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A5**Education Vision - Charter School****Establishing an Education Core in the Downtown Bayfront Redevelopment****The University of San Diego as a Founding Education Partner**

April 29, 2016

The redevelopment of San Diego's bayfront into an innovative destination that includes tourist, commercial, community, and educational experiences offers a unique opportunity to provide San Diego students, educators, community members, and visitors with lifelong learning options in the downtown area. To that end, the University of San Diego (USD) is poised to serve as a significant planning partner within the educational core of the redevelopment.

The University of San Diego is a nationally preeminent Catholic university known for educating students who are globally competent, ethical leaders committed to the common good and empowered to engage a diverse and changing world. With total undergraduate and graduate enrollments exceeding 8,000, USD is known in San Diego as an innovative, responsive, and changemaker university with nationally and internationally known faculty.

There are potentially two broad areas in which USD would serve as a significant partner in the founding of an educational core within the redevelopment. For both of these areas, USD would undergo a process to determine how well these elements fit within our university's emerging strategic plan, which looks to be completed by spring 2017.

First, with the creation of a charter school at the site, USD could explore developing a "laboratory school" partnership to benefit all education stakeholders. A lab school is a collaborative school-university model with a mission to prepare future educators, provide current educators with ongoing professional development, encourage joint school-university faculty research on learning and teaching issues, and enhance the learning of its own students. Co-located within the charter school, a learning lab space would provide a training and professional development demonstration site, a research center, as well as a working hub for faculty from the USD School of Leadership and Education Sciences (SOLES).

A second broad area in which USD could serve as a significant partner is linking a variety of academic programs to other educational experiences within the redevelopment. For example, USD SOLES houses a program in STEAM-focused education which takes STEM (Science, Technology, Engineering and Mathematics) to the next level by adding Arts (liberal, social, manual, physical and fine arts) to the framework for integrated instruction;

A5**Education Vision - Charter School**

the College of Arts and Sciences houses an Environmental Studies and a Marine Science program; the School of Business includes a Supply Chain Management program; and the School of Engineering specializes in providing real-world and service learning experiences to their program delivery. These nationally recognized programs could have much to offer to other education partners and organizations within the newly developed site.

Overall, the prospect of connecting USD with the bayfront redevelopment efforts has the potential to enhance USD's mission to advance and contribute to student and adult learning in the San Diego region. Should this project move forward, USD is prepared to initiate the series of legal, financial, and strategic discussions needed to consider the myriad issues and opportunities at hand before bringing the partnership to fruition.

A5

Education Vision - Charter School

A Bayside High Graduate Learner Profile

In 2025, a graduate of the Bayside High STEAM Academy enters college majoring in coastal geomorphology and oceanography...

How did this school foster the student's passion and capacity to become a marine geologist?

- Each day on the Bayside High campus the student saw the ways in which the sustainably-designed school site paid attention to and highlighted the precious resource of water. Field trips to the San Diego Bay afforded the student a personal connection to the resource and opportunities to make a difference in preserving the San Diego Bay watershed.
- Science, Technology, Engineering, Arts and Math [STEAM] was taught in the real world context. Knowledge acquisition was balanced with hands-on learning. Undergraduate school mentors from the **University of San Diego** provided project guidance and served as "next step" role models. The student's first project looked at the logistics of maritime business in the **Port of San Diego**.
- STEAM-focused learning was grounded in a foundation of the liberal arts and helped to foster the student's identity as an ethical, citizen scientist. A school partnership with the nearby **Aquarium** provided opportunities to work alongside marine scientists.
- The student had multiple opportunities to work on special projects that demonstrated the mastery of learning through the arts, music, and digital media. The school's partnership with the **San Diego Symphony** included unique access to world-class musicians through an Education Open Rehearsal program. The Symphony's outdoor location on the marina inspired the student to organize an afterschool club that explored the relationship between nature and music.
- A school partnership with the **Smithsonian Institution, Media and Business arm**, provided virtual learning opportunities for the students and fostered the student's meaningful understanding of the importance of the San Diego Bay in shaping the history of San Diego. The student collaborated on the design of an exhibit using 3-D hologram immersive technology to feature the role of the bay in the lives of Native Americans during the 16th century.
- The student saw frequent examples of adult and lifelong learning. Visitors toured the school to view the innovative learning community in action. Next generation physical spaces within the school showcased flexibility, collaboration, connectivity, and transparency in the learning to support students, teachers, parents and community.
- The student participated in a capstone team project to learn about wave energy technology around the world. The project involved a virtual and bi-cultural collaboration with students in Tasmania. A student-led exhibition of the Pelamis Wave Energy Converter project was on display at the Aquarium and open to members of the community.
- During the senior year, as part of the capstone process, the student spent one afternoon a week in an internship program with a **Marine Institute Laboratory** on the nearby water channel.
- During the college application process, the student highlighted not only her high school experience, but also the ways in which that learning pathway connected and contributed to the downtown community and the San Diego bay shoreline redevelopment. The application included a web link to the student's skillfully designed webpage chronically her journey as a citizen scientist at Learningonthebayside.com.

