Southern California Mobility Plan

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California Transportation Commission
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Overview/Why

- Robert Galvin (former CEO of Motorola) concerned with lack of mobility in major regions
- Concern with negative effects on commerce
- Reason looked at six regions (Los Angeles, Chicago, Atlanta, Miami, Denver, Fort Meyers-Lee County FL)
- Create technically accurate plan while keeping political realities in mind
- Examines entire region not just downtown or one county (Los Angeles, Orange, San Bernardino, Riverside, Ventura Counties)

Mobility Problems

Metric	1982	2014
Delay per Commuter (hours)	50	80
Travel Time Index	1.27	1.43
Gallons Excess Fuel Consumed	75,792	195,491
Percent Commuters Using Transit	5.9%	5.8%
Cost of Congestion	$12.6B	$13.3B

Yes But…….

- Vehicle Miles Travel is decreasing
  - Per capita VMT is flat
  - Increase in population equates to increase in VMT
  - Overall increases in VMT especially arterial particularly over the last two years
- Los Angeles has robust transit network
  - Actual per capita transit usage has been declining for 35 years
  - Problem is network does not take many potential riders where they need to go

Focus: SCAG Plan

- Many plans, more relevant is SCAG plan
- Technically sound, pragmatic
- Uses $305B in existing resources and relies on $220B in new funds which may not be realistic
- Hamstrung by state laws particularly environmental
  - Desire to reduce greenhouse gas emissions, prevent sprawl
  - Both can be addressed more effectively with pricing
- Hamstrung by political concerns
  - City A gets light-rail line, City B must get light-rail line
  - Local interests exerting undue pressure over a regional plan

Result: Expressway Travel Speed Differences Between 2007 and 2035

Reason Southern California Mobility Plan Factors

- For region: Interconnectivity
  - Traveling from one city/one county to another
- For region: Realistic revenue potential
  - No reliance on unexpected revenue
- For region: Mobility
  - This is a transportation plan
  - Reduces GHGs and leads to economic growth
- For roadways: Induced Demand
  - In growing areas widened non-priced roadways become congested in 2-5 years
  - Good for economic development but bad for mobility
- For transit: Reduced Trip Times, Reduced Transfers
  - Two major reasons commuters do not take transit

Increasing Expressway Mobility: Express Lanes Network

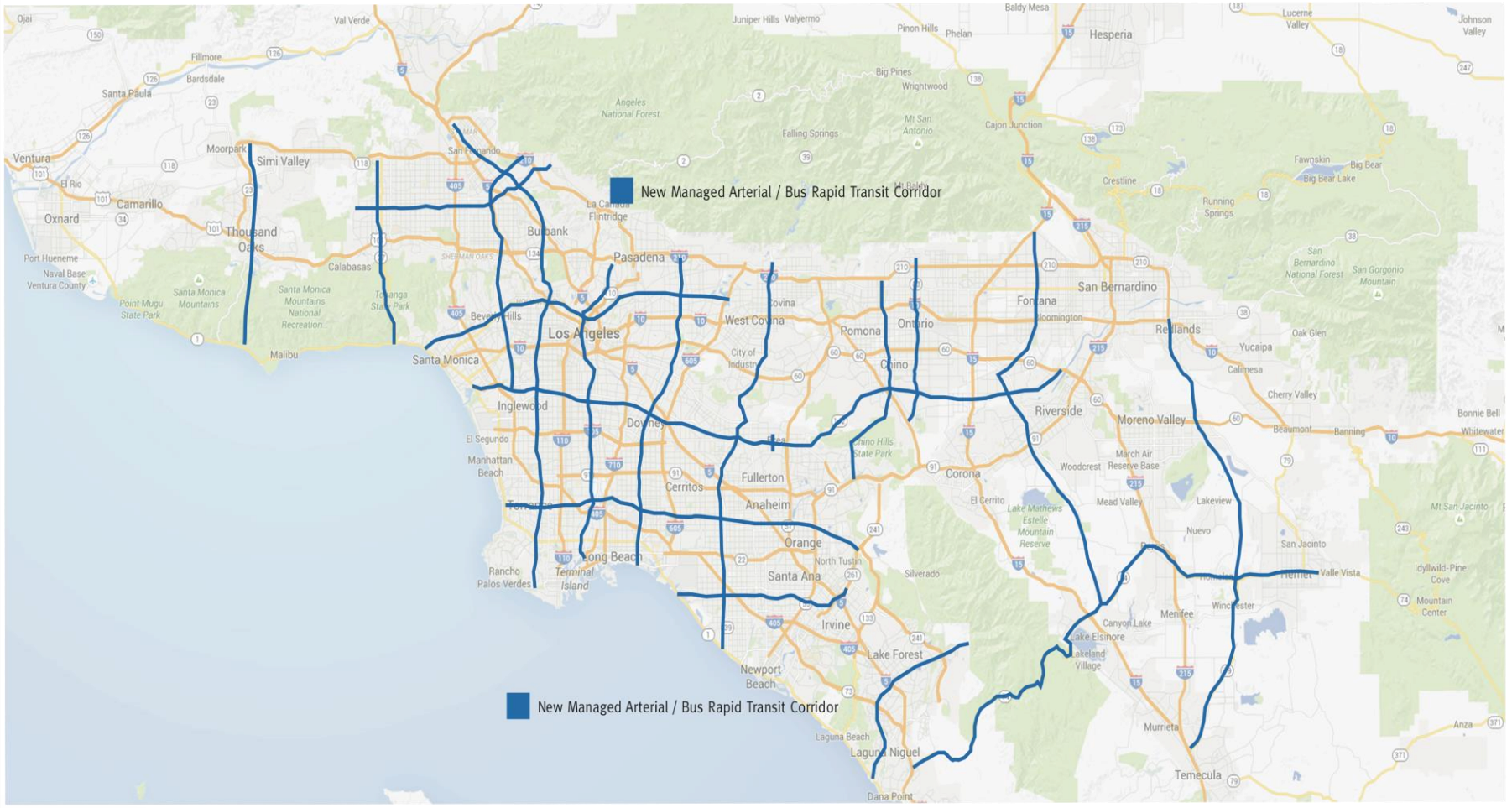
- Concept: A network of lanes that offers a reliable trip time for drivers and transit users
- 1-3 lanes in each direction on almost every Southern California expressway
- Involves conversions from High Occupancy Vehicle (HOV) lanes to High Occupancy Toll (HOT) lanes and new priced capacity
- Cost for Express Toll Lanes/Truck Toll Lanes $105B
- Cost for Express Toll Lane Interchanges $24B

Express Lane Network Map

Increasing Arterial Mobility Managed Arterials Network

- Concept: A network of arterials (surface streets) that offers a reliable trip time for drivers and transit users
- 559 tolled grade separations (underpasses or overpasses) on 18 major arterials
- Tolls range from $0.15-$0.25; optional to all vehicles and free for buses and vanpools
- Involves limited new capacity and some restriping (parking lanes to travel lanes)
- Cost for grade separations is $33.7B
- Costs for associated improvements (arterial widenings and new alignments) $19.4B

