WASHINGTON HIGHER EDUCATION COORDINATING BOARD

BOARD MEETING AGENDA
December 13, 2007
State Investment Board (SIB) - Board Room
2100 Evergreen Park Drive SW, Olympia

8:30   **Continental Breakfast – HECB Members**

SIB small conference room

9:00   <u>**Welcome and Introductions**</u>

Bill Grinstein, HECB chair

Board Elections

Under the "Terms of Office" of the Board bylaws, "*The chair, vice chair, and secretary shall serve one-year terms, which shall terminate on Dec. 31 of each year, and until successors are elected.*"

Approval of 2008 Board Calendar   **1**

"*The Board shall adopt a meeting calendar for the succeeding year at its regularly scheduled December meeting.*" Board Bylaws

Resolution 07-26

9:15   <u>**Consent Agenda**</u>

Approval of the November 15, 2007 Meeting Minutes   **2**

Approval of New Degree Programs:

- **Bachelor of Arts in Early Childhood and Family Studies, UW**   **3**
  Resolution 07-21

- **Master of Science in Business, UW**   **4**
  Resolution 07-22

Executive Director's Report

9:30   **Discussion and Action: Preliminary 2008 Strategic Master Plan for Higher Education**   **5**

Resolution 07-23

RCW 28B.76.200 directs the Board to develop a statewide strategic master plan for higher education that proposes a vision and identifies measurable goals and priorities for the system of higher education in Washington State for a ten-year time period. The Board shall update the statewide strategic master plan every four years, with the preliminary plan due by December 15th.

Public Comment

12:00   **Board Lunch –** *SIB small conference room*

1:00   ## Financial Aid Committee

Jesus Hernandez, chair

Information: Update on 2006-07 State Financial Aid Program Activity and 2007-08 Estimates   **6**

Staff will provide an annual year-end report on state financial aid programs administered by the HECB. This year's report will follow last year's format with an enhanced section on notable events and activities.

1:45   **Information and Action: Passport to College Scholarship**   **7**

Resolution 07-25

Staff will present a report for board action on the implementation of the Passport to College Scholarship program for foster youth. The report is due to the Legislature by January 15, 2008. HB 1131 directs the board to include in the report a "… *discussion of proposed scholarship and student support service approaches; an estimate of the number of students who will receive such services; baseline information on the extent to which former foster care youth who meet the eligibility criteria… have enrolled and persisted in postsecondary education; and recommendations for any statutory changes needed to promote achievement of program objectives."*

2:30   <u>Education Committee</u>

Sam Smith, chair

Information and Action: Innovation Research Team Implementation Plan   **8**

Resolution 07-24

Under SHB 1901, the HECB is charged with making recommendations to the Economic Development Commission (EDC) on a plan to use funds appropriated to the EDC by the Legislature to attract star researchers to areas related to innovation opportunities in the state. The draft Innovation Research Team Implementation Plan, which HECB staff will present at the meeting, outlines the current status of research and commercialization at UW and WSU and makes recommendations on how to use the first year of funding, which needs to be spent by June 2008. The plan adopted by the Board goes to the EDC on Dec. 14, 2007.

3:15   Information: Report on CTC Baccalaureate Pilots   **9**

HECB and SBCTC staff will present data on the existing baccalaureate pilots based on criteria the HECB approved in 2006. These data will be updated for a formal report to the Board in December 2008. The Board will be asked to consider approval of two additional pilots in June or July 2008.

<u>Public Comment</u>

A sign-in sheet is provided for public comment on any of the items above.

4:00   <u>Adjournment</u>

Meeting Accommodations: *Persons who require special accommodation for attendance must call the HECB at 360.753.7800 as soon as possible before the meeting.*

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2008 MEETING CALENDAR

DATE	MEETING	LOCATION
Jan. 21, 2:00 – 5:00	Board/Advisory Council Meeting	Olympia tbd
Jan. 22, 9:00 – 3:00	Regular Board Meeting	
March 17, 2:00 – 5:00	Board/Advisory Council Meeting	Olympia tbd
March 18, 9:00 – 3:00	Regular Board Meeting	
May 21, 2:00 – 5:00	Work/Study Session	Spokane Riverpoint Campus
May 22, 9:00 - 3:00	Regular Board Meeting	
June 25, 2:00 – 5:00	Work/Study Session	Western Washington University
June 26, 9:00 – 3:00	Regular Board Meeting	
July 24 - 25	**Board Retreat**	**Seattle tbd**
Sept. 17, 2:00 – 5:00	Work/Study Session	Seatac tbd
Sept. 18, 9:00 – 3:00	Regular Board Meeting	
Oct. 28, 2:00 – 5:00	Board/Advisory Council Meeting	University of Washington
Oct 29, 9:00 – 3:00	Regular Board Meeting	
Nov. 20, 2:00 – 5:00	Work/Study Session	Seatac tbd
Nov. 21, 9:00 – 3:00	Regular Board Meeting	
Dec. 17, 2:00 – 5:00	Board/Advisory Council Meeting	UW Tacoma
Dec. 18, 9:00 – 3:00	Regular Board Meeting	

RESOLUTION NO. 07-26

WHEREAS, The Higher Education Coordinating Board is required to adopt an annual calendar of regular meeting dates for publication in the State Register; and

WHEREAS, The Board bylaws state that a meeting calendar for the succeeding year shall be adopted by the board at its regularly scheduled December meeting; and

WHEREAS, The Board's Executive Committee reviewed the proposed 2008 meeting calendar, ensuring that the proposed dates have minimal conflict with the calendars of other state higher education agencies and institutions; and

WHEREAS, The members of the Board have reviewed and approved the proposed 2008 meeting schedule;

THEREFORE, BE IT RESOLVED, That the Higher Education Coordinating Board adopts the HECB 2008 meeting calendar.

Adopted:

December 13, 2007

Attest:

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Bill Grinstein, Chair

_____

Betti Sheldon, Secretary

WASHINGTON

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COORDINATING BOARD

December 2007

Draft Minutes of November 2007 Meeting

Board members present

Charley Bingham
Gene Colin
Roberta Greene
Bill Grinstein, chair
Earl Hale
Jesus Hernandez, vice chair
Sasha Sleiman
Sam Smith

Advisory Council members present

Fred Campbell, research universities
Claude Comair, proprietary schools
Charlie Earl, SBCTC, co-chair, Advisory Council
Brian Jeffries, OSPI
David Lovell, 4-year faculty
Jeri McIntyre, regional universities
Steve Seward, independent colleges
Ruth Windhover, 2-year faculty

Welcome and introductions
HECB Chair Bill Grinstein welcomed the audience and asked everyone to introduce themselves. He then invited Larry Yok, vice president for administration, Highline Community College (HCC), to say a few words. Yok spoke about Highline's programmatic and capital infrastructure growth. The college is in the midst of fund-raising activities for a Marine, Science and Technology Center.

Action: Minutes of October meeting approved

Gene Colin moved to approve the minutes of the Board's October meeting. **Jesus Hernandez** seconded the motion, which was unanimously approved.

Work Session: review and discussion of the strategic master plan
To set the context for the review of the draft master plan, Ann Daley presented the Power Point that helped engender public discussion and comment during the Board's master plan outreach effort across the state in October and early November. Daley asked the Board and the Advisory

Council to share their best thoughts on the draft plan in order to take it to the next step in the process.

Charlie Earl, Advisory Council co-chair, facilitated the ensuing review and discussion of the draft master plan among the members of the Board and the Advisory Council.

Public comment was provided by:
- Matthew Kreiling, Washington Student Lobby
- Bernal Baca, American Federation of Teachers
- Tana Hasart, Washington Association of Community and Technical Colleges.

At the end of the discussion, Daley reviewed the remaining process and timeline in the development of the final strategic master plan. Staff will redraft the plan and continue to review and analyze supporting data. The Board will adopt the preliminary master plan on Dec. 13; the statutory deadline is Dec. 15. Following public hearings, the Legislature will approve or recommend changes to the preliminary plan by a concurrent resolution. The Board will submit the final plan in June after which, it becomes Washington State's higher education policy for the next four years.

Executive Director's report
Daley provided an update on the agency's ongoing search for a deputy director for policy, planning and research. The process is down to four final candidates who have been interviewed by four separate groups made up of a Board committee, an external interview committee, the agency executive leadership team, and the executive director. Background and reference checks are being conducted through early December.

Promoting economic growth and innovation
Mary Lindstrom, UW vice provost for research, described research being conducted by her unit and other UW research activities that serve as catalysts for the state's economic growth and vitality. There is a renewed push for the state's two research universities (UW and WSU) to increase their focus on emerging technologies and their commercialization, as directed under SHB 1091.

John Gardner, WSU vice president for Economic Development and Extension, was unavoidably delayed coming to the meeting. His report on WSU's progress implementing SHB 1091 is attached.

The meeting adjourned at 3:30 p.m.

November 2007

DRAFT: Bachelor of Arts in Early Childhood and Family Studies University of Washington

Introduction

The University of Washington (UW) seeks approval to offer a Bachelor of Arts in Early Childhood and Family Studies (ECFS) through the College of Education. The goal of this interdisciplinary major is to teach students the value of evidence-based practices for studying behavioral, social/cultural, and neurological influences on early childhood development. Currently, the University of Washington does not offer an undergraduate major in early childhood development.

If approved, the proposed program would be a traditional daytime program offered on either a part-or full-time basis at the Seattle Campus. The program would enroll 15 FTE students beginning winter 2008 and would grow to 81 FTE students by the program's fourth year. The program would prepare students for careers and graduate studies in social services/mental health, education, child care, and research; although careers in education would not be certificated positions, since the program would not be accredited for teacher preparation.

Relationship to Institutional Role and Mission and the Strategic Master Plan for Higher Education

The program supports the *Strategic Master Plan for Higher Education,* by increasing opportunities for students to earn degrees in a field potentially responsive to the state's economic needs. Furthermore, the program is consistent with the University of Washington's mission to preserve, advance, and disseminate knowledge. Since it aims to help students learn the significance of research informing practice and practice informing research, the program would probably both advance and disseminate knowledge.

Diversity

The College of Education recently hired a Director of Diversity Recruitment and Retention and also has reconfigured one of the positions in its Office of Student Services to serve as a half-time recruitment specialist. The College of Education has a recruitment plan involving not only on-campus efforts with the Office of Minority Affairs, the Ethnic Community and Cultural Center,

and diversity-focused student organizations, but also off-campus efforts with community colleges having large populations of students of color, and diversity-focused local community-based organizations.

Specific diversity efforts include:
- Ensuring that the College's Web-based material is helpful to diverse students.
- Recruiting from UW students participating in Jumpstart Seattle. Jumpstart is a national nonprofit organization that trains and supports teams of UW undergraduates helping low-income preschool children build language, literacy, social and initiative skills. Currently, over 50% of Jumpstart undergraduate students are persons of color.
- Working with UW student organizations and groups (e.g., Black Student Union, Asian American Student Union, etc.) to present information on the major and career opportunities in early learning and family support.
- Working with the Washington Scholarship program (formerly TEACH) to access financial aid for child care teachers. This is a statewide public/private partnership.
- Working with The Washington State Early Childhood Education and Assistance Program (ECEAP) and its teachers and assistants who can access professional development funds through the ECEAP program.

Program Need

The program would respond to demand by students, community stakeholders, and to some extent, employers.

To assess student demand, in 2004 the College of Education surveyed almost 12,000 students on all UW campuses and obtained 413 responses. Out of 338 respondents who had not declared majors, 225 (67%) indicated they were interested or very interested in the proposed major. In addition, the College of Education has received a steady stream of phone calls and e-mails from interested students asking when the program would begin. Although the college does not log inquiries, staff estimates there have been about 40-50 calls and e-mails over the past year. Furthermore, anecdotal reports from the UW's Gateway Center Undergraduate Advising Office indicate that students regularly ask about the availability of such a program.

The program would prepare students for positions and graduate studies in social services/mental health, early childhood education, childcare, and research. Although the *State and Regional Needs Assessment* is mute regarding unmet employer demand in these fields, the Employment Security Department's Washington Occupational Employment Projections (June 2007) does say something about employer demand for preschool teachers and for child care workers. The employment projections predict that during 2009-2014, preschool teacher job openings will increase at a higher than average (across all occupations statewide) rate, yielding an average of 171 openings/per year; and childcare job openings will increase at a higher than average rate, yielding an average of 1,991 job openings per year also. The picture this data paints is only a partial one because the data includes workers with all levels of training, not just bachelor's degrees.

Pending federal Head Start legislation calls for increasing teacher qualifications such that 50% of early childhood teachers nationwide will be required to have a BA in early childhood education or a related field by 2013. The Washington State Early Childhood Education and

Assistance Program (ECEAP) is expected to follow Head Start's lead. Furthermore, the National Association for the Education of Young Children (NAEYC), which grants national recognition to early childhood professional preparation programs meeting certain standards, has revised its professional development standards for accreditation to require that lead teachers must have bachelor's degrees in early childhood by 2020.

While these increases in teacher qualification requirements would tend to increase employer demand for early childhood teachers with bachelor's degrees, it is unclear to what extent the increases in requirements would increase employer demand for bachelor's degree holders who were not certified teachers. The proposed program does not include certification, although program graduates would be prepared to enter graduate teacher preparation programs that do. At present, fewer than half of Washington's Head Start teachers have bachelor's degrees and about half of ECEAP teachers have bachelor's degrees, but not necessarily in early childhood fields.

Community demand for the proposed program is evident from recent governmental initiatives. At the local level, Seattle's Child and Family Levy provides financial support for child care providers to obtain bachelor's degrees. At the state level, Washington is focusing a great deal of attention on developing a high quality, well-educated early learning workforce. Expanding early learning teacher training is a key Washington Learns strategy. Another key Washington Learns strategy is to implement a quality rating system that gives parents information about the quality of childcare and early education programs. Under that system, childcare providers and early education teachers would be expected to be well qualified. A bachelor's degree with specialized training in early childhood would correlate with teacher quality.

Program Description

The program aims to prepare students to use the most recent research to understand how to facilitate optimal child development and become agents for institutional and societal change. To accomplish these goals, the program requires students to complete an interdisciplinary course of study including both classroom coursework and supervised fieldwork experiences (service learning), covering three major areas of knowledge: 1) theoretical foundations of early childhood development and family studies; 2) methodology; and 3) social policy and organization. The program's content is aligned with content specified by the National Association for the Education of Young Children and reflects input from students surveyed in 2004. By virtue of the program's interdisciplinary nature, students have flexibility in determining their individual coursework and fieldwork within the program. The program is not a certification program, although graduates will be prepared to enter graduate teacher certification programs.

The program expects to serve primarily UW undergraduate students with a strong interest in early childhood and family studies, community college students majoring in early childhood education, working childcare providers, and working early childhood teachers. The College of Education has committed to work with faculty from community colleges to identify community college pathways that will work with the major in early childhood and family studies.
The program will accept applications each spring for fall quarter admission to the program. Students will be admitted based on their academic performance (2.5 GPA minimum) and a required statement of interest in early childhood and family studies. Applicants are encouraged to gain observation, volunteer, or paid experience in early childhood and/or family support programs prior to application, and to indicate such experience on their statement of interest.

Once admitted, students must take 81 credits including 43 required classroom credits, 20 elective classroom credits, and 18 service-learning credits. Because the program is interdisciplinary, it includes substantial coursework offered outside of the College of Education including anthropology, psychology, speech and hearing sciences, sociology, nursing, and social work. The curriculum has been approved by the UW Curriculum Committee.

Students would learn to:
- Read and evaluate research;
- Translate research findings to solve practical issues of early childhood;
- Understand neurological, behavioral, social/cultural influences on child development including bio-behavioral aspects and family systems;
- Recognize community-based needs for informing research and policy directions;
- Understand risk factors affecting child development;
- Recognize indicators of typical child development and examples of atypical development;
- Understand process for impacting social policy; and
- Demonstrate knowledge and skill in early childhood practices in applied settings.

Students would be assessed within their individual courses, based on learning outcomes identified for those courses. Learning outcomes for each course would be clearly defined and aligned with the program goals stated above. Service-learning evaluations would be conducted each quarter, using a rubric designed to evaluate student performance relative to specific service learning goals. In addition, learning outcomes would be measured at the end of the senior year through a rigorous, integrated, culminating senior project.

The program itself would be assessed in a variety of ways including student course evaluations, service learning evaluations by community partners, review of senior projects, annual follow-up with students to assess employment or graduate studies (most likely for 3-5 years after graduation), annual review of the program by a faculty advisory group, and bi-annual review of the program by invited community partners. Information from these assessments would be used to identify program strengths and weaknesses, to determine if the program is effectively meeting its aims, and to guide program improvement.

Program Costs

The program would enroll 15 FTE students in the first year, growing to 81 FTE students by the fourth year. To implement the program, the College of Education has budgeted .55 FTE for a Program Director, Susan Sandall, of which .48 FTE is for administrative oversight and .07 FTE is for teaching. The program budget also includes 1.5 FTE for regular faculty to offer ECFS core courses. In addition, beginning in the second year, one course would be taught by an adjunct professor. Finally, the program budget includes .5 FTE for teaching assistants, increasing to 1.0 FTE by year three, and .25 FTE for program coordination and advising, increasing to 1.0 FTE by the third year. The program will use existing office space and library resources so the budget does not include any amounts for those items; however, the budget does include $24,000 for goods, services, and equipment the first year, decreasing to $5,000 per year in subsequent years.

For the first year of the program with an entering class of 15 FTE, the total budget is $214,027, or $14,268 per FTE. At full enrollment of 81 FTE in the fourth year, the total budget is $305,443, or $3,771 per FTE. This compares favorably with the average cost per FTE for students majoring in education at the University of Washington and other institutions. According to the Higher Education Coordinating Board's (HECB) *2005-06 Education Cost Study (July 2007)*, the direct cost per average annual FTE upper division undergraduate education student ranged from $3,448 for WSU-Tri Cities to $8,154 for UW-Bothell, and was $7,039 for UW-Seattle.

The program would be state-funded, via a mix of reallocated College of Education funds and new funds provided by the provost's office. College of Education staff have confirmed that there is enough existing space available in courses inside and outside of the College of Education to ensure that the impact of the new program on other programs will be minimal.

External Review

Two external reviewers, Kristine Slentz, Professor of Special Education/Early Childhood at Western Washington University, and Carla Peterson, Associate Professor of Human Development and Family Studies at Iowa State University, reviewed the program.

Dr. Slentz noted that the program is grounded in national and state early childhood standards, with good balance between required, field-based and elective credits. She was impressed with the requirements for research coursework and experience, noting that the combination of elective and research credits is especially powerful in preparing graduates for advanced study across a variety of disciplines. She also appreciated the balance of coursework between child and family studies, and noted the prominence of Program Director Susan Sandall in the field.

Dr. Slentz recommended that the program develop a set of standardized formats for measuring service-learning contributions, senior project quality, and student performance across outcomes. Program planners responded that the program will incorporate her recommendation.

Dr. Peterson noted that the program included the variety of topics and experiences that students need in order to be well prepared to meet current workplace demands. She noted that UW already has in place well-developed coursework that will support the proposed program. She also noted that the UW has strong connections with community-based early childhood programs and community colleges. She noted that Program Director Susan Sandall is well-qualified to provide leadership to the program.

Dr. Peterson asked for clarification on the relationship between the proposed program and teacher licensure programs. In response to Dr. Peterson, program planners clarified that the program will lead to a BA, not teacher certification, but nonetheless, committed to assist students and develop advising materials so students would be prepared to apply to post-baccalaureate teacher preparation programs for either a P-3 certificate or an elementary (including kindergarten) certificate. In developing the proposal, planners considered the prerequisites of the UW's teacher education program and designed the program to meet them.
Dr. Peterson also wondered whether employment opportunities with adequate compensation would be available for program graduates. In response, program planners stated their expectation that a well-prepared and higher-educated workforce would demand higher salaries;

early childhood teachers with bachelor's degrees are currently more likely to earn higher compensation than less educated colleagues; and some program graduates would continue on to graduate programs that would lead them to appropriately compensated positions.

In addition, Dr. Peterson asked for clarification of how the field-based service-learning experiences featured in the program build on each other, and she suggested that planning with students and faculty members to coordinate field experiences to individualize them to meet student needs would be important and should be clarified. In response, program planners noted that they had developed an alignment framework for the UW Curriculum Committee to show these relationships, and have committed to continue to expand on the details of this alignment in order to build the appropriate scope and sequence for the curriculum.

Finally, Dr. Peterson suggested that if students could take Exceptional Children (EDSPE 404) before their final term, the course would be more meaningful and field experiences could be tailored to help students integrate content from that course with field-based placements. Program planners responded that issues related to the education of special needs students will be integrated throughout the curriculum.

Public Comments

In addition to comments from the two reviewers, the HECB received letters from David Stolz, Provost at Central Washington University, and Melissa Lavitt, Interim Vice Provost at Eastern Washington University. Both letters wished the University of Washington well with the program, and neither letter raised any concerns.

The HECB also received an e-mail from Tom Drummond, Coordinator of Early Childhood Education at North Seattle Community College, asking for clarification on three issues:
1) Will the AAS-T in Early Childhood Education as proposed by Washington Association of Educators of Personnel in Early Childhood Programs be accepted by the new University of Washington BA in Early Childhood and Family Studies?
2) Will there be acceptance of certain set of early childhood courses (e.g. child development, introduction to special education, basic curriculum planning, etc.) common to all community colleges in the state?
3) Will there be the possibility of a conversation about the acceptance of unique courses offered by North Seattle Community College's program that apply to the goals for this new BA degree?

Program planners responded that community and technical colleges offer both certificates and degrees in early childhood education. Students with interest in early childhood education usually work toward either an Associate in Arts (AA) degree or an Associate in Applied Science-Technical (AAS-T) degree. The AA degree is the traditional transfer degree. Planners anticipate that students who pursue this route should be able to transfer into the ECFS major at the UW (dependent on acceptance to the UW) without too much trouble. Planners noted that the AAS-T degree presents some challenges. AAS-T students have relatively few general education credits (a minimum of 20) and many early childhood credits (70 credits at NSCC, 50 at many of the others). While planners understand that the students are receiving high quality preparation, the usual UW procedure has been to treat the AA as the pathway to the bachelor's degree. Planners feel that is beyond the purview of an individual major to make changes to this procedure.

Staff Analysis

Program planners responded positively to reviewer comments and suggestions and have committed to work with community colleges to resolve issues regarding transfer and articulation. HECB staff recommends that the College of Education work with the HECB and the State Board for Technical and Community Colleges on developing a transfer and articulation plan.

The proposed program would support the University of Washington's role and mission by not only disseminating knowledge about early childhood and family studies to students, but also by providing students with an opportunity to participate in the process of advancing such knowledge. The College of Education has a recruitment plan which includes targeting minority student volunteers helping preschool classrooms, and working with public and private programs to obtain access for scholarships.

Students would benefit from the extensive planning that went into the program's curriculum, which is grounded in nationally recognized standards. Program planners presented compelling evidence that learning outcomes for each course would be clearly defined and aligned with program goals. With the exception of a single course taught by adjunct faculty, courses would be taught by regular faculty, and program leadership would be provided by a nationally recognized figure in the field. Furthermore, the College of Education would continually improve the program, using a variety of assessment methods to identify program strengths and weaknesses, to determine if the program was effectively meeting its aims and to inform program changes.

Based on the observations above, HECB staff conclude that the program clearly would be of high quality. In addition, student demand and community demand for the program are well documented; however, explicit evidence for employer demand for bachelor's degree holding childcare workers or non-certificated teachers is difficult to isolate. Consequently, HECB staff recommend that the program include in its marketing and application materials: 1) information on wages to help students interested in pursuing child care employment decide whether the degree would benefit them economically; and 2) information on certification requirements and opportunities for post-graduate study that would help students interested in using the proposed degree to pursue employment, decide whether the program is the best one for them.

Staff Recommendation

After careful review of the proposal and supporting materials, staff recommends approval of the Bachelor of Arts in Early Childhood and Family Studies at the University of Washington. The HECB Education Committee discussed the proposal during its November 26, 2007 meeting and recommended approval by the full board.

RESOLUTION 07-21

WHEREAS, The University of Washington proposes to offer a Bachelor of Arts in Early Childhood and Family Studies; and

WHEREAS, The program would support the unique role and mission of the institution by not only disseminating knowledge about early childhood and family studies, but also by advancing such knowledge; and

WHEREAS, The program would support the university's diversity efforts through a multi-faceted recruitment plan; and

WHEREAS, The program would prepare students for careers and/or graduate studies in early childhood education, child care, social services, mental health, and other fields by providing students with a well-planned curriculum, grounded in nationally recognized standards and taught by well-qualified faculty; and

WHEREAS, The program has strong support from external reviewers; and

WHEREAS, The program would respond to demonstrated needs, including the need for the state to invest in early learning as expressed in Washington Learns; and

WHEREAS, Program planners have committed to work with community colleges on transfer and articulation;

THEREFORE, BE IT RESOLVED, that the Higher Education Coordinating Board approves the Bachelor of Arts in Early Childhood and Family Studies at the University of Washington effective December 13, 2007.

Adopted:

December 13, 2007

Attest:

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Bill Grinstein, Chair

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Betti Sheldon, Secretary

November 2007

DRAFT: Master of Science in Business
University of Washington

Introduction

The University of Washington Business School (UWBS) proposes to offer a Master of Science in Business within its existing Ph.D. program. The new degree would be awarded to students as part of the Ph.D. program and would not entail any expansion of the program, nor would it entail any changes to the program admission and recruitment process, curriculum, or faculty. In light of these factors, UW asked for an administrative review and approval of the new degree program; however, the Higher Education Coordinating Board (HECB) *Program and Facilities Approval Policies and Procedures (2005)* require Board approval of all new degree programs. Beginning Spring Quarter 2007, students in the Ph.D. program would be awarded the Master of Science degree upon successful completion of the coursework portion of the Ph.D. program and successful completion of the Ph.D. qualifying exam.

Relationship to Institutional Role and Mission and the Strategic Master Plan

The full-time Ph.D. program in Business Administration supports the research mission of the university. In addition, the program supports the goals of the HECB by providing students an opportunity to achieve higher levels of training and earn degrees, train the faculty of tomorrow, and provide programs that support the economic development of the state. The addition of the Master of Science will help UW attract the best students to the program and would provide recognition of completed work for those rare students who do not complete the dissertation portion of their program.

Program Need

The program proposal derives primarily from a desire to align the Ph.D. program design with current University of Washington policy. In addition, the degree would provide students who choose to cease their studies following their coursework or are unlikely to complete their dissertation successfully, recognition for the work completed in the program and their level of preparation to enter professional positions including applied research positions within business or government.

The UWBS recruits internationally to craft a class of highly capable students and prepare them to take academic positions upon graduation. Each year, the UWBS admits approximately 15 new students into the Ph.D. program (across all disciplines). Yet, even among very selective programs such as this, some students will choose to leave the program or will be unable to perform at the level required to successfully complete a dissertation. The department estimates about 2-4 students per year would leave the program following their qualifying exam. The Master of Science degree is the most appropriate degree to recognize the work completed in the program at the point of the qualifying exam.

The UWBS views the proposed degree as an important factor in the continued success of the UWBS Ph.D. program. The option is an important recruiting tool for the best students; and by providing a means for students to exit the program with a recognized degree, the faculty will be able to provide higher quality supervision to the students who continue on to their dissertation research.

Program Description

Within the Ph.D. program, the UWBS currently offers specialization options in seven areas: accounting, finance, information systems, management, marketing, operations management, and technology entrepreneurship. All students share a common core curriculum in economics and research design as well as coursework within their given specialization area. The curriculum is not aligned with the currently offered masters programs offered by the UWBS (Master in Business Administration and Master in Professional Accounting). The Master of Science in Business Administration is the most appropriate degree to award to students pursuing the Ph.D. and would require no new courses or other resources and would align with the current structure of the Ph.D. program.

Students who enter the Ph.D. thesis stage (dissertation) will be ready to conduct basic research adding to the base of knowledge and to take an academic position upon graduation. Students who leave the program after completing the Master of Science (without completing the dissertation) will be able to apply their knowledge and analytical skills in more applied research settings within the government and business sectors. These students will be well educated in the latest areas of business and possess a strong set of analytical skills.

The program would be under the supervision of the Ph.D. Program Faculty Director. The core program faculty are graduate faculty members, and all classes are taught by tenure track faculty holding UW appointments. The degree would be earned by all students who successfully complete the first two years of coursework required for the Ph.D. program and who pass the Major Area Field Exam.

As indicated above, the Ph.D. Program currently has seven fields of specialization across the five academic departments. Students would complete a minimum of 48 credits of coursework. This would include a core curriculum taken by students (microeconomics and research methods) in the first year (minimum 18 credits). Students then take classes within the major and minor areas of their specialization (major has minimum 18 credits, minor has minimum 12 credits). These

classes are required to satisfy the major and minor requirements. All classes are four-credit classes. Most classes have final exams, most of the classes within the areas outside the common core classes require research papers, and many require in-class student presentations.

Successful completion of coursework will be assessed by a minimum average 3.0 grade point and the chair of the student's supervisory committee (or department head) signing off that the student meets the coursework requirements for the award of the Master of Science. In addition, to earn the Master of Science degree, students are required to sit for the Major Field Area Exam at the end of the second year of their coursework. Successful completion of the required coursework is a prerequisite for sitting for the Field Exam.

The Field Exam is a capstone exam prepared by the graduate faculty that integrates material across the different courses within the major area.

There will be four possible outcomes on the Field Area Exam:
1. M.S. Pass with continuation to Ph.D. thesis stage;
2. M.S. Pass without continuation to Ph.D. thesis stage;
3. M.S. Marginal Pass without continuation to Ph.D. thesis stage but with remedial activity to be determined by the exam committee to obtain MS Pass; and
4. M.S. Fail where the MS is not awarded and without continuation to the Ph.D. thesis.

Diversity

The UW Business School Ph.D. Program Office actively works to attract a diverse student body. The program participates in a nationwide recruiting of minorities sponsored by the Ph.D. Project held every year in Chicago. The Ph.D. Project brings together about 400 selected African-Americans, Hispanic-Americans, and Native Americans interested in pursuing a Ph.D. in business. In addition, the Ph.D. Program Office participates in nationwide DocNet Recruiting Forums open to all students across the country and from abroad. DocNet is a consortium of AACSB accredited business schools. DocNet events are open to all prospective students including underrepresented groups. There are about 3 DocNet recruiting forums per year held in different locations. Finally, the Ph.D. Program Office prepares and updates a brochure and individual flyers for each of the seven major areas of specialization. The same materials are made available at the Ph.D. Program website including course requirements for majors, typical course schedules, course requirements for minors, faculty and research interests, recent placements and dissertations, current students, recruiting events, schedule of examinations, and students on the job market.

Program Costs

The M.S. in Business Administration would not require any additional resources. There are no new required courses or resource requirements. No additional tuition or fees are required for students enrolled in the Ph.D. Program.

The Ph.D. program is a full-time program. Approximately 15 new students are admitted each academic year and begin their studies in the Fall quarter of each academic year. Current full enrollment in the Ph.D. program is approximately 80 students across all areas of the program.

The Master of Science requires two years of coursework; so at any point in time, approximately 30 students will be working towards earning their Master of Science Degree. The majority of these students will continue on to complete their Ph.D. Over the past three years 10-16 students completed the Ph.D. program each year.

Staff Analysis

The M.S. in Business Administration is not a typical program request in that it is not designed to stand on it's own as most new degree programs are. The new program does not propose any new curriculum and no new resources are required. In addition, students would not be admitted to the masters program itself, rather the degree would only be awarded to students in pursuit of their Ph.D. in Business Administration. It is likely that very few students would leave the program upon completion of the M.S. However, for the few that do cease their studies; at this point, the degree would provide recognition for the work they had completed and would likely prove to be a valuable representation of their accomplishment.

Given this circumstance, the typical assessment of student, employer, and community demand does not seem appropriate. While the provision of the degree on the path to the Ph.D. may prove a useful recruiting tool, it is not the degree that students who apply to would be expected to aspire to, nor is it the primary purpose for which the program is designed. The degree is, however, the most appropriate means to recognize the work students would have completed upon passage of their Field Exam and would provide the student with a credential that would be more easily recognized by employers as a qualification to do high level applied analytical work. The program would therefore meet the needs of students and employers. Community demand for the program is perhaps best assessed by the degree to which the provision of the M.S. would help to attract the best students to the program. While the M.S. is not the degree goal that would attract students to the program, it does provide students with an additional assurance that they will receive recognition for the work completed in pursuit of their Ph.D. and may help to attract the best-qualified students. These students in turn provide a service to the university as teaching and research assistants. In addition, these students will become the next generation of business school faculty; and thus, their success will have a lasting impact on the quality of research and teaching in business.

The program supports the goals of the *Strategic Master Plan* and of the university though the provision of a high quality program that would prepare graduates to take faculty positions throughout the state and internationally. In addition, the program would support the research mission of the university. The program provides a set of learning outcomes associated with the coursework portion of the Ph.D., which are assessed within each course and through the field exam. These outcomes are consistent with master-level work and appropriate to the degree being proposed. The outcomes are also an appropriate gauge of progress toward the Ph.D. program.

Staff Recommendation

After careful review of the proposal and supporting materials, staff recommend approval of the Master of Science in Business Administration at the University of Washington.

RESOLUTION NO. 07-22

WHEREAS, University of Washington Business School (UWBS) proposes to offer a Master of Science in Business within its existing Ph.D. program; and,

WHEREAS, The new degree would be awarded to students as part of the Ph.D. program and would not entail any expansion of the program, nor would it entail any changes to the program admission and recruitment process, curriculum, or faculty; and,

WHEREAS, The program proposal derives primarily from a desire to align the Ph.D. program design with current University of Washington policy and to benefit students who exit the program prior to completion of their Ph.D. degree; and,

WHEREAS, The program supports the goals of the *Strategic Master Plan* and of the University though the provision of a high quality program that would prepare graduates to take faculty positions throughout the state and internationally; and

WHEREAS, The UW Business School Ph.D. Program Office actively works to attract a diverse student body and the provision of the MS will assist in those recruiting efforts; and,

WHEREAS, The degree is the most appropriate means to recognize the work students would have completed upon passage of their field exam and would provide the student with a credential that would be more easily recognized by employers as a qualification to do high level applied analytical work; and,

THEREFORE, BE IT RESOLVED, that the Higher Education Coordinating Board approves the Master of Science in Business at the University of Washington December 13, 2007.

Adopted:

December 13, 2007

Attest:

_____
Bill Grinstein, Chair

_____
Betti Sheldon, Secretary

WASHINGTON
HIGHER
EDUCATION
COORDINATING BOARD

December 2007

Moving the blue arrow
Pathways to educational opportunity

**2008 Strategic Master Plan
for Higher Education
in Washington**

WASHINGTON
HIGHER
EDUCATION
COORDINATING BOARD

917 Lakeridge Way SW
P.O. Box 43430
Olympia, WA 98504-3430
360.753.7800
www.hecb.wa.gov

Preface

The Washington Higher Education Coordinating Board is directed by state law (RCW 28B.76.200, as amended in 2007) to create a strategic master plan for higher education in Washington every 10 years and update the plan every four years. Following final review and adoption by the Board in December 2007, this plan will be submitted to the 2008 session of the Washington State Legislature, which will hold public hearings and pass a concurrent resolution approving or recommending changes to the plan.

To prepare the plan, the Higher Education Coordinating Board held a series of public meetings, open forums, and conversations throughout the state in 2007 to learn more about what people wanted and needed from their public higher education system. Citizens, educators, students, and parents participated, along with legislators, the leaders of other governing boards and councils; representatives from business and labor; local and regional economic development organizations; demographers; and public policy experts. These consultations crystallized two simple but challenging goals.

Goal 1: We will create a high-quality higher education system that provides expanded opportunity for more Washingtonians to complete postsecondary degrees, certificates, and apprenticeships.

Goal 2: We will create a higher education system that drives greater economic prosperity, innovation and opportunity.

The Board's discussions and public forums have been a rich source of ideas, information, and most important, passion. K-12 educators told the Board about the challenges of preparing teachers to teach higher levels of science and math, and to educate an increasingly diverse student population. College students spoke about the educational needs of veterans and other non-traditional students, the problem of student debt, and the critical need for more student advising, career counseling, and support services such as child care.

Students also asked for more seamless transfer from one college to another, and better, simpler information about financial aid. Leaders of independent and for-profit colleges and career schools showcased the contributions they are making to meet our state's educational needs and spoke of their willingness to collaborate more closely with the public system. Business leaders, economic development, and workforce training experts shared their worry about today's educational trends and what they mean for our state's economic future. Each of these issues is addressed in this plan.

While the scale and urgency of the challenge of educating more Washingtonians to higher levels is daunting, the Board is encouraged by the passionate support for doing so that comes from every corner of our state. In every community forum, we heard divergent opinions about many issues, but absolute unanimity on one overarching principle: we must expand educational opportunity to every young person and every adult in our state. This plan reflects our state's commitment to that principle.

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Moving Washington's blue arrow

Opportunity abounds in Washington. In the arts, in civic life and public service, and in science and industry there are openings for innovators, dreamers and doers. But to take advantage of this abundance of opportunity, more Washingtonians need higher levels of education.
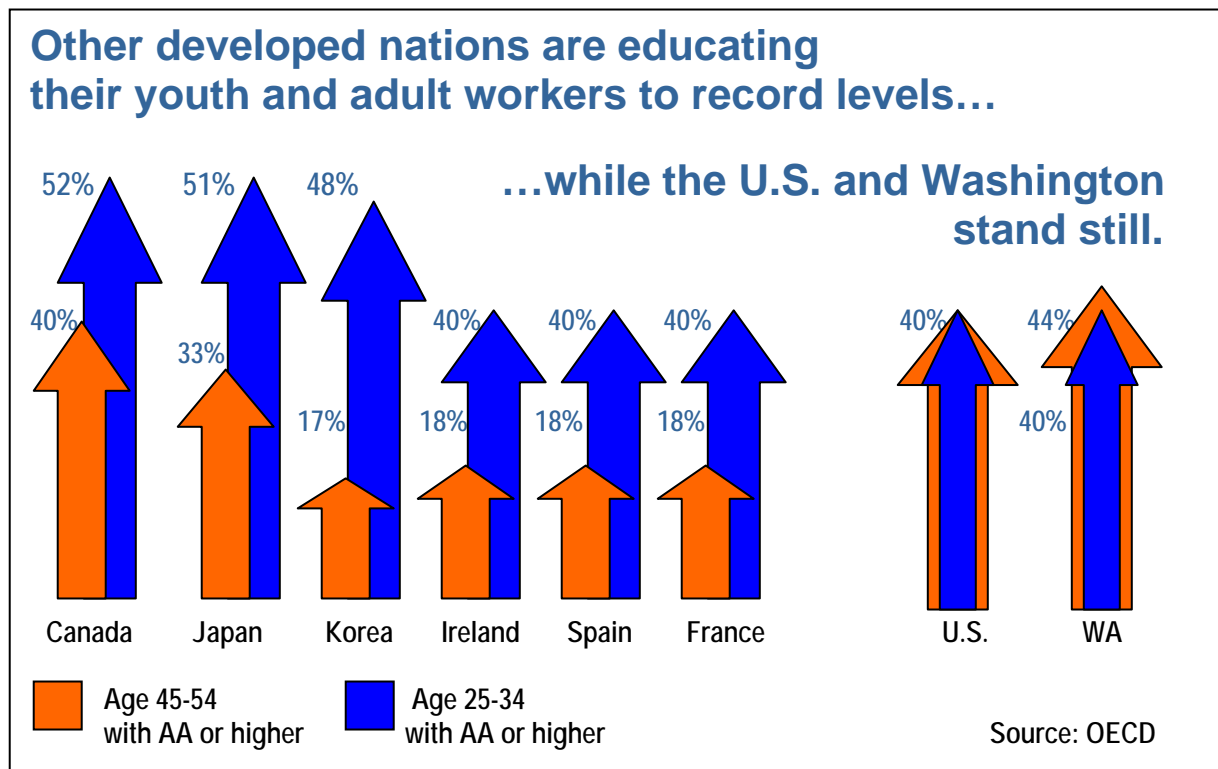
Washington's baby boomers (people born between 1946 and 1964) are the most highly educated generation in our history. Younger adults in our state have, on average, *less* education than boomers.

