



# Traffic Management, Challenges, and Lessons Learned from 2017

## Total Solar Eclipse: A Case Study of Oregon

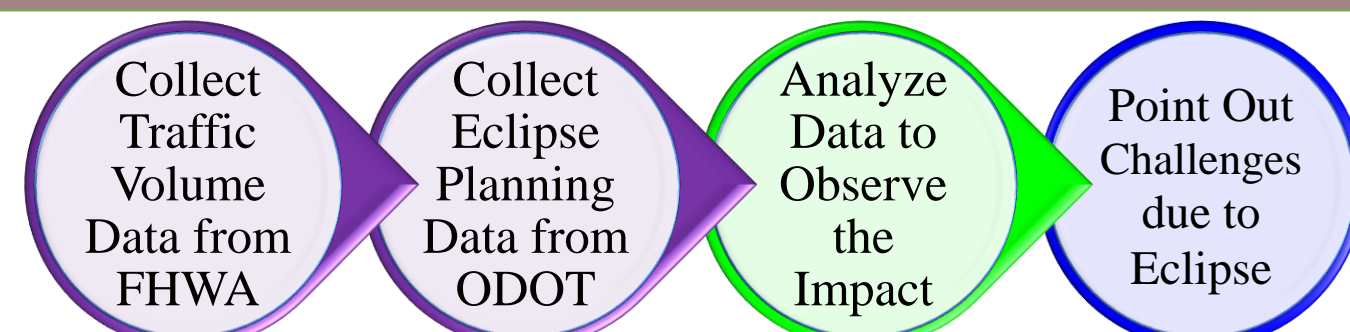
Dr. Saidi Siuhi, Dr. Judith Mwakalonge, Md Mahmud Hasan Mamun, Samia Akter  
South Carolina State University, Orangeburg, SC



### Introduction

The total solar eclipse is not an everyday event, but once in a while. People travel miles to view this fantastic celestial event. In 2017, the United States of America experienced the total solar eclipse that passed across the nation from the west coast to the east coast covering 14 states, which was the first total solar eclipse observed in the continental United States since 1979. The event drew people from out of state and country into the 14 states to experience this cosmic effect. The main goal for transportation agencies is to ensure that both state residents and eclipse visitors travel safely and efficiently. Such an accomplishment calls for proper planning before, during, and after the eclipse. Given the natural occurrence of this event and rarity to occur in the same location, most agencies have no prior experience in similar activities. For example, the next total solar eclipse that the State of Idaho will experience is 152 years from 2017. This article looks at answering several questions, including; how much traffic was expected from this event? What safety and operational measures were put in place to ensure safe and efficient travel, or how early did the agencies began preparing for the event. The next North American total solar eclipse is on April 8, 2024, with the path of totality across 13 states. From the review of collected articles, tweets, and posts about the solar eclipse, states expected eclipse traffic ranged from as low as 200,000 visitors to over 2 million visitors. Roadways started to traffic increase three days before the eclipse, and traffic returned to regular few days after the eclipse. Most agencies suspended construction works in days around the eclipse except for emergency maintenance work. The eclipse in 2017 touched down on the Oregon coast between Lincoln City and Newport on August 21, 2017, at 10:15 a.m. PDT and disappeared by 10:27 a.m. PDT. While the rest of the United States observed a longer duration, sections of the eclipse path in Oregon offered the best weather prospects anywhere around.