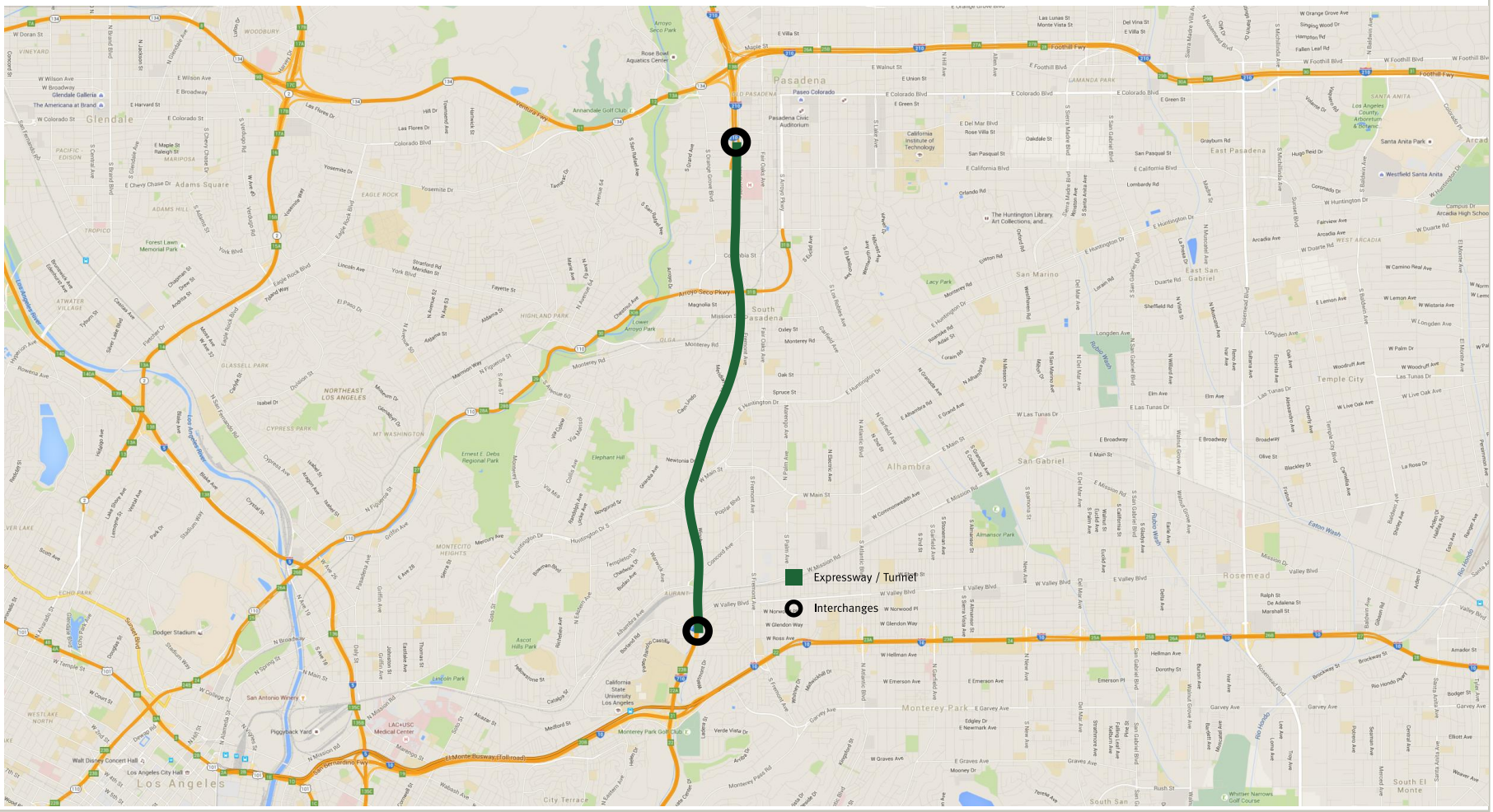
Managed Arterials Network



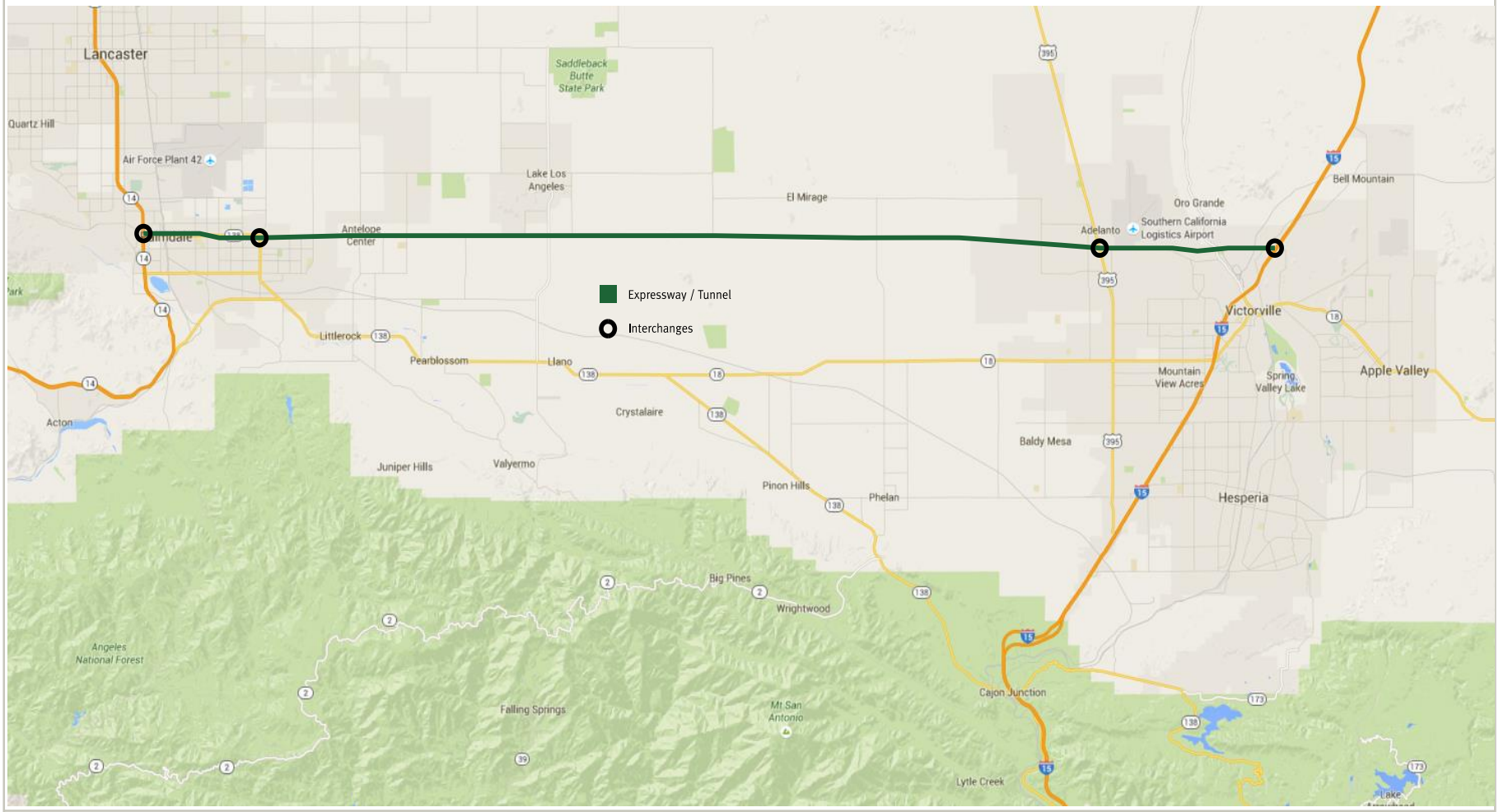
Filling in Gaps in the Network: Toll Expressways/Tunnels

- Several Missing Links in Southern California Expressway Network
- Original planned as surface expressways not well received
  - Bulldoze homes
  - Decrease property values
  - Destroy communities
- Replaced with environmentally-friendly tunnels
- Increases mobility throughout network and helps high growth areas (High Desert Corridor, Glendale-Palmdale Tunnel)
- Total of 6 expressways/tunnels
- Total cost $97.2B

