TECHNICAL HIGH SCHOOL FEASIBILITY STUDY

Report to the Legislature

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TECHNICAL HIGH SCHOOL FEASIBILITY STUDY

Final Report to the Legislature
Second Substitute Senate Bill 6377
Section 308

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Executive Summary

Washington State Constitution
Article IX, Section 2. Public school system;
The Legislature shall provide for a general and uniform system of public schools. The public school system shall include common schools, and such high schools, normal schools, and technical schools as may hereafter be established. But the entire revenue derived from the common school fund and the state tax for common schools shall be exclusively applied to the support of the common schools.

This is a report of the Technical High School Advisory Committee, formed to investigate and report on the feasibility of creating technical high schools in Washington. The findings presented here address specific questions raised by the Legislature regarding the definition, governance, funding, focus, operation, and accountability of technical high schools.

The Technical High School Advisory Committee (Committee) was convened pursuant to Section 308 of the Second Substitute Senate Bill 6377 of the 60th Legislature. The Committee included representatives from school districts, high schools, skills centers, community and technical colleges, workforce development councils, Workforce Training and Education Coordinating Board (WTECB), Washington Association for Career and Technical Education (WA-ACTE), Washington State Apprenticeship and Training Council (WSATC), and State Board for Community and Technical Colleges (SBCTC). The Office of Superintendent of Public Instruction (OSPI), university and college faculty and administrators, Educational Service Districts (ESDs), Employment Security Department, foundations, industry, businesses, teachers, parents, and students also participated.

Technical high schools would benefit both the students who attend them and public education generally. The unique pedagogical framework envisioned in technical high schools will provide students access to engaging, rigorous and practical educational experiences otherwise unavailable to them. Furthermore, creation of these schools will contribute to our state's drive for innovation, quality and efficiency in all of our public schools — contributing to closing our achievement gaps and improving our state's high school graduation rate.

Recommendations

Create Technical High Schools. The educational benefits of creating technical high schools are well defined and reasonably attainable. Students, educators, various other stakeholders, and the public all stand to reap substantial benefits from the creation of technical high schools. However, the startup cost of creating a system of technical high schools is one that cannot be borne by local school districts alone — especially given the current economic climate. Technical and

financial support from the state is needed to leverage local resources for this effort.

Adopt the term "technical innovation high school." In the past, the term "technical high school" has been used in Washington to identify high school diploma granting programs operated by the SBCTC. In order to differentiate currently designated technical high schools (operated by Bates, Clover Park, and Lake Washington Technical Colleges) from those that are the subject of this report, the advisory committee recommends using the term "technical innovation high schools" as it has for the balance of this report.

Technical innovation high schools would be distinguished by institutional factors as well as unique pedagogical practices. Institutional factors include a legal framework for school governance, partnerships with non-governmental organizations, and funding mechanisms that distinguish them from traditional high schools. As for pedagogy, technical innovation high schools are technology-infused learning environments that provide students with career and college-ready knowledge and skills necessary in high-demand professional/technical occupations such as those in science, technology, engineering and math (STEM) fields.

Accordingly, technical innovation high schools would exhibit the following characteristics:

- An academically rigorous curriculum that integrates career and technical education and academics.
- Learning experiences planned around project, problem, work, and/or place-based activities and real-world challenges.
- Collaboration with neighboring school districts, universities, colleges, parents, students, community, business, and industry in pursuit of innovation, quality, and efficiency.
- Partnerships of educators and representatives from industry and labor mobilized to enrich and accelerate student achievement.
- Student planning for career and college readiness, using effective guidance models such as Navigation 101.
- Parent engagement to help establish high student expectations for learning and career preparation.

OSPI should exercise authority over technical innovation high schools. OSPI's Career and College Readiness division currently oversees many of the practices to be incorporated into technical innovation high schools: Career and Technical Education (CTE), Navigation 101, dual enrollment (Running Start, etc.), skills centers, and STEM programs. Moreover, the collaboration and leadership that binds Career and College Readiness and other OSPI programs like Learning and Teaching Supports, Alternative Education, Center for Improvement of Student Learning, School and District Improvement and Accountability, and Secondary Education, ensure a high level of agency support for and service to technical innovation high schools.

The Legislature should provide funding to support incremental development of technical innovation high schools. State funding will be required to support the incremental development of technical innovation high schools. Initial funding should be made available through OSPI to develop a "Request for Innovation" (RFI) program for school districts that intend to open technical innovation high schools. Funds should be sufficient to support up to eleven projects to be launched in the next biennium for local planning of technical innovation high schools.

The proposed distribution of support will overlay the Washington State Department of Commerce's currently designated eleven Innovation Partnership Zones. These regional Innovation Partnership Zones already promote collaboration among business, research, and higher education institutions. Technical innovation high schools would fit into this existing institutional framework.

"Requests for Innovation" programs would support planning the development of high schools operated or supported by local school districts. These districts already possess the legal authority to establish public schools. However, the Committee envisions the need for these districts to form partnerships and collaborative networks as an essential ingredient in the development, implementation, and sustainability of technical innovation high schools. The schools would need to engage students, parents, and community and regional resources, including ESDs, Workforce Development Councils, Economic Development Councils, and existing public/private partnerships.

Prior to, or concurrent with the RFI process, the Legislature should allocate funding necessary for OSPI to convene a Technical Innovation High Schools Working Group composed of representatives from the same stakeholder groups identified in the legislation authorizing this feasibility study. OSPI and its working group would be tasked with the following activities relevant to the development of technical innovation high schools:

- Evaluate state and federal education reform initiatives and devise plans for their implementation in technical innovation high schools.
- Catalog school and district initiatives and innovations currently documented in OSPI's Consolidated Program Review (CPR), High School Reform Initiatives (HSRI), and feasibility studies.
- Conduct the RFI development process and the selection of projects for funding.
- Establish guidelines for feasibility, planning, start-up, implementation, and operational supports.
- Establish a professional development and training plan for school staff and administrators.

Funding would also be required by OSPI to lead and support the specification, alignment, and development of curriculum that integrates rigorous standards for career and technical education and academic learning at the high school graduation and college entrance levels. Additional funding should be provided to

adapt OSPI data systems to any unique characteristics and expected outcomes of Technical Innovation High Schools.

The Legislature should develop a schedule of capital budget funds to assist school districts with funding construction/renovation of Technical Innovation High School facilities. Because of the sophisticated technology required, technical innovation high schools will have school building and equipment needs that are both more specialized and more expensive than those of a traditional high school. There may be a wide variety of funding mechanisms for developing technical innovation high schools depending on the participation of other governmental and non-governmental entities. However, it is generally expected that at least the development of these schools will require state funding support.

The Legislature should provide enhancements to the basic education allocation for the on-going operation of technical innovation high schools. Personalizing instruction to maximize student engagement is more resource-intensive than traditional classroom-based instruction. More diverse instructional materials, including consumables for student projects, are required. Smaller class sizes facilitate closer interaction between caring adults and students, but obviously require more staff. More staff time is necessary to develop engaging learning activities and rigorous, authentic assessments of student learning. Additional human resources are needed for reaching out to and involving parents, businesses, community based organizations, governmental entities, and post-secondary/higher education institutions in the operation of technical innovation high schools. All of these add up to higher operating costs than those incurred by more traditional schools.

As shown in the following table, and more fully discussed in the full body of this report, the Committee specifies a recommended funding formula for technical innovation high schools that is based upon cost elements applicable to skills centers, CTE programs, and basic education in middle and high schools.

