual meeting, but the department has yet to follow through on these initiatives.

Culinary Arts and Sciences Commendations

Commendation

The creation of a dinner to-go and lunch to-go program for faculty members due to the restaurant being closed to the public because of the pandemic. (3.3)

Commendation

The creation of online curriculum and resources by the culinary instructors to accommodate online instruction due to the pandemic. (3.3)

Commendation

Culinary Arts and Sciences Recommendations

Recommendation

Standardize and align grading policies and learning expectations across the department in order to maintain consistency between instructors. (3.3, 3.4)

Recommendation

Revamp course curriculum with appropriate goals and objectives to ensure consistency in teaching and learning. (2.1, 2.2)

Recommendation

Investigate ways to replace the department freezer as it is essential to the operation of the department. (7.2)

Recommendation

Continue efforts to increase participation in the Trade Advisory Committee to better provide ongoing recommendations for the department. (2.8)

Tourism, Hospitality, and Guest Services Management

Narrative Program Summary

The Tourism, Hospitality and Guest Services Management program consists of a shop and a theory classroom, room 1160 and room 1157, both located on Street Two. The freshmen exploratory classroom, room 2160, is shared with an academic class. The Artisan Restaurant, adjacent to the mall area and guest parking lot, serves as the program's shop space. Recent renovations left the Artisan Restaurant looking clean, bright, and welcoming to guests. The shop is a live restaurant with a designated entrance with signage. Guests provided positive feedback about the ambiance and appearance of the space. The restaurant contains a dining room and a function room, an office, men's and ladies' rooms for guests, a linen closet, and a dish room. The students work within the dining room and function space and the adjoining kitchen and storage areas. There are two storerooms containing banquet equipment including tables, chairs, glassware, chafers, heat lamps, and plates. Small wares are in the cabinetry of the restaurant. In the restaurant, there is a linen closet and an office with a closet for storage. The kitchen has a dry storage supply room, and a mop room.

The school's restaurant is open to the public and produces its own menu with food production. The hospitality students work on various events within and outside the school. The school also hosts events for groups that use our facilities and students produce the event with room setups, food, and audio visual equipment. The hospitality program has worked with the community to do some off-premise catering events a few times a year.

Currently, there are twenty-nine students enrolled in the Tourism, Hospitality and Guest Services Management program. Students in grade ten through post-graduate work in the shop together. In the 2019-2020 school year, there were ten sophomores, nine juniors, eight seniors and two post-grad students.

Enrollment remained stable over the last few years. The program is capped at 14 students per week to facilitate transportation to the Radisson Hotel. Because the program only partners with one hotel property, it is challenging to provide enough live work for all of the students. In previous years, the program partnered with seven hotels, allowing students to rotate through different companies with different services and positions. The loss of most of these partnerships has negatively impacted enrollment in the program, but growing the program with only two teachers is a challenge. The hospitality industry is struggling to maintain its workforce with a strong employment outlook. There are numerous job opportunities with strong growth for the future.

The hospitality program also has difficulty attracting students to the service industry. The challenging part of exploratory is to get students to understand the opportunities that are available to them in this industry. Instructors make it a point to bring the freshmen exploratory students on a tour of the shop. Teachers feel that this has been helpful as some students have never even been to a hotel at all.

The program's enrollment is predominantly female students, but it has attracted more male students in the last couple of years. There are currently four male students and twenty-five female students enrolled in the program.

The school provides students with lockers, but not necessarily in or close to their classes or shops. Students tend to not use these lockers. The shop instructor requested that small lockers be installed in the Artisan office, as a means to better accommodate students who want to keep items close by that they might need for the day. This was a great help to the shop teacher and eliminated the student walking far away to their school-issued locker during shop. The restaurant has a bathroom that is intended for guest use for both men and women. The restaurant does not have a student bathroom available. The students use only the bathrooms that are near the hospitality theory classroom or the restrooms close to the cafeteria. A student restroom/ locker room in close proximity to the restaurant would be helpful.

There are no obvious safety or health issues. Students are trained to use the dish room equipment and

chemicals used within the shop. The restaurant dining room is cleaned daily using a closing procedure checklist.

Due to the pandemic, the hospitality department students all have one-to-one devices in the form of Chromebooks. The hope is that this will continue to be the case in the upcoming school years.

In terms of curriculum, Students in the hospitality program learn the basics of the hospitality industry and the segments that make up the industry. As students progress through the program, they are exposed to different departments, positions, and operational procedures in those departments. The program teaches management concepts combined with employability and leadership skills. Instructors worked to vertically align the grades curriculum, mapping out the teaching of a topic from its introduction through to when students will achieve mastery.

Instructors review the curriculum each school year on an as-needed basis. The program adapted a new textbook and workbook with more current trends and information. The review process includes analyzing exams scores to see areas of curriculum that students are not mastering and then creating supplemental materials to bridge the gap. Instructors supplement the curriculum with current events, trends in the industry, and additional information to help students to make connections to topics.

The hospitality management exploratory presents an overview of the hospitality industry with an emphasis on hotel management and restaurant service. Students are exposed to a range of career opportunities that exist in this field. Students acquire and demonstrate knowledge through classroom instruction as well as hands-on participation in industry specific projects. Students observe upperclassmen while touring the Artisan Restaurant and café, and also tour the shop hotel. The curriculum places an emphasis on the development of employability and professional skills.

In the shop environment, students are assessed on their performance, which includes quality of work, timeliness, initiative, customer service, and teamwork. Instructors expect students to work to the best of their abilities to make continuous progress without giving up or giving in. The expectation is that students will perform in a positive manner and accept coaching if and when needed. Students are also assessed on their employability which include punctuality, uniform and hygiene, professionalism, and teamwork.

The shop teacher in hospitality acts as a job coach and uses certain behaviors as teachable moments. Students are expected to model the behaviors found in hospitality companies by maintaining uniform and hygiene standards, following safety and sanitation regulations, following operating procedures such as money handling and cash deposits and providing the customer service expected of a hospitality professional. Students perform opening and closing procedures based on their positions. Students are assessed on competencies using a rubric aligned to the competency tracking used by the school, Skillsplus.

The hospitality program, with assistance of the Advisory committee, partners with the Radisson Hotel in Nashua, New Hampshire, which allows students to job-shadow. The hotel contains 336 guest rooms, seventeen function rooms (including three ballrooms), a fitness center, a restaurant, and a gift shop. Employee areas include a cafeteria, a laundry, human resource office, accounting, front desk, two sales offices, banquet kitchen, and an engineering department.

Students study for and take the OSHA 10-hour general Industry exam so that they will have this certification prior obtaining a co-op job.

Students have the opportunity to participate in SkillsUSA for the hospitality program, but participation has been low. It is stated that students often work after school, take care of family members, or are not interested or committed to SkillsUSA. Students who are eligible participate in the Honor Society or sports.