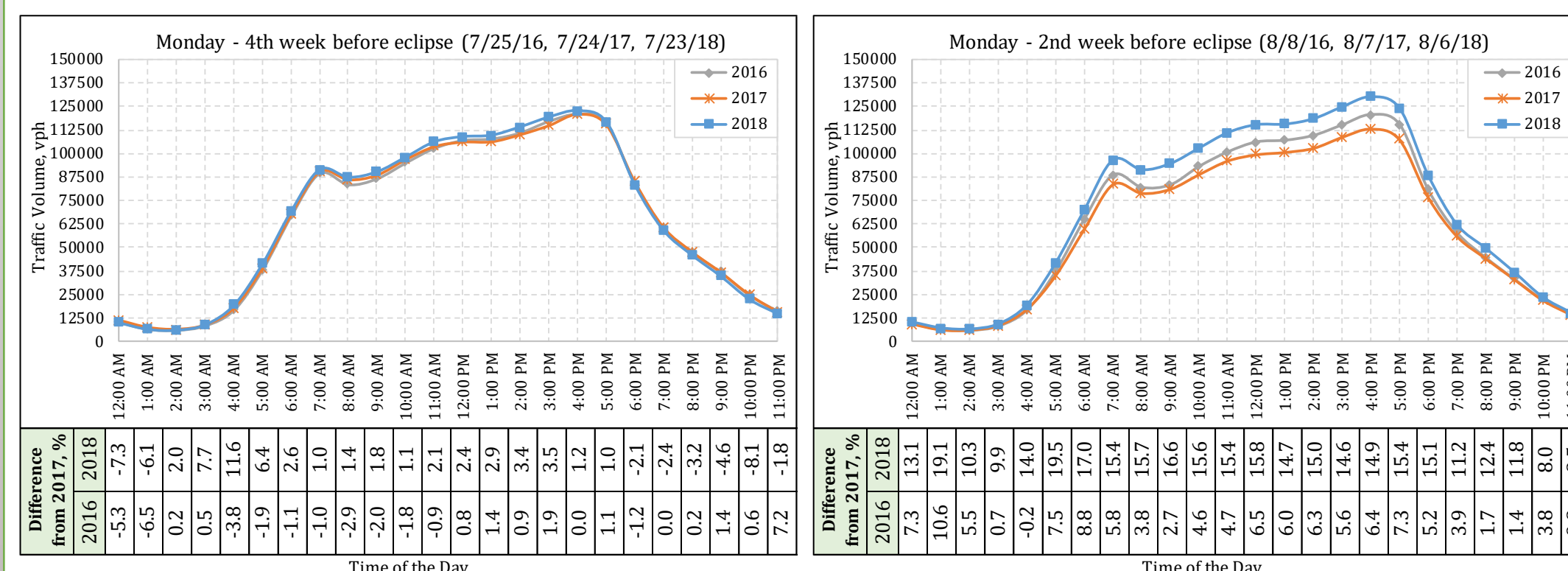
### Research Approach



### Measures Taken by ODOT

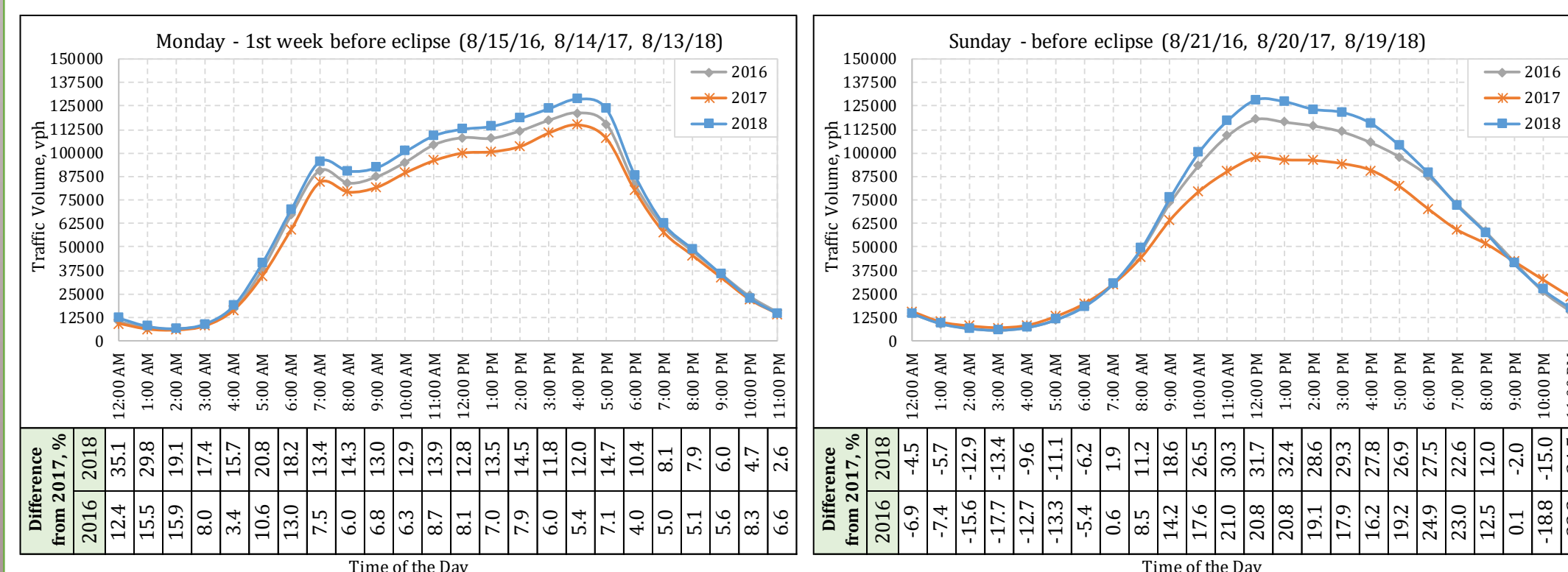
- ODOT created the Eclipse Working Group to plan and manage the Eclipse related activities.
- Oregon Office of Emergency Management (OOEM) predicts the State will see up to one million visitors for the total solar eclipse.
- ODOT restricted over-width truck loads in Oregon from noon Friday, August 18 to 12:01 am Tuesday, August 22, 2017.
- ODOT suspended construction projects and maintenance work August 18 through 22, 2017.

