

MAG ITS Committee

August 5, 2020



3. Staff Report

3. Federal Updates Reported by FHWA

- **USDOT Funding Opportunities**

- **Compete Trip ITS4US Deployment Program Grants**

- Due Aug 3, 2020. <https://www.its.dot.gov/its4us/index.htm>

- **Work Zone Data Exchange (WZDx) Demonstration Grants**

- Due Aug 3, 2020. <https://www.transportation.gov/av/data/wzdx>

- **Advanced Transportation & Congestion Management Technologies Deployment (ATCMTD) Program Grants**

- Due Aug 31, 2020. <https://ops.fhwa.dot.gov/fastact/index.htm#atcmtd>

- **Inclusive Design Challenge**

- Due Oct 30, 2020. <https://www.transportation.gov/accessibility/inclusivedesign>

3. Federal Updates Reported by FHWA

- **USDOT Announcements**
 - **Applicant Toolkit for Rural Opportunities to Use Transportation for Economic Success (ROUTES) Initiative**
 - Provides information and resources on grant programs and funding process.
 - <https://www.transportation.gov/rural>
 - **30th Anniversary of Americans with Disabilities Act (ADA)** (signed July 26, 1990)
 - USDOT will create accessibility strategic plan to achieve access and mobility for all.
 - **Phase 2 Truck Platooning Early Deployment Assessment Project**
 - California PATH receives award to explore effectiveness of truck platoons.
 - Platoons will operate on I- 10 in CA, AZ, NM, and TX.
 - **Nearly \$5M Awarded to Fund 4 New Tier-1 University Transportation Centers (UTCs)**
 - Centers will advance programs to address critical transportation challenges.
 - **Over \$15M Awarded in Surface Transportation System Funding Alternatives (STSFA) Grants**
 - Seven projects to explore innovative ways to fund highway and bridge projects.

3. Federal Updates Reported by FHWA

- **Opportunities to Participate**
 - **Virtual Event: USDOT and USGSA on Future of Mobility with Open Source Software (OSS)**
 - Discuss impacts and opportunities of OSS for automated driving systems.
 - Recording on ITS JPO site. https://www.its.dot.gov/press/2020/usdot_gsa_mobility.htm
 - **Webinar: FHWA and ITE on Noteworthy Speed Management Practices**
 - Presents findings from 8 noteworthy speed management case studies.
 - Webinar Sept 3, 2020. <https://www.pathlms.com/ite/courses/22098/webinars/12124>
 - **Request for Comment: NHTSA Automated Vehicle Transparency and Engagement for Safe Testing (AV TEST) Initiative**
 - NHTSA to provide info to public on automated driving systems (ADS) testing operations.
 - Due Aug 31, 2020. <https://www.nhtsa.gov/automated-vehicles-safety/av-test>
 - **Survey: USDOT Invites Transportation Professional to Participate in Work Zone Data Survey**
 - USDOT to understand collection/dissemination of data on worker presence in work zones.
 - Due Aug 7, 2020. <https://www.surveymonkey.com/r/TVLT8GK>

3. Federal Grant Opportunities Update

- FHWA Work Zone Data Exchange Demonstration (due August 3, 2020)
 - MCDOT lead, ADOT/MAG co-lead
- FHWA Advanced Transportation and Congestion Management Technologies Deployment Initiative (ATCMTD) (due August 31, 2020)
 - In pursuit

3. SM&O Plan: MAG On-Call Services Contract for Regional Fiber Maintenance Support Project Update

- Planning of FY2021 Unified Planning Work Program (UPWP project)
- MAG On-call Services Regional Qualified Vendor List
 - \$100K/yr FY21-24 for regional fiber maintenance
 - Local agencies use of the on-call contract through cooperative use

25	4	MAG	Regional Qualified Vendor List - MAG On-Call Services Contract for regional fiber maintenance support on ICM and Priority Corridors with provision to enable local agencies to utilize this contract under cooperative use	Supports local agencies in ensuring reliable fiber communications on key corridors. Regionally funded at \$100k/yr FY21-24.	\$400,000
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3. SM&O Plan: MAG On-Call Services Contract for Regional Fiber Maintenance Support Project Update

- Develop a project task force
 - Led by Ryan Gish, MAG RCN Manager, assisted by MAG TSMO Program
 - Members: selected ITS committee members and RCN working group members
- Develop and administer the on-call services contract

4. 2020 ITS Arizona Annual Conference Announcement

Presented by

Dr. Sanjay Paul, President of ITS Arizona

INTELLIGENT TRANSPORTATION SOCIETY OF ARIZONA

**SAVE THE DATE
FOR THIS YEAR'S CONFERENCE!**

Era of Smart Mobility

Wednesday, October 14, 2020



**Virtual
Conference !!!!**



INTELLIGENT TRANSPORTATION SOCIETY OF ARIZONA

REGISTRATION FEE: \$40 ONLY

ABSTRACT SUBMISSION: AUGUST 21ST, 2020

ITS BEST PROJECT AWARD: AUGUST 30TH, 2020

- Best ITS Planning Project
- Best ITS Implementation Project¹¹
- Best Use of New/Updated Industry Product

STUDENT PAPER AWARD: AUGUST 30TH, 2020

Stay Tuned for More Information

4. Arizona Department of Transportation FY 2021 Non- Competitive Project Scope Change: ADOT Incident Response Unit

4. ADOT FY 2021 TIP Project Scope Change: Incident Response Unit

- Original ADOT Projects approved November 2019:
 1. FTEs for DPS's FSP \$800K and ADOT IRU \$200K, \$1M per year for FY 2020-2022 (HURF SMO)
 2. DPS FSP Equipment \$200K per year for FY 2020-2022 (CMAQ SMO)
 3. ADOT IRU Vehicles \$1,272,000 total for FY 2020 (FMS)
- ITS Committee actions May 2020:
 1. Consolidate two projects for FSP and IRU into one project for FSP, \$1M per year for FY 2020-2022 (HURF SMO).
 2. Defer ADOT IRU Vehicles \$1,472,000 (FMS + \$200,000 SMO) to FY 2021

4. ADOT FY 2021 TIP Project Scope Change: Incident Response Unit

- As of May 2020: **ADOT IRU Vehicles \$1,472,000 (CMAQ) FY21**
- Issues with vehicle procurement
 - Consulted with FHWA regarding use of CMAQ for operations
 - CMAQ guidelines “Operations Assistance”: new service, 3 years
 - MAG TIP agreed with the change of funding mechanism
- Today’s proposed request: amend scope for ADOT IRU program for operations assistance over 3 years (FY21-23) for a total of \$1,472,000

Traffic Incident Management (TIM)

- TIM is a major initiative of USDOT over 20 years involving transportation, public safety, and private sector
- MAG region is in the forefront of TIM
 - DPS TIM leadership
 - Incident response
 - Loop 101 mobility project

Regional Incident
Response

ADOT Incident Response Unit (IRU) / Freeway
MCDOT REACT Program / Arterial

ADOT Incident Response Unit (IRU)

- What is “new”?
 - Faster response times
 - Full-time staff
 - Traffic Incident Management (TIM) trained
 - Direct coordination with DPS
 - 15 hours daily

IRU makes Incident Response more effective through quicker response, use of technology and resource management

TOC



IRU Truck



4. Overall Project Description

- Annual operational costs associated with the IRU operations. Proposed Operations Assistance funds include all costs of providing this new transportation service, including, but not limited to, labor, fuel, administrative costs, and maintenance of vehicles and on-board equipment.
- Purpose – Reduce congestion, improve mobility, reduce incident clearance times and reduce secondary crashes.
- Location – MAG region

4. Proposed Scope, Schedule & Budget

- Scope
 - CMAQ Operations Assist funding for new IRU service
- Schedule
 - FY 2021-2023
- Budget

Work Year	Total \$1,472,000
2021	\$493,107
2022	\$493,107
2023	\$485,786

4. Annual Project Reporting

- Incident Management - freeway clearance times, number of responses
- Safety – secondary crash reduction
- Metrics to be tracked in the database

4. Requested Action

- Proposed amendment:
 - Amend scope for ADOT IRU program for operations assistance & project work over three years (FY 2021, 2022, 2023)
- Requested Action: Recommend approval of the requested project changes.

5. COVID-19 Impacts Update

5. FY 2020 TSOP Projects



TRAFFIC SIGNAL OPTIMIZATION PROGRAM

Project ID	On-Call Assign	Lead Agency	Other Agencies	Description
TS2001	KITTELSON	ADOT	Glendale Phoenix	Grand Ave from 19th Ave to Loop 101
TS2002	AECOM	ADOT	Surprise El Mirage	Grand Ave from Loop 101 to Loop 303
TS2003	WOOD	Avondale	MCDOT ADOT	Dysart Rd from Bethany Home Rd to Van Buren St
TS2004	UCG	Gilbert	N/A	Greenfield Rd from Market St to Baseline Rd
TS2005	JACOBS	Goodyear	N/A	Estrella-PebbleCreek Pkwy from MC 85 to Indian School Rd
TS2006	LEE	Phoenix	ADOT	I-10, McDowell Road, Van Buren Street, Latham Street and Roosevelt Street
TS2007	B&N	Pinal County	Queen Creek	Hunt Hwy from Empire Blvd to Copper Mine Rd
TS2008	KHA	Tempe	N/A	Rural Rd, McClintock Dr from Loop 202 to US 60
TS2009	WSP	MAG	N/A	Before-and-After Travel Time Evaluations

5. FY 2020 TSOP Projects

- Projects to resume late August/September
 - Scheduling project kickoff meetings
 - Scheduling data collection
- Project to be completed by no later than December 31
 - Implementation to be completed mid-November
- Considerations
 - COVID-19 impacts: school and commute traffic
 - Holiday traffic
- FY 2021 projects in Spring 2021

5. Agency Impacts

Feedback from member agencies

- Staffing
- Budgets
- FY 2021 TSOP

6. Overview of Vehicle Movement Data

Traffic Trend Update during COVID-19 Pandemic since June and Vehicle Movement Dataset

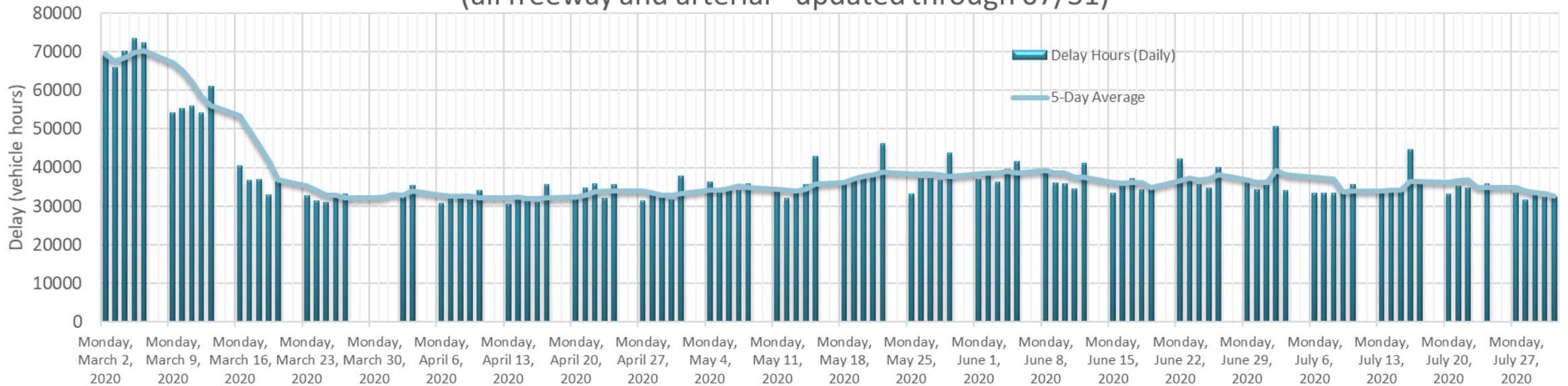
FOR MAG ITS COMMITTEE MEETING IN AUGUST, 2020

