

U.S. Department of Education
2013 National Blue Ribbon Schools Program
A Public School - 13MA2

School Type (Public Schools): **Charter** **Title 1** **Magnet** **Choice**

Name of Principal: Ms. Sheila Harrity

Official School Name: Worcester Technical High School

School Mailing Address: 1 Skyline Drive
 Worcester, MA 01605-2885

County: Worcester State School Code Number*: 03480605

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I have reviewed the information in this application, including the eligibility requirements on page 2 (Part I - Eligibility Certification), and certify that all information is accurate.

_____ Date _____
(Principal's Signature)

Name of Superintendent*: Dr. Melinda Boone Superintendent e-mail: boone@worc.k12.ma.us

District Name: Worcester Public Schools District Phone: (508) 799-3117

I have reviewed the information in this application, including the eligibility requirements on page 2 (Part I - Eligibility Certification), and certify that it is accurate.

_____ Date _____
(Superintendent's Signature)

Name of School Board President/Chairperson: Mr. Joseph Petty

I have reviewed the information in this application, including the eligibility requirements on page 2 (Part I - Eligibility Certification), and certify that to the best of my knowledge it is accurate.

_____ Date _____
(School Board President's/Chairperson's Signature)

**Non-Public Schools: If the information requested is not applicable, write N/A in the space.*
The original signed cover sheet only should be converted to a PDF file and emailed to Aba Kumi, Director, National Blue Ribbon Schools (Aba.Kumi@ed.gov) or mailed by expedited mail or a courier mail service (such as Express Mail, FedEx or UPS) to Aba Kumi, Director, National Blue Ribbon Schools Program, Office of Communications and Outreach, U.S. Department of Education, 400 Maryland Ave., SW, Room 5E103, Washington, DC 20202-8173.

PART I - ELIGIBILITY CERTIFICATION

The signatures on the first page of this application certify that each of the statements below concerning the school's eligibility and compliance with U.S. Department of Education, Office for Civil Rights (OCR) requirements is true and correct.

1. The school configuration includes one or more of grades K-12. (Schools on the same campus with one principal, even K-12 schools, must apply as an entire school.)
2. The school has made Adequate Yearly Progress (AYP) or its equivalent each year for the past two years and has not been identified by the state as "persistently dangerous" within the last two years.
3. To meet final eligibility, the school must meet the state's AYP requirement or its equivalent in the 2012-2013 school year. Meeting AYP or its equivalent must be certified by the state. Any AYP status appeals must be resolved at least two weeks before the awards ceremony for the school to receive the award.
4. If the school includes grades 7 or higher, the school must have foreign language as a part of its curriculum and a significant number of students in grades 7 and higher must take foreign language courses.
5. The school has been in existence for five full years, that is, from at least September 2007 and each tested grade must have been part of the school for that period.
6. The nominated school has not received the Blue Ribbon Schools award in the past five years: 2008, 2009, 2010, 2011 or 2012.
7. The nominated school has no history of testing irregularities, nor have charges of irregularities been brought against the school at the time of nomination. The U.S. Department of Education reserves the right to disqualify a school's application and/or rescind a school's award if irregularities are later discovered and proven by the state.
8. The nominated school or district is not refusing Office of Civil Rights (OCR) access to information necessary to investigate a civil rights complaint or to conduct a district-wide compliance review.
9. The OCR has not issued a violation letter of findings to the school district concluding that the nominated school or the district as a whole has violated one or more of the civil rights statutes. A violation letter of findings will not be considered outstanding if OCR has accepted a corrective action plan from the district to remedy the violation.
10. The U.S. Department of Justice does not have a pending suit alleging that the nominated school or the school district as a whole has violated one or more of the civil rights statutes or the Constitution's equal protection clause.
11. There are no findings of violations of the Individuals with Disabilities Education Act in a U.S. Department of Education monitoring report that apply to the school or school district in question; or if there are such findings, the state or district has corrected, or agreed to correct, the findings.

PART II - DEMOGRAPHIC DATA

All data are the most recent year available.

DISTRICT

1. Number of schools in the district 34 Elementary schools (includes K-8)
4 Middle/Junior high schools
7 High schools
0 K-12 schools
45 Total schools in district
2. District per-pupil expenditure: 13116

SCHOOL (To be completed by all schools)

3. Category that best describes the area where the school is located: Urban or large central city
4. Number of years the principal has been in her/his position at this school: 6
5. Number of students as of October 1, 2012 enrolled at each grade level or its equivalent in applying school:

Grade	# of Males	# of Females	Grade Total
PreK	0	0	0
K	0	0	0
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0
7	0	0	0
8	0	0	0
9	153	196	349
10	186	177	363
11	156	162	318
12	142	183	325
Total in Applying School:			1355

6. Racial/ethnic composition of the school: 1 % American Indian or Alaska Native
5 % Asian
13 % Black or African American
34 % Hispanic or Latino
0 % Native Hawaiian or Other Pacific Islander
47 % White
0 % Two or more races
100 % Total

Only the seven standard categories should be used in reporting the racial/ethnic composition of your school. The final Guidance on Maintaining, Collecting, and Reporting Racial and Ethnic data to the U.S. Department of Education published in the October 19, 2007 *Federal Register* provides definitions for each of the seven categories.

7. Student turnover, or mobility rate, during the 2011-2012 school year: 7%
This rate is calculated using the grid below. The answer to (6) is the mobility rate.

