

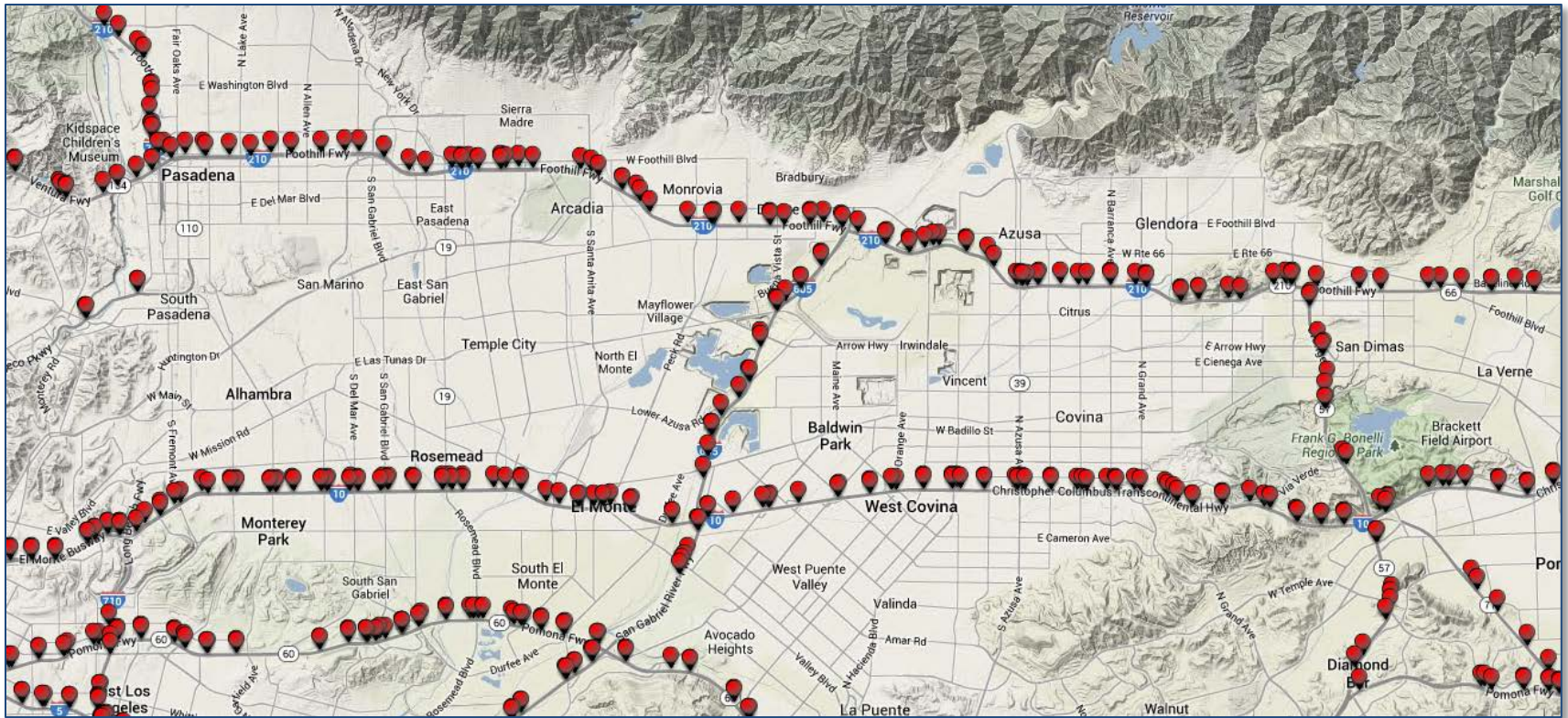
1

# Freeway

# Freeway Sensor Locations

2

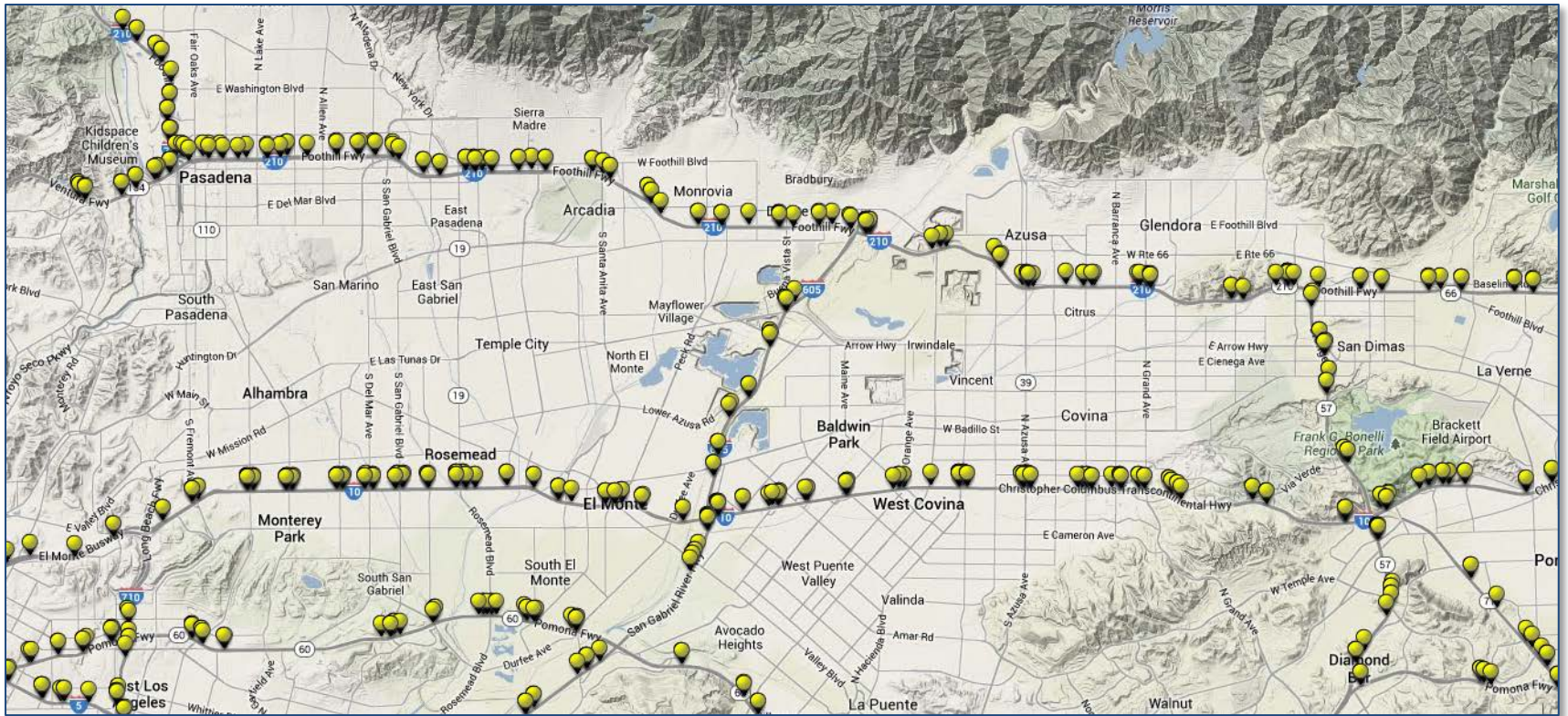
## □ Mainline sensors



# Freeway Sensor Locations

3

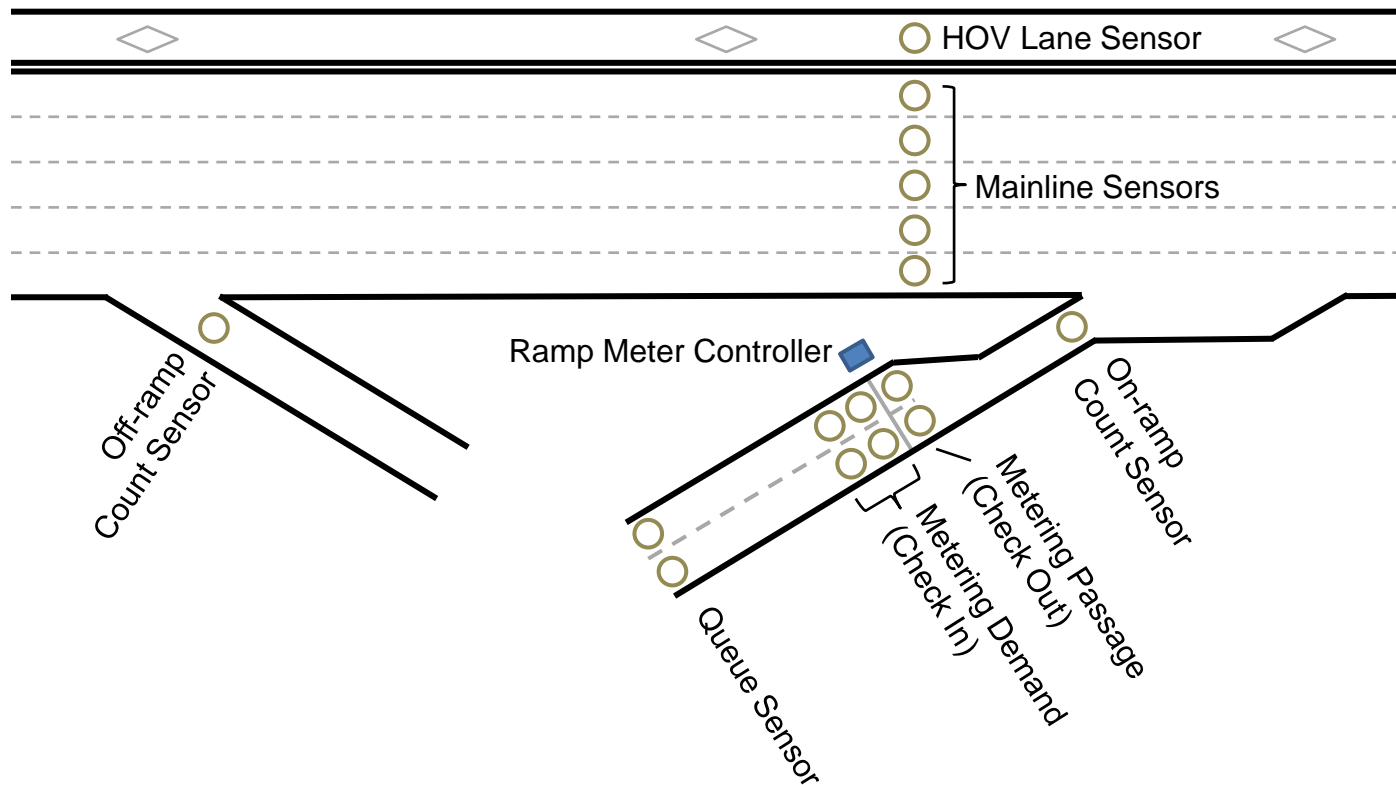
## □ On-ramps and off-ramp sensors



# Sensor Layout

4

## □ Typical mainline and ramp sensor layouts



# Sensor Layout - Example

5

## □ Sensors at I-210 WB Huntington On-Ramp

*Queue sensor*



