SPECIAL MEETING

EMERGING TECHNOLOGIES COMMITTEE

Please Note Date and Time
Thursday, April 11, 2019
1:00 p.m. – 3:00 p.m.

SCAG MAIN OFFICE
900 Wilshire Blvd., Ste. 1700
Policy Room B
Los Angeles, CA 90017
(213) 236-1800
See Next Page for Other Meeting Locations

If members of the public wish to review the attachments or have any questions on any of the agenda items, please contact Tess Rey-Chaput at (213) 236-1908 or via email at REY@scag.ca.gov. Agendas & Minutes are also available at: www.scag.ca.gov/committees

SCAG, in accordance with the Americans with Disabilities Act (ADA), will accommodate persons who require a modification of accommodation in order to participate in this meeting. SCAG is also committed to helping people with limited proficiency in the English language access the agency's essential public information and services. You can request such assistance by calling (213) 236-1908. We request at least 72 hours (three days) notice to provide reasonable accommodations and will make every effort to arrange for assistance as soon as possible.

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Date: Thursday, April 11, 2019
Time: 1PM – 3PM
Location: 900 Wilshire Boulevard, Suite 1700 – Policy Room B
            Los Angeles, CA 90017*

1. **Hon. Alan D. Wapner**   Ontario City Hall
   President, SCAG   303 East "B" Street
                                                        Ontario, CA 91764

2. **Hon. Paul S. Leon**
   City of Ontario

3. **Sup. Curt Hagman**   **SCAG Los Angeles***
   San Bernardino County

4. **Hon. Frank Navarro**   [not available]
   City of Colton

5. **Hon. Deborah Robertson**   150 S. Palm
   City of Rialto   Rialto, CA 92376

6. **Hon. Paul Rodriguez**   **SCAG Riverside***
   City of Chino

7. **Hon. David Pollock**   **SCAG Los Angeles***
   City of Moorpark

8. **Sup. Luis Plancarte**   Imperial County Administration Building
   Imperial County   940 W. Main Street, Suite 209
                                                        El Centro, CA 92243

9. **Hon. Cheryl Viegas-Walker**   Walker & Driskill, PLC
   City of El Centro   3205 S. Dogwood Road, Suite B
                                                        El Centro, CA 92243

10. **Hon. James Predmore**   **SCAG Los Angeles***
    Imperial County Transportation Commission

11. **Hon. Carol Moore**   SCAG Orange County
    City of Laguna Woods   600 South Main Street
                                                        Orange, CA 92868

12. **Hon. Steve Manos**   130 S. Main Street, Conference Room B
    City of Lake Elsinore   Lake Elsinore, CA 92530

Date: Thursday, April 11, 2019
Time: 1PM – 3PM
Location: 900 Wilshire Boulevard, Suite 1700 – Policy Room B
Los Angeles, CA 90017*

13. **Hon. Stacy Berry**   **SCAG Los Angeles***
City of Cypress

14. **Hon. Jan Harnik**   73-510 Fred Waring Drive
Riverside County Transportation Commission   Palm Desert, CA 92260

15. **Hon. Margaret E. Finlay**   2221 Rim Road
City of Duarte   Duarte, CA 91008

16. **Hon. Sean Ashton**
City of Downey

17. **Hon. Drew Boyles**   [not available]
City of El Segundo

18. **Hon. Edward H.J. Wilson**
City of Signal Hill

19. **Hon. Frank Zerunyan**   [not available]
City of Rolling Hills Estates

20. **Hon. Paul Marquez**
Caltrans District 7

21. **Pam O'Connor**   **SCAG Los Angeles***
California Road Charge Technical Advisory Committee

EMERGING TECHNOLOGIES COMMITTEE

SPECIAL MEETING AGENDA

Southern California Association of Governments
900 Wilshire Boulevard, Suite 1700 – Policy Room B
Los Angeles, CA 90017
Thursday, April 11, 2019
1:00 p.m. – 3:00 p.m.

CALL TO ORDER AND PLEDGE OF ALLEGIANCE
(The Honorable Alan D. Wapner)

PUBLIC COMMENT PERIOD
Members of the public desiring to speak on items on the Special Meeting agenda must fill out and present a Public Comment Card to the Assistant prior to speaking. Comments will be limited to three (3) minutes per speaker. The Chair has the discretion to reduce the time limit based upon the number of speakers and may limit the total time for all public comments to twenty (20) minutes.

FUTURE AGENDA ITEM/S

ANNOUNCEMENT/S

ADJOURNMENT

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Southern California Association of Governments
900 Wilshire Boulevard, Suite 1700, Los Angeles, California 90017
April 11, 2019

		EXECUTIVE DIRECTOR'S APPROVAL
To:	Emerging Technologies Committee (ETC)	
From:	Kevin Kane, Associate Regional Planner, Research & Analysis, (213) 236-1878, kane@scag.ca.gov	*Kome Ajise*
Subject:	Data Science Fellows' Presentations	

RECOMMENDED ACTION:
For Information Only

STRATEGIC PLAN:
This item supports the following Strategic Plan Goal 1: Produce innovative solutions that improve the quality of life for Southern Californians.

EXECUTIVE SUMMARY:
SCAG is in its second year of hosting a limited number of data science fellows who, under the auspices of the Future Communities Initiative, bring data and analytical capacity to SCAG and local jurisdictions. SCAG's 2019 fellows will briefly present on their work to the Committee.

BACKGROUND:
Open data, big data, the internet of things, analytics, and automation have the capacity to completely change the nature of our communities over the coming years. In order to improve their decision making and provision of services, governments of all sizes will need to respond to these rapid advancements in technology by changing the way they collect, distribute, and interact with data.

Established in 2018 through a generous contribution by Randall Lewis, SCAG is hosting data science students from regional universities to support the region's initiative around open and big data. Fellows selected will play an important role in supporting governments across the region to become more data driven and effective in the provision of their services.

For 2019, SCAG is hosting four data science fellows: two at SCAG and two at local jurisdictions. Recruitment and outreach of both fellows and jurisdictions interested in hosting fellows was conducted alongside Partners for Better Health, alongside whom SCAG has long run a similar program for public health fellows.

The following fellows will each make brief (5 minute) presentations summarizing their projects so far.

- Esther Huang, SCAG Research & Analysis, UCLA Urban Planning
- Haoyan Li, SCAG Goods Movement and Modeling & Forecasting, USC Public Administration
- Maurice Taffola-Cunningham, City of Santa Ana, USC Public Policy
- Justin DeWaele, Los Angeles County Public Works, USC Public Administration

FISCAL IMPACT:

None

Southern California Association of Governments
900 Wilshire Boulevard, Suite 1700, Los Angeles, California 90017
April 11, 2019

		EXECUTIVE DIRECTOR'S APPROVAL
To:	Emerging Technologies Committee (ETC)	
From:	Kimberly Clark, Regional Planner Specialist, Research & Analysis, (213) 236-1844, Clark@scag.ca.gov	
Subject:	Future Communities Initiative Update	

RECOMMENDED ACTION:
For Information Only

STRATEGIC PLAN:
This item supports the following Strategic Plan Goal 1: Produce innovative solutions that improve the quality of life for Southern Californians. 3: Be the foremost data information hub for the region. 4: Provide innovative information and value-added services to enhance member agencies' planning and operations and promote regional collaboration.

EXECUTIVE SUMMARY:
On December 7, 2017 the Regional Council approved the Future Communities Framework which outlines Policies, Strategies, and a Future Communities Initiative to guide SCAG's future work related to data and technology. This report serves as an update of SCAG's progress to date of implementing the Future Communities Initiative (FCI) which is a three year work plan consisting of six work elements: Regional Data Platform, Policy Lab/Tool Builder, Data Science Fellowships, Future Communities Pilot Program, Future Communities Forum, and Advisory Committee. Staff have made significant progress on a number of these items and will continue to report on a regular basis on the initiative's progress.