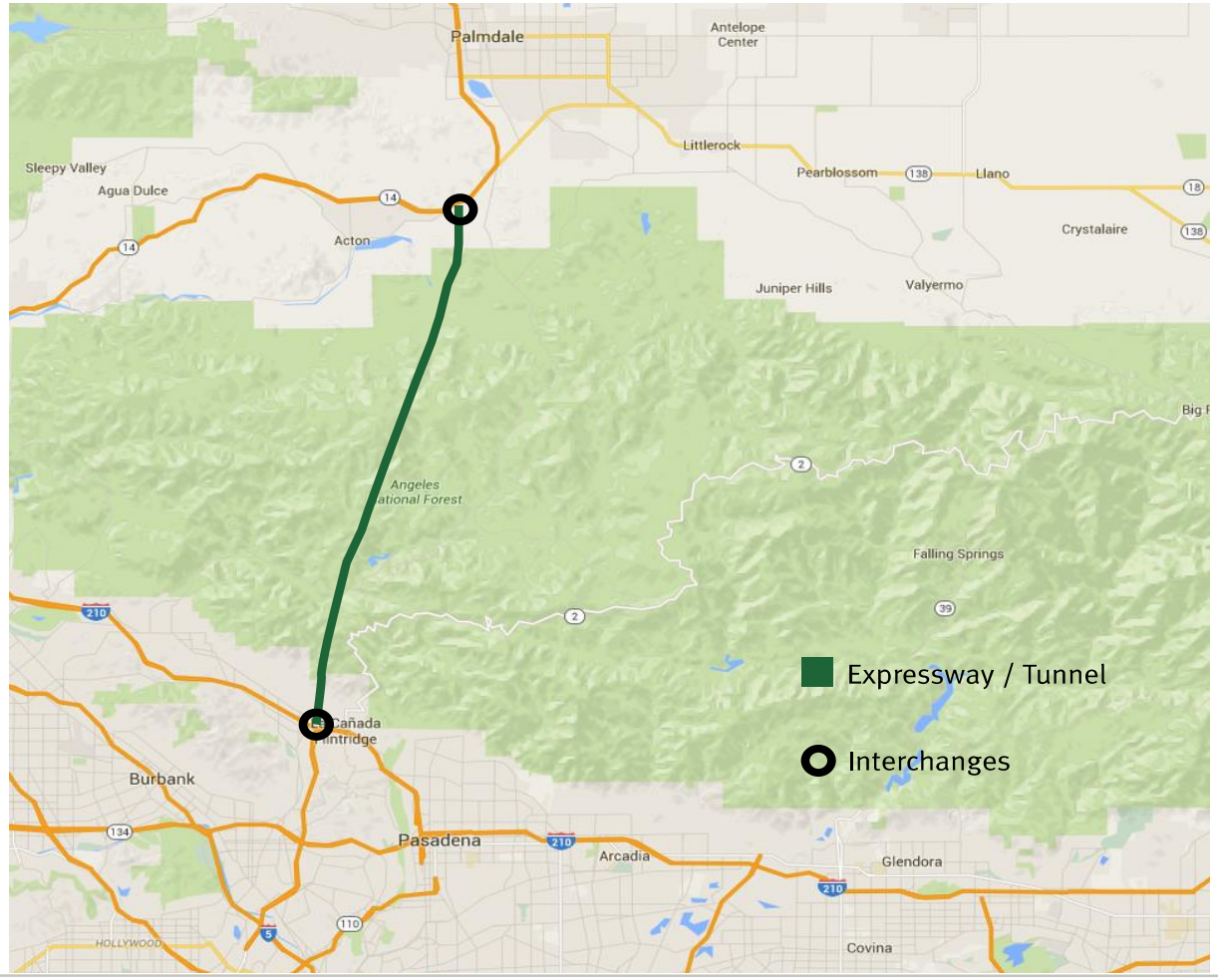
Toll Expressways/Tunnels



Toll Expressways/Tunnels



Toll Expressways/Tunnels



Toll Expressways/Tunnels

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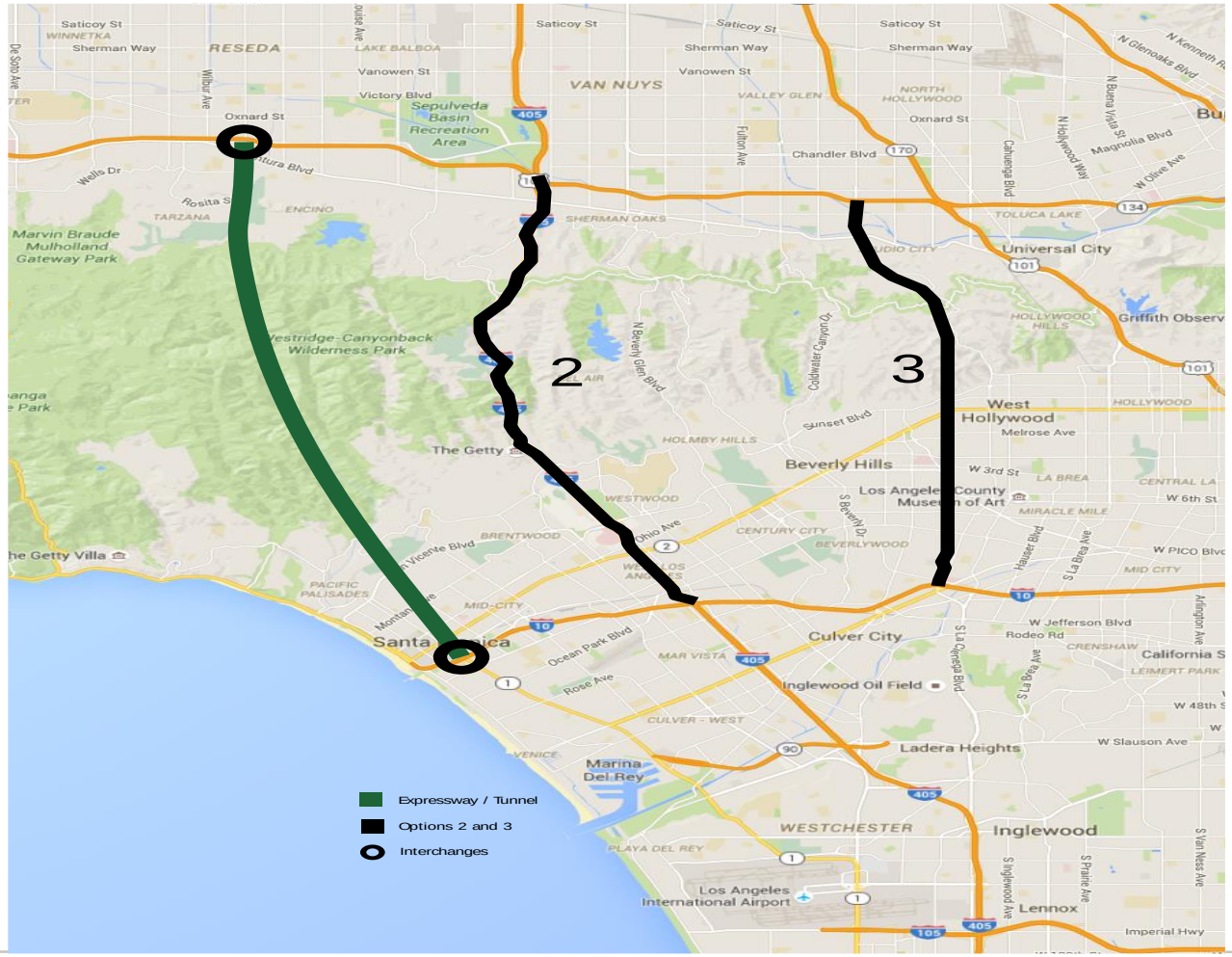
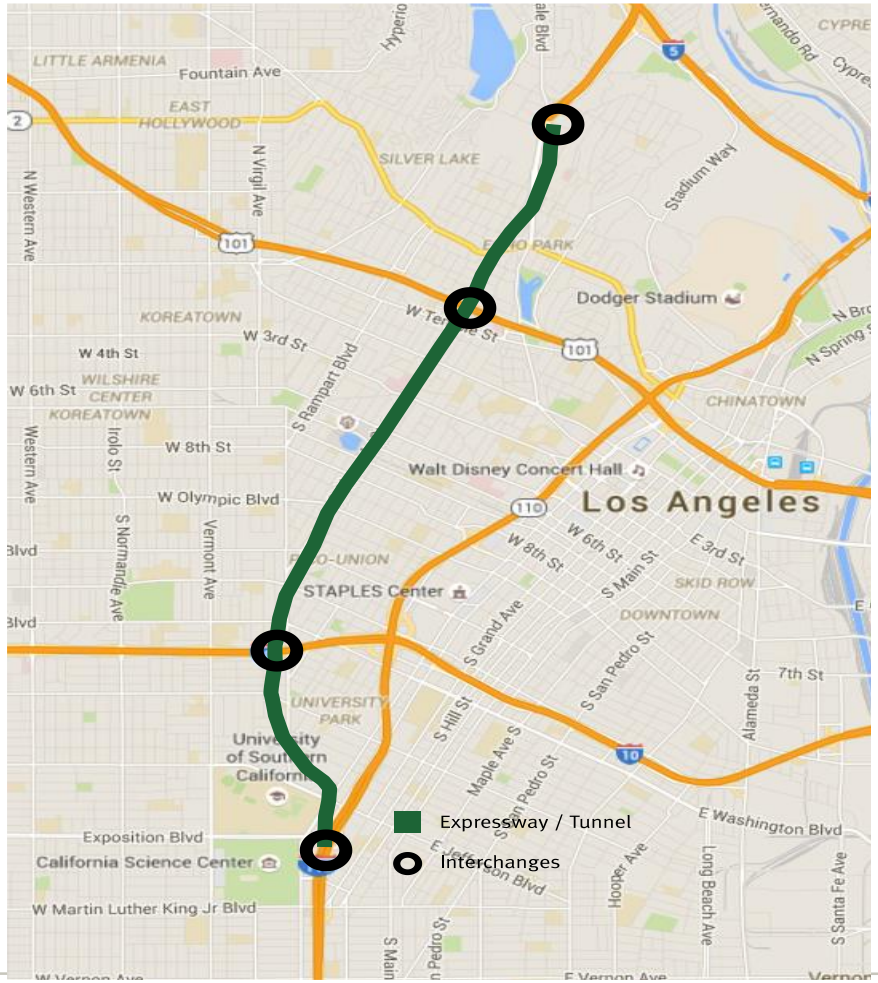