In many other countries, the reverse is true: younger adults are *more* educated than their elders, and the long-term trend shows a steady increase in the overall level of education of each new generation.

This is good for them, but not for us. Countries where education attainment is rising have rising incomes and productivity.

In these countries, parents can reasonably expect that their children will have more opportunity to make a good living, and to understand and shape the world around them. They can also expect that their children will live in societies characterized by economic, technological, scientific, cultural, civic and social progress.

We cannot share those expectations unless we *act now to reverse the trend* of falling educational attainment among our younger adults and children.

Other developed nations are educating their youth and adult workers to record levels…

…while the U.S. and Washington stand still.

	Canada	Japan	Korea	Ireland	Spain	France		U.S.	WA
Age 25-34 (blue)	52%	51%	48%	40%	40%	40%		40%	44%
Age 45-54 (orange)	40%	33%	17%	18%	18%	18%		40%	40%

Age 45-54 with AA or higher (orange)   Age 25-34 with AA or higher (blue)   Source: OECD

The goal of this 10-year plan is to <u>move Washington's blue arrow up</u> by raising educational attainment for adult workers and young people across our state.

Washington's changing demographics – 2005-2030

There will be more of us 2.5 million increase **(+37%)**	**2005 - 6.2 million** **2030 – 8.6 million**
We will be older Those **over 65** will increase most rapidly **(+72%)**	**2005 = 11% of population** **2030 = 19% of population**
We will be more diverse We will experience a **39%** **increase** in the diversity of our population	**2005 = 23% people of color** **2030 = 32% people of color**

An aging workforce

Over the next 10 years, a generation of well-educated people will leave the workforce and be replaced by a generation with lower average levels of education and skill. As the baby boomers retire, some occupations and industries may have skill shortages such as: nursing, teaching, and "management occupations."

Washington's Office of Financial Management estimates that about 400,000 people aged 55 and older will leave the labor force in the next decade. This represents 11.7 percent of the current labor force.

These employees will take with them a great deal of knowledge and experience. It is often the case that those employees in management positions also are older workers – because they have invaluable industry wisdom – and so, as baby boomers retire, much of today's leadership in business, government, education, and civic life will retire as well.

Education and the public good

Education is the wellspring of economic growth. It also is the foundation of democracy, and the shared experience that knits a diverse society together.

Education Benefits

24.4% of those with less than a high school diploma are living below the poverty level. Only 2.4% of those with a bachelor's degree are below the poverty level. (U.S. Census)

•

Although infant mortality rates are associated with race and ethnicity, they decrease proportionately with education attainment for all reported racial and ethnic categories. (NCHS).

•

College graduates have lower smoking rates, more positive perceptions of personal health, and healthier lifestyles than individuals who did not graduate from college. (CollegeBoard)

•

Adults with higher levels of education are less likely to depend on social safety-net programs, generating decreased demand on public budgets. (CollegeBoard)

Overview – Education & the public good

Societal benefits *Rising levels of education produce more engaged citizens who help make our society more stable and productive.*	• **Voter participation increases** • **Volunteerism increases** • **Crime decreases** • **Welfare, health costs decrease**
Economic benefits *More degreed individuals in a regional economy produce higher wages for everyone.*	• **Productivity increases** • **Technology innovation rises** • **Economy grows on fast track** • **Tax contributions increase**
Personal benefits *2.4% of those with a BA degree or higher live at or below the poverty level compared with 24.4% of those with less than a high school diploma.*	**A bachelor's degree brings** • **$357,000 additional lifetime income for men** • **$156,000 additional lifetime income for women**
Generational benefits *Increasing college completion rates today will produce exponentially greater public return in the future.*	• **Those whose parents have completed college are most likely to earn a college degree**

Income increases as education increases
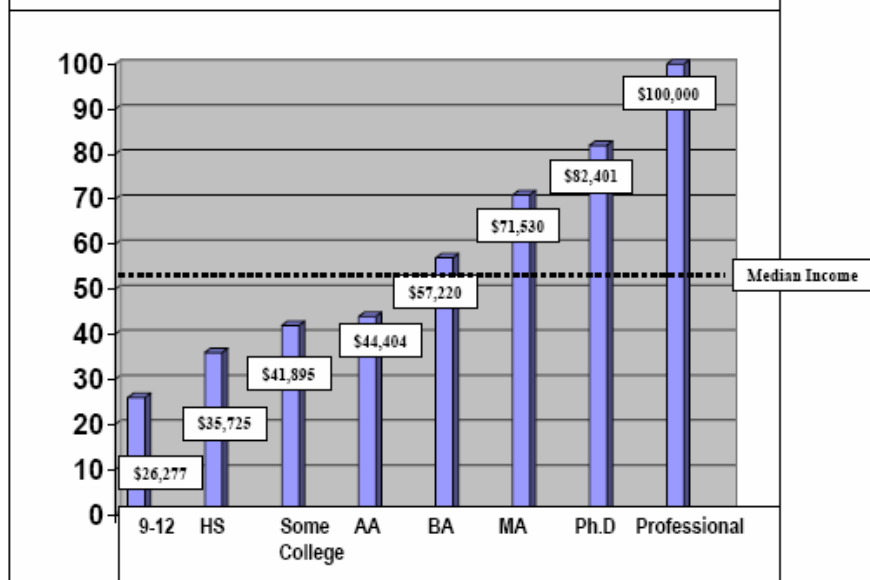
Source: U.S. Dept. of Commerce, Bureau of the Census, Current Population Reports, Series P-60, "Money Income of Households, Families, and Persons in the United States," "Income, Poverty, and Valuation of Noncash Benefits," various years; and Series P-60, "Money Income in the United States," various years. From *Digest of Education Statistics 2005*.

Costs associated with low education levels

The absence of education is the polar opposite: it drains our society of hope, opportunity, civic engagement and economic growth. It creates a downward spiral of poverty, dependence, ill-health, alienation, and crime.

That's why the challenge before us is so urgent. Our state's future is at stake. Our moral obligation to future generations requires a renewed and sustained commitment – a commitment of the time, resources, and creativity needed to transform our education system for a new economy, a new century, and a new mix of diverse and promising students.

Figure 11: Incarceration Rates by Education Level, 1997

Note: Including federal, state, and local prisons.
Source: Harlow, 2003.
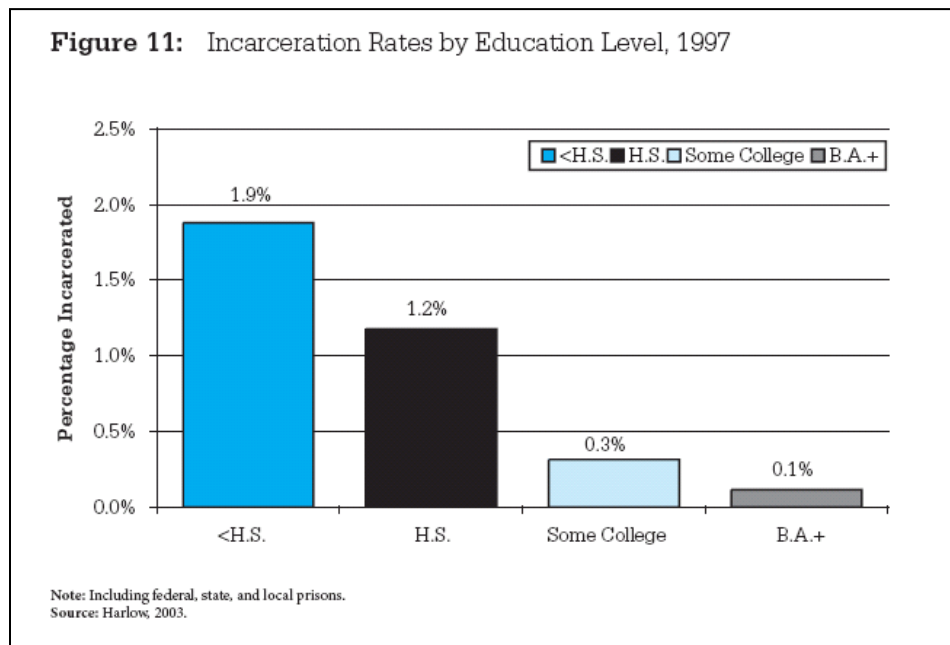
Challenges in Washington

- Washington's under-educated working population is equal in size to its next 10 high school graduating classes.

- One out of four people aged 18-24 does not have a high school diploma.

- About 47% of Latinos 25 and over do not have a high school diploma.

- One in every three people 18-64 has only a high school diploma.

How did we fall behind?

If the need for rising levels of educational attainment is so obvious, why have we fallen behind? It's not because we've ignored our education needs; on the contrary, we have made enormous investments in education. We have world-class research and regional universities and a community and technical college system that is the envy of other states. We have held on – against considerable pressure – to academic standards that ensure that our high school graduates can read and write. And we've begun to make new investments in early learning through the Department of Early Learning.

Between 1996 and 2009, our public and independent higher education enrollments are expected to grow by about 23 percent. We added nearly 10,000 new full time equivalent (FTE) students in the 2007-09 biennium. In fact, in 2007 the state Legislature provided more than $443 million for increased enrollment, financial aid, and other improvements. This was the largest increase in state funding for public higher education in history.

But we still have not come far enough, fast enough. And we have not fully grasped how both the size and the nature of our educational challenge are changing. Here are some of the changes we need to face up to:

First, until the current biennium, our investment in postsecondary education has not kept pace with growth in the student population, especially in this decade. In a time of significantly rising costs, this has forced institutions to raise tuition to make up the difference.
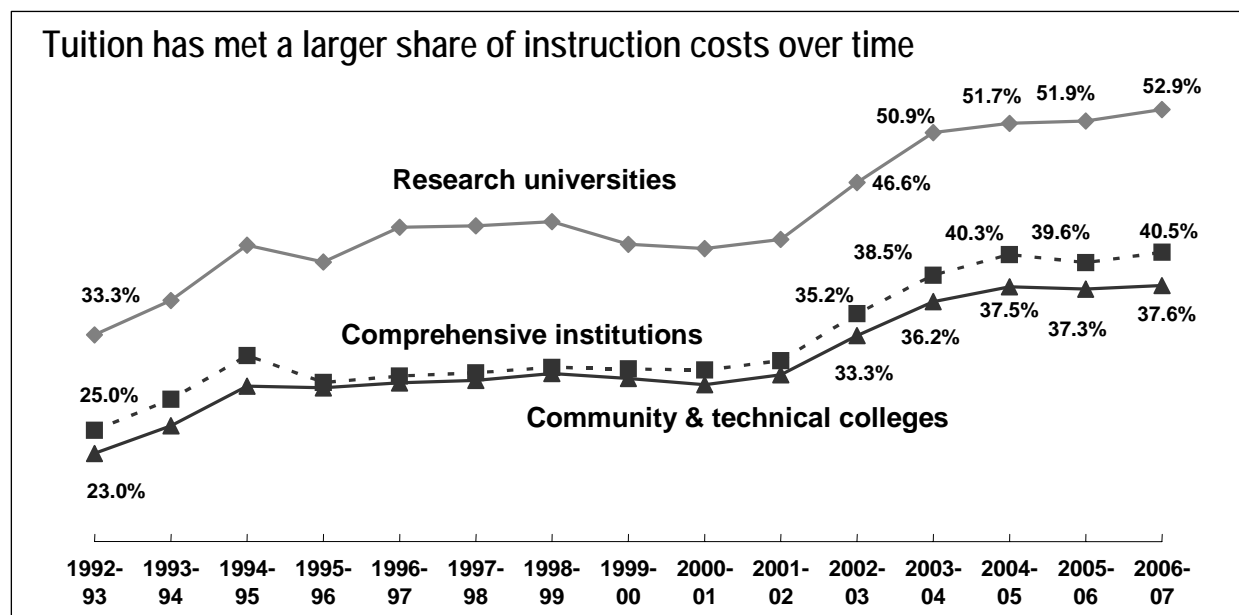
Source: HECB

Our legislature and governor have increased education spending steadily, but state spending on education must compete with rapid escalation in the cost of health care, prisons, and environmental protection. As a result, students have had to bear a much greater share of the cost of postsecondary education.

Second, our growing population includes more people who have not fared well in our education system – the poor, people of color, and immigrants. Poverty is the single most powerful risk factor for lack of academic attainment among children, and people of color – particularly Latino, Native American, and African American people – have disproportionately low incomes. Differences in culture, race, and language are growing in our state, and they also play an important role in how both children and adults learn, and what they need from our education system.

Pie chart:
- 32.6% $20-50,000
- 38.2% $50-100,000
- $0-20,000 14.5%
- $100,000+ 14.6%

Source: WICHE, 2003
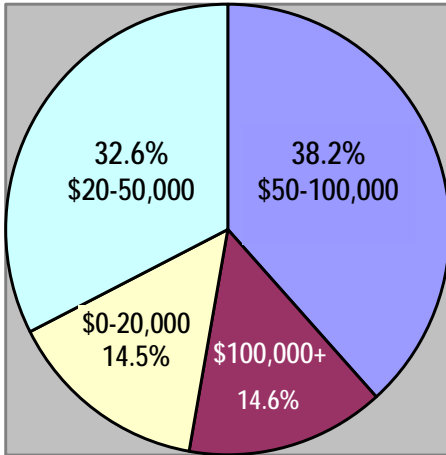
By 2013, 47.1 percent of high school graduates will come from families with incomes of $50,000 a year or less.

These students are less likely to have parents who completed college and are at greater risk for not participating and succeeding in postsecondary education.

By 2030, more than 37 percent of Washington's K-12 students will be people of color

Source: OFM 2007

The pipeline is leaking…

Snapshot captures 30% of AA degrees and 41% of BA degrees awarded statewide 2005-2006

Ninth — 100%

12th — 87%

H.S. — 76%

College — 40%

Degree — 19%

BA 64%

AA 36%

Sources:
OSPI: K12 Enrollment and Graduation
OSPI/SESRC: High School Graduate Follow Study
IPEDS: Completions Rate

16
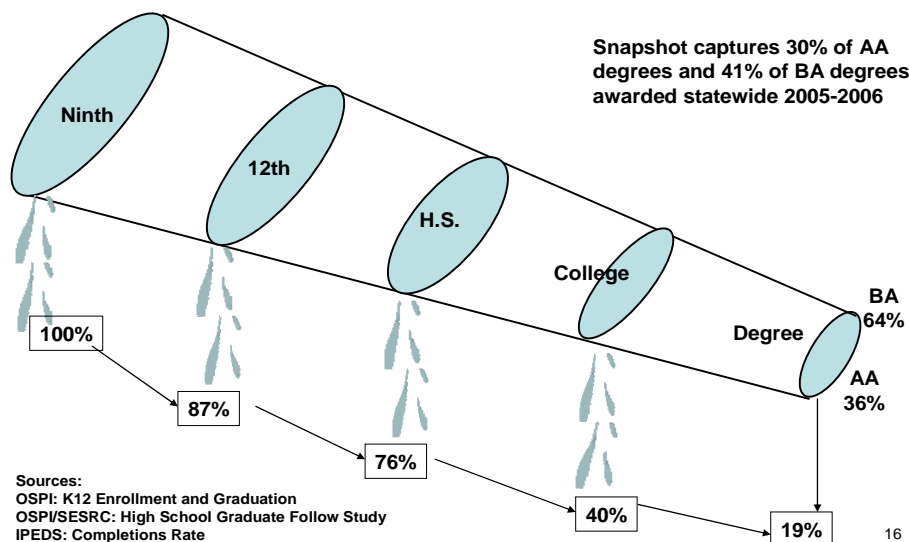
Third, we have a "pipeline" problem. Too many of our young people start kindergarten already behind. Too many drop out of high school, and among those who graduate from high school, too many require remediation (especially in math) before they can do college-level work. Too few go on to postsecondary education, and even fewer complete the postsecondary programs they enroll in. At every stage, the "educational pipeline" leaks like a sieve.
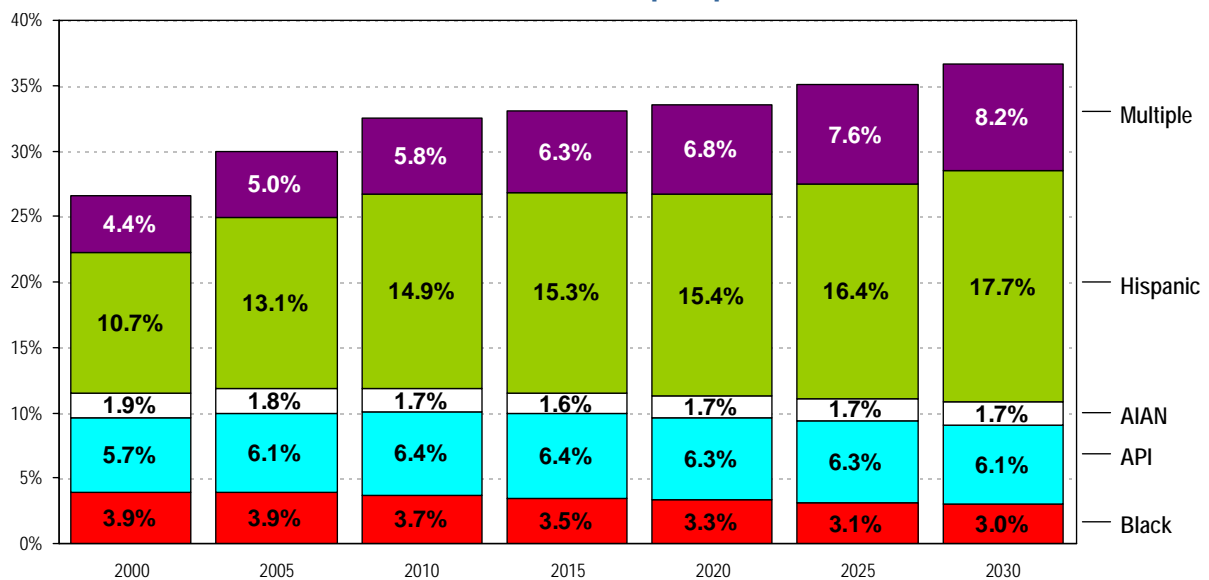
Fourth, we have a "way of thinking" problem that inhibits our progress, and it is expressed in the very term "educational pipeline." We think of education as something for young people – something that should be completed in our late teens or early twenties. And, we think of education as having an end point – in fact, academics actually use the rather odd phrase "terminal degrees" to describe it.

This just doesn't match the reality of the 21st century, or of Washington's education challenge. Education beyond high school *and* learning throughout our careers are the new normal, but we are late adapters to this change.

Equally important, our state has more than a million adults with a high school diploma or less. Each year, we add 15,000 high school dropouts to that population, along with 23,000 high school graduates who go straight into the workforce. The number of immigrants who need to learn English as well as job skills also is a growing; currently they account for half of all those enrolled in adult basic education programs.

Sixty percent of today's jobs require some form of postsecondary education or job training, and 10 years from now, the percentage will be even higher. And as the economy changes, skills must change, so that more and more adults will need to return to the well for more education time and time again, throughout their careers. But though we have talked about "lifetime learning" for what seems like a lifetime already, we have not re-engineered our education system to make adult learning accessible and user-friendly for those who need it.

Where do we begin?

This plan builds on the work of generations of visionary leaders who created today's higher education system. Those leaders founded both public and private colleges and universities across the state, built the community and technical college system, and created a financial aid system for low-income students. They were guided by the ethic of creating opportunity for the next generation. Now it is our turn to build on their legacy, and to live up to their ethical example.

This plan has more recent inspiration as well. One source is the *System Direction,* a document published by the State Board for Community and Technical Colleges in September 2006, (available on their Web site). It sets out bold ideas about innovation, student success, and economic growth, which have been incorporated into this plan.

The Workforce Training and Education Coordinating Board biennially develops the state's strategic plan for workforce development. *High Skills, High Wages 2006,* sets out goals for workforce development, including:

- Preparing youth for success in postsecondary education and work;

- Providing adults with access to lifelong education and training;;

- Meeting the needs of industry for skilled employees; and

- Better integrating services to support learners of all ages.

These goals also are strongly embraced in the policies and recommendations of this plan.

The Washington Learns Steering Committee convened by Governor Gregoire, also provided both data and ideas that inform, direct, and inspire this plan. The Commission examined education from cradle through careers, and its final report calls for a single, seamless system of learning that tailors education to the needs of individual students. It emphasizes early learning, academic rigor, clear accountability, creativity, and new partnerships between families, the public sector and the private sector.

Its final report, issued in November 2006, *Washington Learns* set out 10-year goals for a world-class education system.

Washington Learns – 10-year goals:

1. *Parents will be their children's first and best teachers and will have the support they need to help their children "learn to learn" in their first years of life.*

2. *Families will have access to high-quality, affordable child care and early education programs staffed by providers and teachers who are adequately trained and compensated.*

3. *All children will enter kindergarten healthy and emotionally, socially, and cognitively ready to succeed in school and in life.*

4. *All students will transition from third grade with the ability to read well and do basic math, and with the ability to actively participate in a learning environment.*

5. *All students will transition from eighth grade with demonstrated ability in core academic subjects, citizenship skills and an initial plan for high school and beyond.*

6. *All students will graduate from high school with an international perspective and the skills to live, learn and work in a diverse state and a global society.*

7. *All students will complete a rigorous high school course of study and demonstrate the abilities needed to enter a postsecondary education program or career path.*

8. *All Washingtonians will have access to affordable postsecondary education and workforce training opportunities that provide them with the knowledge and skills to thrive personally and professionally.*

9. *Washington will have a well-trained and educated workforce that meets the needs of our knowledge-based economy.*

10. *Academic research will fuel discoveries and innovations that allow Washington business to compete globally.*

At first glance, one might think that higher education's role begins with goal number eight on this list. But ours is a larger challenge, because higher education institutions provide parent education, and education of early learning providers, K-12 teachers, and school administrators. Postsecondary education also plays a major role in providing the continuing education today's teachers need to meet the needs of children from every culture, and to improve student achievement in math and science. Higher education is also called upon to reach out to students in middle and high school, and to help create the expectation that *all* students should plan and prepare for postsecondary education.

Even the first goal – that parents will be their children's first and best teachers – is profoundly connected to our higher education system, because the more educated parents are, the more likely their children are to succeed in school and life. When even one parent learns, many successive generations benefit.

The gift of educational opportunity has the power to change the trajectory of families, of communities, and our state. It has the power to move the blue arrow up.

That is the starting point and the aim of this 10-year plan.

A vision for 2018

In 2018, Washington's higher education institutions will be fully integrated into a cradle-through-career system that educates more people to higher levels of skill and knowledge than ever before. We will reduce employers' need to import people with advanced degrees or specialized skills from other states and countries. The best jobs in Washington will go to Washingtonians educated in our colleges and universities.

University-based research will foster innovation and the growth of leading-edge industries. Washington businesses will expand, fueled by skilled workers who have easy access to a system that helps them learn the skills they need to move up in the world.

Washington's engaged citizens will create a civic culture that sustains a strong sense of responsibility to the next generation. This will be expressed in concerted action to address global climate change, protect our natural heritage, foster community service, and continue to expand and improve our education system.

Washington will be a center of creativity, cultural vitality and innovation in the arts, business, technology, agriculture, renewable energy development and, of course, in education. By nurturing the dreams and the potential of every Washingtonian and embracing our growing diversity, our highly qualified educators – from early learning through graduate school – will build our state's reputation for educational excellence, and all educators will earn a higher level of remuneration and respect.

To achieve this vision, we will do more, and do it differently. We will provide more space and funding for more students. We will rethink and redesign educational programs to suit the needs of diverse learners and a changing economy. Education will be available where and when people need it.

Public, independent, and for-profit postsecondary institutions will forge strong partnerships with K-12 schools and communities to reach out to students in our public schools, to working professionals, and to under-educated adults and new immigrants; and will tailor programs to meet their needs. A wide array of programs will provide upward mobility, foster creativity and innovation, and stimulate the growth of our economy.

Washington's P-20 education system will be a more customized, responsive, and collaborative enterprise that puts the needs of individual learners first. The result will be a prosperous economy, a healthy society, and a shrinking gap between rich and poor.

To achieve this vision, three broad efforts are required:

- **First** and foremost, we will need to get more people into postsecondary education, and do more to help them succeed once they get there.
- **Second**, we will need to promote economic growth and innovation by mobilizing our education and research resources to match talent with opportunity.
- **Third**, we will need a new system of incentives and accountability that rewards higher education institutions that help achieve the goals spelled out in this plan

I. Raise educational attainment to create prosperity, opportunity

Educating more people to higher levels will require new efforts throughout our education system and our society. Early learning, more rigorous and relevant public education, strong mentors and advocates for students, more engaged communities, a renewed focus on math and science education, accessible financial aid, more user-friendly institutions, and focused outreach to students of color and low-income students are all essential.

Help more people earn degrees

But none of this will suffice if we do not expand the capacity of our higher education system. As our population grows, we will have to expand enrollments just to maintain our current level of degree attainment. To *increase* our level of degree attainment – the central goal of Washington Learns – we will have to expand even more. To meet the ambitious growth goal we have set, we will need to expand by an additional (27%) by 2018 over enrollment in 2006-07. This will require adding enrollment at an approximate rate of 2.7% per year.

We need more baccalaureate and advanced degrees, and more space for those who take their first two years of study towards a baccalaureate degree in a community or technical college. We will need to prepare more people for high-demand fields such as science, technology, engineering, math and health care. We also will need more students completing job training certificate programs, associate degrees, and apprenticeship programs.

The number of students graduating from high school will level off in the next few years. The growing proportion of low-income and minority students in K-12 have been less likely to graduate from high school or to enroll in postsecondary education. We must undertake an aggressive, focused and consistent effort to inspire, support and encourage more students to reach higher.

There also will be a growing need among adults at all educational levels for intermittent education throughout their careers. The system should both stimulate and respond to this growth. This will require additional enrollment capacity. (It will also require raising expectations for K-12 students, improving outreach, and making the system more user-friendly and flexible for working adults. These topics are addressed in subsequent sections of this plan.)

All of these differences will have significant cost implications. Efficiency, productivity, and innovation will be prerequisites for meeting this challenge. Many of the high-demand programs such as nursing, engineering, and science are costly to provide. However, implementation of this plan also will produce significant cost savings, because increasing the user-friendliness and accessibility of the higher education system will raise the number of *graduates* relative to the number of students enrolled. Improvements in the system described in subsequent sections of this plan will help more students not just enroll, but persist and graduate in less time.

Improvement also needs to be measured. That's why we are establishing benchmarks for improvement based on the performance of states similar to our own, the Global Challenge States (GCS).

The GCS are 'new economy' states – states with great potential to succeed in the global economy. Washington is ranked fourth among the GCS based on indicators such as knowledge jobs, economic dynamism, globalism, digital economy, and technical innovation capacity. The GCS also include Massachusetts, California, New Jersey, Connecticut, Colorado, Virginia, and Maryland.

However, Washington ranks seventh among the GCS in bachelor's degrees awarded and last in advanced degrees awarded. We can and must do better to ensure best opportunities and to maintain our state's competitive position in the global economy during the next decade and beyond.

Policy goal: Increase the total number of degrees and certificates produced annually to achieve Global Challenge State benchmarks.

- By 2018, raise mid-level degrees and certificates to 36,200 annually, an increase of 9,400 degrees annually.

- By 2018, raise baccalaureate degree production to 42,400 per year, an increase of 13,800 degrees annually. This equals the 75th percentile of the GCS.

- By 2018, raise advanced degree production to 19,800 per year, an increase of 8,600 degrees annually. This equals the 50th percentile of the GCS.

- By 2018, we would need a total higher education enrollment of 297,000 FTEs, an increase of 27 percent compared the current biennium.

Action: *To achieve these degree goals, by October 2008, the HECB, SBCTC, public and independent sector institutions, and other key partners will develop a detailed enrollment plan that draws on the current strengths of the system and expands pathways to degrees for Washington citizens.*

Outcome: Washington would continue to lead the GCS in awarding middle-level degrees.

Outcome: Washington would move from seventh to third among the GCS in terms of bachelor's degrees awarded and from last to fifth in advanced degrees awarded.

Outcome: Washington would raise the overall level of degree attainment among its 25-34-year-old population from just under 40% to 42.5% by 2018. That rate would continue to climb as more students move through a postsecondary system with high expectations and levels of support for academic achievement, one designed to more equitably provide opportunities for access and success in higher education.

Moving the blue arrow
Degree attainment 25-34 year-olds
(Associate degree or higher)

			46.1%
Current	2018	2020	2025
39.8%	42.5%	43.6%	
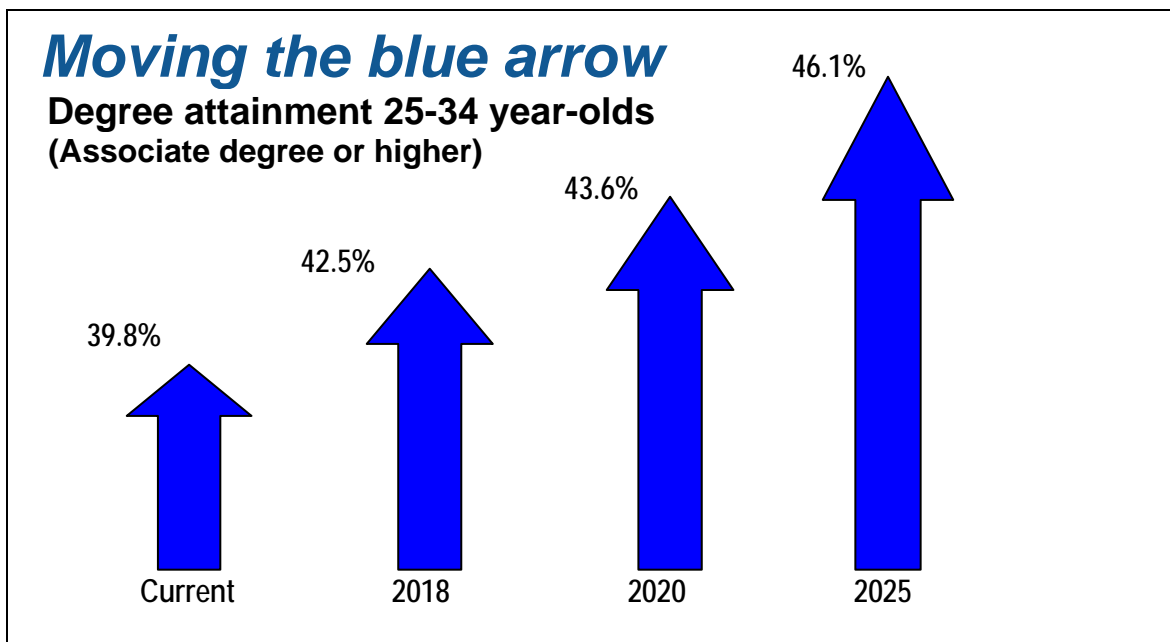
Washington's effort to move the blue arrow upward more quickly by funding additional enrollment and through systemic improvement will produce exponentially greater results over time, HECB degree projections indicate.

New strategies for expansion

In the past, expanding the higher education system has meant building new buildings. To some extent, that will always be true, but distance learning technologies, the location of university programs on community college campuses, and leased facilities in remote locations have added new options for expansion. Serving place-bound students, providing programs on job sites, and creating community-based learning in church basements and community centers have also helped to change the equation of higher education with ivy-covered brick buildings.

Nonetheless, buildings are hardly obsolete, and we will need more of them. We are now in the final biennium of capital funding provided by a bonding measure championed by former Governors Booth Gardner and Dan Evans and passed by the legislature in 2003. The Gardner-Evans bonds have helped address of backlog of need for expansion and maintenance, but unmet needs remain.

Work is underway to site a new campus to serve the North Puget Sound region, and that will require new funding. And more work is needed to accurately plan the way our system will grow to serve other regions of the state. In addition, there is a $1.2 billion backlog of maintenance required to protect our investment in the buildings we already have.

The policy question we face is how to plan strategically to meet the needs of more diverse learners, in every corner of our state, in the most economical and efficient fashion.

Policy goal: Create innovative, efficient facilities and programs that meet the learning needs of students throughout the state.

Four strategies to raise educational attainment

Washington cannot raise the level of educational attainment – and move the blue arrow up – by doing what we have always done. Higher education institutions must actively recruit and encourage prospective students who currently think further education is beyond their reach because of cost, competing work and family obligations, or lack of academic preparation. Postsecondary education must become more accessible and user-friendly to everyone who can benefit from it.

Four broad strategies are called for: 1) focusing on student diversity; 2) creating the expectation among K-12 students that all will get education beyond high school; 3) creating a higher education system that is user-friendly for all adult learners; and 4) making college more affordable and accessible.

1. Focus on diversity

In 2006, the Higher Education Coordinating Board published *Diversity in Washington Higher Education* following a series of public forums, stakeholder meetings, and focused research. The report concludes that low-income and minority Washingtonians are chronically under-represented among students, staff, faculty and leadership in the higher education system. The data show the state is maintaining the status quo in some areas, and actually losing ground in others. Clearly, current efforts to achieve greater representation are insufficient.

If closing the gap were easy, it would have been done by now. But this is a complex challenge, involving issues of both race and class. The largest *number* of disadvantaged students are low-income whites. But a much larger *percentage* of students of color are poor or near-poor. They face the double disadvantage of diminished expectations based on both economic status and race. Raising the expectations of all these students – and their families, teachers and communities – is the critical test we have failed so far.

The demographic shift that is taking place in Washington raises the stakes. We cannot meet our enrollment or degree goals unless and until we do a better job of educating low-income students and students of color. But even if that were not so, closing this chronic and long-standing academic opportunity gap is a moral obligation of our society. In a century in which education is the primary path to upward mobility, neglecting this work is tantamount to turning our backs on our most basic American values.

To enroll and graduate low-income students and students of color, the Diversity Report recommends increased effort in several areas, including:

- More collaboration with K-12 schools to recruit and prepare students beginning in elementary and middle school; and to expand and coordinate existing pre-college programs;
- Smoothing transitions from high school to college, and from two- to four-year colleges;
- Building the capacity of both K-12 and higher education faculty to educate more students from diverse backgrounds through expanded recruitment and retention efforts;

- Providing training and professional development for K-12 and higher education faculty and staff to ensure strong, culturally competent educators;
- Creating incentives for students of color and low-income students to pursue graduate degrees;
- Expanding and improving support services such as student advising and child care that help students stay in school;
- Increasing the diversity of faculty, staff and leadership in higher education; and
- Increasing accountability, collaboration and shared responsibility for achieving parity.

Policy goal: Increase the number and percent of underrepresented students, staff, and faculty of color in postsecondary education.

2. Create higher expectations for all K-12 students

Postsecondary education is no longer optional. Virtually everyone needs some education or job training beyond high school, and everyone deserves the opportunity to get whatever level of education they need to meet their personal and career goals.

To enter many apprenticeship programs today, high school graduates need the same skill levels in reading, writing, math and science as they would to enter a four-year college program. (In fact, a higher level of reading skill may be required to read a car repair manual than some college textbooks.) As the need for more educated workers increases, an intense and important policy debate is being held about whether our high school graduation requirements are rigorous enough.

Since 1997, when the Washington Assessment of Student Learning (WASL) was first administered, student achievement in reading and writing has risen steadily. Math and science skills have not advanced as quickly, and, while we debate requiring a third year of high school math, we still have not aligned high school graduation requirements and postsecondary admission requirements.

10th grade WASL results 1999-2007

Source: OSPI
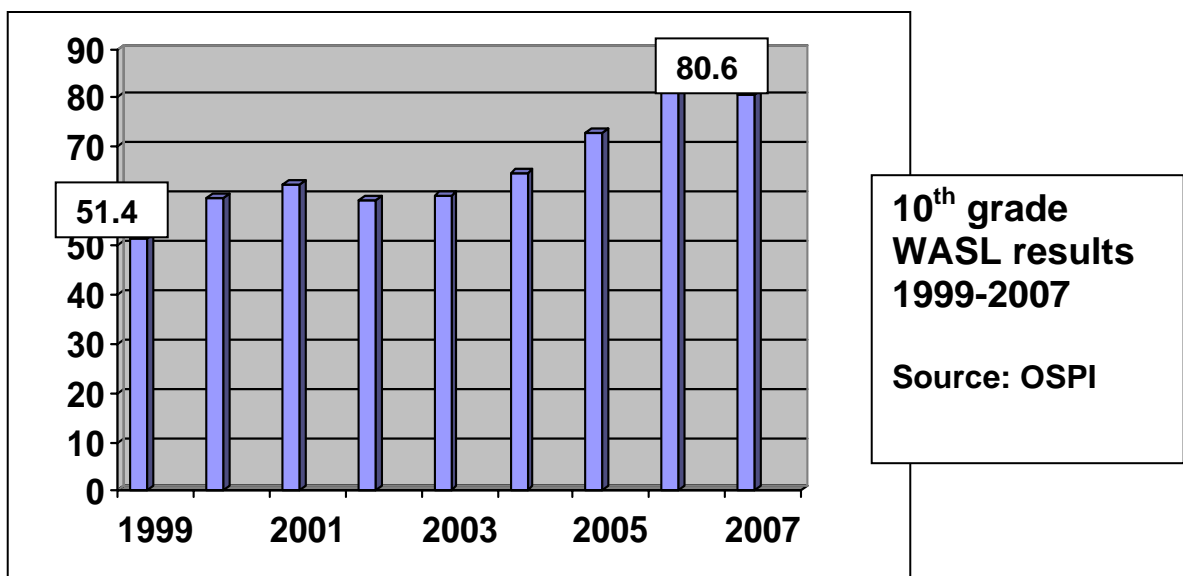
The Transition Math Project has developed college readiness standards to reduce the percentage of college freshmen who require remedial math. Similar standards are being developed for English and science. These initiatives will help bolster the rigor and relevance of high school, and ensure that every high school graduate is college and career ready. In fact, completing rigorous high school coursework is a stronger predictor of college success than family income – a powerful testament to the importance of sustaining efforts to improve secondary education.