BACKGROUND:
Big Data and the rapid proliferation of new technologies are poised to transform and disrupt traditional policy making and planning within our local communities and across the Southern California region as a whole. Through improvements in data collection, analysis, and technology, governments have the opportunity to be more efficient, innovative, and transparent.

To ensure that public agencies in Southern California not only keep up with the pace of innovation, but lead the nation, SCAG hosted an Open Data/Big Data – Smart and Connected SCAG Region Committee (Committee) from March to November of 2017. The Committee discussed issues related to data and technology and how SCAG could play a role in supporting local governments by providing resources and supporting data tools. The work of the Committee culminated in a set of policy and strategy recommendations compiled in the Future Communities Framework, and a short-

term work plan, Future Communities Initiative (FCI), proposed by SCAG staff to implement the framework.

The Future Communities Initiative is a three year work program designed to facilitate early-actions, in partnership with other regional stakeholders, to implement strategies in the framework. Below is a summary of work performed to date on each of the elements contained in the FCI.

Future Communities Pilot Program (FCPP): SCAG launched a new grant program to support the piloting and assessment of new and smart technologies to reduce transportation demand and improve government service provision.

Progress: SCAG secured $2.7 million in grant funding for this effort, with support of the Mobile Sources Air Pollution Reduction Review Committee (MSRC). SCAG released a call for projects, received and scored applications, and developed a list of recommended projects to award. The recommended projects were scored for their ability to advance the goals of the FCPP including their ability to reduce vehicle miles traveled (VMT) from local travel or municipal operations through the use of new technologies and enhanced data analytics. The project list was approved by Regional Council in February 2019. The eight grant awardees include the Cities of Cerritos, Glendale, Los Angeles, and Monrovia in Los Angeles County, the City of Anaheim in Orange County, the City of Riverside in Riverside County, the City of Ontario in San Bernardino County, and the County of San Bernardino. The pilots are expected to conclude in late 2020 and will identify innovative ways to reduce vehicle miles traveled (VMT), quantify the impacts of technology based VMT reduction strategies, improve efficiency and reduce costs, and promote replicable projects and best practices. More information on the projects can be found at: https://www.scag.ca.gov/opportunities/Documents/FCPP/scag_FCPP.pdf. SCAG staff will begin the administration of each pilot project with project launch in the summer of 2019 and wrap up by December of 2020.

Regional Data Platform: SCAG is developing a Regional Data Platform (Platform) to serve as a clearinghouse of public sector demographic, land-use, transportation, and public opinion data updated on a transactional basis through bridging applications, data standardization, and local-use applications. SCAG's Platform will be initially geared to assist jurisdictions with the establishment of local General Plans; there will be an emphasis on reducing the cost for administering plan updates, highlighting regional best practices from a sustainability perspective, and facilitating data-driven collaboration amongst public agencies and with the general public.

Progress: SCAG solicited proposals this summer and received ten entries from a wide selection of firms. SCAG assembled a Proposal Review Committee (PRC) with participants having expertise in local land use planning, regional planning, information technology, geographic information systems, data science, environmental justice, economics, and demography. Proposals were judged on several criteria: proposed technical approach (30%), project costs (30%), prior consulting experience (20%), project management (15%),

reasonable of schedule (5%), and references (pass/fail). SCAG has selected a consultant, and the contract was approved by Regional Council in April 2019. The project kickoff will also occur in April; later this summer, SCAG will be engaging one-on-one with a selection of local jurisdictions to understand local data needs and how stakeholders can be best served by Regional Data Platform. The Regional Data Platform is anticipated for launch in fall 2020.

To provide additional added value to Regional Data Platform users from local jurisdictions, SCAG is working to provide access to a library of geographic data and digital terrain imagery to local jurisdictions and other potential stakeholders. The effort aims to expand the Los Angeles Region Imagery Acquisition Consortium (LARIAC) to include high resolution orthogonal, obliques, building outlines, LiDAR, and digital terrain data for SCAG's full six-county region. SCAG released a Request for Information (RFI) in November 2018 and have been reporting on its results to local jurisdictions with regard to the project's feasibility, duration, and costs. Next steps include identifying all needed funding and the release of the Request for Proposal (RFP) to secure a consultant and execute the project. The data capture is expected to occur in early to mid-year 2020.

Policy Lab/Tool Builder: The Future Communities Policy Lab/Tool Builder (Lab) is focused on testing and promoting new approaches and partnerships for utilizing data and analytic platforms to improve regional and local planning. Through the Policy Lab/Tool Builder, SCAG aims to illustrate and help member agencies apply new methods for visualizing, dashboarding and interpreting regional datasets alone or in combination with private, crowdsourced, or open data platforms to understand complex policy issues.   This work will also include fostering research opportunities in partnership with regional university and international partners on common issues.

Progress: Staff have initiated several partnerships with local jurisdictions and regional universities in this area. Key products and programs underway or under development include:

- *FCI Research:* SCAG has initiated an 18 month "Future of the Workplace" study, which will analyze future changes in the nature of employment and the workplace which might impact the spatial relationship between job and work locations in order for SCAG to evaluate its future GHG reduction potential of teleworking, residential mobility, and structural changes in the nature of work. In addition, staff continues to pursue additional partnerships and grant funding to support cutting-edge research on the use of big data in planning, including submitting an application to National Science Foundation (NSF) to use of real-time data to help improve SCAG's transportation system for planned and unplanned (i.e. natural disaster) events.

- *Mapping Transit Supportive Measures in Southern California:* SCAG experimented with crowdsourcing data development to complement the 2020 RTP/SCS local input process by inviting students across the region to map existing and planned measures to reduce greenhouse gas emissions. This project, along with other work under SCAG's collaborative data engagement

process (i.e. the Bottom-Up Local Input and Envisioning Process for Connect So Cal and the Regional Housing Needs Assessment) is under evaluation for an FHWA Planning Excellence Award.

- *SCAG/Los Angeles Data Science Federation:* The Data Science Federation was founded by the City of Los Angeles Office of Innovation and Technology to address social, economic, and policy issues that could be better informed through data and come from departments, the City Council, the Mayor's office, and citizens. SCAG joined to expand this successful model to its member jurisdictions and additional regional universities, and launched three projects this year on behalf of partner agencies. Each project involves a local university partner, a set of domain experts from the partner agency, and supporting guidance from SCAG. Students and professors work with the agency in a variety of ways, including conducting in-depth research on policy topics, prototyping new technological approaches to city challenges, and creating example projects that can be applied to other communities across the region. The next meeting of the Data Science Federation is scheduled for Thursday, April 11th from 10am until noon at SCAG's headquarters.

- *County of Los Angeles/City of Los Angeles/SCAG Data + Donuts Monthly Speaker Series:* Data + Donuts is a morning speaker series and networking event that brings together the makers and doers that are changing local government from the ground up by harnessing technology and data to drive meaningful change.

Data Science Fellowship: SCAG is partnering with regional fellowship programs to provide fellows for local agencies to initiate open data programs, conduct data analysis, and accelerate the adoption of new technologies.

Progress: SCAG has secured six data science fellows over two terms through generous support from Randall Lewis, who are working on a number of projects to support implementation of the FCI, such as evaluating the potential of new data APIs (e.g. HERE, Census ACS, etc.) for integrating into the Regional Data Platform. This year, SCAG expanded the program to provide data science fellows for a handful of partner agencies to help with the deployment of open data platforms and the curation of data dashboards.