Tourism, Hospitality, and Guest Services Management Commendations

Commendation

The inception of online credential opportunities for students leading to industry-recognized certifications. (2.10)

Commendation

The commitment of advisory board members and their long standing relationship and partnership which contributes to the program's improvement for hospitality students. (2.8)

Tourism, Hospitality, and Guest Services Management Recommendations

Recommendation

Explore ways to increase opportunities for additional students to participate in off-site production. (7.1, 7.3)

Recommendation

Explore alternative methods of providing student uniforms to ensure full program participation. (7.3)

Recommendation

Needs to increase production revenue or possibly have clearer understanding of the money coming into this department to purchase additional uniforms.

Recommendation

Electronics

Narrative Program Summary

The Electronics program occupies three classrooms with student workstations, electronic test equipment, meters, breadboards and trainers. Each student station requires safe working electrical and data outlets. Based on a virtual tour, the classroom laboratories appear to be neat and orderly. The rooms appear to be large enough to accommodate a full student load when virtual instruction is no longer needed. Signs are posted on the classroom walls with important evacuation information and other information such as learning objectives, assignments and social contracts. Students are provided locker space for personal items and project materials.

The curriculum aligns with the Massachusetts framework for Electronics. The curriculum is routinely revised based on changes in the framework and recommendations from advisory board partners and Cooperative Employers. A recent addition of computer networking content was implemented because of strong support from the advisory board. Also, a component for Audio/Visual instruction will be added to the curriculum based on section 2.J.03 of the frameworks. The curriculum is aligned from grades 9-12.

Students are now learning in a hybrid mode due to the pandemic. All students have a school-supplied device for learning at home and at school. Instruction is a combination of electronic theory and hands-on projects. Student projects are related to the curriculum and grow in complexity as students advance through the program. Smartboards and webcams are used to present material to students in school and at home. Instructors use Google Classroom to assign work and keep track of student progress.

Formative and summative assessments are used to measure student learning and comprehension. There are many and varied credential opportunities for students in Electronics. OSHA 10 general industry certification is available for all Electronics students. Students work towards certification in Electronics Technician Associate, as well as a certification in soldering (IPC J-STD-001). In grade 12, students in Electronics theory class can gain Cisco Networking Essentials certification, Electronics students participate in SkillsUSA statewide and national competitions as well as other interscholastic robotics competitions.

The Electronics Advisory Board expresses a growing need for Electronics graduates, with far more openings than graduates. The board also plays a very important role in program improvement and equipment acquisition. There are currently no articulation agreements with area higher education institutions.

The instructors in the program have direct industry experience as well as professional development in instructional methods and strategies. A new Theory/Exploratory teacher recently joined the Electronics faculty which fills a void in the program. Faculty have access to numerous opportunities to maintain essential and new trade skills.

The program has adequate resources to adapt to changes in the Electronics field as evidenced by the addition of new soldering stations and new equipment for audio/visual curriculum.

Students in the program feel welcome and are treated like family. Clear expectations for how students interact with each other and with the instructors are posted on the classroom walls.

Electronics Commendations

Commendation

The breadth of credential opportunities available to students which lead to industry recognized certifications. (2.10)

Commendation

The commitment of Advisory Board members and their long-standing participation which contributes to program improvement for Electronics students. (7.8)

Electronics Recommendations

Recommendation

Continue efforts to diversify enrollment for students who are traditionally underrepresented in the field. (5.2)

Recommendation

Develop an action plan for recruiting and retaining students in the program. (5.13)

Programming and Web Development

Narrative Program Summary

The Programming and Web Development cte program occupies four classrooms clustered around a storage room. Two of the rooms are large and two are smaller. Due to the size of rooms 2247 and 2248, instructors have to juggle student room assignments in order to have all students in the AP class meet together. A recent summer maintenance project replaced the worn floor in one of the computer labs – three have not yet been scheduled. Existing computer tables were purchased before the standard dual-monitor configuration was adopted. As a result, there is little room for project work at the student computer station. Ninety-six windows computers and six Apple OS based computers are available for students. The laboratories are modern and well organized. Evacuation route signage is posted in all rooms and student learning objectives are on the white board. Smart Board technology is an integral part of instruction. Student and staff bathrooms are close to the shop.

Student enrollment has grown steadily over the past several years. Currently there are one-hundred twelve students in the program. There are three instructors in laboratories and a trade theory instructor. The student population in the program is diverse, however, the instructors continue to implement efforts to increase the number of female students. Female enrollment fell just short of the benchmark set by the College Board for their diversity award.

The curriculum aligns with the Massachusetts framework for Programming and Web Development. The curriculum is routinely revised based on changes in the framework and recommendations from advisory board partners and Cooperative Employers. The curriculum is competency based. Students skills checklists are updated weekly as students attain and master new competencies. Students are encouraged to work in pairs or groups (pair programming). Instruction is based on all modes of learning and differentiated instruction is routine. Instructors review IEPs and 504 plans regularly and modify instruction to accommodate students' needs.

Formative and summative assessments are used to measure student learning and comprehension. All students are expected to earn a wide range of industry approved credentials, including Microsoft Technology Associate, Comp-Tia A+ and CIW Site Development certification. In addition students are enrolled in the College Board's Computer Science Principles course and the Computer Science A programming course and take the AP examination each year. All students in the program earn OSHA 10 general industry certification. The faculty is reviewing the addition of credentials and instruction in Cyber Security for the coming school year.

Students compete in programming competition at the district level of SkillsUSA and the top three students represent the school at the state competition. The program has traditionally done very well at the district and state level. This past year, 4 students from the program went to National SkillsUSA. Eight to ten students each year are inducted in the Technical National Honor Society.

Students in grade 12 are eligible for Cooperative Work Experience. Ten students in the most recent year were placed in co-op positions at firms such as IBM, BAE Systems and KBG IT. Several nearby IT companies have agreements for cooperative work experience, however, placement was slowed by the pandemic. Additional agreements are needed to meet the needs of all qualified students. The program has several articulation agreements with area colleges and universities.

Program faculty routinely attend summer institutes, professional development sessions and online courses. Instructors have recently participated in CodeHS, Code.org, College Board and CIW workshops. The school has paid for attendance and travel at conferences. All equipment in the program is working and up-to-date. The school has purchased new equipment as emerging technology has been adopted by the program. Textbooks and other teaching materials are current. Online subscriptions make up a substantial portion of program content. Several instructors teach the "after dark" program. This is designed to provide IT certification opportunities for students who are not enrolled in the school's day program. Students from Lowell, MA attend five days per week, from 2:30 to 5:30.