Programmatic Element	Staffing Ratios	NERC Factor
Approved **preparatory** CTE programs *[Funding equivalent to skills center funding]*	16.67 FTE	$ 19,744 per Certificated Staff Unit
Approved **exploratory** CTE programs	18.50 FTE	$ 25,449 per Certificated Staff Unit
Contextual non-CTE courses that meet exploratory CTE standards other than CTE teacher certification *[Funding equivalent to high school CTE funding]*	19.50 FTE	$ 10,445 per Certificated Staff Unit

Summary

Technical innovation high schools can play an important role in closing achievement gaps, improving graduation rates, and producing other public benefits. Technical innovation high schools will increase students' access to engaging, rigorous, and practical educational experiences, and offer them career and college ready knowledge and skills that will prepare them for next steps in

their education and career preparation in high-demand, professional and technical occupations.

There are substantial advantages to be gained by other stakeholders and the public through the development of technical innovation high schools. In addition to providing a valuable educational option for students, technical innovation high schools will benefit parents, businesses, labor, community and technical colleges, institutions of higher education, and governmental workforce and economic development agencies.

The necessary legal and institutional framework for creating and operating technical innovation high schools is essentially in place. There is, however, an unmet need for financial support for the planning and startup of these schools. Accordingly, the Committee recommends that the state fund the solicitation of proposals for and the local planning and development for as many as eleven technical innovation high schools, which will serve as models for promoting the creation of more of these schools across the state.

I. Introduction

SECOND SUBSTITUTE SENATE BILL 6377
60th Legislature - 2008 Regular Session
NEW SECTION. **Sec. 308.**

(1) The office of the superintendent of public instruction shall conduct a feasibility study to create technical high schools in Washington State. In conducting the study, the office shall convene an advisory committee including, but not limited to, representatives from school districts, high schools, skill centers, community and technical colleges, workforce development councils, the workforce training and education coordinating board, the Washington association for career and technical education, the Washington state apprenticeship and training council, and the state board for community and technical colleges. Subject to available funds, the office shall contract with a third party to support the study, including examining technical high school models in other states. (2) The feasibility study shall examine and make recommendations on the following issues:

a) The definition of a technical high school and how a technical high school might differ from current comprehensive high schools, alternative high schools, or skill centers;
b) The governance structure for technical high schools, which may be within a single district, a cooperative of multiple districts, or other new governance structures that may be considered;
c) Funding models and estimated costs to support technical high schools, including both operating and capital funds;
d) Whether technical high schools should focus on particular student populations or be structured as magnet schools or academies with a particular programmatic focus;
e) Whether technical high schools should operate with a two-year or four-year program or with part-time or full-time attendance;
f) The implications of accountability for student achievement with a technical high school, including adequate yearly progress; and
g) Options, strategies, and estimated costs for possible transition of selected current high schools or skill centers to a technical high school model.

3) The office of the superintendent of public instruction shall submit an interim progress report to the governor and the education and fiscal committees of the Legislature by December 1, 2008, and a final report with recommendations by September 15, 2009.

OSPI contracted with the Center for Research and Data Analysis at ESD #113 to conduct the feasibility study. A critical need of the study was to understand the current and projected future innovations in education relating to high schools in Washington. This report chronicles the yearlong feasibility study to create technical high schools which included stakeholder meetings, reviews of other STEM initiatives, high school reform and transformation, drop-out prevention,

intervention, and re-engagement, school improvement, and addressing the achievement gap.

Milken Institute's State Technology and Science Index is a respected report in the United State that includes several reports compiled to measure the economic performance and growth of technology states (Devol, et. al., 2008). Results of Washington's technology and science index rankings compared to other states' rankings are provided in Table 1.

Table 1:

The Milken Institute State Technology and Science Index: Washington		
Overall Ranking		
Rank	**Average Score**	**Year**
5	72.09	2008
6	69.89	2004
6	71.81	2002
Human Capital Investment		
Rank	**Average Score**	**Year**
16	**62.10**	**2008**
8	**66.11**	**2004**
8	**66.60**	**2002**
Research and Development Inputs		
Rank	**Average Score**	**Year**
8	70.88	2008
7	73.06	2004
9	68.47	2002
Risk Capital and Entrepreneurial Infrastructure		
Rank	**Average Score**	**Year**
4	71.82	2008
8	67.33	2004
8	71.33	2002
Technology and Science Work Force		
Rank	**Average Score**	**Year**
4	83.25	2008
7	77.44	2004
6	75.22	2002
Technology Concentration and Dynamism		
Rank	**Average Score**	**Year**
8	72.40	2008
13	65.40	2004
9	77.40	2002

In 2008, Washington ranked 5th overall on the Technology and Science Index behind Massachusetts, Maryland, Colorado, and California in that order. In the rankings, Washington increased its rank in 4 of the 5 indices, including: research and development, risk capital and entrepreneurial infrastructure, technology and science workforce, and technology concentration and dynamism.

However, Washington fell sharply in only four years (2004 to 2008) regarding our Human Capital Investment composite index (8th to 16th). Human capital is viewed as the productive abilities, skills, and knowledge of individuals, and funding that increases these capacities is often viewed as an investment in human capital.

Education is a direct contributor to the growth and development of human capital through enhancement of individual skills. Research supports the conclusion that development of human capital leads to increased income, less reliance on public assistance, lower adult crime rates, civic engagement, and improved health outcomes.

Technical innovation high schools provide another opportunity for stakeholders to invest in the building and developing human capital. Technical innovation high

schools in essence would provide an opportunity for education achievement. At the societal level, increasing educational achievement makes labor more productive, and more competitive compared to that in other countries (Bernanke, 2007). At the individual level, educational achievement is required to obtain and hold jobs that pay enough to maintain a high standard of living (College and Work Ready Agenda, 2008).

The Milken Institute State Technology and Science Index Human Capital Investment Composite rankings for Washington are shown in Table 2. This index should serve as a challenge to the Washington State educational system as it seeks goals, objectives, and specific measures to build human capital. For example, one area of concern is the gap between SAT and ACT scores. This gap hinders students' collegiate choices and competitiveness, especially if they seek to attend out-of-region colleges and universities. Another area of concern, especially given that Washington is such a science and tech-driven entity (i.e., aerospace, bioscience, information technology, energy, health/life sciences, and telecommunications, advanced manufacturing) is that of the science and engineering graduate related participation and degree levels. The Appendix includes another locally derived variable critical to understanding the building human capital. It is a county-level depiction of high school graduates enrolling in Higher Education as reported by the Washington State Educational Data and Research Center. It is shared as another potential indicator to Human Capital Investment as well as the following Milken institute indices.

Table 2:

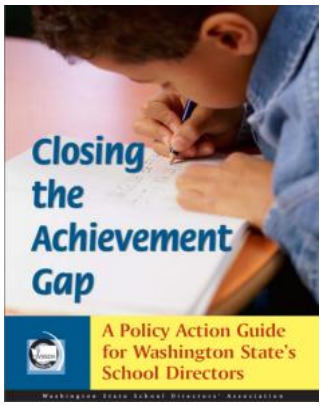
Washington State Human Capital Investment Composite Index for 2008

Human Capital Investment Composite Index (Subcomponent)	Rank
Average ACT Scores (2007)	3
Percentage of Households with Computers (2003)	4
Percentage of Households with Internet Access (2003)	6
Number of Doctoral Scientists per 100,000 People (2003)	10
Percentage of Population Age 25+ with Bachelor's Degree or Higher (2006)	13
Percentage of Population Ages 25+ with Advanced Degrees (2006)	13
Number of Doctoral Engineers per 100,000 People (2003)	14
Per Capita State Spending on Student Aid (2005-2006)	14
Percentage of Population Ages 25+ with PhDs (2006)	14
Science and Engineering Postdoctorates Awarded per 100,000 People Ages 25 - 34 (2005)	15
Per Capita State Appropriations for Higher Education (2007)	20
Percent Change in State Appropriations for Higher Education (2006-2007)	23
Average Math SAT Scores (2007)	25
Average Verbal SAT Scores (2007)	25
Percentage of Bachelor's Degrees Granted in Science and Engineering (2003)	27
Recent PhDs in Science and Engineering per 1,000 Civilian Workers (2005)	27
Science and Engineering PhDs Awarded per 100,000 People Ages 25 - 34 (2005)	29
Recent Bachelor's Degrees in Science and Engineering per 1,000 Civilian Workers (2005)	32

