Washington Office of Superintendent of
PUBLIC INSTRUCTION

LASER Program

1. **Purpose:**

Washington State LASER (Leadership Assistance for Science Education Reform) is a state science-education program led by Washington STEM in partnership with the Office of Superintendent of Public Instruction, Educational Service Districts, the Institute for Systems Biology, and school districts.

Washington State LASER is divided into ten regional Alliances, geographically aligned with Washington's Educational Service Districts. These Alliances offer leadership and technical assistance to school districts, schools, and educators, within and across the six components of the LASER framework: school/district operations, STEM pathways, community and administrator engagement, assessment, curriculum, and instructional materials support. This work also includes science/STEM strategic planning support for districts and schools. This framework is derived from the LASER model developed by the Smithsonian Science Education Center.

LASER plays a key role in ensuring that state science leaders maintain a learning community and develop skills and capacity for removing barriers and creating opportunities to improve science/STEM education at the school and district levels.

2. **Description of services provided:**

Given the wide range of systems- and district-level needs across Washington, Washington State LASER offers a range of services to participating schools, districts, and educators.

Regional Alliances

- Regional alliances provide leadership assistance to schools and districts to develop, implement, and assess science/STEM strategic plans aligned with the LASER framework.
- In several regions, the LASER Alliance serves as a co-operative hub for instructional materials across 15-30 districts—resulting in efficiencies in cost, labor, and professional learning across the districts. During the pandemic, Alliances have also served as resource hubs for online, asynchronous professional learning and virtual science/STEM instructional materials.
- All Alliances contribute to regional capacity-building by providing professional learning opportunities, resources, and connections for science/STEM education leaders (teachers, district leaders, principals)

Professional Learning Support for Alliance Directors

- LASER provides an equity- and justice-focused collaborative learning space for Alliance Directors, who in many cases are also Regional Science Coordinators and/or hold multiple STEM education leadership roles.
- Regular communication via email, monthly Alliance Director virtual workshops, and semi-annual Alliance convenings.
- Semi-annual convenings of Alliance Directors and partners.

Statewide Professional Learning Opportunities

- Alliance Directors are strongly encouraged to bring Alliance teams to semi-annual statewide workshops.
- Science/STEM education webinars open to educators and the public, aligned with the LASER framework.

3. **Criteria for receiving services and/or grants:**
Each Alliance sets goals that are responsive to local needs and aligned with LASER's commitments to OSPI. All districts and schools are eligible to participate in regional LASER activity.

Beneficiaries in 2020-21 School Year:

Number of School Districts:	100
Number of Schools:	306
Number of Students:	127,449
Number of Educators:	4,369
Other:	N/A

Number of OSPI staff associated with this funding (FTEs):	0 FTE
Number of contractors/other staff associated with this funding:	0

FY21 Funding:	**State Appropriation:**	$500,000
	Federal Appropriation:	$0
	Other fund sources:	$0
	TOTAL (FY21)	$500,000

4. **Are federal or other funds contingent on state funding?**
☒ No
☐ Yes, please explain.

5. **State funding history:**

Fiscal Year	Amount Funded	Actual Expenditures
FY21	$500,000	$500,000
FY20	$356,000	$354,167
FY19	$356,000	$365,000
FY18	$356,000	$355,965
FY17	$356,000	$356,000
FY16	$356,000	$356,000
FY15	$356,000	$356,000
FY14	$356,000	$356,000
FY13	$356,000	$356,000
FY12	$356,000	$355,922
FY11	$197,000	$197,000
FY10	$1,473,000	$1,183,715

6. **Number of beneficiaries (e.g., school districts, schools, students, educators, other) history:**