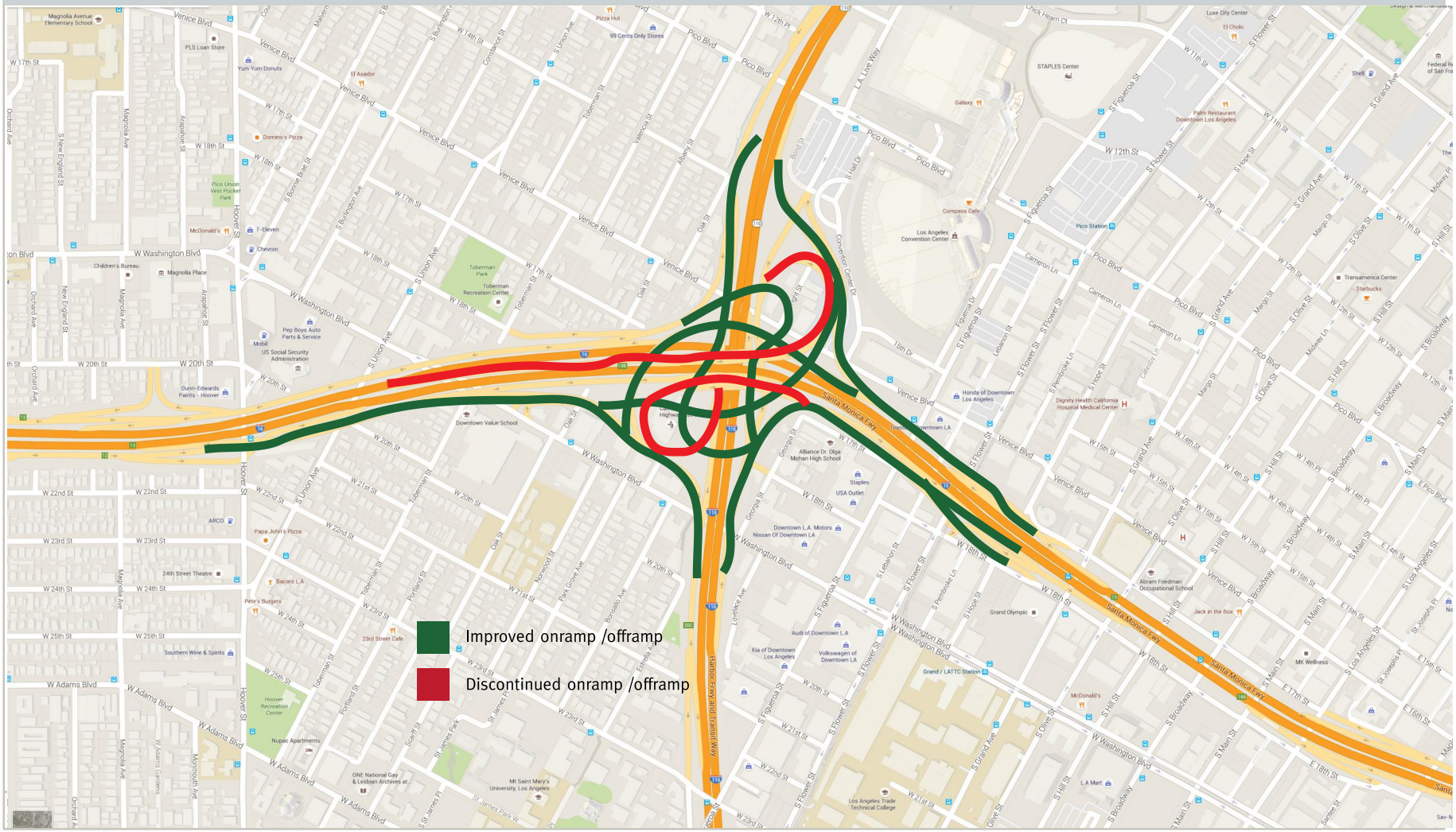
Toll Expressways/Tunnels



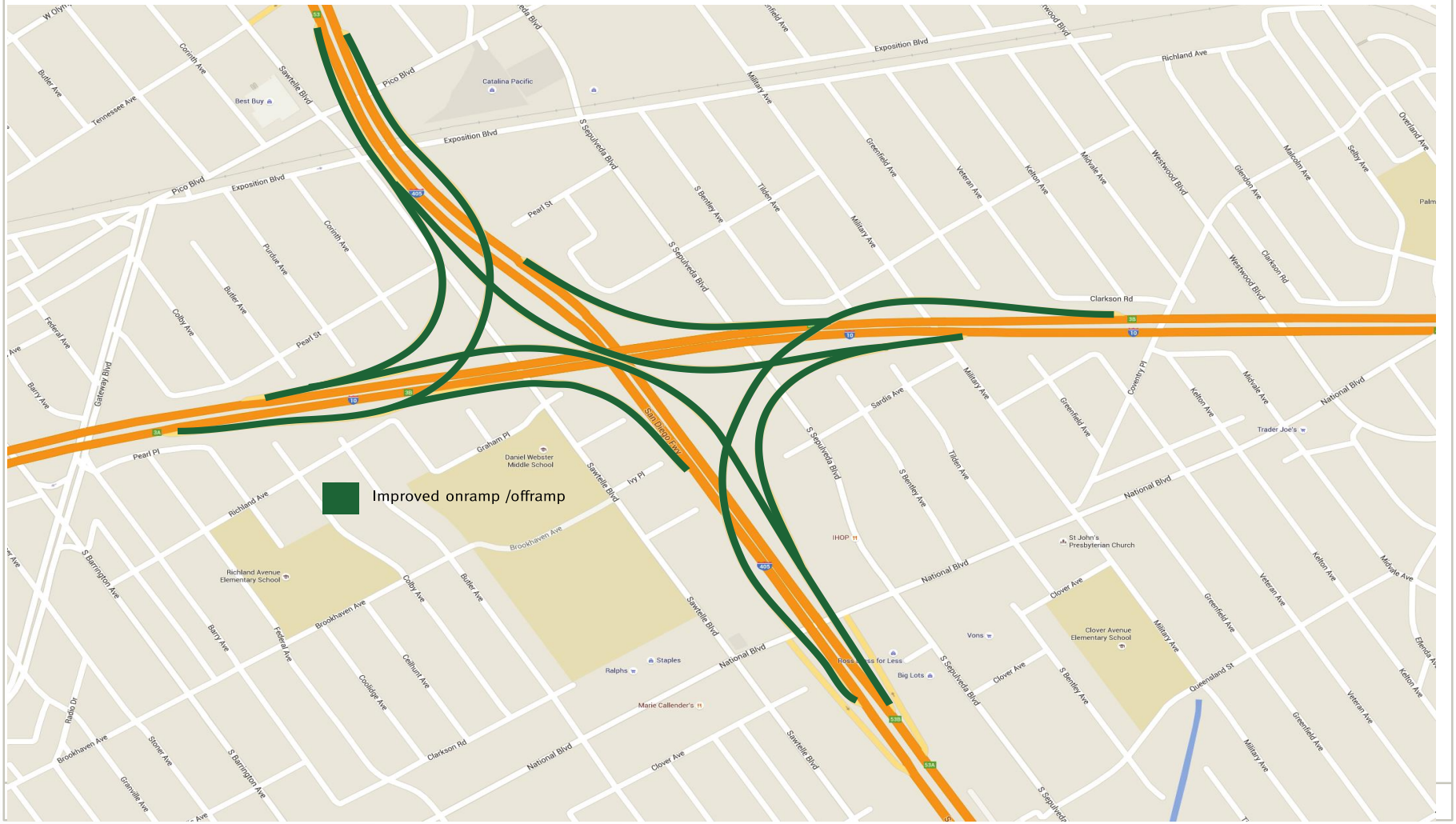
Eliminating Bottlenecks: Expressway-Expressway, Expressway-Arterial

- Many interchanges date from 1940's-1960's
  - Obsolete for today's traffic volumes
  - Unsafe for certain trucks
  - Cause many bottlenecks
- Cost-effective solution: Make ramp, collector-distributor, merging lane changes to worst interchanges in region
- Most expressway-arterial interchanges were not designed for today's traffic volumes
  - Major arterials/managed arterials need delay reductions
  - Grade separations of main travel lanes
  - Extended turn lanes
  - Land use improvements cyclists/walkers
- Will not end congestion, but provide cost-effective improvements