Step	Description	Value
(1)	Number of students who transferred <i>to</i> the school after October 1, 2011 until the end of the school year.	39
(2)	Number of students who transferred <i>from</i> the school after October 1, 2011 until the end of the school year.	57
(3)	Total of all transferred students [sum of rows (1) and (2)].	96
(4)	Total number of students in the school as of October 1, 2011	1366
(5)	Total transferred students in row (3) divided by total students in row (4).	0.07
(6)	Amount in row (5) multiplied by 100.	7

8. Percent of English Language Learners in the school: 7%
Total number of ELL students in the school: 96
Number of non-English languages represented: 18
Specify non-English languages:

Chinese

French

Portuguese

Spanish
Albanian
Farsi
French Patois
Kpelle
Lao
Mandingo
Nepali
Niger-Congo
Patois
Polish
Somali
Twi
Urdu
Vietnamese

9. Percent of students eligible for free/reduced-priced meals: 63%

Total number of students who qualify: 852

If this method does not produce an accurate estimate of the percentage of students from low-income families, or the school does not participate in the free and reduced-priced school meals program, supply an accurate estimate and explain how the school calculated this estimate.

10. Percent of students receiving special education services: 19%

Total number of students served: 249

Indicate below the number of students with disabilities according to conditions designated in the Individuals with Disabilities Education Act. Do not add additional categories.

<u>8</u> Autism	<u>0</u> Orthopedic Impairment
<u>0</u> Deafness	<u>9</u> Other Health Impaired
<u>0</u> Deaf-Blindness	<u>154</u> Specific Learning Disability
<u>3</u> Emotional Disturbance	<u>7</u> Speech or Language Impairment
<u>0</u> Hearing Impairment	<u>4</u> Traumatic Brain Injury
<u>52</u> Mental Retardation	<u>1</u> Visual Impairment Including Blindness
<u>11</u> Multiple Disabilities	<u>0</u> Developmentally Delayed

11. Indicate number of full-time and part-time staff members in each of the categories below:

	<u>Full-Time</u>	<u>Part-Time</u>
Administrator(s)	<u>6</u>	<u>0</u>
Classroom teachers	<u>120</u>	<u>0</u>
Resource teachers/specialists (e.g., reading specialist, media specialist, art/music, PE teachers, etc.)	<u>5</u>	<u>0</u>
Paraprofessionals	<u>9</u>	<u>0</u>
Support staff (e.g., school secretaries, custodians, cafeteria aides, etc.)	<u>26</u>	<u>0</u>
Total number	<u>166</u>	<u>0</u>

12. Average school student-classroom teacher ratio, that is, the number of students in the school divided by the Full Time Equivalent of classroom teachers, e.g., 22:1:

11:1

13. Show daily student attendance rates. Only high schools need to supply yearly graduation rates.

	2011-2012	2010-2011	2009-2010	2008-2009	2007-2008
Daily student attendance	95%	95%	95%	95%	94%
High school graduation rate	96%	96%	93%	87%	85%

14. **For schools ending in grade 12 (high schools):**

Show percentages to indicate the post-secondary status of students who graduated in Spring 2012.

Graduating class size:	<u>323</u>
Enrolled in a 4-year college or university	<u>30%</u>
Enrolled in a community college	<u>45%</u>
Enrolled in vocational training	<u>3%</u>
Found employment	<u>18%</u>
Military service	<u>2%</u>
Other	<u>2%</u>
Total	<u>100%</u>

15. Indicate whether your school has previously received a National Blue Ribbon Schools award:

No

Yes

If yes, what was the year of the award?

PART III - SUMMARY

February 9, 2010, marked the 100th year anniversary of our school in Worcester, Massachusetts. Worcester Boys' Trade High School opened for classes on February 9, 1910, with 52 students, composed of 29 ironworkers and 23 woodworkers. This opening marked the beginning of vocational education in Massachusetts and makes Worcester Technical High School one of the oldest in the United States.

In August 2006, Worcester Vocational High School moved from the original building to a new \$90 million, 400,000 square foot facility and became Worcester Technical High School. The demographics of the city have changed along with the workforce demands and technology, and the mission of Worcester Technical High School changed to meet those demands.

This year, WTHS is implementing our school's STEM Innovation Plan. This plan provides administration and staff autonomy in curriculum, instruction, professional development, hiring practices, and budgeting. The school has a STEM focus in all academic and technical areas. This plan was developed to meet current industry demands. The mission of Worcester Technical High School is to educate and prepare our students, both academically and technically, to meet the challenges of a global society. In addition, the philosophy of Worcester Technical High School is steeped in a proud tradition of providing excellence in technical and academic education. Administration, faculty, staff, and students work collaboratively to promote a school culture that fosters the expectation of excellence while respecting differences. All students are treated with respect and dignity and are provided diverse, extra-curricular experiences as they pursue their professional and academic goals in a multicultural environment. The educational climate serves to guide, assist, and instill in each student a commitment to lifelong learning and to develop productive, responsible, and well-rounded citizens. All programs are enhanced and supported by partnership with community, industry, and educational institutions, as well as through participation and recommendations of various advisory boards. This educational environment affords all students the opportunity to achieve to their fullest potential. Our philosophy is supported by clearly defined curriculum goals focused to meet or exceed current standards, yet flexible enough to meet the demands of an ever-changing world.

Worcester Technical High School has 1355 students in 24 technical programs within four small learning communities. It is the largest of seven high schools in the City of Worcester, Massachusetts. The demographics of our school consist of: 53% female, 47% male, 63% who qualify for free or reduced lunch, 19% who are special needs, and ethnic backgrounds reflect the city demographics. Worcester Technical High School has met Adequate Yearly Progress (AYP) for "No Child Left Behind" for five out of the past six years. We exceeded our benchmarks in English, mathematics, and every sub-group. In 2012, WTHS also met the Progress and Performance Index (PPI) both in the Annual PPI and the Cumulative PPI.

