September 2017

Pacific Science Center/LASER

1. **Purpose:** Washington State LASER is a catalyst for sustainable innovation and improvement in K-12 science education. LASER provides a strong leadership base for science educational reform through a committed statewide network with sought after products and services which include offering professional learning opportunities, providing key leadership and critical support for implementation of the Washington State Science Learning Standards (WSSLS), and developing science leaders for Washington State. LASER also assists school districts with implementing an ongoing, standards-based science program aligned with the Standards and emphasize these three key elements:
    - Educational leaders recognize that effective science instruction and learning will only take place with the enhanced capacity of science educators.
    - Research shows that a teachers' knowledge of concepts and skills that are central to a discipline matters more than anything else within a school - more than class size, more than school funding, and more than technology used within the school.
        - Regular professional development for classroom teachers, administrators and professional development providers as well as high education science faculty and community stakeholders
    - Equity is a key condition for all students to meet and achieve science standards. Equity is impacted by organizational capacity. Sustaining the capacity of the system provides equity for all Alliances across the state which translates to all students receiving quality science education.
        - Wide community and administrative support
        - Selection of exemplary inquiry-centered instructional material
        - Implementation of effective strategies to use science as a vehicle to support reading, writing, communication and mathematics learning
        - Materials support through distribution and refurbishment
        - Coherence between student learning and student assessment

2. **Description of services provided:**
    - Supports ten Regional Alliances that:
        - Provide a variety of levels of professional learning as well as foundational kit use and professional learning to support WSSLS
        - Ensure the distribution and refurbishment of science materials and equipment
        - Alliances spent approximately $9500 on materials and supplies to support the professional development activities in their regions. Materials included books for professional learning communities and consumable supplies for PD events.
        - Purchase instructional materials for use by participating school districts
    - Develops a variety of levels of professional development providers to meet the increased demand for professional development across the state by enhancing and increasing educator capacity.
        - The Fall *Assessment and the NGSS* event was held in Spokane November 15-17, 2016 and was attended by LASER Alliance Directors and their teams. Participants engaged with colleagues to better understand the new state-wide assessments, and how to support students' success with in-class formative assessments that align with NGSS.

- The second Assessment event was held March 7, 8, and 9, and engaged approximately 50 participants. The first day was devoted to an assessment item-writing workshop to provide teacher professional development leaders with a deeper understanding of the upcoming Next Generation Science Assessment. The remaining two days supported the development of classroom assessment tools, and the sharing of resources across the Alliance network.
- LASER hosted a two-day gathering of over 200 Science Fellows October 4 and 5 2016 in Vancouver WA. The Science Fellows spent one day with an expert facilitator examining how to use real natural phenomena in their teaching to support student learning the Science and Engineering Practices and Crosscutting Concepts of the NGSS. The second day was devoted to the Fellows planning for their year of work with their colleagues, and learning best practices from each other.
  - LASER facilitated communication across the Alliance Director and Regional Science Coordinator groups to support the Science Fellows all across Washington. The LASER event for Science Fellows in October represented two of the four days of required professional development for Fellows.
- The 2017 STEM Education Leadership was held June 26-30 in Lynnwood, with nine teams from Washington and one from north-eastern Oregon. Participants created a STEM action plan for their school or district, and engaged deeply in activities around building community partnerships and engineering design challenges. Teams also had the opportunity to visit Boeing's factory in Everett and see the Future of Flight Museum. In January of 2017 we invited teams from prior Institutes to come to a one-day follow up event in Seattle, and in February we planned a similar event for Richland. The East-side event had to be postponed to March due to snow day closures. The follow up meeting agenda addresses equity in STEM teaching, and engagement with STEM Notebooks as an instructional strategy to support all learners.

- Supports projects that implement multiple, research-based strategies on a school-wide basis that lead to significant increases in student achievement.
  - We continue to promote Washington State LASER website at professional development events, and maintain the resources published there.
- Regular communication with Alliance Directors and the Leadership Team is maintained through email and electronic meetings. The LASER Leadership Team met every 2 to 3 weeks via electronic conference call. LASER Alliance Directors participated in monthly electronic conference calls.
- Works with Regional Alliances and ESD Science Coordinators to enhance the leadership capacity of school district leaders (e.g. central office administrators, principals, community leaders).
- Works with Regional Alliances and ESD Science Coordinators to offer other specialized symposia on topics of high need, such as assessment, literacy, role of scientists and engineers,

identifying effective instructional material, aligning instruction to emphasize key science concepts.