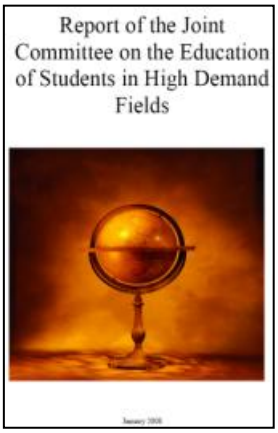
All Recent Degrees in Science and Engineering per 1,000 Civilian Workers (2005)	35
Recent Master's Degrees in Science and Engineering per 1,000 Civilian Workers (2005)	43
Percentage of Graduate Students (Ages 25 - 34) in Science and Engineering (2005)	44
Source: Milken Institute (2008). State Technology and Science Index. Retrieved June 9, 2009 at http://www.milkeninstitute.org/tech/tech.taf?state=WAandsub=hcicandyear=1	

Washington's economy is intricately related to ensuring that our citizens are educated well enough to qualify for jobs that can support a small family (i.e., family-wage jobs). Education First Consulting in collaboration with Partnership for Learning and the College and Work Ready Agenda (2008) in *Improving the Odds: Preparing Washington Students for Family-Wage Jobs from the College and Work Ready Agenda*, states that this means assuring that a high school diploma indicates that a student is prepared for post-high school education and training. While education reform efforts have made improvements, efforts to date have not been enough for students to successfully pursue their dreams of support themselves and their families.

In 2002, the Washington State School Directors' Association (WSSDA) Achievement Gap Task Force invested more than 150 hours in studying issues culminating in the *Closing the Achievement Gap: A Policy Action Guide for Washington State's School Directors* report (Boeck, 2002). WSSDA found an achievement gap in districts and schools across Washington and noted that it was not restricted to only those districts or schools with high percentages of students of color or students from low-income families.



More recently five additional studies revealed that the achievement gap in Washington continues to permeate the educational system and additional progress needs to be made in addressing the disparity between the performance of groups of students, especially groups defined by gender, race/ethnicity, ability, and socioeconomic status. "Many students are in demographic groups that are overrepresented in measures such as school disciplinary sanctions; failure to meet state academic standards; failure to graduate; enrollment in special education and underperforming schools; enrollment in advanced placement courses, honors programs, and college preparatory classes; and enrollment in and completion of college" (Senate Bill 5973, 2009).



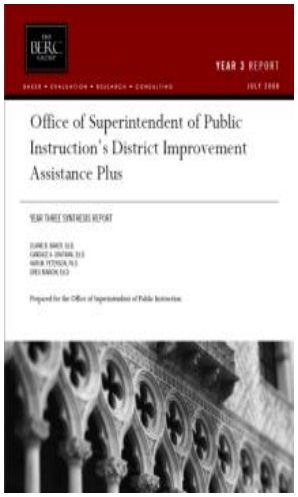
A Report of the Joint Committee on the Education of Students in High Demand Fields (2008) found that the supply of baccalaureate level graduates in high-

demand fields is less than half the anticipated demand through 2012. To address this gap the committee recommended better marketing to middle school or high school students, with a focus on low income and underrepresented communities. Given the changing demographics in Washington, this makes sense; but there still is a gap as highlighted by the large number of high school graduates requiring remedial mathematics upon entering the state's two-year and four-year colleges and universities.

As reported in the School Finance Redesign Working Paper #26, *Performance Pressure and Resource Allocation in Washington* (2008), the educational system's complexity works against its productivity, constraining efforts to use funds in coherent and strategic ways. Too often, reforms and interventions take place on the margins of education spending, and lack of capacity and motivation and competing political interests impede educator and policymakers' efforts to align resource expenditures with student needs. "The study findings indicate that students take a backseat to special interests in a complicated, inefficient, and nonstrategic system—a system that must be changed if the state is to reach its educational goals" (98).

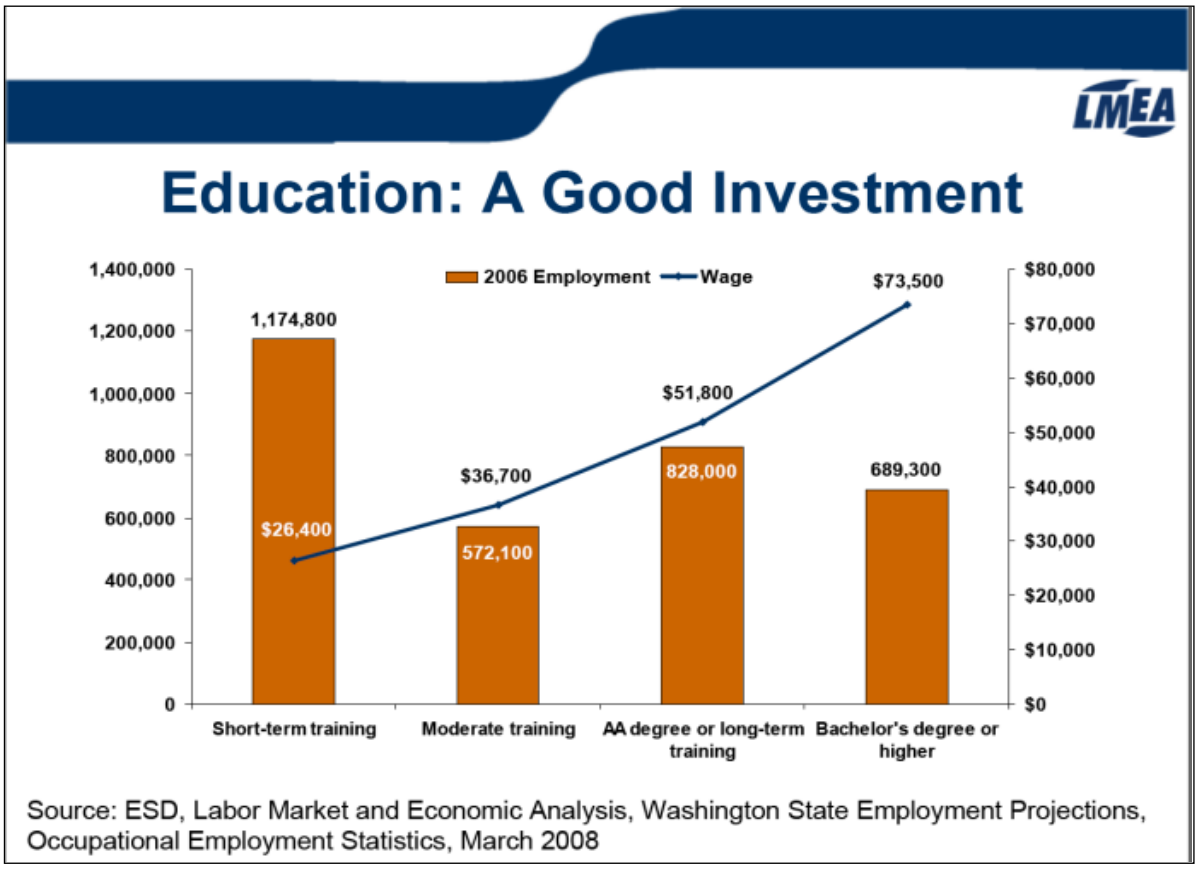
OSPI is engaged in multiple comprehensive initiatives to support high schools in their efforts to ensure all students graduate with skills and knowledge needed to successfully engage in college and career opportunities. In one such initiative, OSPI reviewed research on the characteristics of effective schools. Nine common characteristics were identified: (a) clear and shared focus; (b) high standards and expectations; (c) effective school leadership; (d) high levels of collaboration and communication; (e) curriculum, instruction and assessment aligned with standards; (f) frequent monitoring of teaching and learning; (g) focused professional development; (h) supportive learning environment; and (i) high levels of community and parent involvement (Shannon and Byslma, 2007).

