



RIVERSIDE PUBLIC UTILITIES

Board Memorandum

BOARD OF PUBLIC UTILITIES

DATE: AUGUST 8, 2022

SUBJECT: 2022 STEM PUBLIC UTILITIES LEARNING LAB PROGRAM UPDATE

ISSUE:

Consider receiving an update on the 2022 STEM Public Utilities Learning Lab (STEM PULL) educational program.

RECOMMENDATION:

That the Board of Public Utilities receive an update on the 2022 STEM PULL educational program.

BACKGROUND:

In Summer 2017 Gordon Bourns, Chairman and CEO of Bourns, Inc., and Chairman of the Board for the STEP Foundation, approached the education team at Riverside Public Utilities (RPU) about the possibility of collaborating on a week-long summer learning lab focusing on Science, Technology, Engineering and Math (STEM) subjects. RPU worked to create content and curriculum that would give students knowledge of applied STEM concepts, the diversity of careers in the utility industry and guide student thinking towards solving challenges related to the industry. Care was taken to attract students from traditionally underserved demographics in STEM Fields.

In July 2018, the first STEM Public Utilities Learning Lab (PULL) was hosted with 30 students from Riverside Unified School District completing the full week program.

In July 2019, an all-new curriculum was created for the second-year program and many students from the inaugural year returned in 2019. Due to the in-depth nature of the RPU curriculum, the Riverside Unified School District awarded the STEM PULL program status to offer students five graduation credits for participating the whole week and Alvord Unified School District began the process for approving graduation credits in future years. In the second-year participation grew to nearly 40 students.

In July 2020 and July 2021, the STEM PULL programs were entirely virtual. During the 2020 curriculum planning season, RPU began collaborating with Elsinore Valley Municipal Water District. With this collaboration, the invitation to attend STEM-PULL was extended to students in the Lake Elsinore, Murietta Valley, Temecula Valley, Corona-Norco, Chino Valley, Moreno Valley, and Hemet Unified School Districts. The virtual format enabled students from as far away as New York and Arizona to join STEM PULL because they learned of the program through local family

members. STEM PULL 2019 and 2020 were both virtual and both had approximately 75 student participants each year.

DISCUSSION:

The 2022 STEM PULL was an in-person event held from July 11 to July 15 at California Baptist University, Freeman Substation, Riverside Energy Resource Center (RERC) and Lake Elsinore Valley Municipal Water District Back Basin Water Treatment Facility. Interest in STEM-PULL 2022 was as robust as ever, with 55 students participating from across the region.

Throughout the 2022 week of STEM-PULL, the key themes of Electrification, Sustainability and Resilience in the Utility Industry have been presented to participants through workshops, panel discussions, facilities tours, and engineering lessons. These opportunities were offered by a range of industry leaders and educators who selflessly gave of their time and expertise, without whom, this program would not be possible.

STEM-PULL week culminates with a design challenge in which students form teams to work on a design concept that incorporates the skills developed over the course of the week. While every entry was strong, there were top performers the program would like to recognize.

This year's first place winner was Team 'Lightning' who created a prototype to lessen water loss from pools via evaporation:

Eduardo Salazar - Lake Elsinore Unified School District
Ian Zhang - Riverside Unified School District
Jose Gerrard Flores - Riverside Unified School District
Sofia Blesa - Riverside Unified School District
Liam Woodrome - Temecula Valley Unified School District
Steven Pena - Riverside Unified School District

Second placed team, 'Rise of Wormy', developed an idea for a solar powered, smart sprinkler system with Bluetooth connection that would not only know when to water based on weather but also have soil sensors to know what type of watering was needed in each station and sense when water was being over-sprayed and watering hardscapes.

Alec Alarcon - Riverside Unified School District
Alana Dominguez Johnson - Riverside Unified School District
Ally Negulesco - Western Center Academy
Liam McAlary - Riverside Unified School District
Sienna Ferreira - Alvord Unified School District

This year's third place was won by 'Team Three' who created an application called WESS (Water Energy Saving System) that encourages behavior change in conservation.

Joanne Quan - Lake Elsinore Unified School District
Carmen Magallon - Woodcrest Christian High School
Benjamin Solis - Riverside Unified School District
Jasmine Yang - Riverside Unified School District
Alexandria Anderson - Chino Valley Unified School District
Avianna Hughes - Murrieta Valley Unified School District

Congratulations to each of the teams for creating innovative and thoughtful projects.

STRATEGIC PLAN ALIGNMENT:

The STEM-PULL program contributes to **Strategic Priority No. 5 - High Performing Government** and **Goal 5.3** - Enhance communication and collaboration with community members to improve transparency, build public trust, and encourage shared decision-making.

1. **Community Trust** – the STEM PULL program provides inclusive community engagement and offers activities and actions that serve the public interest, benefit the City's diverse populations, and result in greater public good.
2. **Equity** – STEM PULL is offered equally to all students across the service area and beyond, regardless of diversity characteristic.
3. **Fiscal Responsibility** – the program requires minimal funding by RPU and is managed prudently. The program is also largely funded in kind via sponsors.
4. **Innovation** – STEM PULL is based on teaching innovation and participants in the program learn about new and emerging technologies. The program encourages young people across the region and beyond to create new programs and technologies based on what they learn.
5. **Sustainability & Resiliency** – STEM PULL teaches students not only the value of learning about new technology and innovation; there is a central theme of energy efficiency, water conservation and sustainability at the heart of the program.

FISCAL IMPACT:

The total fiscal impact of the 2022 program has been \$2,485.91. Sufficient funds are available in the Electric Public Benefits-Education Campaign Schools - Account No. 6020109-456019.

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