Programming and Web Development Commendations

Commendation

The rigor offered to students by the addition of College Board Advanced Placement Classes which help students succeed in college courses and admission. (1.2, 2.10)

Commendation

The instructors for ongoing participation in the After Dark program that provides IT certification opportunities for students beyond the regular day program. (7.3)

Programming and Web Development Recommendations

Recommendation

Create a plan to diversify program enrollment to include students who are traditionally underrepresented in the Tech Field. (5.16)

Recommendation

Consider replacing flooring in three computer laboratories to create an aesthetically pleasing environment for Exploratory students. (7.3)

Recommendation

Consider update to computer tables to provide adequate space for dual monitor systems and simultaneous project work. (7.3)

Recommendation

Consider allocation of more space to accommodate the growing enrollment in the program. (7.1)

Computer Aided Drafting and Design / Manufacturing

Narrative Program Summary

The Computer-Aided Drafting and Design Manufacturing (CADD) at Greater Lowell Technical High School (GLTHS) consists of 4,605 square feet with four rooms (rooms 2460, 2461, 2462, and 2562). Room, 2562, is located down the hall from the other three rooms and is primarily used by sophomores. Three of the rooms are computer labs and the other is a fabrication lab (2562). There are also two storage closets in the shop.

Exit signs, fire extinguishers, and emergency evacuation routes are clearly marked and posted throughout all four rooms. There is also a station containing the SDS book related to the shop materials and chemicals. Students all have assigned lockers in the shop and the bathrooms are located close to the shop.

The overall appearance of the shop is inviting and interesting. Student certificates and projects are proudly on display. The computer labs contains 26 desktop workstations and 14 3D printers of assorted styles and brands. The fabrication lab's appearance is busy but projects are set in an orderly fashion.

The CADD program currently has 24 sophomores, 23 juniors, and 21 seniors. The CADD program has seen an increase in student interest over the past few years. A new 9th-grade exploratory instructor has been added to the program bringing fresh ideas and the latest trends to the classroom. There are currently 16 female students enrolled in the CADD program and those numbers are increasing. This may be due to STEM programs being introduced in the regional elementary and junior high schools.

The curriculum in CADD follows the VTE Framework for Drafting (VDRAF), is tailored to the industry standards with the help of the Trade Advisory Committee, and co-op employers. Instructors review their curriculum with each cycle change and on an annual basis. Sophomore year, CADD students study design and engineering in a separate and blended lab mixed with sophomores from the engineering department. CADD students not only learn about design but how to collaborate in the engineering process and practice critical thinking skills. Junior year CADD students explore a variety of software platforms including REVIT, AUTOCAD, SketchUP, 3D StudioMax, Inventor, SolidWorks, and PCD. Juniors in the program certify in OSHA-10 training. Drafting related standards and documentation is also studied. Seniors in CADD expand on their previous two years of studies and apply it to co-op employment and production work. They also study all of the drafting industries including Architecture, Interior Design, Engineering, Industrial Design, and Computer Generated Imagery (CGI) used in the gaming industry.

The curriculum focuses on program competencies and provides clear expectations and learning outcomes. This allows students the opportunity for recognition and achievement. State Frameworks on Safety and Health Knowledge Skills, Technical Knowledge Skills, Embedded Academics, Employability and Career Readiness, and Management and Entrepreneurship Knowledge and Skills. The program is designed around student needs, individualism, and creativity aligning it with the school's stated mission.

Instructors deliver their lessons through verbal, hands-on, written, and video. These strategies are applied to the entire class and have been proven to be successful in this program. Instructors in CADD differentiate instruction in a variety of styles based on student needs and abilities. Most competencies are project-based and instructor-led. Students are encouraged to move ahead in class and add creativity.

Google Suite is the primary communication platform where assignments, expectations, and feedback are shared. All CADD students were recently equipped with high-power laptops with software programs preloaded. The recent shutdown and switch to virtual learning in the past year had a minimal impact on student learning and development with this upgrade.

CADD students are assessed with formative/summative assessments with end-of-unit exit tickets, quizzes, midterms, and finals. The primary assessments, however, are based on projects and competencies. Daily grades

and behavior are also observed and graded. Grades and performance are shared with parents/guardians through midterms and online platforms.

Students are trained, prepped, and tested to become a Certified SolidWorks Associate (CSWA). CADD students also earn an OSHA-10 industry certification.

CADD students participate in SkillsUSA competitions at the school, state, and national levels. The CADD department often wins awards at state and national competitions. Students have also held state leadership positions with SkillsUSA. Several CADD students qualify and participate in the National Technical Honor Society (NTHS) annually.

The CADD program participates in co-op employment. They currently have three seniors participating and one in the interview process. Lack of transportation, attendance, and grades are typically what hold students back from participating in co-op.

The CADD department has a 100 percent graduation rate. Students have job opportunities or proceed to college full time upon graduation.

There are three instructors in the CADD department and all are college graduates with design and engineering experience. The instructors are Chapter 74 CADD Certified. They work closely with business and industry professionals to stay updated on technology advancements and trade needs. One instructor owns an Architectural Drafting business and is still very active within the industry. Schoolwide professional development sessions teach instructors new strategies and allow for schoolwide collaboration.

The CADD department is fully supported by the school and advisory committee with all their educational materials and resources. Equipment, including computers, software, and machines, are a state of the art and reflective of what is used in industry. With the increased student interest and enrollment in the CADD program, the shop is operating near capacity limits.

CADD students actively participate in community and production work. Students have created software files for use in making prosthetics, evacuation signage for the local police departments, 3d printed props for area elementary school plays, and worked on constructing design plans for the new Animal Control facility.

The climate in CADD, as observed, was inviting and collaborative; Students were working together on projects and designs. Instructors are readily available for questions and suggestions. They encourage students to apply problem-solving skills and apply creativity to projects.

The CADD department has an Advisory Committee that provides, suggestions and feedback from the industry. The committee is made up of postgraduates, industry professionals, and co-op employers. The Advisory Committee's feedback plays a key role in curriculum structure and technology updates.

Computer Aided Drafting and Design / Manufacturing Commendations

Commendation

Student achievement in SkillsUSA competitions, due to the focus of the instructors, allowing students to demonstrate their knowledge and apply it to real-world situations. (5.1)

Computer Aided Drafting and Design / Manufacturing Recommendations

Recommendation

Explore options to expand the CADD department's instructional space to accommodate an increase in student enrollment. (5.1, 5.3)

Recommendation

Collaborate with the students' academic instructors to improve overall grades which will allow more students the opportunity for co-op employment. (2.6, 5.1)

Mechanical Design and Engineering Technology

Narrative Program Summary

The Engineering CTE area is located in three instructional spaces. Grade 9 Engineering Exploratory and Trade Theory are taught in a room with computer workstations against the walls, and a large work table in the center for whole class instruction. Grade 10 Engineering students are combined with grade 10 CADD students in a single room focused on design and the engineering process. This unique class is taught by a single teacher. Student enrollment in this grade 10 combined class is 26 students per cycle. In grade 11 CADD students return to their CTE laboratory and Engineering students combine with grade 12. The upper level lab includes a clean lab with computer workstations, a hands-on lab for project work and a dirty lab for subtractive manufacturing and production. The grade 11 & 12 teacher mixes students from two grade levels in project teams. Combined jr/sr Engineering classes have approximately 26 students in each cycle.

