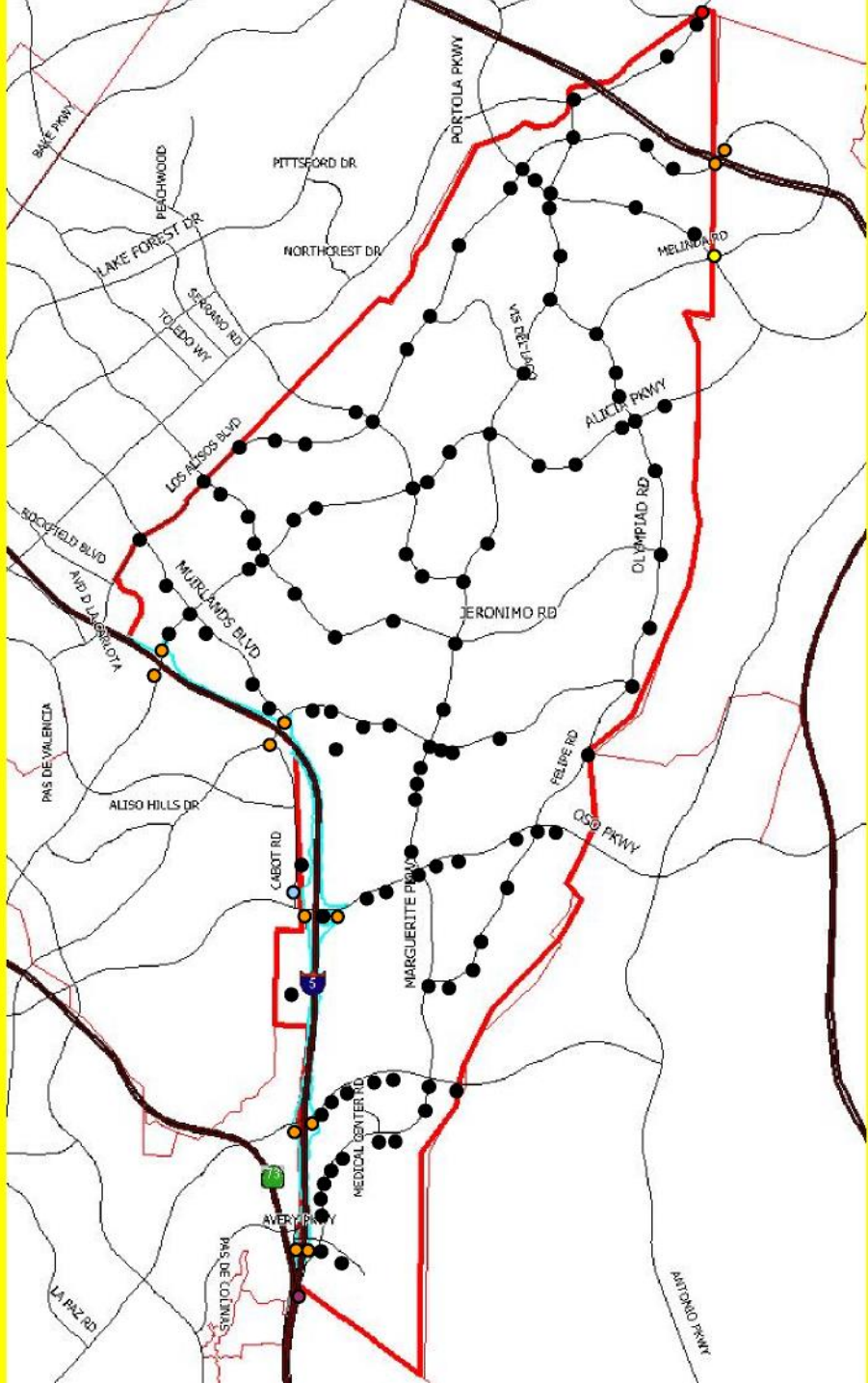




**CITY OF MISSION VIEJO
TRAFFIC SIGNALS
AND
COORDINATION**



43 Miles of Arterial Streets

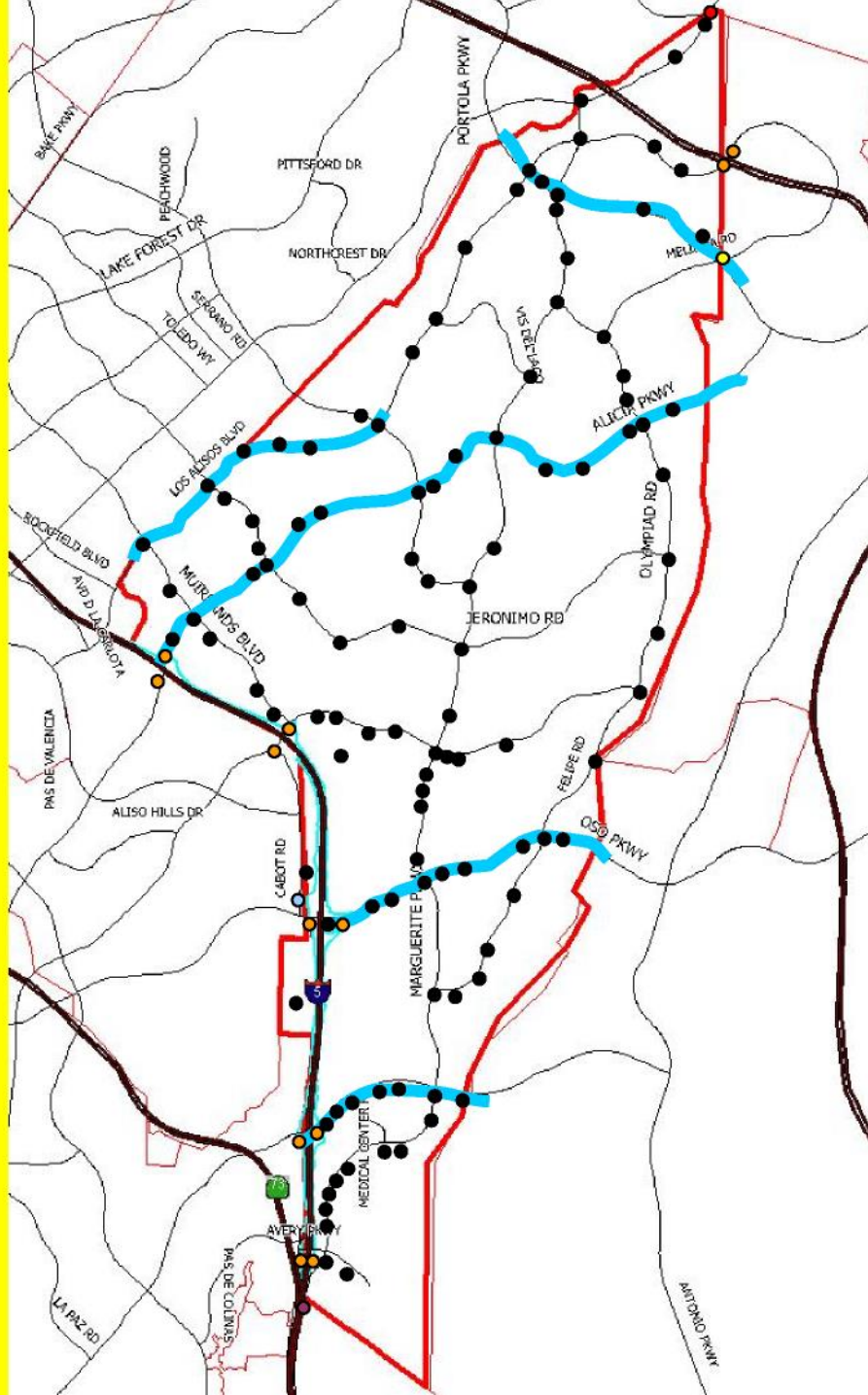
The majority of our traffic signals are located along these higher volume streets

How much traffic are we managing?

Major Streets

6-8 lane facilities are designed to accommodate

45,000 Average Daily Traffic



How much traffic are we managing?