OSPI's *High School Reform Initiative* (HSRI) (Baker, et. al., 2008) addressed school systems and programs needed to support improvement of leadership and instructional practice. The reform initiative evaluated the High School Improvement Initiative (HSII), High Schools That Work (HSTW), and Successful Practices Network (SPN). They found that improvements were more evident in the HSII and HSTW schools, which may be related to the focus and the amount of support and resources available to the schools. However, the researchers did find that promising practices emerged throughout the three years of the initiative. Some key promising practices demonstrated by HSRI schools include becoming more focused and organized in improvement efforts, involving more staff in and clarifying the decision making process,



using data to make decisions, increasing openness around instructional practice, and creating school networks.

Most of the pathways to post-secondary degrees in high demand fields require strong precollege preparation. Even though important changes in instruction have occurred in recent years our basic method of teaching has remained



substantially the same. Most instruction is still characterized by the "stand and deliver approach." Fred Newman has even written that "students exposed to authentic intellectual challenges are more engaged in their school work than students exposed to more conventional school work." Active authentic learning is a critical component in designing educational experiences for the 21st century. Such active learning comes from experience, from work, from service to others, from tutors or peers, from laboratories, from performances, from technology, or from partnerships, mentorships, and internships.

Washington must continue to work on developing a world-class educational system to meet the demands of its future by building human capital. There is also a need to relentlessly pursue strategies for struggling and discouraged learners, and to assist educators in exploring pedagogies that enhance student achievement. This means that there is a concomitant need to explore and require authentic intellectual work of all students (De Wys, Bowen, Demeritt, and Adams, 2008). Failure to do this will result in the continued decline of Washington's human capital. As shared in the chart above, Washington State Employment

Security Department, Labor Market and Economic Analysis recognizes that education is a good investment when looking at the potential for citizens to increase their odds of earning a living wage (Mills, 2008). It is imperative that our educational system be built on and by our diversity of students and educators. Our educational system must strive to be responsive in providing opportunities for innovative ways to provide students and educators the skills and knowledge they need to meet the challenges of the 21st century.

II. Process

The Career and College Readiness division at OSPI contracted with the Center for Research and Data Analysis at ESD #113 to conduct the feasibility study. The study lead was Dr. Todd Johnson who is the Director and he was assisted by Mike Hickman, Assistant Superintendent of Student Support services with ESD #113. Additional research and evaluation services were provided by Bill Olfert, Director of Research and Planning with CTE services and Tom Hulst, Former ESD #113 Assistant Superintendent.

Initial activities included contacting representatives from the legislatively recommended areas to serve as the advisory committee that included school districts, high schools, skill centers, community and technical colleges, workforce development councils, the WTECB, the WA-ACTE, the WSATC, and the SBCTC. Also included were representatives from universities and colleges, business, industry, manufacturing, labor market and economic analysis, ESDs, and several consultants. Following the first meeting and committee recommendations, additional representatives from organized labor representatives for education, school district business managers, teachers, and students were included in the study.

The first Technical High School Advisory Committee meeting was in September, 2008, at New Market Skills Center in Tumwater, WA. This was the first of three advisory committee meetings with the purpose of the meeting in sharing with the committee national, state, and technical high school issues (definition, governance, and funding). In addition, feedback was acquired from the committee regarding legislative directed questions of definition, governance, funding, focus, operation, accountability, and transition regarding technical high schools. The meeting was facilitated by Dan Gohl, Former Senior STEM Consultant with TIES Teaching Institute for Excellence in Science, Technology, Engineering and Mathematics.

Morning presentations were by: Jeff Estes, Manager, Science and Engineering Education, Pacific Northwest National Laboratory (Operated by Battelle for U.S. Department of Energy); Theresa Britschgi, Director, BioQuest, Seattle Biomedical Research Institute; Ed Halloran PE, CMfgE, Campaign Director, Dream It Do It; Robert Olsen, Ph.D., Professor and Associate Dean, College of Engineering and Architecture, Washington State University; and Dan Gohl, Former Senior STEM Consultant, TIES Teaching Institute for Excellence in STEM (Science, Technology, Engineering, and Technology). *(See Appendices)*

Afternoon presenters included the following: Aviation High School in Highline School District by Reba Gilman, CEO/Principal and Scott McComb, Coordinator, Internships, and Mentoring; STEM High School in Tri-Cities by Dennis Maguire, Ph.D. Pasco School District; Spokane Health Sciences Academy with Spokane Public Schools by Jon Swett, Executive Director for High Schools and Don Howell Director, Spokane Skills Center; and New Market Skills Center in Tumwater, Washington by Joe Kinerk.

The second Technical High School Advisory Committee meeting was in March, 2009, at New Market Skills Center in Tumwater, WA. The purpose of this meeting to explore, discuss, and gather consensus regarding the definition, governance, and explore whether technical high schools was the appropriate name of these schools. In addition, committee attendees responded and provided additional feedback and thoughts regarding the first meetings input regarding technical high schools definition, governance, funding, focus, operation, accountability, and transition.

A presentation was made by Amy Ochander the Delta High School Project Manager to update the committee regarding their activities. Delta is open to students living in the Kennewick, Pasco, and Richland School Districts. Delta High School is a small, public high school dedicated to students who choose to direct their future in a highly personalized, open, and trusting learning environment. Students will learn inside and outside of the classroom to create a culture of creativity, exploration, and innovation. The elements of science, math, technology, and engineering (STEM) are woven into every subject. At Delta, students will be brought together from a variety of backgrounds to create one unified community that learns together and from each other. Delta High School will be opening to its first class of about 100 ninth graders in fall 2009. *(See Appendices)*

The third and final Technical High School Advisory Committee meeting was held in April, 2009, at New Market Skills Center in Tumwater, WA. The purpose of this meeting was to collect final thoughts regarding the legislative directed questions of definition, governance, funding, focus, operation, accountability, and transition.

A presentation was made by Caroline King, Policy Manager with Partnership for Learning and Melissa Heaton, Collaborator with Education First Consulting. They presented on an initiative in Washington that is underway that will launch a statewide math and science achievement strategy fueled by dynamic leadership, effective public and private investments and dramatic change. It is being lead by the Washington Roundtable that includes the top 40 CEOs in Washington State. At the present time, a working group comprised of key private funders: Battelle, Microsoft Corporation, The Boeing Company, Paul G. Allen Foundation and Bill and Melinda Gates Foundation staffed by the Washington Roundtable and Partnership for Learning. The group is being informed by outreach to STEM industry workers, state agency partners, state policy leaders and a broad cross section of K-12 and higher education leaders. *(See Appendices)*

A second presentation was made to the Committee by three students from Aviation High School. These students described their experiences with Aviation High School, which is the only college preparatory aviation-themed high school in the Northwest. As a goal they seek to become the premier school of choice for science, technology, engineering, and math (STEM) in the Pacific Northwest. They opened in 2004 with the inaugural class of freshmen and are now at near capacity of 400 students in grades 9-12. Although Highline Public Schools is the

home of this unique learning community, students throughout the Puget Sound region apply. Many are drawn by the school's focus on math, science and technology, but others as these students shared were simply drawn by the unique approach to teaching and learning. *(See Appendices)*

III. Recommendations

The purpose of the Technical Highs School Feasibility Study was to examine and make recommendations regarding the definition, governance, funding, focus, operation, accountability, and transition in that order in creating technical high schools. Following are the findings regarding each of the questions that were posed by the Legislature.

