



EVALUATING GLACIER NATIONAL PARK'S 2021 TICKETED ENTRY SYSTEM

Kalina Bonofiglio Brandon Cote Jasmine Laber Crystal Murray Christopher Showan

Ticketed Entry System Goals

- Reduce congestion (West Entrance)
- Provide entrance certainty
- Improve visitor use management



STREETLIGHT DATA

Big Data for Mobility

Key Functionality

- Cell phone location data
- Does not require cell service
- Constructs trips
- Origin, destination, and route
- Completely anonymized



STREETLIGHT
DATA

Analysis Overview

2019 vs. 2021
June 22nd – August 15th

- West Entrance
- Going-to-the-Sun Road
- Surrounding Communities
- Visitor Home States

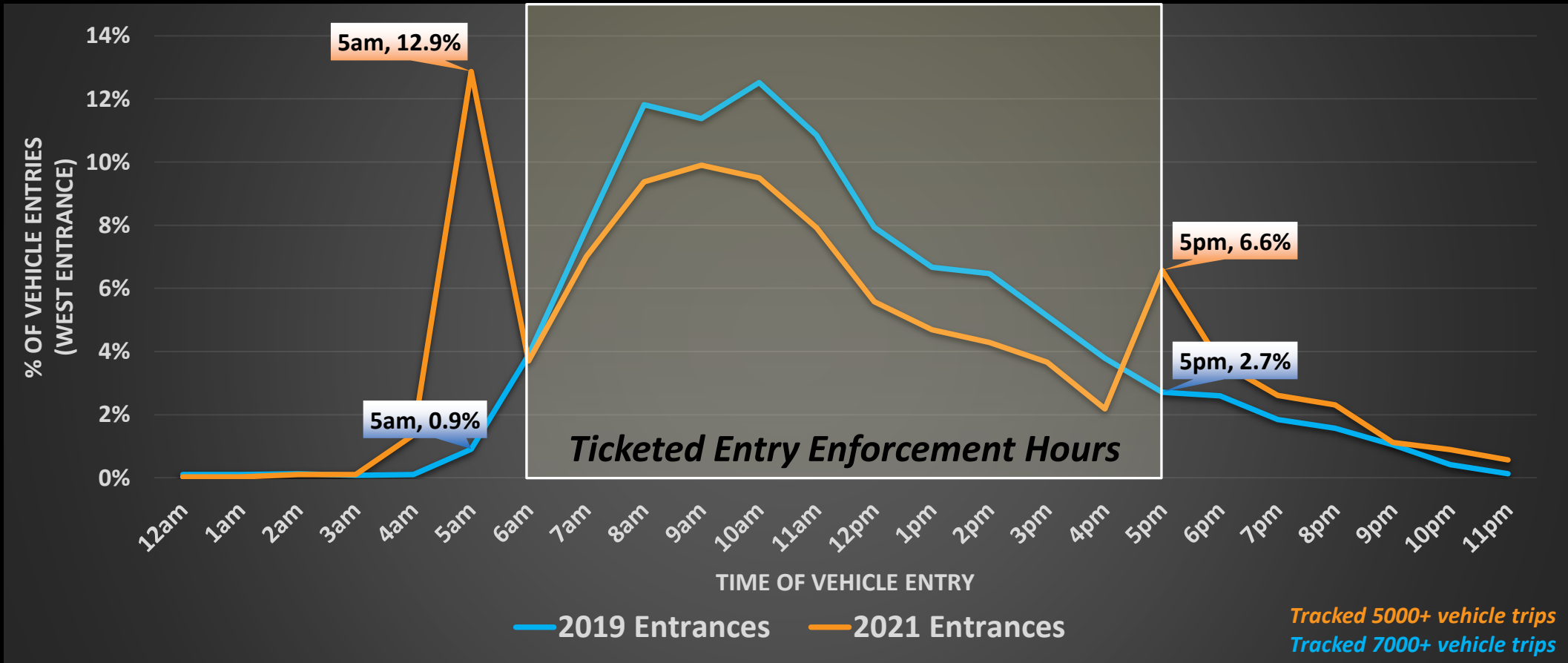


West Entrance

When did Vehicles Enter?