Worcester Technical High School's graduation rate for the Class of 2012 is 96.4%. Our school's drop-out rate is 1.5%. WTHS's administrators and teachers have high expectations for all students and it is evident in the sub-group population data for graduation and drop-out rates. The rates are as follows:ELL -

- 85.2% graduation rate / 3.7% drop-out
- Students with disabilities - 93% graduation rate / 4.2% drop-out
- Low Income - 95.3% graduation rate / 2% drop-out
- African-American/Black - 96.8% graduation rate / 3.2% drop-out
- Hispanic/Latino - 95.5% graduation rate / 0.9% drop-out

Our students are outperforming the district and state in all sub group populations for graduation and drop-out rates. We are especially proud of our special education student success and the fact that African-American students have outperformed the overall school graduation rate.

Since WTHS opened in 2006, the school and its students have earned several awards and have been recognized for outstanding student success. In 2006, School Planning and Management Magazine awarded WTHS the Impact on Learning Award in the category of non-traditional learning space. In 2009, WTHS was selected as one of 15 public high schools featured in How High Schools Become Exemplary by the Achievement Gap Initiative at Harvard University. In 2011, MetLife and the National Association of Secondary School Principals (NASSP) selected WTHS as a National Breakthrough School Award recipient. This national award is presented to five high schools and five middle schools across the country. WTHS was the only high school selected in New England. The award recognizes schools achieving outstanding student gains in high poverty areas. In addition, in 2011, WTHS was selected by NASSP to be featured at the NASSP/Alliance for Excellent Education event at the nation's capital in Washington, D.C. Also, in 2012 and 2013, WTHS was selected as a Breaking Ranks Showcase School at the NASSP Conferences. Furthermore, in September of 2012, NBC Education Nation selected WTHS as one of 10 schools/programs featured as a Case Study for school districts across the country to replicate for student success. In addition, the school was featured on The Today Show and profiled at the NBC Education Nation Summit on September 25, 2012.

PART IV - INDICATORS OF ACADEMIC SUCCESS

1. Assessment Results:

Part IV – 1A

Worcester Technical High School has seen significant gains in the Massachusetts Comprehensive Assessment System (MCAS) scores. In six short years, in English Language Arts, 88% of our students scored in the advanced or proficient categories, an increase of 61%. In the same time frame, the failure rate decreased 13% from a 14% failure rate down to 1%. In mathematics, 78% of our students scored in the advanced or proficient categories, an increase of 43%. The failure rate decreased 20% from a 23% failure rate down to 3%. In Science, 95% of our current 10th and 11th grade students passed with a 5% failure rate.

WTHS's administration and teachers have high expectations for all students that is evident in ELA MCAS results. In 2012, the overall proficiency or above rate for the school was 88%, the low-income rate was 85%, the African-American rate was 86%, and the Hispanic rate was 87%. Similarly, in the 2011 mathematics MCAS results, the overall proficiency or above rate for the school was 74%, the low-income rate was 68%, the African-American rate was 67%, and the Hispanic rate was 65%. In addition, in 2012, the Hispanic sub-group at WTHS outperformed their peers in the state by 16% in ELA, 13% in mathematics, and 14% in science.

The State of Massachusetts' scoring for the MCAS exams is as follows:

Advanced - Students at this level demonstrate a comprehensive and in-depth understanding of challenging subject matter and provide sophisticated solutions to complex problems (260-280).

Proficient - Students at this level demonstrate a solid understanding of challenging subject matter and solve a wide variety of problems (240-258).

Needs Improvement - Students at this level demonstrate a partial understanding of subject matter and solve some simple problems (220-238).

Warning/Failing - Students at this level demonstrate a minimal understanding of subject matter and do not solve simple problems (200-218).

All students who are seeking to earn a high school diploma must meet the Competency Determination (CD) standard, in addition to meeting all local graduation requirements. Competency Determination Graduation Requirement students must either earn a score of at least 240 (proficient) on the grade 10 MCAS ELA and Mathematics tests, or earn a score between 220 and 238 on these tests and fulfill the requirements of an Educational Proficiency Plan (EPP).

Part IV – 1B

Worcester Technical High School's ELA and mathematics MCAS scores have improved significantly in the past five years. In the 2007-2012 time frame in English Language Arts, the number of students scoring in the proficiency or above categories rose by 32%. Students scoring in the advanced category increased by 17%. Similarly, in the same time frame, in mathematics, the number of students scoring in the proficiency or above categories rose by 21%. In the advanced category there was an increase of 16%.

In ELA, all sub-group populations have shown significant improvement. The ELL students made the most gains increasing by 50% in the advanced and proficient categories and the African-American students increased by 42%. Additionally, in the 2008-09 school year the African-American students

scored at the 83% passing rate which is 5% more than the overall student population passing rate at WTHS. The socio-economic disadvantaged students had the same passing rate as the overall student population. Also, in the 2011-12 ELA MCAS data, the Hispanic students scored one percentage lower than the overall student population.

In mathematics, all sub-group populations have shown double-digit improvement. The ELL students made the most gains going up 31% in the advanced and proficient categories, the Hispanic students increased by 26%, and African-American students increased by 23%. Additionally, the African-American students showed the most growth in the advanced category increasing 24% compared to the overall growth of 16%. Furthermore, in the 2011-12 school year 75% of the socio-economic disadvantaged students passed, coming within 3% of the overall student population passing rate. The Hispanic students were a close second with 68% of the students passing.

