

MAG ITS Committee

June 3, 2020



3. Staff Report

3. Federal Updates Reported by FHWA

- USDOT Published Draft Broad Agency Announcement (BAA) for Compete Trip ITS4US Deployment
 - \$40 million will be available to enable communities to showcase innovative business partnerships, technologies, and practices that promote independent mobility for all.
 - DRAFT BAA for Phase 1 public comment period closed on May 29, 2020.

Website: <https://beta.sam.gov/opp/ef3f589b3d814e528887253a119db4cb/view>

Complete Trip- ITS4US Deployment Program

i Note: There have been new actions to this contract opportunity. To view the most recent action, please click [here](#).

ACTIVE

Contract Opportunity

Notice ID
693JJ3-20-BAA-0004

Related Notice

Department/Ind. Agency
TRANSPORTATION, DEPARTMENT OF
Sub-tier
FEDERAL HIGHWAY ADMINISTRATION
Office
693JJ3 ACQUISITION AND GRANTS MGT

General Information

Contract Opportunity Type: Presolicitation (Original)
All Dates/Times are: (UTC-04:00) EASTERN STANDARD TIME, NEW YORK, USA
Original Published Date: May 15, 2020 04:08 pm EDT
Original Response Date: May 29, 2020 03:00 pm EDT
Inactive Policy: 15 days after response date
Original Inactive Date: Jun 13, 2020
Initiative:

- o None

3. Federal Updates Reported by FHWA

- FHWA Published YouTube Videos

- Executive Level Integrated Corridor Management (ICM) Video (9-min)

Website: <https://youtu.be/xWPyzgFlf7wFHWA>

- “Does Travel Time Reliability Matter?” Video (3-min)

Website: <https://www.youtube.com/watch?v=BXblj8MPDD0>



3. Federal Updates Reported by FHWA

- FHWA published Safety Analysis Needs Assessment & Safety Performance Analyses of TSMO
 - *Safety Analysis Needs Assessment for TSMO*
 - *Safety Performance Analysis of TSMO: A Practical Approach for Assessing Traffic Signal Coordination Effects on Crash Probability and Severity*
 - *Safety Performance Analysis of TSMO: A Practical Approach for Assessing Safety Service Patrol Effects on Secondary Crashes*

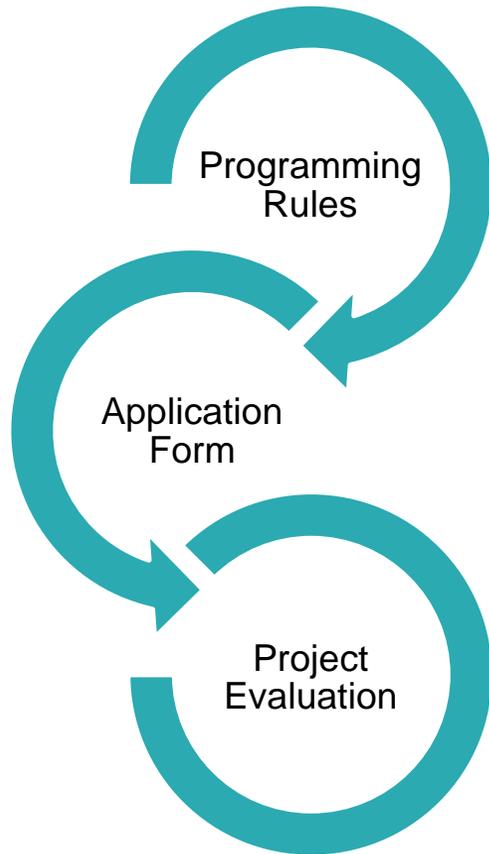
Website: <https://safety.fhwa.dot.gov/rsdp/hsm.aspx>



3. MAG Telework and Public Meeting Policy Update

- Mandatory telecommuting continues through June
- Migrated to ZOOM for virtual public meetings
 - Meeting invites are for ITS committee members
 - Additional jurisdictional staff, consultants, general public can view on YouTube Channel

3. TIP Call for Projects Feedback Working Group Meeting Recap



- \$ Cap per project
- Multi-agency incentives
- Definition of buckets

- CMAQ measures and guidance
- Future online submission method

- Air quality methodology
- Project evaluation study
- Projects designated for multiple buckets

3. Updates on Professional Conferences

- Roads and Streets moved to September 23-25, 2020 **In-Person**
- ITS World Congress October 4-8, 2020 **Virtual**
- ITE Western & Mountain Districts Joint Annual Meeting June 28-July 1, 2020 **Virtual**
- ITS Arizona Annual Conference going virtual in late 2020 **Virtual**

The image shows two screenshots of conference websites. The top screenshot is for the "LOS ANGELES ITS WORLD CONGRESS 2020" held from October 4-8, 2020, at the Los Angeles Convention Center. The page features a banner with a globe and palm trees, and the text "ITS WORLD CONGRESS LOS ANGELES 2020 NEWS" and "The New Age of Mobility". The bottom screenshot is for the "ITE WESTERN DISTRICT ANNUAL MEETING" which is a "VIRTUAL 2020 Annual Meeting" for the Joint Western & Mountain Districts, held from June 28 to July 1, 2020. This page includes a banner with a mountain range and the Hawaiian phrase "‘Ō kākou ka ‘oi '“Together we are the best”" and a call to action "JOIN US ONLINE". Below the screenshots is a snippet of the ITS Arizona website, announcing the "ITS ARIZONA 27TH ANNUAL CONFERENCE NOW A VIRTUAL CONFERENCE!!" for May 18, 2020. The announcement text states: "Thank you for continued support of the ITS-Arizona Annual Conference. To support the health, safety, and well-being of our members and attendees, the 2020 ITS Arizona Annual Meeting will be transitioned to a virtual conference. The fall conference dates will be announced in the near future." It also mentions that the registration fees will be significantly reduced and that the organization is grateful for the support of its members over the years.

4. Maricopa County Department of Transportation Arterial Traffic Data Integration

AZTech Regional Archived Data System (RADs) Video Detection System (VDS)



Tomas Guerra



Presented to MAG ITS Committee
On Behalf of Maricopa County Department of Transportation