Outline

- ▶ Traffic trend update during COVID-19 pandemic since June
 - ▶ Traffic congestion
 - ▶ Traffic volume
 - ▶ Truck volume (heavy truck, medium truck)
 - ▶ Travel pattern (trip frequency, locations visited)
- ▶ Vehicle movement data
- ▶ Questions and comments

Day-to-day congestion delay compared to normal

Traffic Congestion Delay in Maricopa County (all freeway and arterial - updated through 07/31)

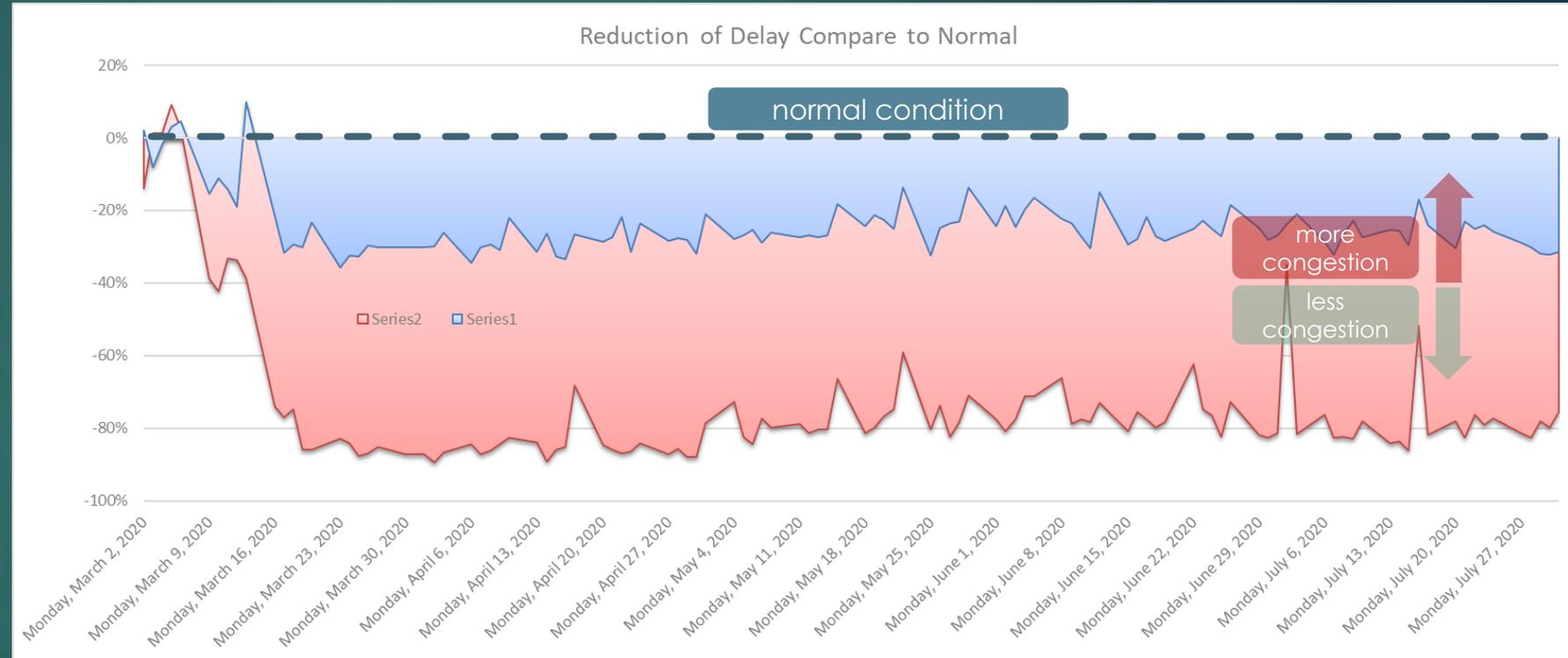


- The measure of congestion delay is calculated from speed data, which covers all major freeways and most of the arterial streets in Maricopa County, 24/7.
- The speed data is provided to MAG by a third-party company called INRIX via ADOT licensing (www.inrix.com) from an analytic platform powered by CATT lab(rītis.org).
- The delay (vehicle hours) is calculated as the excessive travel time for all vehicles when average speed during a given hour is at least 20mph lower than the free-

Congestion Delay: Arterial vs. Freeway

30

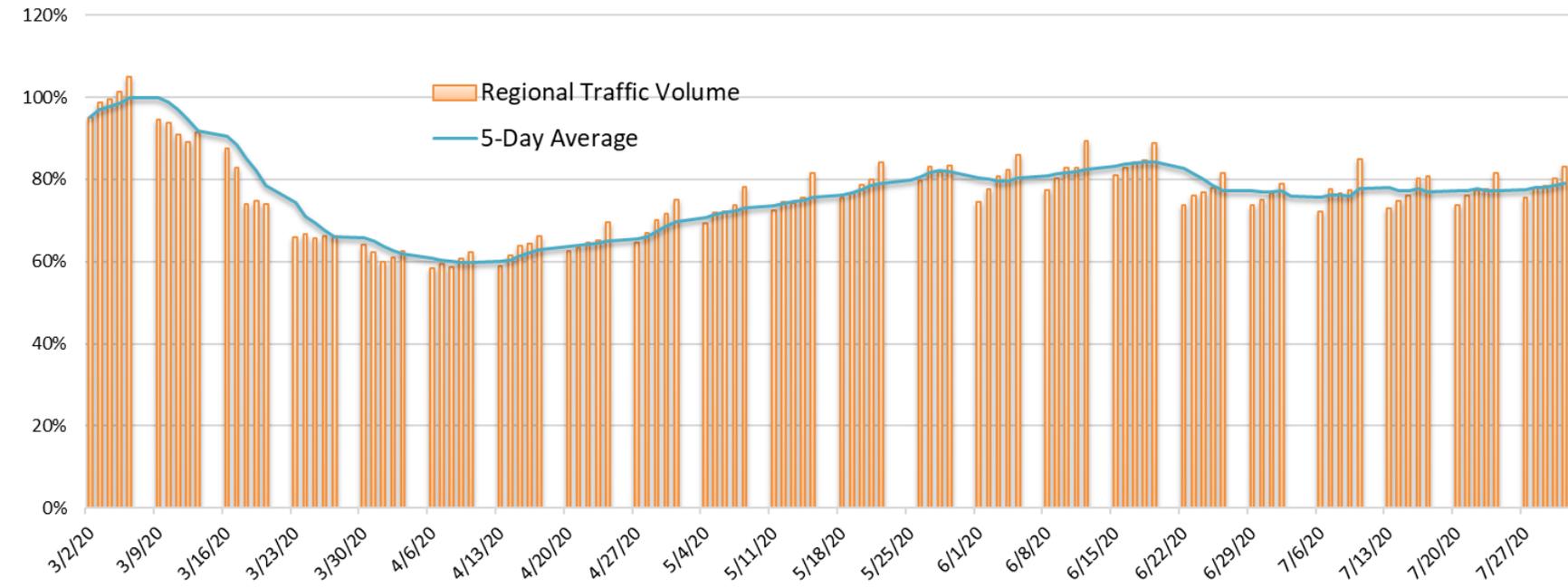
- ▶ Reduced demand has higher impact to non-interrupted traffic flow
- ▶ Arterial congestion is less sensitive to demand reduction
- ▶ Congestion index began to slowly climb up from mid-April
- ▶ Friday always reports the highest congestion delay per week



Traffic Volume

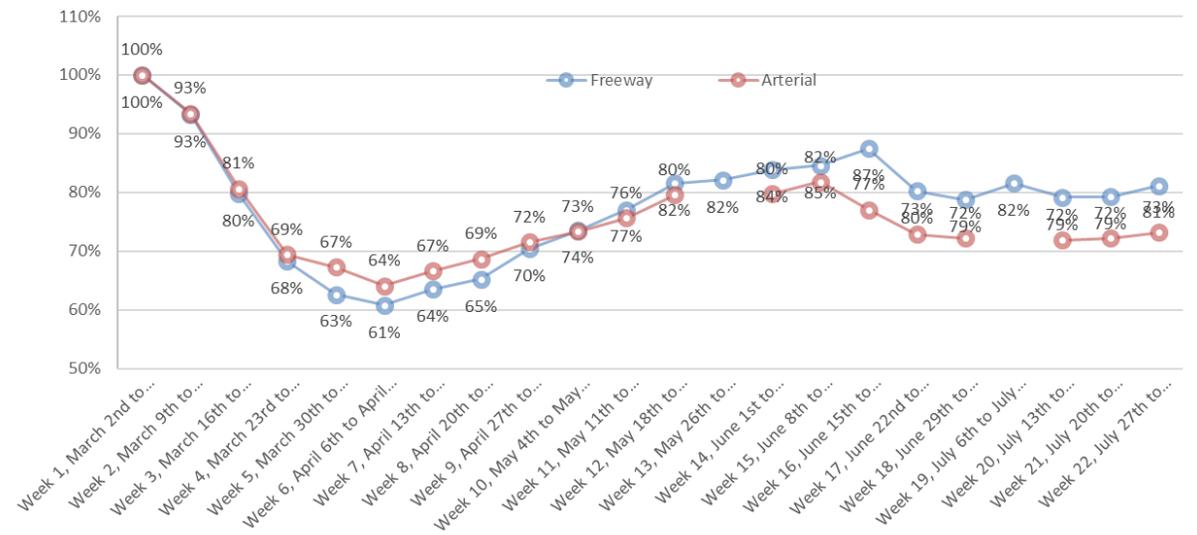
- ▶ Average Weekday Daily Traffic Volume for the week of March 2, 2020 is considered “normal” traffic conditions, defined as 100%. By week 6 (week 2 of April), volumes were 63% (lowest) of normal conditions;
- ▶ Traffic volume began to climb up from week 7 (mid-April);
- ▶ More traffic reduction on freeway, and also faster recovery
- ▶ After reaching to the high of 87% of normal in mid-June, traffic volume has decreased to 79% in July.