Future Communities Forum: SCAG will develop or partner on an annual event to showcase research, data tool, and lessons learned from regional and international partners related to data and technology.

Progress: The inaugural *Future Communities Forum* was held on May 2nd, 2018 as part of SCAG's Annual General Assembly. The forum helped to develop momentum about the value that shared data/applications can bring to local governments and showcase the work of local and international partners in the realm of open/big data. This year's event was *The School of Data*, which brought together 250 government data analysts, systems analysts,

public decision makers, and project managers to address their biggest needs: to improve analytical skills, and to learn from peers across the Southern California region. This event was hosted at SCAG's Downtown Los Angeles Offices on January 31 and February 1. http://schoolofdata.la/.

Building on this work, there will be a panel discussion at SCAG's 2019 General Assembly on the topic of "Unleashing the Power of Data". An agenda can be found at https://www.scag.ca.gov/calendar/Documents/GA2019/2019GA-Program-AGENDA.pdf and a registration link can be found at www.scag.ca.gov/ga2019. In addition, this year's General Assembly will feature a Student Showcase where high school, community college, and university students from across Southern California have been invited to submit their data-driven research and Story Maps for inclusion in an interactive exhibit on Thursday, May 2nd. Submissions will be judged, and prizes will be awarded on May 3rd at the General Assembly.

Advisory Committee: SCAG will develop an Advisory Committee consisting of elected officials and technical/policy experts on the topic to provide ongoing input and governance on Future Cities Initiative activities.

Progress: The Future Communities Initiative will be advised by SCAG's Policy Committees, including the newly formed Emerging Technologies Committee.

FISCAL IMPACT:
Funding to support the Future Communities Initiative is budgeted in 280.4820.01 (FY 18/19 OWP).

ATTACHMENT(S):
1. PowerPoint Presentation: FCI

Future Communities Initiative

Program Update

Kimberly Clark, Regional Planner Specialist
Research & Analysis

SCAG's Future Communities Initiative

Communities within the SCAG Region:
- **70%** have limited or minimal staff resources to analyze data
- **43%** have no in-house GIS services
- **84%** share data through direct communications

*SCAG Regional Data Survey, Fall 2017

Future Communities Initiative: Supporting Outreach

Open Data/Big Data: Smart and Connected SCAG Region Committee

Regional Data Survey
JURISDICTIONS WANT:
- Access to, sharing of data
- Capacity for analysis
- Resource support
- SCAG to support innovation
- SCAG data is used frequently

Consultant Roundtable
INDUSTRY WANTS:
- SCAG to act as a data broker
- Raw data to encourage innovative use
- Clear goals & timeline for data release
- Increased availability of SCAG's GIS library through open data portal

Future Communities Initiative: Program Details

Future Communities Pilot Program

Regional Data Platform

Policy Lab/Tool Builder

Data Science Fellowship

Advisory Committee

Future Communities Initiative

Future Communities Forum
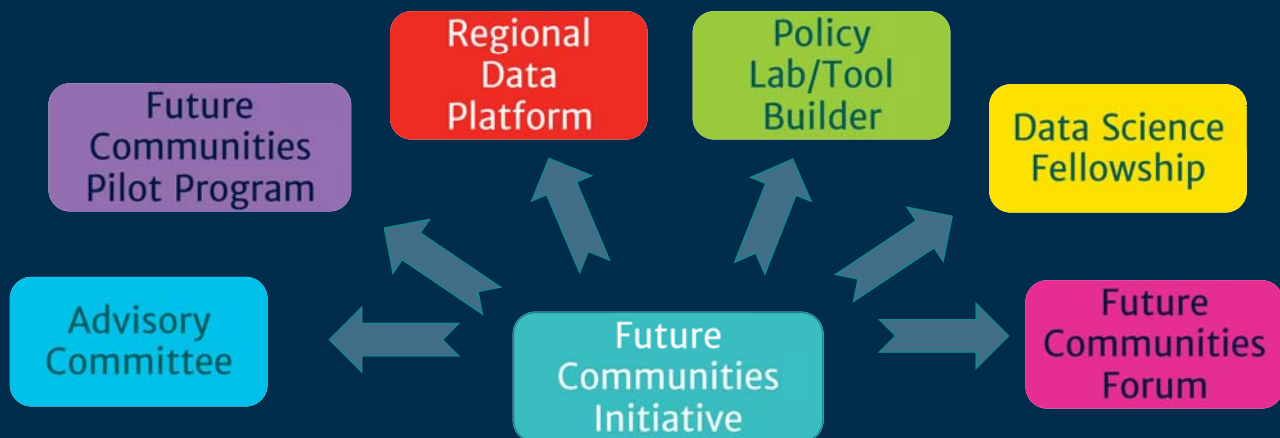
Partnership Framework
- SCAG launched a 3-year, $8 m initiative to advance priority projects
- The initiative will leverage public/private funds, including $4.5 M in SCAG resources
- Projects will be administered by SCAG leveraging existing relationships and programs with cities/counties

Future Communities Framework
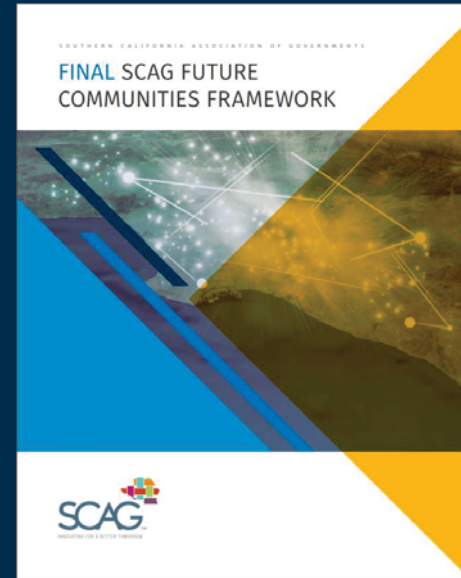
Future Communities Pilot Program Call for Projects

Goals and Objectives

- Test technology and data-driven approaches to reducing municipal VMT and GHG production
- Promote innovation to best practices and policies
- Identify strategies to quantify and monitor the performance and efficacy

Administration

- $2.7 M in grant funding (by MSRC and SCAG)
- 25% local match requirement

Key Dates

Call for Projects

CFP opens – Nov 1, 2018
CFP closes – Dec 13, 2018
Application Workshop #1 – Nov 13, 2018
Application Workshop #2 – Dec 4, 2018
CFP award recommendations – Jan 2019
SCAG Board approval – Feb 2019

Pilot Programs

Launch – Summer 2019
Wrap Up – December 2020
Final Reporting – December 2020

Regional Data Platform

	DATA COLLECTION	DATA COMMUNICATION	KNOWLEDGE & ACTION
TECHNOLOGY	Collect accurate relevant data about Southern California	Automate, visualize, and distribute insights via dashboards with good story-telling	Technology that drives beneficial action across campaigns & content
PEOPLE	Conduct trainings to ensure that people are empowered to utilize the platform	Interpretation of data into actionable insights and knowledge	Foster citizen engagement
PROCESS	Enable users to improve the platform through data revision and insight sharing	Empower local partners to use the platform for local initiatives	Continuous result-oriented experimentation and innovation

Sources: MITX, Freepik.com

Policy Lab/Tool Builder

Policy Lab
- Future of the Workplace Study
- SCAG/Los Angeles Data Science Federation
- County of Los Angeles/City of Los Angeles/ SCAG Data & Donuts Monthly Speaker Series

Tool Builder
- Mapping Transit Supportive Measures in Southern California
- Active Transportation Database

Data Science Fellowship

- Fellowship Program for undergraduate and graduate university students in Data Science
- Links public agencies with data science staffing resources
- Funded with support from SCAG and Partners for Better Health

Future Communities Forum

The inaugural Future Communities Forum was held on May 2nd, 2018 as part of SCAG's Annual General Assembly. The forum helped to develop momentum about the value that shared data/applications can bring to local governments and showcase the work of local and international partners in the realm of open/big data.

