Institute of Transportation Engineers Student Chapter
School of Civil and Construction Engineering
Oregon State University, 101 Kearney Hall, Corvallis, OR 97331-3212
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ITE STEM Outreach Project

Transportation Day Camp for High School Students

Prepared for:

ITE Western District

Prepared by:

Oregon State ITE Student Chapter

Kearney Hall, 1491 SW Campus Way | Corvallis, OR 97331

May 12, 2025

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May 12, 2025

Jeanne Acutanza
Technical Committee Chair
Western District ITE

SUBJECT: Letter of Submittal for ITE@OSU STEM Outreach Day Camp

Dear Jeanne,

On behalf of the ITE@OSU Student Chapter, we are pleased to present our STEM Outreach Day Camp ran as part of the ITE Western District Data Collection Fund. We facilitated interactive activities and information for high school students to expose them to transportation engineering and how they could find themselves and consider joining the field.

Attached is a summary of our camp activities and results.

If you have any questions or concerns, please feel free to contact us at osuitestudents@gmail.com.

Thank you,
Maximilian Krause & Timothy Rush & Svea Berglund
Co-Community Service Chairs | ITE@OSU

1. Purpose

The purpose of the STEM Outreach project was to give attendees an introduction to the field of transportation and to educate them on how the transportation industry affects their daily lives. Students were presented with opportunities to learn and to envision potential future careers in the transportation industry.

2. Project Team

The students responsible for project management were Maximilian Krause, Svea Berglund, and Timothy Rush, Co-Community Service Chairs (2024-25) for the Oregon State University ITE Student Chapter. They handled planning, outreach, and logistics. The project was handed over to them by the previous Community Service Chairs, Maximilian Krause and Keith Kobayashi, (2024-25) in March 2025. This project was also possible thanks to the support and guidance from our professional mentor (Derek Moore) and our faculty advisor (Dr. David Hurwitz).

2.1 Student Team

The outreach team consisted of 12 student volunteers who contributed to planning and facilitating activities.

Table 1. Students involved in the STEM Outreach Event.

Planning	Undergrad Volunteers	Graduate Students	OSU Ambassadors
Max Krause Svea Burglund Tim Rush	Alexa Baruela Emilo Calderon Lillian Moo Hannah O'Bannon Eamon Haverty	Wyatt Brown Syed Baqir UI Husnain	Jenny Miwa Yarisa

2.2 Mentors

Derek Moore
Derek Moore is a Traffic Signal and Illumination Design Engineer with the Oregon Department of Transportation (ODOT). He served as the team's professional mentor and provided us with technical guidance for the report and overall project success.

David Hurwitz
David Hurwitz is the ITE@OSU Faculty Advisor, Chair of the ITE Education Council, and an executive Committee Member of ITE. He provides us with guidance for our student chapter.

3. Project Timeline

Table 2. Project Schedule.

Event	Original Schedule	Revised Schedule
Submit Draft to Mentor	May 4	May 12
Mentor Review of Report	May 5-9	May 12-18
Address Mentor Comments	May 10-11	May 19-20
Submit Draft Report to review	May 12	May 23
Receive Review Comments	June 4	June 9
Address Review Comments	June 5-10	June 10
Submit Final Report	June 11	June 11

4. Event Summary

On April 26th, 2025, ITE@OSU hosted a STEM Outreach event for Oregon high school students to deepen their understanding of the transportation field.

4.1 Outreach

An event flyer was produced and distributed to local high schools through college and career counselors. A sign up website was then created in collaboration with OSU's College of Engineering Recruitment office. The flyer and sign up information was distributed to 56 schools within a 2 hour travel radius through phone calls and emails with the college and career counselors. The event flyer and schedule provided to students can be found in the appendix. A 25 student cap was placed on registration to ensure enough space during the research lab tours. The College of Engineering also provided three Ambassadors to help facilitate the event and follow university youth protection guidelines.

4.2 Day Camp Itinerary

Introductory Presentation (1.5 hours)

Four ITE@OSU members gave a presentation informing the students on transportation engineering and urban planning. They shared their academic and professional career paths and what drew them to transportation engineering. Students also showcased some of the work they've done at internships and other relevant activities. Time was allotted after each presenter for audience questions and participation.

Figure 1. ITE@OSU Member Hanna O'Brian presenting about her career path into transportation.

Transpor-Tour-Tion (1.5 hours)

The students took an interactive walking tour of OSU run by Emilio Calderon (ITE@OSU President) showcasing transportation infrastructure on campus. Through this tour students were exposed to many transportation principles through real life examples that they could later use in the design challenge.

Lunch (0.75 hours)

Students were provided with lunch and given time to socialize and discuss transportation interests.

Technical Trainings (1 hour)

Two OSU graduate students showcase some of the equipment that they use for their work. PhD candidate Syed Baqir showcased research on corridor traffic signal coordination. Master's Student Wyatt Brown showcased usage of a drone and explained its application to his research in transportation engineering.

Figure 2. Graduate student Wyatt Brown shows students how he uses drones for his research.

Figure 3. Graduate student Syed Baqir Ul Husnain presenting on corridor coordination.