Fiscal Year	Number of School Districts	Number of Schools	Number of Students	Number of Educators
FY21	100	306	127,449	4369*
FY20	76	410	238,708+	1251
FY19	161	330	77,500+	N/A
FY18	204	1800	977,841	N/A
FY17	204	1800	977,841	N/A
FY16	204	1800	977,841	N/A
FY15	204	1800*	977,841	N/A
FY14	204	1861	960,227	N/A
FY13	204	1886	954,287	N/A
FY12	204	1886	944,679	N/A
FY11	203	1,602	940,326	N/A
FY10	203	1,602	940,326	N/A

*****Educators include teachers, principals, district leaders. Note: LASER engages with a range of science/STEM education leaders from the classroom, to school/district leadership, to regional leaders. The *number of educators* here includes educators that benefited from direct LASER engagement, as well as educators that are served by district or school leaders directly engaged with LASER. The *number of schools* includes schools that had educators directly involved, as well as schools that were within the purview of district science leaders (e.g., if a district-level high school TOSA engaged with LASER, the number of high schools they work with were counted). The *student impact number* is an indirect measurement, as LASER does not provide direct support to students. The number of students is calculated accordingly based upon the educators

engaged with LASER (e.g. if a district-level high school TOSA engaged with LASER, the number of students attending the high schools that TOSA works with were counted, if all of the elementary teachers in school engaged with LASER, their students were counted, etc.)

7. **Programmatic changes since inception (if any):**

In order to fully tap the capacity of the LASER network's expertise, the LASER Executive Director position was eliminated in 2018. This change resulted in distributed leadership and increased resources to the field. LASER is now coordinated by three Co-Directors from different Alliances, and these roles rotate every 2-3 years. The Co-Directors provide leadership and consultation across Alliances and liaise with the LASER Advisory group. This strategy continues to evolve with Co-Directors taking on more of the strategy and implementation work of LASER with technical support from Washington STEM.

Beginning in 2018-2019, LASER employed a more rigorous protocol for examining direct and indirect benefit to districts, schools, educators, and students. The result was a more focused engagement with fewer districts. The program continues to refine the program evaluation strategy in partnership with Washington STEM and the regional Alliances.

Since LASER's inception, the number of Regional Alliances grew from 4 to 10. The North Sound and South Sound Alliances formed a coalition with PSESD in the Puget Sound region. Services expanded from elementary to include middle school and continued to expand into high school, though the focus remains mostly in elementary and middle schools currently.

As programs and system components initially developed through LASER (since 1999) have been institutionalized in our state (e.g., instructional materials cooperatives and the Regional Science Coordinator positions at each ESD), LASER has evolved to meet contemporary science/STEM education reform needs. Previous activities included developing leadership capacity in teachers and administrators across the state through annual Strategic Planning Institutes and STEM Education Leadership Institutes; partnerships with OSPI, Association of Washington School Principals, Washington State School Directors Association, and Washington Association of School Administrators; instructional materials showcases; and professional learning opportunities around *A Framework for K-12 Science Education*, the *Next Generation of Science Standards*, and centering equity in science/STEM education.

8. **Evaluations of program/major findings:**

a. **Guide Science/STEM Implementation with Strategic Planning (Landscape).**

i. In October 2020, Washington State LASER convened 44 LASER Alliance Directors, ESD staff/leaders, and school district leaders to learn about collective action and developing cultural proficiency as STEM leaders. Alliances further developed their work plans for providing strategic support to districts during the pandemic.

ii. In March 2021, LASER convened 26 Alliance Directors and team members to apply learning of Cultural Proficiency to systems-level thinking in STEM with consultant Arthur Mitchell of the Pennsylvania STEM Equity Alliance.