*Meter sensors*



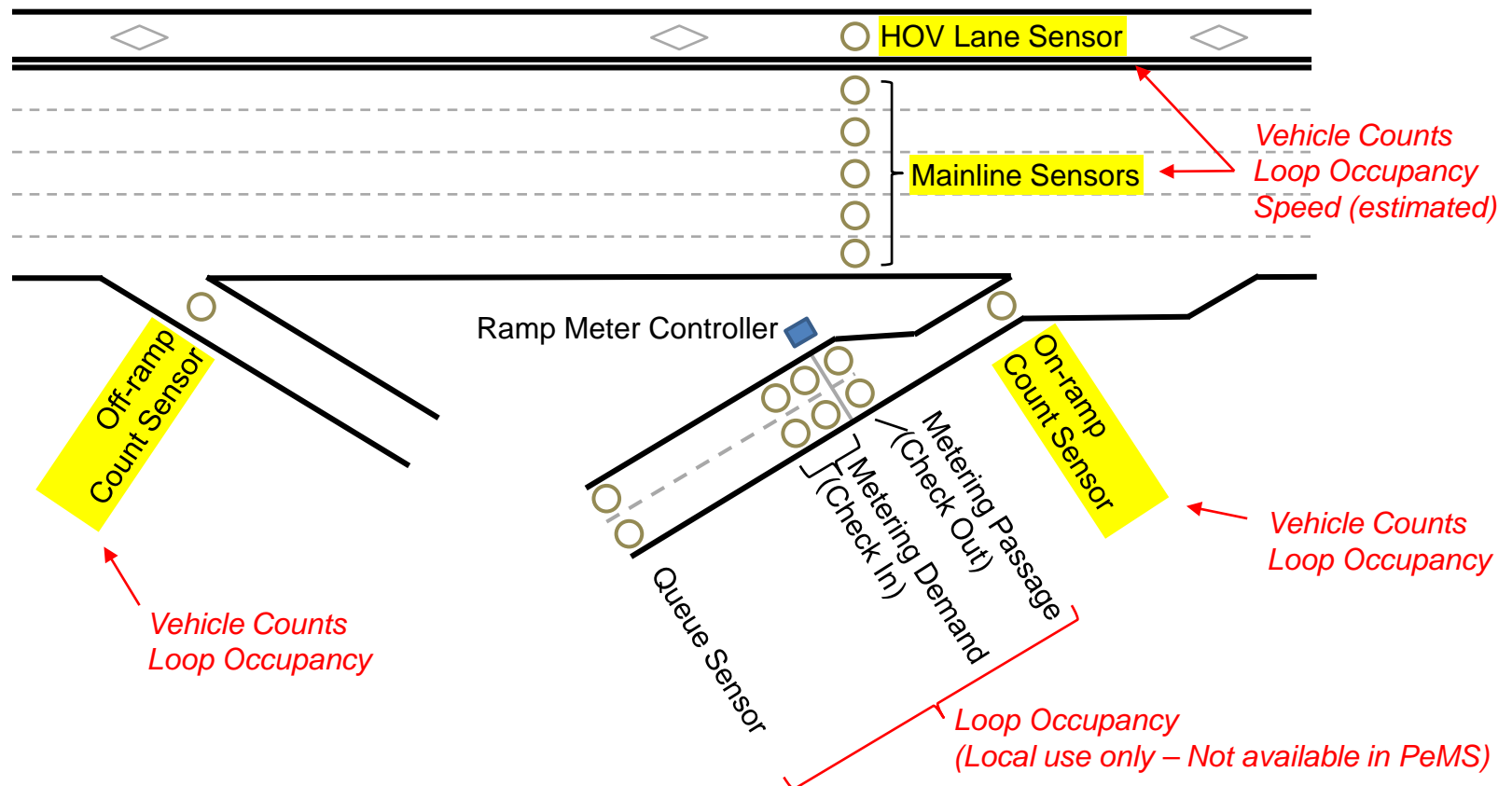
*Traffic count sensor*



# Collected Data

6

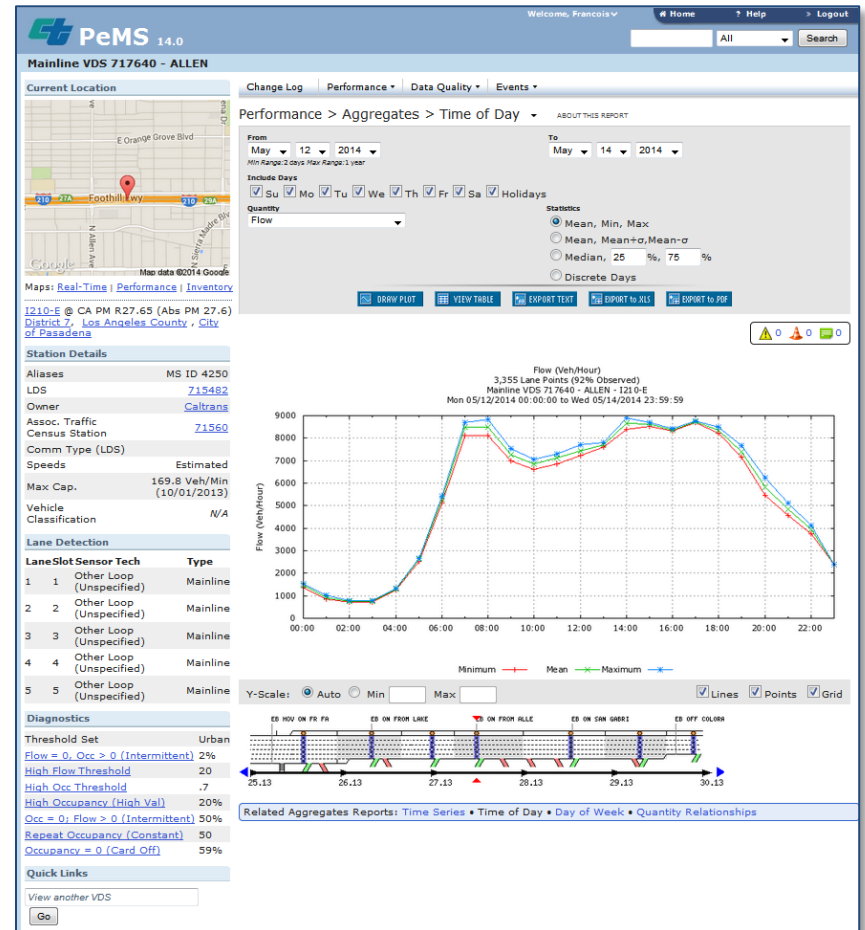
## □ Typical mainline and ramp sensor layouts



# Collected Data

7

- All collected data from freeway sensors stored in PeMS



8

# Arterials



# Arterial Traffic Detection

9

- **Caltrans Intersections**
  - ▣ Sensors used at most Caltrans intersections to support vehicle actuated control