MAY/2

THURSDAY continued

3:30 p.m.   BREAKOUT SESSIONS II

UNLEASHING THE POWER OF DATA

Sharing data and building programming knowledge in local governments leads to greater efficiency and better service for the whole region. Shared data also spurs innovation: If everyone is working from the same information, and the information is shared instead of protected, it fosters ideas. This panel will show how advances in civic tech, and particularly the advent of widespread data-sharing, can change the face of the region for the better.

2019 SCAG
REGIONAL CONFERENCE
& GENERAL ASSEMBLY

Student Showcase

ENTER A SUSTAINABILITY PLANNING POSTER
OR A GIS STORY MAP TO WIN!

▶ SHARE YOUR WORK WITH SOUTHERN CALIFORNIA'S LEADERS

▶ RECEIVE UNIQUE PROFESSIONAL DEVELOPMENT OPPORTUNITIES

▶ COMPETE FOR FOUR CASH PRIZES TOTALING $6,000

▶ FREE ESRI STORY MAPS TRAINING ON MARCH 15, 2019

Thank you

Kimberly Clark

clark@scag.ca.gov

SCAG™

INNOVATING FOR A BETTER TOMORROW

WWW.SCAG.CA.GOV

Future Communities Framework Policies

Promote Data-Driven Decision Making

Increase Efficiency of Public Services

Protect our Systems and People

Champion Social Equity and Public Engagement

Collaborate on the Future of Cities

Model Best Practices

Future Communities Framework Strategies

Provide Guidance

Support Coordination and Standardization

Expand Partnerships

Provide Resources

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Southern California Association of Governments
900 Wilshire Boulevard, Suite 1700, Los Angeles, California 90017
April 11, 2019

		EXECUTIVE DIRECTOR'S APPROVAL
To:	Emerging Technologies Committee (ETC)	
From:	Thomas Bellino, Associate Regional Planner, Transit and Rail, Transit/Rail, 213.236.1830, bellino@scag.ca.gov	*Kome Ajise*
Subject:	Dan Sperling's "Three Revolutions"	

RECOMMENDED ACTION:
For Information Only

STRATEGIC PLAN:
This item supports the following Strategic Plan Goal 1: Produce innovative solutions that improve the quality of life for Southern Californians. 2: Advance Southern California's policy interests and planning priorities through regional, statewide, and national engagement and advocacy.

EXECUTIVE SUMMARY:
The convergence of new shared mobility services with automated and electric vehicles promises to significantly reshape our lives and communities for the better—or for the worse. Dan Sperling will share research-based insights on potential public benefits and impacts of the three transportation revolutions: automated, shared and electric vehicles.

BACKGROUND:
In a way that we have not seen in a generation, innovations are coming to the world of passenger transportation. Professor Dan Sperling, the director of UC Davis's Institute of Transportation Studies, has written a book on the topic that classifies these innovations as "three revolutions": automated, shared and electric vehicles.

These revolutions promise to reshape the way we travel in our communities. Whether they are for better or worse is, in large part, up to public policymakers. In a positive view of the future, these innovations will bring public and private benefits, including better access to prosperity, healthier cities and cleaner air. However, we run the risk of simply exacerbating some existing problems if the technology is simply applied in the same way that we have steered auto-centric policy in the past.

While part of the future calculus in this arena will depend on private sector decisions and consumer preferences, perhaps the most important factor is public policy. If there is robust and forward-thinking policy to guide technology and development, there is an opportunity to not only encourage technological advancement but also guide us toward a more equitable, accessible and sustainable future.

Staff finds in general that it would be beneficial to have a spirited and evidence-based policy discussion and debate, including by this Committee, before the technology hits the streets, so that the public sector is better prepared to act when needed.

FISCAL IMPACT:
None

Southern California Association of Governments
900 Wilshire Boulevard, Suite 1700, Los Angeles, California 90017
April 11, 2019

		EXECUTIVE DIRECTOR'S APPROVAL
To:	Emerging Technologies Committee (ETC)	
From:	Thomas Bellino, Associate Regional Planner, Transit and Rail, Transit/Rail, 213.236.1830, bellino@scag.ca.gov	*Kome Ajise*
Subject:	Metro Connected and Automated Vehicle Plan	

RECOMMENDED ACTION:
For Information Only

STRATEGIC PLAN:
This item supports the following Strategic Plan Goal 1: Produce innovative solutions that improve the quality of life for Southern Californians. 2: Advance Southern California's policy interests and planning priorities through regional, statewide, and national engagement and advocacy.

EXECUTIVE SUMMARY:
Los Angeles County Metro will soon release a Connected and Automated Vehicle Plan that will provide an overview of the current state of affairs as well as provide an update to future planning activities.

BACKGROUND:
Connected and automated vehicle (CAV) technologies are on the cusp of changing transportation on a global scale. Not only do they have the potential to improve traffic mobility and safety, reduce transportation costs, and manage congestion, but could likely change how we view transportation, infrastructure, and land use altogether. Implementation of CAV technologies will take place at the vehicle level, infrastructure level, and driver level.

Los Angeles County Metropolitan Transportation Authority (Metro) and its regional and local partners have embraced technology and have collaboratively engaged in new transportation technology solutions over many years. Metro and local agencies are in the process of piloting several connected vehicle projects in Los Angeles County to determine the maturity of the technology and the overall benefits CAV technologies would have to mobility and air quality. In addition, Metro and its regional partners formed the Coalition of Transportation Technology and have made efforts to be at the forefront of CAV technology implementation and deployment in the country. As part of the Coalition, Metro led the effort to prepare the "Planning for Connected and Automated Vehicles in Los Angeles County" document that will provide guidance on advancing CAV technologies in Los Angeles County.

Metro will provide an overview of the current state of connected and automated vehicles in Los Angeles County, and provide an update on the "Planning for Connected and Automated Vehicles in Los Angeles County" document that will be finalized in May 2019.

FISCAL IMPACT:
None.

ATTACHMENT(S):
1. SCAG Emerging Tech Committee

CONNECTED AND AUTOMATED VEHICLE EFFORTS IN LOS ANGELES COUNTY
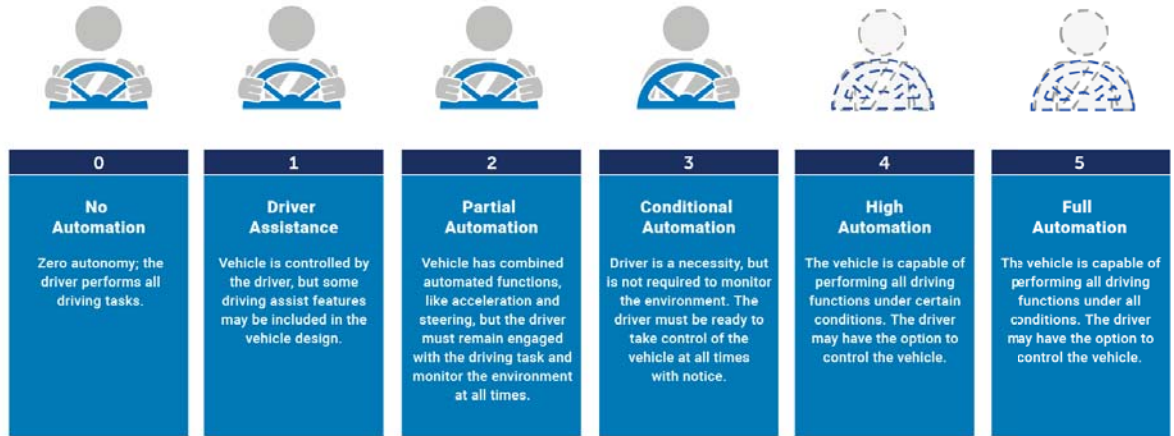
Ed Alegre, PTP
LA METRO

Source: USDOT

Metro

What is a Connected Vehicle?