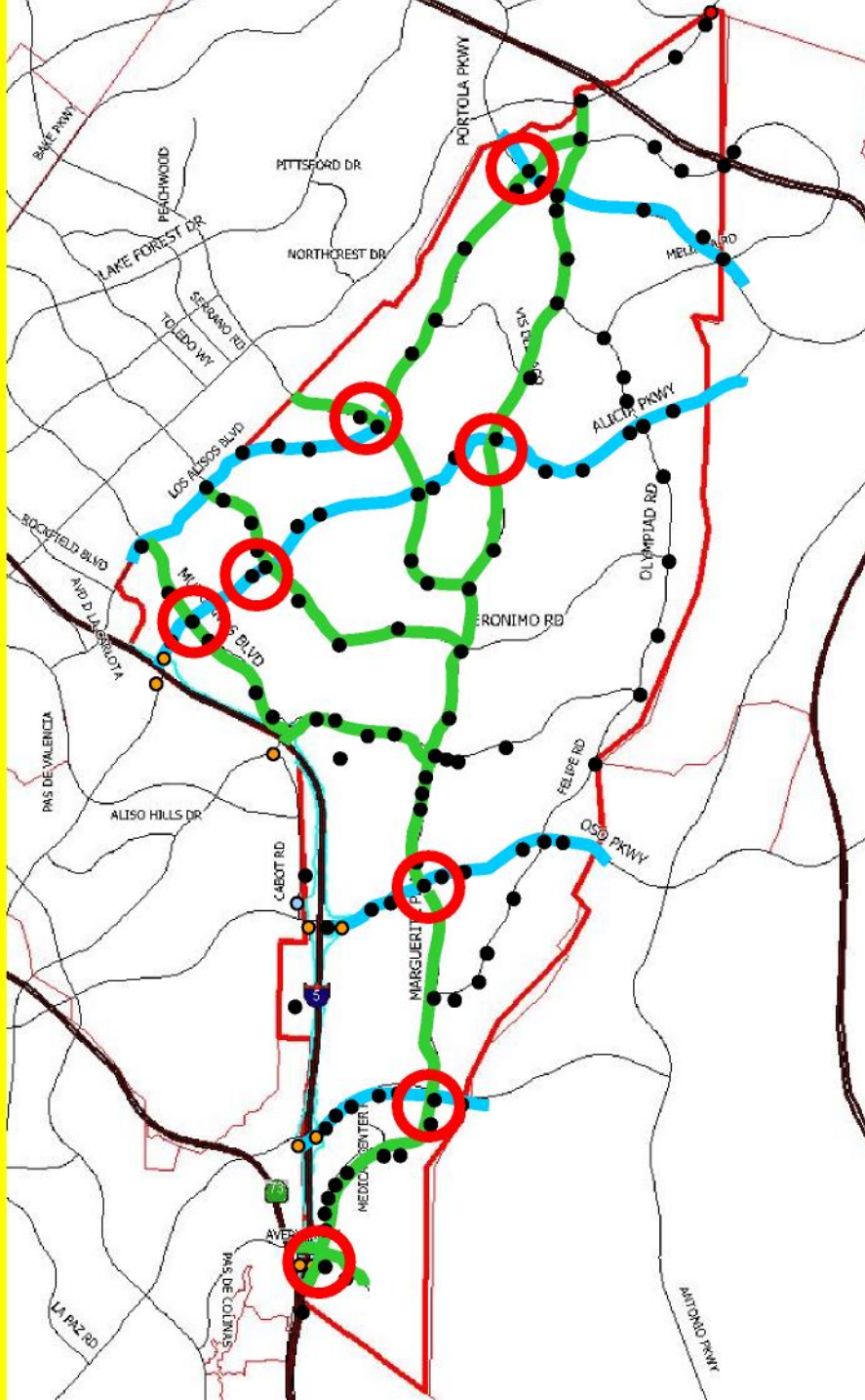
Major Streets

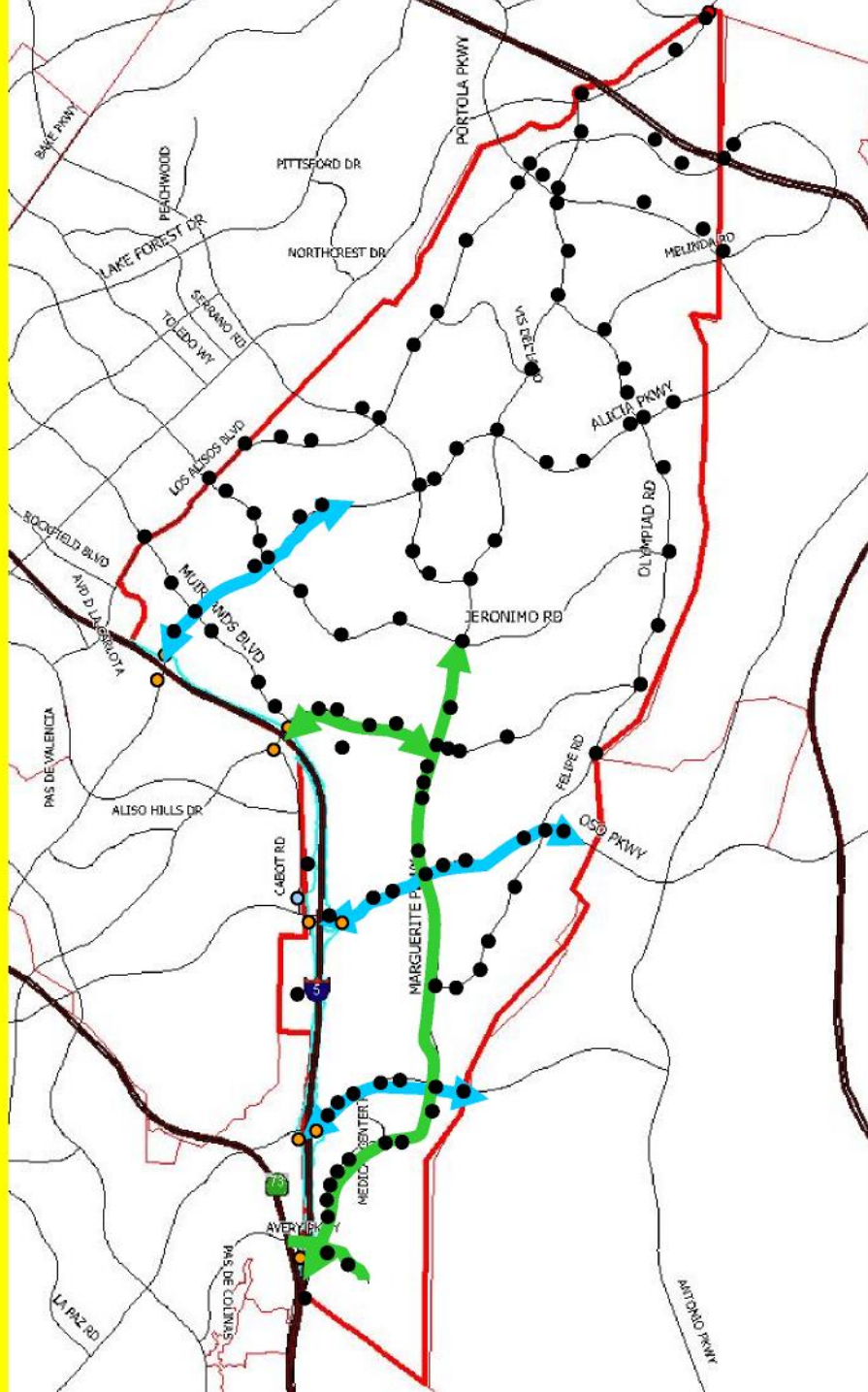
6-8 lane facilities are designed to accommodate
45,000 Average Daily Traffic

Primary Streets

4-lane facilities are designed to accommodate
30,000 Average Daily Traffic

 Critical Intersection at
Two High-Volume Arterials





Traffic volumes on many of our streets are at the expected maximum, and some segments exceed their designed capacity by **20% to 50%**

