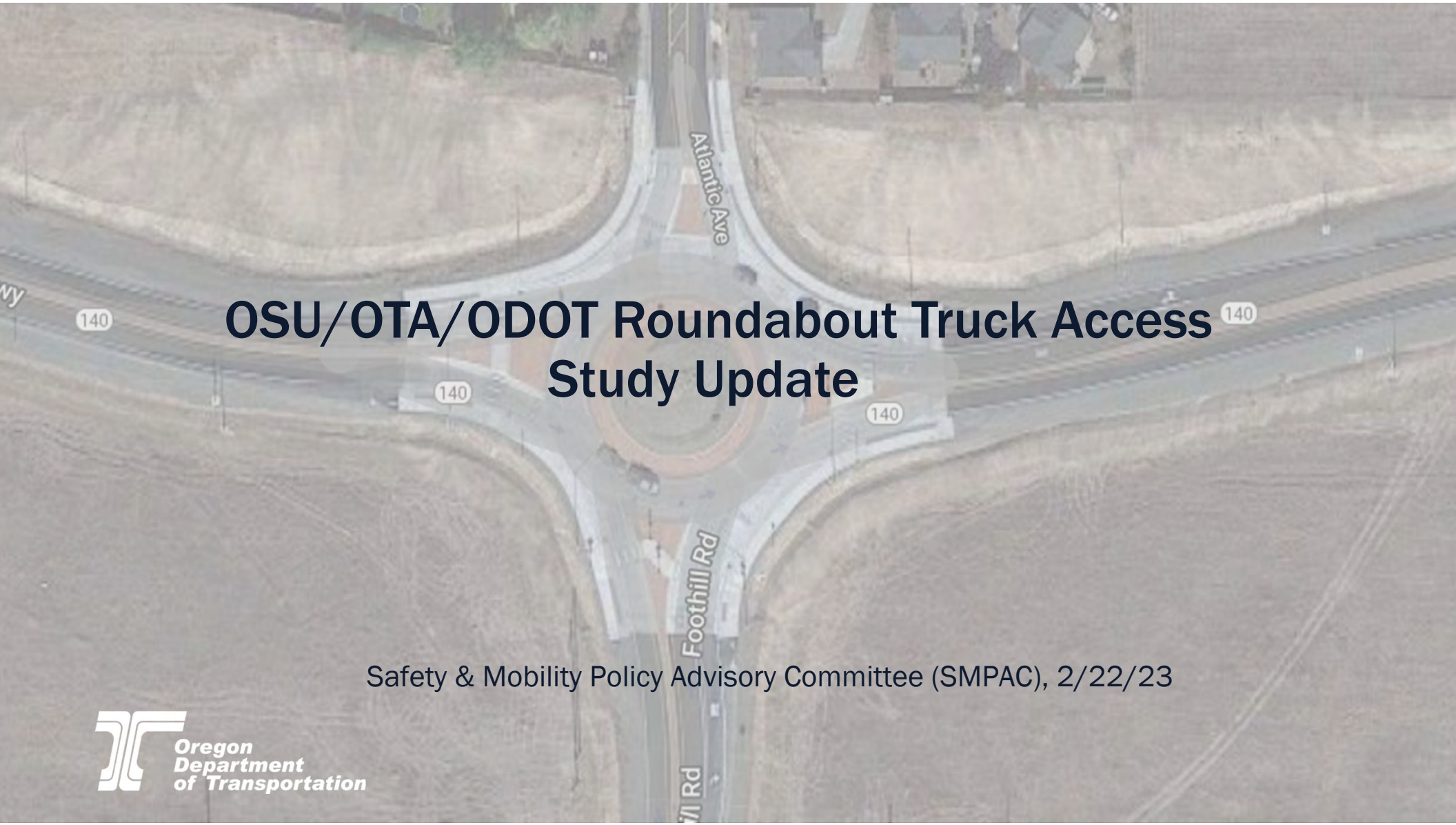

OSU/OTA/ODOT Roundabout Truck Access Study Update

Safety & Mobility Policy Advisory Committee (SMPAC), 2/22/23

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Background and Research Objectives

Review the tools, guidelines, and workflows currently used by ODOT to better understand the needs of heavy vehicles when accessing roundabouts. This work will make recommendations for improvements to those tools, guidelines, and workflows if warranted.

