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Patrick Marnell
Technical Committee Chair
Western District ITE

December 14, 2021

Dear Mr. Marnell,

The Oregon State University (OSU) Institute of Transportation Engineers (ITE) Student Chapter is pleased to submit this proposal for the 2022 STEM outreach for middle and high school students. With over 70 members, OSU ITE is a vibrant student chapter, with graduate students accounting for roughly half of our active membership. OSU ITE has completed several projects for the City of Corvallis and the Oregon Department of Transportation, including a Western District ITE Trip Generation Project, a Parking Data Collection Project for Group McKenzie, and numerous Traffic Counts (heavy vehicle, passenger vehicle, pedestrian, and bicycle), and K-12 Outreach (OSU National Summer Transportation Institute has project for high school student to learn deeper about transportation and also have training section in 2021).

Our team is proposing to host a STEM outreach event for middle and high school students. We will provide the students with an opening hands on activity to introduce transportation as a domain, a tour of the OSU Driving and Bicycling Simulator Laboratory, and then we will host a special Traffic Bowl contest after a lunch break. This outreach event will combine both trainings and actual operations of some transportation equipment (e.g., drones, radar sensors) to give students an insight into Transportation field. Our goal is help students better understand the field of Transportation and increase awareness to some traffic information in real life to stimulate their interest in Transportation.

Our professional mentor, Alison Tanaka, Senior Engineering Associate of Portland Bureau of Transportation and an ITE member, is willing to provide expertise and guidance to ensure the project is a success. Our faculty advisor, Dr. David Hurwitz, OSU ITE Faculty Advisor and an ITE member, is available for technical and equipment support and the schedule for laboratory. He will also help us design our activities to maximize their education value. Yujun Liu, OSU ITE's Community Service Officer, will serve as primary point of contact with the Western District ITE.

OSU ITE has the capacity, equipment, and experience to successfully complete this STEM outreach project, while providing our members a great opportunity to introduce and promote our field to the younger generation, especially how transportation relates to people's lives. Grant funding will be primarily used to host the event and the rest will be used to offset travel cost for members to travel to ITE meetings and conferences, including the Annual Western District Meeting. We appreciate your consideration and look forward to working with you.

Thank you so much!

Best regards,

A handwritten signature in black ink that reads "Yujun Liu".

Yujun Liu
2021-2022 OSU ITE Community Service Officer

OSU ITE Student Chapter

STEM Outreach Proposal Scope

OSU ITE Student Chapter proposes to host the STEM outreach for middle and high school students to help deepen their understanding of the Transportation field. Our plan contains three parts: training and operation of transportation equipment, touring the Driving and Bicycling Laboratory, and a special Traffic Bowl contest. If in-person activity is restricted by pandemic policies, the project will be conducted virtually. The target number of participants is aimed to be 30 (in-person/virtual). Our officers will connect with local middle schools and high schools at least two months before the event, and the event scopes will be provided to encourage more students to join. We are hoping to also connect other schools in Oregon if possible.

Trainings & Operations

Our team will give a presentation introducing how transportation research improves real-life issues and demonstrations of some equipment that we use for collecting transportation data, such as drones, simulators, JAMAR boards, and more. We will provide a short training for students to teach them the basic operation methods and provide hands-on opportunities. The training section is expected to take 2 hours and the location will be in OSU Kearney Hall.

Touring

We will take the students to the OSU Driving and Bicycling Laboratory, where we will demonstrate how simulators support data collection in Transportation research. Additionally, it is highly possible to provide opportunity for students to try using the simulators and bike/drive in a virtual environment. Students will be able to understand how researchers interpret data from the simulator study and how the findings benefit people in real life. This excursion is expected to take 2 hours.

Traffic Bowl Contest

The goal of this contest is to encourage students to pay more attention to Transportation in their daily lives and to develop an interest in the Transportation field. We will provide a review and recap session for students, mostly go over some possible questions from the prior activities, as well as some basic facts like how to flip a bicycle. The Traffic Bowl Contest is expected to be in group format. Our team will prepare three prizes for the winners: the first-place winner(s) will receive a full set of PPE (personal protective equipment, probably with OSU ITE logo), the second-place winner(s) will receive an OSU ITE polo, and the third-place winner(s) will receive OSU ITE mug.

Schedule

An anticipated timeline for this project is proposed in **Table 1**.

Task	Mid Jan.	Feb.	Apr. 1	Apr. 23	Apr.24 -May 1	May 2	May 3-7	May 8-10	May 11	Jun. 3	Jun. 3-9	Jun. 10
Advertised to ITE students												
Connect with schools												
Students sign up			◇									
STEM Outreach												
Summary report												
Submit Draft to Mentors						◇						
Draft Report Mentor QA/QC												
Address QA/QC Comments												
Submit Draft Report									◇			
Receive Review Comments										◇		
Address Review Comments												
Submit Final Report												◇

Table 1 Project Schedule

OSU ITE Student Chapter

Level of Effort

The STEM outreach project and summary report will require an anticipated 80 student-hours. **Table 2** presents the tasks and corresponding time requirements. OSU ITE Student members will be asked to sign up for one or more sections during the targeted day. Each section will need multiple students working at the same time. Student recruitment will use the incentive of funding for attending ITE meetings or events.

Task	Students Needed	Total Student Hours
Outreach Training Section (5 hours * 5 students)	5	25
Outreach Visiting Section (5 hours * 4 students)	4	20
Outreach Competition Section (5 hours * 5 students)	5	25
Summary and Revise Report (5 hours * 2 students)	2	10
Total Effort		80

Table 2 Task Breakdown and Estimated Time Requirements

Project Management

The name and contact information of the student coordinator, professional mentor, and faculty advisor for this project effort are shown in **Table 3**. Professional and faculty mentors will provide QA/QC of the draft report as incorporated in the proposed schedule. Grant money will primarily be used to host the event and the rest (if any) will be used to support ITE student travel to ITE-related events, such as the 2022 ITE Western District Annual Meeting.

Student Coordinator	Faculty Advisor	Professional Mentor
Yujun Liu	David Hurwitz, Ph.D.	Alison Tanaka, PE
Oregon State University 101 Kearney Hall Corvallis, OR 97330 (541)368-8559	Oregon State University 101 Kearney Hall Corvallis, OR 97330 (541)737-9242	Portland Bureau of Transportation 1120 SW Fifth Ave, Suite 1331 Portland, OR 97204 (503)865-6241
liuyuj@oregonstate.edu	David.Hurwitz@oregonstate.edu	alison.tanaka@portlandoregon.gov

Table 3 Personal Information

Mentoring

Professional Mentor: Alison Tanaka, Senior Engineering Associate of Portland Bureau of Transportation and an ITE member, will provide expertise and guidance to ensure the project is a success. Also, Alison will help QA/QC of the final report.

Faculty Support: Dr. David Hurwitz, OSU ITE Faculty Advisor and an ITE member, will provide QA/QC, support for student recruitment, and Driving and Bicycling Laboratory tour.

Student Project Manager: 2022-2023 OSU ITE Community Service Chair, TBD. Student coordinator, Yujun Liu will help with the process of the work transition.

Agreement to Hold Harmless

The Oregon State University ITE Student Chapter holds harmless and indemnifies the ITE Western District from any and all liability associated with the conduct and completion of this proposal, STEM outreach, and associated activity.