Major Streets

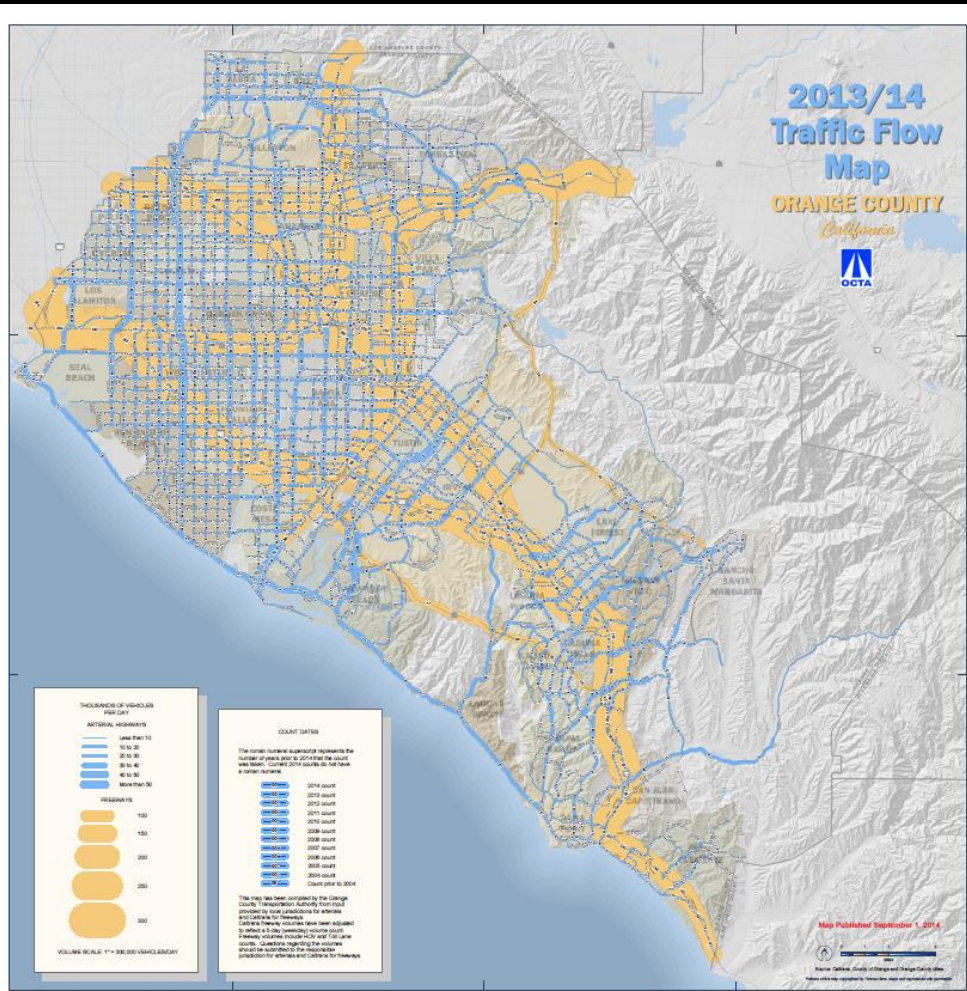
45,000 Average Daily Traffic

Alicia Pkwy	29,000 - 64,000 ADT
Oso Pkwy	40,000 - 58,000 ADT
Crown Valley Pkwy	40,000 - 61,000 ADT

Primary Streets

30,000 Average Daily Traffic

La Paz Rd	8,000 - 38,000 ADT
Marguerite Pkwy	15,000 - 34,000 ADT



Traffic volumes on many of our streets are at the expected maximum, and some segments exceed their designed capacity by **20% to 50%**

Major Streets
45,000 Average Daily Traffic

- Alicia Pkwy **29,000 - 64,000 ADT**
- Oso Pkwy **40,000 - 58,000 ADT**
- Crown Valley Pkwy **40,000 - 61,000 ADT**

Primary Streets
30,000 Average Daily Traffic

- La Paz Rd **8,000 - 38,000 ADT**
- Marguerite Pkwy **15,000 - 34,000 ADT**

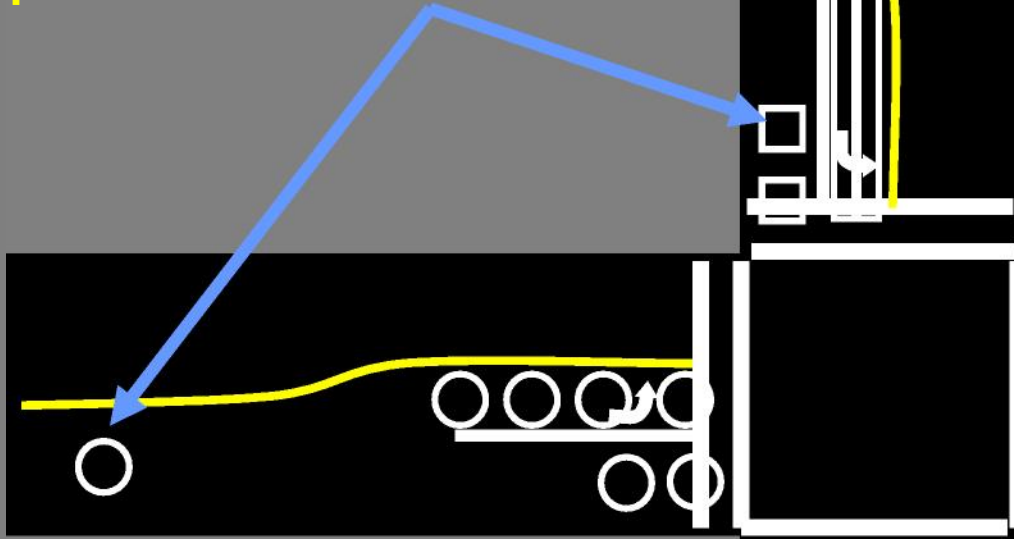
- Beach Blvd **26,000 – 83,000 ADT**
- Bake Pkwy **19,000 – 67,000 ADT**
- Jamboree Rd **21,000 – 94,000 ADT**
- El Toro Rd **9,000 – 54,000 ADT**



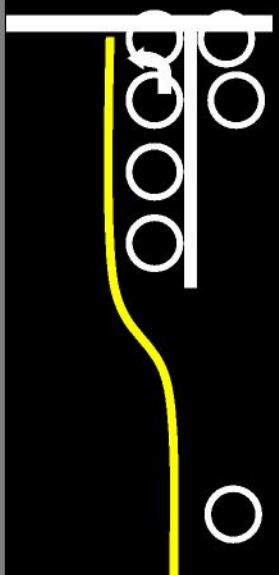
The City operates 115 traffic signals. They are all “actuated”, which means they respond to the traffic demands.



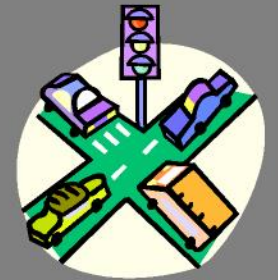
Actuated signals adjust to the traffic demands measured by “loops” in the pavement



or other detection devices such as camera imaging.

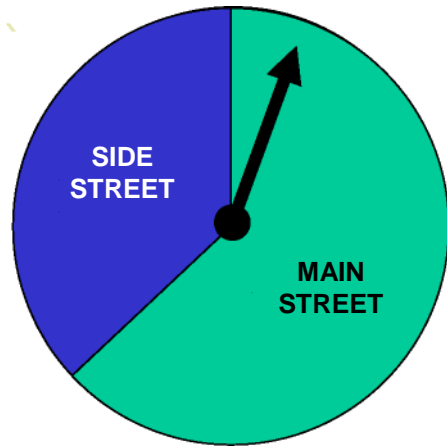


The signal timing is adjusted based on this data measured at the intersection and on the approaches.