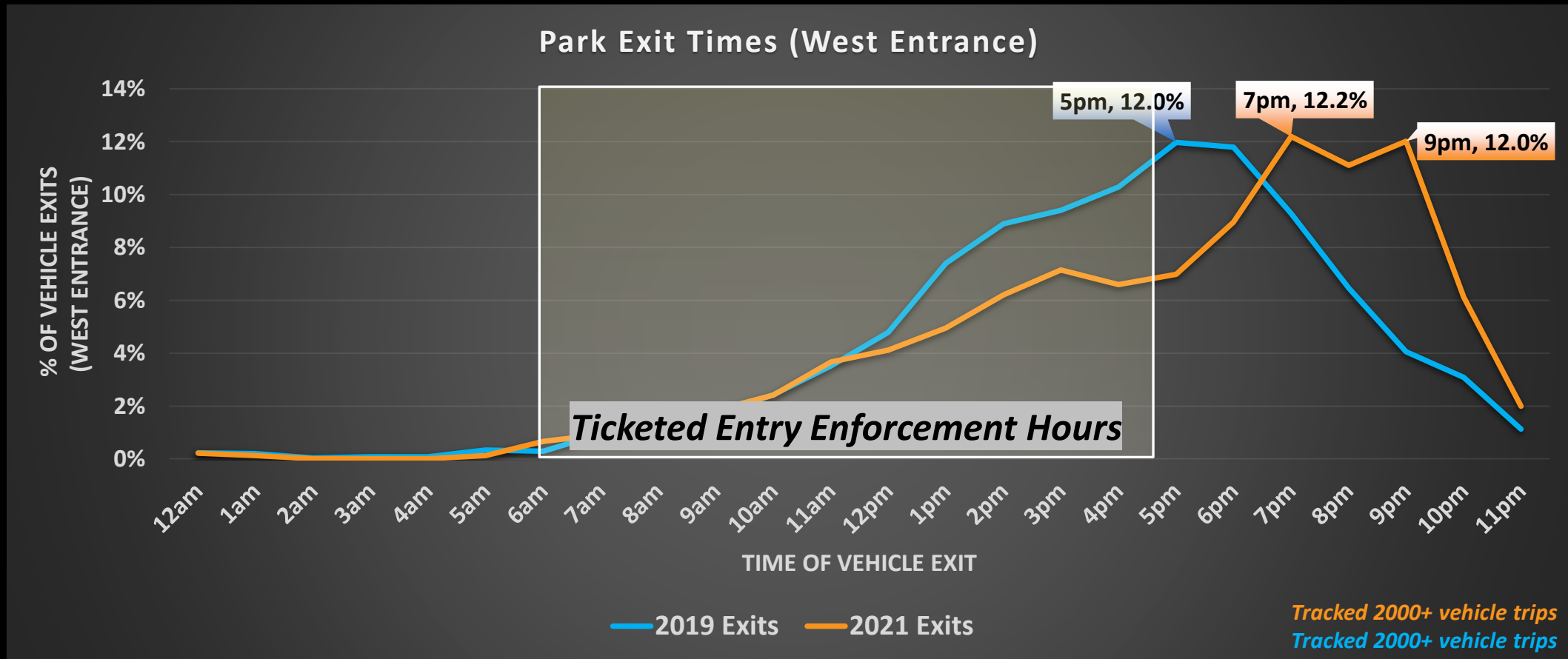
12% before 6 am & after 5 pm

35% before 6 am & after 5 pm

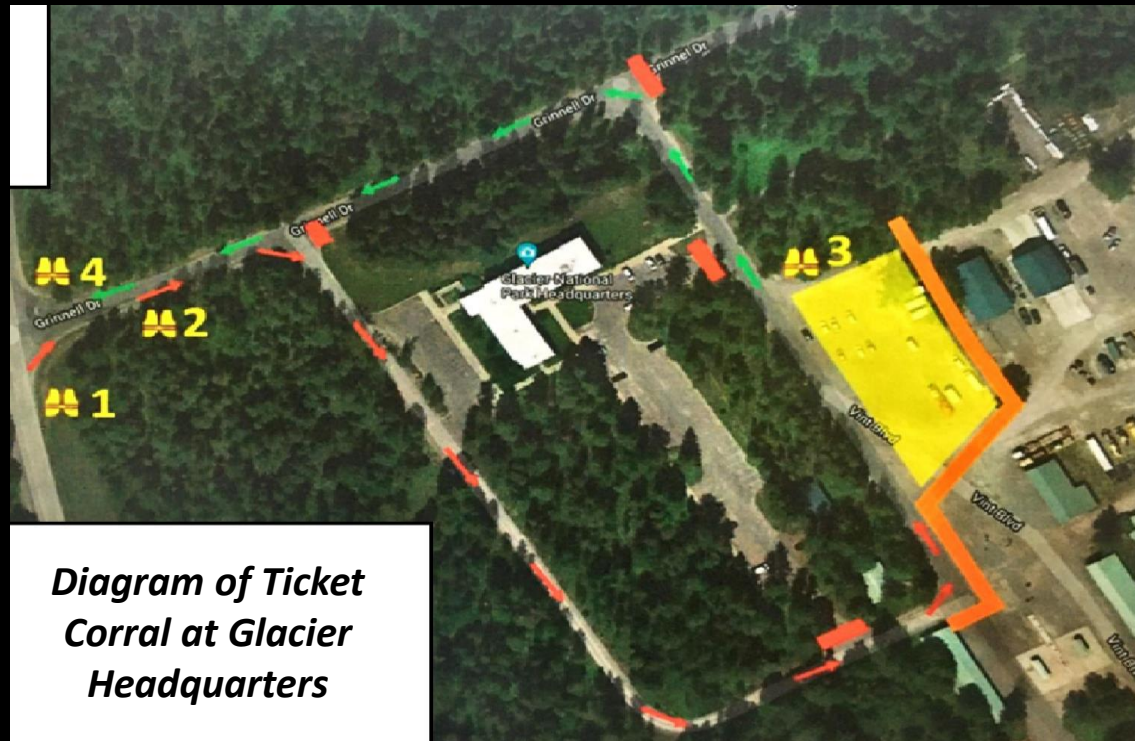


When did Vehicles Leave?

15% leave after 9 pm
9 pm
31% leave after 9 pm
9 pm



How Many Were Turned Away?