- Vehicle to Vehicle (V2V)

- Vehicle to Infrastructure (V2I)

- Vehicle to Everything (V2X)

- Vehicle to Cloud (V2C)

- Vehicle to Pedestrian (V2P)

Metro

What is an Autonomous Vehicle?

SOCIETY OF AUTOMOTIVE ENGINEERS (SAE) AUTOMATION LEVELS

Full Automation

0	1	2	3	4	5
No Automation	**Driver Assistance**	**Partial Automation**	**Conditional Automation**	**High Automation**	**Full Automation**
Zero autonomy; the driver performs all driving tasks.	Vehicle is controlled by the driver, but some driving assist features may be included in the vehicle design.	Vehicle has combined automated functions, like acceleration and steering, but the driver must remain engaged with the driving task and monitor the environment at all times.	Driver is a necessity, but is not required to monitor the environment. The driver must be ready to take control of the vehicle at all times with notice.	The vehicle is capable of performing all driving functions under certain conditions. The driver may have the option to control the vehicle.	The vehicle is capable of performing all driving functions under all conditions. The driver may have the option to control the vehicle.

What is a Connected Automated Vehicle?

Autonomous Vehicle

Operates in isolation from other vehicles using internal sensors

Connected Automated Vehicle
Leverages autonomous and connected vehicle capabilities

Connected Vehicle

Communicates with nearby vehicles and infrastructure

U.S. Department of Transportation
ITS Joint Program Office
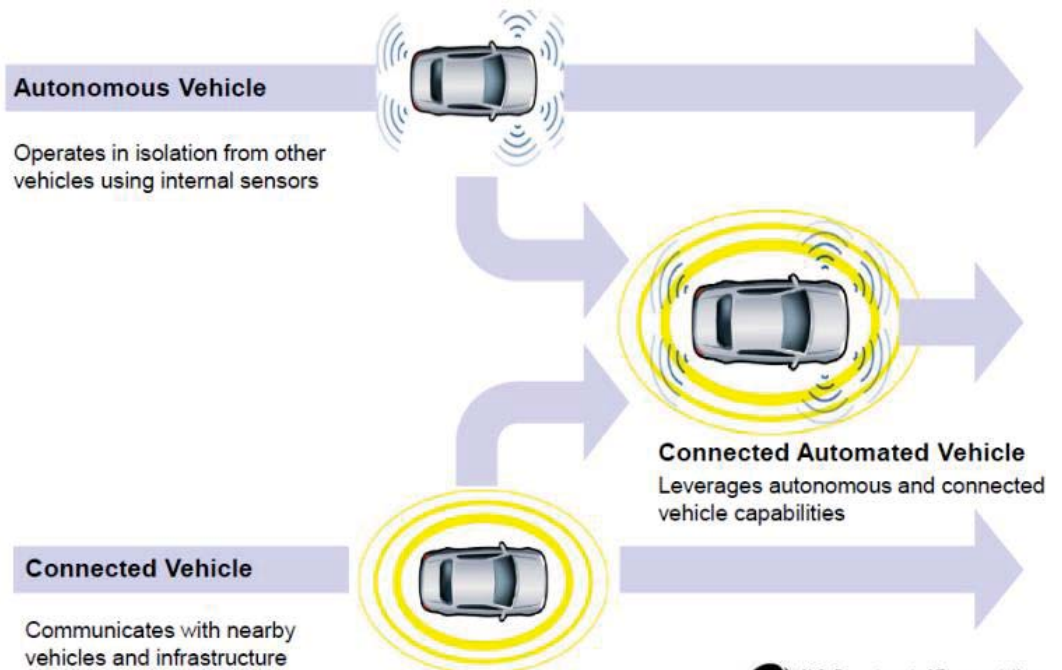
How are we planning and preparing for Connected and Automated Vehicles?

Signal Sync and Bus Speed Improvements	→	Countywide Signal Priority Program	→	Good Movement Technology

ITS Field Inventory Tool		Next Generation Signal Priority Study		Connected Vehicle Pilots
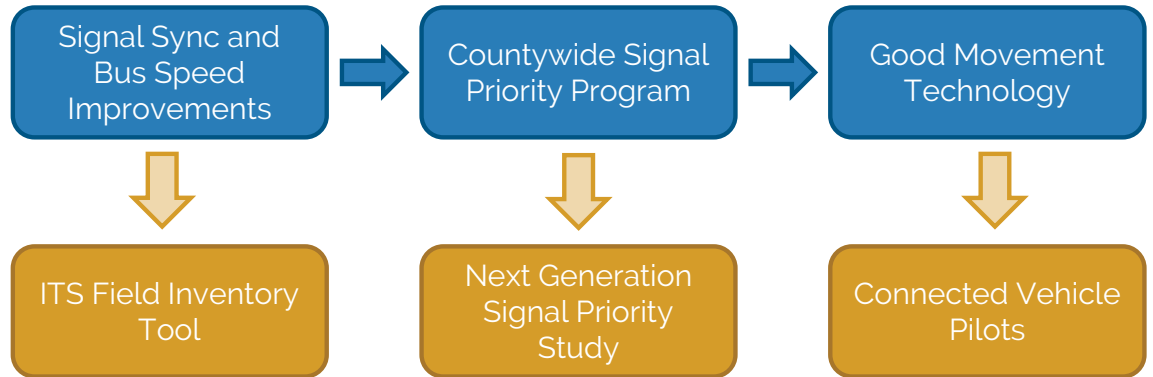
Signal Sync and Bus Speed Improvements

Utilizes ITS technologies to improve arterial traffic flow without major capital investments

- Conventional Traffic Engineering

- Transit Priority Systems

- Computerized Traffic Control Monitoring Systems

- Intelligent Transportation Systems
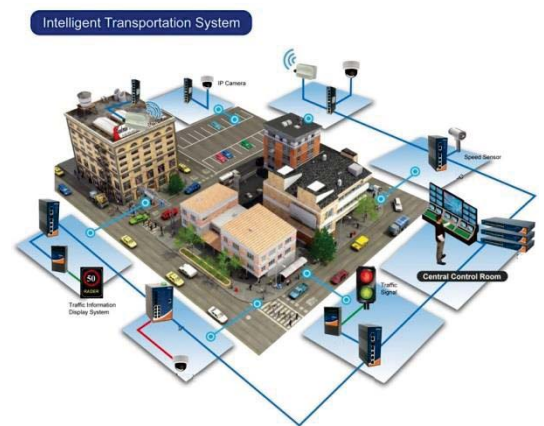
ITS Field Inventory Resource Sharing Tool (ITS FIRST)

Inventory of ITS Assets and Equipment

▫ Import/Export Inventory Data

▫ Built-In Reporting

▫ Create Inventory Maps

▫ Repository for Documents
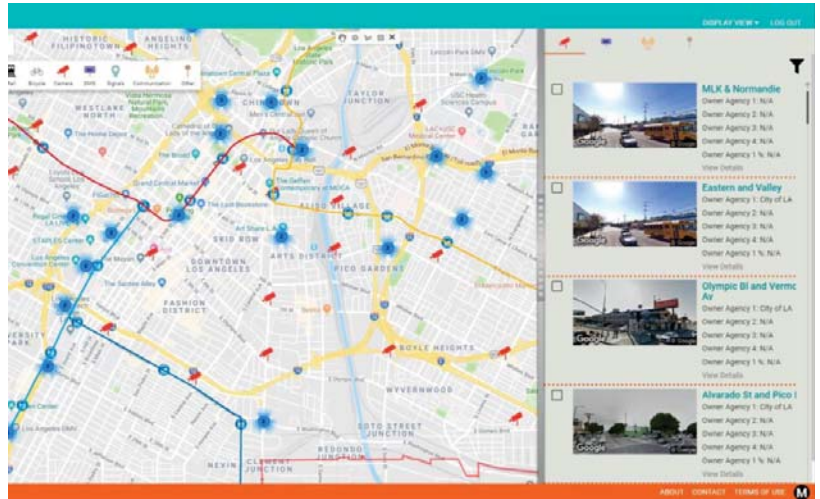
What does this tool do for us?