Student demographics in Engineering include 60 percent male and 40 percent female students. The student population is also roughly 40 percent students of color.

The program curriculum is loosely based on Project Lead the Way (PLTW). It has been modified over the years to include teacher-created projects, videos and lesson plans. The curriculum is aligned with the Massachusetts Frameworks for Mechanical Design and Engineering Technology. The curriculum is competency based with an emphasis on project learning. The curriculum is aligned to the school's mission, core beliefs and values. There is clearly defined articulation from grades 9-12. Teachers in the department collaborate frequently to revise and adjust the curriculum.

Instruction in the program is designed to appeal to all learning modes. Students work collaboratively in teams with a focus on mixed-ability grouping. Students create videos on specific topics in the Engineering curriculum that are used to enhance the PLTW lessons. Engineering instruction relies on student materials which is high on Bloom's Taxonomy. Classroom routines and social contracts are important in the program because of the number of students in the combined grade 10 course and the merged grades 11 & 12. Teachers review and abide by IEPs and 504 plans for students in the program.

Assessment in the program is a combination of formative and summative assessments. All projects include a rubric for measuring student mastery of learning objectives. The teachers routinely use assessment data to modify instruction and increase student learning. Student assessment results are posted in the X2/Aspen gradebook and accessible to parents and students in the Aspen portal.

All Engineering students gain OSHA 10 General Industry certification. Students are certified in equipment and software used in the shop including Festo, 3d printers, Amatrol, and Solidworks. Students gain certification in Computer Integrated Manufacturing.

SkillsUSA is an important part of the Engineering program. Students compete in 6 different categories in the trade and numerous leadership events. The program has had many district winners and several state winners and national competitors.

Students in grade 11 and 12 are placed in co-op positions with several companies along the I-495 corridor. BAE Systems Engineering has a long-standing agreement for student interns from the Engineering program. Students earn 9 college credits from Rochester Institute of Technology upon successfully passing the PLTW curriculum. These credits are transferrable to local schools of engineering, such as WPI, UMass-Lowell and Wentworth.

Approximately 60 percent of Engineering graduates go on to higher education, 25 percent enter the workforce and 10 percent enlist in the military.

The program faculty pursues new learning in the trade to stay current. Two teachers maintain professional

licenses and work during the summer. This leads to architectural and engineering experiences that are shared with students.

The program appears to have adequate resources to implement the curriculum and support student learning. New trainers in hydraulics and thermodynamics have recently been added to the program. The upper level class includes industry standard equipment for additive manufacturing and aerodynamic testing.

Students in Engineering have collaborated with other CTE programs to improve parts of the school. A recent project to redesign the Cosmetology shop was engineered by this program. Students designed a concession stand for Shedd Park in the City of Lowell. Teachers from Engineering, Automotive Collision and Metal Fabrication joined to lead and coach the Battlebots team.

The program combines engineering skill instruction with work-force readiness training. Students are encouraged to work together, solve problems by peer mentoring and draw on the design process to keep projects on schedule. The high student to teacher ratio requires independent learning and problem solving skills. Industry and higher education partners stress the importance of increasing female participation in the engineering field.

The Program Advisory Board has a long tradition of providing input to the staff and recommending changes in curriculum and equipment. The feedback from this board is a substantial part of the budgeting process.

Mechanical Design and Engineering Technology Commendations

Commendation

The grade 10 combined CADD and Engineering program taught by the staff provides a unique opportunity for cross-trade learning. (3.4, 5.1)

Commendation

The increase in the number and quality of higher education articulations, by the staff, provides students greater rigor and access to prestigious institutions of higher learning. (7.8)

Commendation

Develop a plan to provide adequate classroom and laboratory space to accommodate the increasing student enrollment. (7.5)

Mechanical Design and Engineering Technology Recommendations

Recommendation

Develop a plan to provide adequate classroom and laboratory space to accommodate the increasing student enrollment. (7.5)

Recommendation

Explore ways to reduce grades 11 & 12 student/teacher ratios to provide students with more individualized attention.(7.1)

Manufacturing / Machine Tool / Precision Machining Technology

Narrative Program Summary

The Greater Lowell Technical High School (GLTHS) Advanced Manufacturing Technology Program consists of a 6,600 square foot machine shop, centrally located within the school. There are 33 machines within the shop, 28 of which are Computer Numerical Controlled (CNC), and seven desktop computers are used for writing programs. There is a separate room used as a computer lab with seven desktop computers, a theory room with an additional eight desktop computers, a designated tooling crib, a storage room for securing stock material, and a private office for instructors.

Safety and evacuation signage is present throughout the shop and learning areas, along with a clearly marked location for Safety Data Sheets (SDS) and an emergency eyewash station. There are lockers and separate men's and ladies' bathrooms in the shop. Hand washing and sanitizing stations are working and clean.

The overall appearance to visitors could create a negative first impression, viewed as a lack of organization, a cramped space, and a dirty floor. The shop's visual flow can change in appearance depending on what projects are being machined and how machines are arranged. The floor shows signs of aging, made of wood and soaked with creosote; It appears old and dirty despite cleaning and sealing efforts. Overall the majority of the machines are state of the art, in good working order, and mirrors what industry uses in the regional area.

The Advanced Manufacturing Technology Program draws in 22 to 24 students annually. The shop is predominantly male with an average of ten percent female students. There are currently 12 sophomores, 12 juniors and 12 seniors enrolled in the program. First impressions of the shop during exploratory and the other trade options offered in the school, could be factors for the gender imbalance.

In the Advanced Manufacturing Technology Program, students learn blueprint reading, machining safety, operation of manual machines, conversational programming, CNC programming, MasterCam software, quality control standards, metrology, and soft skills that will ready them for employment.

There are three instructors in the program who collaborate on projects and instruction daily, weekly, monthly, and annually. The instructors modify the curriculum based on Massachusetts State Curriculum Framework, National Institute for Metalworking Skills (NIMS), OSHA 10 credentialing, MACWIC Testing/Curriculum in a Box, GLTHS Core Values, suggestions from their Advisory Board, and student needs. Students are expected to earn OSHA 10, NIMS CNC Lathe, and NIMS CNC Milling certifications.

The curriculum is vertically aligned to ensure that students build upon their previous knowledge. As freshmen, students are introduced to MasterCam software, shop safety, and CNC machine operation. Sophomore year, students study metrology, machine setup, shop terminology, shop math, blueprint reading skills, and MasterCam application. As juniors, students learn CNC lathe and milling machine programming using both HAAS and FANUC controls. In senior year, students focus on employment, college, and/or military decisions. Additionally, students are introduced to Davenport and Kitamura machines.