### Traffic Volume Analysis



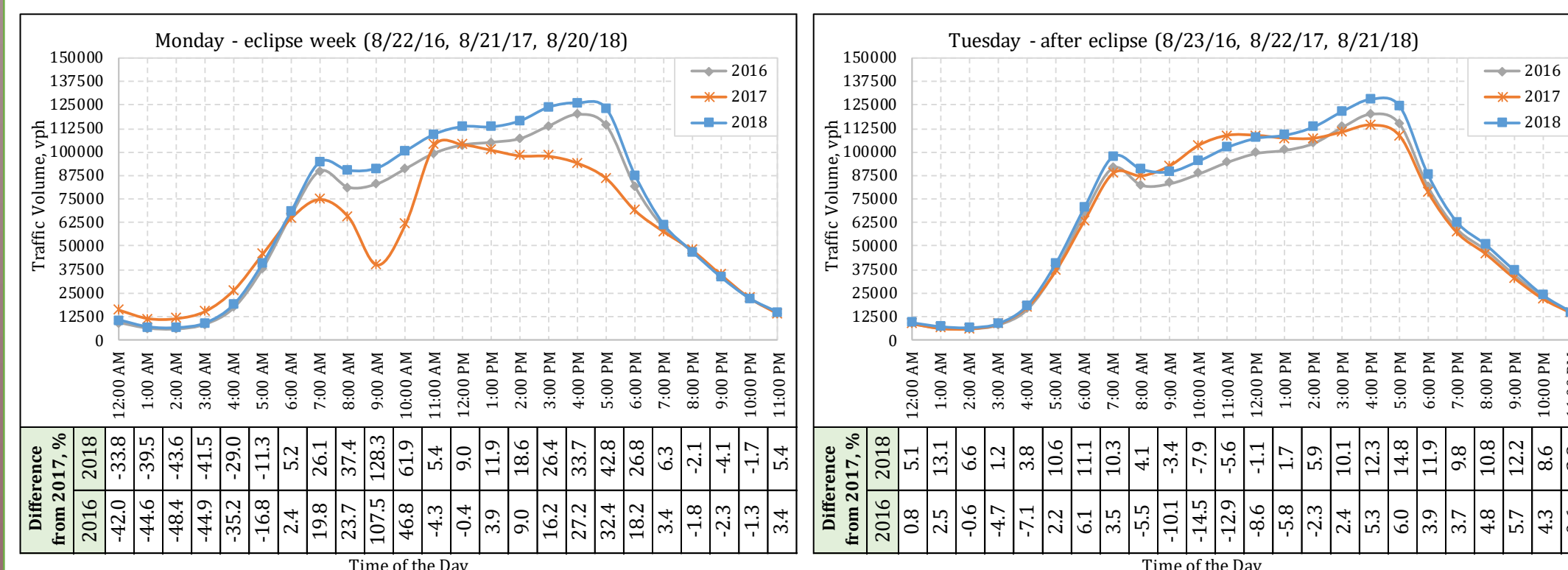
(a) Monday - before 4 weeks

(b) Monday - before 2 weeks



(c) Monday - before 1 week

(d) Sunday - before 1 day



(e) Monday - total eclipse day

(f) Tuesday - after 1 day

Figure 1: Traffic Volume Data Along the Solar Eclipse Path in Oregon on Before-During-After the Total Solar Eclipse in 2017