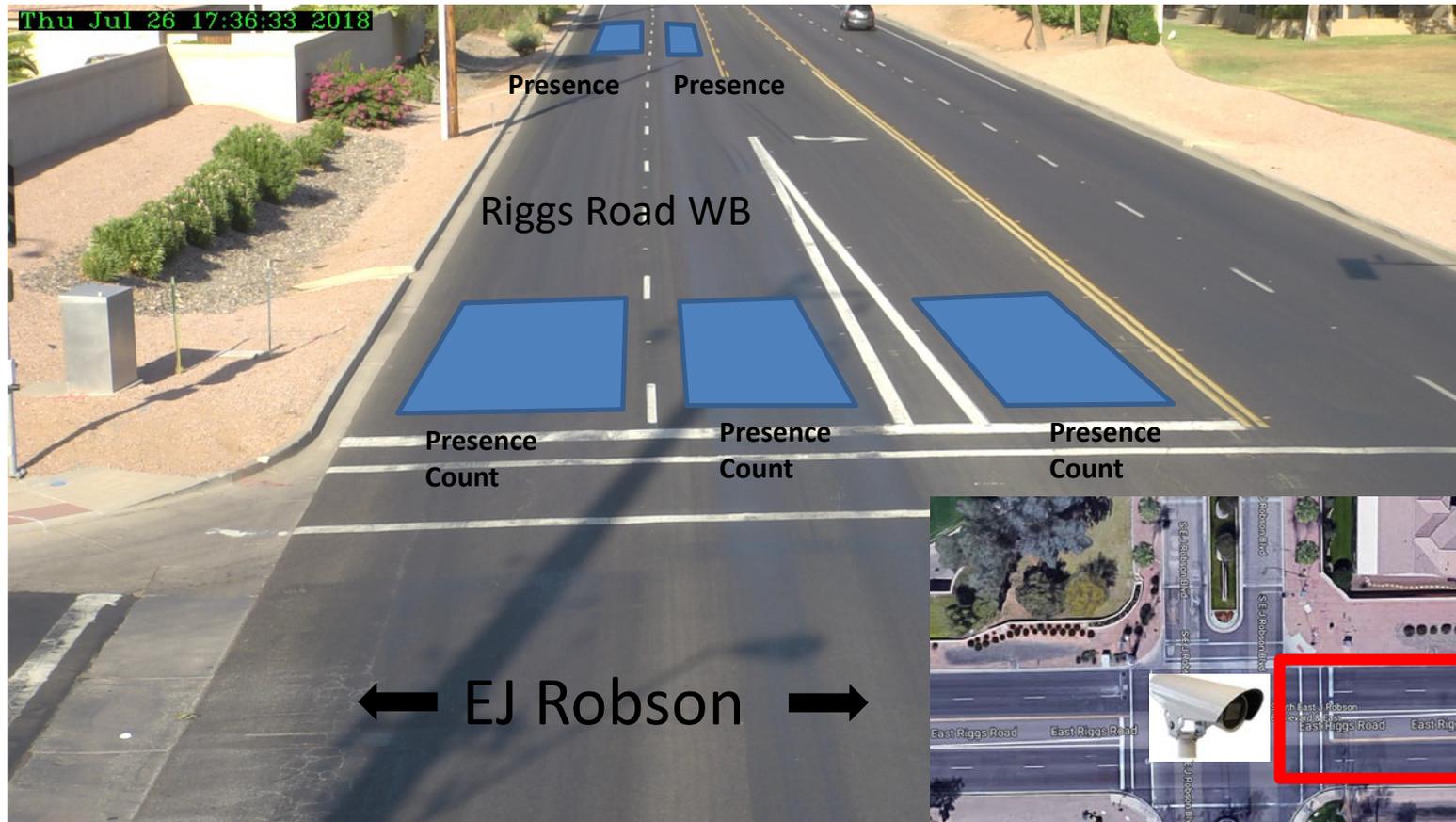
Maricopa County
Department of Transportation

3-June-2020



Available Data

- Lane-by-lane count (vehicle, bike)
- Presence detection state (occupancy)



- Lane-by-lane count produces **turning movement counts** that are essential to traffic signal timing development
 - 15-minute summary count produces Peak Hour Factor
 - Traffic count per lane (interval)
 - Annual Daily Traffic, AADT
-

Turning Movement Counts

Form 760-020-02
 TRAFFIC ENGINEERING - 01/14
 Draft (1/31/2014)

State of Florida Department of Transportation

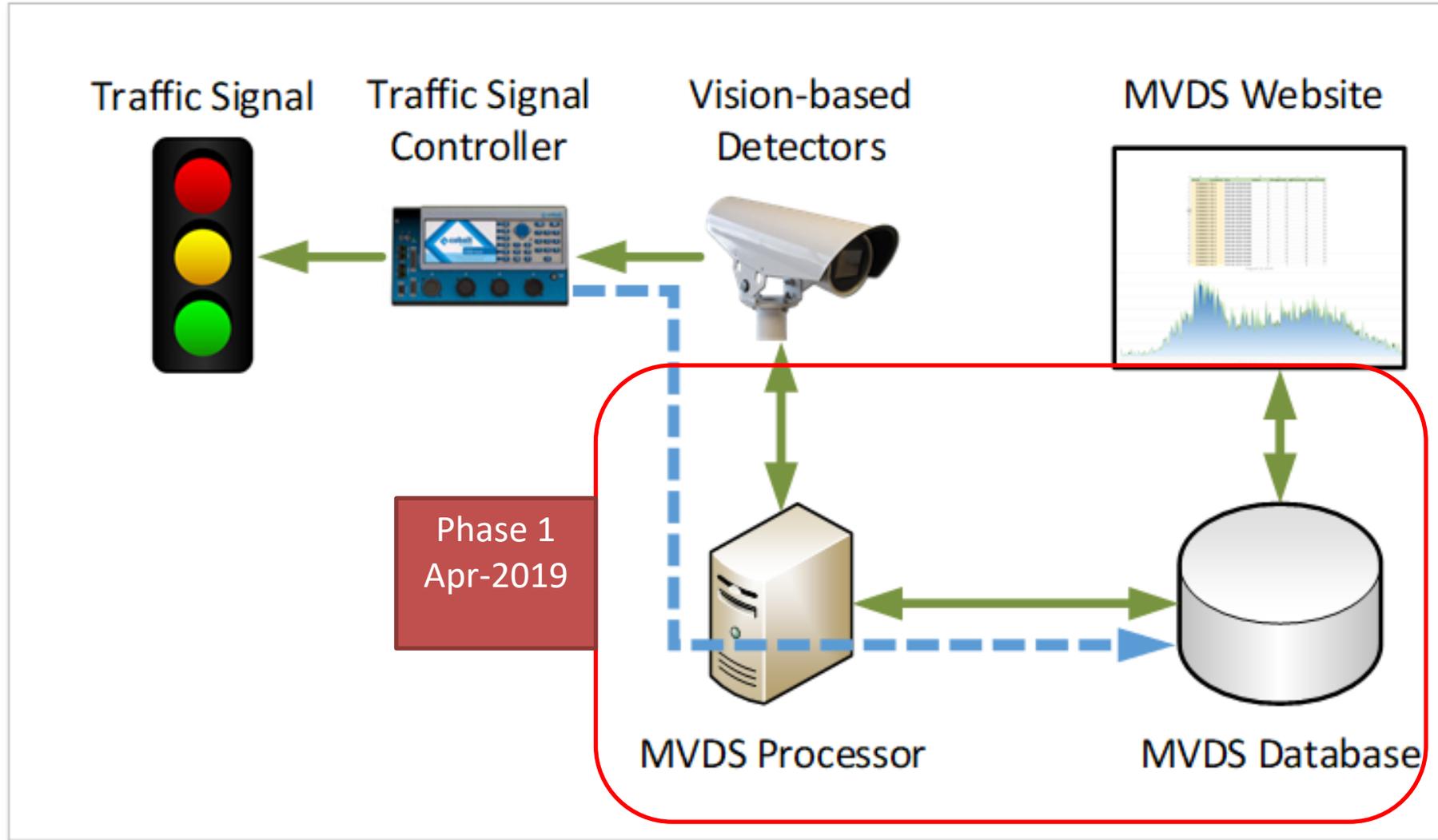
SUMMARY OF TURNING MOVEMENT COUNTS

General Information					Intersection Diagram					
Analyst/Observer:	BPP									
Agency or Company:	FDOT									
Date Performed:	Monday, March 31, 2014									
Analysis Time Period:	PM Peak									
Site Information										
City:	Fort Lauderdale									
County:	Broward									
Weather:	Sunny									
Remarks:	Stalled vehicle on northern EB left turn lane, Dry Road Conditions									