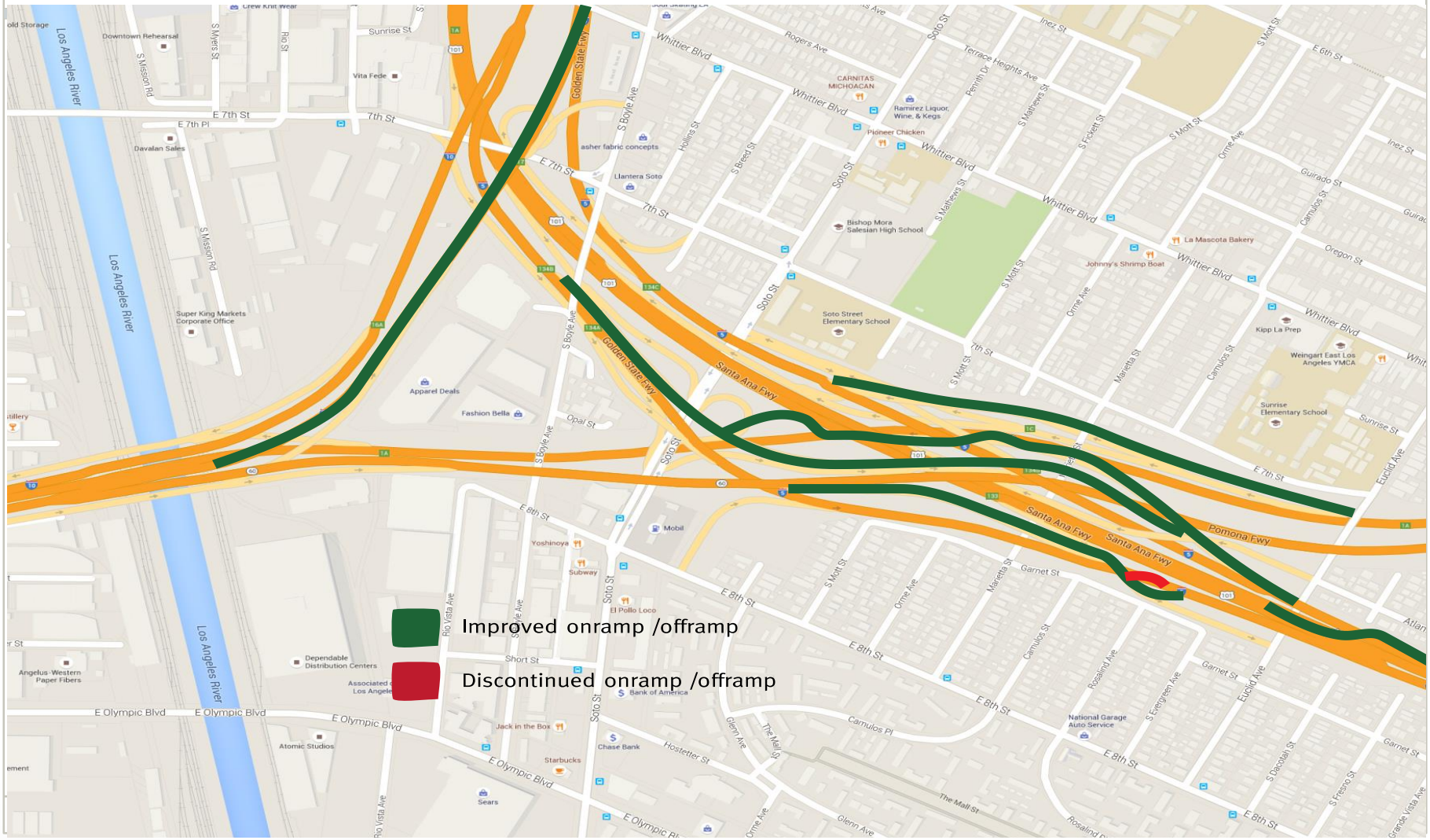
I-10 at I-110



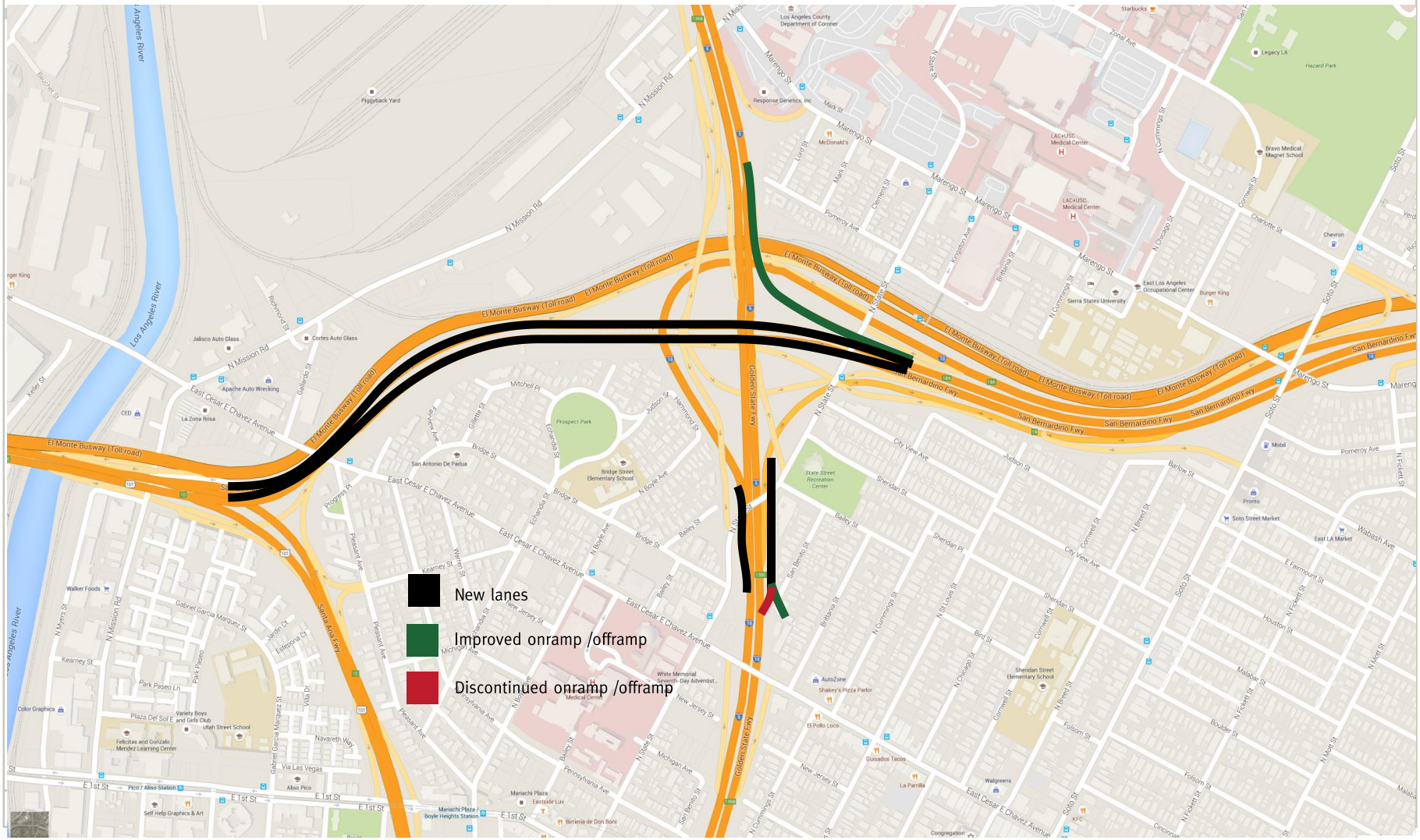
I-10 at I-405


Improved onramp /offramp
Exposition Blvd
Pico Blvd
Sawtelle Blvd
Catalina Pacific
Best Buy
Corinth Ave
Butler Ave
Tennessee Ave
S Sepulveda Blvd
Military Ave
Richland Ave
Greenfield Ave
Veteran Ave
Kelton Ave
Midvale Ave
Westwood Blvd
Glendon Ave
Malcolm Ave
Selby Ave
Overland Ave
Pearl St
S Bentley Ave
Tilden Ave
Clarkson Rd
Purdue Ave
Colby Ave
Federal Ave
Barry Ave
Gateway Blvd
Pearl Pl
Graham Pl
Daniel Webster Middle School
Ivy Pl
San Diego Fwy
Sardis Ave
Coventry Pl
National Blvd
Trader Joe's
Richland Avenue Elementary School
Brookhaven Ave
S Barrington Ave
Ralphs
Staples
Marie Callender's
IHOP
St John's Presbyterian Church
Clover Ave
Clover Avenue Elementary School
Vons
Big Lots
Queensland St
Radio Dr
Stoner Ave
Granville Ave
Coolidge Ave
Ceilhunt Ave
Clarkson Rd
Clover Ave
Sawtelle Blvd
Military Ave
Greenfield Ave
Veteran Ave
Kelton Ave
Midvale Ave
Elenda Ave