A. The definition of a "technical high school" and how a technical high school might differ from current comprehensive high schools, alternative high schools, or skill centers

Recommend that "Technical Innovation High Schools" be the term used to designate this new category of public school

The advisory committee recommends using the term "Technical Innovation High Schools". Currently "Technical High School" is a term being used by the SBCTC. Instead, technical innovation high schools instead would be operated by school districts and would be recognized by the fully integrated curriculum combining rigorous career and technical education leading to industry recognized certification with contextualized academic instruction. The advisory committee recommended that the Legislature focus efforts on technical innovation high schools operated by public school districts so the greatest number of high school students can benefit. Further delineation can be found in technical innovation high schools host of community and regional partners, including parents, businesses, labor, community and technical colleges, higher education, and other governmental agencies such as workforce and economic development entities.

Washington has three "Technical High Schools" that were "grandfathered" in many years ago to serve the needs of high school students. The three programs are Bates Technical College in Tacoma, Lake Washington Technical College in Kirkland, and Northwest Career and Technical High School located at Clover Park Technical College in Lakewood. These "technical high schools" originated from Vocational Technical Institutes which were originally conceived by local K-12 school districts. Following the Community College Act (1967), Washington started to form the early statewide system of community colleges. This act also provided the option of these vocational-technical institutes to remain under the direction of the local school board. However, with Engrossed Substitute Senate Bill 5184 all of the vocational-technical institutes converted to technical colleges with the Washington's Community and Technical College Act of 1991, providing for a state system of community and technical colleges separate from both the public secondary schools and four-year institutions (SBTC, 2009). Essentially since 1991 these programs have been serving high school students under the direction of the SBCTC and not under OSPI.

Technical high schools are located throughout the United States, but there is no single definition of what a technical high school is and the working definitions of

them vary from state to state. The following are representative samples of how states have defined them and how one national organization is establishing technical high schools in eight different states:

Idaho State[1] has Professional-Technical High Schools that deliver high-end technical education programs that go beyond the scope of career and technical education programs in the comprehensive high school. Currently they have 12 technical high schools with 129 programs that include connections within and among technology, science, mathematics, communications and other academic disciplines. In order for these schools to be determined a technical high school they must meet 4 of the following 5 criteria:

1. Serves students from two or more attendance zones with at least 15 percent of the students residing in a different attendance zone from the main student body;
2. Majority of classes have dual credit options with postsecondary;
3. All programs have at least one supervised field experience;
4. School is administered and funded as a distinct school;
5. Facility is located at a site or at an approved State Board of Education cooperative service agency separate from the regular high school.

Connecticut[2] is a statewide governed system that operates the Technical High School System (CTHSS) with 17 high school diploma-granting technical high schools and one technical education center. The Superintendent of the Connecticut Technical High School System acts as Secretary to the Committee and the Connecticut Technical High Schools Committee reviews and makes recommendations to the full State Board of Education on all matters related to the Connecticut Technical High School System. Statutes were designed to encourage high schools to be innovative and participate in reform activities by having local educational authorities partnering with their local postsecondary educational institution(s) to establish a high school program that would target students who are at risk of dropping out of high school before attaining a high school diploma or a program that would offer accelerated learning opportunities.

Delaware[3] has a public school population of 113,598 students within 19 separate school districts serving the state's three counties. Sixteen of the 19 districts are traditional school districts which provide educational services from kindergarten through 12th grade. The remaining three operate as independent, countywide career-technical school districts which provide comprehensive educational programs for students in grades 9 through 12. Students from the traditional public school districts, and private and parochial schools, must choose to apply for admission to a career-technical high school through these three districts.

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[1] IDAPA 55 *Administrative Rules for Professional-Technical Education* http://www.pte.idaho.gov/AboutUs/IDAPArules.html

[2] Connecticut Technical High School Committee of the State Board of Education http://www.cttech.org/central/vt-board/index.htm

[3] *Southern Regional Education Board High Schools That Work* http://www.sreb.org/programs/hstw/becoming/

For Delaware, in the three countywide career-technical school districts, students choose to attend five high schools, which offer comprehensive academic curriculum and rigorous instruction in over 30 career programs of study. Students at the career-technical schools benefit from an integrated curriculum approach which provides application of concepts and skills to their chosen career career-technical area of study. Students attending career-technical high schools need a minimum of 25 credits to graduate. In addition, each career-technical high school has its own athletic and extracurricular programs and activities.

Delaware has the only statewide system of full-time comprehensive career-technical high schools which is using the *High Schools That Work* framework. The key practices of the HSTW program have created a mission and focus for career-technical education that integrates modern technical studies with the equivalent of college prep curriculum in language arts, mathematics and science. Career-technical competencies are closely tied to the workplace requirements set by industry associations and state licensing bodies. Concentrating on a focused program of study for everyone, building the capacity for all students to achieve, maximizing critical partnerships, and holding the schools accountable for results have led to some dramatic improvements in the performance of Delaware's career-technical students.

New Technology High Schools (NTHS)[4] started in Napa, California in 1996 and now serve 400 students in grades 9-12. New Technology High Schools is a model supported by The New Technology Foundation (NTF). The model is not that of a technology skills school; instead it is a regular high school curriculum, 100 percent project and problem-based learning. The current model is customizable around any theme. NTHS also features a 1:1 ratio of computers to students and each student maintains a Professional Portfolio of their work. The NTF is a school development organization that supports the start-up and implementation of 21st Century Schools based on the model. The national Network of NTHSs comprises nearly 60 schools, with 9 of 11 starting up in 2007-2008 being STEM-focused schools. NTF works with districts and schools to provide extensive, systemic school development that creates a significantly different learning environment for students. Through intensive teacher training, ongoing support through coaching, leadership development, and a suite of web-based tools, NTF is able to create and manage a 21st century learning environment.

The Technical High School Advisory Committee shared that "Our definition should be inclusive rather than exclusive" and others shared that "Our definition should be connected to basic education funding so it can't be reduced or eliminated during economic downturns." Several of the committee members shared that the definition needs to be related to science, technology, engineering, and mathematics and others felt it needed to be broader than those four areas. Although this is a pretty good summative of a definition, the entire committee shared "We must be sensitive in crafting a definition that will allow for

[4] New Tech High Schools, Network of Schools
http://www.newtechfoundation.org/initiatives_network.html

these schools in any part of the state, so there is equity of access for all students. What works in King County may not be possible in a small rural community in eastern Washington." Based on committee feedback, following is what could be considered as an early version of a working definition to technical innovation high schools.

The Technical High School Advisory Committee recognized that these technical innovation high schools are technology-infused learning environments providing students with career and college ready knowledge and skills that seamlessly transition them into the next step of their education and career preparation for high-demand professional-technical occupations, such as those in STEM fields. In order to achieve this goal, these technical innovation high schools would embody the following characteristics:

- Academically and technically rigorous integrated curriculum including career and technical education and contextualized academics.
- Learning experiences that include project, problem, work, and/or placed based activities to explore real-world challenges in real and virtual environments.
- Collaboration with neighboring school districts, universities, colleges, parents, students, community, business, and industry for innovation, quality, and efficiency.
- Partnerships of educators and representatives from industry and labor mobilized to accelerate and enhance student achievement.
- High school and beyond planning for career and college readiness, using effective guidance models such as Navigation 101.
- Engagement of parents in their student's learning to establish high expectations for learning and career preparation.