However, at the same time that the State Board of Education is considering more rigorous graduation requirements, a quarter of Washington's students are dropping out of high school. How can we improve the skills of high school graduates *and* reduce the dropout rate?

We need to create a culture in our public schools that helps every student imagine and prepare for a successful adult life. We need high expectations for students from every income level and ethnic group. We need more opportunities for hands-on, applied learning in skills centers and in high school classrooms. We need immediate improvement in programs for immigrant students who struggle to learn English and to navigate a new culture. Every K-12 educator ought to expect all students to pursue education or job training beyond high school, and should help them plan and prepare to do so.

Every student should have clear incentives for learning and persisting in school. The new College Bound Scholarship, which promises full financial aid to low-income seventh graders who graduate from high school and demonstrate good citizenship, is an important step in this direction. But we must be even bolder to create a universal expectation among students that every one of them can plan on graduating from high school and getting some postsecondary education. In today's economy, a high school diploma is simply not enough.

Scale up successful student advising and mentoring programs

Many students don't know about the opportunities available to them in our postsecondary education system, or in the world of work. Nor do they learn early enough about what preparation they will need to pursue these opportunities. Public schools lack sufficient counseling and advising staff and many have no formal academic advisory program. As a result, our state ranks 32nd nationally in the percentage of low-income students who participate in postsecondary education.

Students need to know far more about what jobs and professions the world has to offer, and what the world will need their generation to accomplish. They need early and consistent learning opportunities to explore their own aptitudes and interests, and more information about all the possible ways they can leverage their best abilities into meaningful careers. They need opportunities for job shadowing, internships, and volunteer work.

Most middle and upper-class students have family and community networks that provide a great deal of this learning; low-income students often do not. To fill this gap for low-income students, students in foster care, students of color, and students in the juvenile justice system, there are some programs that offer students mentoring, help with study skills, early outreach from higher education institutions, and a curriculum that teaches students and their families the skills they need to take charge of their own education and to plan and prepare for their future.

Despite their effectiveness at improving student achievement, reducing the dropout rate, and stimulating participation in higher education, these programs have not become an intrinsic part of every student's education. They serve only a fraction of students in a fraction of our schools.

Policy goal: Higher education will partner with K-12 to provide every student, in every public school the mentoring, academic advising, and skill development necessary to plan, prepare for, and enter postsecondary education.

Engage families and communities

Expanded early learning programs and more engaging and culturally responsive public schools can do a great deal to close the achievement gap. But schools cannot succeed alone. To plan for their futures, students need to see and experience what life is like in a variety of trades and professions. They need stable, ongoing relationships with adult mentors and role models. They need opportunities to serve their communities and to participate in cultural and civic events. They need to learn and practice both academic skills and democratic values.

This requires a web of family and community support. Our state has a rich array of such supports – including faith communities, youth service organizations, business associations, and parent organizations. But there are critical gaps. Far too many boys – especially boys of color – are not achieving the academic success we know they are capable of. And far too many children from low-income families lack the role models and relationships they need to raise their expectations.

Policy goal: Foster the creation of community-based programs will help low-income and minority children and families prepare for postsecondary education.

Create multiple pathways from high school to college or workforce training

Running Start, College in the High School, Advanced Placement, Tech Prep and similar programs are helping high school students move to more advanced levels of education faster. The state's investment in additional skills centers, combined with articulated programs between skills centers and community and technical colleges, also provide a growing array of opportunities for high school students to achieve their education and career goals quickly and efficiently.

But growth in key programs is constrained by insufficient funding, and sometimes by a lack of student knowledge about them. For example, Running Start is used mostly by students who want a head start on earning a college degree, but it is also available – though underutilized – for students who want an early start in workforce training programs.

A new Running Start program for the trades is a small step toward helping more students meet their career goals sooner. Similarly, we need to increase awareness and visibility of our Tech-Prep programs, which provide high school students with dual-credit courses in an articulated pathway to postsecondary workforce education programs. Tech-Prep enrollment has grown and is now on par with Running Start enrollment statewide and deserves similar levels of support and recognition.

We need even more innovative thinking about the last two years of high school and the first year or two years of postsecondary education or job training. Our students need much more flexibility so that those who want to accelerate can, and those who need extra help receive it. And all students need more opportunities to explore the world of work, and access to the information and skills necessary to chart their own path from school to a rewarding career.

Policy goal: Provide high school juniors and seniors multiple pathways to success, including an expanded array of learning options for accelerated advancement or intensive help to meet rigorous academic standards.

Prepare educators for the 21st century

The higher education system prepares Washington's public school teachers, principals, and other school administrators, and provides professional development for those who are already working in our schools. OSPI also provides extensive professional development opportunities. Improving these programs could pay big dividends.

The higher education system also will play a key role improving the quality of early learning programs in Washington by expanding and improving the education of early learning providers. Among the areas of emphasis needed are improved parent education and education of early learning providers ranging from certificates to masters' degrees. Immediate and significant expansion of these programs is needed.

The higher education system also prepares Washington's public school teachers, principals and other school administrators, and provides professional development for those who are already working in our schools. Improving these programs will pay big dividends.

For example, one of the impediments to bringing programs such as Navigation 101 to scale in our public schools is that many of today's teachers are not prepared to take on the role of academic advisors or mentors. Some welcome this new role and learn the skills needed to lead Navigation or AVID classes; others do not believe this should be part of their job description.

Similarly, certainly not all, but many of today's teachers were prepared to teach students like themselves – students who are white, middle-class, without disabilities, and college-bound from birth. Many teachers have gained insight into the cultures and expectations of diverse students in order to motivate and engage them. Others have not. There also is a chronic shortage of teachers of color, and especially of teachers who are bilingual, as well as a chronic shortage of special education teachers.

In elementary and middle schools especially, many teachers feel unprepared to help students achieve the higher levels of skill in math and science they will need. These teachers need help. And in middle and high schools, many teachers need to hone their skills to provide better instruction in advanced levels of math and science.

To improve learning in math and science and help close the achievement gap for low-income students and students of color, we will need to recruit strong teacher candidates and offer those candidates effective preparation in both subject matter and pedagogy. We also will need to expand professional development programs for incumbent teachers.

The HECB sponsors professional development for K-12 educators through its federally funded Improving Teacher Quality Program. This program provides competitive partnership grants for projects that provide professional development for teachers, principals, and highly qualified paraprofessionals. The program's purpose is to increase student achievement in core academic subjects by improving educator quality through professional development.

Policy goal: Invest in teacher preparation (pre-service and in-service) to produce early learning providers, K-12 school teachers and administrators who can effectively engage families and communities to close the achievement gap, raise student proficiency in math and science, provide high-quality academic advising, and increase college attendance .

3. Create a system of support for lifelong learning

Study, learn, work . . . and repeat

College isn't just for young people any more. Today about half of state financial aid is used by people who are over 24, or who already have a family. These students come to the higher education system with a wide range of educational needs. Some already have a bachelor's degree but need a specific job skill; others come back for a second bachelor's degree, a graduate degree, or a specific course related to their profession.

Our community and technical colleges serve a wide range of adult students: new immigrants or former high school dropouts who need basic literacy skills and job training; adults who are getting the first two years toward a baccalaureate degree; and college graduates who need technical skills.

There also are many adults who go to public, independent or for-profit career schools and colleges intermittently, alternating periods of work and education. They take classes when they can find a babysitter or synchronize work and class schedules, or enroll in school when they lose a job and need new skills for another. They move between two- and four-year institutions – or between public, independent, and private career colleges – and come in and out of the system. At times they take only one class; at others they may attend full time; at still other times – for example, upon the arrival of a new baby in the family – they may not continue their education for awhile.

These students confound traditional ideas of education coming in predictable, tidy sequences and timelines. They also frustrate those who would measure higher education productivity by how quickly students earn degrees. But these students are the system's customers as surely as "traditional" 18-year-old high school graduates. And the learning that these "non-traditional" students pursue is every bit as important to their future and to the future of our state. We need to do more to adapt the system to their needs. We also need to offer these and other students more help designing individual pathways to meet their career and life goals.

Make transfer user friendly

Increasing numbers of high school graduates are accessing postsecondary education through a "cafeteria" approach, taking classes at multiple institutions before obtaining a degree. Improving students' ability to transfer from community and technical colleges to baccalaureate institutions and among all types of colleges and universities is necessary to ensure greater levels of bachelor's and advanced degree attainment in Washington.

About 41 percent of the 16,800 students awarded degrees at Washington public baccalaureate institutions in the 2000-01 academic year had completed at least 40 credits at a community or technical college. Of these students, 67 percent (27 percent of those earning baccalaureate degrees) had completed an academic associate degree, and another five percent (two percent of baccalaureate degree earners) had completed both an academic and a technical associate degree prior to transfer.

Despite these successes, some students who begin their academic journey at community colleges with the intention of transferring and completing a baccalaureate degree, never reach their goal. In the 2004-05 academic year, about half of the students who had enrolled in 2001-02 intending to transfer in pursuit of a bachelor's degree actually had transferred to public four-year colleges in Washington.

Students don't reach their goals for a number of reasons, such as: changes in their personal lives, their finances, or their employment. But higher education can do more to help all students navigate the system. We can help them map out individual pathways to career and life goals without having to repeat courses, lose credits that don't transfer, or wait for classes that aren't available when needed.

To recognize increasing mobility among students, two separate but connected initiatives are necessary. The first would further align institutional policies and practice to ensure that students have flexibility in designing their path to a degree. The second would get the right information to students at the right time.

To provide students with maximum flexibility in planning their route to a degree, we must:

- As needed in the future, design additional pathways that allow community and technical college students to prepare for entry into selective majors at more than one baccalaureate institution.

- Connect faculty and administrators across institutions and sectors more broadly and more regularly, to ensure that pathways stay current with expectations of industry, and that other obstacles can be dismantled. This 'behind-the-scenes' communication among institutions is critical to ensure that the transfer pathways for students are, and continue to be, effective and efficient.

- Regularly assess these pathways in greater depth to ensure they are providing students with the most efficient road to their educational goals.

New and improved pathways to degrees are useful only if students know about them. Clear communication with students and their families is needed to make transfer work well. A single, statewide Web site, with information on course articulation, transfer requirements, and other relevant information is needed. The site will provide students a better understanding of the different paths available to help them make better choices in coursework, and spell out their transfer options more completely.

Such a Web site could:

- Provide students with a one-stop shop that contains information for every public, independent, and private college and career school in the state;

- Give students the ability to manage their own information and share it with the institutions they choose in an electronic format;

- Show high school students that the academic choices they make can influence the time it will take them to complete certain major courses of study in college;

- Provide information about all of the available pathways for efficient transfer;

- Illustrate for students how transfer to different colleges will affect their time to degree and requirements for graduation; and

- Connect the community and technical college registration process with the baccalaureate admissions process.

The Higher Education Coordinating Board can coordinate these efforts to avoid duplication and ensure integration of technology approaches and applications.

Policy goal: Develop an array of simple and accessible information tools to help students and adult learners understand and navigate through the postsecondary education system.

Schedule learning differently and customize instruction

Scheduling issues are also a major barrier for many adult learners. Some institutions have responded by creating new ways of "packaging" education. For example, some offer intensive weekend courses that allow students to complete a semester or quarter of credit in one month. Others offer blocks of classes early in the day or late in the day, so students can still get in a full shift at work. Many also combine in-person and online learning and offer more web-based learning resources. As the proportion of working adults in our higher education system grows, it is becoming more important to tailor programs to student needs in this way. New technologies offer a wealth of opportunity for expanding the array of education delivery systems, and for creating powerful e-learning communities.

There also is a growing need for "just-in-time" learning. Many adult workers may suddenly need skill upgrade training, and only have time for just what they need. The need may arise from a new business opportunity, a new technology or piece of equipment, a new product line or service, a new market. Just-in-time and customized training are often the solution to a pressing business need.

Delivering this type of training presents a significant challenge for colleges and universities, whose traditional approach has been to provide courses in sequence over time. Institutions will need to develop customized curricula, modular course units, and more effective assessment tools to pinpoint specific learning gaps. And they also will need to determine how to grant academic credit for prior learning or knowledge and skills acquired on the job. Institutional academic leadership will need to work closely with the continuing education and extended learning communities to achieve fully integrated institutional support for just-in-time learning.

Policy goal: Develop the capacity to respond to the "just-in-time" learning needs of non-traditional students, adult workers and Washington businesses.

Improve student advising, support services, and child care

Improving academic advising services, child care, and other support services also is becoming a more urgent need as the adult student population grows. Improved student advising and support can help students achieve their goals faster, thus reducing costs to both students and the system.

Child care – care that provides high quality early learning – should be available and affordable for students and higher education staff and faculty. Student parents who advocate for child care cite it as one of the most important obstacles to student success, and a high priority for system improvement.

Its absence is an enormous barrier to both student participation and staff recruitment and retention. Our colleges ought to become a model for the nation in the provision of this important support service. Campus-based early learning programs also can serve as a training tool for early learning providers, thus helping the state achieve the goal of improved early learning for all.

Policy goal: Provide an array of student support services, including academic advising and high-quality child care.

Adult education: the route to upward mobility

As the skill levels required for family wage jobs increase, so does the need for expanded and improved programs for under-educated adults. In today's economy, education and training are the primary route out of poverty. Improving the skills of workers at the bottom of the wage ladder also improves economic productivity and prosperity in the communities in which they live.

Perhaps even more important, educating parents significantly improves their children's likelihood of success in school and in life. Helping under-educated adults has multi-generational benefits. Today's low-income adult learners face formidable barriers. Most have competing demands from children and jobs. Many lack transportation. And many are recent immigrants who need to learn English as well as job skills. It is difficult for them to find and enter education programs; it is even more difficult for them to persist and complete them.

Yet within the community and technical college system, adult basic education and English as a Second Language programs have the least amount of funding. Because these programs serve people who are not ready for college-level coursework, they are often treated as the step-children of the larger higher education system. Raising public and policymakers' awareness of their importance, their power to change lives and communities, and their need for funding and support must be a higher priority. It does not make sense for those who need education the most to get the least.

In the last few years, there have been significant innovations and successes in adult basic education and English as a Second Language programs, and in connecting them with workforce training programs that give people more earning power. In the past, students were required to progress through ESL and basic education programs *before* they could learn job skills. Now programs that combine ESL, basic skills and job skills (Integrated Basic Education and Job Skills, or I-BEST) have produced much faster gains and higher earnings for students.

The federal contribution to programs serving under-educated adults has been shrinking, and the state's most effective programs, such as I-BEST and Opportunity Grants, serve only a small fraction of those who could benefit. There is also a need for more outreach to the least educated, who are often unlikely to hear about the educational opportunities that do exist, or to receive the encouragement and support they need to take advantage of those opportunities.

Policy goal: Expand opportunities for immigrants and under-educated adults to enroll and succeed in postsecondary education and job training programs.

4. Make college affordable and easy to access

The State Need Grant (SNG) program, which serves students in public and private, two- and four-year colleges and universities across the state, is expected to serve about 72,000 students in 2007-08. SNG helps both recent high school graduates and non-traditional adult students participate in postsecondary education. Almost half of all SNG recipients are over the age of 24 (25 percent are over the age of 30) and about a third have children of their own. A growing number of SNG recipients are attending part time (16 percent in 2006-07, up from 12 percent the year before).

New financial aid programs created by the 2007 Legislature include:

- The **Opportunity Grant Program**, which is administered by the State Board for Community and Technical Colleges, helps low-income adults enroll in and complete job training programs for skills that are in high demand by employers.

- The **College Bound Scholarship** provides a promise of financial aid as an incentive for low-income middle school students to plan and prepare for college. And, a complementary program expansion extends the early awareness and college preparation services of GEAR UP to 25 additional school districts.

- The **Passport to College Promise Scholarship** encourages foster youth to prepare for, attend, and successfully complete postsecondary education.

- The **GET Ready for Math and Science Conditional Scholarship Program** provides high school students who excel in math or science with an incentive to enroll and work in these fields.

Project future needs and refine programs

The number of low-income students in the educational pipeline is expected to grow in the next decade and beyond. The state should expect greater rates of participation as a result of programs designed to increase the level of aspiration and preparation for postsecondary education. And student aid administrators will need to anticipate and respond to the needs of future student populations such as increasing numbers adult learners, first-generation college students, students of color and others**.**

Policy goal: Maintain the state's leadership role in providing need-based financial aid by expanding and refining need-based financial aid programs to serve more low-income students.

Simplify financial aid and admissions

Decisions about whether and where to attend college and how to pay for it can be daunting for many students and families. The processes to apply for admission to college and financial aid can be mystifying. Students often apply only to those colleges they believe will admit them, and those they think they can afford. Often they make these decisions with too little information, and miss important opportunities. Simple, high-quality, clear and consistent information on college planning, choice, preparation, and financing is needed. Lack of this information acts as a significant barrier, to low-income, first generation students and families for whom higher education is unfamiliar territory.

There is no statewide, personalized assistance to address concerns and questions on preparing and paying for college. Nor is there a system for helping prospective students with the lengthy, complex federal form that must be completed to apply for financial aid. Any high school student – or inexperienced adult, for that matter – who lacks help filling out these forms is at a serious disadvantage.

The state cannot alter the federal student aid application process. It can, however, seek ways to make state and local financial aid and scholarship processes simpler, more user-friendly, and much better known to prospective students of every age, income group, culture, and walk of life.

Policy goal: Provide clear and comprehensive information about admission procedures and financial aid and improve the simplicity and transparency of financial aid administration.

The dilemma of middle-class students and growing debt

The Higher Education Coordinating Board has been encouraging Washington families to save for college now and reduce the amount of money they borrow later. And today more than 70,000 future students have money set aside for their college expenses through the board's Guaranteed Education Tuition (GET) program.

But despite this increase in family savings, thousands of students continue to graduate from college with record levels of debt. Last year 65,000 resident undergraduate students took out student loans at an average of $6,600 per student. About 22,000 students borrowed more than $8,000, and about 6,000 students borrowed more than $15,000 in that year. It is likely that thousands of students are also borrowing through private market loans.

Too many low-income students are borrowing heavily. State and federal grants and work-study make it possible for many students to avoid over-indebtedness, but many students are enticed by the direct-to-consumer marketing and ease with which they can borrow. Outreach and financial aid awareness activities could provide greater financial literacy for prospective students.

For a family of four, the maximum family income to be eligible for the State Need Grant is $50,500. Many students and families who are above this limit and who borrow, tend to accumulate higher student debt than SNG recipients. For some people fear about taking on debt may keep them from enrolling in higher education.

Washington is missing the opportunity to reap the civic, cultural, and economic contributions of these people by not providing adequate levels of aid to ensure access to postsecondary education. Expanding the income limits for State Need Grant eligibility even further will be necessary in the next decade to ensure more people 'on the margin' do not find college costs a barrier.

Subsidized jobs provided by the State Work Study program, also can play a significant role in helping students avoid taking on debt. Demand for work-study jobs has outstripped the available funding to support the positions. Today, state's work-study funding is sufficient to assist about one in every 16 needy students. This compares to an historical ratio of one in 12 just a decade ago.

Policy goal: Reduce student indebtedness by providing accurate information and advising about alternatives to borrowing; and expanding need-based financial aid to middle-income students and families.

II. Promote economic growth and innovation

In a knowledge-driven economy, higher education plays a vital role in promoting economic growth. Leading-edge scholarship and research help create new industries and products, solve pressing problems in environmental protection, climate change, food safety and animal and human health. These innovations create new industries and jobs that require a well-educated workforce.

But getting the full potential economic gain from higher education requires more careful planning, forecasting of workforce, entrepreneurial, and research needs, and better incentives for both institutions and students to respond to specific economic opportunities.

Fill unmet needs in high demand fields

A 2006 HECB report found shortages of people with baccalaureate and graduate degrees in engineering, computer science, the medical professions, editing, writing and performing occupations, human and protective service occupations, research, scientific, and technical occupations.

Mid-level postsecondary education degree and certificate programs that prepare students to enter an occupation or trade also are not meeting employer demand in Washington. There are shortages of qualified workers in the construction trades, health care, early childhood education, auto mechanics, the installation/maintenance/repair fields, and aircraft mechanics.

Thanks to sustained funding, the community and technical college system has expanded high demand enrollments since 2000, focusing primarily on health sciences. The results are an increase of 71 percent in Allied Health and Health Services degree awards between 2000 and 2006. Still, further expansion is needed to meet employer demand for jobs requiring mid-level preparation.

A similar sustained and focused investment to expand high demand enrollments is underway, and needs to be sustained at the baccalaureate and graduate levels that focus on science, technology, engineering, mathematics, and health services. Expansion of high demand enrollments should be based on a recently agreed upon definition of high demand that was developed for use by state agencies and institutions.

Policy goal: Expand bachelor's and advanced degree programs in science, technology, engineering, mathematics and health sciences and mid-level degree programs in the construction trades, health care, early childhood education and other middle-wage occupations.

Promote student enrollment in STEM fields

More must be done to inform prospective students about career opportunities in high demand fields, and to actively recruit students for these occupations. Responding to this need can serve two goals: the goal of economic growth, and the goal of equal access to opportunity.

For example, too few women and people of color earn degrees in science, technology, engineering and math (STEM) fields. Women of all races and people of color are also under-represented in the most lucrative high demand professions.

Several effective outreach programs have been developed to encourage middle and high school students of color to enter STEM fields by providing educational experiences and encouragement. However, far too few of these programs exist to serve all the students who would benefit from them.

A comprehensive approach to development and expansion of the number of students enrolling in high demand fields must include:

- A sustained, statewide public information campaign, in collaboration with the Puget Sound Regional Council's Prosperity Partnership, to inform students, parents, and educators about the opportunities available in high demand programs and how to prepare for them;
- Student access to career exploration opportunities in middle and high school;
- Student opportunities to interact with professionals and potential role models in high demand fields;
- Experiential, project-oriented learning in K-12 schools, including science fairs, career academies, summer science camps, field trips and guest speakers;
- College counseling, student retention, and academic support services that target low income and first-generation college students; and
- Diverse college faculty in high demand fields of study.

Policy goal: Improve student interest in and preparation for programs in high demand by employers.

Expand research capacity

The University of Washington is the nation's number one public higher education recipient of federal research dollars. But celebrating this fact can create a misguided complacency regarding our need to invest in basic research – creating the false impression that the federal government has taken care of this for us. The truth is that we are not doing that well compared to other states with regard to federal research funding overall, and the total level of research and development investment in our state.

Both research and regional universities engage in research that is vital to our state's future, but they struggle to sustain and expand their research capacity, and to provide opportunities for students to participate in research projects. Researchers often lack the support services they need to apply for and win grant funding that would support their work.

Research is vital not only to our state's economic growth, but also to excellence in teaching. Research and teaching go hand in hand, and students who participate in research reap lasting benefits from participation in the quest for new knowledge. Students who have the opportunity to participate in research as undergraduates also are more likely to become researchers.

Policy goal: Invest in university- and college-based research that improves student learning and drives innovation and economic growth.

Contribute to the innovation economy

As the Governor's *Next Washington* economic development strategy notes, high tech, research-intensive industries are a critical part of our state economy. Among the "smart strategies" proposed are initiatives to strengthen research capacity at our higher education institutions and improve commercialization of research products.

This must include attention to each stage of the technology commercialization process: bringing star researchers to our state, funding basic and applied research, identifying commercially promising research results, and developing license agreements with outside organizations.

Both the University of Washington and Washington State University have technology transfer offices that comb the institution for research results that have commercial potential. These offices also support the intellectual property rights of the researcher and the institution, collect information on innovations and inventions from academic research, help file patent applications, develop technology licensing or option to license agreements, and identify commercial research opportunities. They may also help licensees start and develop new businesses, or direct them to business development assistance. Our state needs to do more to support the success of these offices.

Policy goal: Promote commercialization of university research innovations.

Stimulate capital formation and create an entrepreneurial environment

Many institutions lack researchers and staff interested in taking a research product through all of the stages necessary for the development of research commercialization. Entrepreneurial skills and assistance, access to finance capital, and business development resources may also be lacking.

Policy goal: Develop centers of entrepreneurial innovation and training in Washington colleges and universities.

Build a coherent approach to workforce development

In 1991, the governor and legislature set out to create a coordinated system for preparing workers for jobs that do not require a baccalaureate degree. These steps included moving the technical colleges into the community college system, placing programs for adult literacy at a new Office for Adult Literacy, and creating the Workforce Training and Educating Coordinating Board (WTECB) to coordinate policy, planning and evaluation for the workforce training system.

The governor and legislature (through the 1991 statutes and a subsequent executive order) defined the training system to include eighteen programs administered by seven different agencies. In addition to workforce and adult education programs at the community and technical colleges, the system includes apprenticeship programs, private career colleges (proprietary schools), the Division of Vocational Rehabilitation at the Department of Social and Health

Services, Workforce Investment Act programs for disadvantaged people and dislocated workers, WorkSource career centers that connect people with these programs and with the public labor exchange, and secondary career and technical education. The public and private colleges and apprenticeship programs provide most of the skills training and literacy instruction, while the other programs help provide funding and support services, including assistance with finding a job.

The Workforce Board maintains a comprehensive plan for this system, (see *High Skills, High Wages: Washington's Strategic Plan for Workforce Development)*, including goals, objectives, and strategies. This plan helps coordinate the training programs so that customers of multiple training programs feel more like they are being served by a system rather than a hodgepodge of programs with conflicting goals and requirements.

Workforce development, however, does not end at the 14th year of schooling. Baccalaureate, graduate, and professional programs are a critical part of preparing people for the labor market and for meeting employers' workforce needs. In fact, nearly one-third of Washington's adult workforce holds a baccalaureate degree or beyond, and many more aspire to be in that group. As our higher education system renews its emphasis on helping our state compete in the global economy, we must be more mindful of the role that four-year colleges and universities play in preparing the workforce. This will require more collaboration between four-year colleges and universities and the workforce preparation that occurs in the sub-baccalaureate workforce training system to create worker friendly career pathways among two-year and four-year degree programs. Collaboration needs to take place at the local, state, and regional levels.

Policy goal: Develop a statewide consensus that public and private, two- and four-year colleges and universities comprise the workforce education system.

Find new ways to finance work-related education and training

Job tenure has declined dramatically in the last 20 years, and changing jobs often makes it more difficult for workers to rely on employer support for their professional development. Not all employers offer tuition reimbursement to their employees, and the benefit is not portable from one employer to another. Furthermore, research indicates that lower paid workers are less likely to be offered training opportunities, or to take advantage of them when they are available.

More portable and flexible options for promoting and financing skill upgrade training and professional development are needed. The HECB, WTECB, and their partners are exploring Lifelong Learning Accounts (LiLAs). LiLAs are employer-matched, portable individual savings accounts used to finance education and training—like a 401(k) for skill building and career advancement. The HECB will participate in a LiLA pilot project in 2008 in collaboration with the Workforce Training and Education Coordinating Board, to investigate the feasibility of this option for statewide implementation.

Policy goal: Broaden and coordinate the mission of educating the state's future workforce to be shared by all two- and four-year colleges and universities.

III. Monitor and fund higher education for results

The state currently funds public higher education based on enrollment. The state budget assumes specific enrollment numbers for each four-year institution and for the community and technical college system as a whole, and allocates an average dollar amount per full time student. Students are counted on the tenth day of the quarter or semester to determine actual (as distinct from budgeted) enrollment levels.

This is a common method of funding higher education, but it has several limitations. First, by funding each full-time enrollment at the *average* cost of educating all students at that institution, there is a built-in disincentive for institutions to offer or expand degree and certificate programs that are more costly than average. The legislature has recognized this disincentive in recent budgets by providing higher funding levels for specified enrollments in "high demand" programs in science, math, engineering and allied health professions that have higher than average costs.

A second limitation is that enrollment-based funding is disconnected from results. It assumes results, but does not direct them. Policy makers in Washington and in many other states are searching for ways to connect funding to state policy priorities and to create incentives for improved outcomes.

It is time for change

This strategic master plan advocates for a dramatic increase in the number of Washingtonians who hold degrees and certificates beyond high school. It is unlikely that these ambitious aspirations can be accomplished with our current funding and accountability structure. In order to achieve the magnitude of system-wide growth and the dramatic gains in educational outcomes advocated in this plan, we need to (1) improve over time the amount of per-student funding levels, (2) strengthen and refocus our accountability strategies, and (3) provide at least some portion of funding that rewards desired outcomes. These are interrelated challenges.

Funding levels tied to Global Challenge State Benchmarks

Per student funding levels are addressed by new state policy adopted in 2007. Based on recommendations from *Washington Learns*, Senate Bill 5806 established a long-term goal to improve per-student funding over the next 10 years to at least the 60th percentile of similar institutions in the Global Challenge States. By also holding tuition to modest annual increases (7 percent per year), the new law requires the state to provide steady improvement in the level of funding per student. The Office of Financial Management is required to develop a "funding trajectory" from current funding levels to achieve the 60th percentile goal by 2017. OFM's first report is due by September 2008.

Policy goal: Improve per-student funding levels consistent with Global Challenge State benchmarks established by SB 5806

Focusing Accountability on Master Plan Goals

The HECB now requires institutions to report each biennium on a number of specified outcomes: the number of degrees awarded, graduation and retention rates, transfer rates, and other results. Colleges are also required to report other accountability measures to a variety of oversight entities. The newly formed P-20 Council is in the process of developing a set of indicators to measure progress toward the ten year goals advocated by *Washington Learns.* While these various and overlapping reports may provide a sense of public accountability, taken as a whole their lack of focus diminishes their power to drive results.

The purpose of a statewide strategic master plan is to identify the overarching goals of the state's postsecondary education system. A limited and focused set of accountability measures must be designed to monitor progress and incent institutional behavior that can accomplish these goals.

Policy goal: Modify and coordinate Washington's various postsecondary accountability systems to focus on monitoring progress toward achieving the goals of this Strategic Master Plan.

Exploring financial incentives for educational attainment

Washington funds higher education based on enrollment under the assumption – well grounded in past history – that if we fund the inputs (enrollments), the outputs we want (degrees and certificates) will follow. By modifying our funding methodology to reward performance, we could create powerful incentives for improving outcomes.

Several approaches for linking performance and funding are possible:

- Reward improvements in student progression toward degrees and certificates. The community and technical college system has begun to test a strategy to reward a modest amount of additional funding to colleges that improve student outcomes based on key benchmarks that mark progress toward degree and certificate completion.
- Provide some portion of funding based on *completed* course enrollments, in addition to funding based on enrollments measured on the 10th day of the quarter or semester. This would represent a progress point on the path to program completion.
- Fund completed degrees or certificates in addition to enrollments.
- Develop performance agreements as a mechanism to connect funding with desired outcomes.

Policy goal: Create a new funding methodology that focuses some revenue on results.

Implementation

December 2007

Moving the blue arrow
Pathways to educational opportunity

2008 Strategic Master Plan
for Higher Education
in Washington

Implementation Plan

The 2008 Strategic Master Plan charts the course for improvement of the state's higher education system over the next decade and beyond. To get started with this important work, the Higher Education Coordinating Board will lead initiatives in three main areas of emphasis during the coming year.

The work immediately ahead consists of establishing strategies and crafting proposals that will, when carried out fully, achieve long-term goals. Following is a summary of the initiatives scheduled for the plan's first year.

I. Raise educational attainment to create prosperity, opportunity

II. Promote Economic Growth and Innovation

III. Monitor and fund higher education for results

I. Raise educational attainment to create prosperity, opportunity

Policy Goal: *Increase the total number of degrees and certificates produced annually to achieve Global Challenge State benchmarks.*

- By 2018, raise mid-level degrees and certificates to 36,200 annually, an increase of 9,400 degrees annually. Maintains our national leadership position.

- By 2018, raise baccalaureate degree production to 42,400 per year, an increase of 13,800 degrees annually. This equals the 75th percentile of the GCS.

- By 2018, raise advanced degree production to 19,800 per year, an increase of 8,600 degrees annually. This equals the 50th percentile of the GCS.

- By 2018, we would need a total higher education enrollment of 297,000 FTEs, an increase of 27 percent compared the current biennium.

Action: *To achieve these degree goals, by October 2008, the HECB, SBCTC, public and independent sector institutions and other key partners will develop a detailed enrollment plan that draws on the current strengths of the existing system and proposes expanded pathways to degrees for Washington citizens.*

Expected outcomes

- Move Washington from seventh to third among the GCS in terms of bachelor's degrees awarded and from last to fifth in advanced degrees awarded.

- Yearly reporting on progress toward degree goals as part of institutional accountability reporting.

- Numbers and types of new programs needed, including high demand programs and programs for adult learners.

Policy Goal: *Create innovative, efficient facilities and programs that meet the learning needs of students throughout the state.*

Action: *By October 2008, as directed in HB 3658, Section 610(6), the HECB, SBCTC, and institutional partners will complete a study of the physical and programmatic capacity needs of higher education, including an assessment of the technology needed to support teaching, learning, research, and course delivery.*

Expected outcome

- Continued and increased funding for prioritized capital projects needed to support quality, sustainability, access and the priorities of the Strategic Master Plan.

Participants: HECB, SBCTC, Council of Presidents, public and independent baccalaureate institutions, the community and technical colleges, and P-20 Council.

Four strategies to raise educational attainment

1. Focus on diversity

Policy Goal: *Increase the number and percent of students, staff and faculty of color in postsecondary education.*

Action: *By December 2008, in collaboration with public and independent baccalaureate institutions and the State Board for Community and Technical Colleges, the Higher Education Coordinating Board will propose to the Governor and State Legislature a systemic framework for diversity in higher education that includes the development of effective, comprehensive data systems to provide for review, evaluation and accountability and to inform statewide decision making.*

Expected outcomes

- No later than 2015, Washington State will place among the top 10 states in the nation in achieving parity for under-represented minority students and students in poverty in accessing higher education.

- By 2020, Washington State will place among the top 10 states in the nation in achieving parity for under-represented minority students and students in poverty in completing two- and four-year college degrees.

Participants: HECB, SBCTC, public and independent baccalaureate institutions, Council of Presidents, ethnic commissions, students, and faculty members.

2. Create higher expectations for all K-12 students

Policy Goal: *Provide every student in every public school the mentoring, academic advising and skill development necessary to plan, prepare for and enter postsecondary education.*

Policy Goal: *Invest in teacher preparation (pre-service and in-service) to produce early learning providers, K-12 school teachers and administrators who can effectively engage families and communities to close the achievement gap, raise student proficiency in math and science and provide high-quality academic advising.*

Policy Goal: *Create community-based programs to support and mentor low-income and minority children and their families to prepare for postsecondary education.*

Action: *Expand access to early learning provider education programs and to teacher preparation programs in math, science, bilingual education, special education, and other shortage areas. Assess the need for additional programs or locations, and encourage institutions of higher education to offer additional programs or use additional locations if appropriate. Incorporate the findings of the need assessment in the next revision of the HECB State and Regional Needs Assessment Report by May 2008.*

Action: *By October 2008, convene a statewide task force to project teacher shortages by field, and to work with the Professional Educator Standards Board to implement its policy to improve teacher preparation and professional development programs. This should include efforts to ensure that teachers are well prepared to teach diverse students, that they are well versed in fields that they will teach, including math and science, and that they are skilled in providing academic advising and mentoring that helps students plan for their futures. Findings and Actions will be sent to the legislature by October 2009.*

Action: *To ensure a welcoming and inclusive environment for students, training and professional development opportunities for K-12 and higher education faculty and staff will be provided training and professional development opportunities focusing on cultural competency. A rubric will be developed by December 2008 that describes cultural competency standards.*

Action: *By October 2008, working with college access program partners and community-based organizations, the HECB will survey and review existing postsecondary outreach programs and efforts, evaluate which programs have the best outcomes, identify gaps, and propose a college and career aspiration campaign to reach students in every school district.*

Expected outcomes

- College access programs will be expanded to reach increasing numbers of students identified as at-risk for not completing high school and continuing to postsecondary education.

- New educators will enter the teaching profession better prepared to teach core subjects such as math and science, well-prepared to teach students from diverse ethnic and racial backgrounds, and skilled in mentoring and advising.

- Practicing teachers will have broadly improved access to professional development programs that can help them obtain endorsements in teacher shortage fields, acquire the skills to differentiate instruction for diverse students, and fully understand and use evolving academic and college readiness standards.

Participants: The HECB, SBCTC, baccalaureate institutions, Independent Colleges of Washington, Office of the Superintendent of Public Instruction, P-20 Council, community and technical colleges, Professional Educators Standards Board, State Board of Education.

3. Create a system of support for lifelong learning

Policy Goal: *Provide high school juniors and seniors multiple pathways to success, including an expanded array of learning options for accelerated advancement or intensive support to meet rigorous academic requirements.*

Policy Goal: *Develop an array of simple and accessible information tools to help students and adult learners understand and navigate the postsecondary education system.*

Action: *By June 2008, the HECB will initiate work with the Education Research and Data Center at the Office of Financial Management to develop ongoing assessment of student transitions through higher education, including the effectiveness of transfer pathways. Analysis will include HECB research into factors that influence students' rate of transfer, including geographic, financial and other relevant factors, and will be presented in the bi-annual HECB report to the Legislature and Governor on transfer policy.*

Action: *The HECB will convene a task force to develop a comprehensive plan to expand the use of online communication (Web sites, software, e-mail) to support and retain students through their transitions among higher education institutions with specific emphasis on transfer pathways. The work group will recommend funding for the plan in the 2009-2011 biennial budget.*

Action: *By June 2008, the HECB will initiate a task force to develop additional models and or funding strategies to expand the opportunities for high school juniors and seniors for Running Start and other accelerated options.*

Action: *The HECB will work with public and private higher education institutions through the Joint Access and oversight Group (JAOG) to continue and strengthen policy work that smoothes transfer pathways for current and future students.*

Expected outcomes
- Increased number of students who successfully use early college options to focus their learning goals and/or expedite their educational outcomes.
- Significant increase in the number of students who transfer successfully between two- and four-year institutions as measured under current accountability framework.
- Increased rates of participation in education and job training programs leading to greater economic productivity and personal prosperity.