iii. In three regions where the LASER Alliance is affiliated with a regional instructional materials cooperative (Northwest, South Central, and Southeast), the Alliances developed and provided virtual and/or asynchronous supports for both in-person and remote learning materials. While there were limitations to assessing specific remote lesson access, Alliances report expanded engagement particularly with rural and remote districts for whom travel to in-person professional learning and materials access was a barrier pre-pandemic.
iv. Science TOSA's and district science leaders from 14 districts across the North Sound and South Sound Alliances examined local barriers to equitable science education through an "Equity Intervention Rapid Protocol," and developed capacity for identifying and disrupting inequitable policies, practices and behaviors in STEM education (e.g. advocating to school board, adopting district-wide policy regarding elementary time in science).
v. The Southwest Alliance hosted the annual STEM Strategic Planning Summit virtually for 9 local district teams as well as 2 districts from other regions. The Summit featured Michael Fullan, who provided guidance on how "coherence" is a key principle for achieving equity in educational outcomes. Each district team produced a 100-day action plan to kickstart the 2021-2022 school year, along with support from the Alliance.

b. **Increase Coherence across Initiatives and Programs.**
i. The Northeast and Mountain to Harbor Alliances, with support from the ESD 112 and ESD 113 Regional Science Coordinators and Institute for Systems Biology, adapted and implemented a professional learning sequence for elementary principals. The workshop focuses on increasing time/quality of elementary science by helping principals understand the value of elementary science and equipping teachers with equitable practices that apply across in-person and virtual settings. This resource is available on the LASER website.
ii. The Northwest Alliance has formed a regional STEM leadership team that includes the Regional Science and Math Coordinators, Career Connected Learning Coordinator, and the Northwest and Snohomish STEM Networks. The goal of this coordinated effort is to better support educators in the region across the areas of science, math, technology, and career connected learning and in turn more equitably support students.
iii. The Olympic Alliance amplified the impacts of ClimeTime and Science Fellows by focusing on 3D formative assessment in the region. A 3-D formative assessment workshop that was offered to the statewide Science Fellows network in December of 2020 and was offered again to non-Fellows afterward (15 districts). The workshop was adapted to focus specifically on girls in STEM in the Spring, with connections to identity development and instructional strategies.
iv. The North Central Alliance launched a strategic planning process with two districts, Field STEM experts, and a regional non-profit serving LatinX students to develop a process/tool to help districts strategically develop inclusive Field STEM units and opportunities for elementary students. While the plan shifted throughout the year due to limitations imposed by the pandemic, one of the

districts hosted a comprehensive Field STEM experience for 5th graders that was culturally and linguistically inclusive for Spanish-speaking Latinx students. Both districts remain engaged and committed to expanding elementary science opportunities for students in coming years based on this pilot.

v. The Northeast, North Central and Mountain to Harbor Alliances used a portion of their LASER funding to bolster STEM learning in regional early learning centers (including ECEAP, Head Start, and transitional kindergarten). These Alliances purchase materials and coordinated professional development for the materials for early learning providers and families. In North Central, the early learning STEM kits will be incorporated into the regional materials center, supported by ongoing professional development. In Northeast, the early learning educators gained a deeper knowledge of NGSS and all the pilot sites requested additional support next year. In Mountain to Harbor, early learners and families reported high engagement with the materials, and educators build capacity in supporting early STEM learning.

c. **Increase Cultural Competency and Proficiency of Science/STEM Leaders.**

i. The success stories described for the previous two goals all centered on marginalized student populations and/or districts that are often under-resourced in serving marginalized students. This reflects a growing integration of Cultural Proficiency and DEI practices within LASER efforts.

ii. With additional corporate funding, LASER provided eight virtual workshops between December-March, focused on student voice, community engagement in STEM education, curriculum adoption, STEM strategic planning, and connecting K-12 STEM to postsecondary outcomes. Racial equity was a key theme across the workshops. Each workshop featured guest speakers and/or LASER leaders with expertise in the topic. 130+ educators from across the state participated in the workshops with overall positive feedback.

iii. The Alliance Directors continued to actively participate in the Cultural Proficiency framework study that began in 2019. The feedback on this professional learning opportunity continues to be positive.