VEHICLE MOVEMENTS

Time Begins	Northbound				Southbound				Eastbound				Westbound				Total All
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	106	168	10	284	99	215	124	438	266	567	165	998	198	615	15	828	2548
4:15 PM	103	200	22	325	107	234	133	474	230	498	168	896	200	553	33	786	2481
4:30 PM	147	214	17	378	86	250	102	438	257	500	187	944	188	539	19	746	2506
4:45 PM	108	199	31	338	95	217	125	437	216	545	135	896	213	514	28	755	2426
TOTAL	464	781	80	1325	387	916	484	1787	969	2110	655	3734	799	2221	95	3115	9961
5:00 PM	133	225	12	370	114	253	117	484	245	613	110	968	237	652	13	902	2724
5:15 PM	98	174	15	287	89	241	129	459	300	601	135	1036	225	580	25	830	2612
5:30 PM	102	187	9	298	78	215	111	404	287	544	89	920	176	573	33	782	2404

VDS Architecture



Virtual Detector Zone Naming Convention



Zone Name	Description
EB ADV L1	Eastbound advanced detector, lane 1 (outer-most lane)
WB L2	Westbound through lane (stop bar), lane 2
SBLT L3	Southbound dedicated left-turn lane (stop bar), lane 3
NBRT L1	Northbound dedicated right-turn lane (stop bar), lane 1 (outer-most lane)



Intersections & Sample Data

VDSName	BinTime	VDSId	CameraIndex	ZoneName	Volume	ThroughCount	Right TumCount	Left TumCount	BicycleCount	AverageSpeed	Occupancy	
1 Alabama Ave. N & 111th Ave.												
2 Anthem Way & Daisy Mtn.												
3 Anthem Way & Gavilan Peak												
4 Anthem Way & Navigation Way												
5 Anthem Way & Venture Dr.												
6 Bethany Home Rd. & Dysart Rd.												
7 Boulder Creek & Gavilan Peak												
8 Camelback Rd. & Litchfield Rd.												
9 Carefree Hwy & 7th St												
10 Daisy Mtn. & Dedication Trail												
11 Daisy Mtn. & Gavilan Peak												
12 Daisy Mtn. & Hastings Way												
13 Daisy Mtn. & Memorial Dr.												
14 Daisy Mtn. & Meridian Dr.												
15 Indian School Rd. & 111th Ave.												
16 MC 85 & 119th Ave.												
17 McDowell Rd. & 92nd St.												
18 McDowell Rd. & Alma School Rd.												
19 McDowell Rd. & Longmore Rd.												
20 McKellips Rd. & Alma School Rd.												
21 Memorial Dr. & Gavilan Peak												
22 Missouri Ave. & Dysart Rd.												
23 Northern Ave. & Reems Rd.												
24 Palمراس Dr. & 99th Ave.												
25 Riggs Rd. & Dobson Rd.												
26 Riggs Rd. & E J Robson Blvd.												
27 Riggs Rd. & Glenburn Dr.												
	1	2019-10-09 07:00	7	1	EB ADV L2	17	17	0	0	0	58.70812	0.11545
	2	2019-10-09 07:00	7	1	EB ADV L3	26	26	0	0	0	56.15839	0.18245
	3	2019-10-09 07:00	7	1	EB L2	20	20	0	0	0	78.99875	0.12671
	4	2019-10-09 07:00	7	1	EB L3	31	31	0	0	0	77.53964	0.2565
	5	2019-10-09 07:00	7	3	NBLT L2	4	0	0	3	0	11.4335	0.54949
	6	2019-10-09 07:00	7	3	NBRT L1	6	0	6	0	0	13.01817	0.22556
	7	2019-10-09 07:00	7	2	WB ADV L1	1	1	0	0	0	62.579	0
	8	2019-10-09 07:00	7	2	WB ADV L2	2	2	0	0	0	65.3345	0
	9	2019-10-09 07:00	7	2	WB L1	10	10	0	0	0	59.4192	0.15368
	10	2019-10-09 07:00	7	2	WB L2	14	14	0	0	0	60.67286	0.19603
	11	2019-10-09 07:00	7	2	WBLT L3	4	1	0	3	0	15.66375	0.2241
	12	2019-10-09 07:05	7	1	EB ADV L2	16	16	0	0	0	61.95362	0.13117
	13	2019-10-09 07:05	7	1	EB ADV L3	30	30	0	0	0	62.1401	0.15701
	14	2019-10-09 07:05	7	1	EB L2	19	19	0	0	0	68.128	0.2151
	15	2019-10-09 07:05	7	1	EB L3	34	34	0	0	0	79.32315	0.29995
	16	2019-10-09 07:05	7	1	EBRT L1	1	0	1	0	0	28.208	0.02173
	17	2019-10-09 07:05	7	3	NBLT L2	3	0	0	3	0	23.256	0.17864
	18	2019-10-09 07:05	7	3	NBRT L1	12	0	12	0	0	11.01883	0.42115
	19	2019-10-09 07:05	7	2	WB ADV L2	1	1	0	0	0	69.726	0.00172
	20	2019-10-09 07:05	7	2	WB L1	11	11	0	0	0	64.83864	0.10445