The competencies are based on specific tasks which are required for employment in the trade. These competencies are sculpted by the three shop instructors, recommendations from the advisory committee, and feedback from students on an annual basis.

Observations of students were all virtual with the exception of one. Students were led in program writing and solving cartesian coordinate locations in the instruction. The lessons are student-centered depending on pace and need. Should a student or group of students require further examples or explanation, the daily lessons are modified for that instruction.

Students have access to MasterCam software while studying virtually. This allows students to create a program, either through code or drawing, and simulate how the machine will interact. Students also have access to Tooling U modules, an interactive manufacturing program that incorporates videos and simulations.

There is one instructor dedicated to theory and assignments and two instructors in the Advanced Manufacturing Technology program. Sophomores, juniors, and seniors are in the shop together, in the same cycle. One class of students rotates through theory while the other two instructors lead their class in shop projects on the machines. The instructional practices are updated every year and teachers collaborate on a daily basis. Students also rotate through various shop positions, modeling a real-world situation (design, programming, machine setup, quality control, metal structure). Instruction is differentiated using whole group, small group, one-on-one, peer mentoring, and pair-share techniques. The 10th, 11th, and 12th-grade levels work together often in mixed class groups. Higher-level thinking is strongly encouraged, always asking students how they can take their projects to the next level. Students with IEP's and 504 plans are accommodated through word banks, small group activities, hands-on lessons, and shop pairing. For 9th grade exploratory, all three instructors work together in demonstration and instruction.

Students are assessed through project rubrics, formative/summative assessments, observed behavior/habits, and industry specifications. Theory assessments are in the form of quizzes, tests, and proven with shop projects. The quizzes and tests are graded and reviewed with students to provide the necessary feedback they need to be successful. Students are also assessed on employability skills. Attendance, work readiness, demonstrate initiative, time management, communication with instructors and peers, and professional conduct are factored into daily grades and communicated with students and families. Shop projects include self and peer inspections, then reviewed with instructors. Industry specifications (NIMS) require the projects to be inspected by certified instructors and followed up with a proctored online test to earn their industry credentials. Feedback on student progress is shared with parents and guardians through online portals and through quarterly progress reports. There is no current pre-apprenticeship program being offered.

Students are encouraged and supported to participate in SkillsUSA in the following competitions: CNC Milling, CNC Lathe, All Around Machinist, and Precision Machinist.

The Advanced Manufacturing Technology program has industry partnerships that employ students in the co-op program. On average they send 30 percent of their seniors out on co-op. Juniors are also eligible for co-op during the second half of the school year. Students must maintain a 70 percent average in the shop and a 60 percent average in academics to be eligible.

There are currently articulation agreements with Nashua Technical College, Maine Community College, and other area colleges and universities throughout New England. Students who graduate from the Advanced Manufacturing Technology program at GLTHS pursue careers in the industry, ten to twenty percent continue on to college, and five to ten percent start military careers.

There are three instructors in the Advanced Manufacturing Technology Program. One instructor is dedicated to theory work in a classroom setting; Two instructors are dedicated to the shop for project guidance. There is a combined experience of 100-years between the three instructors. The 10th, 11th, and 12th-grade students progress through projects working with different instructors depending on their assignment and level of skill. Advanced Manufacturing instructors attended school-wide professional development sessions that keep them up to date on current teaching practices, strategies, and teaching platforms. They also collaborate with regional manufacturing instructors, Advisory Committee members, and post-graduates to keep updated on industry practices and needs.

The Advanced Manufacturing Technology Program has the resources and technology it needs to properly train students to gain employment in the manufacturing industry. The technology used is up to date with the exception of a few pieces of old CNC equipment, manual lathes, and a horizontal surface grinder. Funds for these improvements were put on hold due to the pandemic.

The Advanced Manufacturing Technology Program assists other shops and teachers with the repair, modification, and development of specialty tools when the need arises. They do not currently have a production program in place with outside vendors or the community.

The program has worked with the community to train and educate adults for the past 18-years. In 2020, they ventured into a partnership where the students from Lowell High School are bussed to participate in The After Dark Program. The program is referred to as Automated Manufacturing After Dark. This two-year program offers senior students job placement and career opportunities in Automated Manufacturing fields throughout the Merrimac Valley.

The climate in the Advanced Manufacturing Technology department is collaborative and supportive of students. Students have a voice in shop projects and work together often in a variety of teams. Instructors set and model clear standards of behavior and professionalism that provide students with a strong work ethic to enter the workforce during co-op and graduation.

The Advanced Manufacturing Technology Program formally meets with their trade advisory committee twice a year, but they collaborate more often than this through phone calls, emails, and visits. The trade advisory committee consists of postgraduates, business owners/representatives (Currently eight businesses are involved), parents, advisors, and administrators. The demand for skilled workers is never completely satisfied, with rapid manufacturing growth in the region and an aging skilled workforce nearing retirement. The trade advisory committee has a positive impact on the program through material and equipment donations, curriculum input to align with industry standards and continuous improvement suggestions.

Manufacturing / Machine Tool / Precision Machining Technology Commendations

Commendation

Advanced Manufacturing Technology program for securing a grant for \$493,000 dollars to enable the school to purchase new CNC tooling and expand training opportunities for students. (7.1)

Commendation

Advanced Manufacturing Technology program involvement in the community to educate adults and provide the area workforce with skilled workers (7.3)

Manufacturing / Machine Tool / Precision Machining Technology Recommendations

Recommendation

Continue to pursue the replacement of the shop floor to enhance the shop's overall 21st century feel to increase enrollment and to improve student morale. (7.2, 7.3)

Recommendation

Design and implement a 5S system (Sort, Set in Order, Shine, Standardize, Sustain) aligned with industry practices to help improve the appearance of the shop and increase student enrollment. (7.2, 7.3)

Recommendation

Investigate new ways for students to earn industry credentials and apprenticeships to increase student placement in the workforce by working with accreditation agencies. (2.10)

Recommendation

Continue to seek opportunities to involve students in the community and in the industry with production work to provide real-world experiences that can teach pride, purpose, and responsibility. (7.1, 7.3, 7.8)

Recommendation

Collaborate with the student academic instructors to improve overall grades which will allow more students the opportunity for co-op employment. (2.6,5.1)

Welding / Metal Fabrication and Joining

Narrative Program Summary

The Welding and Metal Fabrication shop at Greater Lowell Technical High School (GLTHS) is 7,600-square feet in size, located in room 1422. There is one theory room (room 1424) and one PPE cubby area situated off to one side. The machines are strategically located along the perimeter and grouped within stations in the center of the room to fit the instruction flow. There are approximately 25 welding stations, a plasma cutter, punching and forming machines, and roller machines. The program offers a variety of arc welding, gas tungsten welding, gas metal arc welding, shielded metal arc welding, and flux core arc welding.