The creation of the Instructional Leadership Team (ILT) is the main factor that contributed to the significant gains at WTHS. The ILT consists of the principal, academic and technical department heads, the MCAS specialist, assistant principals, the focus instructional coach, and the career/technical director. The group evaluated the school using multiple data sources and created a data driven focus. The result was the Worcester Technical High School Accountability Plan that established MCAS performance goals, timelines, schedules, benchmarks, and responsibilities. The school accountability plan is a living document that is routinely modified by the ILT. Progress is monitored through lesson plans, samples of student work, classroom observations and evaluations, common assessment outcomes, and MCAS and Measures of Academic Progress (MAP) results. In addition, the ILT has identified best practices and recommends professional development to support the instructional focus.

WTHS's professional development plan has created a structure that recognizes teachers as professionals in their fields and provides opportunities that are teacher, curriculum, and data driven. The school has a focus instructional coach who supports and is responsible for our school initiative by providing weekly in-house professional development in topics such as classroom technology integration, literacy strategies across all content areas, and modeling of best practices for academic and technical teachers.

This has resulted in the commitment to the welfare of the students and the future of vocational/technical education. In addition, through the ILT work, a clear curriculum map was constructed, AP classes were introduced, technical programs have been expanded, and articulation agreements and dual enrollment opportunities were increased with two and four year colleges. This led to students being prepared for state testing in the short term and career and college ready in the long-term. Students at Worcester Technical High School are graduating career and college ready.

2. Using Assessment Results:

WTHS uses multiple data sources to improve student and school performance. Each teacher is given their individual student's assessment data which includes 8th grade ELA, math, and 9th grade science MCAS scores. Also included in this data are the Measures of Academic Progress (MAP) reading and math scores and, if applicable, PSAT results. Based on this information, teachers modify instruction because they know students strengths and weaknesses. Each teacher is given the student growth percentile data based on 8th and 10th grade scores.

In ELA, WTHS tracks the Open Response and Long Composition scores and puts strategies in place to help our students improve their writing. By looking at exemplars from the MA DESE website and helping our students write in a methodical manner, our students were able to improve their writing scores, increasing the numbers of 3 and 4 response scores by 14% over two years. We incorporated a strategy called C.E.I (Claim, Evidence, and Interpretation) and students were able to make claims about what they were reading, find evidence to support their claims, and then analyze the importance of the claim. We focus on topic development and accurately sourcing the evidence either through paraphrasing or embedded quotes.

MCAS data by strand is also analyzed. Based on this analysis, both horizontal and vertical teams determine which strands need to be taught in more depth. For example, in math, after a teacher has taught and assessed a specific strand, the teacher uses a specially-designed study guide created for the specific strand. The study guide is based on previously published MCAS problems that focus on the strand. The advantage of the study guide is that it allows students to see both multiple choice and open response questions on one topic with as much variety as possible. For example, students increased over 15% in the data analysis, statistics, and probability strand from 2010 - 2012. Some questions might require estimation and others might require modeling. This allows for discussion within the classroom on alternative methods that led to success. Based on the student discussion with the teacher, the teacher can see if the students' natural tendency for choice in solving a problem is reliant on sound mathematical principles. These active pursuits by strand influence future teacher planning. ELA also looks at the MCAS data by strand and finds supporting materials to help build knowledge. Excerpts with higher lexile scores, poetry packets, and vocabulary exercises are added to the curriculum to increase student exposure to more complicated text.

The science department also uses MCAS data to improve student achievement. Biology instructors work collaboratively to review the results of students' previous MCAS Biology tests to identify strengths and areas in need of improvement. The results of this analysis are used to modify the department curriculum map and mid-term exam to address concerns. Once the mid-term exam is administered, instructors compare the performance of their students against that of their colleagues. The results of the mid-term exam are then used to assess individual student achievement and provide each student and parent with an individualized plan for after school focused tutoring sessions. This strategy has resulted in WTHS freshman students consistently outperforming the district on the high stakes Biology MCAS, with achievement approaching statewide levels.

In the absence of standardized data, the social studies department uses internal data gathered from its own department and district assessments. The curriculum is built around the Common Core frameworks for Literacy in History/Social Studies. Students are required to read specific primary source documents and answer an open response question using the C.E.I strategy. Other rigorous requirements of the curriculum include mid-term and final exam common assessments which are analyzed for determining knowledge gained. Each student at every grade level is also required to write a research paper containing grade-level primary source documents with common rubric. Monthly meetings are conducted to review pacing guides for the department members to insure all strands from the framework are covered.

The technical trade areas at WTHS center around rigorous and complex text. In order for students to be successful in their technical area, WTHS uses MAP data to understand the reading levels of the students. Students' lexile scores are gleaned from this test and distributed to the appropriate technical teachers. Then the lexile scores of the text are aligned with the students' scores. Where discrepancies exist, specific research based literacy strategies like chunking, annotation, and scanning are put in place to ensure the students can comprehend the text, no matter their literacy level at that time. The Technical areas also use a competency tracker to gauge their students' career and college readiness with stands 4 – Employability Skills, 5 – Entrepreneurship, and 6 – Technology, the common strands that all 24 technical trades share. The assessment results are shared with parents through quarterly grade reports and interims.