Traffic Volume Trend Compared to Normal (week 1 in March as 100%)



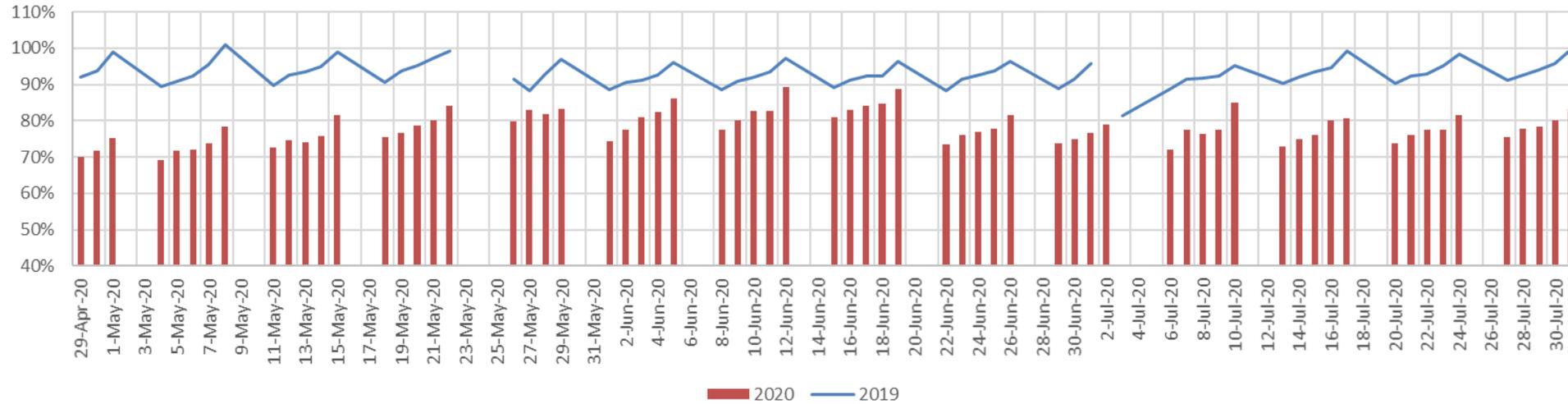
July's Traffic	Freeway	Arterial
Traffic Volume	80% of normal	75% of normal
Congestion	20% of normal	75% of normal

Average Weekday Daily Traffic Volume (vehicle) Compared to Normal Condition in Maricopa County

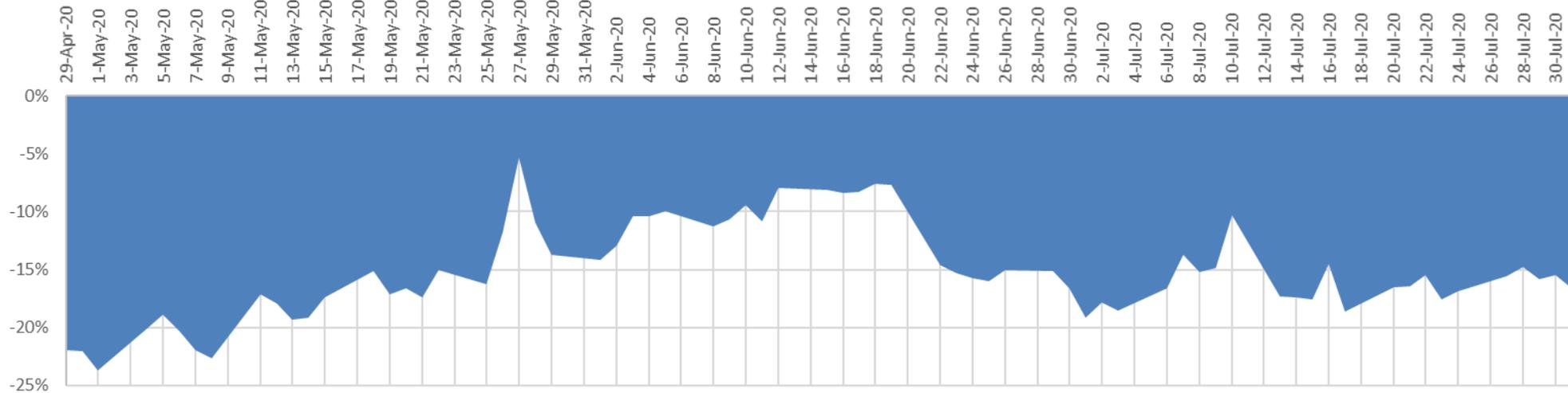


Traffic Volume, 2020 vs. 2019

Traffic Volume - 2020 vs. 2019 (week 1 in March 2020 as 100%)



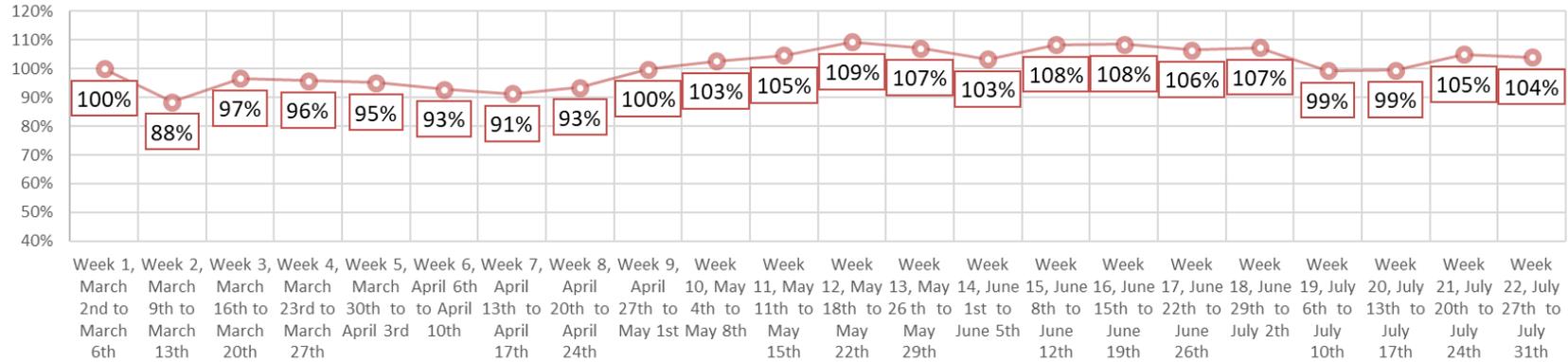
Percentage of Difference in Traffic Volume between 2020 and 2019



Truck Volume

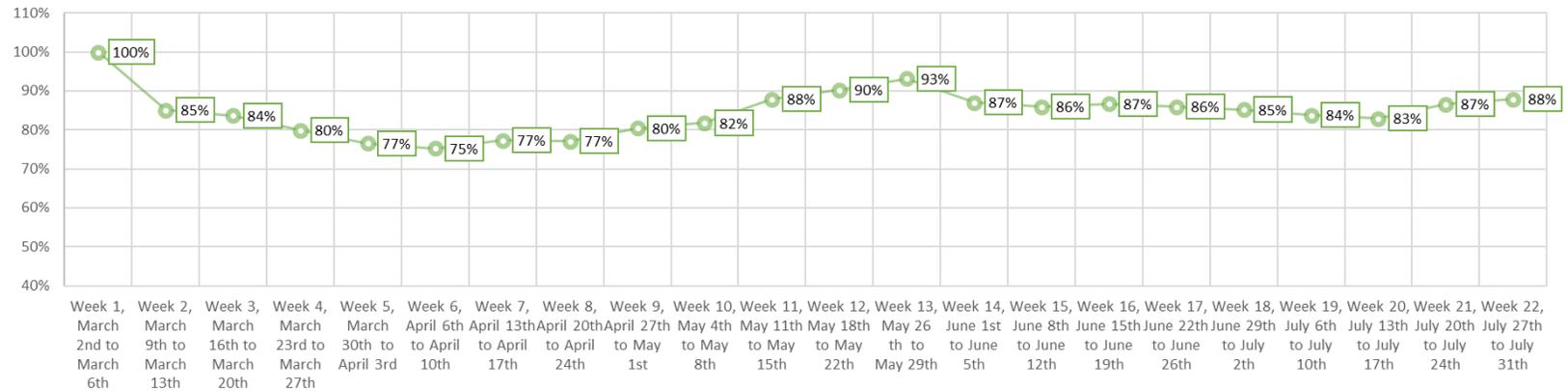
- ▶ Average Weekday Daily Traffic Volume of truck for the week of March 2, 2020 is considered “normal” traffic conditions, defined as 100%.
- ▶ COVID-19 hasn't stopped freight deliveries. Unlike commute traffic, daily traffic for heavy trucks has stayed consistent or in the modest reduction.
- ▶ Heavy truck travel in May is higher than normal condition.
- ▶ Medium truck traffic decreased and recovered, in a less degree comparing to passenger car traffic.

Average Weekday Daily Traffic of Heavy Trucks Compared to Normal Condition in Maricopa County