### Traffic Volume Analysis, cont.

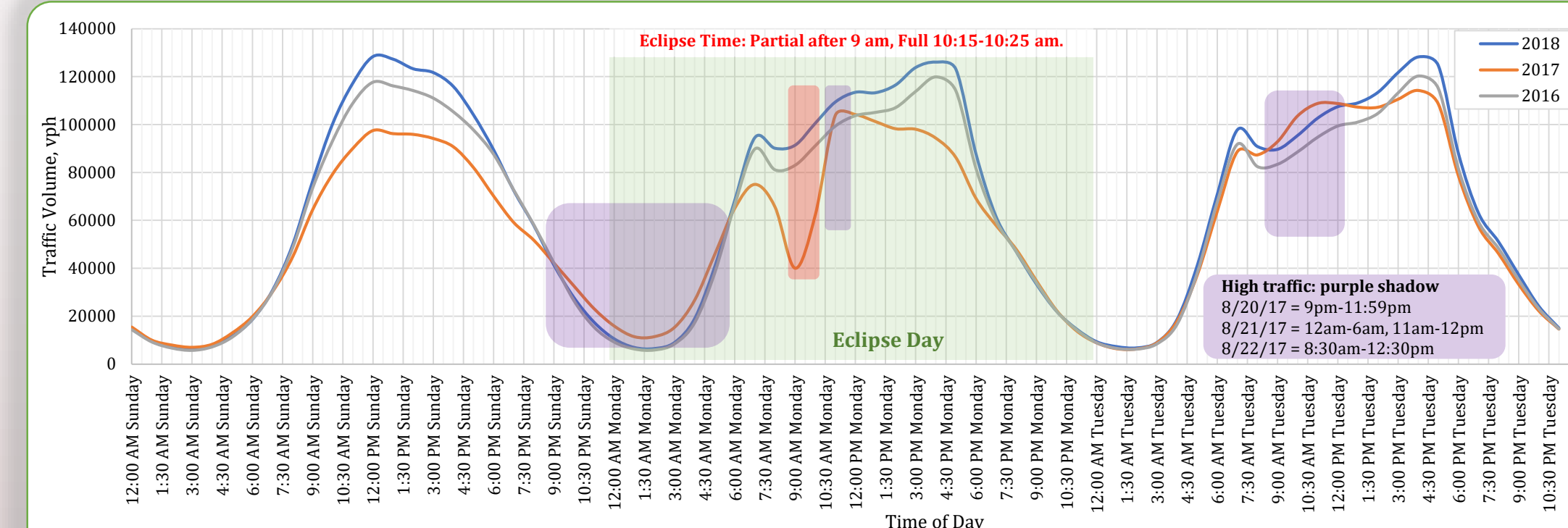


Figure 2: Traffic Volume Data of Consecutive 72-Hours During Solar Eclipse Period at Oregon State

### Conclusion

- The daytime **traffic started decreasing for two weeks before** the eclipse. Several factors like advertisements about the eclipse might be a reason for it.
- The **traffic was getting higher** from 9 pm Sunday, the day before the eclipse, to the 6 am Monday, the day of the eclipse. This traffic data denoted that people were arrived in the city or along the path of the eclipse to view the eclipse.
- On eclipse day, the **traffic was significantly lower during the eclipse period**. It can be extrapolated that the visitors were watching the eclipse after parking.
- The traffic was peaked from 11 am to 12 pm on eclipse day, but there was no evening peak of traffic on that day. The ODOT's slogan about eclipse 2017 "**Arrive Early. Stay Put. Leave Late**" might be the reason for this inconsistency in the traffic pattern.
- The **traffic was peaked on the next day** of the eclipse from 8:30 am to 12:30 pm. The probable reason for it might be the visitors check out the hotel on the morning of the next day of the eclipse to leave the eclipse area.

### Recommendation and Future Scopes

- From the analysis of the traffic volume data, the transportations authority should take the necessary strategy to manage the traffic at least two weeks before eclipse.
- This research will be expanded for all 14 states where the total eclipse was observed in 2017. The traffic pattern during the eclipse will be investigated for different states.

### Acknowledgment

The project is funded by the U.S. Department of Education and administered by the Transportation Program at South Carolina State University (SCSU). Data for this project was collected from <https://www.fhwa.dot.gov>.