SMART REGION SACRAMENTO
ITS Architecture and Future Technology Master
and Implementation Plan

KICK-OFF MEETING

January 31, 2018
Project Team

- SACOG
- Kimley-Horn
  - AIM Consulting: Outreach
  - Consensus System Technologies: ITS Architecture
  - TransSIGHT: Concept of Operations/Big Data
  - Silicon Transportation Consultants: Smart Cities
  - Data Insight Discovery: Big Data

- Member and Participating Agencies
What is the purpose of this meeting?

- “Kick-Off” meeting
- Establish consistent understanding and expectations
- High-level discussion
- Information gathering
- Local needs focus
The age of the electric car is here.

How Elon Musk turned trash into the fuel of the future.

VW bringing electric car testing program here

Sacramento motorists probably know this already: For all its sprawl and long commutes, the city is far more manageable than Los Angeles. Which is why Sacramento, and not Los Angeles, is about to be showcased with a fleet of electric cars supplied by Volkswagen.

The Carmaker announced Thursday it has chosen Sacramento as its first “Green City,” the place where it plans to spend $44 million building an electric car-sharing service, a slew of vehicle-charging stations and other benefits.

The program is part of the $14.7 billion settlement Volkswagen made with state and federal officials last fall after admitting it rigged thousands of diesel cars with software designed to get around air pollution regulations. Or the $14.7 billion, Volkswagen pledged to spend $800 million over ten years promoting electric car usage in California.

Mark McNabb, president of Volkswagen’s Electrify America subsidiary, said a car-sharing program is a way of making electric cars available to moderate-income Californians while shifting the state from fossil fuels.
Automated Vehicles

City leaders offer streets as test area for driverless cars

Self-driving cars are on a roll – and sometimes crashing

Internet of Things

Capital, Verizon seek a deal on internet system

Free WiFi at parks if firm can run wire through city’s pipes
Stakeholder Engagement Activities

- Project Website (www.smartregionsacramento.org)
- Comprehensive Outreach Plan
- Advisory Committee Meetings
- Local Agency Meetings
- Stakeholder Briefings
- ITS Architecture Development and Roll-Out Workshops (2)
- Individual Follow-ups
Survey Question #1

How would you rate your personal technology maturity?

- Entry-Level (What is...)
- Mid-Level
- Advanced-Level (I do this f...)

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Survey Question #2

How would you rate the broad status of your agency’s or organization’s technology maturity?

- Entry-Level (Infrastructure)
- Mid-Level (Integration)
- Advanced-Level (Innovation)
Live Polling Exercise

To get started:

1. Text **AIMCONSULTING** to **22333**
2. You will receive a confirmation message.
Live Poll #1 (Test Questions)

- Today is?
  - Monday, Tuesday, or Wednesday

- Who will win the Super Bowl?
  - Patriots, Eagles, or 49ers
Live Poll #1

How would you rate the Sacramento Region’s Technology Maturity?

- Entry-Level (Infrastructure)
- Mid-Level (Integration)
- Advanced-Level (Innovation)
Survey Question #3

What technology do you perceive as being the highest priority for your agency or organization?
Survey Question #3 (responses)

- Communications – 3
- Not Sure/Don’t Know – 2
- Traffic Operations Center – 2
- CV / AV – 2
- Document and Database Management – 1
- Adaptive Signal Timing – 1
- Non-intrusive Vehicle Detection – 1
- Rural Technologies – 1
- Bus Safety and Performance Technology – 1
- ITS – 1
Survey Question #4

What do you see as the biggest challenge for implementing new technologies in your agency or organization?
Survey Question #4 (responses)

- Cost / Funding
- Applicability / Choosing the Right Technology
- Knowledge / Staff Resources / Staff Training
- Integration With / Upgrading Existing Systems
- Bureaucratic Processes and Public Agency Funding Restrictions
- Developing Standards / Implementation Plan
- Multiple databases / Different Objectives
Survey Question #5

What rural transportation challenges do you think technology can address?
Survey Question #5 (responses)

- Traffic Data Collection – Real-time and Planning
- Traveler Information
- Advanced Warnings
- Accessibility to Services
- Trip Conglomeration / Tourism Congestion
- Closing the Digital Divide / Wireless Network Capabilities
- On Demand Transit
- Infrequent Demand / Low Demand
- Customer Payment
Live Poll #2

What are the top three transportation issues in your jurisdiction?