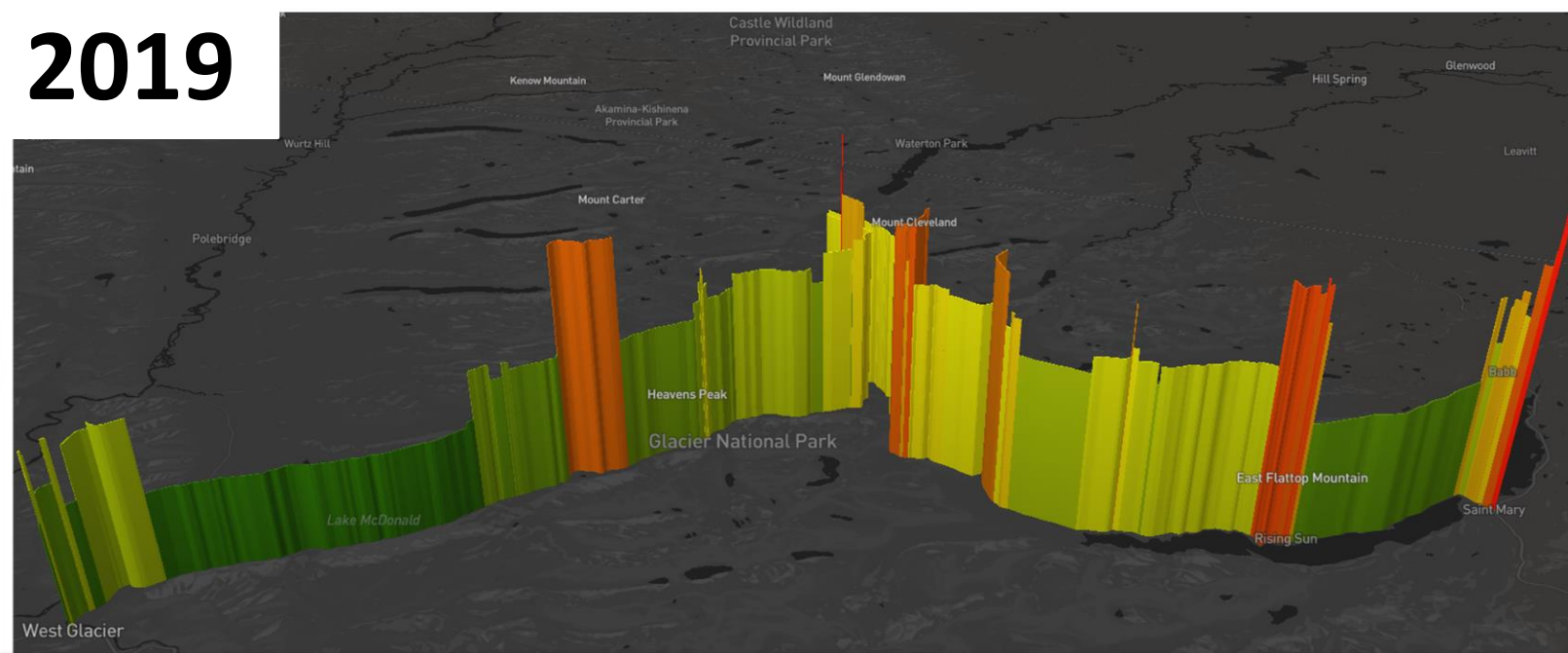
19% Turned Away



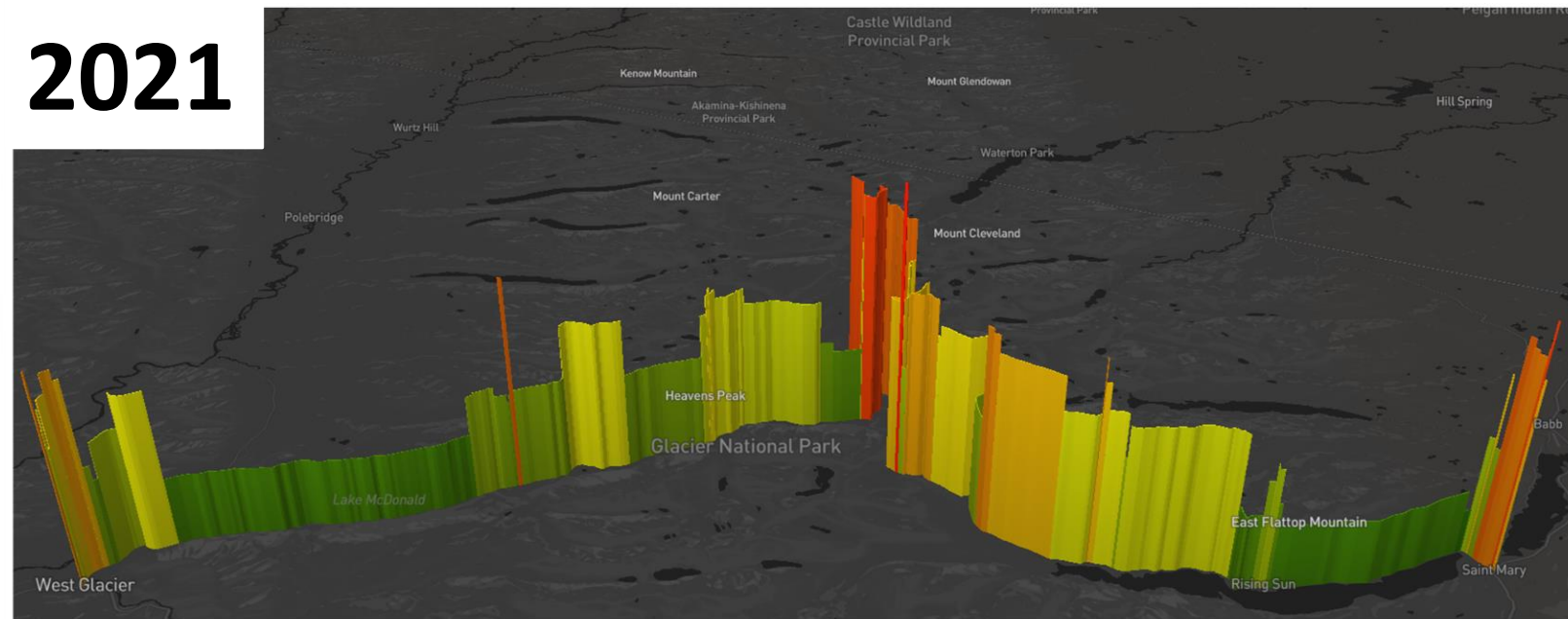