- Phase I- Evaluation of Existing Roundabout Modeling Practices in Oregon
- Phase II- Evaluation of Alternative Designs and Traffic Control Strategies for Roundabouts in Oregon

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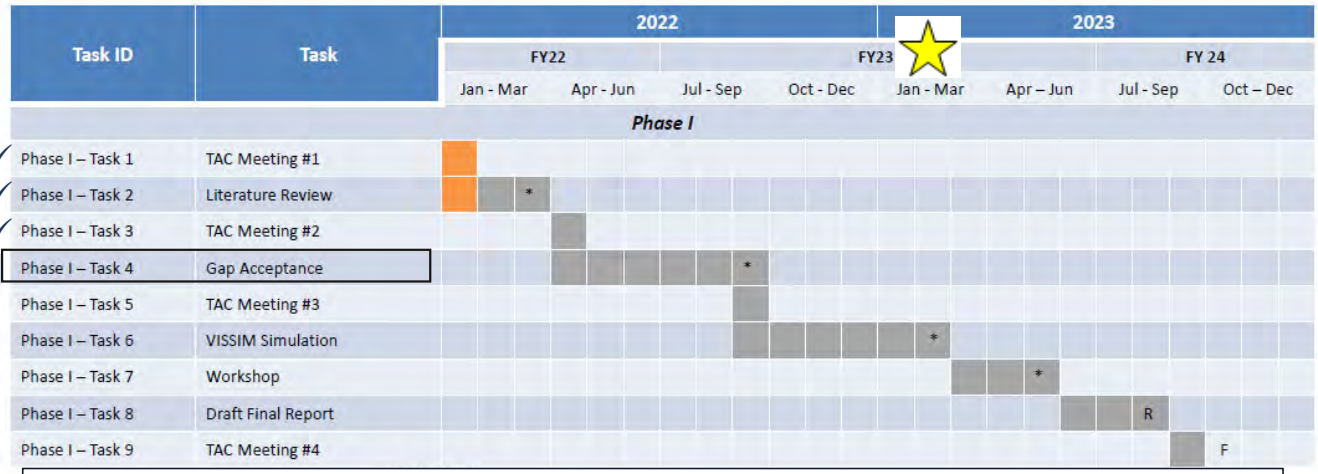
Phase I - Current Status (10/26/22)

Phase I Schedule

Evaluation of Existing Roundabout Modeling Practices



Task 4 (Gap Acceptance) - Analysis of the gap acceptance data has been prepared and presented to the TAC

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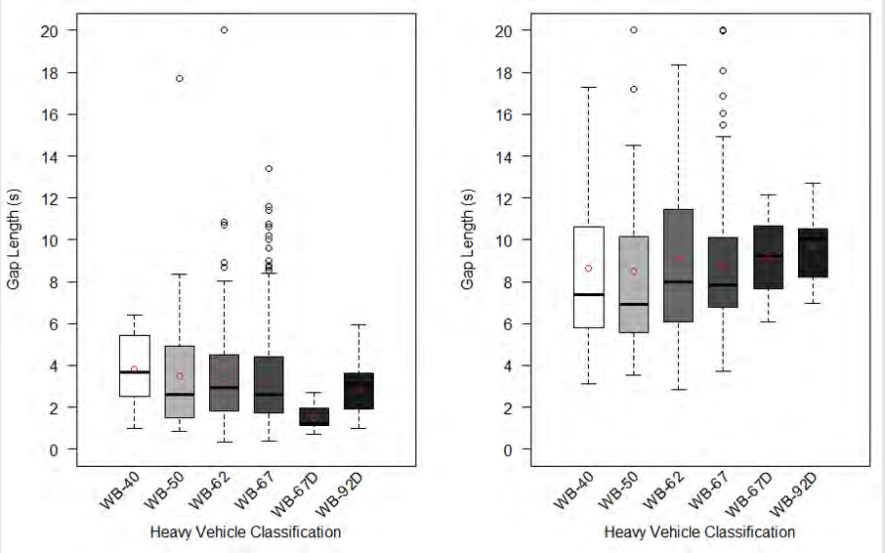
GAP Acceptance

- **Key Observations:**

  - ✓ Total of 164 hours of video data transcribed
  - ✓ 2,626 heavy vehicles were observed interacting with our 6 field sites
  - ✓ WB-40, WB-50, WB-62, WB-67D, and WB-92-D were observed in the field. The WB-67 was the most commonly observed heavy vehicle type
  - ✓ The critical gap lengths determined in this study range from 5.4 seconds to 6.4 seconds, this is much larger than the critical gap length for passenger cars which was established to be between two to three seconds in length.