Participants: HECB, public and private baccalaureate institutions, community and technical colleges Workforce Training and Education Coordinating Board, Council of Presidents, Office of the Superintendent of Public Instruction.

4. Make college affordable and easy to access

Policy Goal: *Maintain the state's leadership role in providing need-based financial aid by expanding and refining need-based financial aid programs to serve more low-income students.*

Policy Goal: *Provide clear and comprehensive information about admission procedures and financial aid and improve the simplicity and transparency of financial aid administration.*

Policy Goal: *Reduce student indebtedness by providing accurate information and advising about alternatives to borrowing and expanding need-based financial aid to middle-income students and families.*

Action: *By November 2008, the Board will seek a modification in the state's financial aid statute to affirm the legislature's intent to provide the financial aid funding for low-income students needed to keep pace with tuition increases and to achieve enrollment and degree production goals.*

Action: *By November 2009, the Board will work with other state agencies and postsecondary institutions to evaluate all state financial aid programs for accessibility, outcomes, coordination, and efficiency.*

Action: *The Board will promote increasing the State Need Grant eligibility threshold from 70% of median family income to 85% of median family income.*

Action: *The Board will promote increasing funding for work study jobs sufficient to provide a subsidized job for at least one in 12 needy students.*

Expected outcomes
- The legislature's commitment to provide adequate levels of financial aid to support enrollment and degree production goals will be formalized in statutory intent language.
- Clear policy goals for each state student aid program will guide development of administrative improvements, performance goals, greater coordination and efficiency.
- More people will go to college.

Participants: The HECB; the Legislature; public and private baccalaureate institutions, the SBCTC and community and technical colleges; the WTECB; and students.

II. Promote Economic Growth and Innovation

Policy Goal: *Expand bachelor's and advanced degree programs in science, technology, engineering, mathematics and health sciences and mid-level degree programs in the construction trades, health care, early childhood education and other middle-wage occupations.*

Policy Goal: *Improve student interest in and preparation for programs in high demand by employers.*

Policy Goal: *Invest in university- and college-based research that improves student learning and drives innovation and economic growth.*

Action: *By June 2008, the HECB will collaborate with the P-20 Council to coordinate efforts to increase the number of students who enroll and succeed in high demand fields. The work group will report to the Council on a quarterly basis and develop initial policy Actions for the 2009-2011 biennial budget.*

Action: *By October 2008, Washington's postsecondary education institutions and the HECB will develop a research task force to focus on expanding federal, state and private support for college-based research programs, improving technology commercialization, and developing entrepreneurial skills and capacity.*

Action: *By June 2008, convene a working group to identify steps needed to more fully integrate our workforce development planning efforts and build better and more complete career pathways for Washington workers.*

Expected outcomes
- Increased statewide awareness about high demand fields, new program development and delivery strategies, greater accessibility for under-served populations, increased enrollment and degree production.

- Increased levels of research support for both the regional and research universities: for new collaborative projects with business, and growing entrepreneurial capacity in postsecondary education.

- Improved student access to career exploration opportunities in middle and high school; far lower levels of college remediation; more portable and flexible means of financing career education.

Participants: HECB, P-20 Council, Council of Presidents, public and private, baccalaureate institutions, community and technical colleges, Workforce Training and Education Coordinating Board.

III. Monitor and fund higher education for results

Policy Goal: *Improve per-student funding levels consistent with Global Challenge State benchmarks established by SB 5806.*

Policy Goal: *Modify and coordinate Washington's various postsecondary accountability systems to focus on monitoring progress toward achieving the goals of this Strategic Master Plan.*

Policy Goal: *Create a new funding methodology that focuses some revenue on results.*

Action: *By September 2008, OFM and HECB will complete a study of the structure of funding for Washington postsecondary education. The study will describe the funding trajectory needed to advance per-student funding levels to reach the 60th percentile of peer institutions in the Global Challenge States by 2017.*

Action: *By April of 2008, the Higher Education Coordinating Board will convene a task force of representatives of the Office of Financial Management, institutions, and other stakeholders to design a performance funding demonstration project for inclusion in the 2009-2011 biennium budget.*

Expected outcomes
- State funding levels adequate to meet enrollment and degree production goals 2008-2020, which include adding 61,500 FTE
- Benchmarks and best practices to guide the further development of performance funding agreements in postsecondary education.

Participants: HECB, public baccalaureate institutions, Council of Presidents, community and technical colleges, Office of Financial Management.

RESOLUTION NO. 07-23

WHEREAS, State law (RCW 28B.76.200) directs the Higher Education Coordinating Board to prepare a strategic master plan that proposes a vision and identifies measurable goals and priorities for the system of higher education in Washington State; and

WHEREAS, The Legislature and Governor enacted a bill during the 2007 session (ESHB 1883) specifying the plan should address the goals of (a) expanding access; (b) using methods of educational delivery that are efficient, cost-effective, and productive to deliver modern educational programs; and (c) using performance measures to gauge the effectiveness of the state's progress towards meeting its higher education goals; and

WHEREAS, ESHB 1883 directs the HECB to submit a master plan covering a ten-year period to the Legislature and Governor by December 15, 2007 and, following legislative consideration, to submit the final plan in June 2008; and

WHEREAS, The Board held a series of discussions, public meetings and open forums with citizens and stakeholders about the major issues and challenges facing higher education in Washington; and

WHEREAS, The Board presented its draft strategic master plan during its meeting on October 25, 2007, and conducted public hearings on the draft plan on October 25, 2007 in Vancouver and on November 15, 2007 in Des Moines; and

WHEREAS, The Board has considered the testimony presented at the discussions, events and public hearings and has made several revisions that have improved the draft plan; and

WHEREAS, The Board has articulated mission, vision and value statements for higher education in Washington and has expressed its support for meeting the educational needs of an increasingly diverse population and low-income and adult learners; making college affordable and easy to access; and developing stronger regional collaboration to address education and economic needs; and

WHEREAS, The interim plan establishes two key goals for the state's college and university system by 2018, (1) to create a high quality higher education system that provides expanded opportunity for more Washingtonians to complete postsecondary degrees, certificates, and apprenticeships; and (2) to create a higher education system that drives greater economic prosperity, innovation and opportunity; and

WHEREAS, The plan articulates several strategies for achieving the goals that address enrollment increases; improved efficiency; innovation in service delivery; funding, tuition and financial aid; economic responsiveness; and improved linkages between the state's higher education and K-12 education systems;

THEREFORE, BE IT RESOLVED, That the Higher Education Coordinating Board adopt the interim plan as presented at its meeting on December 13, 2007, and transmit it to the Legislature and Governor.

BE IT FURTHER RESOLVED, That the HECB expresses its thanks and appreciation to the many people and organizations who have participated in the development of the interim strategic master plan and who the Board hopes will continue to be involved in the development of the final plan.

Adopted: December 13, 2007

Attest:

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Bill Grinstein, Chair

_____
Betti Sheldon, Secretary

WASHINGTON
HIGHER
EDUCATION
COORDINATING BOARD

December 2007

Annual Report on State Financial Aid Programs: 2006-2007 Accounting, 2007-2008 Estimates, and Notable Events and Activities

Summary

The state of Washington has a longstanding commitment to postsecondary education opportunities for all students, regardless of income. The purpose of this report is to provide the members of the Higher Education Coordinating Board with:

1. An overview of state, federal, and institutional financial aid in Washington.

2. A description of notable events and activities during the past year.

3. A detailed accounting of state aid program expenditures in the 2006-2007 academic year and projected spending for the 2007-2008 academic year.

4. A separate review of the GEAR UP program activity.

Overview of State, Federal, and Institutional Aid Programs

In 2006-07, a total of $1.52 billion was provided to about 132,000 needy Washington students from state, federal, and other sources. This aid took the form of grants, work study awards, and loans. As in previous years, the federal government provided the majority of the aid, 77 percent of which was in the form of loans.

The figures in Charts 1 and 2 represent state, federal, institutional, and other private sources of financial aid disbursed to Washington students for the 2006-07 academic year, as reported on the Unit Record Report. The Unit Record Report includes all aid received by needy students at the 68 colleges and universities currently participating in the State Need Grant program.

This report does not address alternative financing methods such as private loans, credit card debts, or federal tax credits that may be used by some students and their families. This report also does not routinely capture data about aid based solely on merit.

Sources and Types of Aid to Needy Students in Washington
(2006-2007 academic year)

Chart 1
Financial Aid by Source

Total $1.52 billion

Federal $933m

State $208m

Other $384m

Other
25%

State
14%

Federal
61%

Source: 2006-2007 Unit Record Report
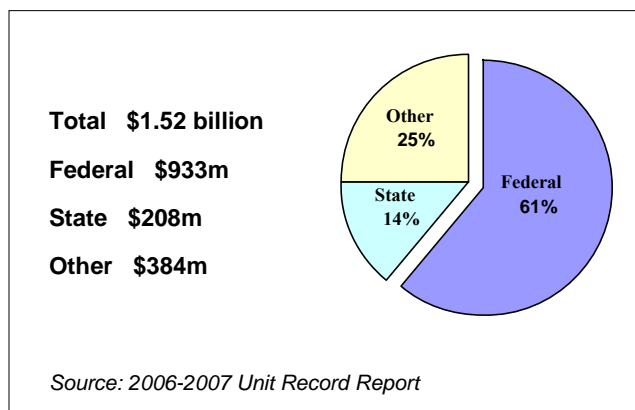
Chart 2
Financial Aid by Type

Total $1.52 billion

Loans $793m

Grants $688m

Work Study $43m

Loans
52%

Work
3%

Grants
45%

Source: 2006-2007 Unit Record Report
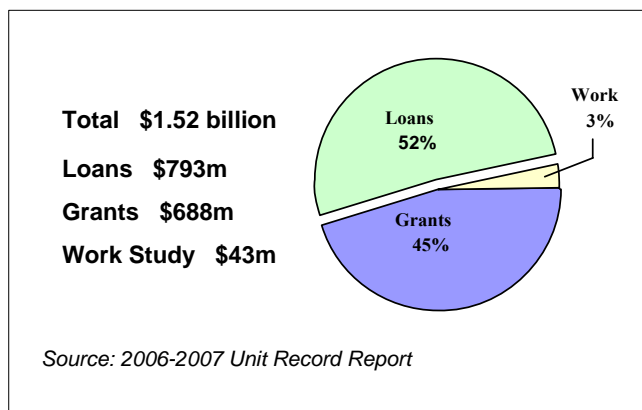
State Student Aid Funding in Perspective

In 2006-07, the HECB's student aid programs disbursed about $199 million in state aid. About 76,000 students attending 99 colleges and universities received some form of state assistance. In 2007-08, $216 million is available to the HECB for state aid programs.

More than 88 percent of state aid is in the form of grants and scholarships. The remaining 12 percent is in the form of work study with a small percent representing conditional loans that can be completely forgiven in exchange for specific service.

While it is difficult to adequately compare states to each other, the National Association of State Student Grant and Aid Programs (NASSGAP) supplies one measure of relative effort. According to the latest NASSGAP survey, Washington ranks fourth in the nation in terms of state student grant aid funding per capita. Above Washington are New York, New Jersey, and Pennsylvania. In the same cluster as Washington are Indiana and Illinois – two states which have often been used for making peer comparisons. Among the Global Challenge states, Washington ranks second only to New Jersey.

Notable Events and Activities

Several notable events occurred during the past year including: the closure of a school, new rules to strengthen and clarify the criteria governing participation of for-profit intuitions in the State Need Grant program, and significant administrative improvements in daily processes. But, perhaps none were as notable as the outcome of the 2007 Legislative session which saw significant expansion of three existing programs and the introduction of three new programs and a new activity to assist students.

Expansion of Existing Programs

State Need Grant

The governor and legislature provided funding for the State Need Grant (SNG) program to increase student awards in the 2007-08 academic year by an amount equal to the dollar-for-dollar increase in public sector tuitions. Total funding for the State Need Grant program increased from $164 million in 2006-07 to $181 million in 2007-08 and will increase again in 2008-09 to $194 million.

In addition, the governor and legislature moved closer to the Board's recommendation of increasing eligibility to 75 percent of median family income by boosting the median family income cutoff from 65 percent to 70 percent. The 70 percent cutoff represents a $50,500 income for a family of four. This is anticipated to extend the grant to the equivalent of an additional 2,750 full-time students.

However, the Board's recommendation to close the gap between the State Need Grant award amounts and the full cost of public sector tuition was not funded. The awards continue to range between 89 percent and 94 percent of public sector tuition.

As supported by the Board, the 2007 Legislature extended the SNG Less-than-halftime Program for four additional years and made it available to all participating SNG schools. This expansion enables otherwise eligible students taking as few as three, four, or five credits to be eligible.

State Work Study

For the second consecutive biennium the governor and legislature provided funding for the State Work Study program, which also is sufficient to keep pace with the impact of tuition increases and new enrollments. Funding for the State Work Study program increased from $19 million in 2006-07 to $20 million in 2007-08 and will increase again in 2008-09 to $21 million.

As proposed by the Board, the legislature also appropriated $500,000 to fund internships for prospective teachers. This provides an opportunity for eligible students to gain direct experience in secondary school math or science classrooms. The goal is to better prepare students to make sound decisions about pursuing a teaching career and accepting other forms of dedicated aid in the future such as the Teachers Conditional Scholarships. Nine institutions, including four community colleges, have been chosen for initial year funding through a competitive application process, and are now actively working to achieve the program's goals.

Teacher Conditional Loans

The Alternative Routes and Future Teachers Conditional Scholarship programs both received expanded funding during the 2007 legislative session. The Future Teachers Conditional Scholarship program expanded from $750,000 in 2006-07 to $1,000,000 per year for the 2007-09 biennium. The Alternative Routes to Teaching program expanded from $1,008,000 in 2006-07 to $3,434,500 in 2007-08. Some of this was due to the addition of two new routes pertaining to paraprofessionals and educator retooling.

Introduction of New Programs

College Bound Scholarship

This program is intended to help improve the aspirations of younger students and families who otherwise might not consider college as an option because of cost. The scholarship provides the assurance of four years of tuition, fees, and funds for books to certain low-income students who sign a pledge during their seventh or eighth grade year. By so doing, these students promise to graduate from high school with at least a 2.0 grade point average and demonstrate good citizenship. Students whose families are eligible for free or reduced-price lunches may apply.

The scholarship will be awarded in coordination with the State Need Grant program. The first awards will be paid out in fall 2012, to students who currently are in middle school.

Passport to College Promise Program for Foster Youth

This six-year pilot program is designed to encourage and help foster youth prepare for, attend, and successfully complete college. The program will provide foster youth and foster parents with educational planning tools, college support services, and scholarship assistance. The program also includes an incentive grant for institutions that provide special student services for foster youth. The first scholarships and incentive grants will be awarded during the 2008-09 academic year.

GET Ready for Math and Science Conditional Scholarship Program

This four-year need-based, conditional scholarship was established for the purpose of providing high school students who excel in math and science with an incentive to major in a math or science program during college. In exchange, scholarship recipients commit to work in a math or science occupation in Washington for three years after completing their baccalaureate degree

The program's administrator is the College Success Foundation which also is responsible for raising funds to match the state's contribution on a dollar-for-dollar basis. The HECB is the fiscal agent for the program. The College Success Foundation will select the first recipients in winter 2009, and the HECB will make the first payments to students in fall 2010.

Scholarship Clearinghouse

A coalition of private, non-profit, scholarship providers are working together to create a centralized source of scholarship information for Washington. A public-private partnership has been formed to raise private funds for the development of a scholarship database and an advertisement-free Web site where students can search for scholarships. Development of the database and Web site will begin early in 2008. The HECB will work to develop the database and will host the clearinghouse upon its completion in fall 2009.

Administrative Activities

The Student Financial Assistance Division engages in a wide range of activities that support state aid programs. Such activities include:

- Training and oversight of participating institutions;
- Facilitating communication, collaboration, and coordination among other state agencies and postsecondary institutions; and
- Making administrative improvements to program processes and tracking.

School closure

Crown College, a participant in the State Need Grant Program, closed in July of 2007 after losing its accreditation. The school also had problems with the U.S. Department of Education over the administration of federal aid programs. The situation was closely monitored by HECB staff. There was no loss of state student aid funding as a result of the closure.

New standards for participation of for-profit institutions in the State Need Grant program

The State Need Grant program revised rules to strengthen standards that proprietary institutions must meet to participate in the SNG program. The standards include an assessment of the institution's administrative and financial strengths as well as the development of performance expectations to measure student success.

Training and school visits

The HECB continues to support college and university participation in state student aid programs by providing training and oversight for financial aid staff at postsecondary institutions throughout the year. Staff visited ten institutions during 2007 to review compliance efforts related to the State Need Grant and State Work Study programs. Other training events included a special orientation for private career schools, on-site training for new aid administrators, conference sessions related to various programs, a two-day statewide training for student employment staff, two Unit Record Report training sessions, and four state financial aid workshops held throughout Washington.

Improved Coordination Activities - WAFAX

The Washington Financial Aid Exchange (WAFAX) is a statewide system developed and hosted by the HECB to assist institutions with tracking of students simultaneously enrolled in two or more Washington institutions. In 2007, two- and four-year institutions began testing the WAFAX system. WAFAX is intended to streamline what is otherwise a labor intensive process and is expected to facilitate more co-enrollment opportunities.

Other Administrative Improvements

Electronic fund transfers

The Student Financial Assistance Division is expanding the use of the electronic fund transfer (EFT) reimbursement payments for private and proprietary institutions. This process replaces the need to issue individual paper checks to each student. This means faster processing and greater accountability for disbursement tracking.

Electronic timesheet submission from the independent institutions

During the last two years there has been a steady increase in the use of electronic timesheet submission by the independent colleges and universities participating in the State Work Study program. Seven private colleges currently submit timesheets electronically. The eight other institutions still submitting paper timesheets are being encouraged to consider this option. Electronic timesheet submission saves the state money by reducing processing time, and off-campus employers receive reimbursements for wages paid to SWS students approximately two weeks sooner.

IT systems conversion

As part of the on-going conversion of information systems at the HECB, key systems affecting the State Work Study and the State Need Grant programs were nearly completed in the 2006-07 year. Converting systems to the web-based portal from a "main-frame" environment increases reliability and efficiency for schools and provides cost savings for the Board. The conversion also allows for the development of additional system enhancements that will result in other improved processes over time.

New billing agency

HECB staff manage a student receivables system for conditional loan recipients and for students who owe repayments to grant programs. Starting in fall 2007, all financial aid program repayments will be sent to a new billing agency, Educational Computer Systems Incorporated. As a result, repayments can be operated out of one system rather than tracking individual students through multiple spreadsheets and databases. This also will ensure that all repayments are processed in a timely manner, tracked through a billing system customized for the HECB, managed online by board staff, and measured through a sophisticated reporting system. The new process will allow students to make payments through a variety of payment options including the use of debit cards, credit cards, or Automated Clearinghouse Transfer from a bank account. Staff expect to refer about 1,200 accounts to the billing agency each year.

Data from aid program's administered by other agencies

Opportunity Grant, Academic Competitiveness Grant, and SMART Grant

Institutions were asked to provide student data on the HECB's Unit Record Report from three new financial aid programs launched in 2006-2007.

- **The Opportunity Grant** - administered by the State Board for Community and Technical Colleges. Grants were provided to low-income students enrolled in high-demand degree programs at 11 pilot institutions during the 2006-07 academic year.

- **The Academic Competitiveness Grant** - one of two new federal grants. These grants are offered to Pell-eligible students during their freshman and sophomore years, if they complete a rigorous program of study in high school.

- **The SMART grant** - the second new federal program. SMART grants are offered to upper division college students majoring in science, math, or critical foreign language programs.

WHEFA student loan proposal

The Washington Higher Education Facilities Authority (WHEFA) is proposing to use $80 million in tax exempt state bonds to fund lower-cost, private student loans. The WHEFA board is scheduled to approve a plan for implementing the new loan program during its Feb. 7, 2008 meeting.

Upcoming Activities

The Student Financial Assistance Division also plans to begin implementing a student aid research agenda during the upcoming year. The research is intended to inform student aid program performance measures as well as support the goals outlined in the 2008 Strategic Master Plan for Higher Education in Washington.

Financial Aid Awareness Study

The level of understanding of students and families about financial aid is of great concern to the Board. Student aid staff are planning to begin a series of studies to determine the extent to which additional information about financial aid needs to be disseminated to Washington's residents, and the mediums through which that information should be shared.

Unmet Need Study

A measure of affordability is the extent to which students, with the assistance of financial aid, are able to cover the costs of a college education. In many ways this seems to be an intuitive standard for accessing the adequacy of aid programs. However, because of substantial data limitations, an accurate picture of unmet need is difficult to ascertain.

HECB student aid staff plan to collaborate with several financial aid administrators from throughout the state to develop and conduct a study that will focus on gaining a sharper understanding of the extent to which the financial needs of students are being met or are left unmet.

Developing affordability measures

HECB staff will begin to develop a set of measures to permit an annual assessment of the general state of affordability of higher education in Washington. At a minimum, we envision measures that better identify the extent to which families at various income levels can manage the cost of a college education with the assistance of student aid. The intent is to develop a standard set of measures that can be included in future student aid annual reports.

Other Major Activities

Rules for New Programs

During 2008, the Board will be asked to review and approve new rules for several of the new programs highlighted in this report. Revisions and additions to rules for existing financial aid programs also will require Board review and approval.

Potential changes to State Need Grant

The Student Financial Aid workgroup was reconvened in spring 2007, and began the process of evaluating two components of the State Need Grant program – the part-time state need grant award structure and the institutional repayment policies.

The part-time SNG award structure issue is under review because an analysis of award amounts indicates that part-time SNG awards cover a smaller proportion of tuition than full-time awards. A recommendation will be made to the Board in early 2008.

The workgroup also is reviewing institutional repayment policies as they relate to the SNG program. A review by staff revealed a wide variety of outcomes among institutions when a student withdraws and is expected to repay a portion of the grant. The workgroup has been asked to review various types of repayment policies and to make a recommendation to the Board.

State Financial Aid Expenditures by Program

Table 1 provides a program-by-program accounting of all state student aid programs.

<u>**Table 1**</u>   **State Financial Aid Program Funding and Recipients**
2006-07 & 2007-08

Public Purpose	Program	2006-2007		2007-2008	
		Total Dollars Expended[1]	Actual # of Recipients	Total Dollars Available[1]	Estimated # of Recipients
Opportunity for Equitable Access	**State Need Grant** Need-based grant for up to five years of study for low-income undergraduates whose current income is 70 percent or less of median family income	$167 million	66,364	$182 million	72,000
	State Work Study Part-time work for financially needy undergraduate and graduate students	$19.4 million	9,313	$20.3 million	9,713
	Educational Opportunity Grant Need-based grant for transfer students in their junior and senior years of college	$2.9 million	1,257	$2.9 million	1,250
Affordability & Merit	**Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP) Scholarships** Provides scholarships to needy or disadvantaged students who participate in an early awareness and outreach program	$1.2 million	400	$1.3 million	420
	American Indian Endowed Scholarship Endows a fund from which annual scholarships for financially needy undergraduate students with close social and cultural ties to American Indian community	$19,575	12	$18,150	17
Merit	**Washington Scholars** Four-year merit scholarships to three high school students from each of the 49 state legislative districts who are in the top 1% of their class	$2.2 million	404	$2.5 million	417
	Washington Award for Vocational Excellence* Two-year merit scholarship for three vocational students from each of the 49 state legislative districts for outstanding achievement in vocational/technical education	$993,131	298	$1.1 million	308
Targeted to Employment Shortages	**Health Professional Loan Repayment** Provides loan repayment assistance to licensed primary care health professionals	$3.2 million	60	$3 million	60
	Alternative Routes to Teaching* Helps school districts recruit teachers in subject matter & geographic shortage areas	$992,000	124	$3.4 million	596
	Future Teachers Conditional Scholarship Conditional loans or repayments toward federal student loans for students pursuing teaching certificates or current teachers pursuing additional endorsement in select, high-demand subject areas	$379,224	51	$1 million	100
	Health Professional Scholarship Provides scholarships to students training to become primary care health professionals	218,000	43	250,000	45
	WICHE Professional Student Exchange Conditional loans to study optometry or osteopathy, programs not offered in Washington	$204,300	15	$221,900	14
Other	**Washington Center Scholarships** Provides financial support for student to participate in internships in Washington, D.C.	$60,000	15	$60,000	15
Total		$199 million		$216 million	

[1] Includes federal LEAP and SLEAP funds.

* The HECB is the fiscal agent for these programs. Washington Award for Vocational Excellence is administered jointly with the Workforce Training and Education Coordinating Board. The Alternative Routes to Teacher Certification program is administered by the Professional Educator Standards Board.

In 2006-07, the Higher Education Coordinating Board also was responsible for administering activities that indirectly benefit students, including:

- The **Community Scholarship Matching Grant**, which provided a total of $246,000 to 100 community-based 501(c)(3) organizations who raise money to provide scholarships to students.

- The **College Assistance Migrant Program**, which provided a total of $24,625 in supplemental federal funds to four colleges that provided services to migrant and seasonal farm workers and their children.

- The **Child Care Grant**, which provided a total $75,000 to four institutions to help promote high-quality, accessible, and affordable child care for parents attending college.

Fund Utilization

HECB staff strive to achieve a 100 percent expenditure of appropriated aid each year. However, they have the flexibility to carry undependable funds forward into the next fiscal year, and have the authority to transfer limited amounts between certain programs.

The 2006 Legislature allowed the HECB additional flexibility to transfer monies among several financial aid programs. Also included in this action was the authority to transfer up to 1 percent of the State Need Grant to the State Education Trust Account. Monies in the account are currently used to fund scholarships to students who participated in the state's first Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP) program. A review of the GEAR UP program is provided in Appendix C.

As a result, the HECB made the following transfers, and carry forward of funds, at the conclusion of the 2006-07 year. No funds were carried forward from the State Need Grant program. Carry forward in State Work Study program represents less than one-tenth of one percent of the program's appropriation.

Table 2   **Transfers for 2006-2007**

Transfers	Amount
State Need Grant to State Education Trust fund	$648,201
Agency administrative savings to pay GEAR UP Scholarships	$123,230
Washington Scholars to pay WAVE student awards	$84,947

Table 3   **Carry Forward into 2007-2008**

Program	Amount
State Need Grant	$0
Educational Opportunity Grant	$9,571
Washington Scholars	$112,045
State Work Study	$7,111

Award Amounts by Program

Tables 4A and 4B display the value of the award for each program. The value of the 2007-08 awards in the State Need Grant, Washington Scholars, Washington Award for Vocational Education, and Future Teachers programs kept pace with public sector tuition and fee increases. The value of awards in all other programs remained relatively unchanged compared to the previous year.

Table 4A   **Maximum Award Amounts by Program 2007-2008**

Program	Award Range
Alternative Routes to Teaching	$8,000
American Indian Endowed Scholarship	$500-$1500
Educational Opportunity Grant	$2,500
GEAR UP	$4,000
Health Professional Loan Repayment	up to $25,000
Health Professional Scholarship	$3,000-$15,000
State Work Study	$2,000 -$5,000

Table 4B   **Award Amounts by Program & Sector 2007-2008**

	Future Teachers	State Need Grant	Scholars / WAVE
Research	$6,192	$5,564	$6,224
Comprehensive	$4,620	$4,188	$4,564
Private Four-Year	$6,192	$5,798	$6,290
Community & Technical Colleges	$2,676	$2,502	$2,676
Proprietary	n/a	$2,502	$6,290

State Need Grant Program Update

Overview

Included in this update of the State Need Grant (SNG) program's expenditures and activities is a summary of the 2006-2007 disbursements and a report on 2007-2008 funding, expenditures, and activities to date. This appendix also includes a history of State Need Grant expenditures and a breakdown of 2006-2007 institutional expenditures, along with the most recent estimate of how much each institution will spend in 2007-2008.

2006-2007 Summary

In 2006-2007, the Higher Education Coordinating Board had a total of $167 million available, including about $1.4 million in federal matching funds, for SNG awards to students (Table 5). The funding allowed the HECB to serve 66,364 students. The legislature has continued its' support of increasing funding in the state financial aid programs to keep pace with tuition and fee increases for the last 16 years. All or nearly all of the general funds appropriated to the SNG program have been fully expended for the last several years and staff anticipates this trend will continue (Table 6).

Table 5   **State Need Grant Budget Summary**
2006-2007

State Appropriation	$166,259,408
Federal LEAP/SLEAP Funds	$1,432,765
SNG Available for Grants	$167,692,173
Carry Forward SNG	$0

Table 6   **State Need Grant Percent of General Fund Expended**
FY 2001-02 through FY 2007-08
(in millions)

Year/Biennium	General Fund – State Appropriation	Percent Expended
FY 2001-02	$ 90.6	100%
FY 2002-03	$104.9	99%
FY 2003-04	$111.6	100%
FY 2004-05	$124.9	100%
FY 2005-06	$153.3	99%
FY 2006-07	$166.1	100%
FY 2007-08	$181.5	n/a

SNG award amounts vary by sector, and as a percentage of tuition. The grant awards ranged from 95 percent of tuition at the community colleges to 88 percent of tuition at the public research institutions (Table 7). The governor and legislature provided sufficient funding to raise grant amounts to cover all public sector tuition increases on a dollar-for-dollar basis. However, there was no significant progress in closing the gaps between the total tuition costs and the grant award amounts. Additionally, schools reported the fewest number of eligible, but unserved students in the program over the last few years. Less than 2,000 SNG-eligible students went unserved due to lack of funds. Most were late enrollers.

Table 7   State Need Grant Awards as a Percent of Tuition, by Sector, 2006-07

Sector	Average SNG Award	Average Tuition[1]	Tuition less SNG	SNG Award as % of Tuition
Research	$5,156	$5,822	$666	88%
Comprehensive	$3,970	$4,350	$380	91%
CTC/Private Voc	$2,450	$2,586	$136	94%
Private Four-year	$5,390	$5,822	$432	92%

[1] The maximum grant for State Need Grant recipients at private four-year colleges is limited to the value of tuition and fees at the public four-year research institutions. Therefore, the tuition recognized for private four-year colleges is the same as the public research sector.

Less-than-Halftime Pilot Program

The less-than-halftime program concluded its pilot phase in 2006-07. The number of students served by this program at nine pilot schools in 2006-07 was 821, up from 680 students served during the first year of the program in 2005-06. The nine participating schools successfully adapted their systems and processes to accommodate for these additional State Need Grant-eligible students. The 2007 legislative session expanded less-than-halftime eligibility to students at all participating SNG institutions beginning in 2007-08 and extended the program through the next four academic years. The following table provides additional information about the less-than-halftime program in 2006-07.

Table 8   Less-than-Halftime Pilot Program
2006-2007 Year-End Statistics

Institution	Expenditures	# Served Students	# Unserved Students
Clark College	$49,398	222	0
Columbia Basin College	$34,664	141	4
Highline Community College	$36,853	131	12
Pacific Lutheran University	$20,054	32	0
Peninsula College	$4,652	21	0
South Puget Sound Community College	$35,564	139	0
Spokane Community College	$9,103	45	1
Spokane Falls Community College	$17,575	80	1
The Evergreen State College	$2,975	10	0
Total	$210,838	821	18

Source: 2006-2007 State Need Grant Final Interim Report

Student Profile

The following table profiles the students who received a State Need Grant award during the 2006-07 academic year. Approximately 72 percent of SNG recipients enrolled full-time during the fall semester and 62 percent of SNG recipients were considered to be financially independent from their parents, based on federal criteria. In addition, nearly half of all SNG recipients were over the age of 23.

Table 9   **State Need Grant Student Profile**
2006-2007

Age Categories		Students with Families	
< 21	35%	Married	15%
21 - 23	19%	Married with Children	11%
> = 24	46%	Single Parents	20%
Median age = 23			

Gender		Race/Ethnicity	
Female	62%	American Indian	3%
Male	38%	Asian/Pacific Islander	10%
		Black	8%
Dependent Students		Hispanic	9%
% Dependent	38%	Other/Unknown	10%
Average Parent Income	$29,051	White	60%

Independent Students	
% Independent	62%
Average Income	$14,650

Source: 2006-2007 Unit Record Report

2007-08 SNG Update

For the 2007-08 academic year, the HECB has $182 million, including about $1.2 million in federal matching funds, available for grants to students at 68 participating institutions (Table 10). HECB staff expect to serve about 72,000 students. Included in this appendix is a table showing the breakdown of funding for each institution in 2007-08, known as an institution's "reserve" (Tables 11 & 12). The legislature expanded less-than-halftime eligibility to students at all participating SNG schools. An annual appropriation of $500,000 was provided for each year of the 2007-2009 biennium. The program also was extended for four more years.

Table 10   **State Need Grant Budget Summary**
2007-2008

State Appropriation	$181,477,000
Federal LEAP/SLEAP Funds	$1,233,457
SNG Available for Grants	$182,710,457
Carry Forward SNG (est.)	$ 0

Table 11   **State Need Grant, by Sector**
2006-07 Awards & 2007-08 Reserves

Sector	2006-2007		2007-2008
	Amount Awarded	Served FTEs[1]	Amount Reserved[2]
Research	$47,592,700	9,945	$53,371,252
Comprehensive	$32,332,037	8,573	$34,740,569
Private Four-Year	$19,687,842	3,924	$22,404,407
Community & Technical Colleges	$63,821,631	26,844	$67,748,100
Private Career	$3,608,521	1,506	$3,596,127
Total	$167,042,731	50,792	$181,860,455

[1]Full-time equivalent enrollment, not actual headcount.
[2]Includes matching federal LEAP funds, pilot project & TRIO
Source: 2006-2007 State Need Grant Final Interim Report

Table 12   **State Need Grant, by Institution**
2006-2007 Awards & 2007-2008 Reserves

	2006-2007		2007-2008
	Amount Awarded	Served FTEs[1]	Amount Reserved[2]
Research			
University of Washington	$28,514,080	6,006	$31,822,682
Washington State University	$19,076,902	3,940	$21,548,570
Comprehensive			
Central Washington University	$9,422,258	2,412	$9,961,165
Eastern Washington University	$9,603,839	2,585	$10,325,244
The Evergreen State College	$4,623,824	1,226	$5,003,363
Western Washington University	$8,682,146	2,349	$9,450,797
Private Four-Year			
Antioch University	$317,348	65	$360,151
Bastyr University	$274,019	52	$301,773
Cornish College of the Arts	$699,794	134	$964,042
DigiPen	$190,001	37	$365,137
Gonzaga University	$1,973,668	395	$2,205,765
Heritage University	$2,387,956	459	$2,594,900
Northwest College of Art	$90,308	18	$100,022
Northwest University	$919,784	181	$1,023,002
Pacific Lutheran University	$2,904,344	609	$3,439,037
Saint Martin's University	$1,523,618	306	$1,662,747
Seattle Pacific University	$1,674,945	336	$1,961,561
Seattle University	$3,131,547	622	$3,406,734
University of Puget Sound	$772,035	154	$878,703
Walla Walla College	$798,614	153	$844,673
Whitman College	$253,941	48	$325,990
Whitworth College	$1,807,179	356	$1,970,170

[1]Full-time equivalent enrollment, not actual headcount
[2]Includes matching federal LEAP funds, pilot project & TRIO
Source: 2006-2007 State Need Grant Final Interim Report

Table 12 (Cont.)   **State Need Grant, by Institution**
2006-2007 Awards & 2007-2008 Reserves

	2006-2007		2007-2008
	Amount Awarded	Served FTEs[1]	Amount Reserved[2]
Community & Technical Colleges			
Bellevue Community College	$1,975,832	862	$2,174,400
Big Bend Community College	$1,427,741	619	$1,492,262
Cascadia Community College	$360,379	147	$400,750
Centralia College	$1,212,783	512	$1,307,143
Clark College	$3,357,780	1,445	$3,457,336
Columbia Basin College	$2,153,369	916	$2,370,184
Edmonds Community College	$2,500,348	996	$2,642,680
Everett Community College	$1,899,026	782	$2,062,347
Grays Harbor College	$961,716	408	$1,001,814
Green River Community College	$2,130,899	914	$2,253,620
Highline Community College	$2,328,949	966	$2,517,603
Lower Columbia College	$1,767,253	732	$1,811,096
North Seattle Community College	$1,142,771	489	$1,207,944
Northwest Indian College	$303,994	116	$299,428
Olympic College	$1,614,492	687	$1,682,835
Peninsula College	$818,644	362	$886,252
Pierce College	$1,924,806	825	$2,080,430
Seattle Central Community College	$2,349,973	999	$2,575,750
Shoreline Community College	$1,587,462	668	$1,612,729
Skagit Valley College	$1,622,889	681	$1,708,980
South Puget Sound Community College	$1,820,255	743	$1,852,053
South Seattle Community College	$1,093,114	466	$1,231,371
Spokane Community College	$6,535,170	2,579	$6,883,804
Spokane Falls Community College	$4,288,950	1,733	$4,548,602
Tacoma Community College	$2,825,392	1,233	$2,920,685
Walla Walla Community College	$1,556,985	657	$1,589,634
Wenatchee Valley College	$2,366,957	1,007	$2,539,268
Whatcom Community College	$1,067,113	497	$1,198,942
Yakima Valley College	$3,267,311	1,406	$3,429,312
Bates Technical College	$1,025,713	440	$1,075,077
Bellingham Technical College	$693,587	304	$883,951
Clover Park Technical College	$1,775,983	764	$1,863,135
Lake Washington Technical College	$827,562	366	$885,323
Renton Technical College	$859,448	364	$871,350
Seattle Vocational Institute	$382,120	159	$430,010

[1]Full-time equivalent enrollment, not actual headcount
[2]Includes matching federal LEAP funds, pilot project & TRIO

Table 12 (Cont.) State Need Grant, by Institution
2006-2007 Awards & 2007-2008 Reserves

	2006-2007		2007-2008
Proprietary	Amount Awarded	Served FTEs[1]	Amount Reserved[2]
Art Institute of Seattle	$1,118,250	460	$1,090,148
Clare's Beauty School	$106,370	44	$106,241
Crown College (closed summer 2007)	$19,789	8	n/a
Divers Institute of Technology	$45,750	19	$45,903
Everest College (formerly Bryman)	$338,653	142	$337,575
Gene Juarez Academy	$237,071	103	$260,858
Glen Dow Academy	$186,165	80	$193,185
Interface Computer School	$171,973	69	$178,830
International Air Academy	$57,363	24	$64,423
ITT Technical Institute-Seattle	$290,465	114	$267,587
ITT Technical Institute-Spokane	$626,192	262	$617,584
Perry Technical Institute	$430,620	183	$433,793

[1]Full-time equivalent enrollment, not actual headcount
[2]Includes matching federal LEAP funds, pilot project & TRIO
Source: 2006-2007 State Need Grant Final Interim Report

During the 2007 legislative session, the income eligibility cutoff was increased to 70 percent of the state's median family income (MFI), or about $50,500 for a family of four, and went into effect in fall 2007. These students will receive 50% of the maximum SNG award. In the 2007-2009 biennium, $4.75 million per year was appropriated for this expansion. Despite this change and the increased appropriation, the gaps between the award and tuition are expected to remain essentially unchanged for 2007-08 (Table 13).