9. **Major challenges faced by the program:**

The COVID-19 pandemic presented many challenges across the education system this past year, and LASER was no exception. The most common challenge across the Alliances was a lack of district engagement as districts pivoted resources and capacity to provide basic needs for students. Many districts also prioritized math and language arts instruction for academic content, making it difficult for Alliances to make headway on science/STEM supports. This only exacerbated the persistent issue of neglecting science instruction until 5th grade in elementary. However, these challenges also created new opportunities to increase access to science/STEM supports offered by LASER through virtual and asynchronous offerings, as well as adapting supports to meet districts' specific needs.

Another challenge-turned-opportunity this year was learning in March that the additional legislative funding secured for LASER in the 2020 session became available July 1, 2020. The

program was challenged to allocate the funding quickly, equitably, and efficiently; however, the Alliance Directors were well-positioned to leverage this late boost and it resulted in amplification of existing efforts as well as several pilot programs that will carry forward into 2021-2022.

In general, the main challenges faced by LASER are time, capacity, and funding to engage in sustained and impactful work. All of the Alliance Directors hold multiple roles, e.g. Regional Science Coordinators, STEM Directors, Science Materials Center Managers, and Science Specialists. As such, these leaders are responsible for myriad programs, initiatives, and administrative tasks, sometimes making it hard to articulate LASER's unique contribution to the increasingly complex landscape of science/STEM education in Washington. Another significant challenge has been understanding the impact of LASER activity, given the variation in structure, function, and reputation of the Alliances and different needs of districts and schools. Transition work to date has already helped address this challenge by identifying common goals and indicators for success moving forward.

10. **Future opportunities:**

In 2021-2022, LASER will fully realize the benefit of the additional funding awarded during the 2020 legislative session with ample time to plan and implement both Alliance and statewide strategies. The overall goal areas remain consistent, and the goals have evolved to be more specific (see below). Program leaders have developed capacity for executing the work within the ongoing limits of the pandemic.

Goals:

- LASER Alliance Directors continually develop as culturally proficient science/STEM leaders (as measured by self-assessments; knowledge of barriers, strengths, opportunities, and strategies to disrupt systemic inequities; and implementation of work plans designed to dismantle barriers).
- 40 Washington school districts improve equity-centered PK-12 science/STEM strategic planning and/or implementation within and/or across the six components of the LASER framework.
- Increase coherence across leaders, regions, and programs/initiatives in relation to the six components of the LASER framework.

LASER's backbone organization, Washington STEM, is developing a new strategic plan for 2022-2024 that will amplify the work of LASER while providing more organizational capacity.

11. **Statutory and/or budget language:**

ESSB 5092, Sec. 1518 (12)(a) $356,000 of the general fund—state appropriation for fiscal year 2020 and $500,000 of the general fund—state appropriation for fiscal year 2021 are provided solely for the Washington state leadership and assistance for science education reform (LASER) regional partnership activities, including instructional material purchases, teacher and principal professional development, and school and community engagement events. The Office may require the recipient

of these funds to report the impacts of the recipient's efforts in alignment with the measures of the Washington school improvement framework.

12. **Other relevant information:**
Alignment with Washington School Improvement Framework (WSIF):

To meet the new legislative guidance to report the impacts of LASER in alignment with WSIF measures, LASER has compiled baseline data on 2019-2020 regular attendance, 9th grade on-track, and dual credit measures for all of Washington's public school districts from available OSPI data. ELA/Math proficiency and growth, graduation and English language progress data provided by OSPI for WSIF is organized by school and not district. Given the use of deciles to compare growth, combining schools into districts may not be appropriate for supporting evaluation of LASER impact at the school district level in relation to WSIF indicators. LASER will continue to develop a plan to better understand the impacts of LASER in relation to the WSIF indicators, with additional indicators (e.g. student voice, assessment of strategic plans, time spent on elementary science) that guide LASER work more proximally. LASER welcomes additional guidance from OSPI on how proviso-funded programs should be aligning with WSIF indicators.

13. **Schools/districts receiving assistance:**
See OSPI's Grantee List

14. **Program Contact Information:**
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