<u>Design Challenge (1.5 hours)</u>

Students were provided with a street improvement challenge where they were tasked with reducing speeding and traffic at two connected intersections. A hypothetical layout was produced on CAD and

printed out for students to work on. The students were divided into groups of 3-4 and provided design dimensions and the project objective. The students were then released to brainstorm and start their drawings. ITE officers regularly checked in with students to help clarify any questions. As the students progressed with their designs, officers simulated a few emergency notifications from the school, public, local business owners with extra requests or constraints to the project. For example, OSU requested that a new Beaver bus stop be added along the route with places for the bus to stop without disrupting the flow of traffic. These new inputs helped to simulate the real-world design process for public transportation projects. The students then presented their road layouts to the whole group and walked through their decisions and creative ideas.

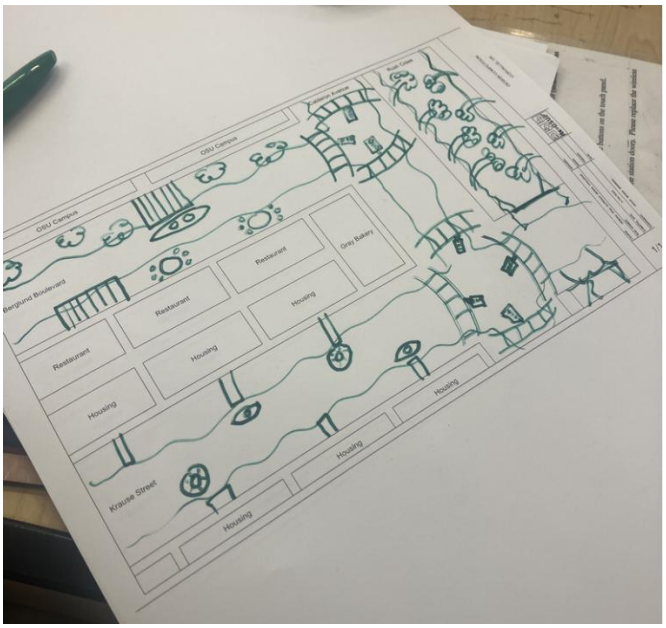

Figure 4. Student team design solution.

Figure 5. Student team presenting their design.

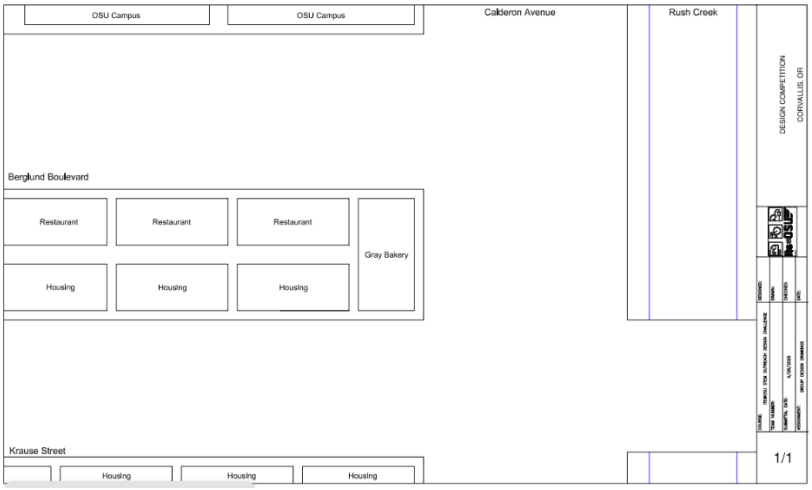

Figure 6. Street layout for student design competition.

5. Results

The event had 14 high school students and three parents attend (shown below).

Figure 7. Student attendees and organizers posed for a group photo.

5.1 Student Engagement and Feedback:

To understand engagement and interest in the event, attendees were surveyed before and after the event. The feedback received in the entrance/exit surveys are summarized below.

- Entrance Survey
    - Many attendees were drawn by a general interest in engineering, with some specifically intrigued by transportation systems such as highways, rail, and public transit.

  - Several students mentioned they were excited to explore the OSU campus, tour labs, and participate in hands-on activities like design challenges. Others were motivated by a desire to learn about potential future careers or had been encouraged by family or school to attend the camp.
  - When asked what transportation engineering is, most students had thoughtful and accurate ideas. They described it as a field focused on designing and improving systems that move people and goods efficiently through roads, rails, air, and public transit. Their responses showed a foundational awareness of the discipline and curiosity about what more they could learn.
- Exit Survey
  - When asked “Do you have a better understanding of transportation engineering”, 90% of students responded yes.
  - 100% of students responded that they would recommend the Transportation Day Camp to others or come again for future renditions of the event.
  - A majority said they were now more confident in their interest in engineering overall and that they were happy with what they got out of the camp.
  - The hands-on activities (Design Challenge & Transpor-Tour-Tion) stood out as favorites among the students.

6. Conclusion

14 high school students came to OSU to learn more about transportation engineering. Students learned about potential careers in transportation and research in transportation engineering. Hands on learning opportunities were given to students through a high-level design challenge and a walking tour of OSU’s campus and transportation infrastructure. Feedback from the attendees indicated that their understanding and interest in the transportation industry was positively impacted, with many students saying they are interested in pursuing a career in the field.

7. Acknowledgements

The OSU ITE Student Chapter would like to thank both of our mentors, Derek Moore, and Dr. David Hurwitz. We would also like to thank Cristian Reyes and the Oregon State College of Engineering Ambassadors for collaborating on the event and supporting the planning process.