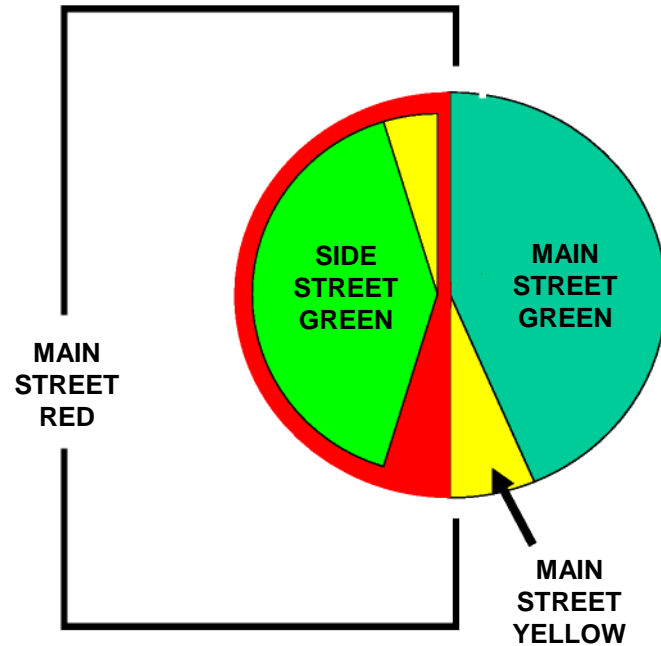




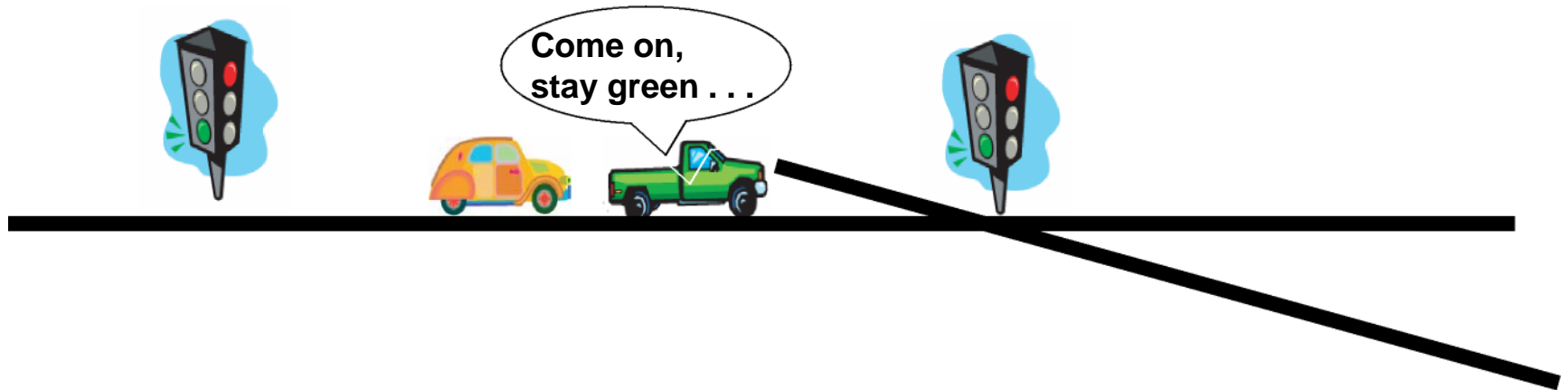
The traffic signal “cycle” length is the maximum timing at an intersection



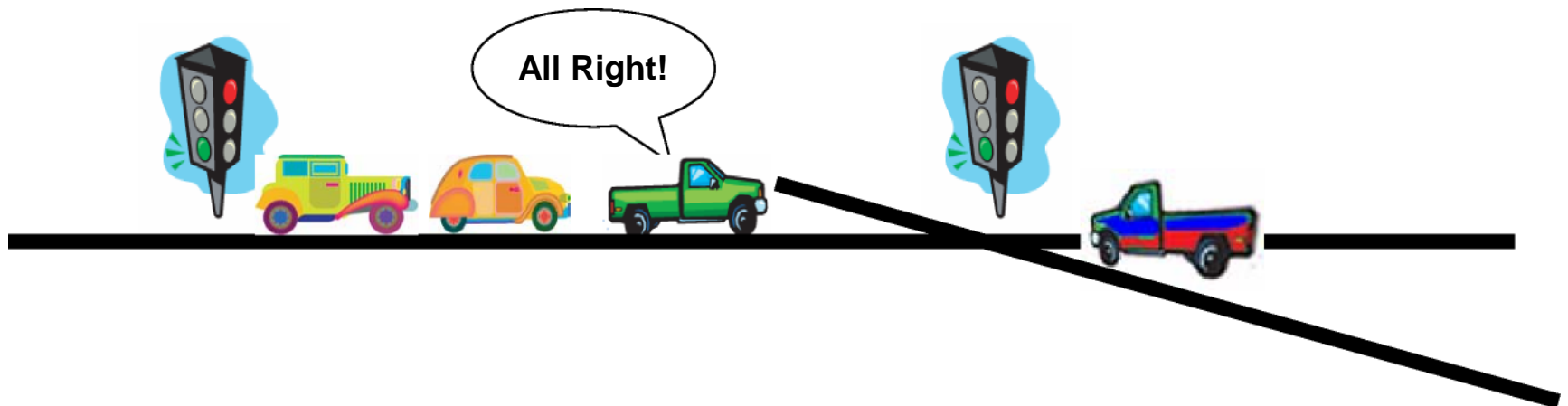
90 sec or 1.5 min
120 sec or 2.0 min
150 sec or 2.5 min



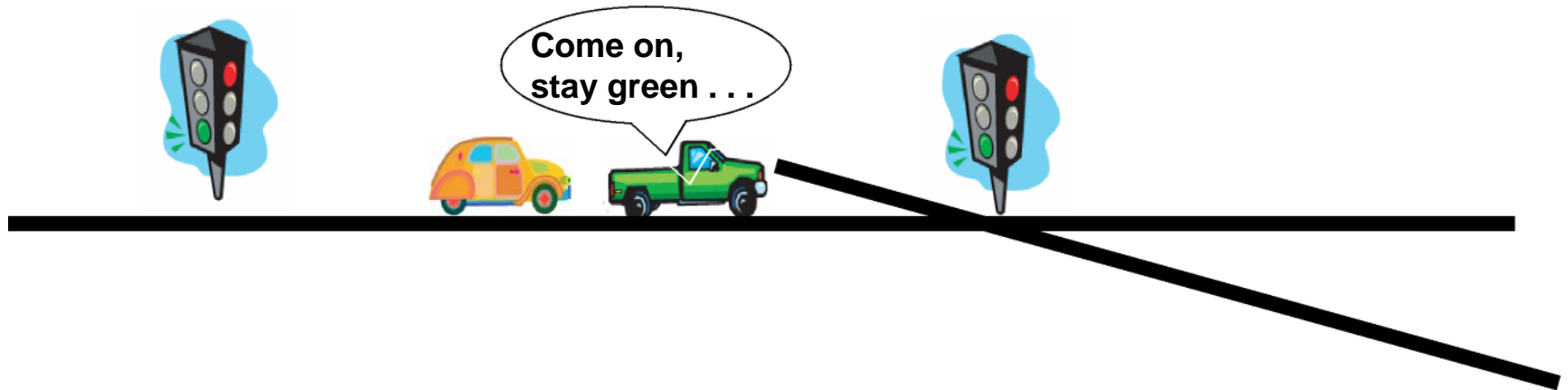
Normal “actuated” traffic signal operation will adjust to the traffic demands so . . .