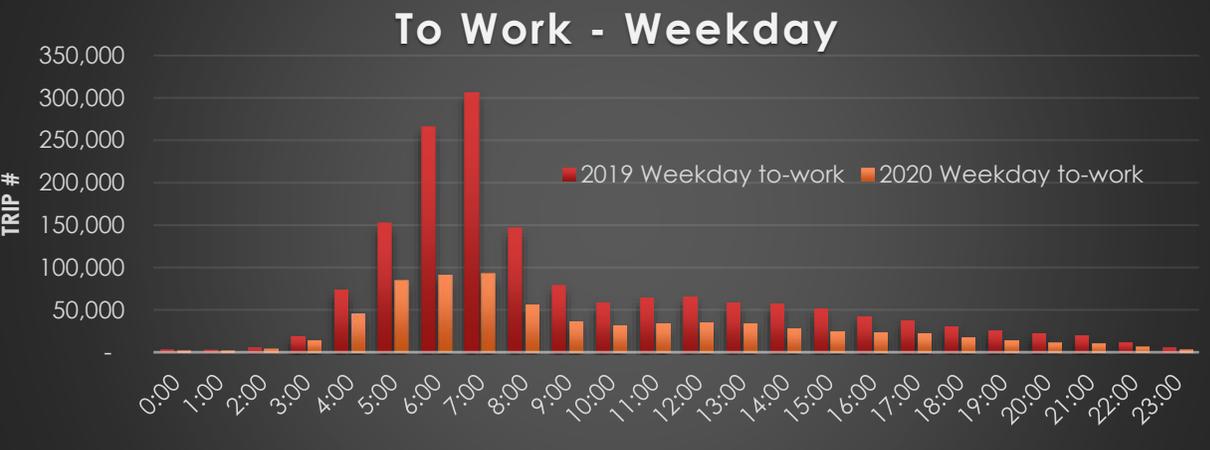
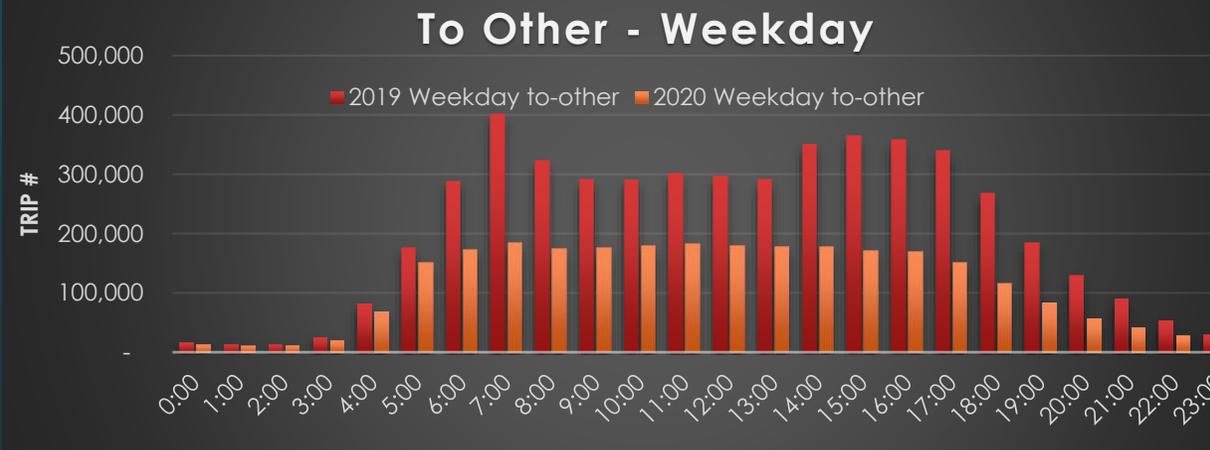
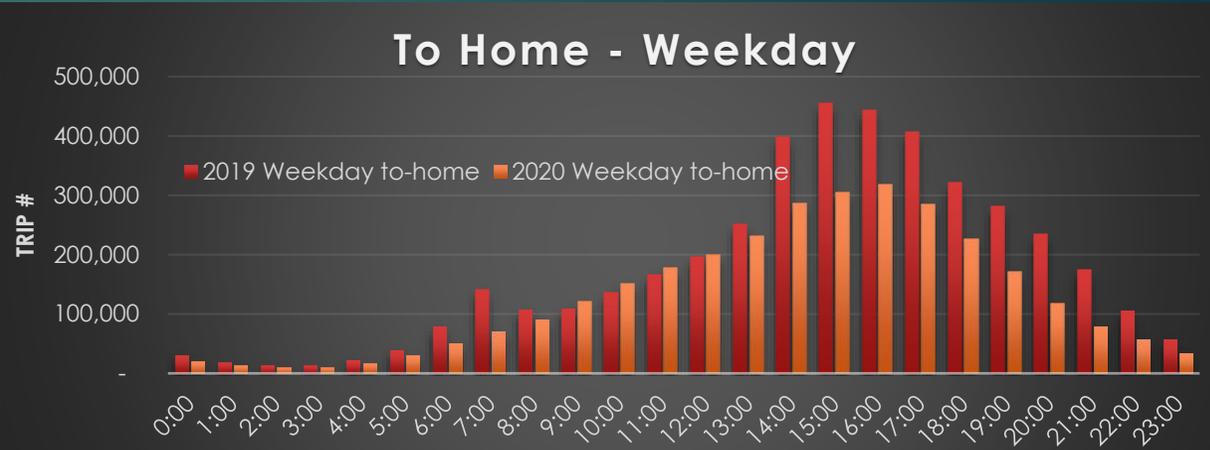
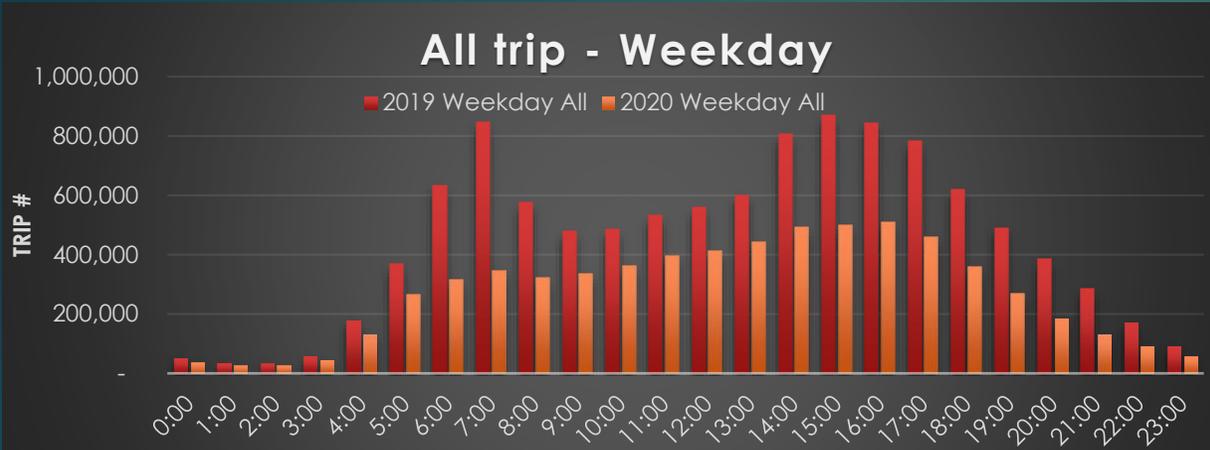
-The heavy truck volume data is provided by ADOT on selected automatic traffic recorders on freeways and arterial streets in Maricopa county. The heavy truck is defined as a truck with single-trailer or multi-trailer and more than 2-axle.
 -The percentage is calculated as average weekday daily traffic of heavy truck compared to average weekday daily traffic of heavy truck during normal condition in week 1 of March, 2020.

Average Weekday Daily Traffic of Medium Trucks Compared to Normal Condition in Maricopa County



-The medium truck volume data is provided by ADOT on selected automatic traffic recorders on freeways and arterial streets in Maricopa county.
 -The percentage is calculated as average weekday daily traffic of medium truck compared to average weekday daily traffic of medium truck during normal condition in week 1 of March, 2020

Trip frequency by time of day, by trip purpose (Teralytics, weekday), 40% reduction during COVID-19



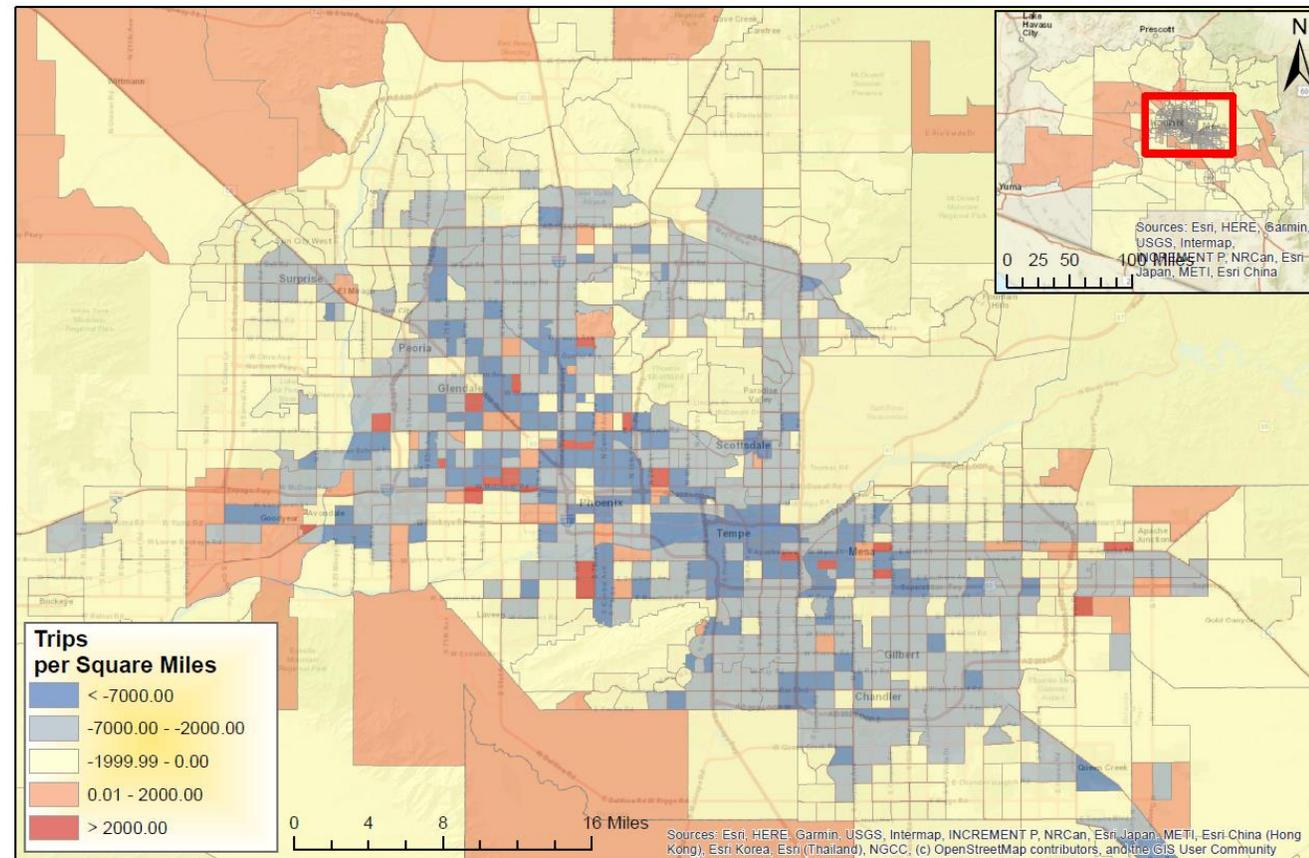
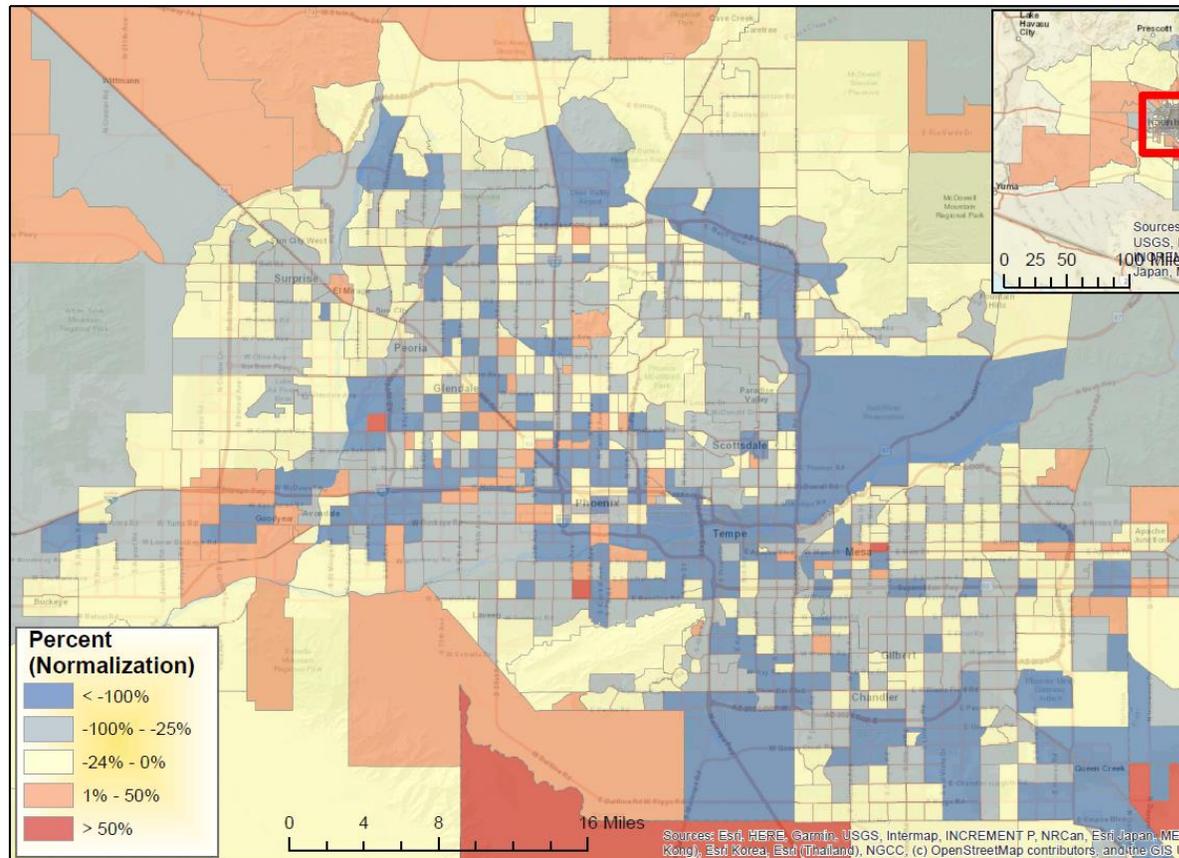
Trip change during COVID-19 (April 2019 vs. April 2020)

