Final Report for the Schob Scholars LAUP Mini-Grant Program  
AUGUST 31ST, 2015

PRINCIPAL INVESTIGATOR:  
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PROJECT TITLE:  
Sustainable Design and Implementation Plan for Creating a Hydrologically Sensitive  
Demonstration Garden in the Schob Nature Preserve

INTRODUCTION  
Providing students with high-quality learning activities emphasizing hands-on learning  
opportunities are vital for higher education in the landscape architecture discipline. Since  
students in landscape architecture need to learn the decision-making process required to solve  
complicated and multi-dimensional problems, the highest quality learning experiences come  
when knowledge is combined with direct experience. In the spring of 2015, twenty-two fourth  
year Bachelor of Landscape Architecture (BLA) students in the Department of Landscape  
Architecture and Urban Planning (LAUP) at Texas A&M University (TMAU) were tasked with  
designing and implementing a Low Impact Development (LID) Demonstration Rain Garden at  
Schob Nature Preserve in College Station, Texas.

PROJECT AIMS  
The main aims of this project were to provide a rigorous and high-impact learning opportunity,  
and creative scholarly programs to motivated undergraduate students in LAUP by developing  
and implementing a demonstration garden using LID applications in the Schob Nature Preserve.  
To achieve this pedagogical goal, this project offered students several objectives which were  
sought to bring high-quality learning experience to BLA students in LAND 321.

1. Foster a learning community to improve skills in critical thinking, problem-solving,  
communication and collaboration through participation in the project proposed.
2. Provide students a learning opportunity to develop creative and evidence-based design  
solutions to design a LID demonstration garden.
3. Introduce students to the interdisciplinary nature of design and construction by  
implementing their conceptual design ideas into the project site.
4. Increase awareness of the interconnection amongst design and construction of LID  
applications.
5. Offer a potential opportunity of integrating design solutions and performance  
measurement in the long-term monitoring of the proposed demonstration garden.

PROJECT SCOPE  
This project progressed in three phases which will benefit the experiential learning elements by  
allowing for maximum student hands-on time: Research & Site Analysis, Context & Design
Development, and Design Detail & Implementation. Several tasks in three phases were performed during the 2015 spring semester as following:

Phase I: Research & Site Analysis
- Task 1 – Site Visit & Inventory (visiting the Schob Nature Preserve and gathering data from site inventory)
- Task 2 – Site Analysis (conducting site analysis based on site observation and inventory)
- Task 3 – Research & Case Study (conducting case study and research focusing on small-scale LID applications)

Phase II: Context & Design Development
- Task 4 – Developing Conceptual Design Proposals (developing initial design proposals with each design team)
- Task 5 – Participatory Mid-point Presentation (sharing students’ initial concepts with faculty and guest reviewers including the Senior Schob Scholars)

Phase III: Design Detail & Implementation
- Task 6 – Developing Final Design Package (producing the final design packages including site inventory & analysis, concept plan, master plan, perspectives/sections, construction details, wayfinding system, etc.)
- Task 7 – Final Presentation (delivering final design solutions to faculty and guest reviewers including the Senior Schob Scholars)
- Task 8 – Design Implementation (purchasing materials and constructing selected design ideas to the project site)

Student Involvement
The project consisted of two design and implementation teams to design and install two sections of a rain garden, a wayfinding team to design and manufacture an informative sign, and a media team to document the process (Figure 1). Students sought to educate the community of College Station about the profession of Landscape Architecture, promote the benefits of being environmentally responsible, build community between students and neighborhoods, encourage environmental stewardship, and provide functioning ecological benefits and an aesthetic experience.

1. **Design & Implementation Teams** (2 teams with 6 team members)
   a. Develop a design proposal with detailed construction drawings
   b. Purchasing materials/equipment
   c. Implement the final design solution into the project site

2. **Wayfinding Team** (1 team with 4 team members)
   a. Develop a wayfinding board for two sections with a consistent layout
   b. Develop an educational informative sign
   c. Build a wayfinding board(s) at each section of the project site

3. **Media Team** (1 team with 6 team members)
   a. Produce video clips and photos documenting students’ activities to implement their design solutions to the project site
   b. Produce videos interviewing students
   c. Develop the final booklet containing all design components with photo document showing the entire process of the project
Figure 1. Project Teams

**Student Learning Outcomes**

This project provided students unique learning experiences to nurture their creative thinking and problem-solving skills beyond the traditional classroom experience. By participating in this project, the BLA students in LAND 321 were given the opportunity for hands-on learning experience to implement their design solutions into the real world setting of the Schob Nature Preserve. With this experience, they learned how to design, construct, install, and maintain facilities which they proposed through rigorous design process in the design studios and construction courses. Further, students learned more compelling lessons that can improve student outcomes, allowed for better understanding about design process by hands-on learning experience, and had more constructive design critiques by interactions with faculty and students outside of their design studio which improved the ability to demonstrate problem-solving and critical thinking skills. This project aligned to the Texas A&M University’s mission by meeting a number of the Aggie Commit Themes:

1. While participating in this project, students will have an opportunity to enhance *intellectual and practical skills* by learning how to identify problems, how to come up with some solutions for those problems, and how to execute the plan.
2. All students in this project will have *a high-impact learning opportunity* by being engaged in a real design and construction project.
3. All students participating in this project will learn how to improve their *communication skills and teamwork*, since this project will offer students a unique opportunity to get exposed to challenges dealing with real world problems and encourage them to develop alternative design proposals to enhance communication and teamwork with their peers.
4. Developing a small-scale LID demonstration garden itself is *process of solving problems with critical thinking*.
**Final Deliverables**

These learning outcomes were assessed through the final design/construction projects presented by the student teams through oral and video presentations in addition to a proposal documenting the design and construction plan including cost, method, schedule and risk management. The final deliverables of this project includes:

1. Final Report of the project (PDF)
2. A PDF files of the final report from each team
3. Video clips and photos documenting students’ activities to implement their design solutions to the project site ([https://www.youtube.com/watch?v=3NW6YGL9NO0&feature=youtu.be](https://www.youtube.com/watch?v=3NW6YGL9NO0&feature=youtu.be))
4. A small-scale LID demonstration garden built in the project site (see figures below)
The Schob Nature Preserve Rain Garden Project

BEFORE

March, 2015

AFTER

May, 2015
The Schob Nature Preserve Rain Garden Project

BEFORE

March, 2015

AFTER

May, 2015

Department of Landscape Architecture & Urban Planning

Texas A&M University