▫ Track return on investment (ROI)

▫ Respond to requests for information

▫ Asset Management

▫ Capabilities and maturity for Connected and Automated Vehicle strategies

▫ Connected and Automated Vehicle Readiness Study
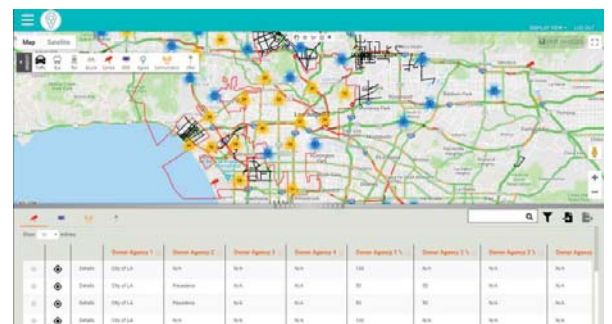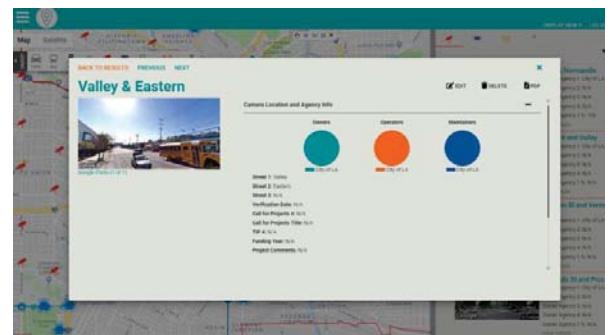
Countywide Signal Priority

Bus to Intersection Communications

- One of the first CV-type Deployments in US
- 20 agency partners
- 6 municipal bus operators
- 500+ intersections
- 250+ buses
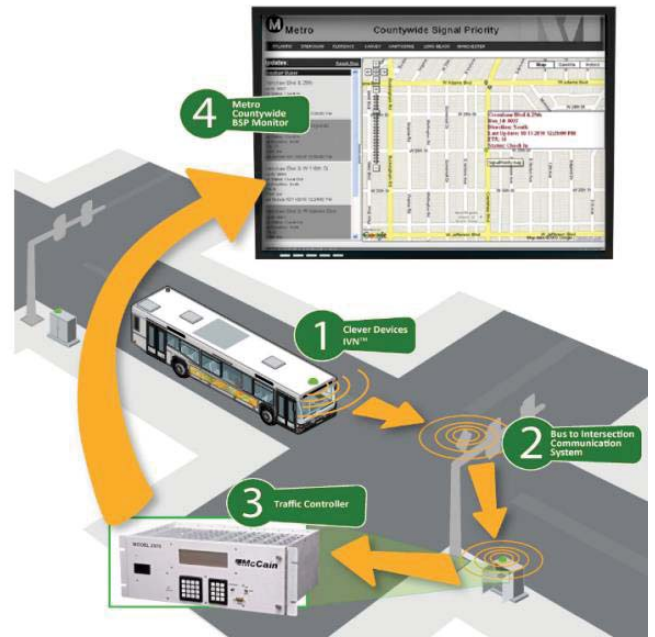
What is the future of Bus Signal Priority?

Original CSP architecture was developed and deployed 15 years ago

- What other types of signal priority is being deployed nationwide?
- Evaluated existing CSP approach
- Evaluate new technologies that have advanced in the past few years (i.e. Connected Vehicle, Cloud Services)
- How we should evolve signal priority in the region?

Future Bus Signal Priority Strategies

- V2I Connected Vehicle (DSRC)
- V2I Cellular to Isolated Signal
- V2C Cellular to Centralized TMC
- C2C Fully Centralized TOC and TMC
- BSP-as-a-Service (Cloud)
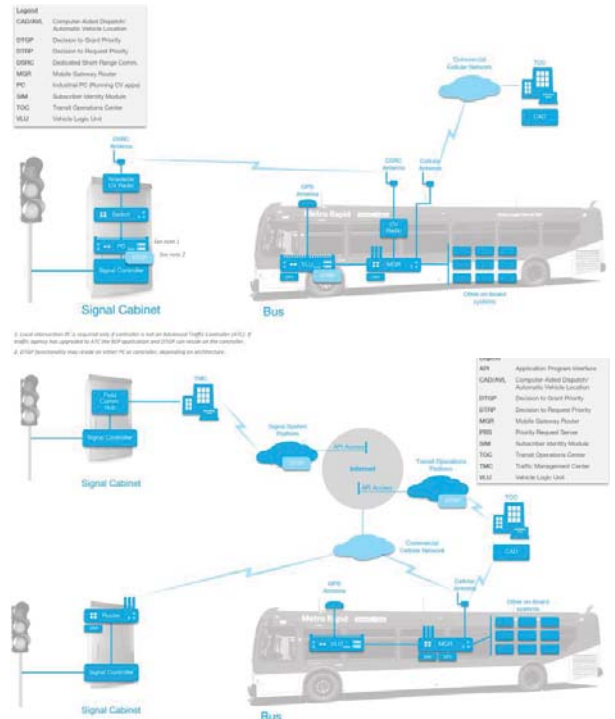

Goods Movement Technology

Deploying technology to manage congestion and improve air quality

- I-710 – Most important gateway in our nation
- 40 percent of nation's import traffic and 25 percent of total export
- Gateway Cities Technology Plan for Goods Movement

Technology Plan for Goods Movement

- Connected Commercial Vehicle Automation
- Freeway Smart Corridors
- Arterial Smart Corridors
- Traveler Information and Data Fusion System
- Freight Traveler Information Dissemination
- Container Moves Productivity Improvements
- Truck Enforcement Network System
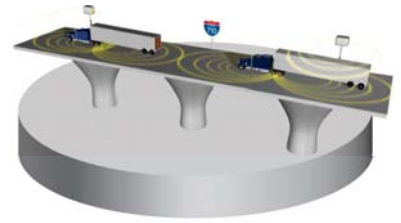
Partial Automation of Truck Platooning

- Level 2 Automation
- Cooperative adaptive cruise control (CACC)
- Adaptive Cruise Control – Radar Sensors and Electronic Control of Engine
- Dedicated Short Range Communication (DSRC) for V2V Communication
- Reduction in energy consumption, improvement in traffic flow, while maintaining safety

Drayage, Freight, and Logistics Exchange (DrayFLEX)

- Based on FHWA's FRATIS Program

- Modernization and enhancement of FRATIS

- Software for truck drivers for more efficient container moves in/our of the Ports