3. Sharing Lessons Learned:

WTHS has shared successful strategies with other schools in the district, state, and national professional associations. In 2009, WTHS was selected as one of 15 public high schools featured in How High Schools Become Exemplary by the Achievement Gap Initiative at Harvard University. The principal and three faculty members presented at the Fifth Annual Conference of the Achievement Gap Initiative at Harvard University. In 2011, MetLife and the National Association of Secondary School Principals (NASSP) selected WTHS as a National Breakthrough School Award recipient. This national award is presented to five high schools and five middle schools across the country. WTHS was the only high

school selected in New England. The award recognizes schools achieving outstanding student gains in high poverty areas.

The principal also presented at the NASSP Conference, 2011 Breakthrough Schools Strategies, in San Francisco, California. In addition, in 2011, WTHS was selected by NASSP to present at the NASSP/Alliance for Excellent Education, College/Career/Ready Students: The Role of School Leaders, at the nation's capital in Washington, D.C. In December, 2011, the principal presented at the New England Association of Schools and Colleges Annual Conference, in Boston, Massachusetts. Also, in March of 2012 the principal presented at the NASSP Conference, Breaking Ranks Showcase School, in Tampa, Florida and participated in the NASSP College and Career Readiness National Webinar in August of 2012.

Furthermore, in September of 2012, NBC Education Nation selected WTHS as one of 10 schools/programs featured as a Case Study for school districts across the country to replicate for student success. In addition, the school was featured on The Today Show and the principal was a panelist at the NBC Education Nation Summit on September 25, 2012.

In February 2013, administration will be presenting at the NASSP Conference in Washington, D.C. The school was selected again as an NASSP Breakthrough School.

4. Engaging Families and Communities:

WTHS utilizes many strategies to include families and the community in the success of the students and school improvement. WTHS engages parents and families even before a student walks through the door. Each September a direct mailing goes to the parent/guardian of each 8th grade student inviting their families to "Tech Night," an evening of information and exploration. This multi-sensory presentation provides a balanced and realistic expectation of a WTHS education; highlighting the 24 technical programs with the rigorous academic options. In January, every WPS 8th grader is invited to tour WTHS with their classmates and teachers. These annual events expose each child and their families to the opportunities and options of a vocational/technical education and its successful pathways to career and college.

WTHS has over 350 industry advisors that contribute to the direction and success of the students and school. These individuals create both the General Advisory Board (GAB) and the Program Advisory Committees (PAC's). The GAB meets twice per year with the responsibility of advising WTHS in the planning, operation, and evaluation of vocational/technical instruction. The PAC's are established for each approved technical program and meet more frequently. The PAC's consist of representatives from local business/industry, organized labor, postsecondary institutions, parents/guardians, students, and representatives from registered apprenticeship programs. PAC's are integral partners in the provision of a college-career ready curriculum. They are the front lines for the industries that they represent; providing review and direction as to the trends in training, curriculum, equipment, certifications, licensure, post-secondary education, and careers.

WTHS has established entrustments with industry leaders to ensure that each technical program is meeting the challenge of training students in the latest technology for 21st century skills. In the IT Academy, Cisco, Dell, and Microsoft provided state-of-the-art servers, pc's, and software while Océ and ADOBE provide students the latest in digital design and print technology. In the Alden Design and Engineering Academy, Saint-Gobain ensures students in Automotive Collision are using the newest technology in abrasives, and Harr is providing the Automotive Technology program the most recent developments in the automotive industry. Students in Electromechanical and Machine use current HAAS CNC machines.

Lastly the school utilizes the various media available (Web site, Guidance Quarterly, flyers, public access television/radio, and Connect Ed) to educate and inform parents, guardians, families, and the general public about dates, deadlines and topics of interest that will assist in the success of our students.

PART V - CURRICULUM AND INSTRUCTION

1. Curriculum:

WTHS is a grade 9 through 12, urban, vocational/technical school. Curriculum is guided by The Massachusetts State Curriculum Frameworks (Common Core) and the Vocational Technical Education Frameworks. Students are scheduled in a “week about” model, going to academic classes for a week and technical programs on the opposite week. Freshmen are introduced to all 24 technical programs housed within four small learning communities: Allied Health, Information Technology, Construction, and Engineering during their first semester. The academic curriculum includes four years of mathematics, English, Related Theory (course work related to their technical area), Health/PE, and a minimum of 3 years of science and social studies. Courses are offered on all levels, advanced placement, honors, college, inclusion, and resource room.

What would be considered electives in a comprehensive high school curriculum are embedded within the technical curriculum. For example, AP Environmental Science and AP Computer Science are offered within the students’ technical program curriculum. The strands for each program contain integrated academics with crosswalks to each subject. For example, a student in the Electrical Program will be exposed to curriculum specific to electrical code and residential wiring which is designed to include areas of ELA (technical reading/writing), math (functions to compute loads & wire sizes), science (Ohm’s law defining the relationship between power, voltage, current, and resistance) and engineering/technology (generation, distribution, and storage of traditional and green electricity). Additionally, core academic electives are aligned to technical areas. A student in engineering may elect AP Physics where students in Veterinary Tech may elect AP Biology. In addition, Spanish I & II are offered for six college credits. Math IV, a class recently designed by members of our math faculty along with local colleges, offers students instruction that allows them to test out of non-credit bearing remedial courses at the college level (Math 095 & 099) and enroll directly into Math 100 which is also offered at WTHS for 3 college credits. Virtual High School is also available. WTHS has aligned high school curriculum with college course work and has over 30 articulation agreements with local two and four year colleges. Two examples include: Allied Health students participate in an EMT course, earn 7 college credits and sit for the certification exam. Information Support Services and Networking students can earn 18 college credits from Northeastern University. Students at WTHS are receiving a solid academic foundation supported with college articulation agreements as well as the alignment of industry recognized certifications and skills, providing students the opportunity to graduate both college and career ready.