Going-to-the-Sun Road

Distribution of Congestion

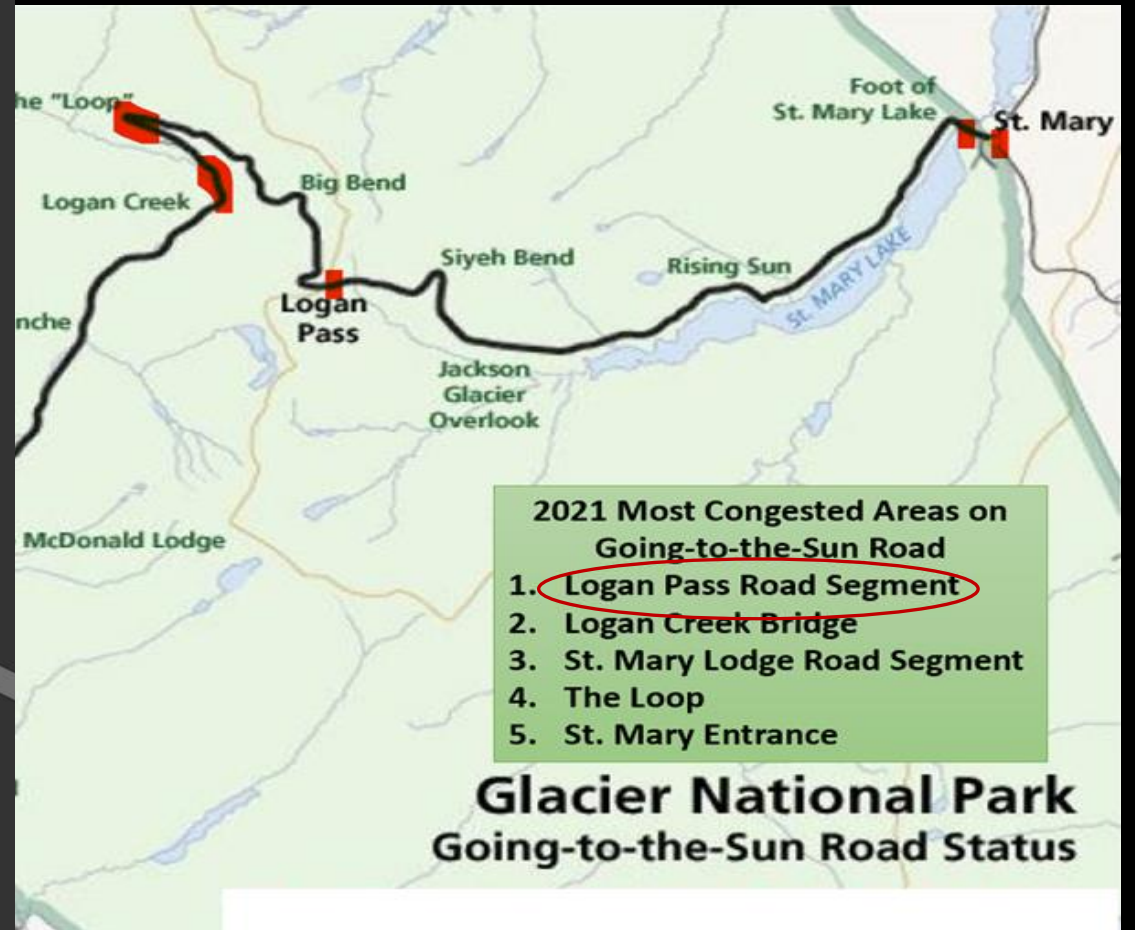
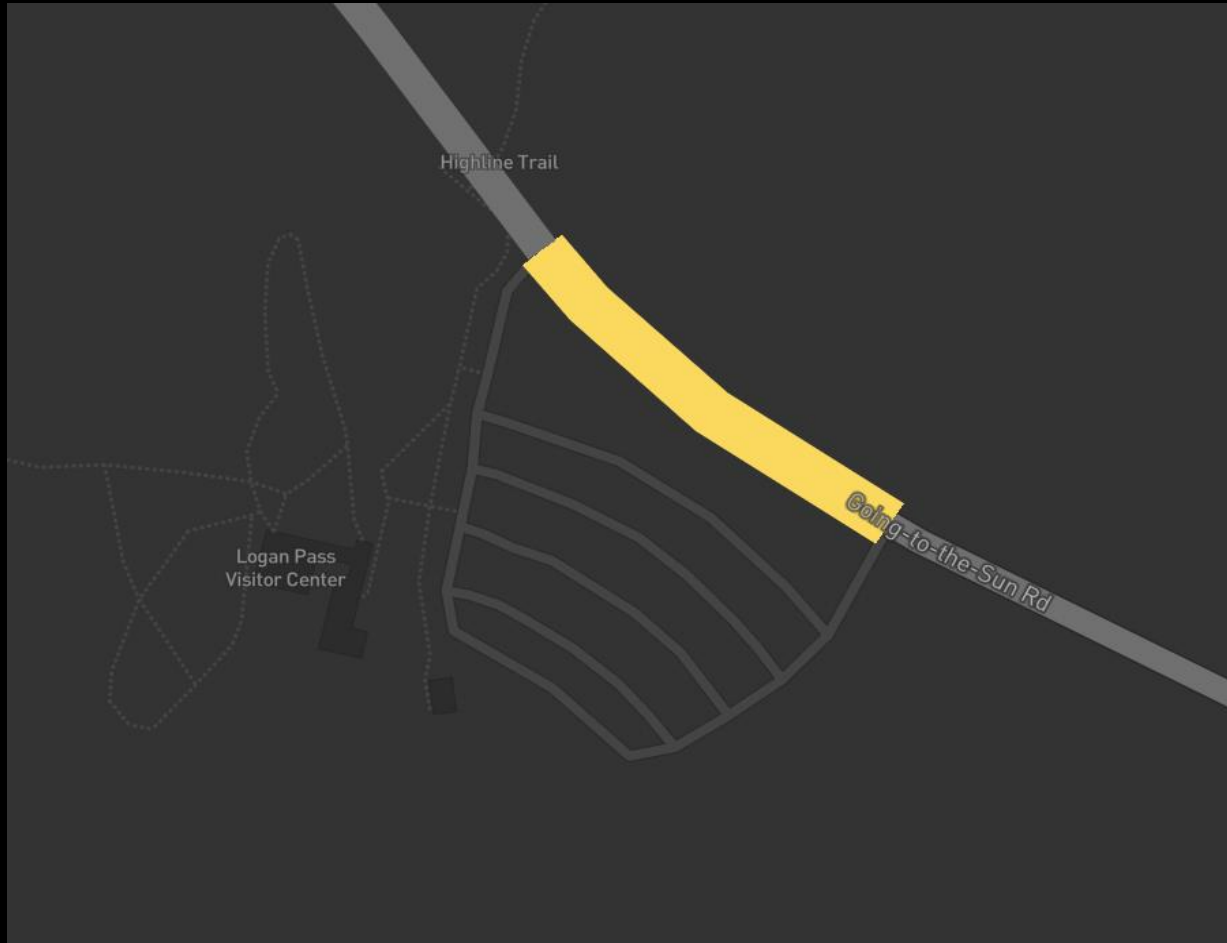
2019