Table 13   State Need Grant Awards as a Percent of Tuition,
by Sector, 2007-08

Sector	Avg. SNG Award	Avg. Tuition[1]	Tuition less SNG	SNG Award as % of Tuition
Research	$5,564	$6,224	$660	89%
Comprehensive	$4,188	$4,563	$375	92%
CTC/Private Voc	$2,502	$2,676	$174	93%
Private Four-year	$5,798	$6,224	$426	93%

[1]The maximum grant for State Need Grant recipients at private four-year colleges is limited to the value of tuition and fees at the public four-year research institutions. Therefore, the tuition recognized for private four-year colleges is the same as the public research sector.

Institutions that participate in the State Need Grant program are required to submit quarterly interim reports detailing their expenditures and the eligibility of their enrolled students. Based on the early November report, it appears the State Need Grant program will again be 100 percent expended by the end of the 2007-08 academic year.

The governor and the legislature provided more funding in 2006-07 than was provided for 2005-06 in order to keep pace with tuition increases. Early estimates show that this funding level may be sufficient to reduce the unserved student population. These estimates also indicate that there will again be more SNG-eligible students than the program will be able to serve.

State Work Study Program Update

Overview
Included in this update on the State Work Study (SWS) program are detailed expenditures for fiscal year 2006-07, a summary of 2006-07 year-end student earnings for each participating institution, and descriptions of current and planned activities.

During 2006-07, 9,313 students earned $25 million, through the State Work Study program. With an increase in funding, the program expects to serve an additional 400 students in 2007-08.

The State Work Study program is a form of *self-help* designed to assist a broader band of disadvantaged students than the State Need Grant program and to complement grant and scholarship aid. As a result, it includes any financially needy student, rather than being limited to students with the lowest family incomes.

State Work Study award amounts are determined by the student's institution based on the student's demonstrated financial need. The employer pays the student and is reimbursed for a portion of the student's earnings, typically between 65 and 80 percent. Currently, 55 institutions and approximately 3,200 employers contract to participate in the State Work Study program.

2006-2007 Background and Summary
During 2006-2007, students earned more than $25 million through the State Work Study program. The employer matches accounted for about $6.4 million of this total. In 2006-2007, the Higher Education Coordinating Board had a total of $19.4 million available, including $366,267 in federal matching funds, for awards to students. The funding allowed the HECB to serve 9,313 students, who on average earned nearly $2,700 last year. Of the $19.4 million, $500,000 went to institutions for special community service projects, which are described in more detail below. All or nearly all of the general funds appropriated to the SWS program have been fully expended for the last several years and staff anticipates this trend will continue, due to stable or decreased funding for the Federal Work Study program.

As college costs increase and the number of needy students grows, the ratio of needy students being served by the program has declined. During 1997-98, one in 12 financially needy students received a State Work Study award. The most recent ratio stands at one state work study award for every 14 financially needy students.

Tables 15, 16, 17, and 18 provide additional details about program operations and expenditures and a list of student earnings by sector and institution.

Table 14   SWS Program Operations, 2006-07

Resources:	
Total Wages Earned	$25,039,532
State Portion of Wages	$18,688,746
Employer Match	$6,350,786
Percent of Employer Match	24%
Funding Sources:	
SWS Appropriation	$19,041,000
Federal Funds	$366,267
Prior Year Carry Forward	$50,231
Total	**$19,457,498**
Expenditures:	
State Portion of Wages	$18,688,746
Grants to Institutions	$200,147
Admin. Allowance to Public Inst.	$369,488
HECB Administration	$192,005
Total	**$19,450,386**
Carry Forward to 2007-2008	**$7,112**

Table 15   State Work Study Percent of General Fund Expended
FY 2001-02 through FY 2006-2007

Year/Biennium	General Fund State Appropriation	Percent Expended
FY 2001-02	$16.3 million	99%
FY 2002-03	$17.4 million	100%
FY 2003-04	$17.0 million	100%
FY 2004-05	$17.0 million	100%
FY 2005-06	$17.9 million	99%
FY 2006-07	$19.4 million	100%
FY 2007-08	$20.3 million	n/a

Table 16   Earnings of State Work Study Students
by Sector & Institution, 2006-2007

Sector[1]	Amount Earned	# Students[2]	Avg. Earnings
Public Four-Year	$7,230,385	2,927	$2,470
Private Four-Year	$8,345,475	2,731	$3,056
Community & Technical Colleges	$9,463,672	3,671	$2,578
Total	**$25,039,532**	**9,313**	**$2,688**

[1] For-profit institutions are not eligible to participate

[2] Students who transfer between sectors are counted in each sector; the total is an unduplicated count

Source: 2006-2007 Unit Record Report

Table 17   **Earnings of State Work Study Students, by Institution, 2006-07**

	Amount Earned	# of Students
Research		
University of Washington	$1,876,430	513
Washington State University	$1,995,615	1,143
Comprehensive		
Central Washington University	$946,662	302
Eastern Washington University	$865,255	353
The Evergreen State College	$446,977	183
Western Washington University	$1,099,446	433
Private Four-Year		
Antioch University	$50,931	12
Bastyr University	$196,670	146
Cornish College of the Arts	$335,264	168
Gonzaga University	$1,994,573	514
Heritage University	$195,680	86
Northwest University	$109,344	31
Pacific Lutheran University	$930,130	294
Saint Martin's University	$176,665	61
Seattle Pacific University	$1,023,394	300
Seattle University	$1,665,258	394
University of Puget Sound	$867,809	295
Walla Walla University	$225,947	67
Whitman College	$252,053	217
Whitworth University	$321,757	146
Community & Technical Colleges		
Bellevue Community College	$216,783	87
Big Bend Community College	$205,634	117
Cascadia Community College	$60,703	21
Centralia College	$99,415	39
Clark College	$690,586	311
Columbia Basin College	$412,786	173
Edmonds Community College	$288,135	73
Everett Community College	$194,987	82
Grays Harbor College	$129,782	53
Green River Community College	$24,427	13
Highline Community College	$223,705	95
Lower Columbia College	$779,237	305
North Seattle Community College	$285,868	138
Northwest Indian College	$9,936	10
Olympic College	$67,806	16
Peninsula College	$97,823	47
Pierce College	$226,579	74
Seattle Central Community College	$147,765	55
Shoreline Community College	$210,003	71
Skagit Valley College	$123,104	57
South Puget Sound Community College	$219,802	54
South Seattle Community College	$74,388	41
Spokane Community College	$1,046,182	286
Spokane Falls Community College	$733,975	317
Tacoma Community College	$808,274	221
Walla Walla Community College	$128,552	25
Wenatchee Valley Community College	$277,800	144
Whatcom Community College	$327,363	118
Yakima Valley College	$336,056	162
Bates Technical College	$307,125	94
Bellingham Technical College	$64,715	62
Clover Park Technical College	$314,611	153
Lake Washington Technical College	$184,304	55
Renton Technical College	$115,463	83
Seattle Vocational Institute	$29,998	25

Source: 2006-2007 Unit Record Report

State Work Study Community Service Projects

For over a decade, the State Work Study program has funded colleges to conduct more than a hundred Community Service Projects. The projects address pressing community needs across a wide range of service areas including: literacy advancement, first generation and ethnic minority outreach, elementary and middle school tutoring, community health and mental health care, drug education and public safety, and environmental improvement.

One of last year's projects mobilized a group of about 10 students to restore and sustain salmon habitats. Students worked in a habitat, promoted the program throughout the community in order to locate volunteers, and engaged in fund raising activities.

This project exemplifies the learning potential of work study placements. Some projects have been adopted by colleges and communities even after SWS funding ends so that other students have an opportunity to make positive change in their communities while paying for their college education.

Student Profile

In 2006-2007, 55 percent of students utilizing the State Work Study program met a definition of an "independent" or nontraditional student. Students who are older, have families of their own, or are former foster care youth are examples of students who are considered independent. These students had an average family income of $12,432. For "dependent" students, family income averaged $42,498.

The median age of SWS recipients was 22. Sixty-six percent of the students were female and 36 percent reported themselves as being in an ethnic or racial minority. Though the program places a priority on serving Washington residents who enroll as undergraduate students, the program does serve a modest number of graduate students and some non-resident students. Additional information about last year's State Work Study recipients can be found in Table 16 below.

Table 18   State Work Study Student Profile, 2006-07

Age Categories		Students with Families	
<21	38%	Married	13%
21-23	21%	Married with Children	8%
>=24	41%	Single Parents	20%
median age = 22			
Gender		Race/Ethnicity	
Female	66%	American Indian	2%
Male	34%	Asian/Pacific Islander	8%
		Black	6%
Dependent Students		Hispanic	8%
% Dependent	45%	Other/Unknown	12%
Average Parent Income	$42,498	White	63%
Independent Students			
% Independent	55%		
Average Income	$12,432		

Source: 2006-2007 Unit Record Report

State Work Study Employers

Integral to the program are the participating employers. They not only provide jobs and earnings, but opportunities for students to build workplace skills and test career choices. More than 40 percent of the state work study students' dollars are earned in off-campus placements. Nearly 3,200 off-campus employers contract annually to accept State Work Study-eligible students. They include private for-profit, private non-profit and public and federal employers. Many provide opportunities in high-demand job areas.

Following are examples of off-campus State Work Study employers, by type of business:

Private For-Profit (Total = 2,270)
- Amazon
- American Express Financial Services
- Law Office of William Harris
- Merrill Lynch Financial Services
- Mid Columbia Engineering
- Northwest Medical Group
- Pullman Family Dentistry
- State Farm Insurance
- Sylvan Learning Center
- Zymogenetics

Private Non-Profit (Total = 660)
- American Red Cross
- Big Brothers Big Sisters
- Boys and Girls Clubs
- Camp Fire USA
- Fred Hutchinson Cancer Research Center
- Salvation Army
- Seattle Children's Museum
- Seattle Institute for Biomedical Clinical Research
- Tulalip Tribe
- Washington Contemporary Ballet

Public / Federal Employers (Total = 270)
- City of Seattle
- Federal Home Loan
- Government Accountability Services
- Kennewick General Hospital
- King County
- Pierce County Alliance
- School Districts-Seattle and Spokane Public School Districts
- State Agencies (e.g., DSHS, Fish & Wildlife)
- Timberland Regional Library
- U.S. Forest Service

2007-2008 Update

For 2007-08, with an increase of $1,284,000 in the appropriation, the HECB has $21.3 million available for student wages from state and federal sources to serve an estimated 9,560 students. Staff anticipate that all funds will be fully expended again this year.

State Work Study High Demand

The State Work Study High Demand program, established during the 2007 legislative session and implemented in fall 2007, provides eligible students with teaching experiences in secondary school math and/or science classrooms. By experiencing the challenges and opportunities of the classroom first-hand, students will be able to test their interest in a teaching career and to decide whether to utilize other forms of dedicated aid, such as the Future Teachers Conditional Scholarship, which requires teaching service after graduation in exchange for financial aid while they are completing their degree.

Nine institutions across the state were awarded over $250,000 in funding to implement State Work Study High Demand projects. By the end of the 2007-08 fiscal year, over sixty students will have participated in the program.

State Work Study Community Service Projects

In fall 2007, 14 community service projects across Washington were funded at more than $400,000 and will employ over one hundred SWS students. These projects will focus on community improvements in the areas of health care, math and science education, domestic violence prevention, and other community needs.

Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP)

Overview

Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP) is a partnership of the Higher Education Coordinating Board, Office of the Governor, the University of Washington, College Success Foundation, and a number of national, state, and local organizations. Washington's GEAR UP program encourages low-income middle and high school students to stay in school, study hard, have high expectations, and go to college. In 2005, the state of Washington received a new six-year $21 million federal grant. The new program focuses on preparing 1,000 low-income seventh graders across the state for college success by providing intensive tutoring, mentoring, and college/career planning information throughout their middle and high school years.

Included in this update are measures of student success, a summary of the 2006-2007 scholarship disbursements by sector for GEAR UP Grant I, and an update on new activities.

2006-2007 Summary

The Washington State GEAR UP's Scholars Project sites are located in:

- Bellingham
- Federal Way
- Monroe
- Vancouver
- West Valley
- Everett

- Okanagan
- Inchelium
- Quincy
- Wapato
- Wenatchee
- East Wenatchee

During the 2006-2007 year, GEAR UP students participated in several mentoring activities.

- 88 percent of students received tutoring, homework assistance, and/or academic enrichment activities

- 89 percent of students and 86 percent of parents received counseling, advising, academic planning, and/or career counseling services

- 82 percent participated in college visits and/or college student shadowing opportunities and achieved measurable success

- 83 percent of students were performing at or above grade level in English or Language Arts classes

- 85 percent of students were performing at or above grade level in math classes

Currently, 400 students receive college scholarships as a result of participation in Washington's "Grant One" State GEAR UP program. The amount of the scholarship for 2006-2007 was $4,000. Following is a breakdown, by sector, of the scholarships awarded.

<table>
<tr><td>**Table 19**</td><td colspan="2">**GEAR UP Grant I**</td></tr>
<tr><td></td><td colspan="2">**Scholarship Recipients by Sector, 2006-07**</td></tr>
</table>

Sector	Amount Paid	# of Students
Public Four-Year	$481,788	140
Private Four-Year	$164,825	40
Community & Technical Colleges	$563,251	220
Total	**$1,209,864**	**400**

Building Outreach and Access Networks

One of the primary goals of the Washington State GEAR UP program is to engage in outreach activities throughout the state, region, and nation. Some of the major activities completed during 2006-07 include the following:

- The Washington State GEAR UP program hosted the first Northwest GEAR UP Regional Conference in Spokane in the fall of 2007. About 300 participants from Washington, Oregon, Montana, Wyoming, Idaho, Nevada and Washington DC attended the two-day conference intended to create collaborations among states.

- The Washington State GEAR UP program organized statewide GEAR UP directors meetings to formulate policy advocacy for the GEAR UP community and to coordinate college awareness and readiness campaigns.

- Working with other partners, the Washington State GEAR UP plays an important role in helping grassroots campaigns for national college access programs such as College Goal Sunday and KnowHow2GO.

2007-2008 Update

GEAR UP expansion

For the first time, the governor and legislature provided $2.5 million for the Washington State GEAR UP program to expand services to 25 additional school districts. The GEAR UP for Student Success Expansion targets school districts where the majority of students are eligible for free and reduced lunch rates and who do not have a meaningful, structured, college access and success program.

Web site development

Washington State GEAR UP is currently developing a web site with information that guides students, parents, school personnel in their preparation for post-secondary education. The web site will include interactive elements and combine fun and education in getting the information to target population. The site, www.gearup.wa.gov, is scheduled to go live in January or February of 2008.

New outreach branding

GEAR UP is in the process of creating a new branding for GEAR UP in the media campaign with new logos that are consistent with the look and feel of the Higher Education Coordinating Board's logo. In addition, the branding also will be part of a new brand image for the Student Financial Assistance Division.

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December 2007

DRAFT: Passport to College Promise Scholarship Program Status Report   (RCW 28B.117)

Overview

The 2007 Legislature created the Passport to College Promise Scholarship program to help former foster youth attend and succeed in college (House Bill 1131). The program provides youth with college preparation and important academic and financial support services, and also establishes a student scholarship and incentive grants for institutions that agree to provide these targeted services.

During the first year of the program, implementation efforts are focused on working with a planning committee to develop program policy and delivery systems. The planning committee includes representatives of The Department of Social and Health Services, the colleges and universities, and non-profit private agencies supporting foster youth. Funds will be disbursed for the first time in 2008-09. The six-year pilot program directs the Higher Education Coordinating Board (HECB) to report to the Legislature on several occasions, the first being this status report due on January 15, 2008. This status report addresses four areas:

- Proposed scholarship and student support approaches;
- Estimates of the number of students who will receive services;
- Baseline information about typical enrollment and persistence patterns; and
- Recommendations for statutory changes needed to promote achievement of program objectives.

Program Background

The Passport program's intent recognizes the many social and educational barriers that may deter foster youth from enrolling in and completing college. In response, the law establishes two purposes:

1. Encourage current and former foster care youth to prepare for, attend, and successfully complete higher education; and
2. Provide current and former foster care youth with the educational planning, information, institutional support and direct financial resources necessary for them to succeed in higher education.

In carrying out these purposes, the law puts in place a partnership of efforts among the HECB, the State Board for Community and Technical Colleges (SBCTC), the Department of Social and Health Services (DSHS), all sectors of higher education, foster youth, caregivers, and private agencies supporting foster youth – such as Treehouse, Casey Family Programs, and the College Success Foundation (CSF). Each of these groups has been integral to developing the Passport initiatives which, by program design, begin with providing information about college to youth as young as 14 years of age.

1. Approaches to Student Support and Student Scholarship

Pre-College Education Transition Planning, Program Promotion and Student Identification

Student support begins while youth are in the foster care system. In order to reach them, several efforts are being launched.

Education Transition Planning. As directed by statute, DSHS has completed a solicitation process and selected two non-governmental entities with expertise in helping foster youth plan for college. The contractors will work with youth beginning at age 14, and at least every six months after, to provide information ranging from:

- taking the right high school courses and college tests;
- knowing how to apply for college admission and financial aid; and
- completing a sound transition plan before the youth leaves foster care.

Funding constraints limited DSHS to awarding only two contracts. Contracts were awarded to Treehouse, serving the King County area and to Youthnet, serving Snohomish through Whatcom counties. Working in these two areas may provide information about differences in serving youth in rural versus urban areas. But it is important to note that youth living in Eastern Washington and other parts of Western Washington will receive no services.

Improving Services to Youth through Better Information Exchanges. Information sharing is crucial for colleges to proactively construct and offer adequate financial aid packages and student support services. In a major step forward, DSHS and HECB attorneys have agreed in principle about how information can be shared about potentially eligible Passport youth, and what will constitute student consent. An agreement is being developed.

Program Promotion. Passport to College Promise Scholarship information is posted on the HECB and Foster Care to College (DSHS) Web sites, and is mentioned on several other sites. Passport funding will also support phase two development of the DSHS Web site (independence.wa.gov).

A program brochure has been developed and is being distributed to potentially eligible youth, their caregivers, independent living providers, and college staff. The Passport to College Promise Scholarship is now part of a common application that consolidates applications for several forms of college financial aid for foster youth.

Youth who have emancipated, or are close to emancipation, and their caregivers are mailed quarterly information and consent forms. These forms permit DSHS to share eligibility information with the HECB.

Training. HECB staff has already conducted several Passport training sessions for the higher education and social services communities. The SBCTC convened a foster care resources panel including Passport information at its statewide fall Student Services Commission meeting. Efforts such as this will continue to take place throughout the coming year, making connections with, for example, the association of school counselors, caregiver groups and others.

College Student Support Services and Institutional Incentive Grants

The statute creates a voluntary option for an institution to receive a performance-based payment linked to a Passport student's satisfactory progress, in exchange for an agreement to do two things:

1. Add a student self-disclosure question to their admissions applications or registration materials; and
2. Have a "viable plan" for addressing the unique needs of former foster youth.

Viable Plan. Development of a "viable plan" is the first step in encouraging institutions to provide targeted services known to be critical to youths' college success. Work by Casey Family Programs provided a framework for the planning committee's discussions about viable plans. This Seattle-based national foundation, established in 1966, is a leader in child welfare issues. The planning committee selected four elements to form the foundation of an institution's "viable plan":

- *Designated campus support staff.* Designate a staff person at the college who can knowledgeably guide youth toward resources for financial aid, academic guidance, personal issues and career counseling/advising.
- *Full financial aid package*. Agree to review student budgets on a case-by-case basis to recognize actual living expenses for current and former foster youth. And, tailor financial aid packages that, to the extent of student eligibility and available funds, utilize all resources. These include resources such as Foster Care to 21, Medicaid to 21, and the federal Chafee Education and Training Voucher (ETV), to meet the student's full need and to minimize reliance on loans.
- *Assurance of support*. Strive to create a lasting institutional commitment to serve current and former foster youth by designating a president, chancellor, vice-president or other position of leadership in the institution to advocate for the Passport program population.

- *Work with social services educational providers.* Connect and communicate with DSHS social services staff and its contracted education and transitional service providers to ensure that current and former foster youth receive a full-range of support services. And, to promote mutual education and training to improve college preparation messages to current foster youth and their caregivers.

Incentive Grants. Each participating institution that chooses to create a viable plan will enter into an agreement with the HECB. The institution determines how each support service will be implemented. Payment of the incentive grant, about $500 per quarter, is made based on student performance measures such as enrollment and satisfactory progress.

Student Scholarships

The purpose of the scholarship, when combined with other resources, is to fund the actual cost of education and limit the need for student borrowing. The annual scholarship can be as much as the cost of tuition and fees at the most expensive Washington public university, currently about $6,900.

Institutions will:
- Identify youth that fit the Passport definition
- Review the student's budget on a case-by-case basis
- Package all available aid, including a Passport scholarship
- Pay the student and receive reimbursement from the HECB

Students entering an academic program with a high school diploma, GED, or passing an "ability to benefit" test will be routinely eligible. Recognizing that some youth may not meet these typical minimum standards, HECB staff and the planning committee is developing an exception process for schools that can document an educational pathway for students who are either taking prerequisites before they can enter programs, needing remedial coursework, or enrolling in a short program.

2. Estimates of the Number of Students Who Will Receive Services

There is no easy way to estimate the number of students who will receive services. In estimating college enrollment, programs serving former foster youth have varying eligibility definitions, so estimates also vary. However, it is well known that these youth, facing the immediate need to transition to adulthood, are less likely than other youth to enter college directly from high school. Here are estimates based on three sources:

HECB. Using applicant information from need-based aid recipients, the HECB can derive an estimate of about 300 students aged 22 and younger that look similar to first-year Passport eligible students. Estimating the eventual full population of Passport eligible students using the same measure (but for all class levels), the HECB identified about 1,250 potentially eligible students. Of these, about 80 percent attended a community or technical college.

DSHS. In its most recent annual count of 600 emancipating youth, DSHS found that about 200 completed a high school diploma or GED. This represents the minimum number of fully eligible alumni of the foster care system that could immediately take advantage of these services. However, a finding from the Northwest Foster Care Alumni Study released by Casey Family Programs in 2005 predicted that about 43 percent of alumni, or approximately 260 students, would complete some education beyond high school.

College Success Foundation. Another indicator of "first year, first time" applicants comes from the College Success Foundation's (CSF) privately funded Washington Governor's Scholarship. This year, 53 student applications were received and 31 students were awarded scholarships. Based on its eligibility criteria of high school graduation and a minimum grade point average of 2.0, this scholarship may serve a slightly more prepared segment of the foster youth population.

3. Information on Enrollment and Persistence

There is little information available on the college persistence rates of foster youth. And few of these patterns would include the influence of a Passport-like program.

HECB. Based on previous financial aid data about students who seem to mirror the Passport population, the HECB identified 238 students enrolled in the 2002-03 academic year. Looking at these students over a five-year period, their enrollment pattern (defined as enrollment in at least any one term per year) was:
- 238 students enrolled in the first year
- 117 students (49 percent) enrolled in the second year
- 63 students (26 percent) enrolled in the third year
- 44 students (18 percent) enrolled in the fourth year
- 28 students (12 percent) enrolled in the fifth year

College Success Foundation. The Washington Governor's Scholarship has been in place for six years. Using the foundation's definition of persistence, CSF staff found that almost 53 percent of the first (2002) cohort had either graduated or are still actively attending college. It is of note that this design is a resource-enriched program, including college mentors and other support activities.

Casey Family Programs. The Northwest Foster Care Alumni Study found that of those enrolling in community colleges, about 25 percent received a credential within six years. It also found that just over 20 percent of youth completed a degree/certificate beyond high school.

4. Recommendations for Statutory Changes

No statutory changes are needed at this time. However, some future areas for consideration may be:

A. Including other youth in the Passport program, such as tribal foster youth who are not in the state's care.
B. The federal government has plans to broaden its definition of foster youth for the purposes of federal student aid eligibility. This may require further study to determine any potential impact on Passport eligibility criteria.
C. College mentors have been mentioned as a possible enhancement.

Next Steps

- **January 2008.** The HECB will begin building the information systems for Passport.

- **March 2008.** The HECB has filed its notice of intent to file rules and will continue to work with the planning committee in upcoming months to establish this guidance.

- **July 2008.** Begin making payments to students and institutions.

- **September 2008.** The HECB and SBCTC will develop a method to perform an annual analysis to verify that institutions of higher education have awarded eligible Passport students all available aid for which they qualify.

- **December 2009 and December 2011.** The HECB and SBCTC will jointly submit reports on rates of student participation, persistence and progress.

- **December 2012.** The Washington State Institute for Public Policy will complete an evaluation of the program and submit its report to the Legislature.

RESOLUTION NO. 07-25

WHEREAS, The Legislature through ESB1131 authorized the Board to develop, with the assistance of an advisory committee, the Passport to College Promise program to help encourage former foster care youth to prepare for, attend, and successfully complete higher education; and

WHEREAS, The Legislature requested a status report on program decisions and implementation; and

WHEREAS, The Legislature requires a report on the program by January 15, 2008; and

WHEREAS, Board staff have developed a report that includes:
- Discussion of the proposed scholarship and student support service approaches;
- Estimates of the number of students who will receive such services;
- Baseline information on the extent to which former foster care youth who meet the eligibility criteria have enrolled an persisted in postsecondary education, and
- Concludes statutory changes will not be needed in order to implement the program in the 2008-2009 academic year;

THEREFORE, BE IT RESOLVED, That the Higher Education Coordinating Board adopts the staff report on the Passport to College Promise Scholarship program and authorizes staff to convey the report to the Legislature.

Adopted:

December 13, 2007

Attest:

_____

Bill Grinstein, Chair

_____

Betti Sheldon, Secretary

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November 2007

Innovation Opportunity Analysis and Innovation Research Team Draft State Implementation Plan

Background

This document was developed by the Higher Education Coordinating Board (HECB) for the Washington Economic Development Commission to serve two primary purposes:

- Provide an assessment of our state's current research assets with regard to technology commercialization, and the potential of our state's research institutions to provide research-dependent industry clusters with technology support and assistance; and

- Develop a plan for the implementation of Innovation Research Teams in accordance with SHB 1091.

Under SHB 1091, the HECB is responsible for the implementation of Innovation Research Teams in conjunction with the publicly funded research institutions, with policy direction from the Washington Economic Development Commission. The program has received an initial start-up appropriation of $2.37 million for Fiscal Year 2008-09.

The document was developed by HECB staff with support and assistance from the University of Washington and Washington State University Offices of Research and Technology Transfer. The Washington Economic Development Commission has been briefed on the process for the plan's development, and they are expecting to receive the document and discuss it at their next meeting on Friday, December 14.

Following the report is a draft resolution for the Board's consideration that endorses the plan's major findings and recommendations and transmits the document to the Economic Development Commission.
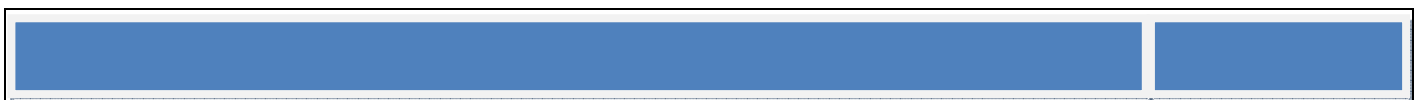
Innovation Research Teams:
Innovation Opportunity Analysis and Draft State Implementation Plan

Prepared by the Higher Education Coordinating Board for the Washington Economic Development Commission

November 2007

Table of Contents

Executive Summary

This document was developed by the Higher Education Coordinating Board (HECB) for the Washington Economic Development Commission to serve two primary purposes:

- Provide an assessment of our state's current research assets with regard to technology commercialization, and the potential of our state's research institutions to provide research-dependent industry clusters with technology support and assistance.
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Under SHB 1091, the HECB is responsible for the implementation of Innovation Research Teams, in conjunction with the publicly funded research institutions and with policy direction from the Washington Economic Development Commission. The program has received an initial start-up appropriation of $2.37 million in fiscal year 2008-09.

Innovation Opportunity Analysis

The University of Washington (UW) and Washington State University (WSU) provide nearly all of Washington's research capacity at higher education institutions. They receive about one-third of all the federal research funding Washington receives. The remainder goes directly to federal agencies, federally-funded research and development centers (Pacific Northwest National Laboratory), non-profit organizations, and industry. Washington industry expends about nine times what the universities expend on research and development, mostly on applied research. Most of the state's basic research is conducted at the UW and WSU.

The table below identifies the universitys' areas of research preeminence that support commercialization opportunities in Washington State:

Areas of Research Preeminence at Washington Research Universities that Intersect Commercialization Opportunities

University of Washington	Washington State University
Biotechnology, Genomics, and Biomedical Applications	Molecular Plant Science and Genetics
Advanced Materials and Nanotechnology	Chromosome Biology and The Science of Reproduction
Clean Technologies	Advanced Materials
Global Health	Clean Energy Technologies
Information Technology (E-Science)	Global Infectious Diseases at the Human-Animal Interface
Sensor and Sensor Networks	The Brain, Behavior, and Performance

These areas overlap considerably and can be combined into five broad categories of research activity— clean technology and advanced materials, global health, human health and medicine, molecular plant science and genetics, and e-science.
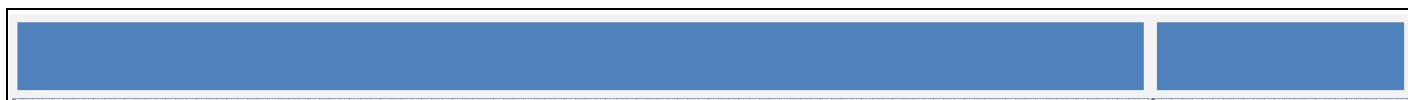
Washington State University has successfully commercialized technology in several areas of science, including agriculture, energy, viticulture, hydrology, wood products and genomics. The University of Washington has commercialized technologies for kidney dialysis, diagnostic ultrasound, vaccines against Hepatitis B and liver cancer, "super trout", salmon preservation, and Medic One emergency services. They have also had great success in numerous technologies of major consequence in the fields of biotechnology, genomics, and biomedical applications, information technology, telecommunications, clean technology and sensors.

Both institutions have developed gap-funding programs to enhance the commercial potential of promising early-stage discoveries in the laboratory, and develop them to the point where private investment is possible. However, both institutions are unable to fund these programs at levels adequate to meet the need.

The UW and WSU have comprehensive entrepreneurial assistance programs that support entrepreneurship on campus and in the community at large. These resources include business development coaching and mentoring as well as entrepreneurial training and education programs targeting undergraduates, fellowships, and small business development centers. The University of Washington and Washington State University have research, technology commercialization, and entrepreneurial capabilities that enable them to provide support to research-dependent industry clusters throughout the state of Washington.

Innovation Research Team Implementation Plan

In order to achieve the goals for Innovation Research Teams (IRT) identified in SHB 1091, this initiative must be aimed at attracting researchers who transform their disciplines, while at the same time, are committed to commercialization, entrepreneurship, and economic development. Entrepreneurial faculty of this caliber are highly sought after, and to be competitive, comprehensive recruitment packages are required. Our two major research institutions can rarely afford high-impact hires of this type, and often when they attempt to recruit such faculty, they are not able to compete with other universities that can offer funds of the type envisioned in the IRT program. The Georgia Research Alliance provides public research institutions with $27 million per year in research team, infrastructure (laboratories and equipment) and technology commercialization assistance. The Utah USTAR program provides $19 million. While Washington's current $1.2 million per year initial investment is a great start, it is not sufficient to achieve the IRT program's ambitious goals (recruitment of a minimum of 10 "star" researchers in 10 years) nor comparable to investment levels in competing states.

Each institution proposes to expend IRT funds differently, so that the program can fill the unique funding gaps the institutions face when putting recruitment packages together, and maximize the leveraging of institutional and private resources. WSU plans to use IRT funds to create an endowment to support each recruitment (for team personnel and research expenses), use funds for infrastructure investment to fill out the recruitment package, gap funding, and matching resources for grant-funded equipment. At the UW, the most limited resources available for recruiting leading researchers involve facilities improvements (laboratory renovations), major instrumentation, gap funding, and discretionary research funding. The two institutions have determined that they can successfully recruit 16 new entrepreneurial
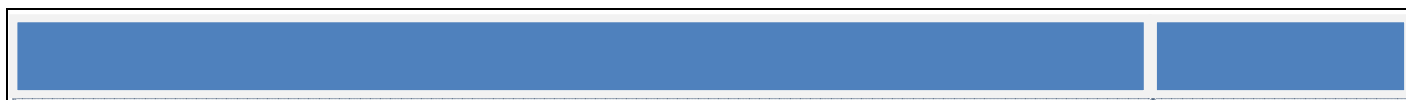
researchers over the next 10 years if the program funding is increased to an annual rate of $26 million per year by 2016, a pace of hiring that is commensurate with economic demand and the need to expand the state's research capacity across the commercialization areas identified above. [1] This amount would be comparable to the current (FY 2006) level of funding for the Georgia Research Alliance program. If one takes the time value of the funding into account, $26 million in 2016 is close to the current value of the Utah USTAR program funding level ($19 million in FY2006).

Program Administration and Oversight

The IRT program will be implemented by the Higher Education Coordinating Board (HECB) in conjunction with the publicly funded research institutions. The HECB will take a lead role in planning coordination and the distribution of program funds. It will be necessary to develop a Memorandum of Agreement between the HECB and the Washington Economic Development Commission that details the role and responsibilities of the HECB in fiscal and program oversight, and authorizes the transfer of funds to the HECB for distribution to the research institutions.

An annual planning process will be implemented each spring by the HECB with the goal of transmitting to the institutions new policy goals, industry needs, and economic development opportunities and incorporating that information into an annual program and expenditure plan. This annual plan will also describe how the previous year's funds were expended, program results achieved, program activities to be implemented in the coming fiscal year, institution-level budgets, and performance targets.

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[1] Institutional budget requests for the IRT program would go through the standard operating budget review process. This will give the Higher Education Coordinating Board an opportunity to review and comment on future-year IRT program budget requests.
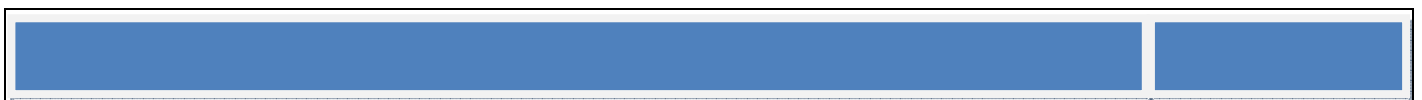
Innovation Research Teams:
Innovation Opportunity Analysis
and Draft State Implementation Plan

The Higher Education Coordinating Board is pleased to provide the Washington Economic Development Commission with this draft plan for the development and implementation of Innovation Research Teams. This document also includes an opportunity analysis that describes our state's current research assets and industry partnerships, which form the base on which the Innovation Research Teams are to be built. The document provides specific suggestions for mechanisms to support, enhance, and develop the Innovation Research Teams, and activities that will provide the research teams with needed assistance and support as we seek to commercialize research results produced by research teams and other members of our state's research faculty. Finally, the document recommends the planning and management processes and procedures that will ensure that public resources are properly targeted, that private investment is leveraged, and that accountability is assured for financial integrity and program outcomes.

Legislative and Institutional Context

Substitute House Bill 1091 was signed into law in July 2007. The bill has two sections—the first establishes the process for identifying and designating industry cluster-based Innovation Partnership Zones, and the second creates a new state initiative to support Innovation Research Teams and develop a comprehensive entrepreneurial assistance program at research institutions.

The Washington Economic Development Commission is tasked, under the legislation, with conducting an innovation opportunity analysis identifying the strongest current research assets and teams in the state that are focused on emerging technologies and their commercialization. The Commission is also charged with identifying opportunities to enhance commercialization of research results with additional assistance and resources. Based on this analysis, the Commission, in conjunction with the Higher Education Coordinating Board and research institutions, is responsible for developing an implementation plan for support and development of Innovation Research Teams and commercialization generally, through entrepreneurial assistance. The legislation further states that the HECB is responsible for implementing the final plan developed by the Commission, along with the state's publicly-funded research institutions. The HECB, in consultation with the University of Washington, Washington State University, and other organizations, has developed this document to assist the Commission in completing these tasks.

SHB 1091 also establishes a process for the director of the Washington Department of Community, Trade and Economic Development to designate research-dependent, cluster-based Innovation Partnership Zones. Present within these zones must be research capacity and commercially valuable research, globally competitive firms in a research-based industry, and training capacity. As of the writing of this document, 11 such zones have been designated across the state, and it is anticipated that

more will be designated in the future. The legislation also calls on the Washington Economic Development Commission and the Workforce Training and Education Coordinating Board to establish a working group to develop a methodology for using labor market information and other data to identify strategic clusters important to the state. Unfortunately, that process is still underway and this document has been prepared without the benefit of that analysis. Instead, in the preparation of this document, we have looked to the Innovation Partnership Zone designation process as our primary means for identifying key research-based industry clusters in the state.