Signage and awareness barriers throughout the Welding and Metal Fabrication shop are plentiful. These include floor markers and mats, safety shield protection required, glow-in-dark exit signs, not-an-exit signs, PPE safety glass protection required, fire blankets, fire extinguishers, SDS station, and eyewash station. Gas welding bottles are properly secured and hoses/nozzles on the machines are fastened when not in use.

There are no lockers or bathrooms within the shop, however, they are located in the main hallway just outside the shop. Students are supplied with Chromebooks and laptops, there are no student computers in the shop. There is one SmartBoard mounted to the wall in the theory room and two portable SmartBoards on wheels in the shop.

The overall appearance of the Welding and Metal Fabrication shop is well lit, open, and structured. Work stations have toolboxes and containers to hold tools when they are not being used. Every machine has safety guards and equipment within accessible reach to the students.

The average number of students in the Welding and Metal Fabrication program is 60. This year, there are a total of 54 students in the 10th, 11th, and 12th-grade classes. The program draws around 20 to 22 students each year. The population of male to female students is typically 60 percent to 40 percent, respectively. This year there are currently six female students enrolled in the program. The imbalance could be due to the variety of other programs being offered by the school may appeal more to the female student interest.

The curriculum in the Welding and Metal Fabrication shop is based on current industry standards from American Welding Society ISO 901, AWS QC 10-95 Specification for the Qualification and Certification of an Entry Level Welder, AWS EG2.0-95 Guide for Training and Qualification of Welding Personnel Entry Welder and the books **Hobart Institute of Welding Technology, Welding Principles and Applications** by Larry Jeffus, and **Modern Welding**. The curriculum is reviewed and modified annually by both shop instructors with adjustments for industry trends, standards, and student needs. There is alignment with the Core Values of the School and is competency-based. Students will study the theory of the competencies then practice what they learn in the shop. The curriculum in the Welding and Metal Fabrication shop is a mastery based style. Students work at their own pace to master standards then build upon that mastery in the next level.

Instruction in the Welding and Metal Fabrication program is both theory and hands-on. Students work as a group for theory, then demonstrate their learning with hands-on projects. Instructors work alongside students in the shop to offer guidance and presentations as needed. Students are encouraged to be creative and ask questions, the lessons are student-centered. Differentiation in theory and shop include students working at their own pace, handouts with steps and visual diagrams, videos on their Chromebooks for reference, positive reinforcements by instructors, SmartBoard notes, peer tutoring, and preferential seating assignments.

Classroom management strategies include clearly displayed objectives, project modeling, daily routines, chunking out assignments, and independent workstations.

Students in the Welding and Metal Fabrication program are primarily assessed on achievement within the frameworks. Verbal assessments are also used as students explain what they need to do, what they are doing, or what they have done to demonstrate their level of project understanding. Written and hands-on safety assessments are extremely important and used often in the shop.

Formative, summative, and performance-based assessments are used to provide feedback to instructors and students. Students are given the opportunity to make up, revise, or improve their test scores. Instructors use these scores to modify daily lessons, as needed. Scores and grades are shared with parents and guardians in the X2 platform and Skills Plus. Midterm reports are sent home halfway through each quarter. Rubrics are used to assess projects and daily behaviors.

Students in the Welding and Metal Fabrication program do not earn any state or nationally recognized credentials. The certifications recognized in the trade expire every six months. The HotWorks curriculum is covered along with SMAW, GTAW, FCAW, GMAW, OAW, plasma cutting, and Oxy-fuel gas cutting competencies and skillsets. These competencies offer students a wide selection of career opportunities.

In the Welding and Metal Fabrication program, students are very active in SkillsUSA competitions. In recent years, students have earned gold medals in state competitions and moved on to compete nationally. Some of the competitions they focus on are Welding and Chapter Display. Students have fabricated elaborate Chapter displays from a variety of materials, including a stainless-steel, fully functional grandfather clock. Welding and Metal Fabrication students are also involved in the National Honor Society.

The Welding and Metal Fabrication program places an average of 60 percent of juniors and seniors in co-op employment.

Students who graduate from the Welding and Metal Fabrication program pursue careers in the industry, continue on to college, and 15-20 percent start military careers.

The Welding and Metal Fabrication instructors regularly attend professional development on equipment in the shop, work in the industry during the summer, attend seminars when available, and keep their certifications up to date.

The Welding and Metal Fabrication program has a student-teacher ratio of 16:1 for the junior/senior class and a 10:1 ratio for the sophomore class. The majority of the program equipment, resources, and software are up to date and aligned with industry standards. There are eight oxy-acetylene booths which are rarely used in industry and the stations could be fitted with newer, 21st-century equipment like MIG welders. There is also an outdated pipe bender that is still in use.

The Welding and Metal Fabrication program is involved with their community and production work. The students collaborated on creating a UMASS River Hawk statue that is on display at the Tsongas Arena in Lowell. They have also repaired a bronze statue in the Lowell cemetery. Students have created, built, and donated memorial benches in memory of the victims of the Boston Marathon and local fire departments. Students are also taught to collaborate with other shops (Carpentry, Auto Collision, Paint and Design, Electrical) when building projects for SkillsUSA and the community.

In observing the shop, students were encouraged to work with each other. Students are encouraged to collaborate with each other, other shops at the school, and the community. The instructors encourage students to use their own creativity and individuality when working on their projects. When students have completed their work, they are permitted to work on their own personal projects that they create. The Welding and Metal Fabrication shop is like a second home to students.

The Welding and Metal Fabrication program has an Advisory Committee that includes a variety of industry professionals. They formally meet with their Advisory Committee twice a year. The trade advisory committee consists of postgraduates and co-op employers. The committee reviews the curriculum and makes suggestions to the program to align with the industry. The committee also reviews the budget to help in planning and forecast the needs of the program.

Welding / Metal Fabrication and Joining Commendations

Commendation

The community involvement of the Metal Fabrication program in the donation of memorial benches creates a feeling of connectivity and pride for the students. (1.1, 5.1)

Commendation

The participation in SkillsUSA and support from instructors, allow students to celebrate their learning through creativity and collaboration. (1.1, 5.1, 5.2)

Commendation

The equipment updates with the new Power Press Brake machine and ETS 3000 Back Gauge Control Screen provides students with experience in cutting-edge, industry-aligned technology. (7.2)

Welding / Metal Fabrication and Joining Recommendations

Recommendation

Continue to explore ways to fund and convert four out of the eight oxy-acetylene booths into MIG welding stations to reflect and expand industry practices. (7.1, 7.2)

Recommendation

Explore upgrading the outdated pipe bender to enhance math skills of the students with determining bending angles/radius as it is safer to use, more adaptive to the curriculum, and has the ability to fabricate higher quality projects. (7.1)

Recommendation

Consider implementing National Institute for Metalworking Skills (NIMS) Metalforming 1 and Maintenance Welding into the curriculum as a form of student certification. (4.8)

Automotive Collision Repair and Refinishing

Narrative Program Summary

The Automotive Collision Repair and Refinishing consists of two shop areas. The underclassmen shop contains several school owned vehicles (donations) that students work on. There is also a classroom setup in the shop area for related instruction. The space is adequate for the amount of students they enroll. There was minimal tooling in the area. Most of the major tooling and equipment is located in the main shop area. It was equipped with three mobile work stations that included sanders and polishers. The main shop area contains a paint booth, two prep stations, three identical school owned vehicles (donations), and several work stations. The space isn't big but seemed sufficient for the amount of students working. Juniors and seniors both work in this area.