- Incidents, Traffic Congestion, Transit Ridership, Bicycle/Pedestrian Mobility/Safety, Extend of communications network, ability to process big data, knowing how other agencies are operating their systems, freight mobility, first mile/last mile service, special events, tourist/recreational traffic, enhancing legacy equipment
# Systems Engineering Process

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<tr>
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<th>Phase 3</th>
<th>Phase 4</th>
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<td>Interfacing with Planning and the Regional Architecture</td>
<td>System Definition and Design</td>
<td>System Development and Implementation</td>
<td>Validation, Operations and Maintenance, Changes &amp; Upgrades</td>
<td>System Retirement / Replacement</td>
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## Cross-Cutting Activities
- Stakeholder Involvement
- Elicitation
- Project Management Practices
- Risk Management
- Program Metrics
- Configuration Management
- Process Improvement
- Decision Gates
- Trade Studies
- Technical Reviews
- Traceability

## Concept of Operations
- System Requirements
- High-Level Design
- Subsystem Requirements
- Subsystem Verification
- Software Coding
- Hardware Fabrication
- System Validation
- System Integration
- Initial Deployment
- System Verification
- Subsystem Integration
- Unit Testing
- Decision Gate

## Life Cycle Time Line

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www.smartregionsacramento.org
▪ ITS Plan at 50,000 ft level (or 330,000 ft)
▪ Long-range plan of existing and planned services
▪ Focused on information sharing, connections between systems
Concept of Operations

- Includes roles and responsibilities
- Operational scenarios - typical peak, special events, major incident, etc.

- Explains operations, not technology
- Every stakeholders’ perspective
- Should include maintenance
- Lays the ground work for requirements
Smart Region Sacramento: ITS Architecture and Future Technology Project

MISSION

To improve system performance, safety, sustainability, and reliability by ensuring efficient investments in regional smart transportation projects.
OBJECTIVES + STRATEGIES

1. Address smart transportation strategies for urban, suburban, and rural communities
   a. Identify latest strategies and solutions for rural areas
   b. Active fleet management
   c. Plan and create a communication protocol between partner agencies
2. Prepare for smart region infrastructure adapting to new technology
   a. Create traffic operations center at all agencies
   b. Create Bicycle Infrastructure replacement program (urban/suburban/rural)
   c. Define how systems will operate together
   d. Create plan for infrastructure compatibility
   e. Share operational control of ITS field elements/systems
   f. Identify technology pieces of shared mobility plan
   g. Implement ICM along regionally significant arterial corridors
3. Reduce user frustration by providing consistency and reliability
   a. Utilize high resolution data
   b. Improve multi-modal options
   c. Improve multi-modal reliability
   d. Improve public outreach regarding planned lane closure plans
   e. Centralize signal control
   f. Improve traffic signal infrastructure
4. Proactively improve transportation system safety
   a. Create ITS projects to proactively improve safety
   b. Use ITS to prevent secondary collisions
5. Improve traveler information and dissemination to public and within region
   a. Integrate third party data
   b. Consolidate public information systems
   c. Implement integrated parking management strategies
6. Disaster preparedness

Kimley-Horn
Local Technology Implementation Plans

- Online documentation
- Customized reporting options

Local Plans
- City of Citrus Heights
- City of Elk Grove
- City of Folsom
- City of Rancho Cordova
- City of Sacramento
- El Dorado County
- Sacramento County
- Caltrans District 3
Local Technology Implementation Plans