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GAP Acceptance (continued)

Figure 9: Gap Rejection (left) and Gap Acceptance (right) by Classification

Table 6: Critical Gap Values

Heavy Vehicle Classification	Total Gaps Rejected	Total Gaps Accepted	Critical Gap by Raff's Method
WB-40	48	17	5.4s
WB-50	65	29	5.4s
WB-62	207	90	5.8s
WB-67	254	130	6.2s
WB-67D	8	3	N/A
WB-92	16	10	6.4s
Total	598	279	--

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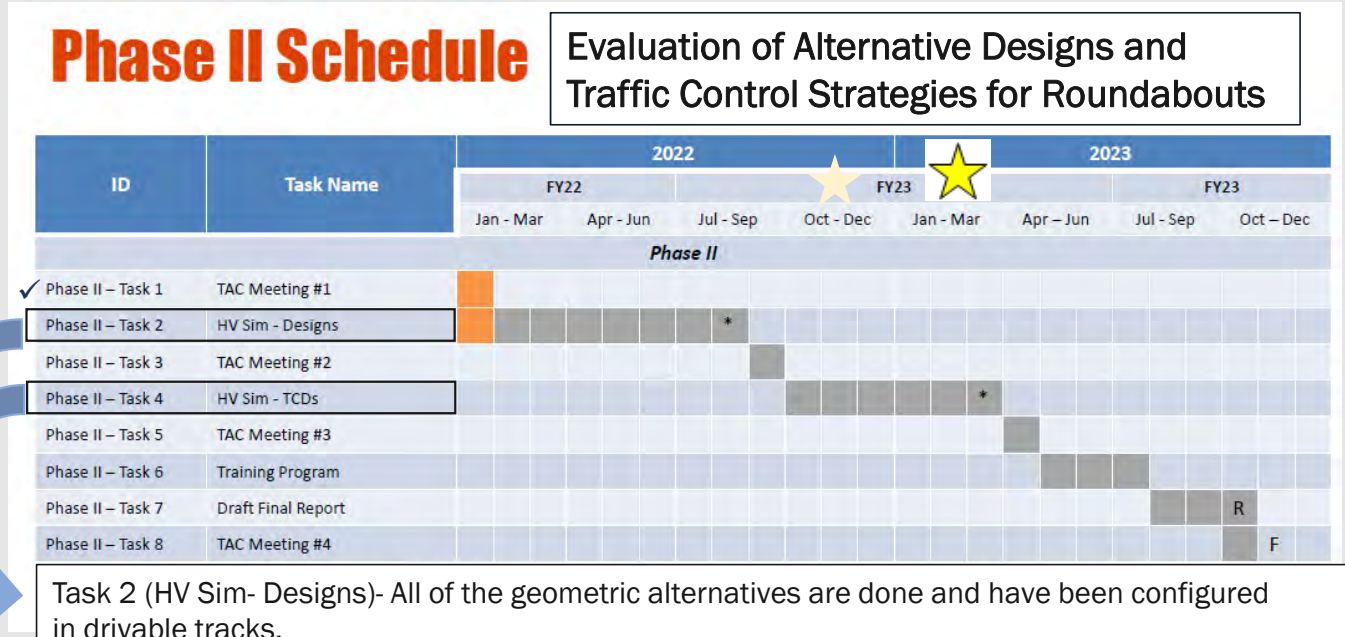
Phase II- Current Status (10/26/22)



Task 2 (HV Sim- Designs)- All of the geometric alternatives are done and have been configured in drivable tracks.

Task 4 (HV Simulation) work is progressing-last step is to finish the models for our ramp metering.

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Next Steps

- CDL Driver Recruitment:
  - To date, and with significant support from TAC members, we have had a total of 39 CDL operators visit the lab to participate in one of two previous experiments. That list will be the starting point for recruiting subjects for this experiment.
  - We've increased the compensation for CDL drivers to $80 / visit to help increase interest and participation. It's made a big difference.
- Hardware improvements (Simulator):
  - The newly installed 3DOF motion base, 4K cameras and new data collection system are working well.
  - Visual data base for tractor and trailers has been updated. These are now rendered in the mirrors of the truck simulator. This is a big update an resolves feedback received from TAC members during a preliminary visit to the lab.
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