There is a proper sized instructor office space, a few small storage areas, student lockers, and bathrooms available in the hallway. The upperclassmen share a related classroom with Automotive Technology that is located down a hallway (about 50 yards). Evacuation routes are properly labeled, exit signs posted, and multiple safety devices such as fire extinguishers and safety switches located throughout the shop.

Each grade level can enroll a maximum of 30 students. Each grade level is split in half, so a maximum of 15 students per class. There are currently 41 combined juniors and seniors, 19 sophomores, and freshman are still undetermined. A total of six students are female.

The program has recently gone through an extensive redesign. Three years ago they had to shut the program down for a year because of some internal issues. The shop was reorganized, cleaned, and updated. New staff have been hired and the program is flourishing again. The administration seems very happy and excited about the changes. As a direct reflection of these changes, enrollment is going up.

Curriculum is based on ICAR, an industry standard in the Automotive Collision field, and follows the NATEF (National Automotive Technical Education Foundation) standards. The instruction techniques observed were all in-shop. Two students were observed applying finish on body panels in the paint booth. Another student was preparing a body panel for clearcoat. A few students were at a table on computers. Instructors were walking around and available for assisting students with questions.

Students are graded daily in five different categories, including Task competition (30%), Employability (20%), Safety (10%), Technical Workmanship (40%), and Theory related (20% - sophomores only). There is also a final exam that is worth 20% of the final grade. A scheduled demonstration by an outside party was observed for a plastic welder. When the demonstrator arrived, students took seats and observed the instruction.

Students in the program actively participate in SkillsUSA. Students in the program earned medals in refinishing, estimating, and collision repair at the district level.

The program has articulation agreements with the local community colleges in Massachusetts.

The faculty attends 20 hours of automotive training a year (a NATEF requirement), participates in professional development provided by the school, and attends the virtual MAVA conference.

The program is adequately funded. The equipment all seemed modern, in good condition, and put in good use. The related instruction room adjacent to the shop was recently turned into an academic room. The program now shares a related room with Automotive Technology.

The overall climate was welcoming, warm, and inviting. The shop was clean, organized, and flowed well. The space is utilized appropriately. Storage is minimal, but the instructor seems to make the best of the situation. The welding station is located between the paint and prep booth. The instructor stated they are in the process of expanding the welding platform and will need to address the issue of limited space for this.

The advisory committee is strong and has a lot of influence. Minutes were shared from October of last year. The minutes reflected the committees concerned for not having a dedicated related room, a need for increased welding area, and improved doors/fencing for storage areas.

Automotive Collision Repair and Refinishing Commendations

Commendation

Increasing enrollment due to improvements made by the instructional team, which will lead to learning and employment opportunities for more students. (3.6)

Commendation

The instructors for inviting industry professionals in to train students on innovations in the marketplace which provides a unique learning opportunity. (3.2)

Automotive Collision Repair and Refinishing Recommendations

Recommendation

Consider assigning a dedicated related instruction room for the program to accommodate growing enrollment. (7.5)

Recommendation

Post learning objectives and daily/weekly lesson plans so that by students can assume greater control of their learning. (2.9, 4.3)

Recommendation

Create a comprehensive grading rubric that focuses on competency based learning. (4.3, 4.4)

Recommendation

Increase storage capacity as needed and limit student access using doors, gates, or locks. (7.5)

Recommendation

Promote females in a non-traditional trade by using posters, examples, and other supportive materials to increase enrollment. (5.16)

Automotive Technology

Narrative Program Summary

The Automotive Technology Department is very large. The shop space consists of three main shop areas; one for seniors (approximately 6000 square feet), one for juniors (approximately 8000 square feet), and a space for underclassmen (approximately 4000 square feet). Adjacent to each shop area is a related room. Two related rooms are dedicated to the program, although one is shared with Automotive Collision Repair. Each shop area has a locked tool storage area, auto lifts. The shop areas are all connected by large garage doors that can be left opened or closed. The senior/junior shop areas were had identical layouts. The senior shop was very comfortable for the size of the class working in it. The grade 11 shop is sufficient with space to spare. The sophomore shop was smaller, but seemed sufficient for the amount of students enrolled. The shops were all bright, clean, and organized. The shops contained all the proper safety items such as fire extinguishers, safety switches, and evacuation routes. The students all had lockers in the shop. Bathrooms were located nearby in the hallway.

Each shop had a sufficient amount of vehicle lifts. The senior shop has seven lifts and an abundant amount of flat working bays. The junior shop has eight lifts, a state inspection bay, and a plethora of flat working bays. The sophomore shop has four lifts, and alignment machine, and several flat working bays. Students all have access to a locked tool storage and also shared mobile tool carts.

Each grade level can enroll a maximum of 30 students. Each grade level is split in half, so a maximum of 15 students are in shop in grade level each week. There are currently 24 seniors (11 on co-op), 27 juniors (5 on co-op), and 30 sophomores. There are five total females currently enrolled in the program. The enrollment trends remain steady.

Curriculum is delivered by four instructors. There is an instructor dedicated to related instruction (which occurs during academic week), and instructors for grade 10, 11 and 12. The curriculum is derived from the Automotive Technology, James Halderman, textbook with supplemental information coming from Mitchell on Demand, Identifix, and All Data. The book is offered as a hardcopy or an online version. The curriculum aligns with the Massachusetts Chapter 74 standards as well as NATEF (National Automotive Technical Education Foundation). In grade 9 students focus on safety, hand tools, and fastener basics. Students in grade 10 the curriculum includes suspension, steering, alignment, tires, basic electrical, and engine disassembly. Students in grade 11 primarily work on customer vehicles. Curriculum focus is employability, state inspections, brakes, and diagnostics. The goal of the program is to have most junior students employable by April.

The instructors kept students busy on vehicles and assisted students who had questions. Underclass students were working in teams of 4 on a specific task and upperclassmen were working either with a partner or independently. Students were using hand tools, jacks, lifts, scan tools, on-car brake lathe, and other various automotive tools and equipment. Teachers had access to smart boards, computers, and live/mock vehicles to assist in instruction.

Students are graded by a daily grade sheet in five categories, including Uniform, time-on-task, employability/effort, paperwork (learning log), and attitude. Each student completes a daily learning log that highlights the project and skills attained. Instructors assess students using these logs, mastery of NATEF standards, mid terms, and administering a final exam.