Art is fully integrated in all 24 technical areas as students learn the arts of their trades to become true craftsmen/women. Art is more prevalent in some of the programs such as Graphic Arts and Culinary Arts, where students design graphic layouts for digital print media or learn how to make visually appealing hot and cold foods, respectively. However, some examples of art in the construction trades include: students in Welding travel annually to the deCordova Sculpture Park and Museum to view metal sculptures and art work, students in carpentry annually design and prepare the “Hearts for Arts”, plumbing students visit the Plumbing Museum to view a unique, trade-specific take on American history, and the painting and design students perform extensive work with colors, fabrics, and materials. Additionally, students in the Machine and Welding trades worked with a local artist and wounded warrior to construct a metal sculpture, “Integro” that was commissioned for the Healing Garden of the Fisher House of Boston. This sculpture was designed to honor and aid wounded warriors and their families during the healing process. Lastly, students have many opportunities to participate in the school clubs such as, Drama, Guitar, Knitting, Chorus, Photography, Art, etc.

With the autonomy in curriculum, instruction, and assessment granted to Innovation Schools, the WTHS instructors can carefully craft the content for their students. Freedoms in instruction allow the faculty to have a shared definition of high quality teaching and learning. Further, instructional coherence provides a

consistent approach to authentic learning, incorporating the successful applied learning model that our technical programs so expertly utilize.

At WTHS the collective efficacy is elevated; we truly believe that the efforts of the faculty as a whole has positive effects on students. It is this premise that supported the request for autonomy within curriculum and professional development. The School Accountability Plan is a tool that WTHS has and continues to use to carefully reflect on prior progress and modify curriculum and instruction to assure continued success. Curriculum alignment and integration experiences incorporate the latest STEM pedagogy across all subjects and grade levels. Instructors are encouraged to create curriculum based on current industry practice and research in their practical fields.

2. Reading/English:

The WTHS English Language Arts four-year course of study includes: AP Language and Composition, AP Literature, honors, college, inclusion, and resource room. Multiple data points, including the disaggregated grade 8 MCAS data, MAP assessments, lexile ranges, and recommendations, are used to place students in the appropriate class. The ELA curriculum is designed to support the WTHS STEM Early Career and College Innovation Plan while meeting Common Core standards.

The Massachusetts DESE believes that students need to be proficient in “reading complex informational text” because most of the texts required in college and the workforce is “informational in structure.” To support this initiative, the DESE released new ELA frameworks in January, 2011. To fulfill the requirements, the English department requires a writing portfolio for each student. Students are required to write papers based on these Common Core requirements. They are expected to write arguments, informative/explanatory, narrative, and research papers based on an agreed upon requirement by grade level. Particularly in a technical school, language skills are imperative in the formation of research papers, product/project requirement documents, and word solving problems. In order to achieve success in any field of study, whether career or college, understanding the essentials of analytical reading and skillful writing are essential for success.

Meeting these requirements is supported by the technology available to the instructors. ELA classrooms have computer access and are equipped with SmartBoards and ELMO document readers. This technology supports the teachers’ instruction and is used for such things as highlighting student exemplars, facilitating whole group instruction and discussion, and supporting student centered discourse. Teachers prepare lesson units in a team environment and support each other by sharing teaching materials, PowerPoint presentations, and varied assessments via a secured shop-share intranet portal.

To improve reading, teachers require outside reading in all AP, honors, and college level classes. Students are expected to read 3 – 4 books outside of classroom reading. To help students reading below grade level, teachers may use guided reading and dialectical journaling. Students may also follow along as the teacher reads and stops to discuss critical elements found in the literature. Students often highlight and circle key terms as they read along. They also use graphic organizers to help them write and re-write often to improve their writing skills.

The ELA curriculum is grounded in the frameworks, but continually adjusts instruction to meet the unique needs of each student and technical program.

3. Mathematics:

The WTHS mathematics program follows the guidelines set forth by MassCore. We provide each of our students four years of math instruction. That instruction is developed using the Common Core Curriculum adopted by Massachusetts. This curriculum was designed to prepare students for career and college readiness. We are in a transitional time period with the curriculum as are most schools. We recognize that

all students did not enter high school prepared for the rigor of the curriculum. Our teachers worked together to develop our Scope and Sequence along with a Curriculum Map for each subject. We recognize the expertise of each of our teachers along with their unique teaching styles. They determine how they instruct students on each topic in the Core Curriculum. They each have MAP and MCAS data for each of their students. They have common textbooks and access to technology including internet access. The teachers have access to Smart Technology including Senteo clickers. They have access to ELMO document readers. Along with access to www.youtube.com/education and the vast resources provided by the internet, the teachers have each other as resources to support instruction. Our teachers, in some cases, have chosen to co-teach to support one another. This has been very successful in our AP Statistics and Math IV classes.

Each of our trades offered at the school has an academic component that includes mathematics in their curriculum. The trade documents have been cross-walked to the Common Core Curriculum. Two of our math teachers wrote four of the state's crosswalk documents. We wrote the documents for the Finance, Biotechnology, Telecommunications, and Electro-mechanical Programs. Integration of trade math curriculum is important to support student success in the vocational and academic areas.

All students have access to after-school help with their instructor. The tenth graders also are provided with MCAS tutoring periodically throughout the school year. One hundred and fifty of our 12th grade students, that need support to be college ready are taking a Math IV course that was developed with Quinsigamond Community College. This course prepares them to test into college credit bearing math courses. Students will receive up to 3 college credits for successful completion of the course.