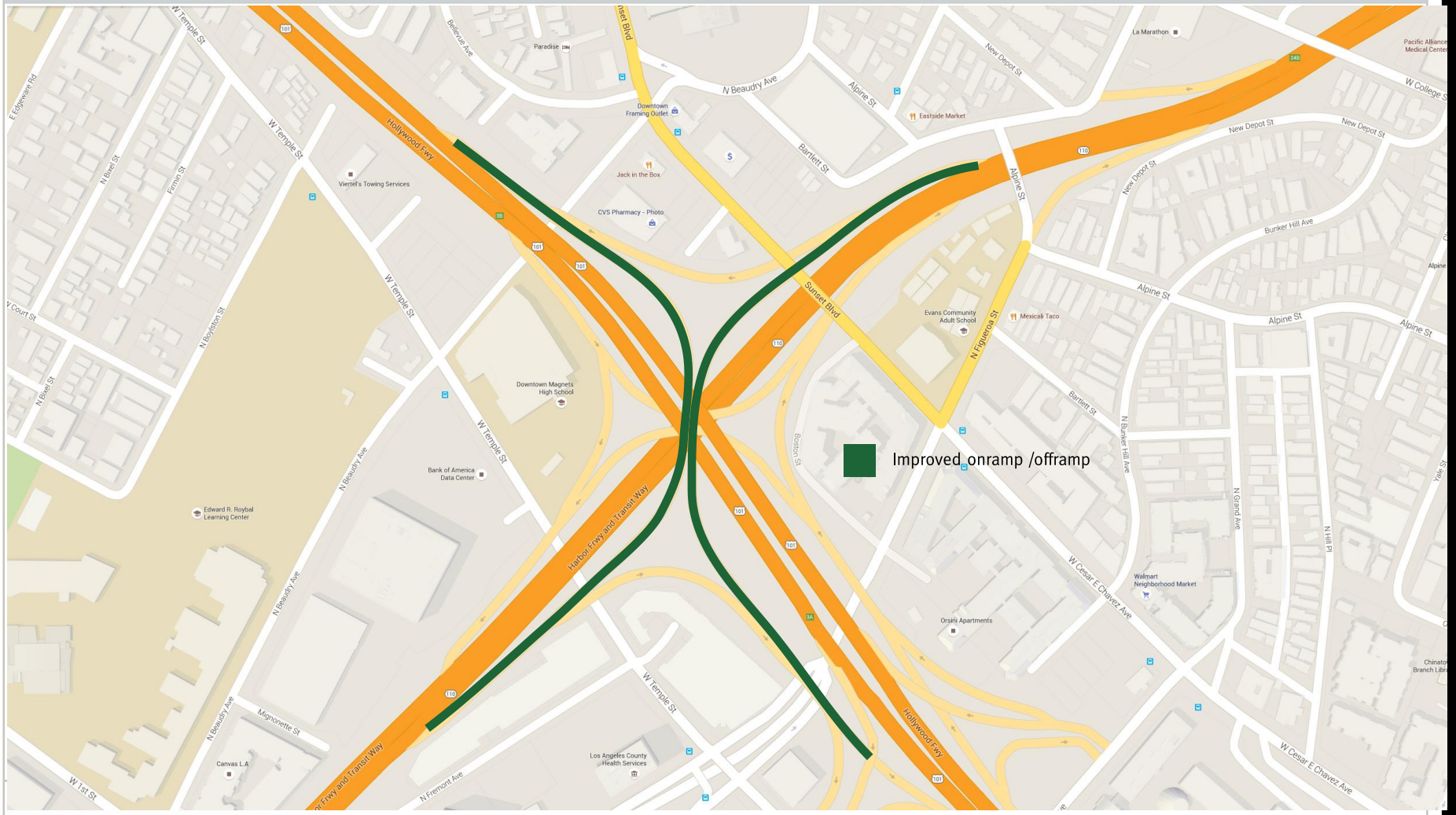
I-5, I-10, US 101 SR 60 South



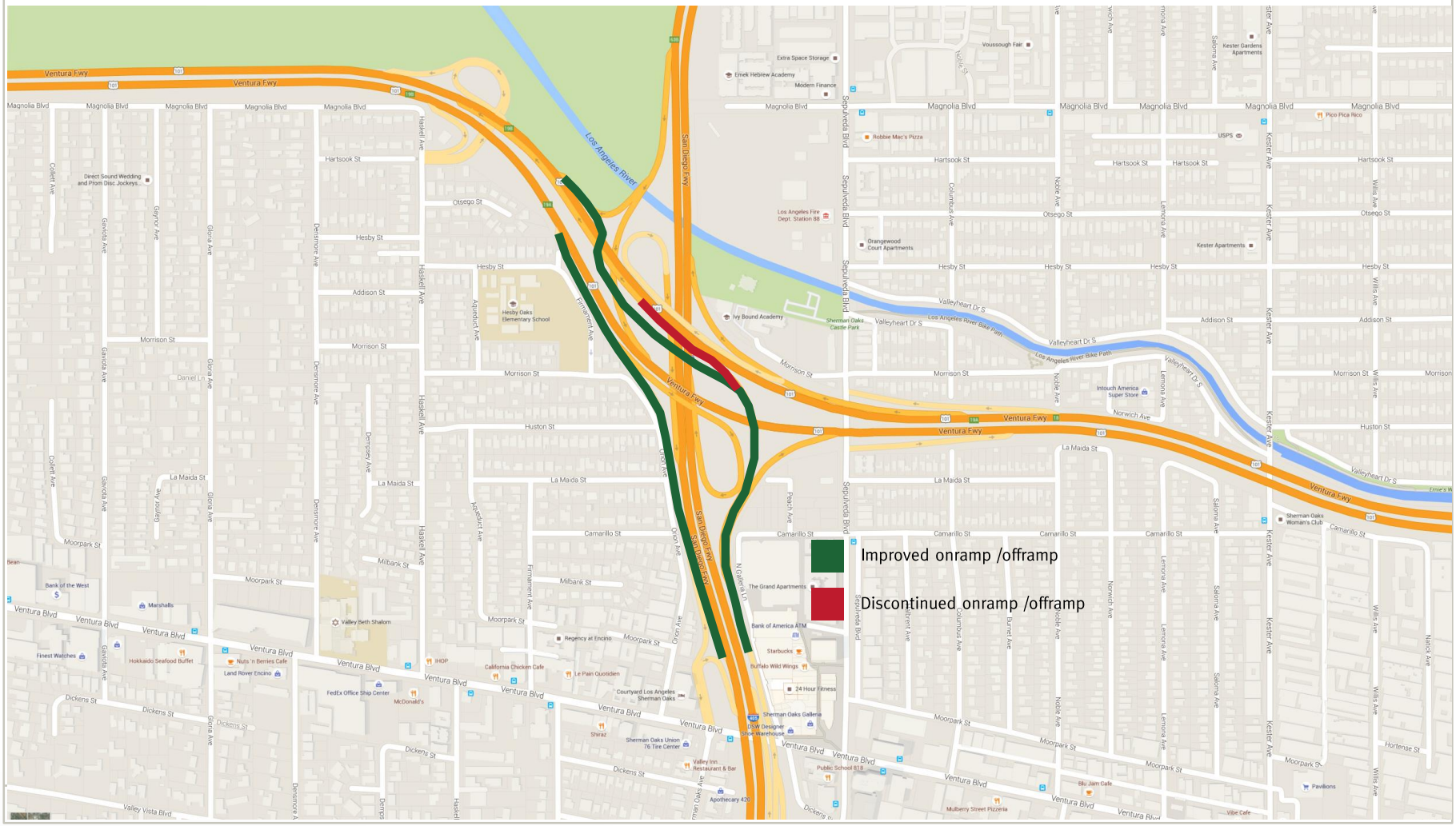
I-5, I-10, US 101, SR 60 North



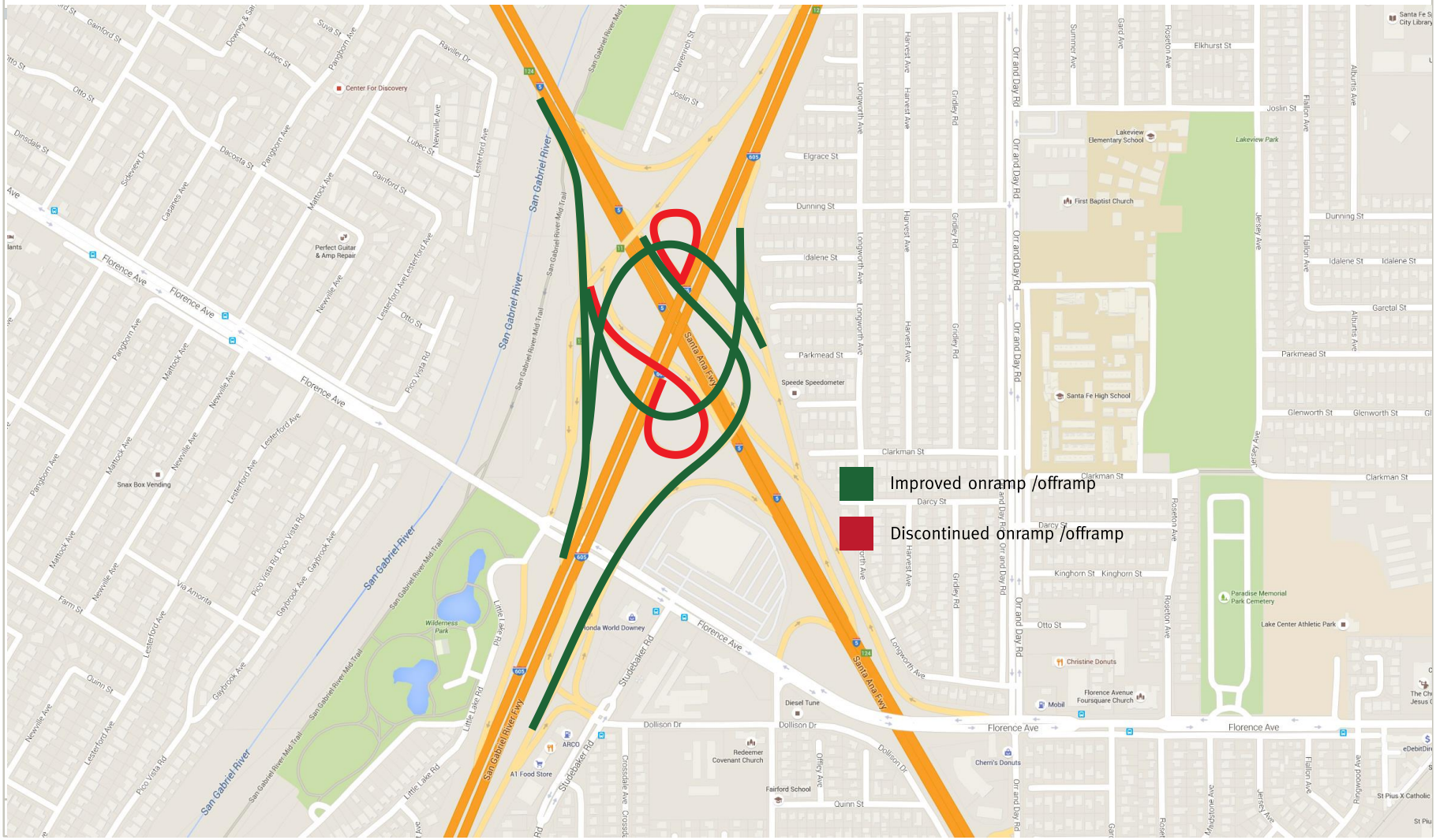
SR 110 at US 101



I-405 at US 101

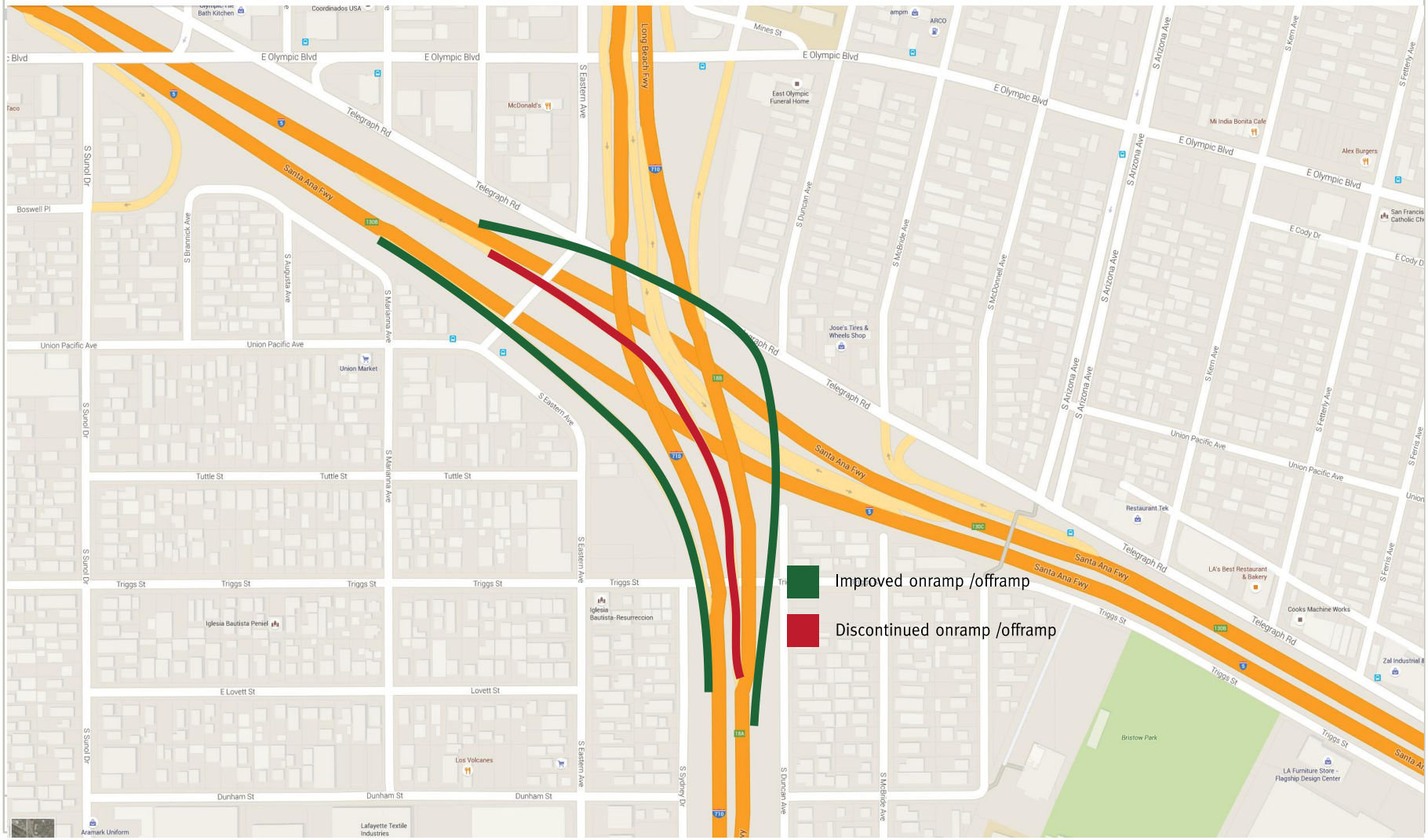


I-5 at I-605



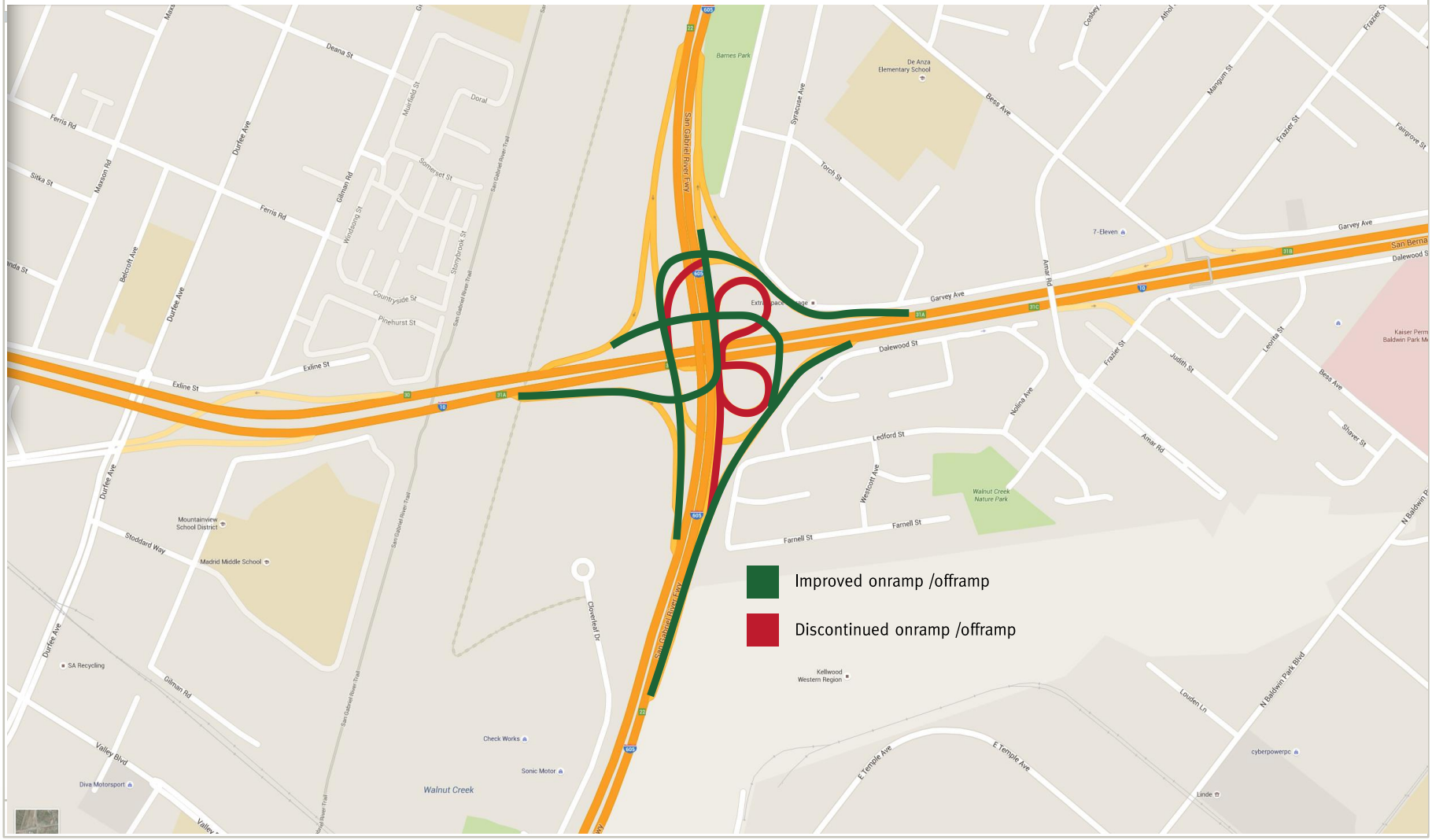
Improved onramp /offramp
Discontinued onramp /offramp
San Gabriel River
Santa Ana Fwy
Florence Ave
Orr and Day Rd
Dollison Dr
Studebaker Rd
Clarkman St
Dunning St
Idalene St
Parkmead St
Elgrace St
Joslin St
Elkhurst St
Garetal St
Glenworth St
Darcy St
Kinghorn St
Otto St
Quinn St
Lakeview Elementary School
Lakeview Park
First Baptist Church
Santa Fe High School
Speede Speedometer
Center For Discovery
Perfect Guitar & Amp Repair
Snax Box Vending
Wilderness Park
Honda World Downey
Diesel Tune
Redeemer Covenant Church
Fairford School
Christine Donuts