  - ▣ No data currently sent to a central system
  
- **City of Pasadena**
  - ▣ Sensors at approximately 2/3 of city-operated intersections to support vehicle-actuated control
  - ▣ 5-min flow data from select intersections archived once a day (*still discussing with city to obtain access to data*)
  
- **City of Arcadia**
  - ▣ Sensors at most of the 52 city-operated intersections
  - ▣ Cycle-by-cycle count data available in real-time through the city's TransSuite suite (*ability to see current and past cycle only*)
  - ▣ 5-min count data continuously archived throughout the day (*Data from 12/23/2013 to Present currently available*)

# Arterial Traffic Detection

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## □ **City of Duarte**

- ▣ Sensors used at most intersections to support vehicle actuated control
- ▣ No data currently sent to a central system

## □ **City Monrovia**

- ▣ Sensors used at most intersections to support vehicle actuated control
- ▣ No data currently sent to a central system

## □ **Los Angeles County**

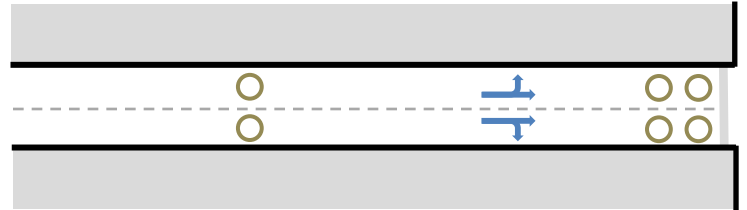
- ▣ Sensors used at most intersections operated by LA County in unincorporated county areas to support vehicle actuated control
- ▣ No data currently sent to a central system