Washington has two public universities defined in state statute as research universities—the University of Washington and Washington State University. Together, these two institutions and their seven campuses expended $1.25 billion in research funding in fiscal year2006, accounting for nearly all of the state's R&D expenditures at college and universities. Through their technology transfer offices, last year they completed 225 license agreements to transfer inventions, software, plant varieties and other innovations made in their research programs to outside organizations and firms. This represents a 91 percent increase from just two years earlier. The University of Washington is a leader among its peer public research institutions in both receipt of federal research funding and execution of technology license agreements. Nevertheless, compared to other leading technology states, our total research base is small. According to U.S. Census data compiled by the National Science Foundation, Washington ranked fourth among all states in 2002 in the percentage of total state employment in high technology industries.[2]

Figure 1

Total R&D Expenditures by Washington 4-Year Higher Education Institutions, FY05

- □ University of Washington
- ■ Washington State University
- □ All other major institutions (public and private)

1%
20%
79%

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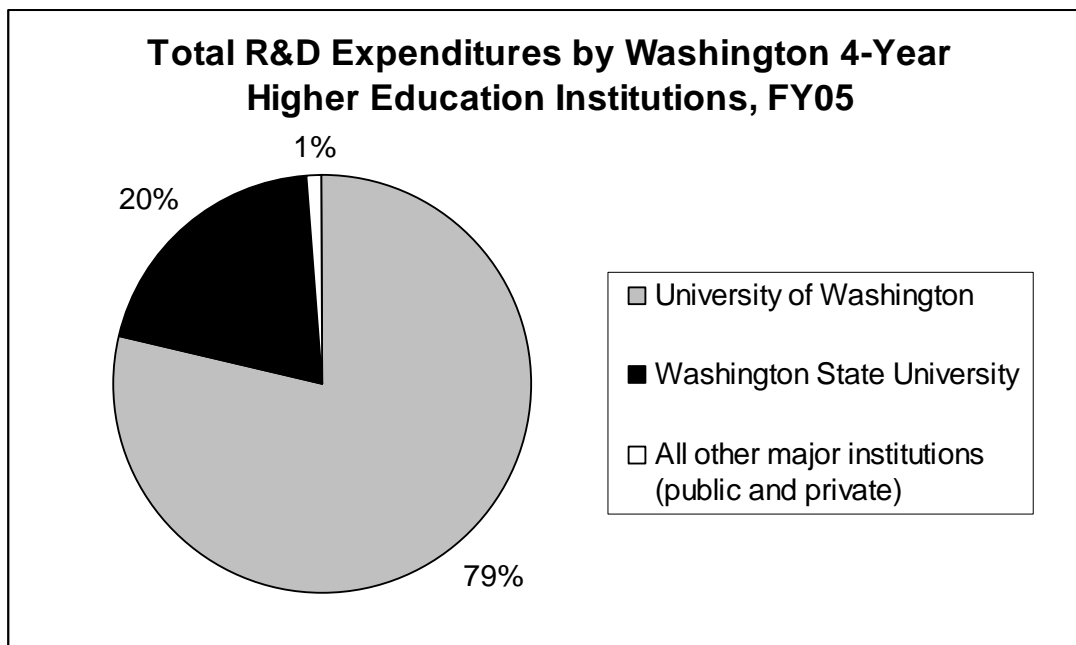
[2] National Science Foundation, Division of Science Resources Statistics, *Science and Engineering Indicators, 2006*, Arlington, Virginia (NSB 06-01) [February 2006].

Source: National Science Foundation/Division of Science Resources Statistics, Survey of Research and Development Expenditures at Universities and Colleges, FY 2005.

Yet, in spite of this collective success, in 2005, our state ranked 18th in total federal research and development (R&D) expenditures per capita, and 30th in total R&D expenditures per $1,000 of gross state product (below the national average).[3]

Our state's technology transfer activities operate within a federal structure that enables public research institutions to engage in public-private technology partnerships. Efforts to transfer research from universities to commercial ventures received a strong boost from the federal government in 1980, when Congress passed the Bayh-Dole Act. This landmark legislation fundamentally changed the federal government's patent and trademark policies by enabling inventors, or their employers, to retain patent rights in inventions developed as part of federally funded research grants. This change promoted licensing and the leveraging of contributions by the private sector toward applied research, and facilitated the transfer of technology from the laboratory bench to the marketplace. It is fair to say that this law also raised the expectations for research universities and changed the standards by which they are measured.

> "The past fifty years have clearly established the major research university as the principal provider of basic research in the U.S. Many may not realize that in the 1950s, only one-third of all basic research discoveries came from U.S. universities. Today that proportion has doubled to two-thirds of all basic research and discovery. This high proportion – mostly funded by the government – comes with the expectations of results. The modern university must continue to find new paths to the marketplace."
>
> Elson S. Floyd, President, WSU

The fertile ground for technology transfer is faculty expertise and research. Only a small portion of research results have commercialization potential, and a much smaller proportion have the potential to spawn new products or services. The main benefit of technology transfer is to accelerate the product cycle by making it easier for industry to find the incremental improvement in their product quality or production process that will lead to the next iteration, the next version, or the next model of their product or service. Technology transfer is more likely to benefit existing firms' competitive position and market share than it is to lead to substantial increases in firm births or employment.

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[3] From National Science Foundation and U.S. Census data, as compiled by the National Center for Higher Education Management Systems, see http://www.higheredinfo.org/.

Part 1: Innovation Opportunity Analysis

The UW and WSU have demonstrated research expertise and commercialization strength in several areas that are vital to the state's current and future economy. WSU has sought to define its strengths both in fundamental and applied research, including its historic role serving as the research enterprise for our state's largest employer, agriculture. WSU has a balanced portfolio of research funding, with approximately equal amounts of federal funds derived from the NIH, NSF, Department of Defense, Department of Agriculture, and Department of Energy. This fundamental and applied research have resulted in innumerable discoveries that have advanced the economy and the well-being of Washington's citizens.

The UW is a larger institution with corresponding successes. About half of its research funding is in the life sciences/biomedical sciences area, about 10 percent in engineering, computer sciences, and materials science/chemistry not involving life sciences, and the remainder is spread broadly across the many areas of research at the university -- with a significant amount in environmental sciences. The breadth and depth of this research base has led to great commercialization success in a number of fields. In fiscal year 2007, 501 researchers from 64 departments disclosed a total of 335 innovations to UW TechTransfer, and 198 agreements were completed. One hundred sixty-six U.S. patent applications were filed in this same time period, and 11 companies were started from innovations made at the UW. Ten companies were started in 2006. In fiscal year 2007, UW innovators earned $6.2 million from their successful technologies, and the university as a whole recouped about $36 million. On average, about half of the licenses, patent applications, and start-up companies fall into the category of Biotechnology, Genomics, and Biomedical Applications.

Research Strengths and Technology Commercialization Success

The table below summarizes the academic fields where our two public research institutions exhibit national and international strength in areas of interest for commercialization. These fields are the areas that should be the focus of our commercialization efforts and strategies to support industry clusters.

Table 1: *Areas of Research Preeminence at Washington Research Universities that Intersect Commercialization Opportunities*

University of Washington	Washington State University
Biotechnology, Genomics, and Biomedical Applications	Molecular Plant Science and Genetics
Advanced Materials and Nanotechnology	Chromosome Biology and The Science of Reproduction
Clean Technologies	Advanced Materials
Global Health	Clean Energy Technologies
Information Technology	Global Infectious Diseases at the Human-Animal Interface
Sensor and Sensor Networks	The Brain, Behavior, and Performance

From this strong research base come opportunities for commercialization of research products across a wide range of industries, products, and services. The list below provides a general sense of the richness of Washington's research and technology capacity.

WSU Areas of Research Preeminence

As noted above, over the past year, the WSU Provost's Office has undertaken an exercise to clearly identify our most successful, preeminent research programs. These distinctive, multidisciplinary fields build on strong foundations of excellence and have the capacity for transformative economic and societal impact while raising the university's reputation at international and national levels. While not focused exclusively on these areas, over the next several years WSU will strategically invest in these areas of preeminence, maximizing our impact on the state and nation while growing our research reputation. Those areas are:

Advanced Materials: Advanced materials research examines and develops the properties of those materials the world relies on to build systems that support and advance our society, including transportation, defense, and energy systems. Specifically, this cadre of researchers examines the composition and properties of materials subjected to high temperatures and pressures, the interface between polymers and natural fibers, and materials for energy transformations. Their research improves existing materials and creates those with even greater strength, durability and flexibility, and that are less toxic to the environment. This work affects national security and energy and environmental policies and practices, and creates new economic opportunities in the state.

Chromosome Biology and the Science of Reproduction: Research into the molecular basis of reproduction seeks to prevent and eliminate suffering from reproductive problems and disabling diseases such as birth defects, cancer, mental illness, and diabetes. WSU has a strategic niche in research related to mammalian reproduction in molecular signaling and chromosome biology. From understanding the impact of toxins over generations to advancing early diagnostics of genetic defects, these researchers are breaking new ground in understanding what affects and threatens the health of this and future generations. Results of their work influence health care and environmental practices and policies worldwide.

Clean Energy Technologies: Clean energy research develops and deploys innovative technologies to address pressing global energy and environmental issues. WSU researchers are advancing alternatives to fossil fuels by developing technologies for methods such as hydrogen storage and bio-based fuels. They also lead technology developments aimed at securing the nation's electrical power grid, and in radiochemistry and atmospheric transport research that seeks to minimize the environmental impact of energy production and consumption. Related social and behavioral science research informs the selection of technologies and strategies for their sustainable application and positive societal benefit.

Global Infectious Diseases at the Human-Animal Interface: Since more than 70 percent of all infectious diseases are zoonotic in origin, controlling infectious diseases that move within animal populations and from animals to humans is fundamental to safeguarding and improving human health worldwide. WSU is an international leader in this area, from facilitating the development of vaccines for diseases

transmitted between animals, to providing prevention, surveillance, and detection of emerging diseases moving across animals – and potentially to humans—worldwide. The work of these faculty and students will make the difference between poverty and progress in developing countries and will improve the health of Washington's citizens.

Molecular Plant Science and Genetics: The understanding and development of plant sciences for the advancement of humankind continues as one of the greatest scientific opportunities of our world. As one of the largest and most distinguished multidisciplinary programs in the country, molecular plant science at WSU focuses on fundamental research in molecular biology, physiology, and biochemistry that has applications in forestry and agricultural biotechnology. From the development of new pharmaceuticals to fight cancer to applications of biotechnology tools to improve agricultural commodities of importance to the state, nation and world, plant science research has enormous promise for improving the quality of life of people in all circumstances worldwide.

The Brain, Behavior, and Performance: The functions and complexities of the brain are among the most fascinating and least understood areas of human health. WSU is leading targeted research in this area, advancing our understanding of how the brain produces complex behaviors such as sleeping, eating, emotion, motivation, and memory; and how disturbances in the brain's intricate organization contribute to poor performance in the workplace and society. Research in this area concentrates on three interrelated and interacting foci: sleep and performance, emotion and well-being, and motivation and reward. Better understanding will improve disease therapies and diagnostics, improve substance abuse treatment, and help manage performance and risk in the work place, the military, and other arenas that are affected by sleep restriction.

UW Areas of Research Preeminence

The UW has a broad base of research preeminence across many disciplines and areas of the university. The UW has among its faculty awards six Nobel prizes, five National Medal of Science winners, 11 MacArthur "genius" fellows, and over 200 members of the three National Academies. Broad areas of research preeminence that intersect with commercialization opportunities are listed in Table 1. Among these, eight specific areas of excellence have been chosen as being especially timely in terms of emerging opportunities that span the basic research/commercialization spectrum: nanophotonics, molecular medicine, e-science, molecular engineering, alternative energy, environmental monitoring/sensors, global health, and biomedical devices/robotics. As described for the WSU areas of research preeminence, these eight have the capacity for transformative economic and societal impact. These areas of research preeminence are multidisciplinary and build on existing research strengths, and are all areas in which the university has committed to invest resources. Each is poised to make a major impact on the state's economy.

Nanophotonics: The development and application of optically-active materials at the nanoscale (nanophotonics) is an emerging area of importance within the Advanced Materials and Nanotechnology umbrella. Applications range from ultrafast and ultraminiaturized sensors and communication devices, to flexible computer screens and "smart" window shades. The UW is a national center for research in photonic materials, with an NSF Science and Technology Center in this area, a new Institute for

Advanced Materials funded by NSF and DARPA, and a successful start-up company based on UW technology (Lumera). Moving this area of research into devices at the nanoscale will position the UW as the undisputed leader in this technology-rich research and commercialization effort. In part due to the strengths in this research area at the UW, a business community interested in photonics and nanophotonics is beginning to emerge in the Puget Sound area.

Molecular Medicine: The interface between bioengineering, imaging, and clinical medicine is the area of molecular medicine. Molecular medicine has profound applications in life sciences for diagnostics, monitoring, and treatment for a variety of disorders. This highly interdisciplinary effort involves molecular design of biologically-compatible compounds that have optical and material characteristics conducive to live imaging, and development of methods to use these compounds for diagnostic and treatment applications. Examples are "magic bullet" compounds that target cancer cells and destroy them upon activation. The UW is a national leader in imaging and bioengineering, and the marriage of these strengths with clinical applications in association with biotechnology companies will create a robust and exciting cluster of academic and economic excellence.

E-Science: Nationally and internationally, we are at the dawn of a revolutionary new era of "e-science", involving acquisition of extraordinarily vast datasets, mining of those datasets, and visualization of them for extraction of breakthroughs in a variety of fields. The data can come from simulation models, but now and more importantly it is coming from new generations of sensors – sensors on the sea floor, in buildings and roadways, in forests, in telescopes, in gene sequencers, and in living organisms—and someday, in our cars and homes to monitor our health. The volume of data is overwhelming, and the challenge is to capture, mine, visualize, and interpret these data in order to extract knowledge. This "computational knowledge extraction" lies at the heart of 21st Century discovery, and e-science will transform the process of discovery in all fields of science and engineering. In order to take advantage of this transformational and emerging area, recruitment of an entrepreneurial star researcher who works across the computer science/basic science boundary is a key element. E-science is a foundational area, affecting commercialization in all major areas of strength for the UW (information technology, life sciences, aerospace, and clean technology). Not only does the UW expect start-up companies to spin out to develop and market software in the e-science area, breakthroughs based on e-science approaches will spin out new technology, products, and companies as well.

Molecular Engineering: Molecular Engineering is an emerging interdisciplinary field that seeks to accelerate and optimize the discovery, design, and synthesis of functional molecules that will serve as a foundation for a vital and sustainable economy. Molecular Engineering has many of the same attributes as the emerging field of bioengineering in 1967, when the UW launched a bioengineering initiative that grew into the current high-impact interdisciplinary department. Important components of this initiative involve biomolecules, self-assembled nanomaterials, and molecular recognition sensors, which have the potential to affect fields from both basic chemical and biological research to health care applications, aerospace materials, and clean technology. The UW is already a leader in Molecular Engineering as a result of disciplinary research carried out by faculty in the College of Arts and Sciences, College of Engineering, and the School of Medicine, as well as interdisciplinary research carried out in several federally-funded centers.

Alternative Energy: Approaches to generating environmentally friendly, renewable energy sources are central to solving a variety of economic and environmental issues for the United States. The UW has a number of programs in this area, involving biofuels from forestry biomass, fuels from microorganisms, fuel cells, and catalysts for solar energy. The strength of these programs was recently recognized in the awarding of an NSF IGERT grant to the UW in alternative energy. We expect these areas to grow in importance in the commercial sector in the Puget Sound region under the umbrella of clean technologies and of the aerospace sector.

Environmental Monitoring/Sensors: We are at the dawn of a revolution in environmental science, based on the emergence of a plethora of sensors; multi-function, highly miniaturized, networked, and embedded in platforms as diverse as the ocean observatory on the floor of the Juan de Fuca plate (Project Neptune) to sensors imbedded in cars that sample atmospheric conditions. These capabilities will forever change environmental science and environmental monitoring, and have a direct impact on the health of the Puget Sound. The UW has a great deal of strength in this area, as a result of collaborative groups that span the environmental science/device engineering/nanotechnology boundaries. Some of the work in nanophotonics and e-science will be relevant in this area. The applications of this area are very broad, encompassing life sciences, aerospace, clean technology -- all areas in which environmental sensing will become a mainstay of the future.

Global Health: The importance of the health of the world's population has gained broad recognition after recent global social, political and environmental crises. Furthermore, the HIV/AIDS and SARS epidemics also have emphasized the worldwide impact of disease. Public and private funding, through visionary foundations (*e.g.,* the Bill and Melinda Gates Foundation, the Wellcome Trust, *etc*.) have made unprecedented contributions to these important efforts, but the challenge is still growing.

At the UW, the Department of Global Health is working to generate new approaches to improving the world's health by integrating faculty with diverse backgrounds, expertise and perspectives from a variety of fields. This program builds on existing UW strength and brings together educational and service programs for creating or improving public health systems in various developing countries; programs that are advancing our knowledge of global pathogens and nutritional disorders, and a variety of social science, economics, law, and business programs focused on Global Health problems. The department recently recruited Chris Murray from Harvard, an internationally renowned expert in health metrics who was recently awarded a $105 million grant from the Bill and Melinda Gates Foundation. With the strengths of the UW and other research institutions and the presence of the Gates Foundation, Seattle is poised to become the global health center of the world. In addition, we expect the global health area to begin to generate products, both in pharmaceuticals and in programs for addressing health disparities.

Biomedical Devices/Robotics. The broad field of biomedical devices coupled to robotics has the potential to transform health care for the disabled. Imbedded monitoring devices in the home and car, prosthetics that function like natural limbs, robotic surgery for highly delicate operations, inexpensive and painless diagnostic tests in the clinic—all are emerging possibilities with strong commercial potential in the life sciences area. The UW already has strength in these areas across a number of departments, with significant commercialization success.

Washington State University Technology Licenses

Below is a listing of some of the major research innovations that have been licensed to outside organizations and companies in the past few years by Washington State University.

Agriculture: New wheat varieties that enable Washington's farmers to be among the most productive in the nation. Such advances are built on solid foundations, such as those that led to semidwarf wheat that brought tens of millions of dollars in profits per year to Washington's farmers, while serving as the foundation for the Green Revolution. Plant sciences remains one of WSU's strongest research programs.

Energy: Electric power research that led to one of WSU's most successful spin-off companies, Schweitzer Engineering Laboratories (SEL). Based in Pullman, SEL introduced the world's first digital relay in 1984, revolutionizing the power protection industry by offering fault locating and other features for a fraction of the cost of earlier systems. Today SEL employs more than 1,000 individuals.

Viticulture: WSU's Dr. Walter Clore is widely considered to be the *Father of Washington Wine.* Starting in the 1960s, Dr. Clore conducted trials of grape varieties in Prosser and tested more than 250 American, European and hybrid varietals. Dr. Clore's meticulous research was instrumental in assuring Washington farmers that they could grow vinifera grapes and produce fine wine. Today, Washington's wine industry annually generates $2.4 billion and employs more than 11,000 people.

Hydrology: Decagon Devices was founded in 1983 by Dr. Gaylon Campbell, a WSU soil scientist. Decagon is the world leader in the measurement of water activity in foods and pharmaceuticals. Further, a hybrid of Decagon's biophysical research instrument was sent to Mars in August 2007 as part of NASA's Phoenix Scout Mission. Decagon employs more than 40 people in Pullman.

Wood Products: Growing from WSU's Wood Materials Engineering Laboratory, Pullman-based Metriguard has become the wood products industry leader in the design and manufacture of machine stress rating (MSR) equipment. This equipment is used worldwide by sawmills, wood products companies, and research facilities. Based in Pullman, Metriguard employs more than 30people.

Genomics: Soon after moving to WSU Spokane from Baylor University, WSU faculty members Lisa Shaffer and Bassem Bejjani started Signature Genomics, a state-of-the-art, array-based comparative genomic hybridization diagnostic laboratory. Growing rapidly, Signature Genomics currently employs nearly 30 scientists, MDs, and technicians in Spokane.

University of Washington Technology Licenses

The University of Washington has a long history of commercialization successes with a major impact on the state. A few examples are:

Kidney Dialysis: UW medicine professor Belding Scribner invented a Teflon shunt that could be implanted in patients with kidney failure. Scribner's shunt made the long-term use of kidney dialysis machines possible. His discoveries have improved and extended the lives of millions of patients, and are used in kidney dialysis machines worldwide.

Diagnostic Ultrasound: Doppler ultrasound is based on the research of electrical engineer Donald Baker and UW professor Robert Rushmer. ATL Ultrasound partnered with the UW to turn this emerging technology into a non-invasive diagnostic procedure that is one of the most the effective diagnostic tools in the world today. The UW's Center for Industrial and Medical Ultrasound continues to be a world center for this field of research.

Vaccine against Hepatitis B and Liver Cancer: The National Cancer Institute cites the Hepatitis B vaccine as the world's first anti-cancer vaccine. UW botanist and genome scientist Ben Hall invented a revolutionary technique for producing proteins that is now used to manufacture a safe and affordable Hepatitis B vaccine and many other biotechnology products. Over one billion doses of the vaccine have been administered since its introduction in 1992, and the World Health Organization estimates that each year the vaccine averts at least 600,000 Hepatitis B-related deaths. Hall's vaccine was the world's first genetically engineered vaccine against a human disease, and because liver cancer is one of the potential consequences of Hepatitis B infection, the National Cancer Institute cites the Hepatitis B vaccine as the world's first anti-cancer vaccine.

Medic One Emergency Services: UW cardiologists created Medic One, a Seattle-based program that trains paramedics to provide emergency care outside the hospital. Medic One's innovations resulted in dramatically improved outcomes for heart attack patients, and the program has become a model for emergency care services throughout the world.

Super Trout: Using selective breeding and nutrition programs, UW fisheries scientist Lauren Donaldson developed a "super trout" that matured twice as fast, weighed 10 pounds and produced many more eggs than normal fish. He also created a completely artificial salmon run and spawning ground at the UW on Portage Bay- the first salmon hatchery in an urban setting.

Saving Salmon Runs: Why have Alaskan salmon runs stayed strong, while other fisheries have crashed? One crucial factor is the 60-year collaboration between UW fishery scientists and Alaska fishermen, one of the world's most successful examples of sustainable resource management. When the Bristol Bay salmon run began declining in the 1940s, Alaskan fishermen asked UW scientists to look for the reasons why and create strategies for reversing the downward trend. After intense study of the run's environmental requirements and population structure, the researchers worked with fishermen to create guidelines for maintaining habitat and avoiding over-fishing. Their partnership continues today, and is one of the key reasons that the Bristol Bay salmon runs are now at some of the highest levels in recorded history.

The UW continues to move innovations into the commercial sector. Below are some examples of current and future commercialization opportunities, grouped by category.

Biotechnology, Genomics, and Biomedical Applications

- MacArthur Fellow Yoky Matsuoka's work as director of the Neurobotics Laboratory focuses on the creation of robots to help people with disabilities and spinal injuries. Yoky's most recent invention is a robotic hand, with lifelike movements that provide the hope of normal movement.

- The laboratory's current list of collaborators includes rehabilitation hospitals, sports and orthopedic medicine, and the military.
- The Institute for Surgical and Interventional Simulation (ISIS) has changed the way surgical training is conducted. ISIS provides surgical educational opportunities with the use of simulation techniques for surgeons at all levels to practice new techniques or improve on current techniques. ISIS has a stellar list of industrial and academic partners tha include: Stryker Endoscopy, Medical Education Technologies, Syneture, Simulab, and Premera Blue Cross. Their academic partners at the University of Washington include the Biorobotics Lab in the Department of Electrical Engineering and the Human Interface Technology Lab.
- Phil Green's work in gene sequencing and his DNA sequencing tools are used throughout industry and academia and "represent the most important technical advance in DNA sequencing of the 1990s." Three software products are the outcome of this research: Phred, Phrap and Consed-Autofinish.
- The "Vocal Joystick" is an exciting application currently being worked on in Professor Bilmes' research group in Electrical Engineering. This tool will enable people to use their voices to control objects on a computer screen. Future applications with this system would be the ability to manipulate instrumentation to assist with improving quality of life issues for people with disabilities.
- Another area in which significant progress has been made is high-intensity focused ultrasound or "bloodless surgery" as a replacement for standard surgical practices. Doctors could pass a sensor over the areas of injury with beams that are thousands of times more powerful than those currently used in imaging, which would heal wounds and increase recuperation time.
- A new imaging technology for use in protein crystallography is poised to transform the process of identifying protein crystals. Werner Kaminsky, UW associate professor of chemistry, developed a software algorithm for fast image processing. UW TechTransfer licensed the technology to Emerald BioSystems, Inc., a Bainbridge Island company that provides tools to the protein crystallography marketplace.
- Internationally recognized UW scientists John Harlan and Robert Winn discovered a protein that may lead to a drug treatment for one of the most challenging problems in medicine: preventing damage to tissues when blood flow that was blocked is restored to the body, as can happen in heart attacks or stroke. A major component of the damage is caused by an inflammatory response by the body. Harlan, professor of Hematology, and Winn, professor of Surgery and Physiology Biophysics, discovered that a certain family of proteins was uniquely effective in preventing tissue damage. The researchers' next goal was to found a start-up to further research and test the protein as a potential drug candidate. With the help of UW TechTransfer, the new company, Seredigm, became part of Accelerator, a large Seattle-based business development incubator. A drug that could prevent or greatly reduce the inflammatory response would improve the lives of millions of patients with cardiac diseases, stroke, and other inflammatory conditions.
- UW TechTransfer recently licensed technology for predicting patient response to warfarin, an anticoagulant drug commonly prescribed for patients at risk for stroke or heart attack caused by blood clots. Patient response to warfarin varies widely. Traditionally, this has meant that finding the correct dose was a challenge that could sometimes take months of frequent monitoring and readjusting. Serious side effects, such as excessive bleeding, can occur if too much of the drug is administered, while too little can be insufficient to prevent blood clots from forming.
- An important project for human health is now moving forward, to develop a Scanning Fiber Endoscope. This will advance minimally invasive medical imaging by using ultra-thin flexible

endoscopes that allow access to more regions of the body than previous technology. The clinical potential of this system is vast, since it will enable low-cost, minimally-invasive approaches to monitoring and treatment not previously available.

Information Technology

- A team of computer science researchers are tackling the problems of internet security by developing tools to prevent Spyware threats. Computer Science Professor and Department Chair Hank Levy and team have also designed a new Web browser architecture called Tahoma that protects users from harmful Web content.
- Yoshi Kohno, an assistant professor in the Department of Computer Science and Engineering, was recognized as one of Technology Review Magazine's top innovators under the age of 35. Kohno research is in the area of computer security. He invented the concept of systems-oriented provable security that would provide security in multiple applications – such as voting machines, Web browsers, etc.
- The mission of the UW's Network Security Lab (NSL) is to conduct basic and applied research in the security of critical networks and network components. Contributions are in the areas of wireless network infrastructure, Internet security, and commercial/industrial applications.

Advanced Materials and Nanotechnology

- The recently unveiled Boeing 787 Dreamliner's plastic body is in part the result of contributions of UW research collaborations. The Department of Mechanical Engineering is conducing research in the area of composite materials as well as nanotechnology applications. Zelda Zabinsky and Mark Tuttle have developed a design algorithm for composite structures called COSTADE that was used in the design of the 787 fuselage.
- A team of researchers in Materials Science and Engineering and in Chemistry have developed materials and methods for the manufacture of bright white OLED light for commercial use. UW TechTransfer recently licensed the technology to a Washington-based start-up formed to commercialize the OLED technology. Advanced Electroluminescent Systems (AES) plans to develop lighting materials to compete with traditional incandescent and fluorescent bulbs.

Telecommunications

- In telecommunications, signal propagation and switching speeds are becoming limiting factors, and bandwidth expansion is desperately needed. Devices fabricated from photonics materials can be used for the basic applications of electrical-to-optical signal transduction (conversion), optical switching at nodes of an optical network, and optical beam steering. The first two applications can be thought of as providing the on-ramps and interchanges of the information superhighway. Researchers at the UW working in photonics have achieved significant progress in reaching the goal of using light for this type of signaling in telecommunications.
- One of Technology Review Magazine's top innovators under the age of 35 is Tapan Parikh whose research won him the honor of TR's Humanitarian of the Year. Parikh research focuses on the use of mobile phones to "support sustainable economic development" in developing countries. He has founded a company called Ekgaon Technologies tailored for small business in developing countries to help them expand and manage their operations in areas where other types of communication resources are not viable.

- Physware, Inc., a new start-up company, develops high-speed field solutions for signal and power issues in high-frequency package and board-level electrical modeling and design for the microelectronics industry.

Clean Technology

- Advances are being made in fuel cells, through a team of researchers located in Chemical Engineering, Materials Science and Engineering, and Chemistry. Basic areas of research include electrochemical surface science and the issues of electrochemical fuel cells and water transport in fuel cells.
- Teams of UW researchers including David Ginger, an assistant professor of chemistry who this year won both a Dreyfuss Teacher-Scholar Award and a Sloan Research Fellowship award, are working on novel approaches to develop portable and more efficient solar cells.
- Minoru Taya, UW professor of mechanical engineering, heads a project to design energy harvesting and storage systems for future aircraft. The goal is to help develop technology to create an airplane covered in a skin of flexible solar cells, which would help power the craft while the sun is shining. Researchers will also delve into ways to efficiently store power for dark or cloudy conditions.
- In 2006, UW TechTransfer licensed a unique technology for mapping air pollution to Arcadis, an international environmental remediation and engineering firm. The patented technology, referred to as Radial Plume Mapping, accurately maps a wide range of air pollutants from landfills, chemical plants, refineries, and many other emission sources.
- The Department of Energy estimates that over $50 billion in electricity is wasted annually in the United States because of the inefficiency of traditional lighting. The OLED-lighting based systems described above represent an exciting alternative to traditional lighting. These devices could be the first step to highly efficient, environmentally friendly lighting for home and commercial use.
- The UW's StarLab led by Professor Yinhai Wang focuses on research in the area of advanced traffic detection technologies and their applications for safer and more effective traffic operations, saving energy and reducing pollution.

Sensors

- Babak Parviz, recent recipient of the distinction of Technology Review Magazine's top innovators under the age of 35, is recognized for his research at the interface between biology and electrical engineering. His research in the area of self-assembly and sensor development has led to the development of tools that are able to study biology at the single-cell level such as flexible plastic circuits, nano-scale electronics and low-cost biological sensors for detecting diseases such as HIV.
- Professor Paul Yager's research focuses on the industries and technology needs that arise from the decentralization of medical care such as developing microfabrication based technology for us in biomedical diagnostics. Distributed Diagnosis and Home Healthcare (D2H2) research focuses on instrumentation for measurement, computing, data processing, and healthcare informatics.
- An acoustic technology developed at the UW is soon to be a critical component of a system for tracking and monitoring ship cargo containers and securing them against terrorist threat and loss through pilferage, theft and spoilage. The ultrasound-based technology was developed in the laboratory of Les Atlas, UW professor of electrical engineering and internationally regarded expert in the development and use of acoustic signal processing technologies. Atlas is partnering

with local company Erudite Inc. to incorporate the low-cost security technology into the company's system for tracking and monitoring the security and integrity of ship cargo containers.

- Professor Wei-Chih Wang has developed new optical techniques for use in a viscosity sensor. This work allows for a further reduction in size from previous prototypes. Applications of this sensor include whole blood viscosity measurement, environmental monitoring, food and paper processing, and imbedded sensors for ink monitoring.

WSU Industry Partnerships and Technology Transfer Improvements

WSU recognizes that the top research universities in the nation—those having the most profound impact on the greater world and lead the international research agenda—invest in the strength and

Figure 2 WSU Statewide

talents of innovative and creative faculty, programs, and facilities in areas where they have the potential to make the greatest difference. As a result, over the past year, the WSU Provost's Office has undertaken an exercise to clearly identify its strongest and most prestigious research programs. These distinctive, multidisciplinary fields build on strong foundations of excellence and have the capacity for transformative economic and societal impact while raising the university's reputation at international and national levels. These programs have significant synergy with existing and anticipated Innovation Partnership Zones.

WSU is also home to the state's research and extension system, a mission of the land-grant universities nationwide. Through its four-campus system, nine research and extension centers, 11 learning centers, 27 small business development centers, and 39 local extension offices in partnership with county government, WSU has faculty in every county in the state. The number and location of these sites is shown in Figure 2. These faculty link the university to the people of the state, ensuring that research is responsive to societal and industrial needs and that the latest research results are translated and effectively transferred to affect the lives of Washington's citizens. In addition, such a network helps ensure WSU's relevancy in actively seeking feedback and advice statewide.

Four years ago, WSU began a significant effort to revitalize its technology transfer organization, building a new culture of entrepreneurial achievement at Washington State University. At that time, the WSU technology transfer organization had a very poor reputation both within the university and with corporations that sought to work with the institution. As a result, few inventions were disclosed and even fewer were effectively transferred to industry.

Early in his tenure, WSU Provost Robert Bates directed that the technology transfer organization be revitalized. As a result, WSU proactively took steps to reinvigorate the board of the WSU Research Foundation (WSURF), conducted strategic planning, recruited and effectively engaged new, high profile board members, and hired a new executive director, Keith Jones. Dr. Jones has extensive experience in technology transfer and working with commercial enterprises. WSU also adjusted the technology transfer budget, and negotiated a new, more equitable contract between the university and WSURF. With significant support from the WSU provost, WSU doubled the number of staff in the Office of Intellectual Property Administration over the past two years. The office is now staffed with five technology licensing associates, four in Pullman and one in Spokane. These new staff members work with faculty to educate them regarding the necessity and importance, the personal benefits, and the benefits to the university of disclosing new intellectual property. They also help the faculty link their research with commercial enterprises.

While WSU was reinvigorating its technology transfer organization, it was simultaneously growing its research enterprise. Data from the Association of University Technology Managers (AUTM) indicates that the number of technologies under license from an institution are directly correlated with the institution's science and engineering research and development expenditures. Thus, it is also significant that WSU's science and engineering research and development expenditures have nearly doubled over the past five years (from $107 million in 2001 to $196.5 million in 2006).

As a result of the changes in the Office of Intellectual Property Administration and the associated WSU Research Foundation, coupled with the significant growth of research, WSU has seen dramatic increases in the number of intellectual property disclosures; the first step in the technology transfer process. It is this disclosure process that starts research findings along the path toward successful commercialization. In 2004, there were 20 intellectual property disclosures, in 2005 there were 47, and in 2006 there were 76. Moreover, the number of WSU-developed technologies that are licensed to commercial enterprises has increased by 300 percent over the past three years. Clearly, WSU faculty are encouraged by the progress and once again engaged in technology transfer activities. Yet, there is much more progress to be made. As we will outline below, given sufficient resources, WSU will further refine its structures to enable better engagement with industry.

Gap Funding

Gap funding refers to support provided at the critical and often resource-starved initial stage of the technology commercialization process that takes a promising basic or applied research product and develops it further into a technology with the potential for use by an outside organization or industry. The objective of these resources is to bridge the "gap" between traditional academic discovery-driven science and the significant funds that may be required for commercial development. Projects are of a limited duration and have a work scope designed to either develop a prototype or to answer key questions about the development of a product. Thus, the projects are designed to reduce risk and create a more favorable outcome for a prospective licensee.

The University of Washington's Technology Gap Innovation Fund

The Technology Gap Innovation Fund (TGIF) was established in 2004 to enhance the commercial potential of promising early-stage discoveries made in the research programs of the University of Washington. The expected outcomes from TGIF are the formation of new companies and increased licensing activity. The commercial outcomes of projects funded by TGIF are varied – just like the research programs of the UW and the projects that have been funded.

TGIF is a reinvestment of royalty proceeds into research and the further development of research projects with commercial potential, and it is supported by the Royalty Research Fund and by matching funds from the Washington Research Foundation. Funding is awarded on a competitive basis to projects that require additional research or prototype development to make them ready for licensing or for a company start-up. Suitable projects are typically those that are beyond the basic research stage and beyond the interest of most federal funding agencies. Proposals must demonstrate a high probability of increasing the commercial opportunities for UW innovations.

Grants of up to $50,000 are awarded to researchers for projects up to 12 months in duration. Proposals are reviewed for funding by a panel from the local business and venture community who have expertise in the evaluation and development of early-stage technologies.

At the completion of year three, there have been positive outcomes of TGIF in several areas:

Four companies have started from projects funded by TGIF.
- Advanced Electroluminescent Sciences
- Physware
- Cirrus BioSystems
- Hi-Tech Initiatives

Five projects with potential as start-ups have become LaunchPad projects (see below).
- Device for monitoring atrial fibrillation - David Linker, Internal Medicine and Cardiology
- IS4D – Rapid patient prototyping technology - Randal Ching, Mechanical Engineering
- Non-fouling paints and coatings - Shiaoyi Jiang, Chemical Engineering
- Compound to inhibit herpes virus - Ram Samudrala, Microbiology
- Protein modeling software - Valerie Daggett, Medicinal Chemistry

Three projects funded by TGIF have been licensed.
- Surgical simulator software was licensed to Medical Education Technologies
- Nanostructures for use in cancer diagnosis and treatment were licensed to Cambrios
- Tissue repair scaffolding technology was optioned to Ratner Biomedical

One unique partnership was enabled.
This past spring at Bellevue High School, Desktop Democracy was the centerpiece of an AP course under a grant provided by the George Lucas Foundation. Desktop Democracy was

developed by John Wilkerson in political science and John Gastil in communications, and has become a highly recognized educational tool. There have been more than 3,000 fee-paid licenses obtained through a Web portal – *FolioDirect*, and there have been more than 2,500 free downloads of *Election Day*.

The WSU Innovation Opportunity Fund

Similar in concept to UW's TGIF fund, the creation of the Innovation Opportunity Fund (formerly known as the Cougar Gap Fund) has helped create a new entrepreneurial culture at WSU. The Innovation Opportunity Fund is an important part of helping create a culture where researchers are eager to work toward the commercialization of their research results. Investments by the Office of Research and a generous donation from the Washington Research Foundation have enabled the Innovation Opportunity Fund to invest more than $300,000 in 12 different projects. These investments have already led to the development of additional intellectual property disclosures and new start-up companies. Twenty months after the initiation of this program, significant results have been obtained. In particular, as a result of this program:

Two companies have been founded:
- GeoMonkey
- Recondagen

Three projects which have potential to develop into a start-up were funded:
- Drug Discovery: Line Walking Recursive Partitioning for predicting inhibition of drug metabolism. Jeff Jones, Chemistry
- Agriculture: Glyphosate tolerance in non-GMO wheat. Kimberly Kidwell, Crop and Soil Science.
- Chavicol – Eugenol for bio-products. Norman Lewis, Institute for Biological Chemistry.

One project was licensed to an existing WSU start-up:
- Inhibitors of aging – induced memory dysfunction licensed to PN Biotechnology Inc.

Additional Entrepreneurial Assistance Resources

Sometimes research results have such significant commercialization potential, they may form the basis for entirely new enterprises. In the relatively few instances where this is the case, entrepreneurial assistance and small business development support is needed to take the technology to its full potential. Both the UW and WSU have established systems to provide entrepreneurial assistance to support new business start-ups arising from their research commercialization efforts.

As the information below indicates, each institution has developed a distinct approach and array of resources for the promotion of entrepreneurship on their campuses. They have also developed different mechanisms for linking these services to their research commercialization programs. Efforts to support and enhance these services will most surely need to be differentiated by institution, so that they build on existing programs and focus on the unique service gaps that exist at the two institutions.

Entrepreneurial Assistance at UW

LaunchPad

LaunchPad is a UW TechTransfer initiative that is designed to catalyze the creation of new ventures based on promising UW innovations. LaunchPad has already proven to be an effective tool to jumpstart business development. LaunchPad creates diverse teams of advisors, including UW licensing and intellectual property professionals, business community mentors, and thought leaders to provide burgeoning start-ups with guidance and networking to generate momentum for the launch of new ventures.