Olive Ave and 103rd Ave

ZoneName	StartTime	EndTime	Volume	Through Count	Through Count (%)	Right Turn Count	Right Turn Count (%)	Left Turn Count	Left Turn Count (%)
EB ADV L1	09-Oct 7:00 AM	16-Oct 6:50 AM	42,165	42,165	100%	-	0%	-	0%
EB ADV L2	09-Oct 7:00 AM	16-Oct 6:50 AM	50,771	50,771	100%	-	0%	-	0%
EB L1	09-Oct 7:00 AM	16-Oct 6:50 AM	47,360	44,436	94%	2,900	6%	23	0.05%
EB L2	09-Oct 7:00 AM	16-Oct 6:50 AM	56,598	56,496	100%	43	0.1%	56	0%
EBLT L3	09-Oct 7:00 AM	16-Oct 6:50 AM	3,353	480	14%	19	1%	2,851	85%
NB L1	09-Oct 7:00 AM	16-Oct 6:50 AM	10,443	3,391	32%	6,982	67%	37	0.4%
NBLT L2	09-Oct 7:00 AM	16-Oct 6:50 AM	3,581	152	4%	11	0.3%	3,415	95%
SB L1	09-Oct 7:00 AM	16-Oct 6:50 AM	3,020	572	19%	2,433	81%	7	0.2%
SB L2	09-Oct 7:00 AM	16-Oct 6:50 AM	2,647	2,621	99%	7	0.3%	18	1%
SBLT L3	09-Oct 7:00 AM	16-Oct 6:50 AM	2,958	144	5%	9	0.3%	2,805	95%
WB ADV L1	09-Oct 7:00 AM	16-Oct 6:50 AM	41,670	41,670	100%	-	0%	-	0%
WB ADV L2	09-Oct 7:00 AM	16-Oct 6:50 AM	51,464	51,464	100%	-	0%	-	0%
WB L1	09-Oct 7:00 AM	16-Oct 6:50 AM	45,717	43,188	94%	2,521	6%	8	0.02%
WB L2	09-Oct 7:00 AM	16-Oct 6:50 AM	59,144	59,131	100%	7	0.01%	5	0%
WBTL L3	09-Oct 7:00 AM	16-Oct 6:50 AM	7,748	976	13%	28	0.4%	6,744	87%

Riggs Rd. & EJ Robson Blvd

Adv. detector

Shadows from trees could also impact counts and appear to over-count.