A5

Education Vision - Charter School

References for Further Information on STEM Ecosystems¹

WORKFORCE AND LABOR MARKET TRENDS

Revisiting the STEM Workforce (2014)

This report draws on the National Science Board's biennial [Science and Engineering Indicators report](#) to highlight the growing need for STEM knowledge and skills in a 21st Century economy. The report calls for building a strong, STEM-capable U.S. workforce and a shift from asking 'how many STEM workers do we need' to 'what knowledge and skills do all of our workers need to be successful now and in the future. Other NSB resources include the *2014 Science and Engineering Indicators report*, *Digest*, *state data tool*, and a STEM education [interactive online resource](#).

Real-Time Insight Into The Market For Entry-Level STEM Jobs (2014)

This report from Burning Glass Technologies found that in 2013, there were 5.7 million total postings in STEM fields. Of those, 76%, or 4.4 million, require at least a bachelor's degree, and 41%, or 2.3 million, are entry-level jobs requiring less than 2 years of experience. See <http://burning-glass.com/research/stem/> for more research on the entry-level STEM labor market.

DIVERSITY IN THE STEM LABOR FORCE

Change the Game for Girls in STEM (2016)

The 2016 report [Changing the Games for Girls in STEM](#), shows that girls of color are growing up in innovation hotbeds like Silicon Valley and Washington D.C., yet many never consider careers in science, technology, engineering or math ("STEM") due to lack of encouragement and opportunity. This white paper by STEM education leader Techbridge calls for a more sophisticated approach to solving the problem.

Women, Minorities, and Persons with Disabilities in Science and Engineering (2015)

The 2015 report [Women, Minorities, and Persons with Disabilities in Science and Engineering](#) shows that although the number of women earning degrees in engineering has increased in the past 20 years, women's participation remains well below that of men at all degree levels and in all fields of engineering. The proportion of women is lowest in engineering, computer sciences, and physics. African American and Latinos are now 29% of overall workforce, but only 10% of the engineering, 14% of the computing; and 16% of the advanced manufacturing workforce.

ECOSYSTEMS AND CROSS-SECTOR STEM LEARNING

Collective Impact and the New Generation of Cross-Sector Collaborations for Education: A Nationwide Scan (2016)

This report contains the results of a nationwide scan of collaborations in which school systems, state and local governments, businesses, community organizations and nonprofit institutions work together to improve educational outcomes for children and youth. The lens for this report is education broadly – not just STEM, however the report has many intersections and interesting perspectives with the ecosystems approach. Read the report [here](#).

Assessing the Impacts of STEM Learning Ecosystems: Logic Model Template and Recommendations for Next Steps (2015)

This paper offers evidence of the impact of cross-sector partnerships on young people, and a logic model template for communities so they may further develop the attributes, strategies, and measures of progress that enable them to advance opportunities for all young people to succeed. Further research will help us expand the promise and potential of these collaborations. Read the [full report](#) and the [executive summary](#) and download the [STEM Learning Ecosystems Logic Model](#).

Research + Practice Collaboratory: Learning Across Settings (2015)

The [Research + Practice Collaboratory](#) is a five-year project that seeks to address the long-standing gap between research and practice in STEM education by improving access to research, fostering dialogue and exchange, and prototyping new research-based initiatives to improve STEM learning. Access the

A5

Education Vision - Charter School

Research + Practice Collaboratory digest of research addressing for [Learning Across Settings](#).

How Cross Sector Collaborations are Advancing STEM Learning (2014)

This February 2014 working paper examine 15 leading efforts to create STEM Learning Ecosystems. STEM Learning Ecosystems harness unique contributions of educators, policymakers, families, and others in symbiosis toward a comprehensive vision of STEM learning for all children. Read the [full report](#) and the [executive summary](#).

STEM Learning is Everywhere (2014)

Proceedings of a February 2014 National Research Council convening that brought together stakeholders from the formal education system, afterschool programs, and informal STEM to discuss how to foster more seamless learning of STEM subjects for students in the elementary and middle grades. The report also discusses opportunities for STEM that may result from the new expectations of the Next Generation Science Standards and the Common Core Standards for Mathematics and Language Arts. Read the [full report](#).

STEM Integration in K-12 Education: Status, Prospects, and an Agenda for Research (2014)

STEM Integration in K-12 Education examines current efforts to connect the STEM disciplines in K-12 education, reviews the evidence for the impact of integrated approaches on various student outcomes, and proposes a set of priority research questions to advance the understanding of integrated STEM education. Read the [full report](#).

References for Further Information on Deeper Learning and Design-Based Learning Strategies

Towards a New End: New Pedagogies for Deep Learning (2013)

[Towards a New End: New Pedagogies for Deep Learning](#) highlights how deeper learning pedagogies encourage youth to develop their own visions about what it means to connect and flourish in their constantly emerging world, and equip them with the skills to pursue those visions.

Design Based Learning (DBL) to Innovate STEM Education (2015)

[Design Based Learning \(DBL\) to Innovate STEM Education](#) shows the ways in which integrating design and technology tools into science education provides students with dynamic learning opportunities to actively investigate and construct innovative design solutions.

¹ From [www.STEM](#)