Florence Avenue Foursquare Church
Mobil
Cherri's Donuts
Paradise Memorial Park Cemetery
Lake Center Athletic Park
ARCO
A1 Food Store
Santa Fe City Library
St Pius X Catholic

I-5 at I-710

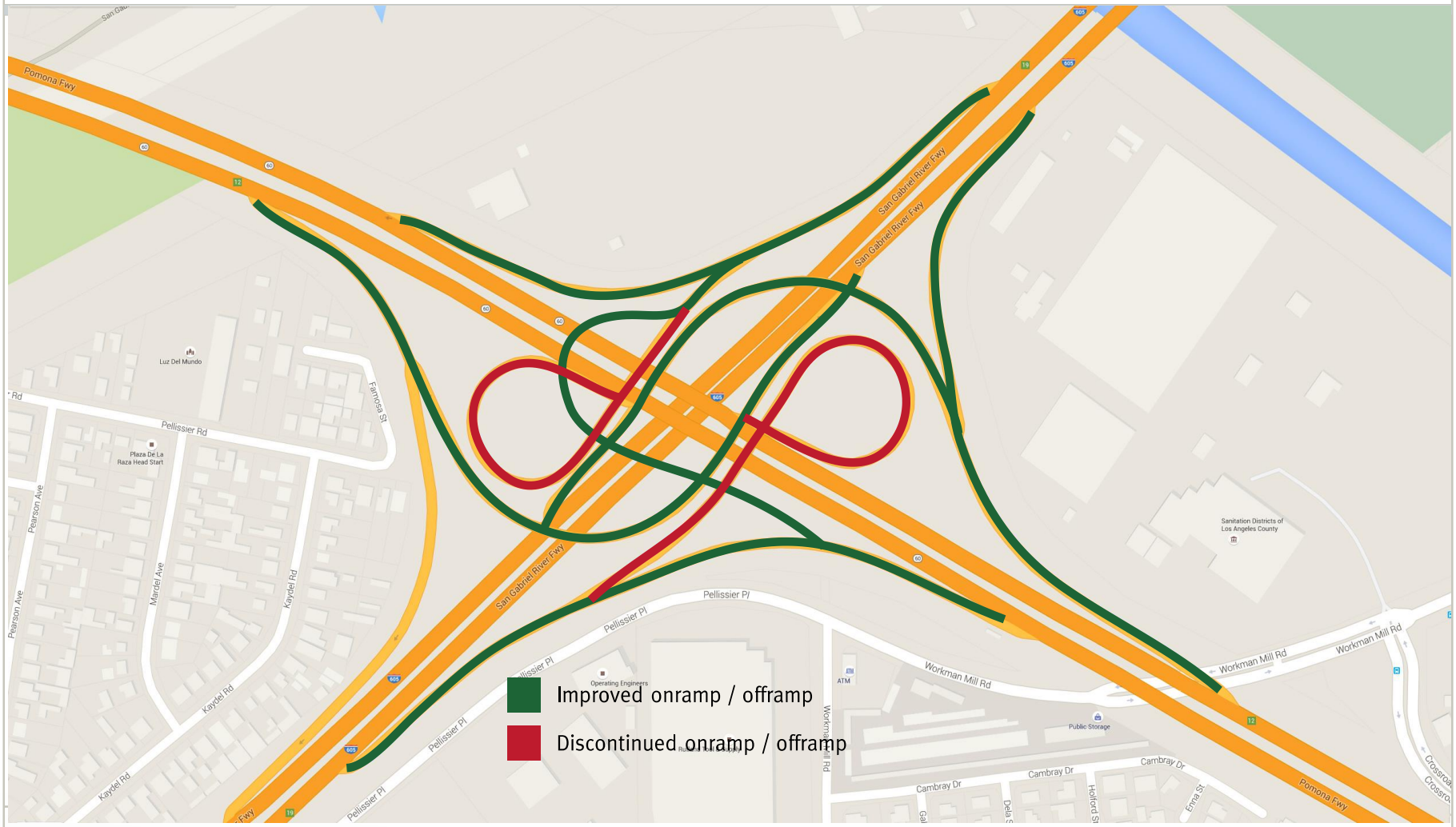


Improved onramp /offramp
Discontinued onramp /offramp
E Olympic Blvd
Telegraph Rd
Santa Ana Fwy
Long Beach Fwy
Union Pacific Ave
Triggs St
Tuttle St
E Lovett St
Dunham St
S Eastern Ave
S Sunol Dr
S Duncan Ave
S McBride Ave
S Arizona Ave
S Kern Ave
S Fetterly Ave
S Ferris Ave
S Sydney Dr
Mines St
E Cody Dr
Boswell Pl
Union Market
Iglesia Bautista Peniel
Iglesia Bautista-Resurreccion
Los Volcanes
Lafayette Textile Industries
Aramark Uniform
Bristow Park
LA Furniture Store - Flagship Design Center
Restaurant Tek
LA's Best Restaurant & Bakery
Cooks Machine Works
Mi India Bonita Cafe
Alex Burgers
Jose's Tires & Wheels Shop
East Olympic Funeral Home
McDonald's
ARCO