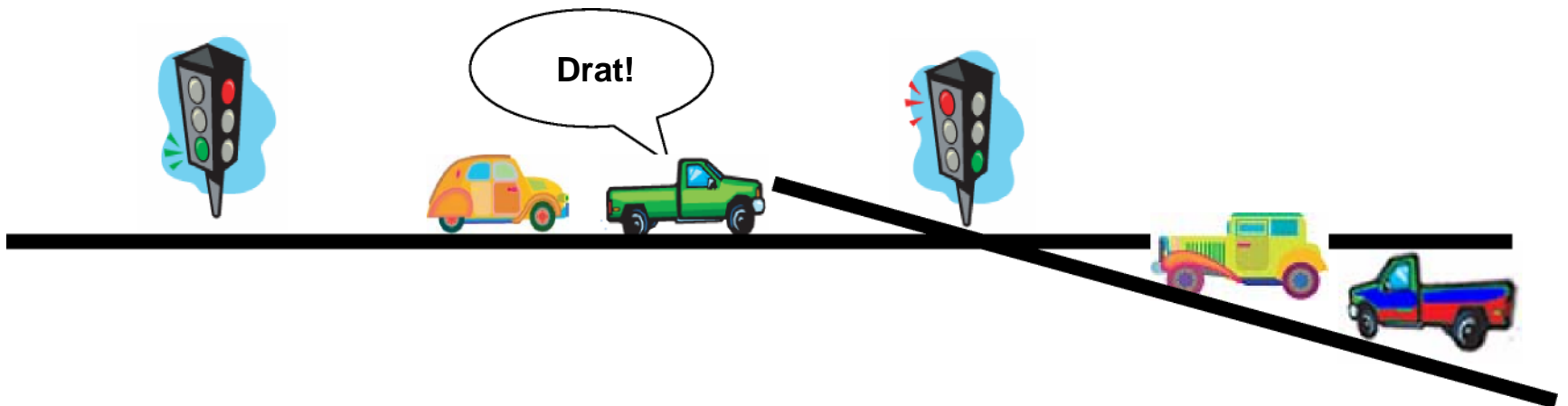
It could stay **green** if the “cycle” still has timing left on the main street and the side street demands were low in number or recent arrivals.



Normal “actuated” traffic signal operation will adjust to the traffic demands so . . .



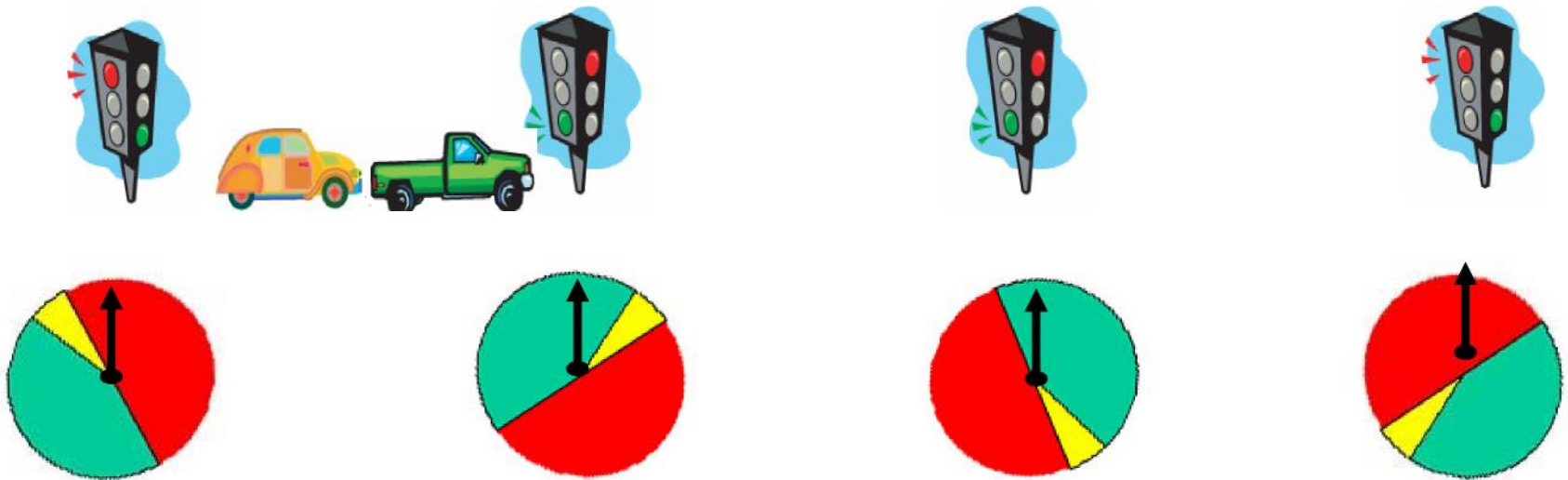
The light could change to **red** if the cycle length has finished on the main street and there are the side street or even left-turn demands.





TRAFFIC SIGNAL COORDINATION

What is Traffic Signal Coordination?



“Synchronize” the timing of a series of adjacent signals to optimize the movement of traffic “platoons” or groups of vehicles.



SUBURBAN MYTHS

TRUE or FALSE?

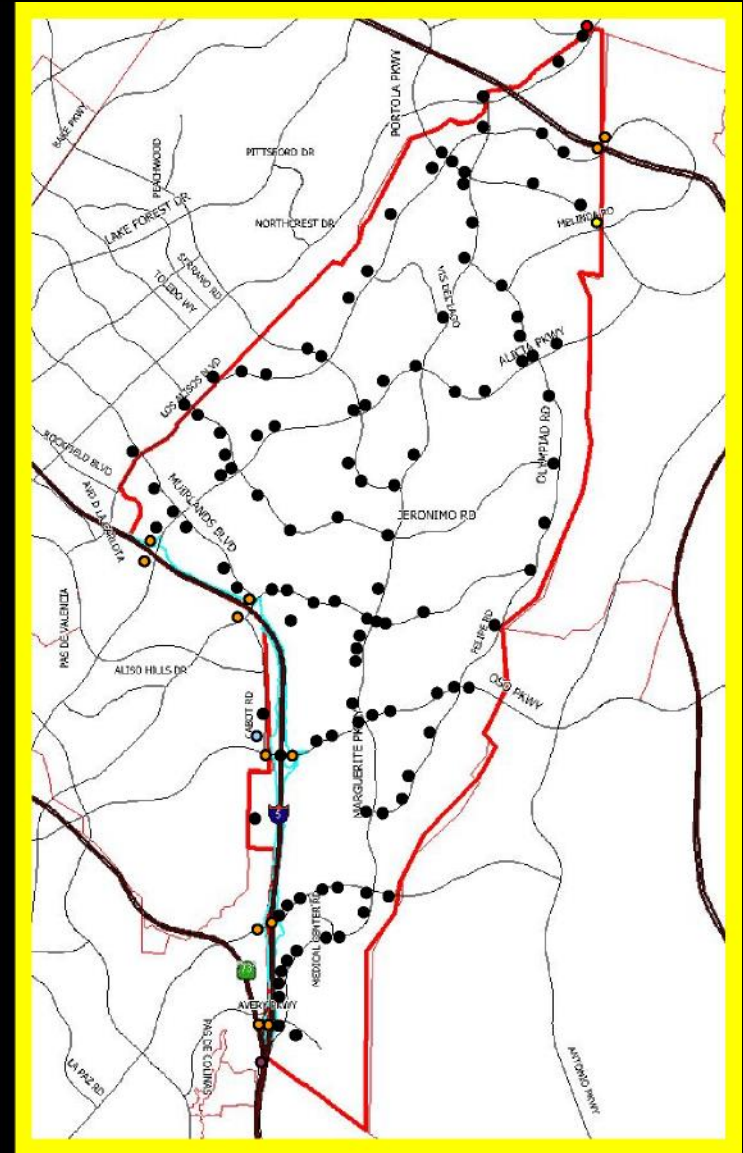
If the signals are coordinated, you drive the speed limit and you will get all green lights.



FALSE

It could be true if all of our streets were:

- One-way street systems or two-way with few/no left turns
- Evenly spaced signals
- High through-traffic demand in one direction
- No heavy cross-traffic
- Narrow streets so pedestrians' walk time is equal to vehicular traffic.





SUBURBAN MYTHS

TRUE or FALSE?

If the signals are coordinated, it would eliminate congestion on our streets.

FALSE



Traffic signal coordination **does not eliminate congestion.** It is a tool to better manage and help facilitate the traffic during these peak demands.