Specific support is provided in:

- Managing start-up project plans
- Identifying next steps and milestones
- Finding community mentors and advisors
- Coaching team members
- Facilitating communication and networking with business and investment professionals
- Linking the project team to needed resources

Center for Innovation and Entrepreneurship

The University of Washington Business School was one of the first in the country to begin teaching entrepreneurship courses in the mid-1970s. Professor Karl Vesper, known as the "father of entrepreneurship education," was part of a national cohort of faculty who worked to promote teaching entrepreneurship. Vesper also founded the entrepreneurship division of the Academy of Management.

The Center for Innovation and Entrepreneurship (CIE) supports leading-edge research on innovation and entrepreneurship. An interdisciplinary team of faculty, many of whom are among the elites in their fields, are drawn from across campus.

Educational opportunities offered by CIE:

- A Ph.D. in Technology Entrepreneurship for graduate students in the UW Business School.
- Certificate in Innovation & Entrepreneurship for MBAs and other graduate students beginning with a bridge elective, Foundations of Entrepreneurship (BPOL 509).
- An Undergraduate Option in Entrepreneurship for students accepted into the UW Business School. Students begin the program with Introduction to Entrepreneurship (ENTRE 370)**,** which introduces students to the skills entrepreneurs need to start their own businesses and follows with coursework in entrepreneurial marketing, finance and selling.

CIE offers a variety of opportunities for Puget Sound entrepreneurs and companies to become involved with students and programs:

- Representatives from the business community serve on CIE's Advisory Board. The board provides the community support needed to actualize programs, such as judging the Business Plan Competition, serving as mentors for student teams, and contributing financial support.
- The CIE Expert in Residence program brings entrepreneurs, venture capitalists and business executives from prominent Northwest firms to campus to work with students.
- The WRF Capital/Gates Technology Entrepreneurship Fellowship program provides an evaluation of concepts for future industry application and marketability, and integrates nationally prominent research on innovation and entrepreneurship with the business community.
- Companies throughout the Northwest sponsor CIE's annual Business Plan Competition.
- CIE routinely engages entrepreneurs and technology leaders as student mentors.
- CIE offers two fellowships in venture creation to UW graduate students:

Washington Research Foundation–Capital Gates Fellowship
This summer quarter opportunity was created to capitalize on the many scientific and technological innovations developed in the Pacific Northwest. With the support of Pacific Northwest National Laboratory, WRF Capital, UW TechTransfer, and Boeing, each year a highly select group of UW graduate students from business, engineering, law, medicine and the sciences explores the viability of transforming research into revenue-generating new ventures.

Stars Venture Creation Course
Using Battelle/Pacific Northwest National Laboratories and UW TechTransfer technologies, leading Seattle venture capitalists provide the oversight and guidance to interdisciplinary teams of graduate students assessing commercial viability.

Program in Technology Commercialization
The Program in Technology Commercialization is a four-course sequence that is offered through the Department of Bioengineering and is open to late-stage undergraduates and early-stage graduate students from all disciplines. The courses are designed to produce the best educated students, well trained not only in their disciplines, but also in commercializing technologies and how to move technologies to market. In addition to this primary objective, additional benefits of the program are to make UW technologies more accessible to investors and licensees, help faculty and students conduct their research and develop realistic expectations, and create a closer relationship between the local community of experienced practitioners and the UW and its faculty.

During the first two courses in the sequence, volunteer experts from the local community teach specific topics and give students a sense of the realities involved in each area.

BIOEN 599D: Introduction To Technology Commercialization
Topics Covered:

- What is business?
- Structure, parts/purpose of a company
- Protecting Intellectual Property
- Licensing Intellectual Property
- Contracts and Legal Issues
- Taxes and Tax Planning
- Equity Issues
- Project Management
- Opportunity Recognition
- Selling Your Business Idea
- Product Development & Product Analysis
- Costs Analysis
- Marketing, Sales and Distribution
- Pro Forma Projections
- Funding and Financing
- Regulatory Issues
- Selecting, Hiring & Building Teams
- Ethics in R&D
- Working with Professionals

BIOEN 599Y: Studies in Technology Commercialization
Topics Covered:

- Critical Market Analysis
- Product Marketing
- Sales
- IP Strategies
- Negotiations
- Strategic Planning and Management
- Business Life Cycle
- Corporate Governance
- Financing
- Mergers and Acquisitions
- Case Studies

BIOEN 599Z: Applying Technology Commercialization
In this advanced course, student teams analyze technologies that have been disclosed to UW TechTransfer or that a team member is currently researching as a case study to apply the concepts of commercialization that they studied in the first two courses. Each team produces a high-quality market feasibility analysis for their technology and recommends the most appropriate path to commercialization. Feasibility analyses are presented to faculty, inventors, mentors, and UW TechTransfer staff for review and comment.

Full-Time Summer Fellowship
This is an intensive 10-week summer fellowship that enables students to further develop their skills in the analysis of a specific technology. Fellows work closely with mentors and experienced practitioners to develop a professional business plan for the technology. As part of the planning, students may identify and recruit a qualified management team and may attempt to start a venture.

Entrepreneurial Law Clinic
The Entrepreneurial Law Clinic (ELC) is a program of the UW School of Law and the UW Business School. The mission of the ELC is threefold: to promote economic development in Washington by assisting entrepreneurs who face significant economic barriers to success through preventative legal services that minimize risk and reduce operating costs, to provide real-life education to UW students in transactional law, counseling and business, and to provide meaningful *pro bono* opportunities for transactional lawyers.

The ELC teams' law and MBA students work with *pro bono* attorneys to provide legal advice to low-income microentrepreneurs, entrepreneurs in economically distressed communities, and pre-funded high-tech start-ups. The ELC provides advice regarding: entity selection and registration, state and local business licenses, federal, state and local tax issues, financing documents, leases and other commercial contracts, employment agreements, and intellectual property issues, such as trademark and copyright registration, provisional patent applications and licensing agreements.

Every year, the ELC enrolls two-to-four MBA students and 12-15 law students, divided into three different academic tracks—corporate and securities law, intellectual property law, and tax law. Each student is matched with a *pro bono* supervising attorney that specializes in their track. The students are then divided into teams based on the needs of clients. Clients are screened and selected by the clinic directors before the start of each quarter.

Pro bono attorneys teach, supervise, and mentor ELC students in conjunction with ELC staff. Supervising attorneys also review all student work product and communications to clients, supervise client meetings, and help students uphold a high standard of professionalism and ethical behavior. Attorneys from 13 firms volunteered in the ELC in 2006-07.

Entrepreneurial Assistance at WSU
WSU has recently initiated several entrepreneurship programs:

Harold Frank Entrepreneurship Institute
Through a $3 million gift, WSU established the Harold Frank Entrepreneurship Institute. Through this institute, junior-level engineering and business undergraduates who are interested in technological entrepreneurship are given the tools and experiences needed to pursue their entrepreneurial ideas. The institute also sponsors programs designed to empower student innovators to take their ideas to the marketplace, providing support for mentors and resources to help the students create innovative products within multidisciplinary teams. The institute is overseen by an Advisory Board, whose members have excelled in society with their entrepreneurial skills. This board provides an industry perspective and input to the continuous evaluation of the objectives and goals of the institute.

WSU-TriCities Institute for Technology Entrepreneurship
In another program, students engaged in the WSU-TriCities Institute for Technology Entrepreneurship evaluate a technology provided by a local company, academic research, or Pacific Northwest National Laboratory. The students investigate the market potential and business feasibility, develop a business plan and enter into a business plan competition. This hands-on, real-world approach helps students develop the entrepreneurship skills critical to technology commercialization.

Center for Entrepreneurial Studies
Within the WSU College of Business, the Center for Entrepreneurial Studies is designed to provide education and training in the critical skills essential for business creation and innovation, to conduct research to better understand these processes, and to develop practical solutions to the management problems of small-and medium-sized businesses. Focusing on business students, this program is

intended to build the human resources necessary to stimulate, develop, and promote a climate for accelerated business development and expansion in the Washington State region.

Small Business Development Centers
WSU manages the Small Business Development Centers (SBDC) located strategically throughout the state. Funded in partnership with the U.S. Small Business Administration, the SBDCs are located where local stakeholders also contribute to operating an office, such as many community colleges and economic development councils. They focus on individual small business and entrepreneurship counseling.

Other Partnerships
Considering local county-based WSU Extension offices, the Agricultural Research and Extension Centers, the SBDCs, and Learning Center sites for distance program delivery—as Washington's land-grant university, WSU has a footprint of nearly 100 distinct sites across the state with local faculty and/or staff. These are linked directly with local business, community, and social networks that contain a host of other resources and entities involved in local economic development. Though not all-inclusive, a summary of such local partners, their mission, and proximate focus (considered split among business start-ups, recruitment, retention, and expansion) is shown in **Table** . Statewide linkages, such as those shown below, will largely determine the success of Innovation Partnership Zones.

Table 2 *WSU Partnerships Statewide*

Entity	Sites	Funding	Start-Up	Recruit	Retain	Expand	Core Mission
Accelerator Corp	1	private	5				tech-based business incubation
Alliance of Angels	1	private	4			1	funding innovation-based start-ups
Community Colleges	34	public		1	1	3	education and workforce development
Community Development Corporations	23	public	1		2	2	lending, small business assistance
WA Dept. of Community Trade and Economic Development (CTED)	1	public		1	3	1	state-wide economic development agency
US Economic Development Administration (EDA)	3	public			2	3	federal economic development funding
Prosperity Partnership	1	public/private		1	2	2	policy and economic development project management
SBA – Procurement Technical Assistance Center	9	public				5	government contracting assistance
US Small Business Administration (SBA)	1	public	2			3	small business assistance and funding
SCORE-SBA Resource partner	7	public/private	4			1	small business counseling
Women's Business Centers-SBA	3	public	3		1	1	small business counseling/woman focus
Sirti	1	public	2		1	2	state incubator, business assistance
Technology Alliance	1	private	1	2	1	1	association of tech-based businesses

Entity	Sites	Funding	Start-Up	Recruit	Retain	Expand	Core Mission
University of Washington (UW)	3	public	2	2		1	education, research, workforce development
UW Business and Economic Development Center	2	public	2		1	2	business assistance for small, minority-held firms
WA Association of Cities	281	public		3	1	1	governance, promotion, marketing
WA Association of Small Business Incubators	24	public/private	4			1	state incubator lobbyist, business assistance
WA Chambers of Commerce	200	private		1	2	2	promotion and marketing
WA Manufacturing Services	1	public		1	2	2	manufacturing business assistance
WA Ports Association	75	public		3		2	infrastructure for business and transportation
WA Economic Development Association affiliates	~70	public/private		3	1	1	local economic development services
Workforce Development Councils	12	public		1	1	3	workforce development
Washington State University (WSU)	73	public	1	1	1	2	education, research, business consulting, workforce development
WSU Small Business Development Centers	27	public	1		1	3	small business expansion & entrepreneurial development
Washington Technology Center (WTC)	2	public	2	2		1	tech-based business assistance

In summary, WSU has a statewide mission to conduct research and transfer the results of that research to advance the well-being of Washington's citizens and the economy of the state. Over the past several years, WSU has taken many steps to advance its research programs and their impact on the state. As such, WSU is uniquely positioned to attract and retain eminent scholars, while also ensuring that their research advances the economy of the state and uniquely addresses the needs of Innovation Partnership Zones.

Building Strong Innovation Research Teams

As we consider the mechanisms to support Innovation Research Teams, it is important that we understand the characteristics that make such teams successful. Research teams must be built upon the solid foundation of strong fundamental science. Next, the team must incorporate translational research that moves the science from discovery to application. In this stage, it is important that the team have access to professionals who work with industry, learn of their problems, bring those problems back to the team to determine how to address them, and take research results to industry for potential commercialization. Of most importance, however, the team needs to have an outstanding leader. Here, we provide more details on these considerations.

First, consider the importance of fundamental research. In this regard, the seminal document authored in 1945 by Vannevar Bush, the director of President Truman's Office of Scientific Research and

Development, still applies today. Recalling that scientific advances such as radar had a dramatic impact on U.S. success during WWII, Bush authored a policy document entitled *Science, the Endless Frontier: A Report to the President.*[4] In that report, Bush called on the federal government to make a massive and sustaining investment in scientific research to be conducted at America's research universities. As a result of Bush's report, the federal government established several agencies, including the National Science Foundation, which have significantly invested in the basic research that provides the "pacemaker of technological progress." He noted that such basic research "provides the fund from which the practical applications of knowledge must be drawn."

As we consider the importance of basic research to the state, we must recall Governor Gregoire's statements in which she notes that Washington is now much like a small nation. Keeping the governor's comments in mind, we would paraphrase Bush and affirm that ***a state such as Washington that depends exclusively upon others for its new basic knowledge will be weak in its competitive position in world trade****.* Thus, it is essential that the Innovation Research Teams attract and retain researchers who will build a strong base of fundamental research. It is also imperative that we recognize that these strong fundamental science researchers bring significant revenues to the state as they successfully compete for federal research funds and employ a variety of others who work with them. For example, during the recent legislative field visit to the Georgia Research Alliance, the field team heard a presentation by a researcher who brings some $20-million per year to Georgia for fundamental science research. This example clearly illustrates that basic research is a good engine for economic development, in and of itself, even before considering the potential commercial applications of the research.

Strong fundamental scientists, while a necessary condition for a thriving state technology enterprise, are not sufficient, however, to provide the engine for a technology-based economy. In addition, the basic research must be translated to affect commerce.

As noted above, leadership is an essential ingredient for the success of these Innovation Research Teams. Recently, Bercovitz and Feldman conducted a study in which they sought to determine those factors that most encourage individual researchers to engage in the technology commercialization process.[5] Among the most important factors, they found that individuals whose department chair actively files invention disclosures will more likely file their own invention disclosures, that individuals will more likely disclose their inventions if departmental peers also engage in technology transfer activities, and that graduates from institutions with a history and track record in technology transfer are more likely to file invention disclosures. These results illustrate the transformative power of selected hires. ***A research leader can help transform the faculty culture at an institution so that a greater portion of the faculty is engaged in the technology commercialization process. Respected leaders who successfully engage in both fundamental research and technology transfer must be hired and placed in strategic, influential positions.*** It is essential that outstanding, eminent scholars be hired to provide this

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[4] http://www.nsf.gov/od/lpa/nsf50/vbush1945.htm
[5] http://www.hhh.umn.edu/centers/slp/clusters_entrepreneurship/bercovitz_academic_entrepreneurs.pdf.

level of transformative leadership to the Innovation Research Teams. In essence, this is the goal of this program.

Innovation Partnership Zones Established in 2007

We fully anticipate that the UW and WSU areas of research preeminence will synergize with and enhance innovation partnership zones (IPZ) established around the state. Although it is likely that additional IPZs will be established, the zones established this year illustrate the potential for interactions. This year's IPZs include:

- Bellingham Innovation Zone, Port of Bellingham – For low-wake, fast ferry vessel prototypes, hydroscience and engineering and design, wake wash energy studies, advanced composite and aluminum alloy techniques.
- Grays Harbor Sustainable Industries Innovation Partnership Zone, Port of Grays Harbor – For research and development of bioenergy, bio-based product manufacturing, particularly high-value byproducts from bio-based energy production.
- Pullman Innovation Partnership Zone, Port of Whitman County – For clean information technology and datacenter technologies, such as energy efficient technologies, and power and cooling infrastructure.
- Spokane University District Innovation Partnership Zone, Greater Spokane Inc. – For biomedical research such as computational biology, bioinformatics, systems biology, epigenetics, genomics, chromosomal biology, and drug discovery.
- Walla Walla Valley Innovation Partnership Zone, City of Walla Walla – For agricultural innovation with a focus on enology/viticulture and water/environmental studies.
- Aerospace Convergence Zone, Workforce Development Council Snohomish County – For research in new materials and processes for aircraft production.
- Battelle, Sequim Marine Research Operations, Clallam Economic Development Council – For marine biotechnology, coastal assessment and restoration, forecasting stressors on marine and estuarine systems.
- Bothell Biomedical Manufacturing Corridor, City of Bothell – For the establishment of a University of Washington Biotechnology and Biomedical Technology Institute, principally to support medical device/ultra-sound manufacturing.
- Discovery Corridor Innovation Zone/Steinmueller Innovation Park, Columbia River Economic Development Council – For semiconductor and micro-device design, IC manufacturing and processing, display technology and multimedia.
- South Lake Union Life Science Innovation Partnership Zone, City of Seattle, Office of Economic Development – For bioscience and biotechnology, pharmaceuticals, cardiovascular and regenerative biology, cancer research, infectious disease research.
- Tri-Cities Innovation Zone, Port of Benton – For research in sustainable development, with a focus on integrated electrical-thermal production, solar dish generating systems, and commercial-scale fuel cells.

Industry clusters that have been documented through the IPZ planning process or other similar efforts, and have not yet applied for or received designation as Innovation Partnership Zones include:

Table 3

Other Locally-Identified Industry Clusters

Primary Industry	Area(s)	Counties
Marine Industry	Hood Canal Watershed	North Kitsap, Mason
Energy Technology	Satsop Development Park Area	Lewis, Mason, Grays Harbor, Pacific, Thurston
Information Technology	Eastside and Seattle	King
Logistics and Trade	S. Seattle/S. King Co. and Port of Tacoma Area	King, Pierce
Clean Technology	Central Puget Sound Region	King, Snohomish, Pierce, Kitsap
Health Sciences, Education	Spokane University District	Spokane
Nanophotonics	Central Puget Sound Region	King, Snohomish, Pierce

Congruence of UW and WSU Areas of Preeminence and Innovation Partnership Zones

Comparison of the UW and WSU "Areas of Preeminence" and the established IPZs shows a great deal of congruence. Many of the established IPZs, as well as those that are likely to be established in the future, will be supported by researchers located throughout the two institutions' seven campuses. Moreover, the same researchers will support efforts in multiple zones, multiplying the impact of the various Innovation Research Teams. Relationships will develop based on interests and personalities, and it is anticipated that significant partnerships will be developed (and in some cases already exist) between campus-based researchers and the firms and supporting organizations of the IPZs.

In addition to the currently articulated IPZs, one must anticipate that over the course of the next 10 years, new technologies will be developed and new, hitherto unforeseen, IPZs will be initiated. This will lead to new linkages between faculty within the institutions' areas of preeminence and the new IPZs.

Table 4 *Congruence Between UW and WSU Areas of Preeminence and Innovation Partnership Zones*

Area of Preeminence	Related Innovation Partnership Zones	WSU Critical Basic Research Strengths	UW Critical Basic Research Strengths	Primary Location(s) of IRT Research
Clean Technology and Advanced Materials, including Nanophotonics, Energy, and Environmental Monitoring/Sensors	Tri-Cities IPZ, Pullman IPZ, Grays Harbor IPZ; Aerospace (Snohomish County), Life Sciences (Seattle), Discovery Corridor (SW Washington), Grays Harbor Sustainable Industries IPZ	Atmospheric Sciences, Chemical Engineering, Electrical Engineering, Mechanical Engineering, Chemistry, Physics, Materials Science, Biosystems engineering, Materials Sci & Engr, Architecture, Wood Materials, plant sciences, extension	Chemistry, Chemical Engineering, Physics, Electrical Engineering, Materials Sci & Engr, Mechanical Engineering, Microbiology, Oceanography, Forest Resources, Fisheries, Conservation Biology, Architecture and Urban Planning	Pullman, Tri-Cities, Vancouver, Spokane, Seattle
Global Health and Infectious Diseases at the Human-Animal Interface (Global Animal Health)	Life Sciences (Seattle), University District (Spokane, future)	Global Animal Health, Veterinary Microbiology and Pathology, Molecular Biosciences, International Programs, Economics	Global health, Environmental Health, Public Health, Infectious Diseases, Law, Economics	Pullman, Seattle, Spokane
Human Health and Medicine, including Molecular Medicine, Biomedical Devices, Chromosome and the Science of Reproduction, and Brain, Behavior and Performance	Life Sciences (Seattle), Bothell Biomedical Manufacturing Corridor, University District (Spokane, future)	Molecular biosciences, Basic medical sciences, bioengineering, chemical engineering, chemistry, nursing, pharmacy, VCAPP, psychology, and physics	Chemical Engineering, Chemistry, Electrical Engineering, Materials Sci & Engr, Bioengineering, Medicine, Radiology	Spokane, Pullman. Seattle, Vancouver
Molecular Plant Science and Genetics (WSU)	Walla Walla Valley IPZ, Tri-Cities IPZ	Institute for Biological Chemistry, Crop Sciences, horticulture, molecular biosciences, biological sciences, extension	N/A	Pullman, statewide research and extension centers
E-science (UW)	Discovery Corridor (SW Wash.), Life Sciences (Seattle), Aerospace (Snohomish County), Pullman IPZ, Information Technology (Seattle-Bellevue-Redmond, future)	N/A	Computer Sci & Engr, Medicine, Biochemistry, Astronomy, Aerospace and Aeronautical Engineering, Chemical Engineering, Oceanography, Physics	Seattle

Innovation Opportunity Analysis Conclusion

The University of Washington and Washington State University have research and commercialization capabilities and capacity that enable the institutions to provide support to research-dependent industry clusters throughout the state of Washington. Among the most beneficial assets they can deploy are:

- Research capacity of significant scale and a commitment to maintaining and growing the physical and business/administrative/IT support infrastructure required to support a large-scale research operation.
- World-class fundamental and applied research capacity in a range of fields relevant to existing and nascent, emerging industry clusters in the state, and capable of providing a continuous stream of research products with commercialization potential.
- Strong partnerships and linkages with private and other public research organizations across the state (such as the Pacific Northwest National Laboratory and the Fred Hutchinson Cancer Research Institute, and the Seattle Biomedical Research Institute) to ensure that other research and commercialization assets are leveraged.
- Comprehensive systems to support research commercialization that include gap funding, patent and licensing support, and entrepreneurial training and assistance.

What has become clear in the preparation of this report is how related and, in some ways, complementary the research strengths of the two institutions have become in several major emphasis areas. In fact, while the two institutions identified a dozen different areas of research preeminence with commercialization potential, they overlapped so significantly that they could be consolidated into three "jointly held" areas of expertise and two areas held by a single institution. In short, **our state universities' research capacity at the basic research/commercialization nexus is focused on five major areas of endeavor—clean technology and advanced materials, global health, human health and medicine, molecular plant science and genetics, and e-science**. Logically, these are the fields where we are best positioned to support industry clusters with commercially-viable research products. These areas include more mature industries like pharmaceuticals, aerospace, and agriculture, and emerging fields such as low-emission fuels and energy systems, energy-efficient manufacturing systems and products, data mining and analysis systems, and new approaches to disease prevention and cure in under-developed areas.

With regard to entrepreneurial assistance, each institution has a strong array of entrepreneurship and small business development programs and services that it makes available to students and the general public. However, the strength of their linkages to the technology transfer systems, and the reliance of those systems on entrepreneurial services and support is uneven, and can be enhanced and improved. The Innovation Research Team program provides the institutions with an opportunity to rethink when and how they can rely on and use those entrepreneurial development services that already exist on their campuses and integrate them into their approach to the development of research products for the market. It also provides an opportunity to think about how entrepreneurship programs can augment and support institutional efforts to change the culture of the institution toward one that embraces technology commercialization as a valued outcome of academic research.

Part 2:
Draft Innovation Research Team Implementation Plan

General Approach in Comparison to Initiatives in Other States

For any strategy aimed at recruiting researchers to Washington State to be successful, it must be firmly based on the existing research strengths of the state. The primary reason that researchers leave one state for another is to work with colleagues that are already there doing groundbreaking and interesting work directly related to the researcher's own interests. Leading researchers are often pushing knowledge in new directions, looking at old issues in new ways, or integrating concepts from other fields of research into their work to expand a technological frontier. The best research involves collaboration across many different colleges and departments.

As Table 4 in Part 1 of this document illustrated, our state's research strengths are focused on just a handful of broadly-defined research areas. These areas provide the best opportunities for successful recruitment of research "stars". Furthermore, they match up nicely with existing and prospective innovation partnership zones. Additional labor market and statistical analysis should be conducted to help validate the importance of these research areas and related industry clusters to our state's economy. It may even help us identify additional clusters that we may not already be aware of. Additional analysis could help us decide the order of recruitment targets. But we know enough now to get started with the resources we currently have in hand. This report will identify the current opportunities for recruiting research "stars" that we are now faced with, and how they would support innovation partnership zones already designated in the state.

In order to achieve the goals for Innovation Research Teams identified in SHB 1091, this initiative must be aimed at attracting researchers who transform their disciplines, while at the same time, are committed to commercialization, entrepreneurship, and economic development. Entrepreneurial faculty of this caliber are highly sought after, and to be competitive, significant and comprehensive recruitment packages are required. Our two major research institutions can rarely afford high-impact hires of this type, and often when they attempt to recruit such faculty, they are not able to compete with other universities that can offer funds of the type envisioned in the IRT program. Exceptions have generally involved private donors. For instance, the recruitment to the University of Washington of Leroy Hood from Caltech with a gift from Bill Gates, and the recent recruitment of Chris Murray from Harvard, partly based on the investment in global health research and teaching by the State of Washington and the Bill and Melinda Gates Foundation, and partly by a major grant ($105 million) from the Gates Foundation. The IRT program provides the possibility for future recruitments of entrepreneurial high impact faculty, not only at the senior level, *e.g.,* Leroy Hood and Chris Murray, but also at more junior levels—assistant professor or associate/full professor. It would be prudent to consider all levels, with corresponding differences in both initial investment required and long-term impact for economic development.

The state will realize both direct and indirect benefits from these IRT recruitments (Table 5). Direct benefits include jobs created from research funding and start-up companies, and the economic spin-off of such jobs (usually about a 4-fold multiplier). The University of Washington estimates that about eight full-time positions are directly created for each $1 million of external research funding, and another 34 people in the local economy indirectly rely on the same $1 million in research funding for their jobs. Other indirect benefits include the attraction of more external funding and commercial activity in the area, as the reputation of the IRT/IPZ clusters expands. As the funding model goes up, so does the direct impact of the IRT. As suggested in Table 5, below, the economic impact generated by an entrepreneurial, established associate professor or newly promoted full professor might be expected to be four-to-six times that of a starting assistant professor, and for a senior, internationally renowned full professor, it might be expected to be 2.5-3 times the impact of the associate professor, proportionate with the required investment. In addition, the time to achieve payback is much less as the seniority increases. Thus, it makes sense for the state to provide funds to recruit at all three levels, generate a combination of investment/ payoff scenarios and take advantage of opportunities as they arise.

Table 5: *Comparison of Expected Investment and Return on Investment for IRT Researchers Recruited at Different Career Stages*

Recruitment Level	Level of IRT funding for recruitment	Expected annual return within 3 years			
		Research Funding	Innovations reported	Jobs** (direct)	Jobs** (indirect)
Assistant Professor	$3M	$0.5M/yr*	every 3-5 years*	4	17
Associate Professor/Full Professor	$5M	$2-3M/yr	every 1-2 years	16-24	68-102
Senior Full Professor	$10M	$5-10M/yr	Multiple annually	40-80	170-340

* Ramping up by 5 years to $1-1.5M/yr research funding and innovations every 1-3 years
**Jobs: Assume 8 FTE per $1M external research funding and using a standard economic multiplier, about 34 jobs in the state per $1M external funding. Does not include jobs from commercialization.

How will we be successful in recruiting these high-impact, entrepreneurial faculty? The main attractions for these types of candidates to our state are:

a) Quality of colleagues and graduate programs. By targeting the areas chosen, we build on and leverage existing strengths.

b) Connections with industry. The opportunity to interact with Innovation Partnership Zones and the emphasis on commercialization will be a significant attraction. The presence of both commercial and non-profit partners in the region will provide even more funding and partnering opportunities.

c) Availability of entrepreneurship support systems. The existing and proposed development of structures for support of commercialization activities will not only enable these research teams, most of these researchers will be interested in participating as instructors.

d) Facilities available. Existing and planned interdisciplinary facilities coupled to IRT funds for facilities and major instrumentation will provide the necessary facilities.

e) Availability of discretionary research support. The most successful and entrepreneurial researchers will expect to bring in large amounts of external research funding but at the same time, will expect to have discretionary research funding available for some period of time to use as research venture capital, funding to allow them to explore new areas and create new projects that will subsequently attract external funding. Especially in the current conservative funding climate, it is very difficult to obtain major external funding without significant preliminary work having been carried out.

The recent field visits organized by Sen. Jim Kastama and the state Legislature were invaluable aids to organizing thoughts about the resources needed to develop and support the Innovation Research Teams. During these trips, delegations visited San Diego State University and Connect in San Diego, the USTAR (Utah Science, Technology and Research) Initiative, and the Georgia Research Alliance. The team learned that Connect was focused on the development of a focused region with an emphasis on supporting scientific innovation, and that Connect grew organically, spurred on by local business leaders' concern over the crisis of the loss of the military sector of the economy, rather than by design. Because the various regions within Washington have a variety of interests and strengths, and because Washington lacks the time for organic growth and the urgency of an economic crisis, the visits to Utah and Georgia were especially applicable to our current situation. For this reason, in Table 6, we compare and contrast the approaches used in Georgia and Utah.

Table 6: *Comparison of Georgia Research Alliance and Utah STAR programs*

Program Feature	Georgia Research Alliance	Utah STAR Initiative
Salary for researcher	From institutional funds	Provided by the Initiative, initially at 100%, ramped down to 65% after 3 years
Endowment	Yes, $750,000 one-time funds used to attract the eminent scholar and support her/his laboratory, matched by private donations	None
Building construction	No, but a portion of the Research Infrastructure program may be used for laboratory renovation as an element of the package to attract the eminent scholar	Yes, to support the team

Assistance with commercialization of technologies	Yes
	
	- VentureLab
	    o Phase I - $50,000 to Universities to lead to development of a preliminary business plan
	    o Phase II - $100,000 to university with matching outside investment that
		Yes
		
		o entrepreneurial assistance,
		
		o research interaction with Utah companies
		
		o research collaboration between faculty

Program Feature	Georgia Research Alliance	Utah STAR Initiative
	demonstrate external market validation	o interns to assist business analysis and program directors
	o Phase III – $250,000 seed fund to companies as non-collateralized loans.	
	- Technology acquisition for university-based incubators	
Research areas	54 eminent scholars in various areas	Medical and energy
Programs supported at:	Research universities only	Research universities only
Research infrastructure	Yes, more than half of each year's fund is used to support this activity and provide matching for federal proposals, invest in state-of-the-art technology	Yes, initial acquisition of state-of-the-art technology
Linkages to other universities	Yes, for focused purposes	Yes, through technology outreach centers
Time horizon for measuring success	Several years to decades	Several years
Scholar supports industry	Statewide in appropriate clusters	Statewide in appropriate clusters
Maturity	Hire only eminent scholars who bring significant federal funding and history of successful research commercialization	Hire member needed to "complete the team", regardless of rank and experience
Venture Partner or "Entrepreneur in Residence" program	Yes, experienced entrepreneurs work with the universities to commercialize university-developed technology. These entrepreneurs are not paid a salary. Rather, they receive an equity position in the spin-out company	None

The State of Washington can and should benefit from the experience of the Georgia Research Alliance and the Utah USTAR program. We propose to take elements from each of these that are appropriate to our situation and which promise maximum return for the State. Table 7 shows the fiscal year 2006 funding for research and commercialization efforts under the two state programs.

Table 7. *Comparison of Funding By Category of the Georgia Research Alliance and the Utah USTAR Program, for FY 06*

Program	Research Teams	Infrastructure (equipment and laboratories)	Commercialization programs	Total
Georgia Research Alliance	$7,400,000/yr	$14,085,000/yr	$5,338,000/yr	**$26,823,000yr**
Utah USTAR	$15,000,000/yr	$50,000,000 (one-time)	$4,000,000/yr	**$19,000,000/yr + $50,000,000 one-time**

As a further set of comparisons, in Table 8, below, are several measures of technology commercialization performance for Georgia, Utah, and Washington – including a comparison of the investments being made by these states. Some of the observed differences can be attributed to the state programs. Within Washington, however, the institutions focus on the number of technology license agreements completed, since this indicator measures the extent to which ideas move into the marketplace—either through licenses into existing companies or to spin-off companies. Revenues are probably the least useful measure, however, since this indicator tends to be dominated by large, "blockbuster" technologies. Likewise, since prosecution of each patent can cost as much as $100,000, the number of patents awarded can be grown rapidly if the Technology Transfer offices have large budgets that allow the prosecution of high-risk-to-be-licensed invention disclosures. Typically, these offices are primarily self-supporting and "live" off of their revenues.

Table 8: *Measures of Technology Transfer Success, 2006*

Measure	Georgia	Utah	Washington
Research Expenditures	$1.16B	$0.39B	$1.07B
Invention Disclosures	602	234	380
Patents	71	28	41
Technology license agreements	132	71	177
Start-up companies formed	12	21	10
TTO revenues	$37.5M	$16.5M	$36.8M
Annual State Investment	$26.8M[6] (FY 2006)	$19.0M (FY 2006)	

Source: Association of University Technology Managers, 2006 data.

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[6] Utah has also invested in buildings and is growing the investment each year. While in Utah, the legislative team was told that the budget for the Utah STAR program was to be increased by $10M/y starting in FY2008. The team was, however, provided with no documentation

Specific Mechanisms Supporting Washington's Innovation Research Teams

Because the two institutions are trying to attract different levels of talent for different types of research activities, and because they have different sets of institutional and private resources at their disposal, they will require institution-specific strategies to support and fill the gaps, as they develop recruitment packages. There are significant differences in what each institution requires from the IRT program to maximize its potential to leverage these other resources.

WSU's Strategic Approach to Using IRT Funding Support

A variety of strategies will need to be used to support or enhance Innovation Research Teams at WSU. To use a sporting metaphor, WSU needs to be able to hire the player who completes the team. Sometimes, they will need a third baseman. Other times, the most critical need will be for need a general manager. Similarly, one Innovation Research Team may need a senior researcher, while another may be best served by an up-and-coming mid-career researcher or a junior researcher.

WSU does, however, anticipate that in the vast majority of cases, a senior researcher will be needed to provide the visionary leadership that the team needs to be highly competitive for philanthropic and federal funds, to engage industry, and to serve as the respected leader who successfully engages in fundamental research and technology transfer. In so doing, this individual will transform the entire team. Thus, WSU anticipates that they will usually need to hire an individual who will serve as both the team's "general manager" and star player.

Even with the inducements noted earlier, it will not be easy to attract such eminent scholars. Some of the attractions would include:

- **Endowed Chair:** As seen in Georgia, a named, endowed chair position has been shown to be a significant inducement to attract and sustain an eminent scholar. We would therefore propose that, for each scholar to be hired, $1.5 million be provided by the IRT program, to be matched by contributions from institutional philanthropic sources, thus creating a $3 million endowment. This endowment would then be used by the researcher to hire postdoctoral scholars, graduate or undergraduate students, to explore new ideas, and to pay for a portion of the supplies as the researcher interacts with partners within the IPZ.
- **Salary Support for the Researcher:** It is essential that the eminent scholar not have to think first about how s/he will pay his/her salary. If the faculty member has to think first about how her/his salary will be paid, interactions with partners and colleagues will likely be minimized. Recognizing that these eminent scholars are being recruited by many institutions, we would propose that WSU provide the salary and benefits for the eminent scholar. We anticipate that this will require approximately $250,000 per year. These funds would meet the scholar's annual salary and benefits. Summer salary would be derived either from philanthropic or competitive grant sources.
- **Infrastructure:** WSU would propose that, like the programs in both Georgia and Utah, the IRT program partner with the institutions provide the infrastructure needed to maximize the effectiveness of the IRT. Such funds would be used to enable the acquisition of unique scientific

research equipment that will advance discoveries and innovation in associated IPZs, and renovation of space to create state-of-the-art laboratories needed to enable such innovations. Moreover, recognizing that intellectual capital is today's most important currency, such infrastructure funds may also be used to enable the hire of postdoctoral or graduate students to work within the IRT. We anticipate that each time an eminent scholar is hired, significant amounts will be needed for such infrastructure. WSU proposes that, like Utah and Georgia, funding for this activity would be drawn both from the IRT program and institutional sources.

- **Equipment and Matching for Federal and Industrial Equipment Proposals:** In both Georgia and Utah, we were told that funds that can be used to acquire equipment and to provide matching for federal equipment proposals are essential. WSU would therefore propose that the IRT program be grown to provide a pool of approximately $5 million per year that could be tapped for the acquisition of unique equipment. Recognizing that programs such as the NSF Major Research Instrumentation program and the Murdock Trust Research equipment programs require significant institutional match (30-50 percent of the total cost must be drawn from non-federal or non-trust sources), we would suggest that priority be given to matching funds.

- **Funds for Commercialization:** Both Georgia and Utah noted that funds that can be used to advance potentially commercializable ideas are essential for success. Small amounts are needed for each potential idea to be so advanced. However, if these programs are successful, we anticipate that a significant number of ideas will need funding similar to that provided by the Georgia VentureLab. We would therefore recommend that the IRT program provide funds to support the WSU Innovation Opportunity Fund, a concept that has been demonstrated to have significant impact on the commercialization of WSU research results. Although far short of the $8 million per year provided in Georgia for these purposes, these funds would help considerably in moving research products to industry.

- **Industrial Liaison:** Each team will require an industrial liaison to work closely with both the researchers and the commercial enterprises in the IPZs. Like several of those who have been hired into WSURF, these individuals will serve multiple functions. Most notably, however, these individuals will translate research results to commercial application, will be intimately familiar with the research being conducted in the IRT, will understand the needs of the enterprises within the various IPZs, and will work to link the two. In so doing, these individuals will help grow industrially sponsored research at the university, to facilitate the commercialization of university-developed technologies, and to advance the economy of the state. WSU anticipates a growing expectation for such impact. Thus, we anticipate that by using institutional funds, new WSU Extension specialists or other employees will be hired who will be located within the WSU OIPA/WSURF (technology transfer) enterprise, to provide these linkages.

- **Venture Partner:** Georgia demonstrated that an "Entrepreneur in Residence" or Venture Partner significantly helped advance technology commercialization. There, we saw that only a small portion of faculty can successfully serve as the CEO of a company that spins out from the university. Instead, Georgia Tech was able to attract seasoned CEOs who served in this capacity, being compensated through an equity stake in the company they were able to make successful. We suggest that WSU is not at the same point as Georgia Tech, and that seasoned entrepreneurs will not take on these duties without cash contribution. Thus, as called for in the EDC report, we

anticipate that WSU will work with partners such as the Alliance of Angels, the Technology Alliance, the NWEN, Seattle Execs, the Washington Roundtable and a host of others to identify individuals who can serve as the CEO of companies using WSU technology.