▶ Trip Change in %

▶ Trip Change per sq mi

Teralytics All Trips Change During Weekday from April 2019 to April 2020 in Maricopa County

Teralytics All Trips Change During Weekday from April 2019 to April 2020 in Maricopa County



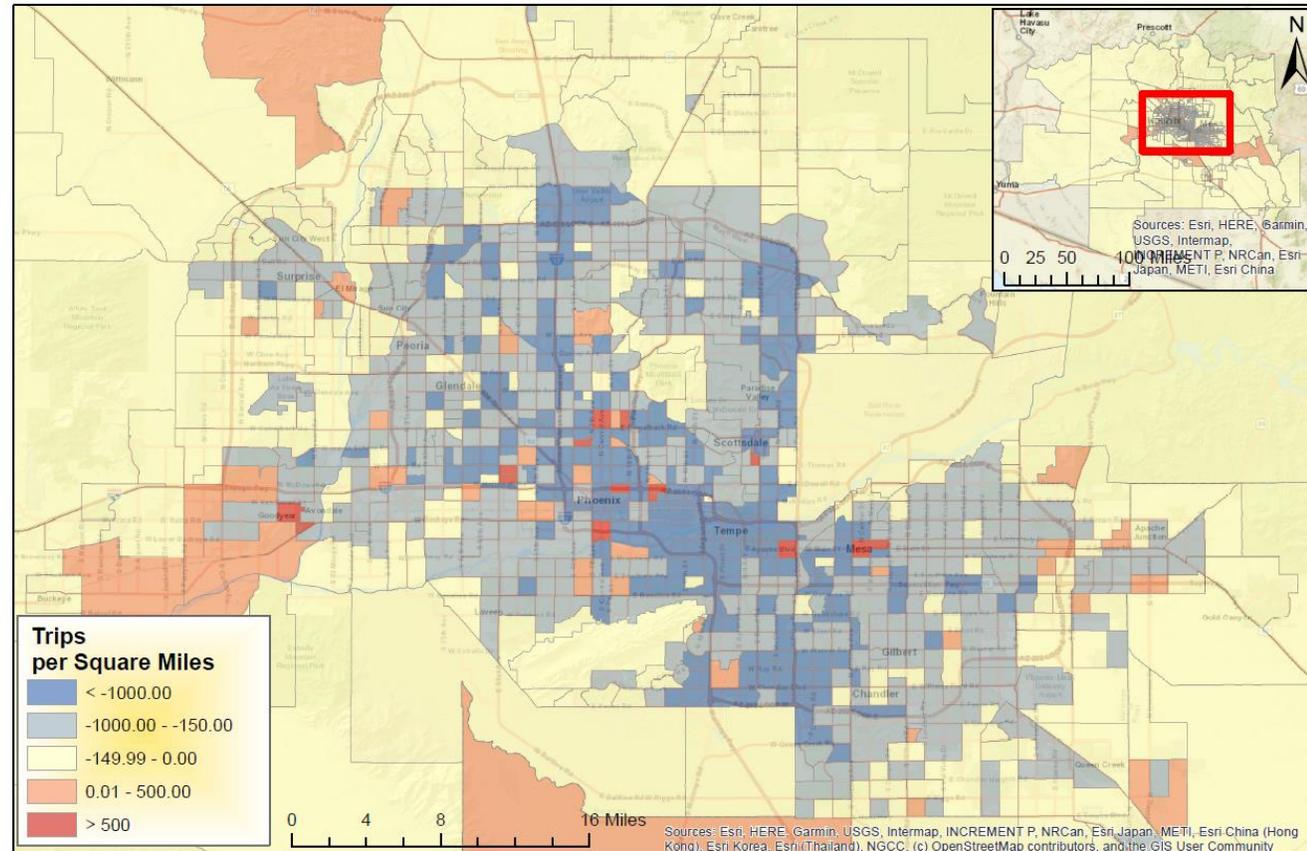
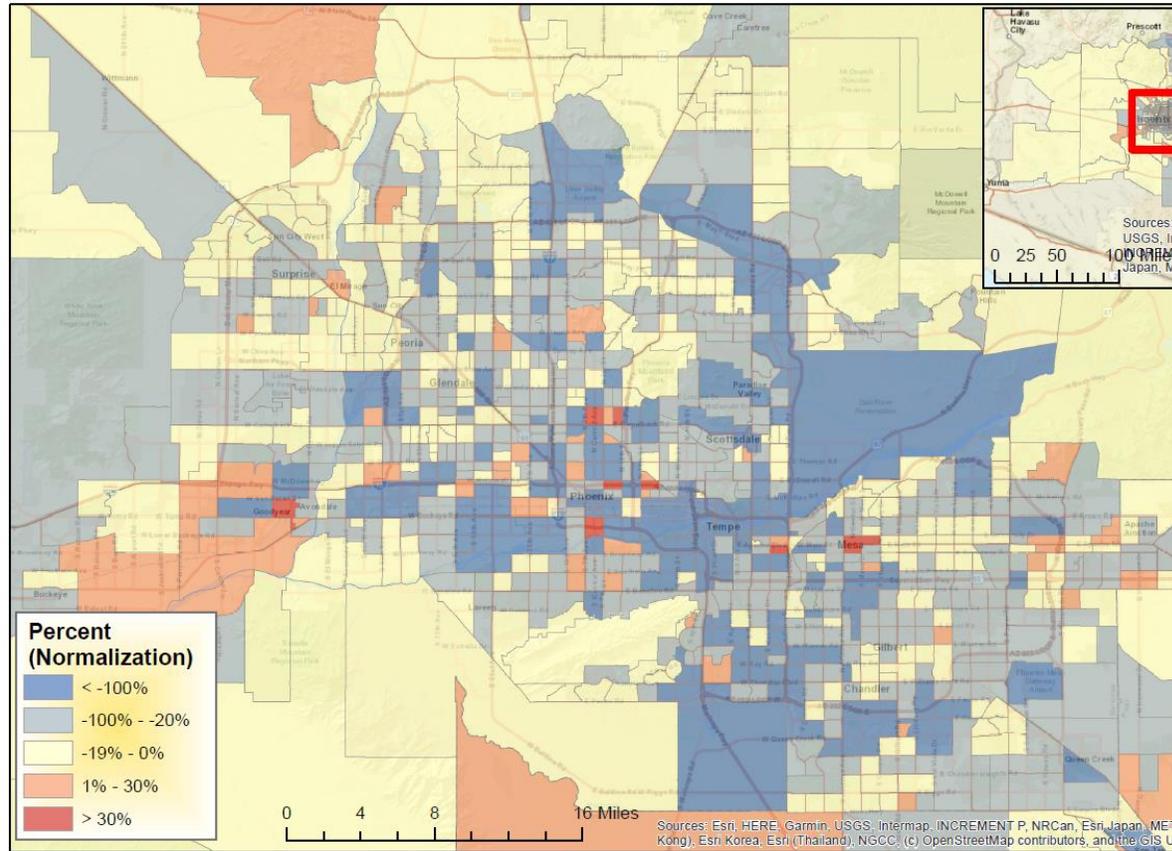
Trip (to-work) change during COVID-19 (April 2019 vs. April 2020)

▶ Trip Change in %

▶ Trip Change per sq mi

Teralytics To-work Trips Change During Weekday from April 2019 to April 2020 in Maricopa County

Teralytics To-work Trips Change During Weekday from April 2019 to April 2020 in Maricopa County



MAG's response (web page):
"COVID-19's Impact on Regional Traffic"



<https://www.azmag.gov/Newsroom/MAG-News/ArticleId/153/covid-19s-effect-on-regional-traffic>

<https://azmag.gov/Newsroom/MAG-News/ArticleId/153/covid-19s-effect-on-regional-traffic>



HOME ABOUT US* COMMITTEES* PROGRAMS* NEWSROOM*

COVID-19's Impact on Regional Traffic

Transportation



Telecommuting and stay-at-home restrictions for the COVID-19 pandemic are having a noticeable impact on traffic. The Maricopa Association of Governments is tracking the amount of time commuters are stuck in traffic on a daily basis. The measure of congestion delay* is calculated from speed data, which covers all major freeways and most of the arterial streets in Maricopa County on a daily basis, 24 hours a day. **Please note that the graphs below are derived from INRIX data, which are proprietary and require attribution. A single notation within a report that contains INRIX data and a single logo on web pages that draw from INRIX data is acceptable.** For example, a reporter could say "according to travel time data by the analytics company INRIX." The graphs below incorporate the appropriate attributions.

To subscribe for updates when data changes, click on the GovDelivery icon under the charts.