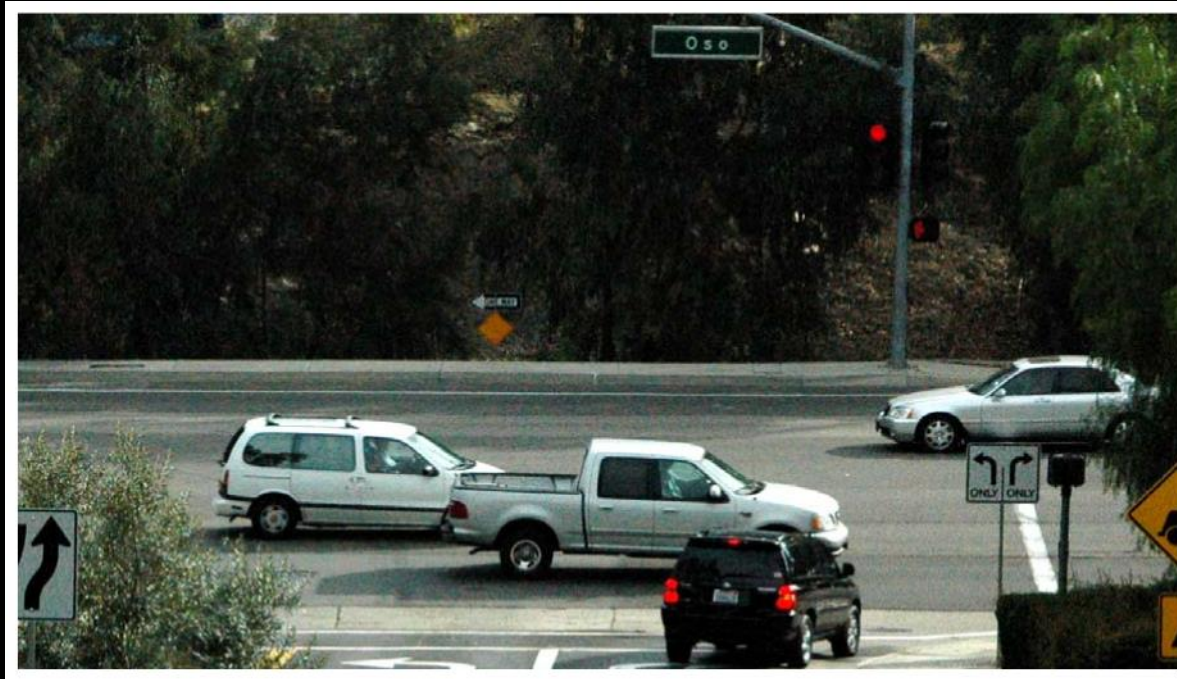


SUBURBAN MYTHS

TRUE or FALSE?

If the signals are coordinated, traffic signals will be more responsive to traffic demands.

FALSE



Traffic signal coordination is a group effort. The local signal is **not** permitted to be “responsive” to the demands at the individual intersection. The Central Traffic Signal Master timing will **hold the heaviest or critical movements longer** and make the other movements (such as left turns and side street traffic) wait.



SUBURBAN MYTHS

TRUE or FALSE?

The City of Mission Viejo coordinates traffic signals.

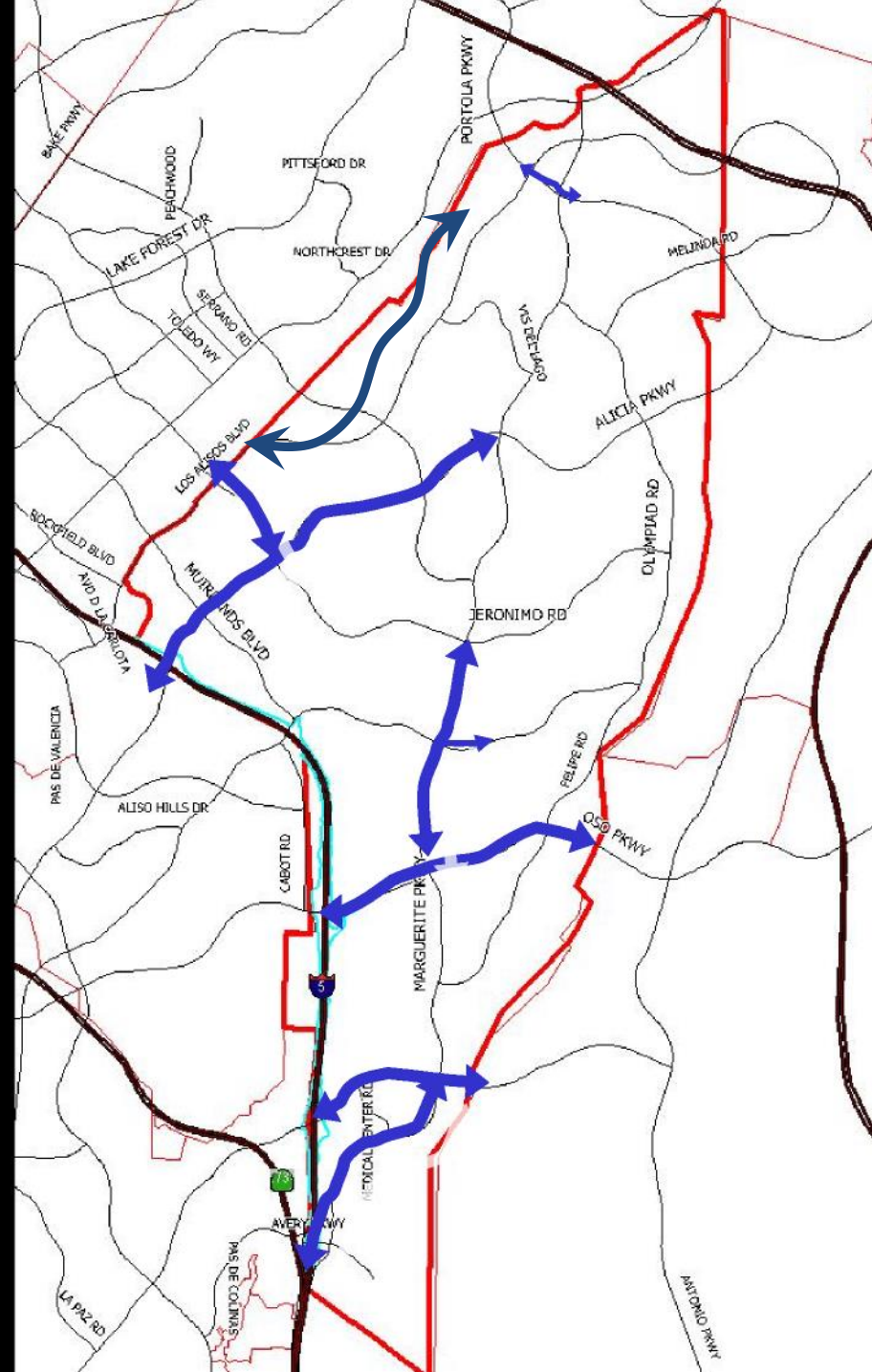
Traffic Signal Coordination in Mission Viejo is **NOT A MYTH**

We coordinate segments of:

Alicia Parkway
Crown Valley Parkway
Jeronimo Road
Los Alisos Boulevard
Marguerite Parkway
Oso Parkway
Santa Margarita Parkway
Trabuco Road

The timing is implemented

Monday through Friday
6 am and 10 pm
and certain periods on weekends
with adjustments for directional
travel based on time of day