We note that several of the above items require a commitment from WSU to raise funds from philanthropic sources. WSU is currently starting a capital campaign. We anticipate that funding for endowed professorships will be one of the highest priorities in this campaign. Moreover, WSU has publicly stated that it seeks to both grow our research and the impact of this research on the state. This commitment is personified in the hiring of John Gardner as the first vice provost for economic development and extension.

UW's Strategic Approach to Using IRT Funding Support

In all cases, the candidates for IRT recruitments will be researchers with established records in commercialization and with in-depth experience working with the private sector to reach commercialization goals. We anticipate that most of these researchers will have already established successful companies or have been successful in moving a research idea into the marketplace before coming to the UW. At the UW, the most limited funds available for recruiting such researchers involve facilities improvements (laboratory renovations), major instrumentation, and discretionary research funding. We propose to focus the majority of the IRT funding on these categories. In addition, gap funding and help with start-ups, especially for biomedical commercialization, remains a limiting factor for our most entrepreneurial faculty and so we propose to address that need also. The endowments that are currently part of the Georgia program and proposed by WSU would not have as much impact for the UW in recruiting, so we do not propose to use that mechanism.

Salary Support for the Researcher: Like WSU, the UW proposes to provide the faculty salaries for these recruitments from institutional or private funds, although in some cases IRT funds could be used to bridge salary for two years until other funds were available.

Infrastructure: Like WSU, the UW proposes that the IRT program partner with the institutions to provide the infrastructure needed to maximize the effectiveness of the IRT. At the UW, these funds would be part of the recruitment package, and would be used for renovations and major instrumentation needed to enhance the IRT interactions with the IPZs.

Equipment and Matching for Federal and Industrial Equipment Proposals: As at WSU, the UW proposes that the IRT program be grown to provide a pool of funds that could be tapped for the acquisition of unique equipment. Most of this funding (ramping up to a final level of $10 million per year) would be used as matching funds for federal and foundation equipment grants. In addition, part of this funding would be used for equipment and facilities that would enhance partnerships with the Innovation Partnership Zones (IPZ). These funds will serve as incentives for IRTs to work closely with the IPZs and to leverage the IRT funds with outside funding.

Funds for Commercialization: In providing entrepreneurial assistance, for the UW the greatest leverage would be gained from funds that directly support commercialization, including gap funding, LaunchPad funding, and an entrepreneur-in-residence program.

Laboratory Infrastructure: The UW is currently expanding laboratory infrastructure as part of the South Lake Union campus project, the Benjamin Hall Interdisciplinary Research Building, and the proposed Molecular Engineering Building. Depending on the topic area, we will use these three sources of research space to provide laboratory infrastructure for these recruitments, and recruitment funds will be used to provide upgrades as needed.

Interactions with Innovation Partnership Zones. We will work closely with the developers of each relevant IPZ in the recruitment process, and partner together to recruit researchers for whom these interactions are a magnet for their interest. The key to success will be to build relationships from the start, and provide incentives to continue those relationships in a productive manner. For example, we propose funds for major equipment that would be used to create and enhance partnerships with the IPZs, providing further incentive for long-term productive relationships.

Solicitation of Public/private Support. Each of the researchers recruited will have a track record of success in working with industry to achieve commercialization. The more senior researchers will also have a strong track record in attracting public/private support, and will bring with them significant outside funding. The more junior researchers will be assisted in this effort by our development (fund-raising) and research offices, via workshops and contacts that are standard within these departments and dean's offices.

Although in this plan it is assumed that all funds will be spent within the biennium in which they are appropriated, it should be noted that for senior faculty, a much more attractive approach would be to provide ongoing discretionary research funds to build the team and explore new research areas for five years, renewable for a second five years. In general, the lack of such funding is a major reason the UW fails in recruitments of "star" researchers, as it is common for other competing universities to provide such incentives.

Comprehensive Entrepreneurial Assistance

As described in Part 1 of this document, the UW and WSU already provide extensive entrepreneurial and small business development assistance both on campus and in the communities in which they have operations. Each institution offers a range of programs and services that include small business incubation, entrepreneurial education and training, business consulting and support, and gap funding. IRT funding can help expand these services and enhance their linkages with technology transfer/research commercialization activities.

Expanding Entrepreneurial Assistance at WSU

As indicated above, WSU has several multidisciplinary programs touching students and faculty on several campuses. Such programs include the Harold Frank Entrepreneurship Institute, the WSU-TriCities Institute for Technology Entrepreneurship, and the Center for Entrepreneurial Studies within the WSU College of Business. Through the creativity of one of our technology licensing associates, who happens to be a Ph.D. chemist, we have initiated discussions with several science and engineering departments that may, eventually, enable such students to serve as interns in our OIPA/WSURF
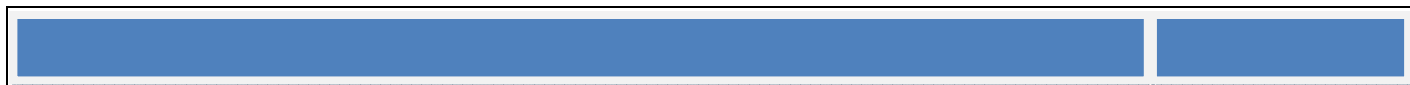
(technology transfer) offices. We are finding that many science and engineering students are not only interested in entrepreneurship, but in the technology commercialization process itself. These internships would help these students be better prepared for a career path that would include technology commercialization, patent law, etc. We have had several law students serve in such a capacity, having a significant impact on their education and eventual career. In short, we have implemented a range of programs that enhance the education of entrepreneurial students and prepare them for the highly entrepreneurial, competitive future.

The OIPA/WSURF enterprise conducts training in technology commercialization for undergraduate and graduate students, post-doctoral research associates, faculty and staff in several formats. Training sessions include formal half-day, conference-style events such as the conference "Commercialization of Plant Research: The Toolbox"[7] and the "WSU Entrepreneurship Workshop."[8] The latter was conducted in collaboration with the College of Engineering and Architecture while the former was conducted in collaboration with the WSU College of Agricultural, Human and Natural Resource Sciences. These sessions typically attract 60 to 80 people, ranging from students, to professors and industrial representatives.

Further, staff from OIPA/WSURF regularly make presentations on aspects of commercialization to numerous classes in the College of Business and in various technical colleges, such as Sciences, Engineering, Pharmacy, and Veterinary Medicine. OIPA/WSURF staff also engage regularly in one of the most productive, but resource intensive, methods of training: focused work with an individual. Such training includes counseling on opportunities and work on presentations and business plans. WSURF also utilizes its board of directors and it extensive network to supply access to real world advice and education. We have found such focused sessions to be more useful than a generalized certificate program since the education is given to a prepared learner who is motivated to use the information to commercialize a technology.

We have also implemented a number of programs that will help ensure the successful commercialization of technologies resulting from the IRTs. In this document, we have also proposed unique mechanisms, such as the Industrial Liaison, Innovation Opportunity Fund and Venture Partners (entrepreneur-in-residence) program, which will advance the commercialization of the technologies resulting from this program. We are also engaged in internal discussions of how to reorganize the university's contracting mechanisms to enable "one-stop shopping" for commercial enterprises seeking to work with the university.

Finally, we note that many institutions offer a distance certificate in entrepreneurship. A quick Google search for the phrase "certificate in entrepreneurship" and distance returns 990 hits. Of these, several distance education programs are offered by institutions with dubious credentials, but several are also offered by outstanding institutions. At WSU, we anticipate that we will examine the entrepreneurship programs we currently offer and determine if there is a market opportunity to create a new certificate

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[7] http://research.wsu.edu/commercialization.html
[8] http://wsurf.org/ResearchHighlights.aspx?article=98

program uniquely crafted to serve the faculty, researchers, and students within the state. Such a program would complement the training offered through OIPA/WSURF and the degree programs described above.

Expanding Entrepreneurial Assistance at UW

As detailed in Part One, the UW has a suite of existing and successful entrepreneurial assistance programs that IRT researchers and their teams could contribute to and participate in. However, these programs do not completely cover the needs of entrepreneurial researchers, and if funds were available, it would be advantageous to invest in a few areas where gaps exist. It should be noted that in fiscal year 2006, the Georgia Research Alliance program provided $5,338,000 for commercialization programs, and the Utah USTAR program provided $4,000,000 for this purpose.

Gap Funds/LaunchPad. Although the current Technology Gap Innovation Fund program has been successful, the funds for this important function to move breakthroughs from the laboratory to the stage at which external investment is feasible are limited. This is especially problematic in the Life Sciences area, where both the cost and the time required to bridge the gap tend to be higher than in other commercialization areas. The UW places gap funds as the highest priority for stimulating and encouraging commercialization related to the IRT research. In addition, the UW's LaunchPad entrepreneurial coaching program for start-up ventures would be more effective with additional funds. We propose a ramp-up to $700,000 per year for stimulating commercialization via these two programs, which will add to the funds already provided ($500,000 annually for the Technology Gap Innovation Fund from a combination of the UW and the Washington Research Foundation, and $100,000 annually for LaunchPad).

Entrepreneur-in-residence program. Currently, the UW does not have an entrepreneur-in-residence program, and we propose to establish one, with support from the IRT program. It is clear that having expertise on campus from entrepreneurs who have successfully set up companies and commercialized technology outside of academia creates a positive climate and support system for researchers who are not experienced in these areas. We propose to test a set of models, either one-month, one-quarter, or one-year programs. The advantages of the shorter terms are the greater likelihood of recruiting top entrepreneurs away from their compelling work, and the opportunity to bring entrepreneurs from different fields within the IRTs to campus. The advantage of the longer terms are the extended contact for relationship-building and impact. Since we have not attempted such a program yet, we will try multiple approaches. This program would require on the order of $250,000 per year to run, per full-time entrepreneur, plus funding for staff to administer the program ($50,000 per year). We propose to ramp up to a total of $300,000 per year.

Full-fledged Entrepreneurial Assistance Program. If sufficient funds were available, commercialization would benefit significantly from a full-fledged entrepreneur assistance program like those at the Georgia Research Alliance and Utah USTAR programs. These would cost on the order of $4-5 million per year, and would provide funding beyond Gap and LaunchPad funding to help launch companies based on university technology, and in addition, would provide business and legal expertise for fledgling companies.

Plan for the Expenditure of IRT Resources in FY 2008-09

Each institution has developed plans for expending IRT resources in the remaining months of fiscal year 2008 and in fiscal year 2009 that will allow them to take advantage of opportunities and research needs that are currently available, that leverage their existing research preeminence, and that support critical industry clusters and IPZs. These plans will also leverage current and pending institutional and outside private support, using the IRT resources to fill gaps that strengthen the recruitment offers.

WSU IRT Expenditure Plan for FY 2008-09

Recognizing that the current allocation is not sufficient to implement all program elements within this first biennium, our specific proposal for the use of the fiscal year 2008-09 funds is:

1) Provide $830,000 to be matched by contributions to Washington State University to create an endowment for an endowed chair. Although personal conversations with representatives of the Georgia Research Alliance indicated that such an endowment should equal at least $3 million, the current budget allocation does not allow this level of investment. If such funds are provided, WSU would use them to help attract and enable the success of an eminent scholar to lead the institution's efforts in bioproducts and biofuels. We further anticipate that this individual would be located at WSU-TC, would link with the IPZs in the Tri-Cities and in Grays Harbor, and would lead efforts from across the institution, as well as link WSU programs with efforts at the Pacific Northwest National Laboratory.

2) Provide $165,000, to be matched by institutional or philanthropic funds, for the Innovation Opportunity Fund. Of this, we would suggest that $40,000 be provided in the first year of the biennium, and the remainder in the second year. These funds, which would be managed by the WSU Office of Intellectual Property Administration, will be used to continue to enhance WSU's successful program.

In response, WSU will commit to provide:

1) $830,000 from private philanthropic sources to match the endowed chair position ($1.66 million total endowment). Together with the proposed funds from the IRT program, an endowment would be created that would provide $66,400 per year to be used to support basic and applied research in the scholar's laboratory that supports industry in associated zones and to leverage associated federal and industrial funding for the research.

2) Salary and fringe benefits for the industrial liaison who will work closely with the IRT and partners in appropriate IPZs. These positions are estimated to cost approximately $85,000 per year, including salary and benefits.

3) Infrastructure needed for eminent scholar's success, including start-up funds and state-of-the-art laboratory space. Laboratory space will be in the newly constructed Bioproducts Science and Engineering Laboratory (BSEL) building on the WSU-TC campus.

4) Matching funds required for any proposals to acquire major equipment needed for the IRT submitted within two years of the hire of the eminent scholar. The expected cost of such equipment would range from $750,000 to $4 million.

5) Matching funds for the Innovation Opportunity fund, from either institutional or philanthropic sources that equal or exceed the funds provided by the IRT program.

UW IRT Expenditure Plan for FY 2008-09

Nanophotonics. The Nanophotonics area is described previously in this report. The UW has existing strengths in both the underlying basic science and in the applications of nanophotonics. Federal funding at the UW for photonics-related research in general is over $10 million per year at present, and is projected to increase substantially. Partly due to this strength at the UW, a business community interested in photonics and nanophotonics is beginning to emerge in the Puget Sound area, and we expect to work with this group to develop an IPZ in this area. Thus, this is an outstanding opportunity to achieve the goals of the Innovation Zone legislation. Work in nanophotonics can support innovation in both the life sciences (Seattle) and biomedical devices (Bothell) IPZs.

The UW is currently recruiting a rising star in the Nanophotonics area from Caltech, Dr. Michael Hochberg. Dr. Hochberg is not only internationally renowned for his research in nanophotonics, he started a company in this area as an undergraduate at Caltech, and that company (Luxtera) has now raised $50 million in venture funds and is on target for high success. Dr. Hochberg already has been involved in writing successful interdisciplinary proposals to federal agencies, and we expect him to rapidly build a major funded research area, if we can recruit him. Clearly, Dr. Hochberg embodies the intent of the IRT legislation. His current track record of success in both collaborative research and commercialization is highly impressive.

Dr. Hochberg has agreed to accept our offer of a position, if in addition to the committed recruitment package of $1 million and space in the Benjamin Hall Interdisciplinary Research Building, we can provide funds to purchase an e-beam system for highly precise micromachining. This tool is an essential element of his research and he cannot be successful without it, but is not available in the Pacific Northwest. The entire system will cost approximately $4 million but the basic system can be purchased for $1.5 million. We propose to use $1,245,000 from the fiscal year 2008-09 allocation with the remainder from institutional funds to purchase this core system, which we believe will be sufficient to convince Dr. Hochberg to accept our offer of a permanent position. We would then plan to raise funds for the remainder of the system via a combination of foundations and federal instrumentation grants with $1 million matching from fiscal year 2010-11 IRT equipment funds, and Dr. Hochberg has enthusiastically agreed to lead that effort.

The presence of this facility will not only stimulate research in nanophotonics and nanomaterials at the UW, it will support start-up companies with needs for these expensive facilities, in a standard cost center mode. In addition, it will complement the nanotechnology capabilities at the Washington Technology Center, and the ongoing Nanotechnology Initiative at the WTC. The presence of Dr. Hochberg on campus will be catalytic, both in terms of basic research and in the development of and interactions with a nanophotonics IPZ. The IRT funds will provide the final piece of the package to convert his conditional acceptance of a position at UW to a permanent one.

The University of Washington also proposes to use $125,000 in fiscal year 2009 IRT funding to expand the Technology Gap Innovation Fund (applied research gap funding program) and LaunchPad business start-up programs. This investment will support commercialization of research products, assisting their development so that they can become candidates for private investment and technology licensing. The TGIF program provides applied research grants of up to $50,000, so this IRT investment would support about three additional research projects.

Use of IRT Resources in Future Biennia (FY 2010-2018)

In looking at the resources we currently have in place at our research institutions, what other competing states are investing in enhancing their research institution's capacity to support clusters, and the need to support Washington's industry clusters and their competitive position, **the University of Washington and Washington State University recommend a phased-in expansion of the IRT program from its current annual funding level of $1.2 million to $26 million per year, by 2016**.[9] Funding at this level would permit the hiring of 16 entrepreneurial researchers over the next 10 years (nine at WSU and seven at UW), a pace of hiring that is commensurate with economic demand and the need to expand the state's research capacity across the five research areas described in Table 4. Funding at this level would be comparable to the current (FY 2006) level of funding for the Georgia Research Alliance program. If one takes the time value of the funding into account, $26 million in 2016 is comparable to the current value of the Utah USTAR program funding level ($19 million in FY2006). In other words, if Washington were able to achieve $26 million in annual funding by 2016 (where Georgia is today), we should be at or about where we would expect Utah to be in that year, assuming they are able to increase their funding to keep pace with inflation.

If Washington took an alternative path of trying to meet the minimum goal stated in SHB 1091 of hiring 10 entrepreneurial researchers over 10 years, the universities estimate that funding would need to reach $16,250,000 by 2012. In this instance, each institution would hire five researchers, and it would take about two years to put each hiring package together and retain the recruit. The activities most likely to be significantly reduced in this lower funding scenario are resources for matching grant request for laboratory and equipment infrastructure, and support for research gap funding.

The table below shows the recruitment schedule based on the $26 million funding assumption.

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[9] Institutional budget requests for the IRT program would go through the standard operating budget review process. This will give the Higher Education Coordinating Board an opportunity to review and comment on future-year IRT program budget requests.

Table 9: *Hiring Schedule Based on Annual Funding at $26 million by 2016*

Fiscal Year	WSU Recruitments	UW Recruitments
2008	Hire 1: Prof. Bioproducts (Tri-Cities)	Hire 1: Assist Prof Nanophotonics
2009	Hire 1 (Continued)	Hire 1 (continued): Assist Prof
2010	Hire 2: Prof. Biosciences (Spokane)	Hire 2: Molecular medicine (example: Sam Wickline)
2011	Hire 3: Veterinary Microbiology and Pathology, (Pullman)	Hire 2 (continued): Molecular medicine (e.g.: Sam Wickline)
2012	Hire 4	Hire 3: Assist Prof
2013	Hire 5	Hire 4: Assist Prof
2014	Hire 6	Hire 5: Assoc Prof
2015	Hire 7	Hire 6: Assoc Prof
2016	Hire 8	Hire 7: Full Prof
2017	Hire 9	Hire 7: Full Prof (continued)

Below is a description of how funds would be expended if the program received the recommended level of funding.

WSU IRT Plan in the Out-Years

By 2016, WSU would receive $10 million of the recommended $26 million annual funding level. The largest portion would go to grant matching resources for laboratory infrastructure and equipment ($5 million), followed by direct infrastructure investments ($3 million) that are part of the recruitment package, recruitment endowment ($1.5 million, to be matched by the institution) and gap funding ($500,000). WSU suggests that program funds allocated to include the following program elements:

1) Creation of a $3 million endowment for each eminent scholar. Half the funds for the endowment would be provided by the IRT program, leveraging equal amounts that the institution would raise from private philanthropic sources.   We have designed this program much like the similar program operated by the Georgia Research Alliance (GRA). Discussions in Georgia, however, indicated that the $1.5 million endowment created by the GRA and the Georgia universities was beginning to have diminishing ability to serve as the magnet for attracting eminent scholars. In private conversations, personnel there suggested that a $3 million endowment would be much more likely to serve as the magnet for the desired caliber of scholars. We anticipate that one eminent scholar would be attracted each year for the next 10 years.

2) Infrastructure funds used to enable the creation of state-of-the-art laboratories equipped with the unique scientific research equipment and renovated to enable the IRT's maximum effectiveness. Both Utah and Georgia found that such infrastructure is an absolute necessity and have invested heavily in this area. We would propose that the IRT program invest $3 million each time an eminent scholar is hired. WSU will also, from philanthropic or institutional funds, invest in such infrastructure, ensuring that the impact of each IRT is maximized.

3) Funds for the Innovation Opportunity Fund. WSU would propose that the IRT program initially provide a small amount to enhance this existing program. However, as eminent scholars are hired and the institutional culture continues to change toward even more support of technology

commercialization, it is anticipated that the demand on this program will grow dramatically. Thus, we also request that the IRT program anticipate growth in this fund. Again, WSU plans to match funds provide by the IRT with equal amounts from institutional or philanthropic sources.

4) As the number of eminent scholars increases, the need for major equipment that supports the industry in associated IPZs and the demand for matching funds for federal grants will also grow. Recall that in Georgia, some $14 million, or more than half the Georgia Research Alliance funds, were used each for such purposes. Thus, WSU requests that funds be provided that can be used to meet these growing demands.

UW IRT Plan in the Out-Years

By 2016 when total program funding would reach $26 million per year, UW would receive $16 million of that amount. The single largest portion of annual funding would go to matching resources for laboratory infrastructure and equipment ($10 million), followed by recruitment funds ($5 million), $700,000 for gap funding and LaunchPad, and $300,000 for the new entrepreneur-in-residence program.

FY 2010-11—Opportunity in Molecular Medicine: The interface between bioengineering, imaging, and clinical medicine is the area of molecular medicine. Molecular medicine has profound applications in life sciences for diagnostics, monitoring, and treatment for a variety of disorders. The Prosperity Partnership has designated life sciences as one of the clusters for rapid growth and investment in the central Puget Sound region, and two of the first 11 IPZs recently announced are the South Lake Union Life Science Innovation Partnership Zone in Seattle and the Bothell Biomedical Manufacturing Corridor. As such, molecular medicine represents an outstanding opportunity for the IRT program to link directly to key industry clusters in the state. The UW is currently recruiting for a senior level "star" researcher in Molecular Medicine.

The type of person we are hoping to recruit is exemplified by Dr. Samuel Wickline at Washington University in St. Louis. Dr. Wickline is internationally renowned in translational medicine, coupling non-invasive imaging techniques to breakthroughs in healthcare. He has a long history of success in this area and of working closely with both engineering companies, including Philips (which has major facility in Bothell), and the pharmaceutical industry. He has a large externally funded research program, on the order of $6 million per year, supporting 50 researchers, and he also directs a Nanocancer Center at Washington University in St. Louis. He has the potential at the UW to collaborate with groups that could compete for large centers ($7-10 million per year range) from the U.S. Department of Defense, NIH, and private foundations. Recruitment costs for Dr. Wickline, which would be typical for someone of this caliber, would be expected at the minimum to include two faculty positions for colleagues he would bring with him as part of his team, $4-5 million in facility renovation costs to improve research space for his group, and $5-7 million for major instrumentation and discretionary research support. In addition, he would expect matching funds to be available for future equipment proposals to federal agencies and foundations.

The UW would need to use $10 million of IRT recruitment funds in the fiscal year 2010-11 biennium to ensure a competitive recruitment package for this position. As noted above, for this type of recruitment

it would be a much more attractive package to supply the recruitment funds over a period of five years with the potential to renew for five more years based on IRT-specific criteria involving work with one or more IPZs.

Future Biennia (FY 2012-17). In future biennia, the UW proposes to recruit in one of the areas noted in the earlier section of this report. The actual area will depend on the funding available, the makeup of our IPZ partners, as well as opportunities that arise with regard to outstanding individuals.

The UW would expect to recruit a total of five faculty in fiscal year 2012-2017. The first four hires are expected to be junior faculty in the category of Michael Hochberg and mid-career faculty at the associate professor or newly promoted full professor level, while the final one would be a senior full professor in the category of Samuel Wickline. For the mid-career level, UW would recruit faculty with a proven track record who are clearly poised to make transformational breakthroughs with the appropriate colleagues and facilities around them. An example of the type of mid-career researcher we would target would be Yoky Matsuoko in Computer Science and Engineering (mentioned in the Opportunity Analysis), who works on prosthetic hands with an interface to the nervous system, and who recently won a MacArthur "genius" award. With this scenario, as opportunities arose, the UW could potentially recruit more senior faculty instead of the more junior faculty, if additional funding were available from private, foundation, or federal sources that would leverage the IRT funding.

Program Administration and Oversight

The legislation authorizing the Innovation Research Team program calls for the Higher Education Coordinating Board to implement this plan "in conjunction with the publicly funded research institutions." Funding in the current biennium ($430,000 in fiscal year 2008 and $1.935 million in fiscal year2009) for the program was (according to the budget proviso) "provided solely for the economic development commission to work with the higher education coordinating board and research institutions to: (a) Develop a plan for recruitment of ten significant entrepreneurial researchers over the next ten years to lead innovation research teams, which plan shall be implemented by the higher education coordinating board; and (b) develop comprehensive entrepreneurial programs at research institutions to accelerate the commercialization process."

To administer the program in accordance with these legislative requirements, and ensure proper fiscal and program accountability, it will be important for the HECB to take a lead role in planning coordination and the distribution of program funds. The HECB should develop a Memorandum of Agreement with the Washington Economic Development Commission detailing their role and responsibilities for fiscal and program oversight and coordination. This should include the transfer of appropriated funds to the HECB for distribution to the research institutions. It should also include the development and monitoring of annual expenditure plans. The specific roles and responsibilities for the HECB that could be included in such a Memorandum of Agreement include:

- Coordination and development of an annual IRT program and financial which describes how previous year funds were expended and assessment of program results and

progress to date, the program activities to be implemented in the coming fiscal year, and the allocation of appropriated funds to support those activities.

- Allocation of funds to endowments and reimbursement of program expenditures incurred by research institutions, in accordance with the annual program and expenditure plan.
- Collection of data and information about the IRT program and use of IRT funding by research institutions, for dissemination to the Economic Development Commission, the State Legislature, the governor, and other interested parties.
- Policy and program support for the Economic Development Commission in meeting their legislative requirement to develop performance measures, to be used in evaluating IRTs, and assistance in implementation of the performance measurement system.
- Serving as a conduit of information to Innovation Research Teams and university technology transfer offices, to help ensure their activities are linked to Innovation Partnership Zones, other identified industry clusters, and Economic Development Commission policies and initiatives.

Annual Planning Process

It is anticipated that it will be necessary to conduct an annual planning process to allow the program to adjust to changing opportunities and economic needs and conditions, and to ensure that performance measures are regularly being collected, analyzed, and used to identify implementation issues that require correction. The annual planning process would be conducted each spring and would determine how funds will be allocated during the coming fiscal year (beginning July 1).

The annual plans would also allow the HECB and the research institutions to quickly respond to any funding or policy changes or revised program goals established by the Economic Development Commission, the Legislature, and/or the governor. The annual plans would include:

- An description of how previous year funds were expended;
- A discussion and examination of any new policy goals, industry/economic needs, and economic development opportunities that arose over the last year that may have implications for the use of IRT resources in the coming year;
- An assessment of program results and progress to date, based on the performance measurement system for IRTs established by the Economic Development Commission;
- The next year's program activities to be implemented by the research institutions;
- Performance measure targets for the next fiscal year, based on the planned activities and progress to date; and,
- The allocation of appropriated funds to institutions and individual program activities.

Table 10, below, provides a rough schedule for the development and implementation of annual program and expenditure plans:

Table 10: *Development of Annual IRT Program and Expenditure Plans*

Planning Activity	Due Date
WEDC Identifies program goals for the next fiscal year and transmits them to the HECB	March 15
HECB transmits program planning guide to the research institution identifying elements to be included in institution plans	March 31
Research institutions submit institution-level plans to HECB	May 1
HECB submits comprehensive draft state plan to the WEDC	May 15
WEDC submits comments to HECB on comprehensive draft plan	June 1
WEDC and HECB work jointly to complete the final plan	June 15
HECB and research institutions implement the plan	July 1-June 30

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RESOLUTION NO. 07-24

WHEREAS, SHB 1091 requires the Higher Education Coordinating Board and Washington's research institutions to assist the Washington Economic Development Commission in developing an innovation opportunity analysis and Innovation Research Team Implementation plan; and

WHEREAS, The Washington Economic Development Commission is required by legislation to submit these documents to the Governor and the Legislature by December 31, 2007, and the Higher Education Coordinating Board and the state's public research institutions are responsible for implementation of the Commission's Innovation Research Team plan; and

WHEREAS, The Higher Education Coordinating Board and Washington State University and the University of Washington have developed the *Innovation Opportunity Analysis and Innovation Research Team Draft State Implementation Plan*; and

WHEREAS, The Higher Education Coordinating Board has reviewed the document and supports its major findings and recommendations; and

THEREFORE, BE IT RESOLVED, That the Higher Education Coordinating Board approves the document for transmittal to the Washington Economic Development Commission.

Adopted:

December 13, 2007

Attest:

_____
Bill Grinstein, Chair

_____
Betti Sheldon, Secretary

WASHINGTON

HIGHER

EDUCATION

COORDINATING BOARD

November 2007

Applied Baccalaureate Programs at Community and Technical Colleges

Information Item

Background

In 2005, the Legislature took an important step in expanding access to baccalaureate degree programs through the passage of House Bill 1794. The Bill included several provisions aimed at increasing access to baccalaureate degree programs, including a pilot project at the community and technical colleges that would allow up to four institutions to offer a baccalaureate degree program in an applied field. Following a competitive selection process conducted by the State Board for Community and Technical Colleges (SBCTC), the Higher Education Coordinating Board (HECB) approved four new bachelor degree programs in June 2006. Under the legislation, HECB is required to report on the progress of implementing the new authorities granted in the measure by December 2008.

In 2007, two additional pilots were authorized. Following a process similar to that used in 2005-2006, three colleges submitted "Notices of Intent" to establish an applied baccalaureate program. In January, the SBCTC expects to receive applications; and during their March meeting, they will select two of the three colleges to submit proposals to the HECB for the establishment of the degree programs. Approved programs would enter a development phase in fall 2008 that would include review by the Northwest Commission on Colleges and Universities, curriculum development, and faculty hiring. The programs would enroll students in fall 2009.

This status update briefly outlines progress to date in the implementation of the four approved applied baccalaureate degree programs. The HECB will be asked to approve the two additional pilot programs by June 2008 and will review a full report on the implementation of HB 1794 in November 2008.

Update on 4 CTC Applied Baccalaureate Degrees

First Year Students, Courses, Faculty, Expenditures, Lessons Learned

4 Pilots

- Peninsula College – Bachelor of Applied Science in Applied Management

- South Seattle Community College – Bachelor Applied Science in Hospitality Management

- Bellevue Community College – Bachelor of Applied Science in Radiation and Imaging Sciences

- Olympic College – Bachelor of Science Nursing

Steps Leading to Fall 2007 Enrollments

- April 2006 – SBCTC selected 4 pilots from 6 proposals

- July 2006 HECB – approved 4 bachelor degree proposals

- December 2006 NWCCU granted "informal candidacy" at the baccalaureate level to 4 pilots

Applied Baccalaureate

CREATING OPPORTUNITIES
WASHINGTON COMMUNITY AND TECHNICAL COLLEGES

Legislative definition of Applied Baccalaureate

- Specifically designed for individuals who hold an associate of applied science degree, or its equivalent, in order to _maximize application of their technical course credits_ toward the baccalaureate degree; and

- Based on a curriculum that incorporates both theoretical and applied knowledge and skills in a specific technical field.

Current Students

125 students enrolled in the 4 programs
- 10 years older than typical CTC student
  - Median age: 37
  - Just 18% under 25 years of age
- Race/ethnic diversity close match with state population
  - 21% students of color
- 75% female
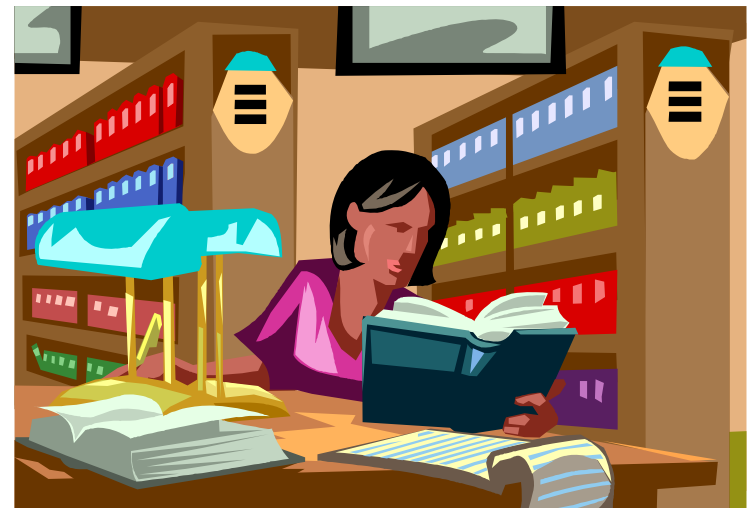
Current Students

125 students enrolled in the 4 programs

- More full-time than anticipated – 50%
- Most working and out of college for 2 or more years (1 in 5 directly from associate degree to BAS)
- Students report that curriculum is challenging, applies to their work
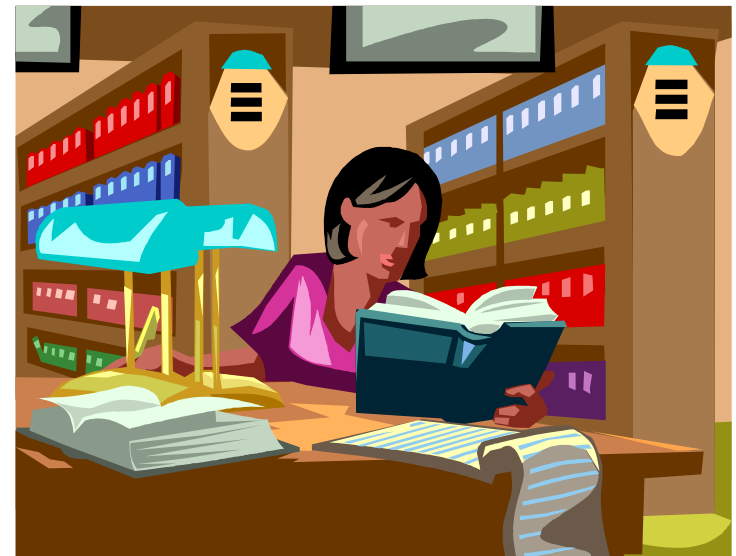
Upper Division Courses

~9 upper division courses/pilot
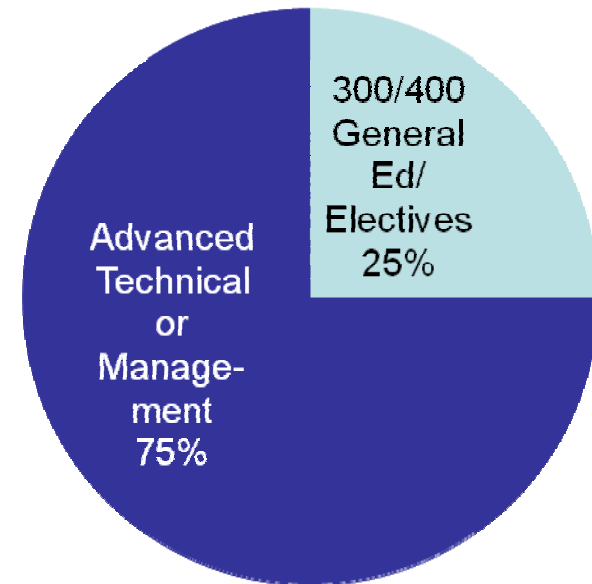
40 cr. upper division/pilot

Technical/Management

- Body Pathophysiology
- Financial Mgmt. Accounting
- Nursing Statistics
- Legal Issues in Hospitality

General Ed, Elective

- Biomed Ethics, Theory & Practice
- Culture, Health & Healing
- Medical Genetics

Upper Division Credits

Pie chart: Advanced Technical or Management 75%; 300/400 General Ed/Electives 25%

24 Faculty

Building on Strength of Faculty Already at the College

About 6 faculty per pilot teaching 300/400 level courses

- 5 of 6 on the faculty <u>before</u> 2006
- 5 of 6 teach outside the pilot program
- 4 of 6 teach 1 pilot course/year
- Half hold Ph.D./Ed.D.

Faculty

- Vicki DeLorey, Ed.D., Director of the BAS program, Peninsula College
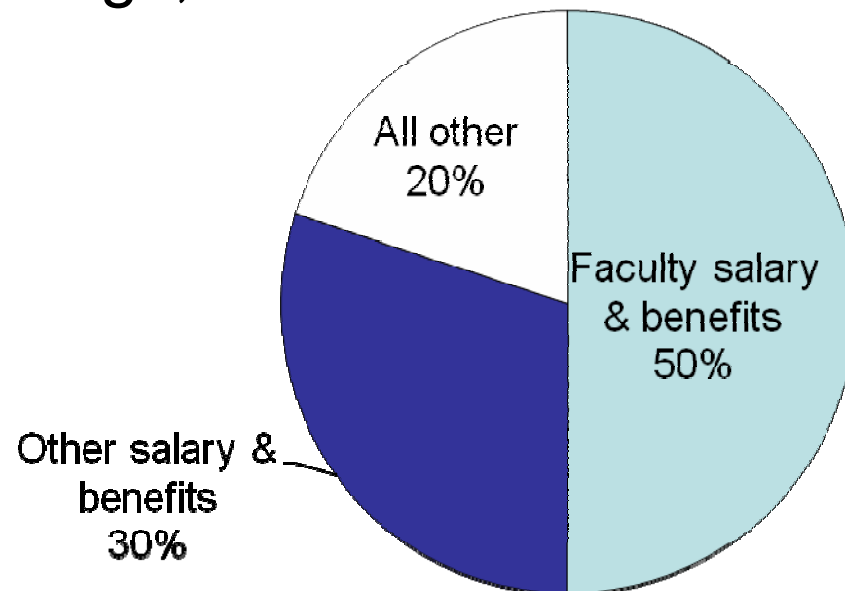- Graham Patrick, Ph.D., Nursing faculty, Olympic College

1st Year Expenditures

~$235,000 per pilot (includes 9% local funds)

- Expenditures mirror overall CTC pattern
- '07 start-up funds used to enhance library holdings, hire new faculty

2007-08 Expenditures

All other 20%

Faculty salary & benefits 50%

Other salary & benefits 30%

Learning from 1ˢᵗ Year

- Enrollment demand consistent with expectations – about 30 students/pilot
- New faculty hires as planned
- Start up funding better if spread across prior year and 1ˢᵗ teaching year as curriculum development continues in 1ˢᵗ teaching year

4 Pilots

Next Steps

- 2008-09 double size of each pilot as senior year courses added

- Spring 2009 – first graduates

- NWCCU- (regional accreditation) full review
  - BCC, Olympic, South Seattle – Oct 2009
  - Peninsula - 2010

2 Additional Pilots

Applicants for fall 2009 start

- Columbia Basin College – BAS in Applied Technology Management and Entrepreneurship

- Seattle Central Community College – BAS in Applied Behavioral Science

- Lake Washington Technical College – BAT in Applied Design