- Infuses equity by intentional capacity building across the 10 Alliances
    - Enhances the participation of school districts serving underserved populations and regions of the state.
    - Every LASER event in 2016-17 featured a portion of the agenda focusing on equity. At the Institute Follow up, for example, participants used a STEM Teaching Tool practice brief (written by University of Washington scholars) to examine equitable teaching practices in their schools. At the STEM Education Leadership Institute, participants engaged with a panel of diverse STEM professionals and learned their personal stories of STEM success.
    - LASER staff work to maintain high quality programs across all 10 Alliances through the collection of mid-year and annual reports from the Directors.
    - The Alliance Director phone calls described above also give staff an opportunity to check in on Alliance activities. We hold two face-to-face meetings each year, and make site visits to Alliances as needed.
    - The LASER eNewsletter reaches over 1000 subscribers with updates about our activities every other month. (Newsletters went out in July, September, November, and January with March and May coming up.) Washington State LASER has continued to use social media into our comprehensive communications plan. In addition to posting real-time updates to LASER programming, best practices and current education STEM news, we are able to strengthen partnerships by sharing the work of our stakeholders (including OSPI). We are posting, on average, 3 days a week through Facebook and Twitter.
    - Most of the Regional Science Coordinators are also LASER Alliance Directors or co-Directors. The three (ESDs 121, 123, and 189) who are not have been invited to participate in our Alliance Director telephone calls since January 2015. Prior to this date, one of the Regional Science Coordinators served as a liaison between the two groups, regularly reporting to the LASER Leadership Team on RSC activities.

3. Criteria for receiving services and/or grants:

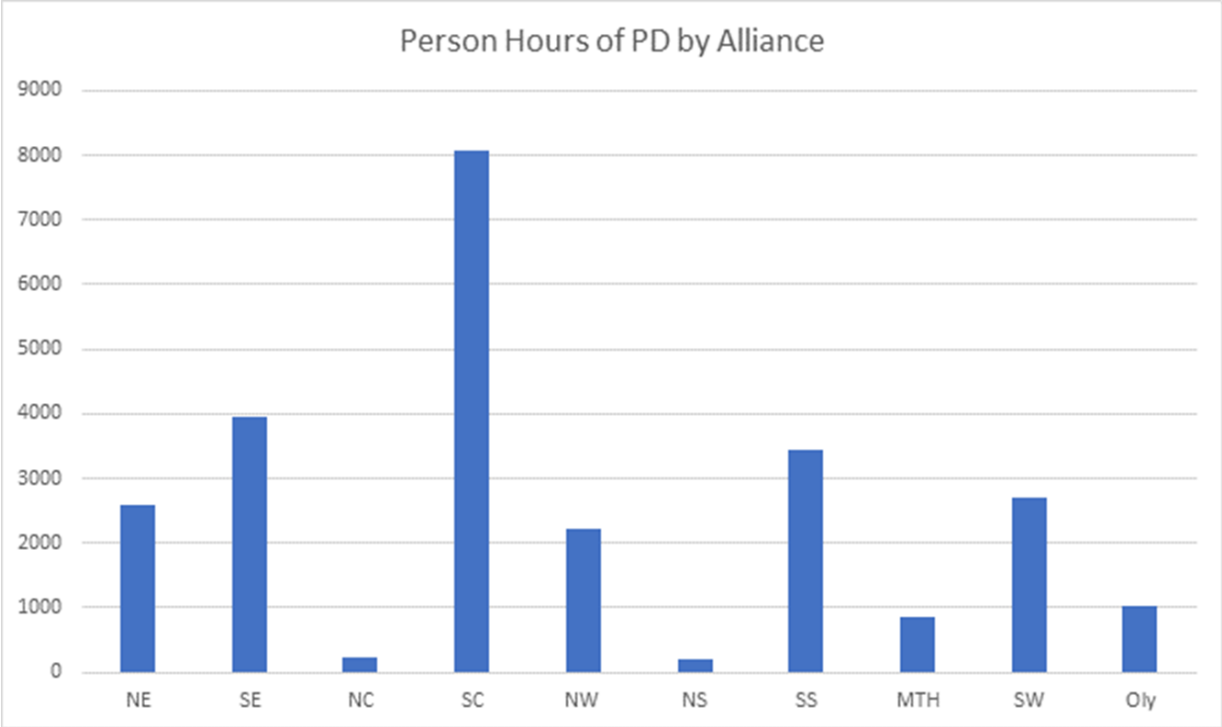
LASER school districts agree to attend a Strategic Planning Institute and have a strategic plan in place for implementing a standards-based science education program.