**The delay (measured in vehicle hours) is calculated as the excessive travel time for all vehicles when average speed during a given hour is at least 20mph lower than the free-flow speed. The daily delay is calculated as the sum of hourly delay per day in the region.*



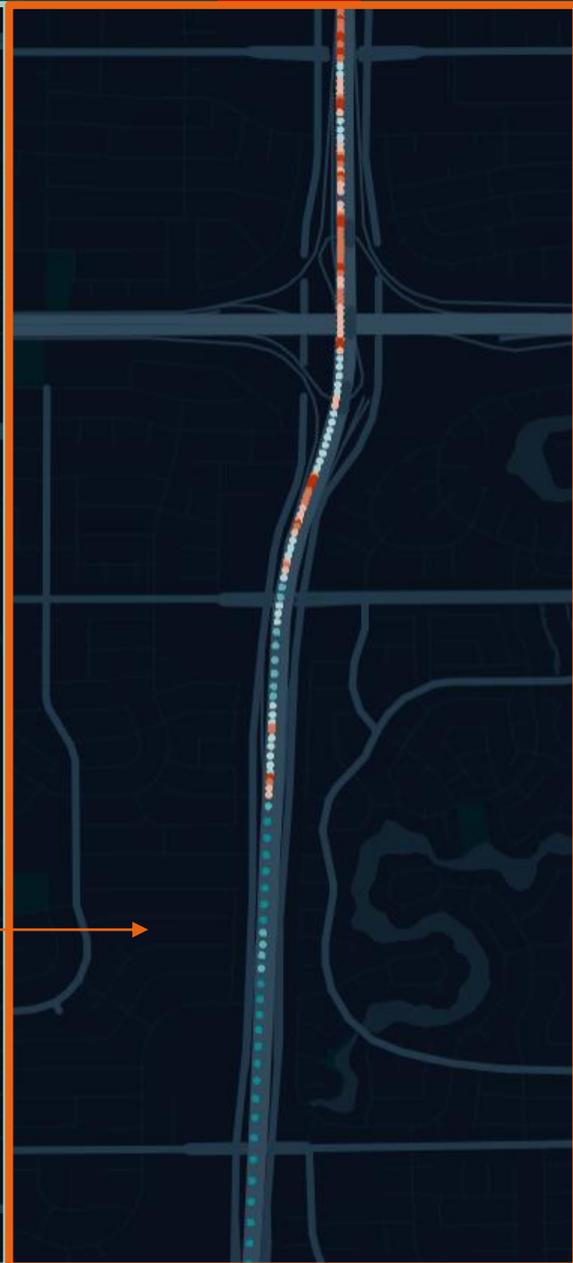
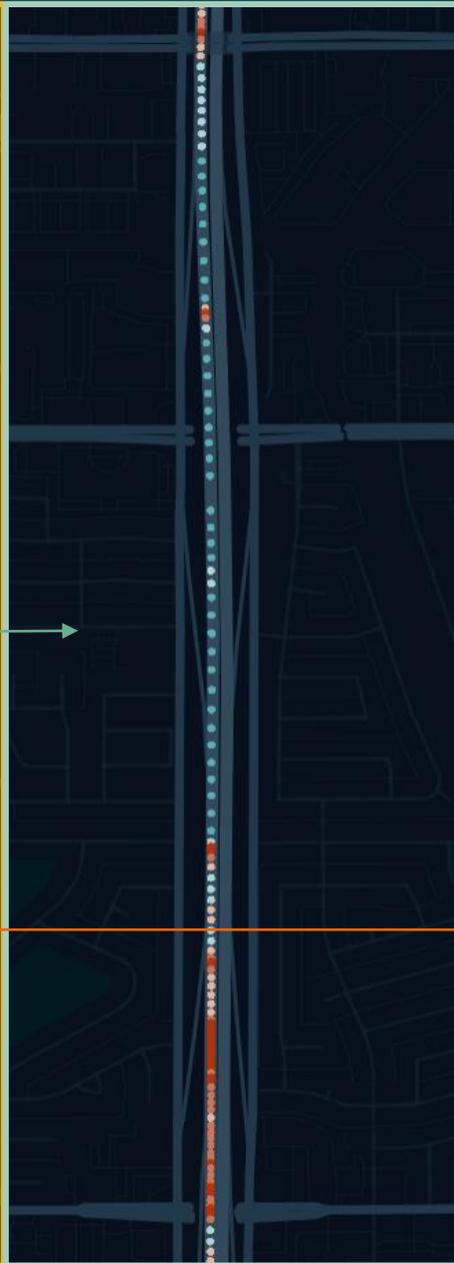
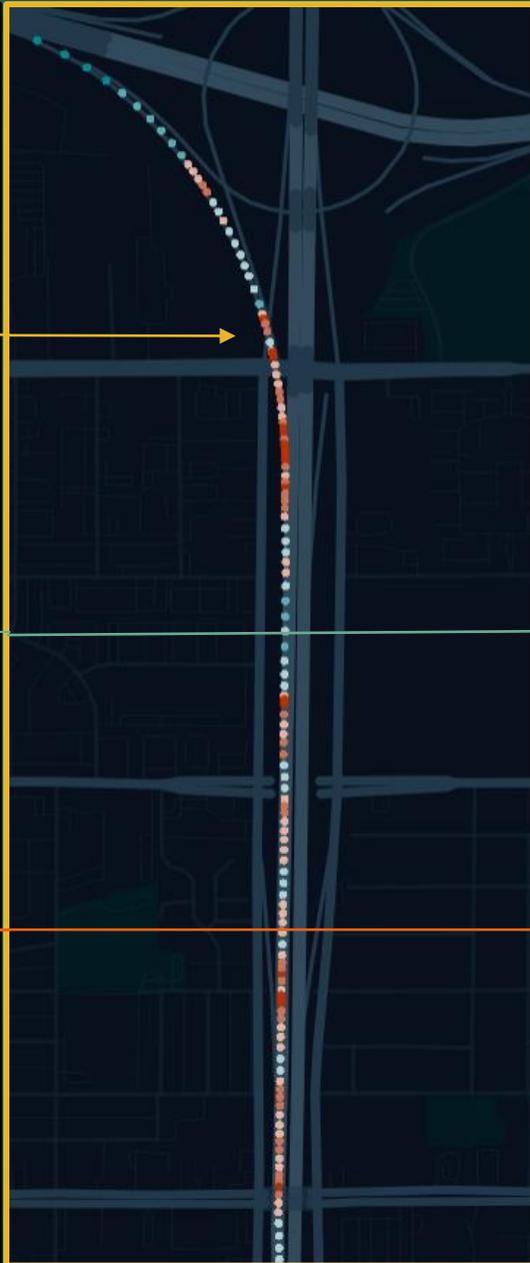
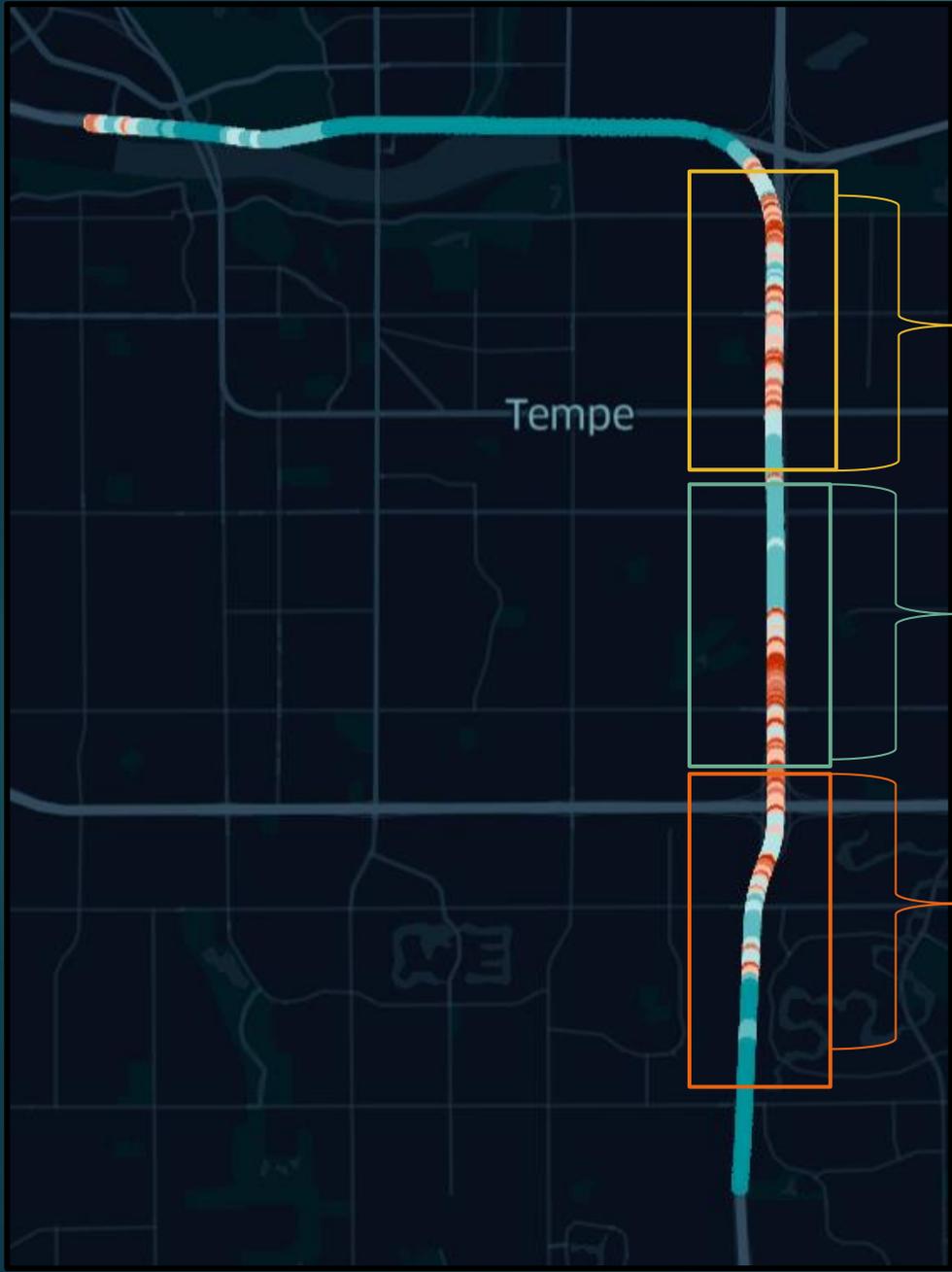
What does this chart tell me?

- Fewer cars means less congestion.
- Less congestion means higher average speeds.
- In comparing March 2019 to March 2020, freeway speeds increased 9% in the a.m. and 15% in the p.m.
- For arterial streets, there was a 23% increase in speeds during the morning rush hour and a 25% increase