# Arterial Detection Layout - Examples

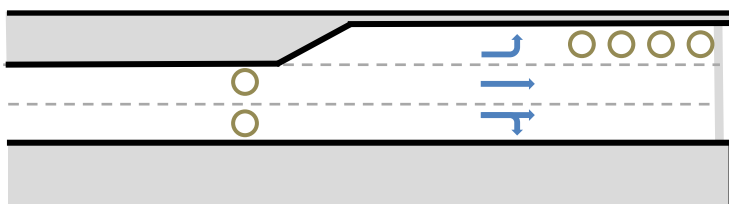
Stopline Only



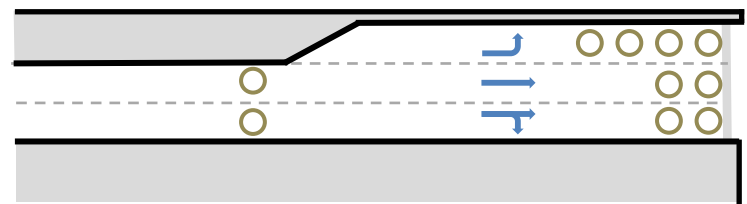
Advance + Stopline



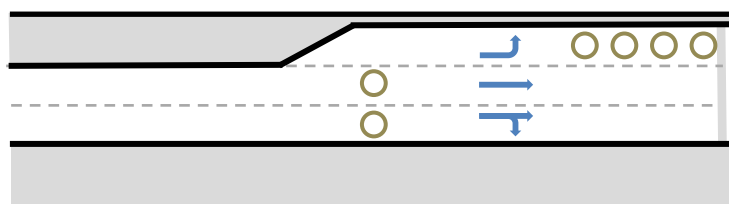
Advance + Left Turn Bay (Advance Option 1)