- Connected Vehicle Applications
  - Eco-Drive
  - Eco-Routing
  - Queue Warning
  - Speed Warning
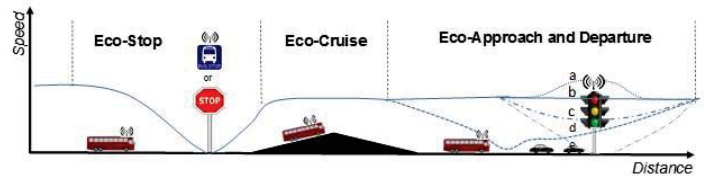
Signal Phase and Timing (SPaT)

- Originates from signal timing sheets

- Data from the traffic signal controller

- Provides in seconds how long the signal light will be green, yellow, and red

- Information can be transmitted various ways
  - Cellular (4G LTE)
 - Radio (DSRC)
  - Central System
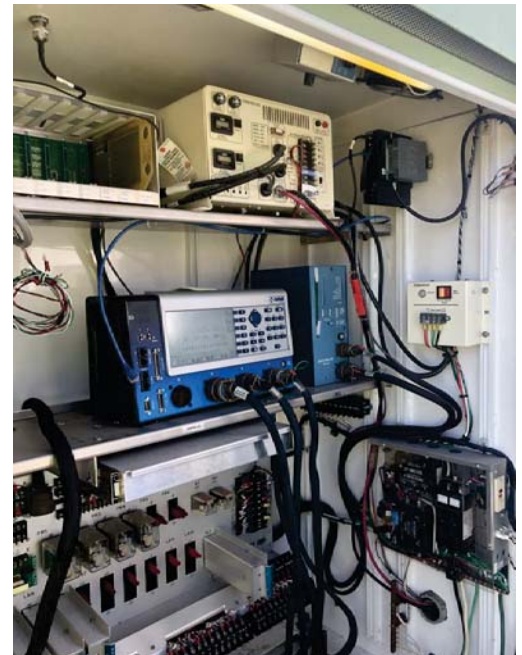
Eco-Drive

- State Funded through CARB and CEC
- SCAQMD – Lead on CARB Project with Volvo Group/UCR
- POLA – Lead on CEC Project with UCR
- Leverages Signal Phase and Timing (SPaT) data from the intersection
- Speed advisory and countdown when approaching an intersection
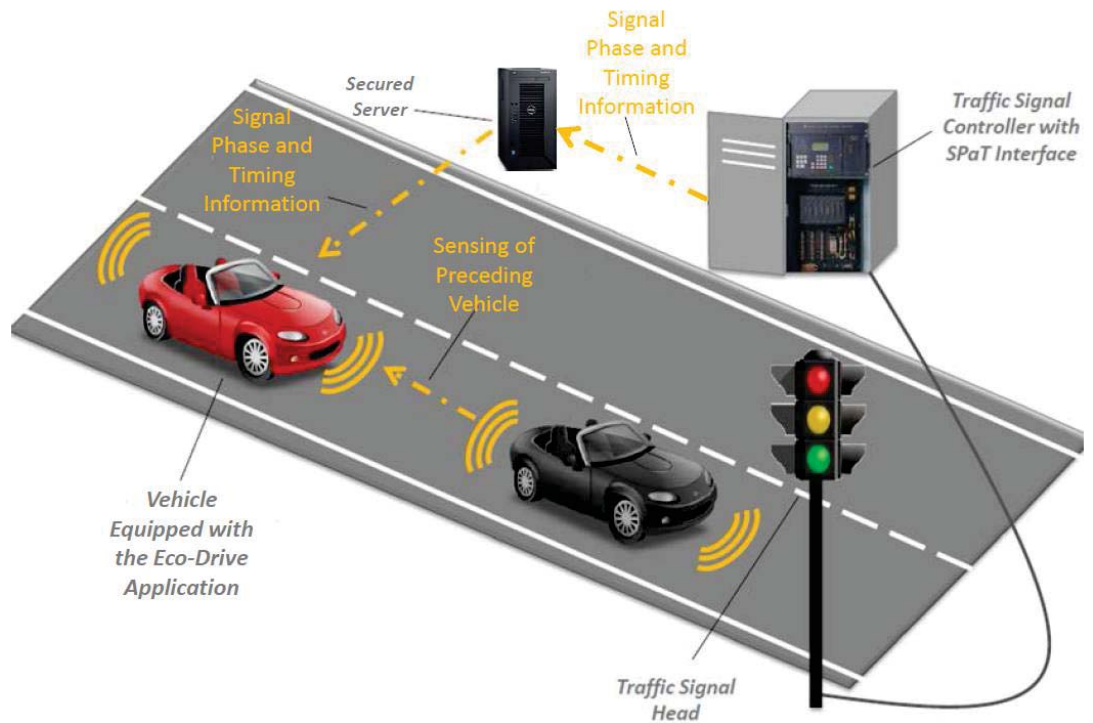

Eco-Drive Corridors

- <u>10 traffic signals</u> in the City of Carson
  - Cellular communication from intersection to UCR
  - 2 signal controller manufacturers (Econolite and McCain)
- <u>5 traffic signals</u> in the City of Los Angeles
  - LADOT ATSAC through RIITS to UCR
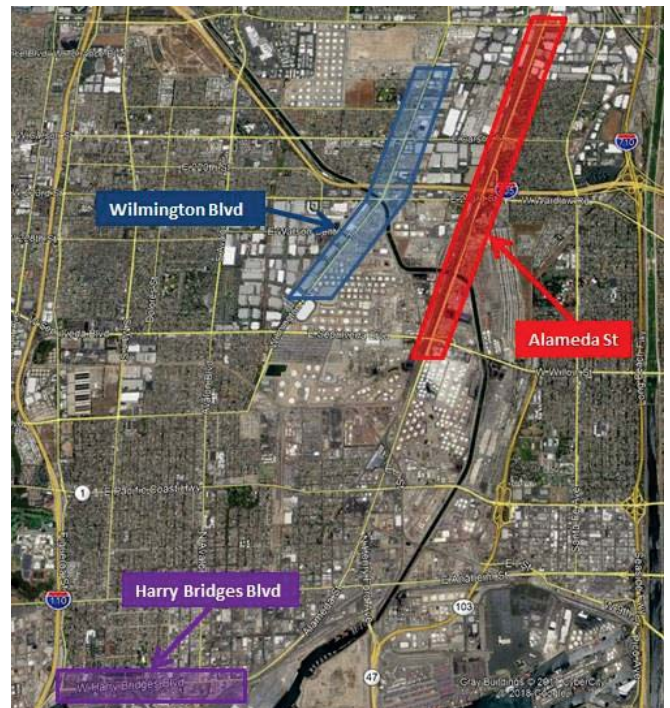
How does Eco-Drive Work?