2021



Which areas were most congested?



Time for Visitors to Arrive at Logan Pass

- From West Entrance
- First Destination (no stop > 5 mins)

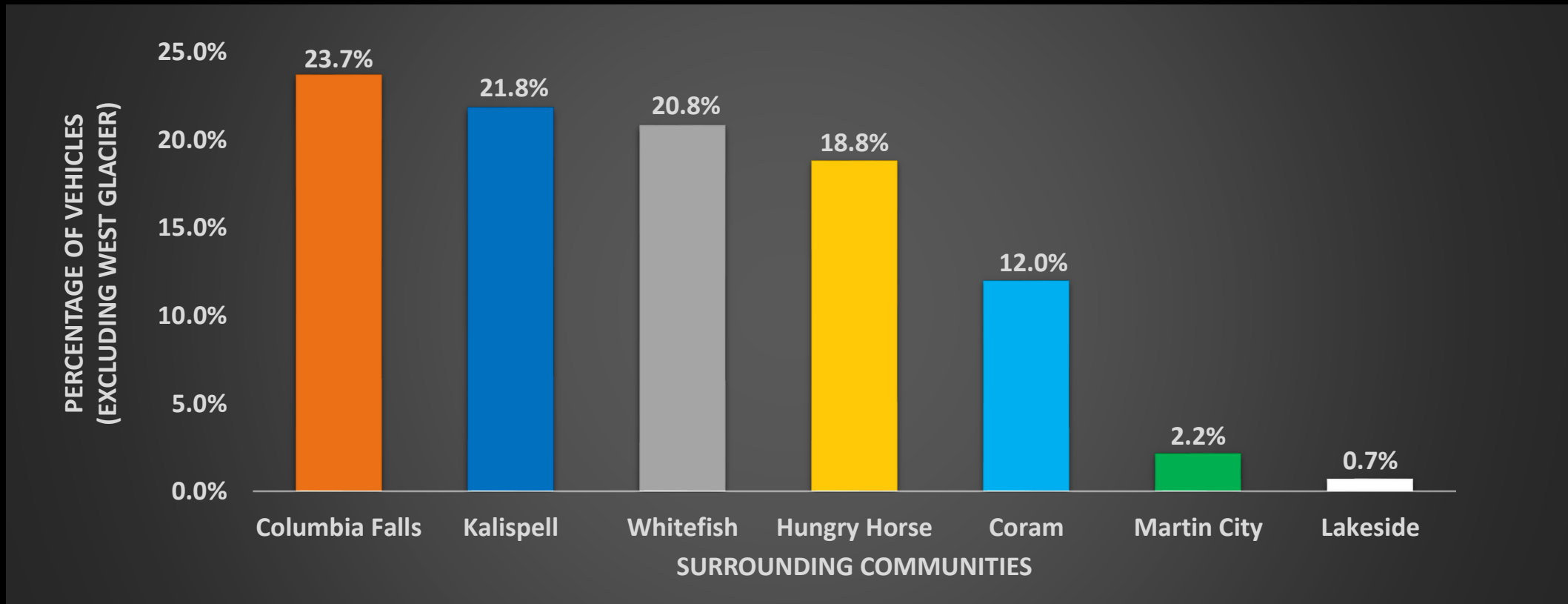
Arrived at Logan Pass in under 70 mins

Time	2019	2021
4am – 6am	94%	69%
10am – 4pm	22%	51%
5pm – 8pm	30%	63%



Surrounding Communities

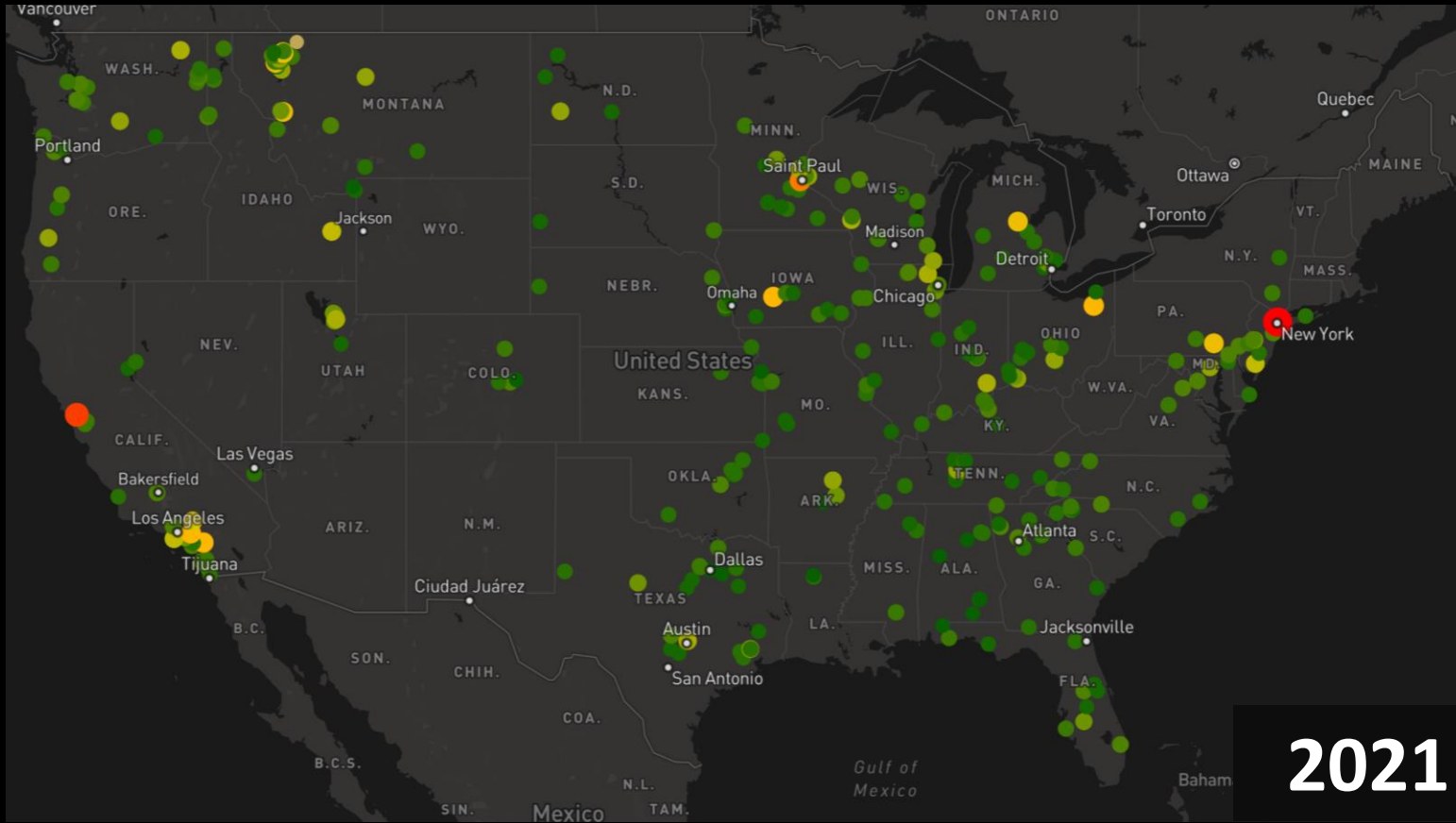
Where do Visitors Go After Corral?



A scenic mountain landscape with hikers on a trail. The image shows a group of hikers walking on a dirt path that winds through a lush, green mountain valley. In the background, there are rugged, rocky mountain peaks under a clear blue sky. The overall atmosphere is peaceful and adventurous.

Visitor Home Locations

Where did Visitors Come From?



State	2019	State	2021
MT	26.70%	MT	13.93%
CA	2.77%	CA	9.73%
MN	2.54%	MN	5.90%
WI	2.30%	TX	5.53%
IL	2.04%	WA	4.15%
WA	1.96%	WI	3.93%
FL	1.40%	IL	3.63%
MI	1.13%	MI	3.49%
TX	1.04%	NY	3.09%
GA	0.92%	TN	3.03%

Impacts of Ticketed Entry System

- West Entrance Vehicle Load
- Going-to-the-Sun Road Congestion
- Surrounding Communities

Recommendations

- Continue Ticketed Entry System for 2022
- Extend Ticketed Entry System Hours
- Improve Ticketed Entry System Publicity

Thank
You!