Overall, the Technical High School Advisory Committee did recognize the importance of these schools, but by providing a definition of them right now could hinder current and future innovation. The committee felt the Legislature should allocate funding necessary for OSPI to convene a "Technical Innovation High Schools Working Group." The working group should be composed of representatives from the same stakeholder groups identified in the legislation authorizing this feasibility study. The reason for this working group is because many felt that over the next year, given the educational and economic pressures, innovation will increase exponentially and this working group could assist OSPI in cataloging, collecting, planning, and identifying innovations.

B. The governance structure for technical high schools, which may be within a single district, a cooperative of multiple districts, or other new governance structures that may be considered

Recommend that OSPI be granted authority over Technical Innovation High Schools

Technical innovation high schools, since they would be serving high school students, fall first and foremost under the guidance and direction of the OSPI. In

fact, Washington's RCW 28A.315.005 regarding school governance structure states that:

1. Under the constitutional framework and the laws of the state of Washington, the governance structure for the state's public common school system is comprised of the following bodies: the Legislature, the governor, OSPI, the State Board of Education (SBE), the ESD boards of directors, and local school district boards of directors. The respective policy and administrative roles of each body are determined by the state Constitution and statutes.
2. Local school districts are political subdivisions of the state and the organization of such districts, including the powers, duties, and boundaries thereof, may be altered or abolished by laws of the state of Washington.

The Committee heard and discussed how some schools are currently serving numerous school districts and even crossing educational service districts. The committee explored many of the current and potential governance structures available to establish and sustain technical innovation high schools like inter-local cooperative model with local agreement, modified inter-local cooperative model, with ESD and Workforce Representation, nonprofit with no advisory council of education representatives/subsidiary board of business/labor, nonprofit public/private partnership, incorporated public board with ESDs as a fiscal agent, SBCTC, OSPI and/or SBE, government executive leadership model, and other locally developed and approved models. Given all of these variations, it was clearly apparent to the committee that an essential ingredient to the creation of technical innovation high schools would be the need for communication and collaboration with neighboring school districts, universities, colleges, parents, students, community, business, and industry for ongoing innovation, quality, and efficiency.

The committee recognized the complexity and limitations to providing a specific governance structure as a single answer to meet all of the potential variations that a locally developed technical innovation high school could pose. However, OSPI's Career and College Readiness has many of the innovations related to technical innovation high schools, such as CTE, Navigation 101, dual enrollment, skill centers, and STEM. The connections that exist between the Career and College Readiness division and other OSPI administration like Learning and Teaching Supports, Alternative Education, Center for Improvement of Student Learning, School and District Improvement and Accountability, and Secondary Education could be leveraged to ensure the highest level of agency support and governance.

C. Funding models and estimated costs to support technical high schools, including both operating and capital funds

Recommend the Legislature provide funding to support incremental development of technical innovation high schools

Funding will be required to support the incremental development of technical innovation high schools and as an initial step, funding should be made available

to OSPI to develop a “Requests For Innovation” (RFI). Financial allocations should be sufficient to support up to eleven (11) projects to be conducted during academic year 2010-2011. These state funds would support local planning of technical innovation high schools to become working pilots.

During the past year, the Legislature has made large strides regarding Basic Education Funding (ESHB 2261) in Washington, and it just is not plausible in a one-year feasibility study to capture the operating and capital expenses for these schools. However, given the development of the Quality Education Council (QEC) and several working groups, it appears a relationship with these technical innovation high schools could prove beneficial for actually capturing and understanding the costs of these schools. By understanding the costs of these evolving and working technical innovation high schools, OSPI and other stakeholders will be in a better position to understand how much it costs to form, transition, modify, and support these schools of the future. However, as discussed in length in the Basic Education Funding bill our current system has limitations for funding models and estimated costs to support technical innovation high schools. Therefore, these limitations are reflected here in the inability to provide explicit dollar amounts and the need for anecdotal information in lieu of hard fiscal data.

Aviation High School is in Highline Public School District and is presented as an operational model that is potentially similar to the technical innovation high school model. Aviation High School is intentionally designed as a small, personalized learning environment that facilitates creation of strong relationships between students, students and teachers, and the school and community. Aviation High School enrolls 100 students in each grade level reaching its maximum enrollment of 400 students in grades 9-12 in 2008.

Planning and Staff Related Costs

This is the major cost center for most school programs and this is no different in this technical setting. The first and most expensive component is the enriched staffing ratio needed to provide the various specialized instruction and individual attention needed to convey a densely technical curriculum. The current ratio of students to certificated staff is 22:1. This compares to a host district ratio for the regular program of 28.5:1. This equates to an improved staffing ratio of almost 30 percent over current allocation results for the regular basic education program. The major difference appears to be the fact that all certificated staff assigned to this program are in the classroom, unlike a regular program, which has allocated certificated staff involved in non-classroom duties. This change alone provides a significant improvement in teacher to student ratios. Ultimately, the goal would be to have an additional four teaching certificated staff to give a 20:1 ratio that provides what is needed for both enriched and remedial learning in math and science. By way of comparison, Career Technical Education is funded at a 19.5 to 1 (grades 7-12) and Skill Centers at a 16.67:1 ratio.

In addition, the staff requires a much more intensive professional development component. This training need is evident in two places. First, during the development and evolution of the current program, there were a significant number of professional development days for the staff to develop curriculum, devise alternate teaching strategies, and to just become familiar with the advanced level of information that would become the classroom norm in the new school. These extra days were paid for with a Bill and Melinda Gates Foundation grant and provided 20 days each for the first two years and 10 days for the third year of operation. Now, in its fifth year of operation, the school has no extra time other than that allocated for all district schools (three days this past year and two in the future). This extra time was essential for the staff to develop advanced curriculum that related to the topical theme of the school and that would meet the advanced educational goals of a program connected to the aviation and aerospace industry.

These costs are related to a one-time start up cost to begin such a program and would be needed to start other similar programs. Additionally, there needs to be an improvement in the ongoing professional development time being made available. The school is currently operating with the “regular” amount of district-approved professional development (paid) time, which is proving to be less than satisfactory because of the following: inability to appropriately induct new teachers into the unique teaching and learning model; lack of time for teachers and industry experts to collaborate on cross-curricular and grade-level learning projects that incorporate the theme of the school; inability for teachers to make visitations to various industry sites to learn expectations within the workplace so that relevance can be incorporated into the curricula; lack of dedicated time to use data to inform decision-making, and in this particular school’s case, to design assessments that provide information about student learning.

An industry connected school model, such as Aviation High School, depends upon project-based learning. The key component with themed high schools is to be able to backwards design curriculum to align it with the school’s central theme. This means that every unit of instruction takes considerably more time to develop and then to revise based on field testing with students. The curriculum is not the textbook, and it is not static. It changes on an ongoing basis as the school staff learns more about how their students learn and as relevant technology evolves within the school’s themed focus. To be successful, the school’s model of teaching and learning requires that additional time be made available to school staff beyond the district’s contract year.

Non-Employee Costs

Again, specifics are hard to identify given the paucity of the current accounting data. Examples include a need for laptops for each student that would need to be replaced at least every four years. Other equipment costs and replacements are more expensive than just buying textbooks in a regular program. Maintenance of this equipment is higher than more traditional programs to maintain in relation to

industry standards and practices and student leadership organizations critical to student success also come with a cost.

The current program is dependent on donations and other small grants to the school to pay for a portion of the costs. Mixed into this is the expense of the co-curricular and extra-curricular activities related to this type of specialized program. Levy support for traditional athletic programs to supplement fees is common. In this school, the athletic activities are replaced with other curriculum-related activities, which would not qualify for levy supplementation or lend themselves to reasonable fee levels. These activities are a prime focus for private sector involvement and this is being exploited to a great extent. The need still exists for reliable funding to ensure that these important “sports of the mind” activities can be offered. They are as vital to the school culture as a football or basketball team might be to a comprehensive high school.