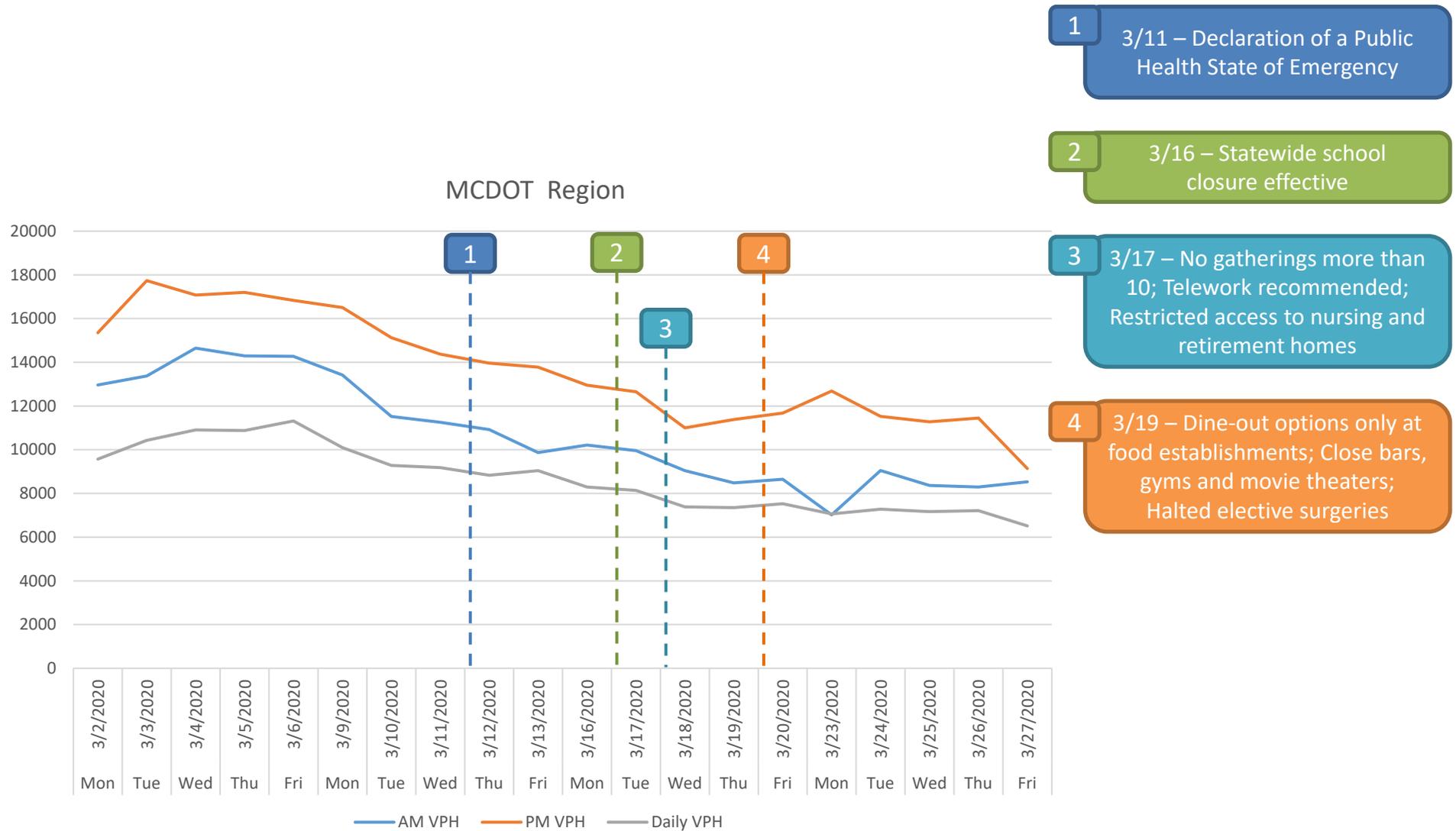
Adv. detector

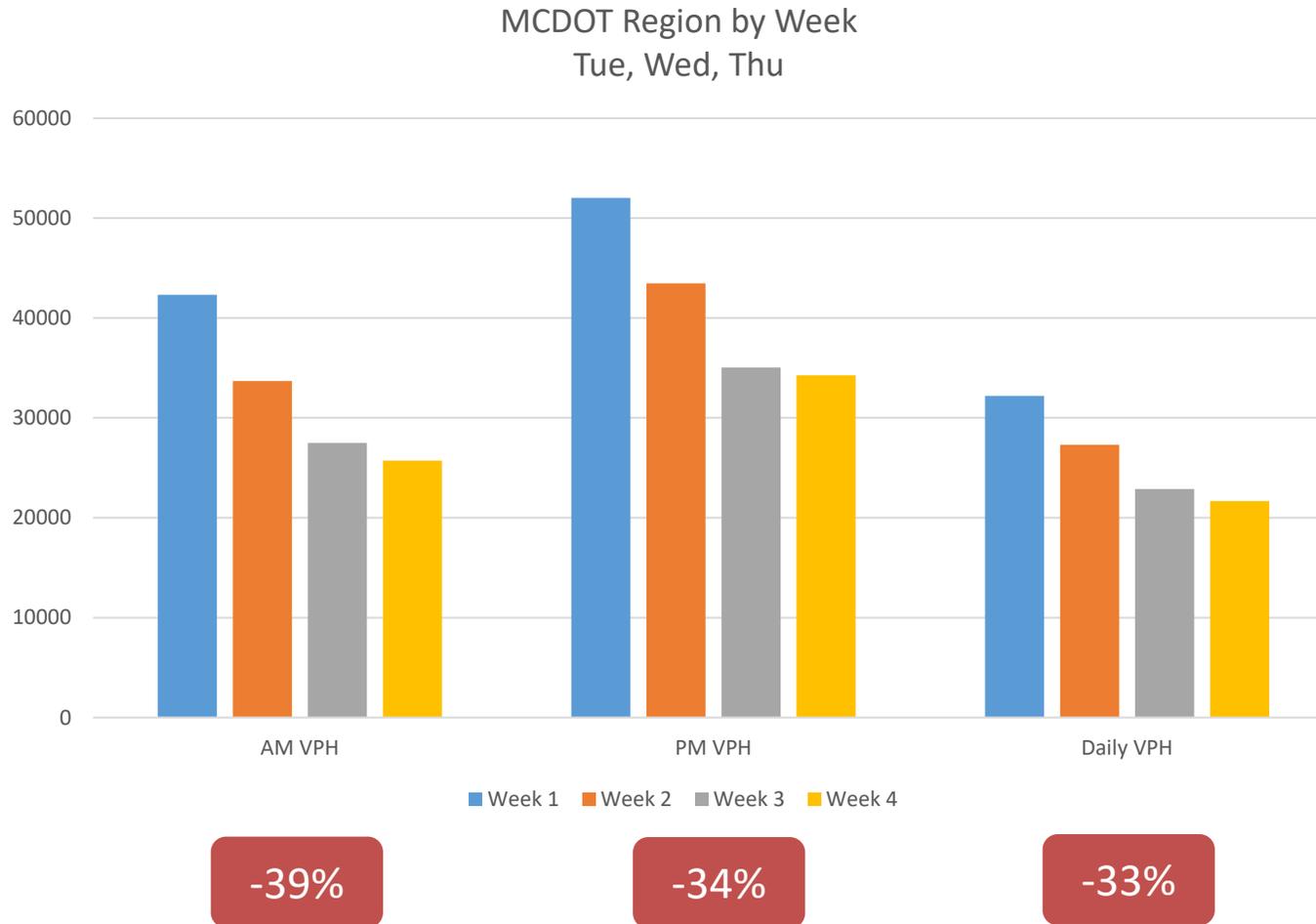
For counts, exclude the data collected from advanced detectors.

In higher volumes, the sensors do not see a separation between vehicles, which would result in undercounting.



COVID-19: March 2020 VPH (Mon – Fri)





Project Contacts



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Department of Transportation

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5. ADOT Statewide Traffic Data Collection Program

Arizona Statewide Traffic Data Collection Program

2020 Project Summary

Presented to:
MAG ITS Committee
June 3, 2020



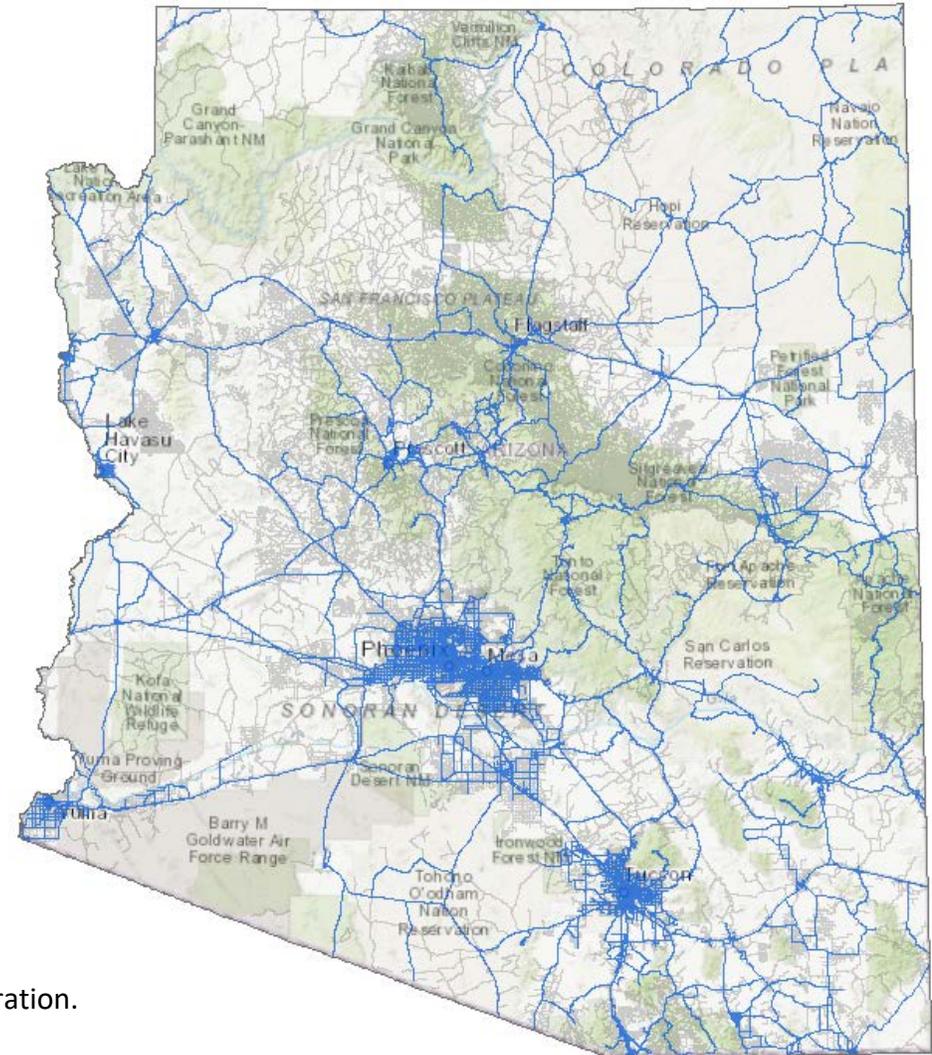
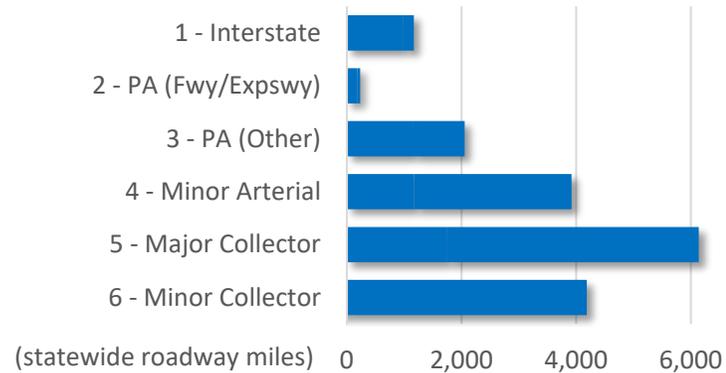
In consultation with: **WORKS** **OZ**
CONSULTING Engineering