Advanced Placement Statistics was added for students that wanted a rigorous math course but did not need Pre-Calculus for success in the future college course plan.

4. Additional Curriculum Area:

WTHS offers 24 Career Vocational Technical Education (CVTE) programs. A student's career development can impact his/her educational, occupational, and lifestyle choices, and outcomes. Too often, student indifference, and resulting dropout rates, stem from the perception that school has little relevance. The 21st century skills play a key role in promoting student motivation and achievement. Career development is integrated through all six strands of the CVTE curriculum as a means of promoting student success.

The six strands are as follows:

1. Safety
2. Core Competency
3. Embedded Academics
4. Employability
5. Entrepreneurship
6. Technology

WTHS understands that Science, Technology, Engineering, and Mathematics (STEM) are the lifeblood of 21st Century education, workforce, and economic innovation. The school curriculum focuses on the integration of STEM to solve abstract and concrete problems, think critically and creatively, and communicate and work in teams. This is fundamental to a civil society, marketplace, and military.

Academic strands are embedded within the technical curriculum frameworks to address these 21st Century skills. These overlapping frameworks provide a structure for integrated academic and technical instruction, marked by project-based learning and authentic assessment that is tied to real world application. Authentic learning exists in all technical programs. Some examples include: students service a 125-seat restaurant called Skyline Bistro, a L'Oreal Redken salon and day spa, a 16 bay automotive service center, a full service bank - Worcester Credit Union, a state approved preschool, and most

recently the addition of Tufts at Tech animal clinic.

Tufts at Tech is an animal clinic created by a school partnership with Tufts University to provide affordable animal care for low income families in the Worcester area. Tufts University funds a veterinarian to run the clinic with the help of a rotating crew of Tufts' veterinary students, while WTHS students work alongside the veterinarian and residents assisting with animal care. The clinic charges 75% less than what a regular vet would charge and services pet owners who are on food assistance or living in public housing.

Authentic learning experiences provide opportunities for our students to gain essential skills and knowledge relating to potential college majors and career paths. These experiences align directly with the school's mission to educate and prepare our students both academically and technically to meet the challenges of a global society. Students are graduating from WTHS college and career ready.

5. Instructional Methods:

All students are fully integrated in technical areas and are exposed to differentiated instruction by design. Shop instruction is hands on with verbal, visual, and auditory instruction. Each technical program provides project based learning opportunities to incorporate newly learned skills with an authentic project. This provides an opportunity for students to see the end product of their work through daily projects from fixing brakes in Auto Technology to treating small animals in Tufts at Tech.

All academic courses provide differentiated instruction as well. Where applicable, the technical areas are integrated into the academic instruction. Examples: students in the construction trades are learning vocabulary and technical writing skills related to carpentry, plumbing, and HVAC; in mathematics they learn to apply the slope formula to pitch to correctly design and cut rafter sections or properly align drainage pipes; in social studies they understand the evolution of their trades through the study of the industrial revolution; and the same students are studying dynamic/static loads in physics enabling them to properly calculate load forces. While much of the curriculum is integrated, WTHS does so while meeting the district curriculum frameworks in all categories.

Technology plays an integral role. WTHS has 1500 computers, 150 laptops, 160 Smart boards, and the entire facility has wireless access. The school has four computer labs, three portable laptop carts, and over 200 Senteo student response units (SRU). Just recently the school purchased 50 iPads and 20 ELMO document cameras for student STEM projects and portfolios.

Technology is used to immediately assess student understanding. In mathematics, students use the SRU's to answer math problems. This provides immediate feedback to teachers regarding the percentage of students with understanding of the classroom material and which students need additional support; thus, enabling the teacher to adjust classroom instruction. Technology is also used to accommodate various learning styles. For visual learners, classrooms are equipped with Smart boards and document cameras to present primary source documents, student exemplars, and graphic organizers. For auditory learners, each classroom is equipped with DVD/CD equipment to present video streaming.

Educational opportunities are available after hours through the use of Sharepoint portal and email. Every student has an email account as well as storage space on the school servers. Each teacher has a portal page where they share curriculum, assignments, interesting links, e-books, etc. Students are actively engaged in the use of technology to develop specific academic and industry recognized skills and competencies.

6. Professional Development:

The professional development plan is designed based on the goals of the WTHS Accountability Plan. The plan outlines school initiatives based on formative and summative student data. Professional development

is designed to support teachers in the successful implementation of the school initiative. Please refer to "How High Schools Become Exemplary," by The Achievement Gap Initiative at Harvard University for a description of the implementation of the school's initiative supported by data and professional development.

This year, professional development at Worcester Technical High School is focused on our STEM Initiative as outlined in our WTHS STEM Early Career and College Innovation Plan. This plan ensures that 100% of WTHS graduates will graduate college and career ready to meet this goal. Professional development includes teacher externship opportunities in business, industry, and higher education. Additionally, site visits have been incorporated to align curriculum with industry expectations and recognized certifications. The October 2012 full day professional development day was designed to encourage all staff to connect with over 25 area companies and institutions of higher education. These venues provided faculty the opportunity to create relationships and make valuable connections to ensure our students are making successful career and college transitions. Some examples include: the Electrical Department worked on aligning state electrical frameworks with National Grid's training/educational programs to develop a seamless, trained workforce pipeline. The plumbing and chemistry faculty visited the local water filtration plant and returned with integrated lesson plans on the chemistry of water. The English Department met with Worcester State University's Admissions and English faculty to discuss college expectations and to align high school curriculum with college requirements.