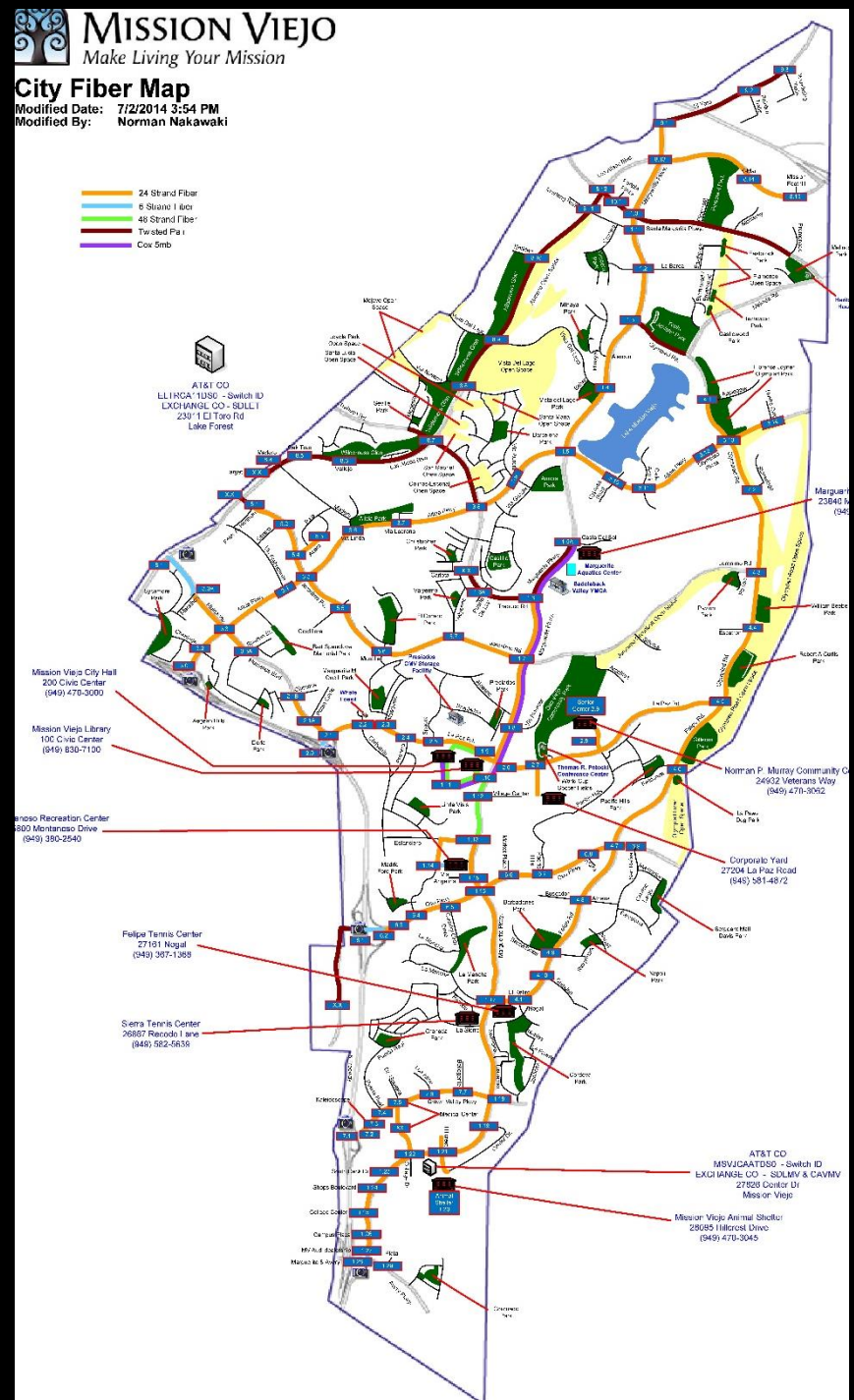


COORDINATION REQUIRES COMMUNICATION



We are able to reach all 115 traffic signals through a City-owned 33-mile network of traffic signal interconnect (wire and fiber).

It has been in operation since 1993-1996.





COORDINATION REQUIRES A TRAFFIC SIGNAL MASTER CONTROLLER

It is currently located in City Hall and has been in operation since 2009.

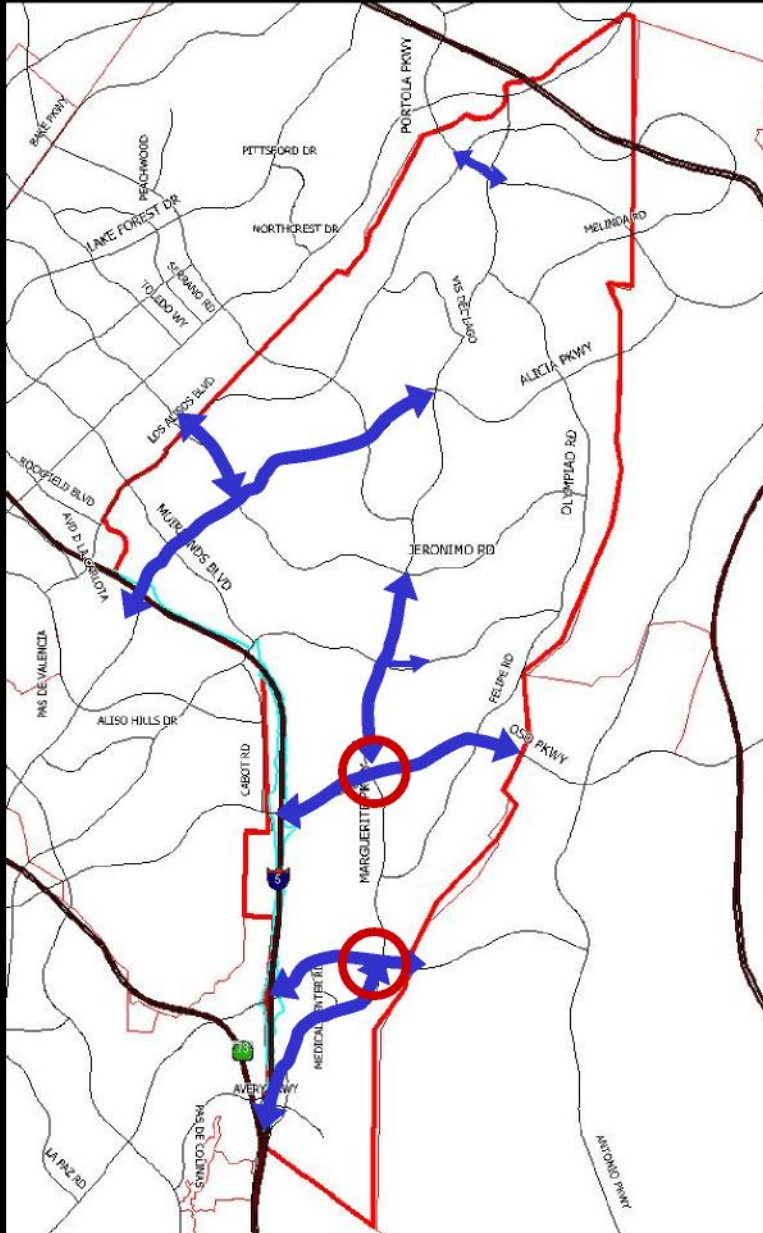
The Central Traffic Signal Master Controller uses the interconnect to communicate with the traffic signals so we can monitor their status and/or remotely control the signals.

The screenshot displays the traffic signal master controller software interface, which is divided into several sections:

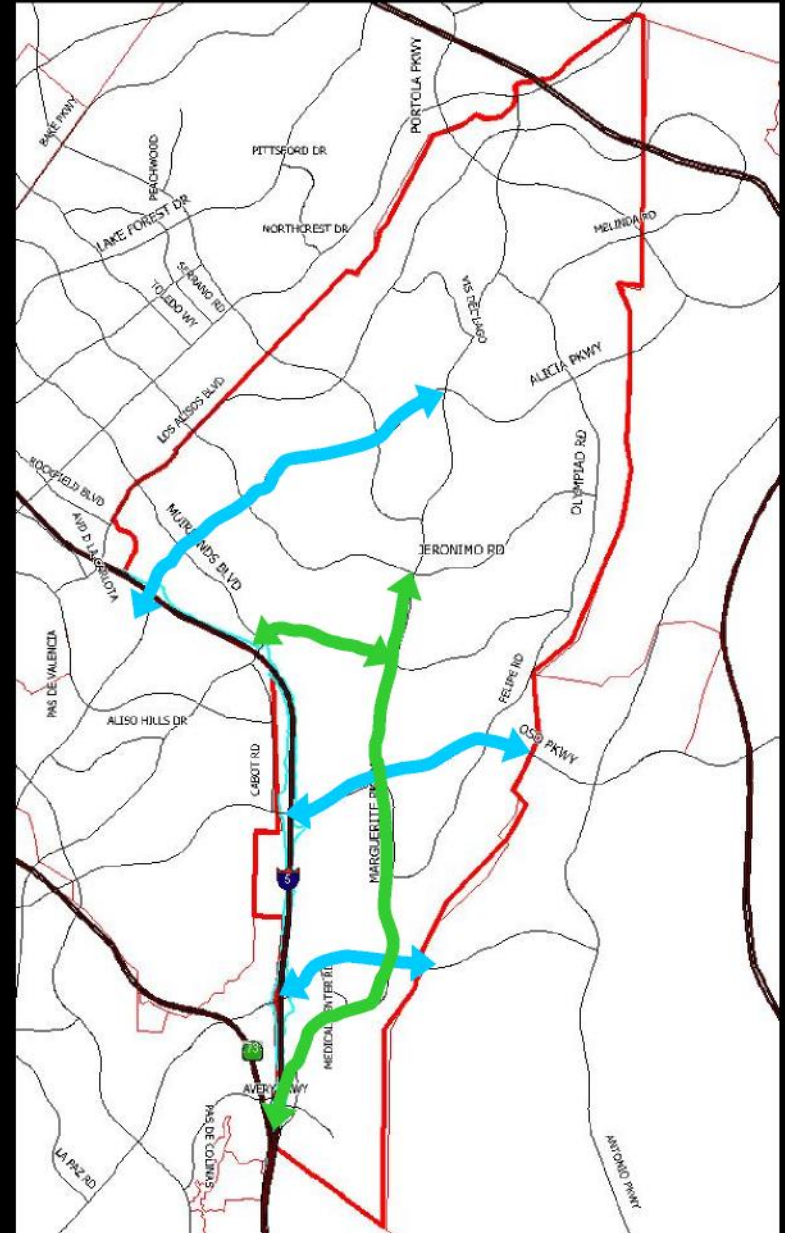
- Map Viewer(2):** A map showing the geographic distribution of traffic signals, with various colored markers indicating signal status or type.
- 128 Oso@Montanoso - (ASC3) - Sec: Oso Parkway Corridor:** A detailed view of a specific signal intersection, showing a top-down map with traffic light icons and vehicle flow indicators.
- Alert List:** A table listing various alerts and their details.
- 118 La Paz@Chrisanta - (ASC3) - Sec: La Paz Corridor:** Another detailed view of a signal intersection, similar to the Oso Parkway Corridor view.

Criticality	Trigger	Device	Name	Acknowledge State	Created
New					
✖	⚡	Signal 097 Jeronimo@Valyermo	Flash	New	12/17/2014 5:12 P
✖	⚡	Signal 155 Trabuco@Carlota	Flash	New	12/17/2014 4:29 P
✖	⚡	Signal 040 Marguerite @ Auto Mall	Flash	New	12/17/2014 3:30 P
⚠	⚡	Signal 155 Trabuco@Carlota	Flash Off	New	12/17/2014 5:55 P
⚠	⚡	Signal 097 Jeronimo@Valyermo	Flash Off	New	12/17/2014 5:12 P
⚠	⚡	Signal 040 Marguerite @ Auto Mall	Flash Off	New	12/17/2014 3:53 P
Acknowledged					
ℹ	⚡	Signal 035 Marguerite @ Saddleback	Cycle Fault	Close	12/18/2014 8:43 A
ⓘ	⚡	Signal 161 Santa Margarita @ Monterey	Coordination Failure	Close	12/18/2014 8:27 P

Coordinated Streets



High-Volume Streets



**So what is next to help
accommodate our traffic
and reduce congestion?**



INTELLIGENT TRANSPORTATION SYSTEMS



**Traffic signal coordination requires
review, updates, and monitoring.**

CAPACITY IMPROVEMENTS

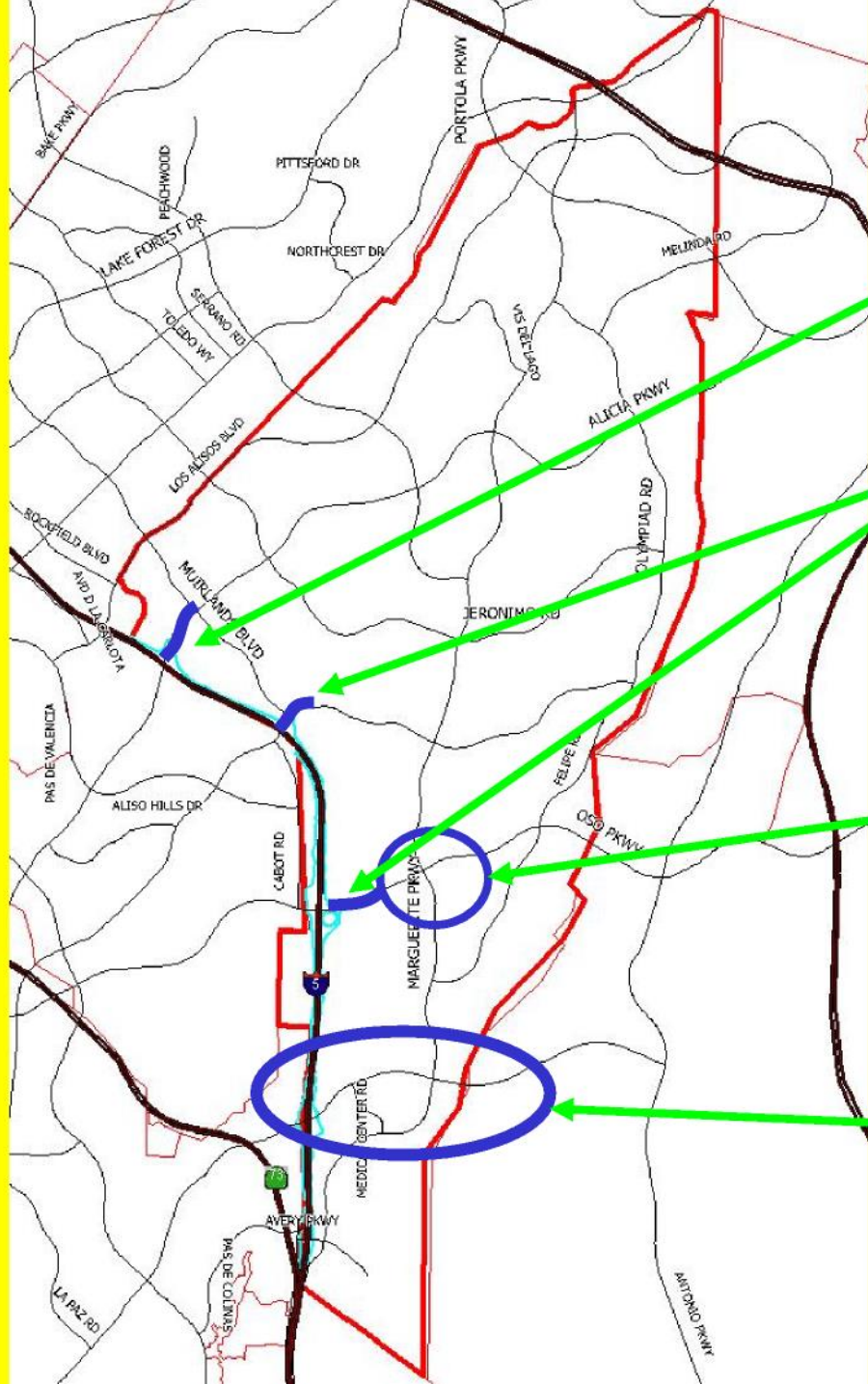
Alicia Parkway widened to add one more lane—completed in 2008

La Paz Road widening anticipated to start in 2017-18.

Oso Parkway widening from 6 to 8 lanes was completed in 2015.

Oso and Marguerite Intersection improvements—construction completed in 2012

Crown Valley widening from 6 lanes to 8 lanes (with dual left turns)—construction completed in 2009





INCIDENT MANAGEMENT

Replacements and updates to our signal system, including the reconnection of our closed circuit TV cameras and completion of a direct communication link with Caltrans, was completed in 2006.

Citywide installation of emergency vehicle pre-emption (EVP) devices in cooperation with Orange County Fire Authority (OCFA) along key corridors. This does not help traffic signal coordination but assists in reducing emergency response times through congested corridors –construction was completed in 2015.



Watch for Community View--an internet and MVTV source for local and regional traffic advisories.