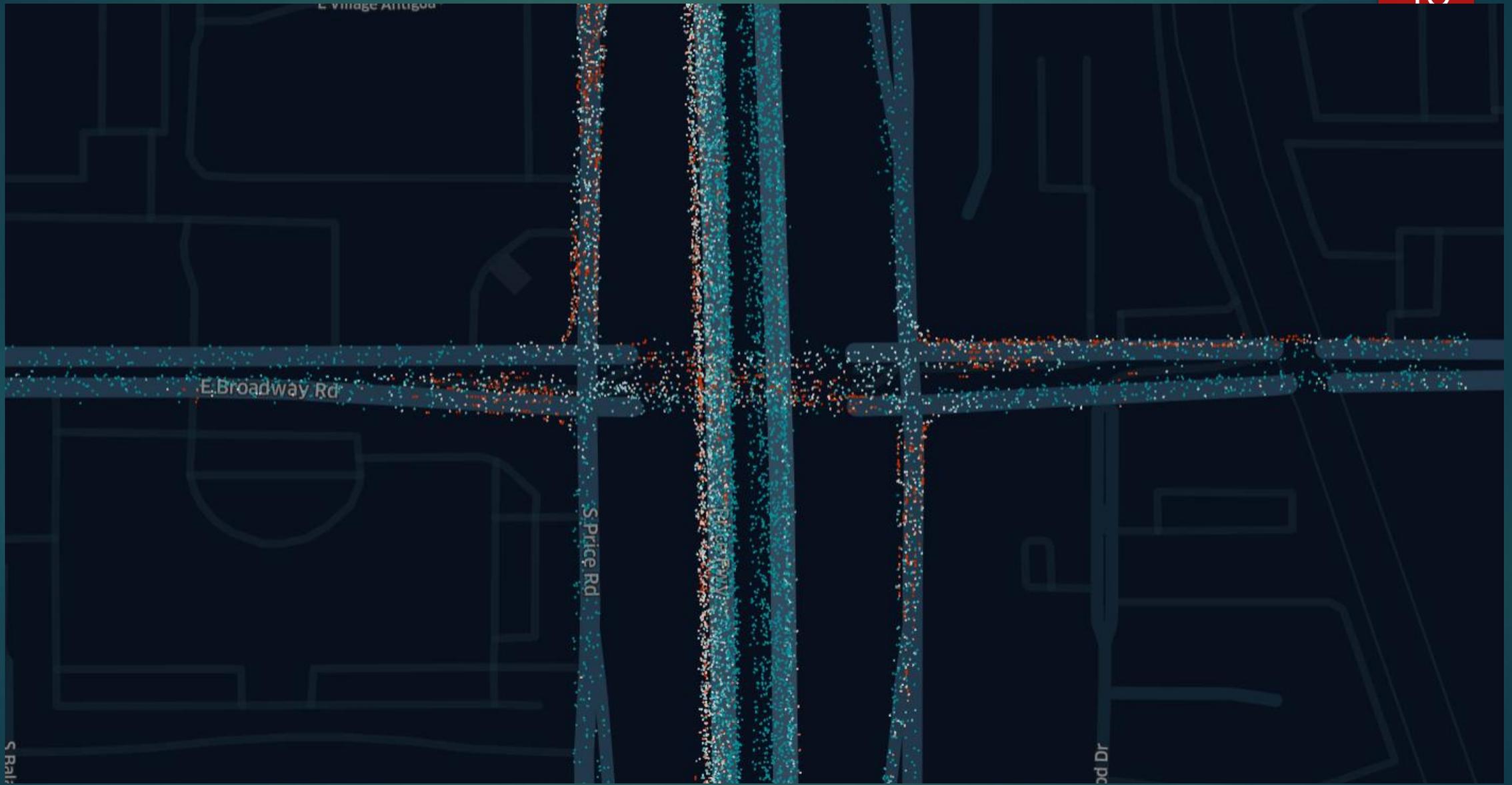
Vehicle movement data

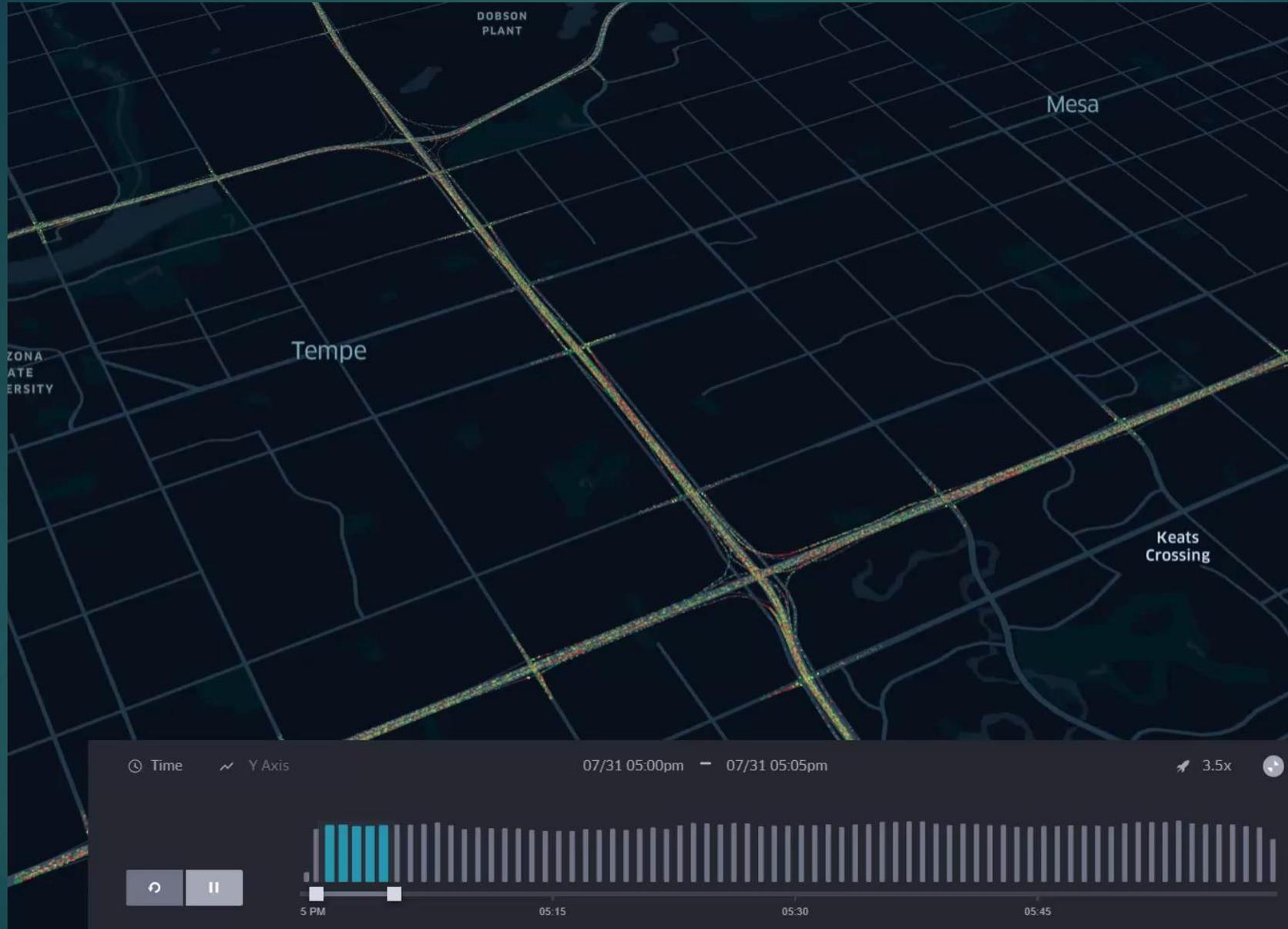
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- ▶ Vehicle trajectory update every 3-sec
 - ▶ Report: speed/direction/position
 - ▶ Calculate: delay, queue, harsh brake, OD
- ▶ Spatial-temporal coverage
 - ▶ MAG modeling area (Maricopa county and Pinal county)
 - ▶ 12-month in 2019-2020
 - ▶ About 3,600 unique samples, about 2,500+ vehicles running daily
- ▶ Additional information
 - ▶ Passenger cars, pickups and SUVs
 - ▶ Make, model, year

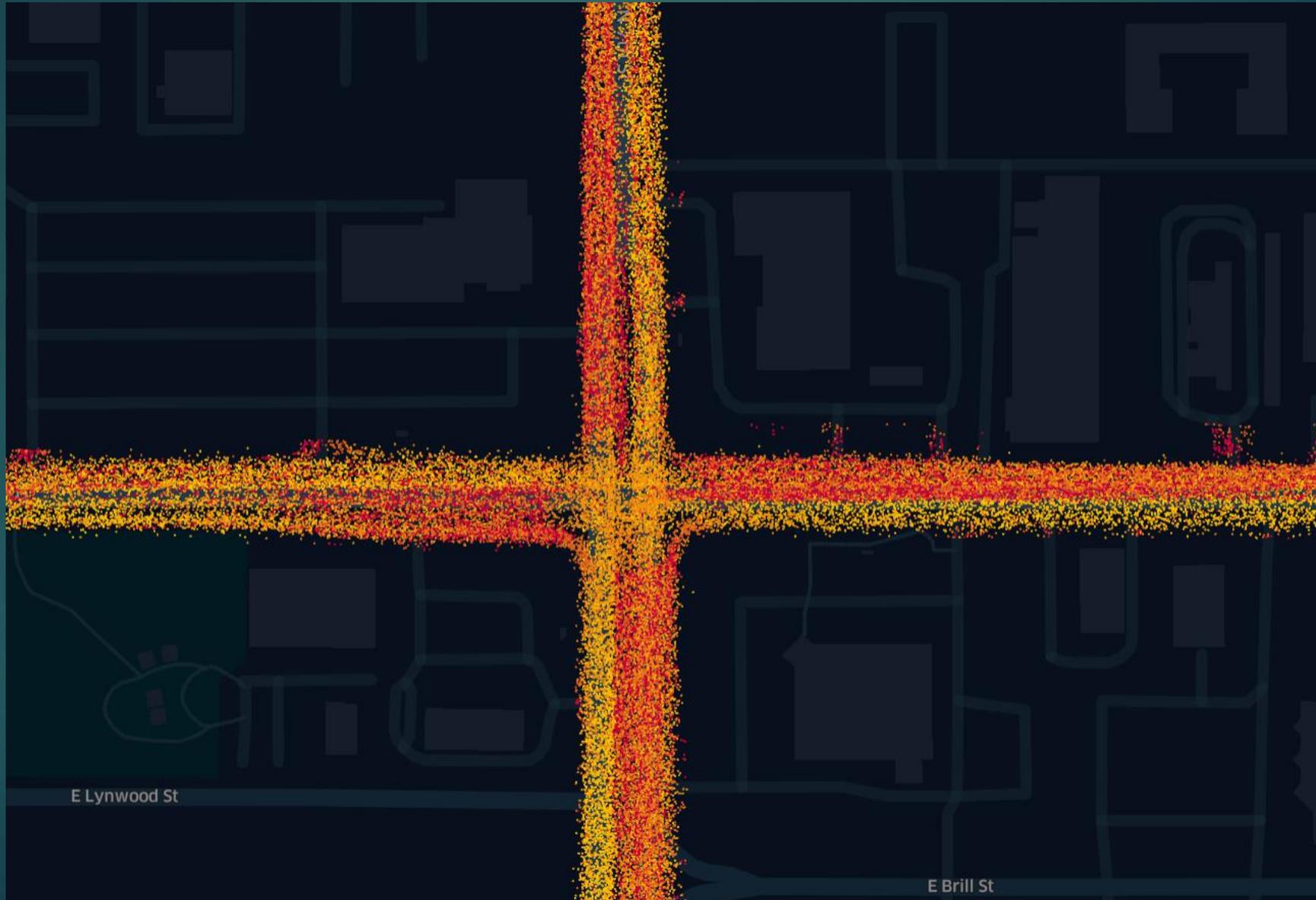


Freeway level (1 day of data during PM)