The WTHS Accountability Plan outlines the need to prepare all educators with content knowledge and pedagogy to increase the rigor at our high school. This includes significant professional development funded by Massachusetts Math and Science Initiative (MMSI) to create curriculum for a Pre-Advanced Placement to AP feeder program. Teachers also receive the training necessary to create effective assessments to support student learning and achievement. Worcester Technical High School's professional development plan has created a structure that recognizes teachers as professionals in their fields and provides opportunities for professional development that are teacher, curriculum, and data driven. The Focused Instructional Coach supports our school initiative, providing weekly in-house professional development in topics such as classroom technology integration, literacy strategies across all content areas, and modeling of best practices for academic and technical teachers.

7. School Leadership:

The principal assembled a group of school leaders that included academic and technical department heads, the MCAS specialist, assistant principals, and the career/technical director to form an Instructional Leadership Team (ILT). Initially the charge was to create a vision, instructional focus, and establish goals that ensured student and school success. The group evaluated the school using multiple data sources and was encouraged to share ideas and offer solutions. The result was the WTHS Accountability Plan that established MCAS performance goals, timelines, schedules, benchmarks, and responsibilities. The school accountability plan is a living document that is routinely modified by the ILT. Progress is monitored through lesson plans, samples of student work, classroom observations and evaluations, common assessment outcomes, and MCAS and MAP results. In addition, the ILT has identified best practices and recommends professional development to support the instructional focus.

This team oriented approach was a significant shift from the traditional vocational "top down" leadership style. It embraced collaborations, valued opinions, and appreciated the expertise of the staff. It empowered teachers and supported them as they mastered their craft and became increasingly accountable for their students' achievements. The involvement of all the stakeholders; faculty, staff, parents, advisors, and students has required continual communication and appropriate, thoughtful decision making. This has resulted in commitment to the welfare of the students and the future of vocational/technical education. In addition, through the principal's leadership and recommendations of the ILT, a clear curriculum map was constructed, AP classes were introduced, technical programs have been expanded, and articulation agreements and dual enrollment opportunities were increased with two and four year colleges. This led to students being prepared for state testing in the short term and career and college ready in the long term. Students at WTHS are graduating career and college ready.

PART VII - ASSESSMENT RESULTS

STATE CRITERION-REFERENCED TESTS

Subject: Mathematics

Grade: 10 Test: MCAS

Edition/Publication Year: 2012

Publisher: Measured Progress

	2011-2012	2010-2011	2009-2010	2008-2009	2007-2008
Testing Month	May	May	May	May	May
SCHOOL SCORES					
Proficient Advanced	78	74	70	70	57
Advanced	39	34	34	33	23
Number of students tested	321	337	342	367	323
Percent of total students tested	98	99	99	99	99
Number of students alternatively assessed	0	1	0	0	0
Percent of students alternatively assessed	0	0	0	0	0
SUBGROUP SCORES					
1. Free/Reduced-Price Meals/Socio-economic Disadvantaged Students					
Proficient Advanced	75	68	66	67	53
Advanced	38	27	30	30	22
Number of students tested	188	208	229	219	200
2. African American Students					
Proficient Advanced	63	67	35	65	40
Advanced	33	32	32	24	9
Number of students tested	27	34	31	41	32
3. Hispanic or Latino Students					
Proficient Advanced	68	65	62	63	42
Advanced	29	26	25	26	15
Number of students tested	112	125	114	117	108
4. Special Education Students					
Proficient Advanced	30	41	28	36	17
Advanced	12	5	7	8	3
Number of students tested	51	78	67	65	71
5. English Language Learner Students					
Proficient Advanced	58	44	39	8	27
Advanced	29	8	26	8	11
Number of students tested	35	25	23	13	19
6. White					
Proficient Advanced	85	83	76	73	68
Advanced	46	39	41	37	29
Number of students tested	169	162	179	189	163
NOTES:					

STATE CRITERION-REFERENCED TESTS

Subject: Reading

Grade: 10 Test: MCAS

Edition/Publication Year: 2012

Publisher: Measured Progress

	2011-2012	2010-2011	2009-2010	2008-2009	2007-2008
Testing Month	Mar	Mar	Mar	Mar	Mar
SCHOOL SCORES					
Proficient Advanced	88	77	70	78	56
Advanced	21	18	10	21	4
Number of students tested	322	338	340	366	326
Percent of total students tested	99	99	99	98	99
Number of students alternatively assessed	0	1	0	0	0
Percent of students alternatively assessed	0	0	0	0	0
SUBGROUP SCORES					
1. Free/Reduced-Price Meals/Socio-economic Disadvantaged Students					
Proficient Advanced	85	73	68	78	52
Advanced	17	13	7	21	2
Number of students tested	189	208	227	218	202
2. African American Students					
Proficient Advanced	86	74	67	83	44
Advanced	19	18	6	34	3
Number of students tested	27	34	31	41	32
3. Hispanic or Latino Students					
Proficient Advanced	87	68	63	74	54
Advanced	13	13	3	15	2
Number of students tested	113	125	113	116	110
4. Special Education Students					
Proficient Advanced	51	31	22	29	23
Advanced	2	1	0	0	0
Number of students tested	51	77	67	65	75
5. English Language Learner Students					
Proficient Advanced	69	48	39	38	19
Advanced	6	8	0	0	0
Number of students tested	35	25	23	13	21
6. White					
Proficient Advanced	90	86	74	78	59
Advanced	28	23	16	21	6
Number of students tested	169	163	178	189	164
NOTES:					