Students in the program actively participate in SkillsUSA. Because of COVID-19, participation this year was minimal. They had 2 automotive students participate in the Automotive Technology competition without medal recognition.

The program has articulation agreements with Mass-bay Community College, Nashua Community College, and has an agreement with Ford Motor Company to assist in placing students. Ford also supplies an online learning

platform to students that is useful for remote training.

Graduation rates have been steady for the program. About half of the students go into the field. Some students attend post secondary schooling, enter the workforce in a different capacity, or enlist into the military.

The faculty attends 20 hours of automotive training a year (a NATEF requirement), participates in professional development provided by the school, and were all recently endorsed for SEI.

The overall climate of the program is very positive and professional.

Automotive Technology Commendations

Commendation

The overall appearance and size of the automotive shop prepares the students for working in a large, full scale automotive repair facility. (7.1, 7.3)

Commendation

Creation of a real world environment, by the instructors, that fosters the students ability to obtain employment. (3.1)

Automotive Technology Recommendations

Recommendation

Create a comprehensive grading rubric that aligns with with competency based learning so students can identify specific duties and tasks that are necessary in their technical program. (4.4)

Recommendation

Post learning objectives and daily/weekly lesson plans so students are aware of learning expectations. (4.3, 2.4, 2.9)

Recommendation

Promote females in a non-traditional trade by using posters, examples, and other supportive materials to increase enrollment. 5.16

Major Commendations from the Team (Critical Strengths) Listed by Standard

Major Commendations

Meeting the comprehensive vocational/technical needs for high needs Special Education students in the TOPS program through the Chapter 74 Cafe is a model for other technical schools. (6.1)

The breadth and variety of Student Activities choices demonstrates a respect for diversity, equity and inclusion. (5.1 , 5.2,6.5)

GLTHS for providing transportation opportunities that allow students to stay after school for extra help, IEP accommodations, athletic practices and games. (6.13)

The core values of Respect, Effort, Accountability, Commitment, and Honesty (REACH) that were created by all stakeholders and are embedded in all aspects of the school community and have reduced the number of discipline issues and office referrals. (1.1)

The Resilience in Student Effort (RISE) program provides interventions for students that have been out of school due to medical reasons counseling services, and educational support to help them transition back to their regular schedule. (6.3)

The redesign and renovation investments by the School Board and school leaders to maintain, properly ventilate and protect/secure school property (7.2, 7.3)

The school culture is made inclusive and safe by all members of the GLTHS community, offering students a nurturing environment full of opportunities to explore themselves and the world around them. (5.1, 5.2, 5.14)

The partnership with CVS creates learning opportunities for students in Marketing, Medical Assisting, and TOPs. (2.3, 2.10, 7.8)

Major Recommendations from the Team (Focus Areas for Improvement) Listed by Standard

Major Recommendations

Increase shop space due to increased enrollment as well as alleviate the cramped task stations machine/user locations for a safer learning environment. (7.2, 7.3)

Create and implement a plan to expand space and resources for the freshmen exploratory, junior, and senior environment due to overcrowding and increased student enrollment. (7.2,7.5)

Provide opportunities for common planning time for instructors to collaborate on best practices for both in discipline and across disciplines to promote school-wide learning expectations. (3.4)

Continue the development of common assessments in both trade and academic areas to support a vertically and horizontally aligned curriculum. (2.2)

Complete the development of the school-wide writing curriculum and rubrics, add additional teachers from across disciplines, including CTE to foster a culture of school-wide literacy. (3.3)

Visting Team Response (Narrative) to SSR Section 2

Visiting Team Response (Narrative) to SSR Section 2

The Visiting Team agrees with most of the school's self-identified Critical Strengths. However, the Team does feel that there are some discrepancies between the Team and the School's focus. For example, in Standard 7, although the District provides ample funding and appropriate transportation services, the Team found evidence that the facility in certain trade programs is undersized and the programs are under-resourced given the increase in enrollment.

Standard(s) Critical Strengths

- 5 GLTHS creates a safe and secure school environment for all students and staff with a welcoming and inclusive atmosphere.
- 6 GLTHS provides students with several support services including counseling, Inclusion, social-emotional learning, and the RISE program.
- 7 GLTHS creates and provides a stable fiscal budget that includes all stakeholders.
- 7 GLTHS physical plant and grounds are maintained to the highest standards.
- 1 GLTHS allows students full access to extracurricular activities and athletics by providing extensive transportation options and no user fees.
- 2 GLTHS academic and technical programs are stable in terms of enrollment and resources.
- 6 GLTHS revision of the attendance policy and hiring of an attendance monitor to make home visits to students with attendance issues has resulted in a significant increase in the number of times the school has met or exceeded the state student attendance average of 95%. In the **2016-17SY** the year before the revised attendance policy and attendance monitor position, the school met/exceeded the state average only 40% of the school year. In the **2017-18SY**, the first year of the revised policy and attendance monitor position, the school met/exceeded the state attendance average of 50% of the school year. In the **2018-19SY**, the school met/exceeded the state attendance average of 60% of the school year. In the **2019-20SY**, in which "in-person learning" did not take place for the last 3 ½ months of the school year, the school still met/exceeded the state attendance average 71% of the time.

Concluding Comments

The essential features of the team's view of the school/center

The Visiting Team believes that the evidence collected throughout the visit confirms that Greater Lowell Technical High School is a highly effective school that is characterized by a welcoming and inclusive culture that supports high expectations for teaching and learning within a safe and positive environment. The school has provided many support services that enhance and improve student learning and well-being and support the school's Core Values, Beliefs, and Mission.

Overall comments on the visit

The Visiting Team was appreciative of the school's tremendous efforts they put into preparing for the virtual visit. The school prepared the team to meet with as many staff members as needed to make the visit authentic and realistic. The staff went out of their way to schedule all meetings and also have a live video stream in the trade areas so team members could see the shop areas and students. The same was provided for nontrade areas at the school as well. Being a virtual visit, this added authenticity

The extent to which the school/center is driven by its core values and beliefs

The school is driven by its Core Values and Beliefs as evidenced through the various support services and instructional programs.

The extent to which the school/center is focused on student learning and well-being

The school is focused on student learning and well-being as evidenced by the RISE and TOPS services and the CVS partnership that provides authentic learning experiences.

Some concluding advice and encouragement

The Visiting Team believes that the school should focus on the continued creation and implementation of school-wide literacy strategies and assessments in academics and technical programs to improve student achievement.

Thanks to the school/center and the Visiting Team

The Visiting Team thanks the school for providing outstanding support and collaboration during the virtual visit. The administration, faculty, and school chairpersons did an outstanding job preparing the school.

The team chair and assistant chair express their gratitude to the visiting team for their hard work and collaborative spirit in helping each other with their reports. NEASC extends its gratitude to the Visiting Team for producing a report that will greatly assist the school in its improvement process.