Capital

Capital funds for technical innovation high schools vary upon the needs and demands of the local school being proposed. For some it would require the development of a new school, others it would be re-modeling, while others it may require nothing. Following is a specific example of Aviation High Schools experiences in Highline Public School District. The history is instructive and serves as a model for the development of future programs.

Aviation High School spent its first three years in rented and portable facilities. The funding was from grants and provided for rent payments and remodeling to accommodate program requirements. The school is temporarily in a school scheduled for demolition and is fundraising for construction of a permanent facility. The lessons here are that as these types of schools are starting up, there is a need for space flexibility and growth as the enrollment expands and the curriculum matures. This is a point for private sector involvement from those involved entities and an opportunity to be supportive of the themed focus of the program. Ultimately, the decision on facility space needs to be made with state and private participation on construction funding. At this point, rough space needs estimates could be determined from OSPI space allocations for small high schools at WAC 392-343-035 and then rent could be funded on an as needed basis if alternative space provisions are not forthcoming.

To personalize content and instructional approaches to maximize student engagement will require addition resources and intensity than more traditional lecture style approaches. More instructional materials, including consumables for student projects, are required. Smaller class sizes facilitate closer interaction between caring adults and students. More staff time is necessary to develop engaging learning activities and rigorous authentic assessments of student learning. Further human resources are needed for reaching out to and involving parents, businesses, community based organizations, governmental entities, and post-secondary/higher education institutions in the operation of technical innovation high schools.

The following is a formula recommended to the Legislature for funding technical innovation high schools:

Programmatic Element	Staffing Ratios	NERC Factor
Approved **preparatory** CTE programs *[Funding equivalent to skills center funding]*	16.67 FTE	$ 19,744 per Certificated Staff Unit
Approved **exploratory** CTE programs	18.50 FTE	$ 25,449 per Certificated Staff Unit
Contextual non-CTE courses that meet exploratory CTE standards other than CTE teacher certification *[Funding equivalent to high school CTE funding]*	19.50 FTE	$ 10,445 per Certificated Staff Unit

Aviation High School's vision is that this school draws interested students from a large region and is managed as a regional resource. Cost factors that were examined are related to the staffing required, non-employee costs and evolving facility needs and costs. Aviation High School's program has been in operation for over four years and graduated its first class last year. It served as the only operational model for the envisioned technical innovation high school. Aviation High School's current operations of the school and its development history were examined to identify the differential costs and funding models from the current state allocation models and those that are in use by the host district. The caveat is that the authors have encountered the same limitations that the legislative work group on school funding has experienced with the accounting and reporting systems currently in use to get granular level information that makes sense.

D. Whether technical high schools should focus on particular student populations or be structured as magnet schools or academies with a particular programmatic focus

Recommend the Legislature provide funding to support incremental development of technical innovation high schools

Requests for Innovations would be for planning the development of high schools operated and supported by a local school district. The committee shared that the type of school and/or focus should be based on the discussions from the local level about how best they could meet the needs of their students and use resources.

In some situations Requests for Innovations would be to focus on a particular student populations while other schools may choose either a magnet or academy. Essentially this option should be a locally derived choice based upon the identified needs of the technical innovation high school leadership.

Career Academies can be defined as school-within-school programs operating in high schools. They offer career-related curricula based on a career theme, academic coursework, and work experience through partnerships with local employers. According to the *What Works Clearinghouse*, career academies were found to have potentially positive effects on staying in school, potentially positive effects on progressing in school, and no discernible effects on completing school for those youth most at-risk of dropping out prior to the intervention (Kemple and Snipes, 2000). There are also other academies which are state-funded schools established and managed by sponsors from a wide range of backgrounds, including high performing schools and colleges, universities, individual philanthropists, businesses, and faith communities. It is important to note that academies are unique and for some communities they could serve a niche.

Magnet schools are designed to attract students from diverse social, economic, ethnic, and racial backgrounds. They actually evolved out of the need to desegregate schools and increase the diversity within the public school system. Traditionally, magnet schools were focused on a specific subject, such as science or the arts; followed specific themes, such as business/technology or communications/humanities/law; or operate according to certain models, such as career academies or a school-within-a-school. Some magnet schools require students to take an exam or demonstrate knowledge or skill in the specialty to qualify to go to the school, while others are open to students who express an interest in that area.

For many of the committee members the discussion was the need for these "*Schools will be based on themes or interests that are important to the community or region — school will attract leveraged resources based on partnerships with business, labor, public agencies or other organizations*". For others they felt that the structure and focus of technical innovation high schools needs to come from the school level and not from some pre-determined definition. Others shared that these schools must be locally focused and developed as what works in large urban school districts probably wouldn't work in the rural school districts and the only ones who will be in the best position to determine this will be those in the local school system.

Technical innovation high schools are an important step toward addressing long standing issues like achievement gaps between demographic groups, students dropping out of high school prior to earning a diploma, and increasing access to highly engaging, rigorous, and contextualized educational experiences for students. Washington currently has student magnet, academy, and program focused options in operation and they must all be made available as options and should be explored locally.

E. Whether technical innovation high schools should operate with a two-year or four-year program or with part-time or full-time attendance

According to RCW 28A.305.130(5), OSPI establishes rules and regulations in WAC 392-348-210 through 392-348-270 to govern the establishment in any

existing non-high school district of any secondary program or any new grades in grades 9 through 12. In a sense, this RCW provides some guidance as to attendance and more specially enrollment as it shares that the initial enrollment for a four-year secondary school, grades 9 through 12, shall be at least four hundred; or if less than four hundred initially, substantial evidence shall be submitted that this enrollment will be reached within three years and that there is assurance of a relatively stable population (WAC 392-348-235).

The Committee consistently supported that these technical innovation high schools need to operate as four-year, full-time programs. However, there also needs to be flexibility based on individual student needs and choice. It is also important to note that there was discussion regarding the need for these schools to develop not only entrance policies, but also exit policies for when there is not a good match between student need and school philosophy/structure.

F. The implications of accountability for student achievement with a technical innovation high school, including adequate yearly progress

The Technical High School Advisory Committee discussed accountability and did not discuss or recommend that any of these schools would be exempt or seek waivers in the creation or identification. The Committee recognized that these schools would also follow the federal No Child Left Behind Act which mandates that all teachers of core academic subjects be "highly qualified," which includes having a bachelor's degree and full state certification and demonstrating competency in the subject areas taught[5]. More specifically, technical innovation high schools would comply with the following CTE laws in the same manner as school districts:

1. State diagnostic and achievement testing
2. Reporting to OSPI's longitudinal comprehensive data system
   a. District report data on courses, students, and teachers
   b. Course data includes standardized state course codes
   c. Student data includes demographics, enrollment information, schedules, grades, and program participation
   d. Teacher data includes demographics, certifications, and schedules
3. Educational growth of student cohorts
   a. Sanctions for schools that consistently fail to meet the federal standard of "adequate yearly progress" mandated by the No Child Left Behind Act
4. High school curriculum requirements
5. Diploma and transcript requirements
6. Disciplinary procedures for suspending, expelling, or permanently excluding students
7. Legal and policies regarding confidentiality of student information
8. Criminal records checks of applicants for positions directly involved with students and youth

5 Please see 20 U.S.C. 6301 et seq. and 34 Code of Federal Regulations § 200.55. Core academic subjects include English, reading or language arts, math, science, foreign languages, civics and government, economics, arts, history, and geography.