DRAFT – for discussion purposes only

Roadway Miles where Traffic Counts are Needed

...for HPMS Reporting

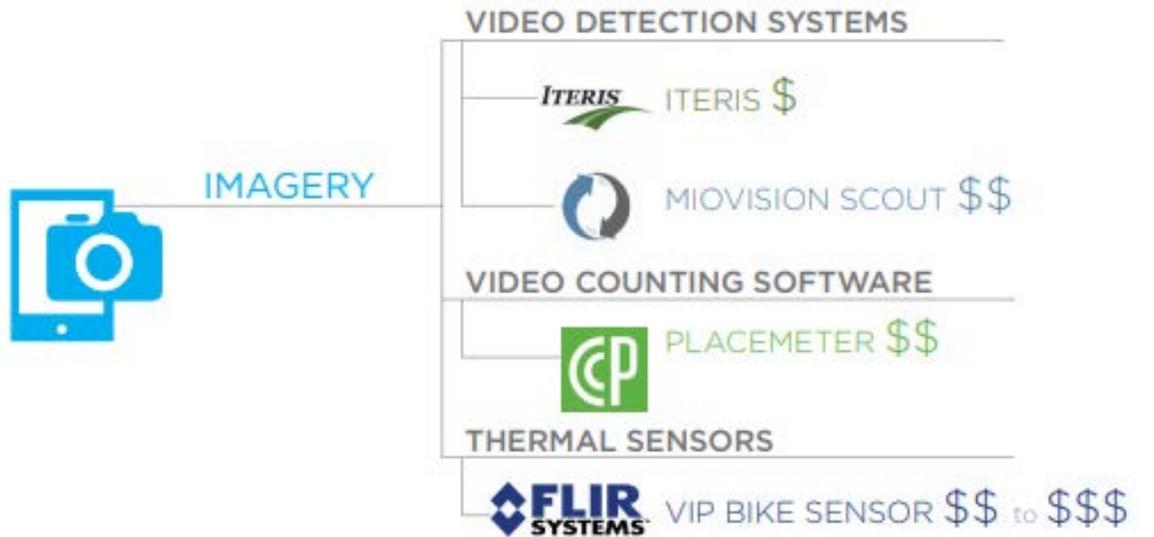
Functional Groups	Arizona mileage	
	State	Non-state
Principal Arterials	3,047	571
Minor Arterials & Collectors	3,809	12,865
Functionally Classified Local	1,501	62,461



*The Highway Performance Monitoring System (HPMS) is a rollup of statewide transportation data reported annually to the Federal Highway Administration.

Traffic Detection Technologies

- Manual counts
- Pneumatic Road tube counting
- Piezoelectric Sensor
- Inductive Loop
- Magnetic Sensor
- Acoustic Detector
- Passive Infrared
- Doppler and Radar Microwave Sensors
- Video Vehicle Detection

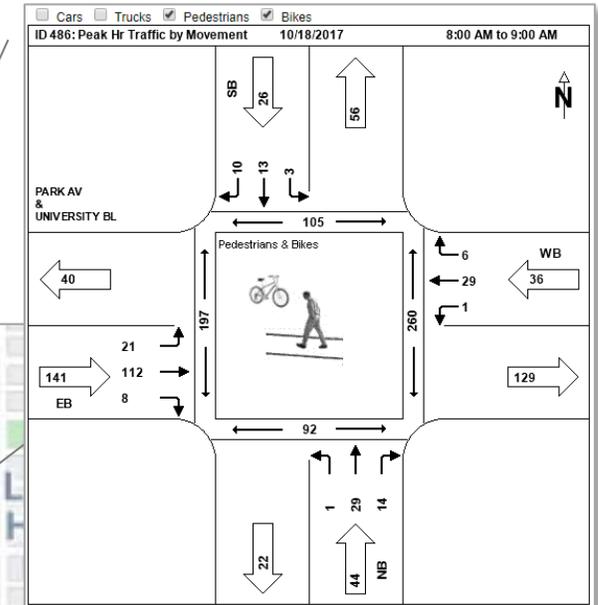
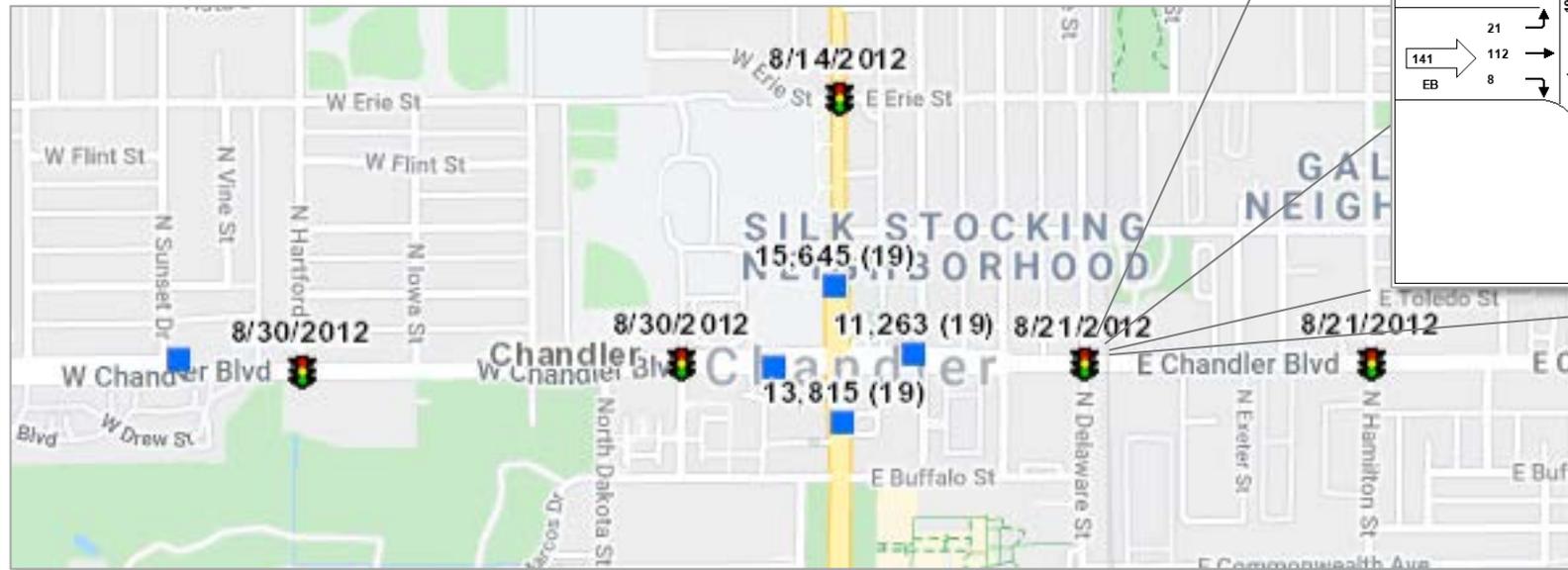


From: Alta Planning + Design, *Innovation in Bicycle and Pedestrian Counts*

<http://www.magtrans.org>

MS2 Data Modules:

- *Traffic Count Data System (TCDS)*
- *Turning Movement Count (TMC)*



magtrans.org is IMPORTANT in facilitating DATA SHARING.