CARB-SCAQMD-Volvo Group-UC Riverside

- CARB Zero Emission Drayage Truck Demonstration Low Carbon Transportation Greenhouse Gas Reduction Fund (GGRF)

- Explore synergies between Plug-In Hybrid Electric Vehicle (PHEV) and connected vehicles
    - Demonstrate connected vehicle capability first on a conventional diesel truck
    - Apply Eco-Drive to a PHEV Truck to extend battery range

CEC-Port of Los Angeles-Metro-UC Riverside

- CEC Alternative and Renewable Fuel and Vehicle Technology Program Grant
- Goal – Use of truck technology to reduce emissions
- Project included two parts: expansion of FRATIS and CV Eco Approach and Departure application
  - Provide real-time traffic signal data to truckers to optimize acceleration/deceleration of trucks

Metro Orange Line

- Cellular Communications
- LADOT ATSAC to Metro
- Information from Metro's central server to Metro buses
- Advise driver with speed feedback while approaching an intersection

Hyundai-Sensys-UC Berkeley

Predictive Data-Driven Vehicle Dynamics and Powertrain Control

- Funded through Department of Energy – ARPA-E
- Reduction in energy consumption of PHEV
- SPaT data for Vehicle Speed, Torque, and Battery Charging Power
- Live Oak Avenue (unincorporated County and Arcadia) using DSRC
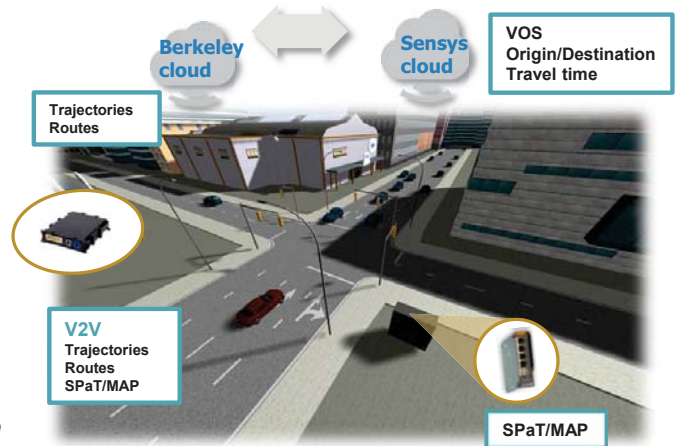
Private Sector (3rd Party) SPaT

Traffic Technology Services (TTS)

- Personal Signal Assistant
- SPaT through cellular
- Information from central server to passenger vehicle
  - Audi
  - Toyota
- Advise driver with countdown to green, and speed feedback
- Arcadia, Santa Clarita, County of LA (future), Caltrans (future)
- Works with most central traffic control systems

Source: Telematics Wire
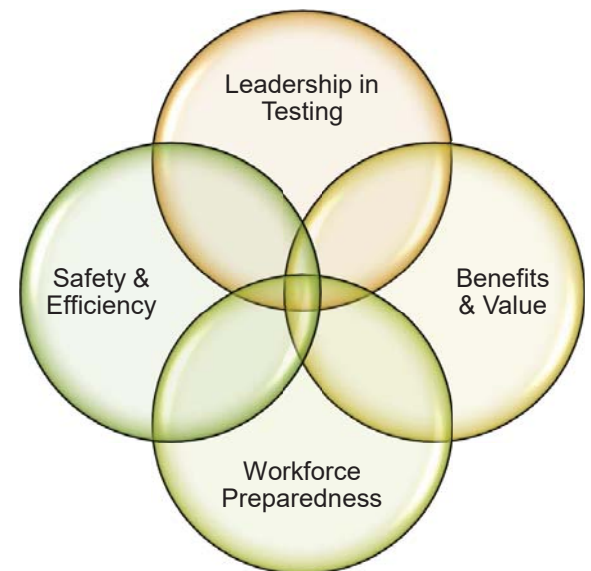
Planning for Connected/Automated Vehicles

Guidance on advancing Connected and Automated Vehicles (CAV) in Los Angeles County

- Understanding CAV Technology
- Current Projects in the LA Region
- National and International CAV Activities
- CAV Program Goals and Strategies
- Foundational Projects

Connected and Automated Vehicle Goals

- Further the region's support and *leadership in testing* and deploying CAV technologies
- Provide an opportunity for residents to *understand the value and early benefits* of CAV technologies
- Institutionalize CAV awareness and practices in local agencies and partners to ensure they and their *workforces are prepared* for future development
- Improve the *safety and efficiency* of the regional transportation network

Leadership in Testing

Benefits & Value

Safety & Efficiency

Workforce Preparedness

Connected and Automated Vehicle Potential Strategies

- Policy and Regulations
    - Review local regulations, advocate for updates to state/Federal policy
- Partnerships
    - Regional forum; private sector engagement; work towards interoperability
- Infrastructure and Vehicle Assets
    - Assess existing infrastructure; readiness; capability/maturity
- Deployments
    - Pilots; project evaluation clearinghouse; framework for pilots

Connected and Automated Vehicle Potential Strategies

- Data Management
    - Data sharing efforts; standards for sharing data
- Outreach and Marketing
    - Branding; public understanding; awareness
- Technology and Workforce Advancement
    - Support advancement of technological capabilities; skillset development; O&M needs

Connected and Automated Vehicle Foundational Projects

- Public Visibility
  - Outreach/Marketing Plan
  - Pilot project exposure

- Communications Infrastructure
  - ITS Plans and Architecture
  - Lessons Learned

- CAV Test Locations
  - Test corridors
  - Public/Private Partnerships

- Partnerships
  - Local agencies and stakeholders, private sector

- Legislation
  - Awareness and education for legislators and policymakers

Thank you!

Ed Alegre
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Southern California Association of Governments
900 Wilshire Boulevard, Suite 1700, Los Angeles, California 90017
April 11, 2019

To:	Emerging Technologies Committee (ETC)	**EXECUTIVE DIRECTOR'S APPROVAL**
From:	Thomas Bellino, Associate Regional Planner, Transit and Rail, Transit/Rail, 213.236.1830, bellino@scag.ca.gov	
Subject:	Discussion of Potential Committee Site Visits	

RECOMMENDED ACTION:
For Information Only

STRATEGIC PLAN:
This item supports the following Strategic Plan Goal 1: Produce innovative solutions that improve the quality of life for Southern Californians. 2: Advance Southern California's policy interests and planning priorities through regional, statewide, and national engagement and advocacy.

EXECUTIVE SUMMARY:
Staff has performed research based on suggestions by the Committee members into potential locations for site visits to learn more about innovative and emerging technologies. Suggested sites are provided below for Committee consideration. Committee feedback, including new suggestions not on the list, will allow staff to begin planning for the top choice(s).

BACKGROUND:
At the 1/22/19 meeting of the Emerging Technologies Committee, members suggested the possibility of site visits to learn more about emerging and innovative technology both inside and out of the SCAG region. Staff has prepared the list of following potential locations.

Within SCAG region:
- The Boring Company, Hawthorne
  - Project to experiment with underground tunnels for autonomous vehicles

- SpaceX, Hawthorne (in SCAG region) and Lompoc (out of SCAG region)
  - Private sector aerospace company which has launched crafts into orbit

- Electric bus charging station, Palmdale
  - Antelope Valley Transit's new electric bus charging station

- Port of Long Beach Middle Harbor Redevelopment Project
  - The world's greenest container shipping terminal — nearly all electric and zero emissions

- OCTA's "OC Flex," Huntington Beach and Laguna Niguel
    - On-demand shuttles that provide flat-fare rides within cordoned areas

- Micromobility and bike rental facilities, Santa Monica
    - Santa Monica has micromobility parking stations, a bike visitors' center, and other innovative spaces for emerging active transportation

- Metrolink positive train control facility, Pomona
    - Operations center for Metrolink's initiative to use GPS to keep trains from crashing, speeding, derailing and more

- SunLine Transit Learning Center, Thousand Palms
    - Exhibits and tours showcasing innovation in transit technology, focusing on zero emissions vehicles

Outside SCAG region:
- GoMentum, Concord, CA
    - Former military installation that is now used as a test course for autonomous vehicles and other emerging technology

- Autonomous shuttles, Sacramento, CA and Las Vegas, NV
    - Sacramento State University and Downtown Las Vegas have begun autonomous shuttle pilots

- Uber Elevate/Uber Air
    - Uber is moving forward with research and prototypes for utilizing aircraft. They plan to launch the service in Los Angeles first (in addition to Dallas) and are having a summit in Washington, DC in June 2019.

FISCAL IMPACT:
None.