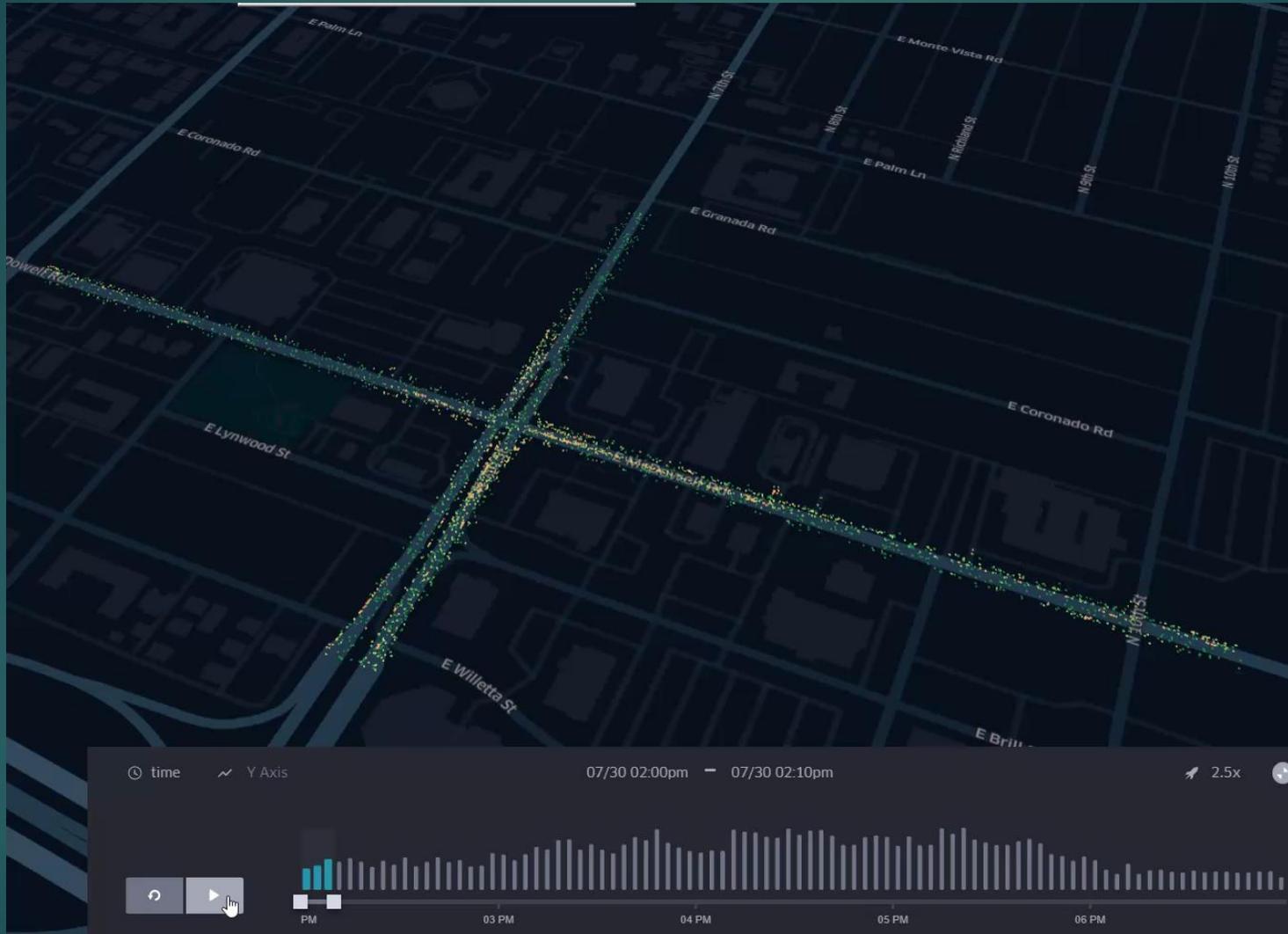




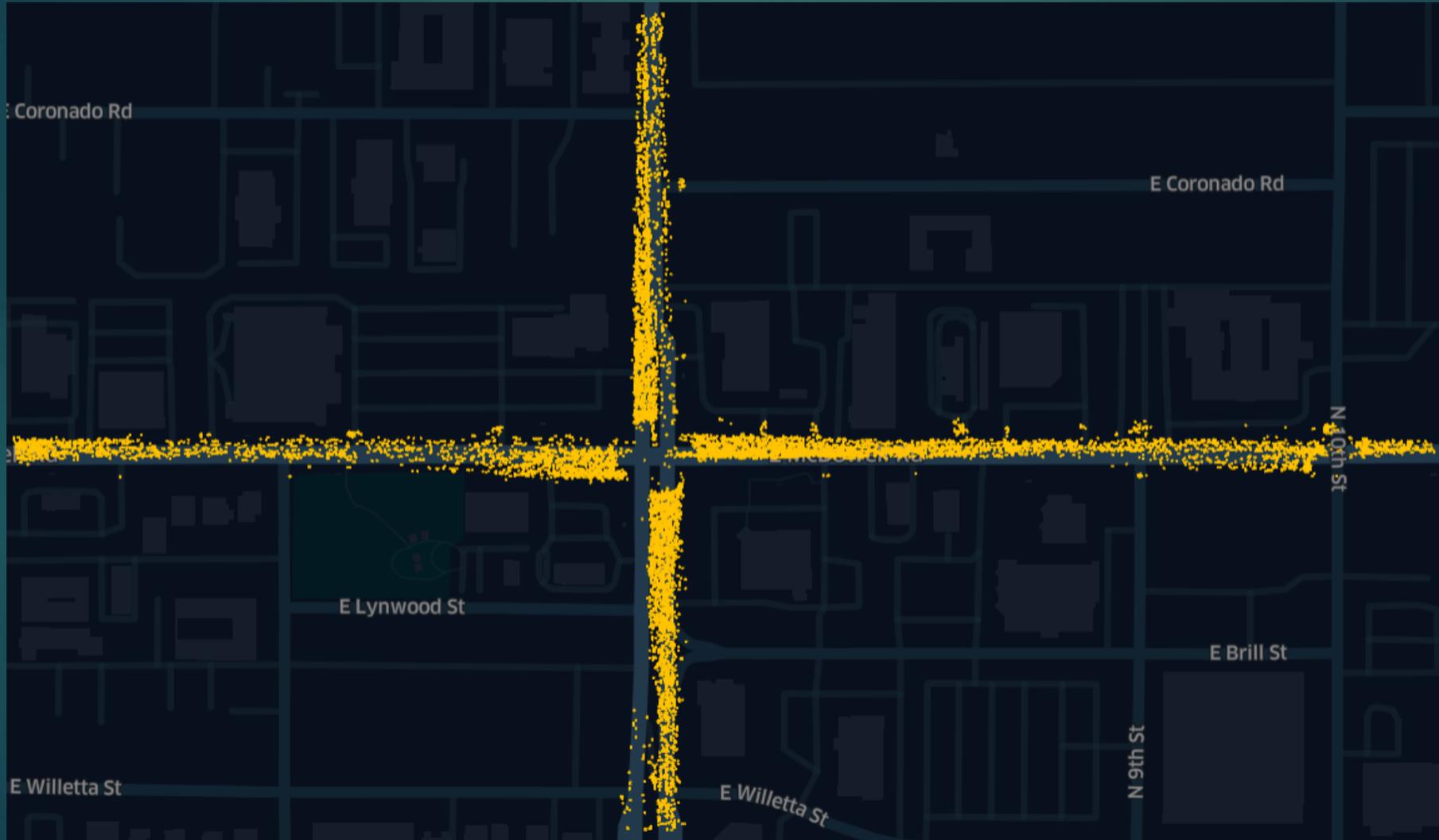
Intersection level (1 week of data during PM)



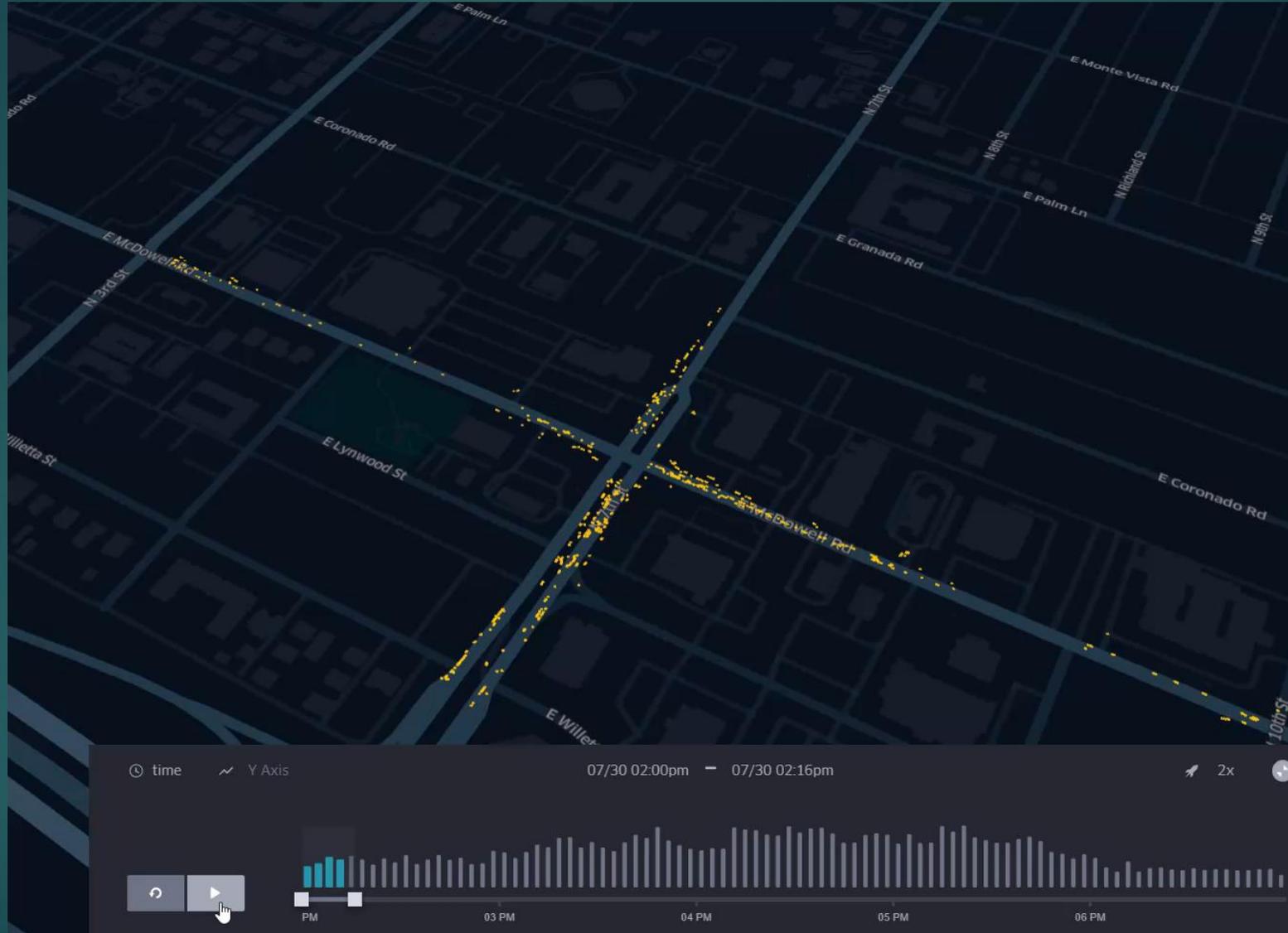
Time-series of vehicle movement at an intersection



Precise stop positions at an intersection



Time-series of vehicle stop positions at an intersection



Application – Vehicle Movement Data

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- ▶ Bottleneck case study: evaluate choke points, harsh brake, lane change behaviors, queue...etc.;
- ▶ Intersection study: turning movement distribution (not count), control delay, queue, level of service;
- ▶ Travel study: OD, trip patterns, trip length, locations visited, trip purpose;
- ▶ Project evaluation: before and after study;
- ▶ In development of data processing and analyzing routines (in-house);

Questions/Comments

Wang Zhang, MAG Transportation Data Program Manager
wzhang@azmag.gov

7. Requests for Future Agenda Items

8. Comments from the ITS Committee Members

Next Meeting

Wednesday, September 2, 2020 at 10:00 a.m.
Virtual Meeting

9. Adjourn