ADOT Statewide Traffic Data Collection Program

Project Objective:

- Address traffic counting **DATA GAPS** (spatial, temporal, and quality)

By providing:

- Guidance on data needs and responsibilities
- Coordination and support with local agency count programs
- Collaboration on emerging technologies

ITS Subtask:

- Intersection Data Integration **Auto-poling Pilot**
 - **Inventory intersection traffic sensors** and classify fitness for traffic counting
 - Coordinate with agency partners on intersection data quality evaluations
 - Establish and test steps for integrations with magtrans.org

Project Contacts



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6. Regional Arterial Traffic Data Collection Opportunities

Regional Arterial Traffic Data Collection Opportunities

Presented by

Jeff Jenq, Ph.D.

TSMO Program Manager
Maricopa Association of Governments

Why Collecting Arterial Data?

- Valuable data for ITS operations and planning
- Leverage our ITS investments

MAG SM&O Investment Plan

Project#	Priority	Implementing Agency/Lead	Strategy	Description/Cost Basis	Planning Cost	wMultipliers	Funding Source	Pgm Yrs	Federal CMAQ	Federal STP	State HURFS	RARF	Implementing Agency/Lead
Phase 1 - Base ICM Corridor Requirements					2.03109165								
1	1	ADOT	Traffic responsive and coordinated ramp metering at all freeway entrance ramps	Excludes SR 51, which already has adaptive. ADOT's local match for ATCMTD grant includes adaptive ramp metering on Loop 101. Count is current ramp meter totals, minus SR 51 and Loop 101, divided by 2 for Phase 1 (134 ramps @ \$3,700 = \$495,800)	\$500,000	\$1,015,546	CMAQ	2020-2022	\$1,000,000				ADOT
2	1	Local Agencies	Real-time CCTV monitoring capabilities at all major-major arterial intersections on ICM corridors	Assumptions per corridor of what it would take to fill in gaps (includes some cost provisions for comm, integration, etc.). Provides coverage for approx 1 mile coverage goal - will supplement existing CCTV. (107 intersections @ \$7000 = \$749,000)	\$750,000	\$1,523,319	CMAQ	2020-2022	\$1,500,000				Local Agencies
3	1	Local Agencies	Vehicle and pedestrian actuated detection at all signalized intersections to support signal operations and real-time collection of data collection, including data on turning movement counts	Per corridor of what it would take to fill in gaps. Supplements existing intersection equipment. (107 intersections @ \$25,000 = \$2,675,000)	\$2,675,000	\$5,433,170	CMAQ	2020-2024	\$5,500,000				Local Agencies
4	1	Local Agencies	Static detour wayfinding at all intersections along specified detour routes	All intersections E/W and N/S on ICM arterials (590 signs @ \$3,500 = \$2,065,000)	\$2,065,000	\$4,194,204	CMAQ	2020-2024	\$4,000,000				Local Agencies
3	1	Local Agencies	Vehicle and pedestrian actuated detection at all signalized intersections to support signal operations and real-time collection of data collection, including data on turning movement counts	Per corridor of what it would take to fill in gaps. Supplements existing intersection equipment. (107 intersections @ \$25,000 = \$2,675,000)									
8	2	Local Agencies	Real-time visual monitoring capability at all major-major intersections on Priority Arterials	Based on what it would take to fill in gaps of major-majors for half of the priority corridors. (68 intersections @ \$7,000 = \$476k)	\$480,000	\$974,924	CMAQ	2020-2024	\$1,000,000				Local Agencies
9	2	Local Agencies	Additional detection at signalized intersections for real-time collection of data, including turning movement counts stored by individual agencies and archived in RADS	Estimated based on what it would take to fill in existing gaps (119 @ \$25,000 = \$2,975,000)	\$2,975,000	\$6,042,498	CMAQ	2020-2024	\$6,000,000				Local Agencies
10	2	Local Agencies	Reliable communications between TMCs and major-major intersections to facilitate remote management of traffic operations - Adds both fiber and wireless infrastructure	Estimated based on what it would take to fill in gaps (30 miles of fiber @ \$145k & 45 radios @ \$4,500 = \$4,552,200)	\$4,552,000	\$9,245,529	CMAQ	2020-2024	\$9,000,000				Local Agencies
Upgrading/Replacement of Existing Arterial Equipment [Phase 1]									\$16,000,000	\$ -	\$ -	\$ -	
11	2	Local Agencies	Regional Asset Upgrade/Replace Program - ICM Corridors & Priority Arterials	Priority will be given to ICM corridors and Priority Arterials. (\$3,400,000 per year, 2020-2024)	\$17,000,000	\$17,000,000	CMAQ	2020-2024	\$17,000,000				Local Agencies
Local Priorities [Phase 1]													
12	3	Local Agencies	Local priority ITS projects	For qualifying local ITS projects, programmed via TIP call for projects. (\$3M per year, FY2020-2024)	\$15,000,000	\$15,000,000	CMAQ	2020-2024	\$15,000,000				Local Agencies



What Arterial Data?

- Arterial traffic data

- Volume **Focus of this presentation**
- Original/Destination
- Travel time
- Etc.

- ITS operations/control data

- Traffic signal status and timing
- Automated Traffic Signal Performance Measures (ATSPM)
- Etc.