- Leverages and builds on other plans and initiatives in the region
  - Focus on local needs
  - Enhance infrastructure foundation
  - Rural, urban, transit solutions
  - Connectivity across jurisdictions
  - Customized for each agency

- Outcome highlights
  - Prioritized list of projects
Regional Technology and Mobility Master Plan

- Prioritized list of projects based on different categories to ensure equitable funding distribution
- Compiles similar projects across region for synergy.
Industry Roundtable Summit
Industry Roundtable Summit

- Identify opportunities to leverage initiatives
- Introduce concept of Pilot Demonstration Program
Pilot Demonstration Initiatives

- Establish a process for agencies to allow Pilot innovative technologies for a short period of time
- Define a criteria for evaluating performance
- Use results to inform future deployment opportunities
Live Poll #3

What technology companies have approached your jurisdiction for partnering/piloting?

○ Audi  ○ Volkswagen  ○ Easy Mile
○ BMW  ○ Verizon  ○ Global Traffic Technologies (GTT)
○ GM  ○ Google  ○ Kapsch
○ Uber  ○ Inrix  ○ Clever Devices
○ Lyft  ○ Daktronics  ○ None
○ Honda  ○ Adeptia
Survey Question #6

What are the emerging/disruptive technologies that are affecting all things transportation today?
Survey Question #6 (responses)

- Connected Vehicles (CV); Autonomous Vehicles (AV) / Shuttles; Vehicle to Infrastructure (V2I)
- Competing Communications Standards - 5G versus DSRC or Bluetooth versus WiFi
- Ride Sharing Services
- Reduction in employment market share – Sacramento CBD
- Traffic Apps
- AEV
- TaaS
- TNCs – Uber and Lyft
- ITS elements – Video/Radar detection
- Mandatory emission requirements. Electrification. Unlicensed/unregulated transportation options.
- How to incorporate emerging/disruptive technologies without starting from scratch on the infrastructure
Survey Question #7

Is your agency or organization actively discussing how to respond to emerging/disruptive transportation technologies?

- Yes
- No
Survey Question #8

Have you heard from the public or decision-makers in regard to emerging/disruptive transportation technologies?

- Yes
- No
Survey Question #9

If yes, what types of inquiries or comments are you receiving?
Survey Question #9 (responses)

- How are we incorporating them into the long-range plans? What technology can we use in El Dorado County?
- What the future holds?
- Interest in using the available disruptive technology
- The location (or non-location) of carshare opportunities
- It just started in the past two months, conditioning developers and to find grants to place signal technologies and eventually get a Traffic Operations Center
<table>
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<td>January</td>
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<td>Task 0: Project Administration</td>
<td>Notice to Proceed (December 18)</td>
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<td>Task 1: Stakeholder ID and Outreach Plan</td>
<td>Stakeholder ID</td>
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<td>Task 3: Concept of Operations</td>
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<td>Task 4: Local Technology Implementation Plans</td>
<td>Prepare Local Implementation Plans</td>
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<tr>
<td>Task 5: Regional Technology Master Plan</td>
<td>Prepare Regional Master Plan</td>
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Survey Question #10

What do you desire to accomplish through your participation in Smart Region Sacramento?
Survey Question #10 (responses)

- Information gathering and funding opportunities
- Learn what others are doing, what is available, what is coming, and what is possible - lessons learned
- See how we fit in this effort
- Advancement of ITS deployments and strategies
- Inclusion in corridor connection planning
- Coordinated and consistent regional approaches to industry strategies/solutions (adaptive signal systems, use of disruptive technology, smart technology implementation, integration for regional growth, and traffic growth)
Live Poll #4

How likely are you to attend the next meeting?
- Very Likely
- Somewhat Likely
- Not sure
- Not Likely
Live Polling Exercise

To exit:

1. Text **LEAVE** to **22333**
2. You will receive a confirmation message.
Next Steps

- Individual Agency Meetings/Data Collection
- Industry Summit
- Monthly ITS Partnership Meetings (Core Advisory Committee)