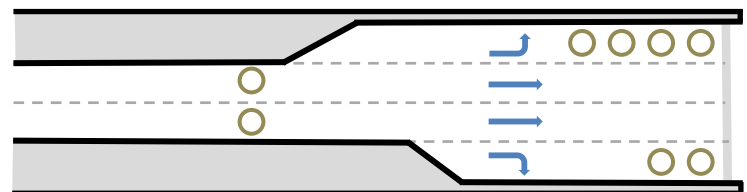
Advance + All Lanes at Stopline



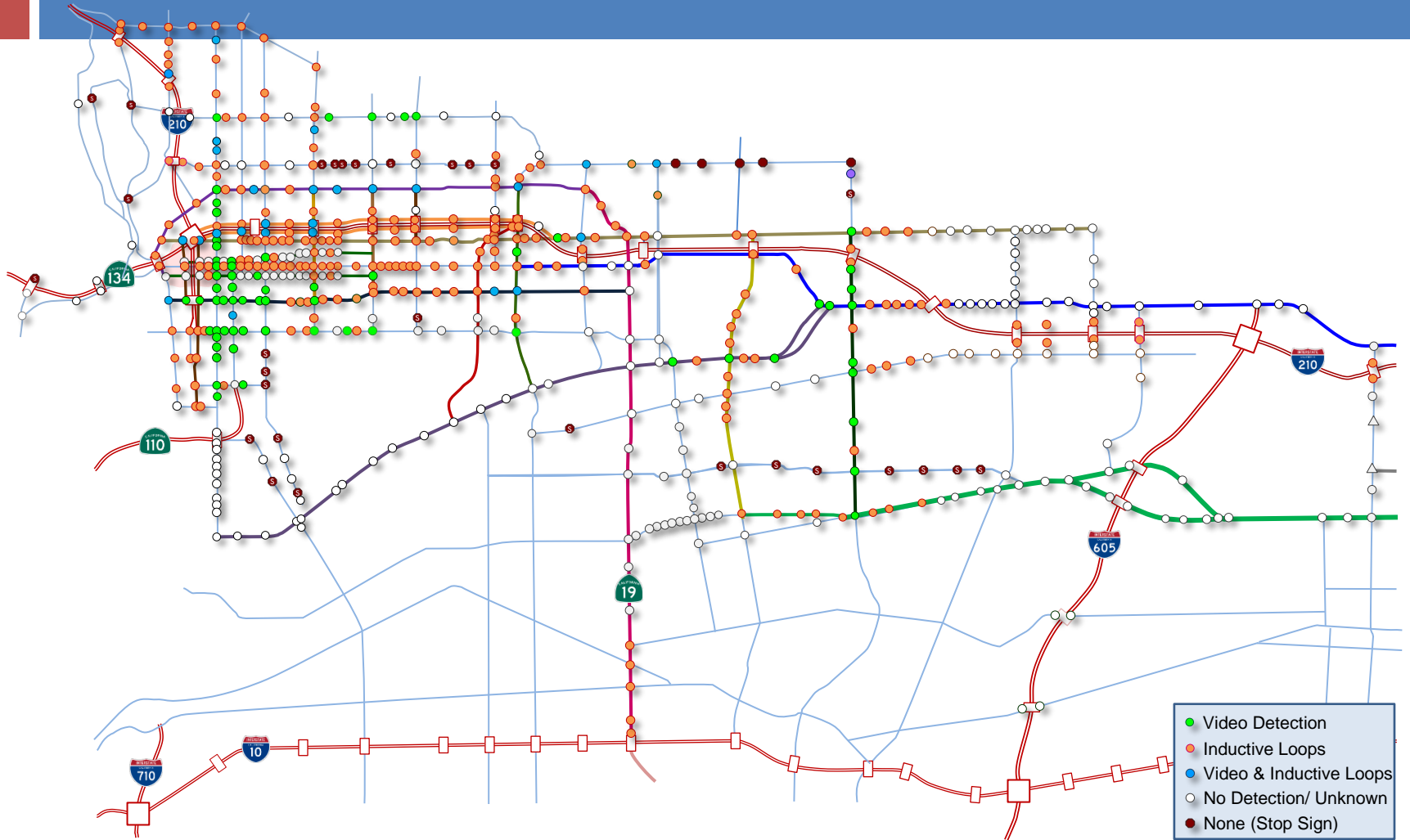
Advanced + Left Turn Bay (Advance Option 2)