Smart Sensors

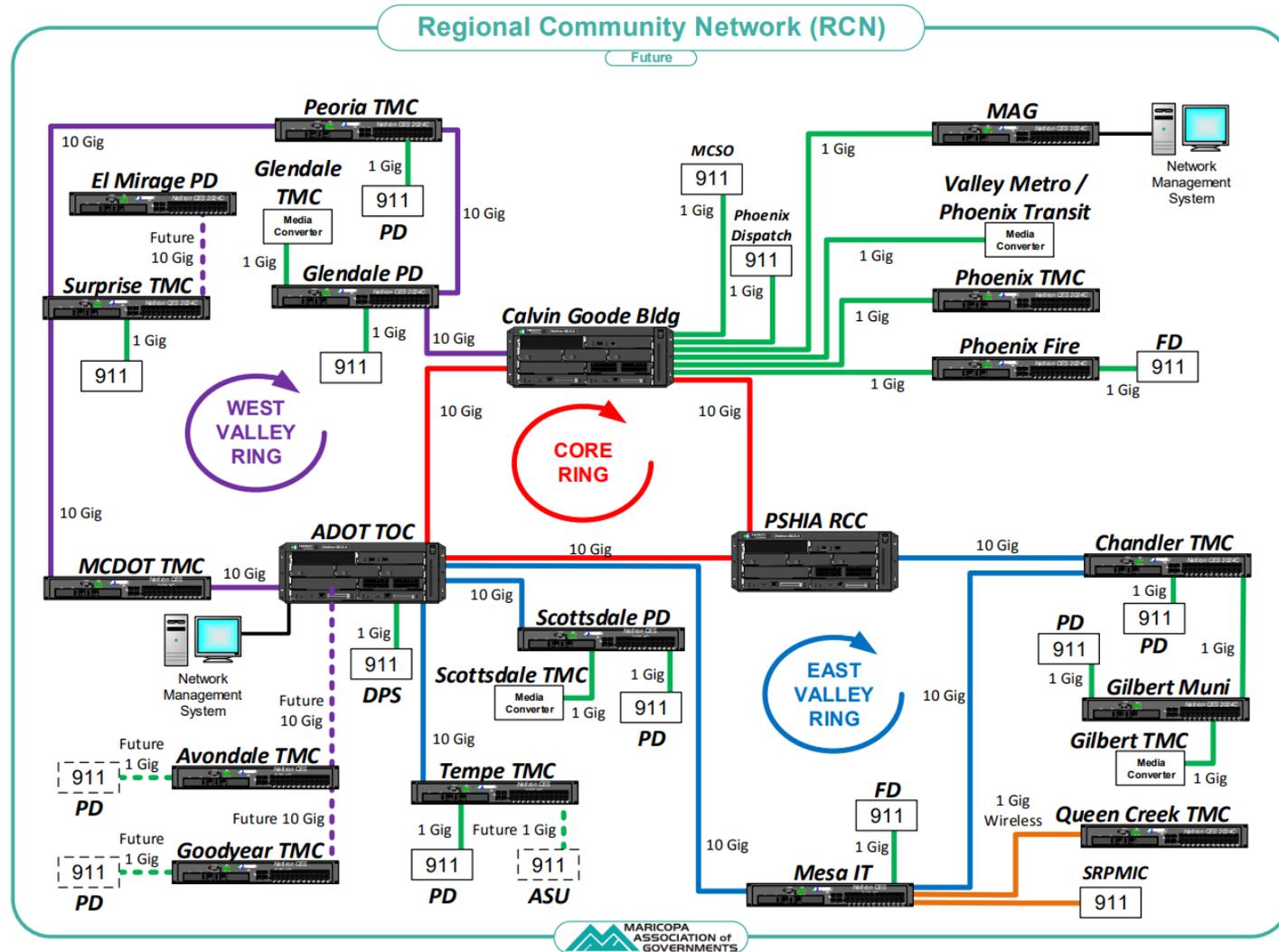
- Smart sensors deployed at intersection or mid-block capable of counting vehicles
- Smart sensors in MAG region:
 - Video-based detectors
 - Radar-based detectors
 - 360 degree fish-eye cameras
 - Inductive loops



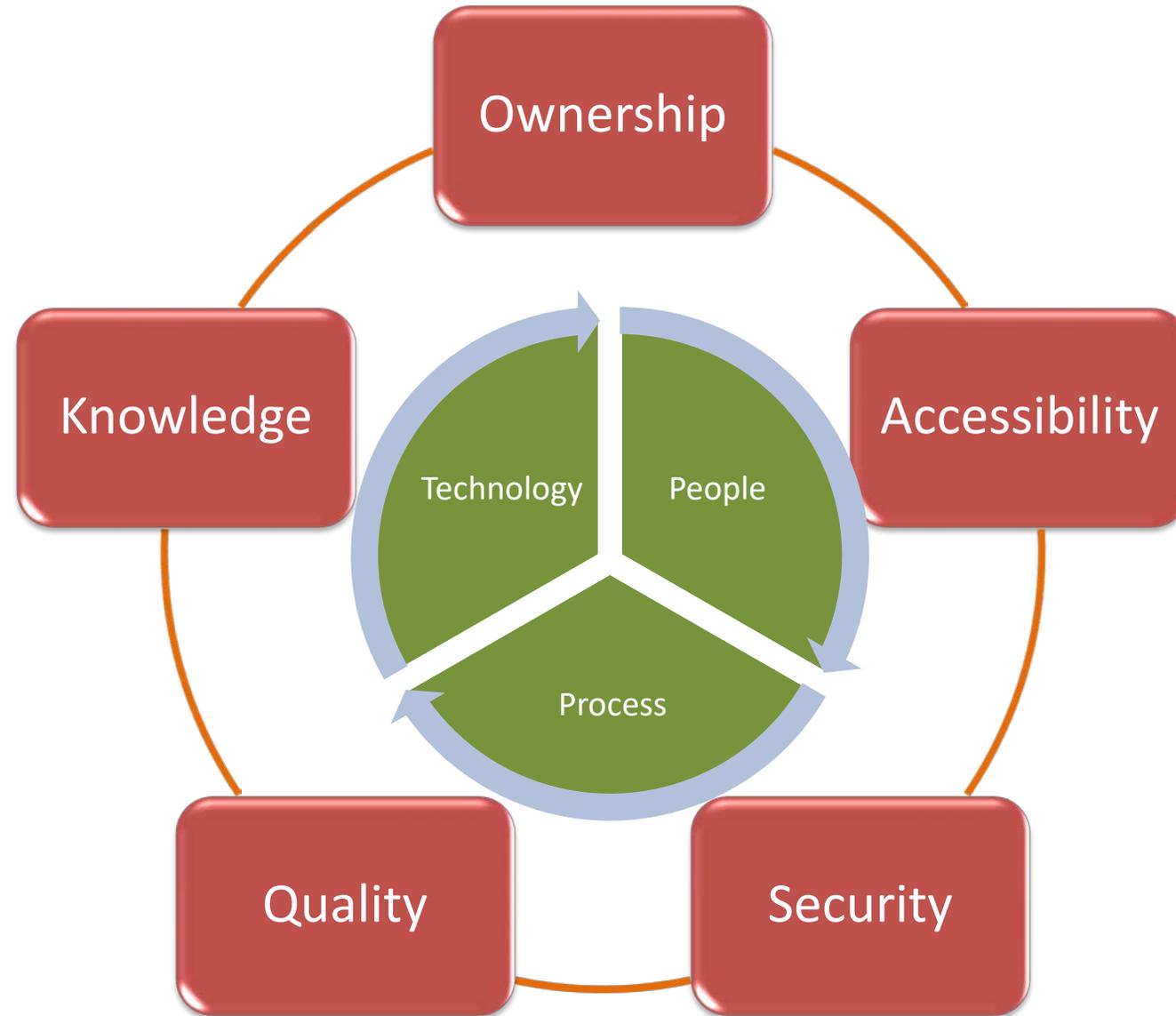
Picture credits:
Econolite, Iteris, GridSmart

Regional Data Collection

- Regional Community Network (RCN)



Data Governance



First Step

- Inventory of smart sensors and document opportunities
- Devise a regional plan

7. Reading of Public Comments

8. Requests for Future Agenda Items

9. Comments from the ITS Committee Members

Next Meeting

Wednesday, July 1, 2020 at 10:00 a.m.
Virtual Meeting

10. Adjourn