4. Beneficiaries in 2017-18 School Year:

 # School Districts: 214+ School Districts and 4 Private Schools
 # Schools: 41 (directly with school visits)
 # Teachers: more than 4000 (reached directly through Alliance & state activities)
 # Students: 15,000 (directly with school visits)**,** see below for indirect #

In FY17 the 10 LASER Alliances held 189 professional development events, reaching over 4000 participants, and representing over 23,000 hours of contact time. The participants noted above include over administrators, higher education faculty, as well as community and business leaders,

which is a key feature of the LASER model: systemic change requires participation from all stakeholder groups.



FY17 Funding:	**State Appropriation:**	$356,000
	District (matching) Funds	$251,383+
	Corporate Funds:	$160,000
	TOTAL (FY17)	$767,383

5. **Are Federal or other funds contingent on state funding?** Yes. Schools funds are required as a match for any funding of LASER Alliance schools. Private funds will not be available unless state funds are also provided.

6. **First year funded:** FY02

7. State funding since inception:

Fiscal Year	Amount
FY17	$356,000
FY16	$356,000
FY15	$356,000
FY14	$356,000
FY13	$356,000
FY12	$356,000
FY11	$395,000
FY10	$1.579 million
FY09	$4.079 million
FY08	$4.079 million
FY07	$1.079 million
FY06	$1.079 million
FY05	$1.079 million
FY04	$1.079 million
FY03	$1.079 million
FY02	$617 thousand

8. Number of beneficiaries (e.g., schools, students, districts) since inception:

Fiscal Year	# of School Districts	# of Schools	# of Students
FY17	204	1800	977,841
FY16	204	1800	977,841
FY15	204	1800*	977,841
FY14	204	1861	960,227
FY13	204	1886	954,287
FY12	204	1886	944,679
FY11	203	1,602	940,326
FY10	203	1,602	940,326
FY09	192	1,508	806,444
FY08	180	1,475	797,016
FY07	162	1,380	750,367
FY06	140	1,293	715,648
FY05	117	1,168	657,353
FY04	102	1,073	607,638
FY03	93	877	493,321
FY02	71	710	399,612

There was an update to the list of schools and there have been closures over the last few years that were still being reported as active.

9. Programmatic changes since inception (if any):

- Number of LASER school districts grew from 30 to 204, which serve just over 91.3% of students in the state.

- Number of Regional Alliances grew from 4 to 10, so LASER can now serve most of the state with a network able to implement future efforts.
- Services expanded from elementary to include middle school and continue to expand into high school.
- Developed leadership teachers and administrators across the state through our Science Partnership Academy, Strategic Planning Institute, STEM Education Leadership Institute, National Academy for Curriculum Leadership, worked with the Association of Washington School Principals, Washington State School Directors Association, Washington Association of School Administrators, projects to develop Foundational Use Professional Development Providers and professional learning opportunities around *A Framework for K-12 Science Education* and the *Next Generation of Science Standards*.

10. Evaluations of program/major findings:

- External evaluation of the STEM Education Leadership Institute show that we are providing the framework and technical support to those teams in attendance and STEM education is being implemented in schools, school districts, and regions in attendance.
- External evaluation of our work with critical stakeholders such as Association of Washington School Principals, Washington State School Directors Association, and Washington Association of School Administrators are effective professional learning opportunities for increasing the awareness of NGSS.
- Evaluation of the Science Partnership Academy show that we have impacted how technology is being used in professional learning opportunities as well as participants gaining access to resources, ideas, and model for supporting the implementation of Common Core State Standards.

11. Major challenges faced by the program: Since the 2008-2009 school year the LASER program funding reduction has caused a reduction in or elimination of services which were previously provided. They include:

- Strategic Planning Institutes
- Instructional Materials Showcases
- Evaluation of overall effectiveness of LASER program and student achievement
- Awareness events that built understandings of science education reform and Washington State LASER process
- Facilitation of formation and operation of small school districts consortia

Additionally, communicating effectiveness to the ever-changing science/STEM education network in Washington is an ongoing challenge. Multi-level evaluation that would establish impact on student learning has not been a focus, as spending has gone toward programs.

12. Statutory and/or Budget language:

Budget Proviso: 2ESHB 2376, Sec 511 (2) $356,000 of the general fund—state appropriation for fiscal year 2016 and $356,000 of the general fund--state appropriation for fiscal year 2017 are provided solely for the Washington state leadership and assistance for science education reform (LASER) regional partnership activities coordinated at the Pacific science center, including instructional material purchases, teacher and principal professional development, and school and community engagement events.

13. Program Contact Information:

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