The Committee recognized that many school districts' budget allocations and program funding varies. Because of that reality, schools need to have thoughtful short and long range planning in place to distribute resources to adequately support the qualified staff, programming, and facilities. Professional development should include critical topics that apply regardless of school theme, such as partnering with businesses, labor, and community groups, and competency-based education. Planning should consider sustained development models such as professional learning communities, instead of drive-by professional development events. These concerns are of paramount importance given the goals for accountability these schools should embody, and the needs of at-risk, underserved, and disadvantaged students who are, in part, the target of these schools.

G. Options, strategies, and estimated costs for possible transition of selected current high schools or skill centers to a technical high school model

Recommend the Legislature provide funding to support incremental development of technical innovation high schools

Funding will be required to support the incremental development of technical innovation high schools. As an initial step, funding should be made available to OSPI to develop a Requests For Innovation (RFI) program for school districts that intend to open technical innovation high schools. Financial allocations should be sufficient to support eleven (11) projects to be conducted during Academic Year 2010-2011. These state funds would support local planning of technical innovation high schools to become working pilots.

These RFIs would be for planning the development of high schools operated or supported by a local school district as they have been provided the authority, requirements, and limitations in state law to establish public schools. However, the committee reiterated the need for these schools to have partnerships and collaboration as an essential ingredient to the development, implementation, and sustainability. Regionally and locally these schools would need to include students, parents, community, as well as regional or co-regional approaches which could use existing entities such as ESDs, Workforce Development Councils, and Economic Development Councils, and public/private partnerships.

Prior to, or concurrent with the RFI process, the Legislature should allocate funding necessary for OSPI to convene a Technical Innovation High Schools Working Group. The working group should be composed of representatives from the same stakeholder groups identified in the legislation authorizing this feasibility study.

If funded by the Legislature, this working group could be tasked with the following activities that are related, relevant, and applicable to technical innovation high schools:

- Evaluate state and federal education reform and devise short and long range action planning for successful implementation by schools and districts

- Catalog school and district initiatives and innovations currently documented in OSPI's Consolidated Program Review (CPR), High School Reform Initiatives (HSRI), and feasibility studies
- Advise and assist OSPI staff with the RFI development process and the selection of projects for funding
- Establish guidelines for feasibility, planning, start-up, implementation, and operational supports
- Establish a professional development and training plan for school staff and administrators

Funding will also be required by OSPI to lead and support the identification, alignment, and development of curriculum that integrates rigorous standards for career and technical education and academics at the high school graduation and college entrance levels. Additional funding should also be provided to assist OSPI educational data systems to support their coding of either the online iGrant or New School program web page system to accommodate Requests for Innovation, and to collect any unique data elements necessary for use in the continuous improvement processes of technical innovation high schools.

IV. Conclusion

The Committee recognized that creating technical innovation high schools will not only provide increased access to highly engaging, rigorous, contextualized educational experiences for high school students, it is also an important step toward addressing long standing issues confronting high school education, including achievement gaps between demographic groups, and students dropping out of high school prior to earning a diploma.

Technical innovation high schools should serve as an integral working-model for the on-going development of Washington's educational systems. This includes the active collection and gathering of data necessary for reporting on all state and federal accountability measures, as well as additional factors that are found and discovered to be helpful for local data informed decision making to assure excellent and equitable education for all students. Technical innovation high schools should be considered as working models for groups seeking to understand educational innovation, quality, and efficiency in Washington.

Technical innovation high schools are an important step toward addressing long standing issues like achievement gaps between demographic groups, students dropping out of high school prior to earning a diploma, and increasing access to highly engaging, rigorous, and contextualized educational experiences for students. Given the current economic climate it is a challenge to create technical innovation high schools. However, mounting pressures related to schools not meeting adequate yearly progress, as well as the graduation and achievement gaps, among a number of other public concerns with public education, the Committee recognizes that it is absolutely essential that more opportunities are provided to assist schools and districts in meeting the needs of their students, staff, and local communities.

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VI. Appendix — Technical High School Advisory Committee

School Districts

- Jay Wood, School Board Member, Tumwater School District
- Jesus Hernandez, Chair, Higher Education Coordinating Board
- Jon Swett, Executive Director for High Schools, Spokane Public Schools
- Saundra Hill, Superintendent, Pasco School District
- Dennis Maguire, Associate Superintendent, Pasco School District
- Dan Steele, Assistant Executive Director, Washington State School Directors' Association
- Jim Kowalkowski, Director, Rural Education Center

High Schools

- Jerry Bender, Director of Governmental Relations, Association of WA School Principals
- Scott Seamen, Principal, Tumwater High School
- Reba Gilman, CEO/Principal, Aviation High School
- Scott McComb, Coordinator, Internships, and Mentoring, Aviation High School
- Skill Centers
- Joe Kinerk, Executive Director, New Market Skills Center
- Donald Howell, Director, Spokane Skills Center
- Jacob Jackson, Director, North Olympic Peninsula Skills Center
- Sue Shields, Director, Puget Sound Skill Center
- Todd Moorhead, Former Assistant Director, Puget Sound Skill Center

Washington State Apprenticeship and Training Council

- Alan O. Link, Secretary-Treasurer, Washington State Labor Council, AFL-CIO

Workforce Development Councils

- Kris Stadelman, Chief Executive Officer Seattle-King County Workforce Development Council

Workforce Training and Education Coordinating Board

- Wes Pruitt, Policy Analyst/Legislative Liaison, Workforce Training and Education Coordinating Board

Washington Association for Career and Technical Education

- Kathleen Lopp, Former Exec. Dir., Washington Association for Career and Technical Education
- David Leinweber, Technology Education Teacher, Kingston High School
- Michael Christianson, Director, Career and Technical Education, Bethel School District

- Jim Noelder, Director, Career and Technical Education, North Kitsap School District
- Nancy Hawkins, Director, Career and Technical Education, Federal Way Public Schools
- Pamela Darling, Program Director, NorthEast Vocational Area Cooperative
- Marianna Goheen, Director, Office of College and Career, Highline Public Schools

State Board for Community and Technical Colleges

- Michael Tate, Underserved Populations, State Board of Community and Technical Colleges
- Tiffanny Merkel-Rinke, Workforce Education, State Board of Community and Technical Colleges

Community and Technical Colleges

- John Grant, Associate Dean High School Programs, Bates Technical College
- Andrea Olson, Executive Director of College Relations, Lake Washington Technical College

Colleges and Universities

- Robert Olsen, Ph.D. Professor and Associate Dean, College of Engineering and Architecture, Washington State University
- Maureen Munn, Director, Education Outreach, Department of Genome Sciences, University of Washington School of Medicine
- Clarissa Dirks, Assistant Professor of Biology, Evergreen State College
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- Terry Byington, Executive Director, AeA (formerly the American Electronics Association)
- Jane Field, Labor Market and Economic Analysis, Employment Security Department
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- Jeanne Chowning, Education Director, Northwest Association for Biomedical Research

- Brad Jurkovich, Public Affairs Consultant, Brad Jurkovich Consulting
- Erin Riffe, Director, Afterschool programs, Educational Service District 113
- Lile Holland, Executive Director, Washington Association for Learning Alternatives
- John Mick Moore Ph.D., Assistant to the Superintendent for Interagency Relations, Puget Sound Educational Service District (PSESD)
- Gene Bottoms, Senior Vice President, Southern Regional Education Board- High Schools That Work

Congressional Representative

- Sean Murphy, Field Representative, Congressman Brian Baird

Evaluation Committee

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- Mike Hickman, Assistant Superintendent, Support Services, Educational Service District 113
- Tom Hulst, Former Assistant Superintendent, Educational Service District 113
- Bill Olfert, Research and Planning Consultant, CTE Services
- Dan Gohl, Former Senior STEM Consultant, TIES Teaching Institute for Excellence in STEM

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