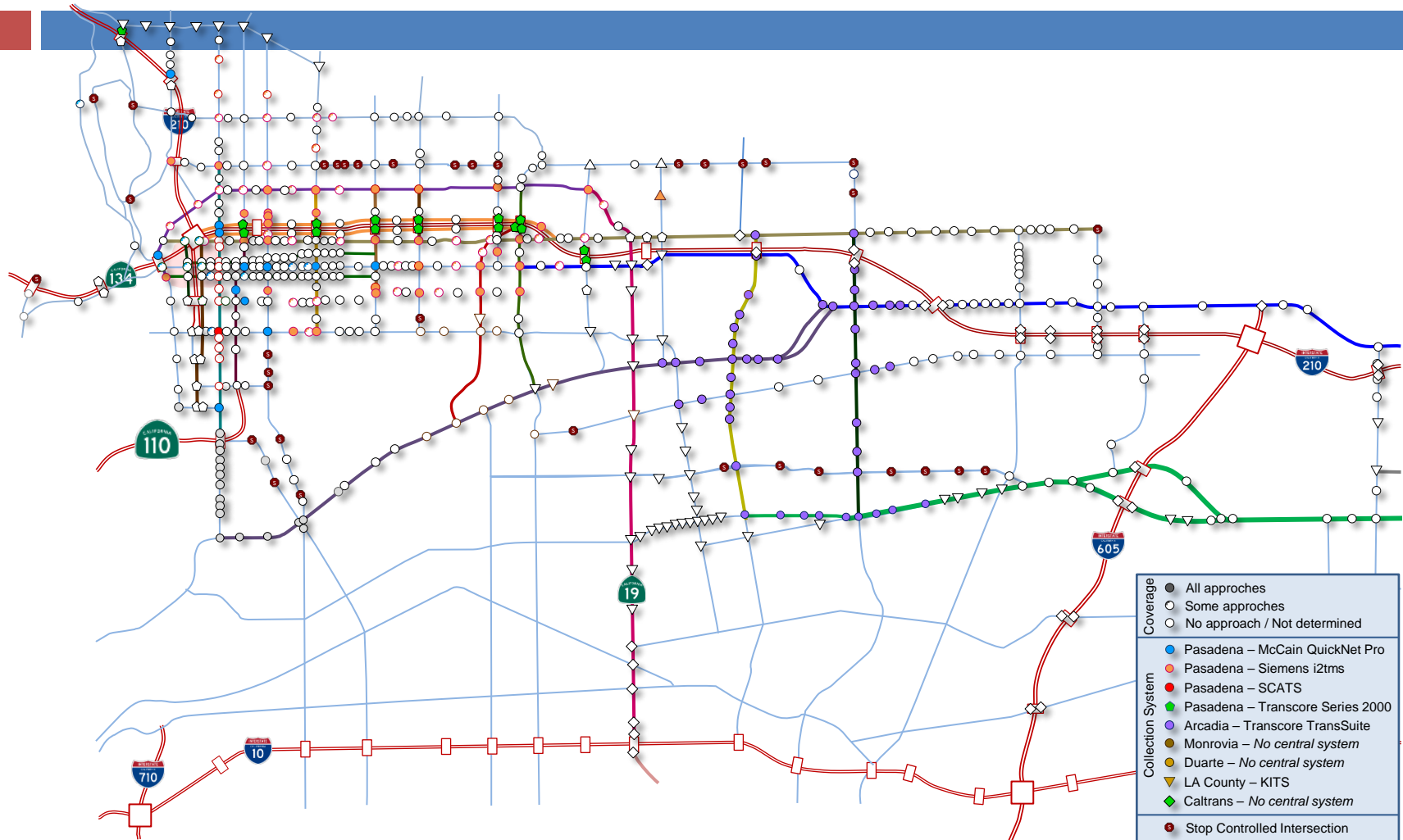
Advanced + Left Bay + Right Bay



# Arterial Sensors – Detection Type



# Data Collection – Approach Volumes



# Signal Operations

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- **Caltrans**
  - Timing sheets available
  - Predominantly vehicle-actuated control
  - No capability to observed signal timings from a central location (no connection to Caltrans TMC)
  
- **City of Pasadena**
  - Timing sheets available
  - Predominantly coordinated vehicle-actuated control
  - Signal operations can be observed from TMC in real-time
  - Do not know if the various traffic control systems used by the city archive signal timings
  
- **City of Arcadia**
  - Timing sheets available
  - Predominantly coordinated vehicle-actuated control
  - Signal operations can be observed from TMC in real-time
  - Actual phase timings archived by traffic control system (*cycle-by-cycle timings available from 04/20/2014*)

# Signal Operations

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- **City of Monrovia**
  - Timing sheets available
  - Predominantly coordinated vehicle-actuated control
  - No capability to observe timings from a central location (no TMC)
  
- **City of Duarte**
  - Timing sheets available
  - Predominantly coordinated vehicle-actuated control
  - No capability to observed timings from a central location (no TMC)
  
- **Los Angeles County**
  - Timing sheets available
  - Predominantly coordinated vehicle-actuated control
  - Signal timing operations can be observed from TMC in real-time
  - Not sure if implemented phase timings are archived

# Traffic Control Systems