Project Sponsors

Mary Riddle

Tara Carolin

Project Director

Frederick Bianchi

Project Advisors

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Special Thanks

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James Dahlstrom

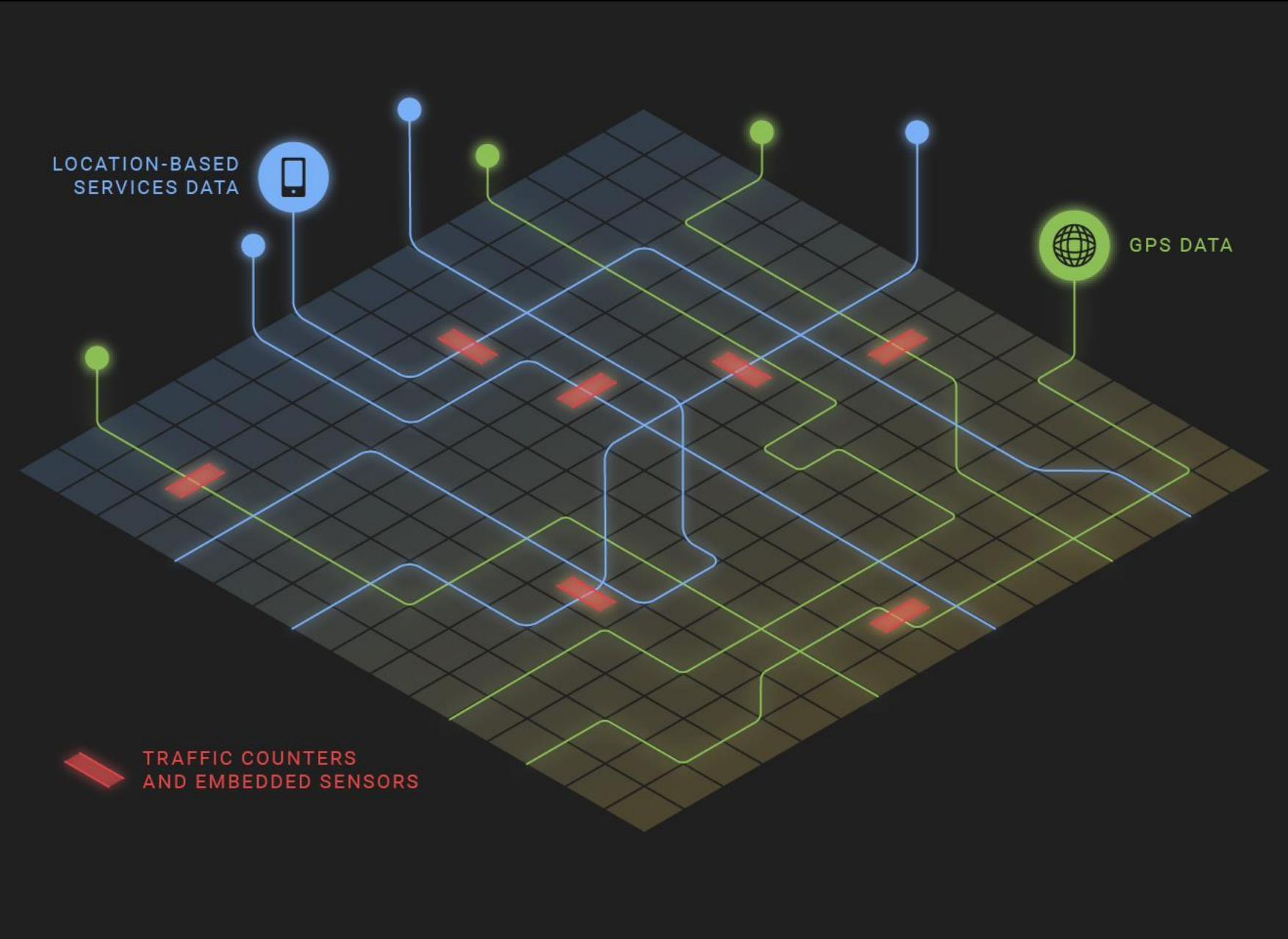
Brian Drew

David Smith

Questions

Visitor Mobility Analysis
Worcester Polytechnic Institute





Congestion Metric

$$\text{Congestion Percentage} = \left(1 - \frac{\text{Average Speed}}{\text{Maximum Average Speed}} \right) \cdot 100$$