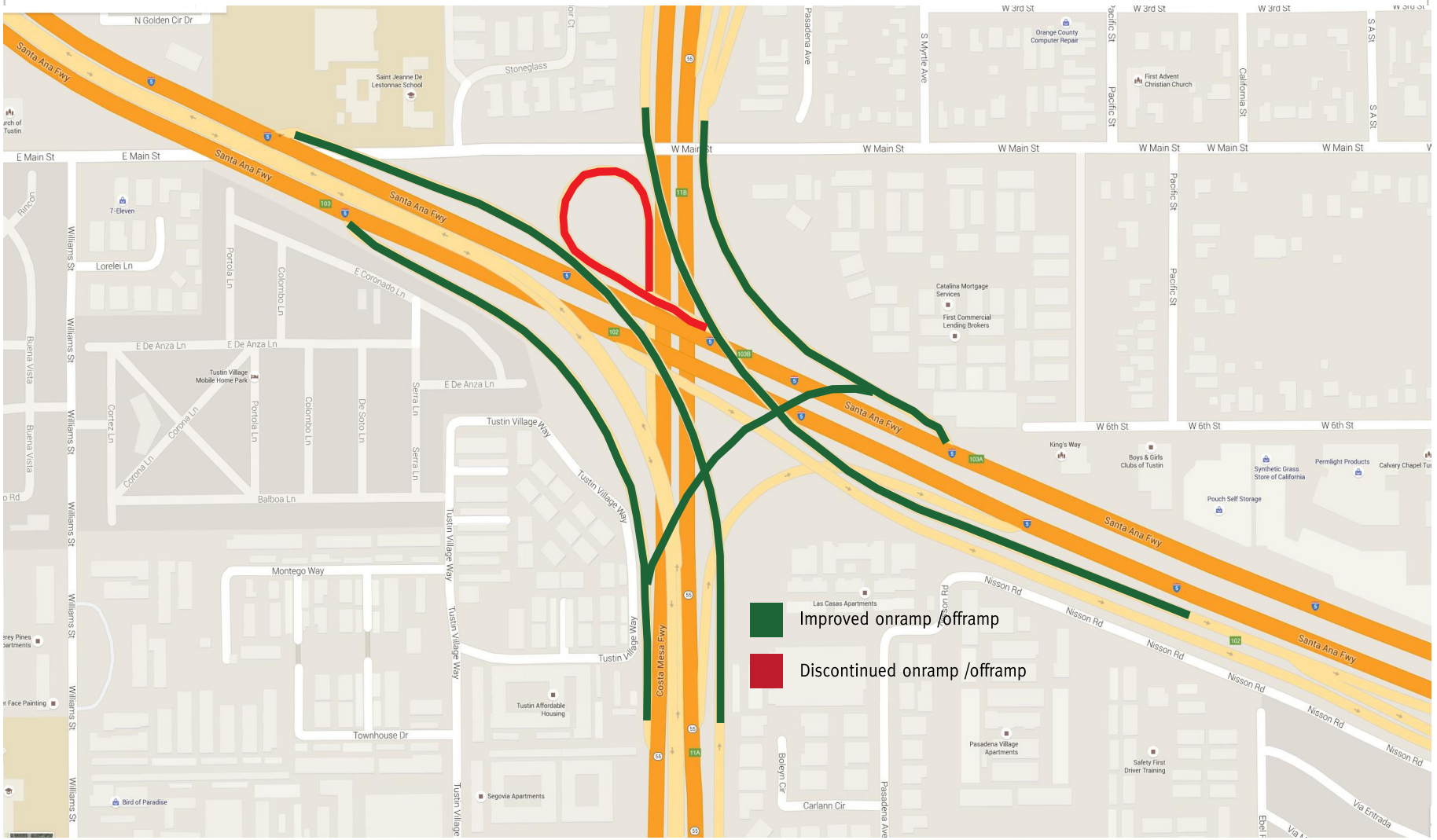
I-10 at I-605


Improved onramp /offramp
Discontinued onramp /offramp
Deana St
Ferris Rd
Durfee Ave
Murfield St
Doral
Somerset St
Gilman Rd
Windsong St
Stormbrook St
Countryside St
Pinehurst St
Sitka St
Maxsen Rd
Belcroft Ave
Exline St
San Gabriel River Trail
San Gabriel River Fwy
Barnes Park
De Anza Elementary School
Syracuse Ave
Torch St
Bess Ave
Mangum St
Frazier St
Fairgrove St
Garvey Ave
7-Eleven
Dalewood St
Amar Rd
Judith St
Leonita St
Nolina Ave
Ledford St
Westcott Ave
Farnell St
Walnut Creek Nature Park
Kaiser Perm Baldwin Park Me
Shaver St
N Baldwin P
Mountainview School District
Madrid Middle School
Stoddard Way
SA Recycling
Cloverleaf Dr
Kellwood Western Region
Louden Ln
N Baldwin Park Blvd
E Temple Ave
cyberpowerpc
Linde
Valley Blvd
Diva Motorsport
Check Works
Sonic Motor
Walnut Creek

I-605 at SR 60

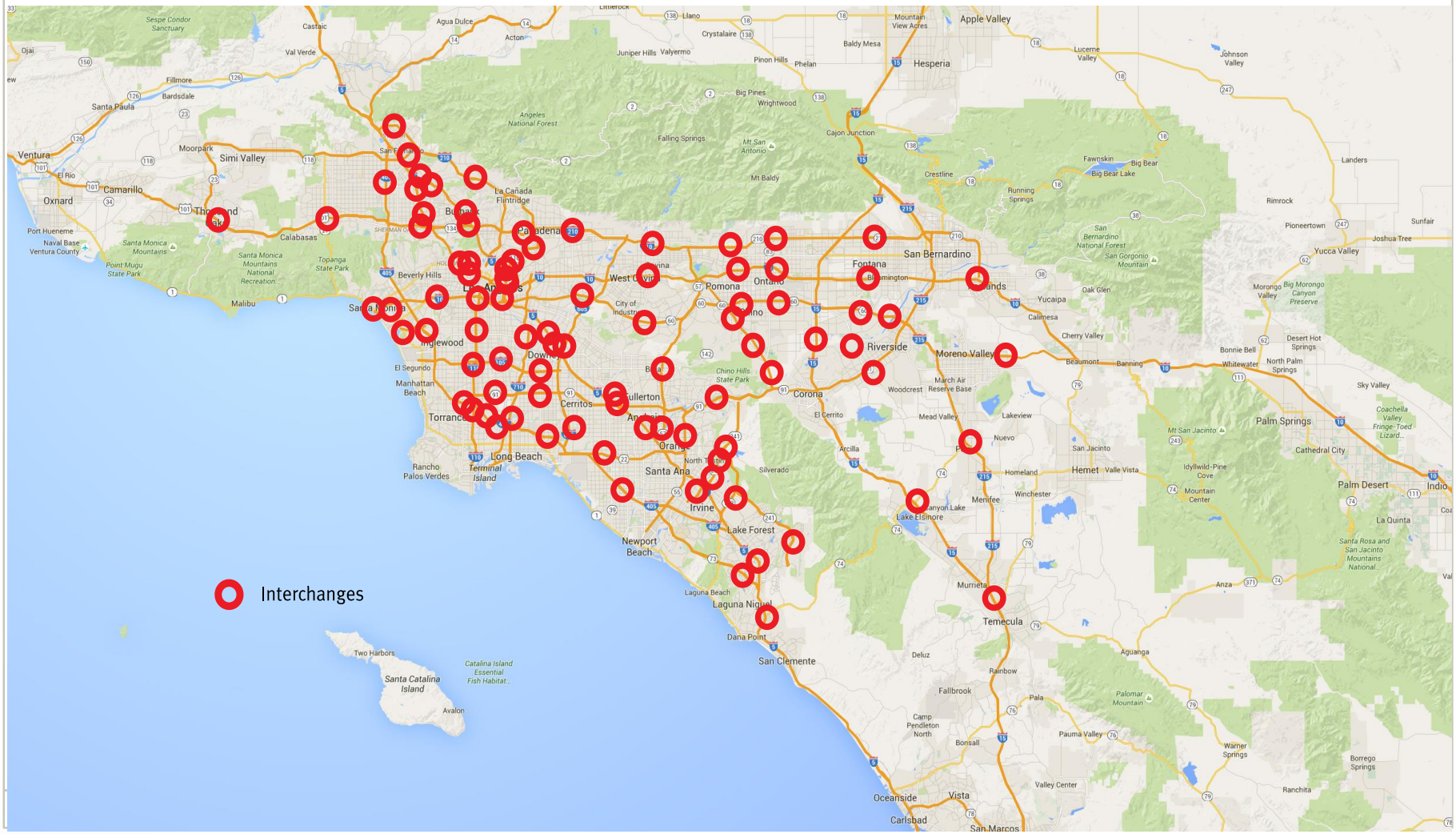

Improved onramp / offramp
Discontinued onramp / offramp
Pomona Fwy
San Gabriel River Fwy
Pellissier Rd
Pellissier Pl
Workman Mill Rd
Cambray Dr
Kaydel Rd
Mardel Ave
Pearson Ave
Farnosa St
Luz Del Mundo
Plaza De La Raza Head Start
Sanitation Districts of Los Angeles County
Public Storage
ATM
Operating Engineers

I-5 at SR 55



Improved onramp /offramp
Discontinued onramp /offramp
Santa Ana Fwy
Costa Mesa Fwy
W Main St
E Main St
Nisson Rd
Tustin Village Way
Montego Way
Townhouse Dr
Balboa Ln
E De Anza Ln
E Coronado Ln
Lorelei Ln
Williams St
Pacific St
W 6th St
W 3rd St
Pasadena Ave
Carlann Cir
Boleyn Cir
Via Entrada
Tustin Affordable Housing
Segovia Apartments
Las Casas Apartments
Pasadena Village Apartments
Safety First Driver Training
Catalina Mortgage Services
First Commercial Lending Brokers
Tustin Village Mobile Home Park
Saint Jeanne De Lestonnac School
Orange County Computer Repair
First Advent Christian Church
Pouch Self Storage
Synthetic Grass Store of California
Permlight Products
Boys & Girls Clubs of Tustin
King's Way
Bird of Paradise
7-Eleven
N Golden Cir Dr
Stoneglass
Portola Ln
Colombo Ln
Serra Ln
Corona Ln
Cortez Ln
Buena Vista
Pacific St
California St
S A St
S Myrtle Ave

Map of Improved Interchanges



Transit Improvements (Part 1)

- Creates bus-based transit network that can be implemented over the lifetime of plan
- Rail is very popular but region has significant rail investments and new projects are very costly
- Proposed bus network uses local bus, limited-stop bus, express bus and bus rapid transit (BRT) on existing roadway infrastructure
  - Local bus: traditional service with headways 5-15 minutes
  - Limited-stop bus: rush hour service that skips stops to provide faster trip
  - Express bus: enhanced service (wi-fi, food for sale, electric outlets, guaranteed seats) between two communities that uses expressways or primary arterials
  - BRT: enhanced service (wi-fi, food for sale, electric outlets, guaranteed seats) plus 6 features:
    - Running ways that give buses priority
    - Unique station design
    - Larger vehicles
    - Electric/SMART cards off-board fare collection
    - Priority traffic signals
    - More frequent service

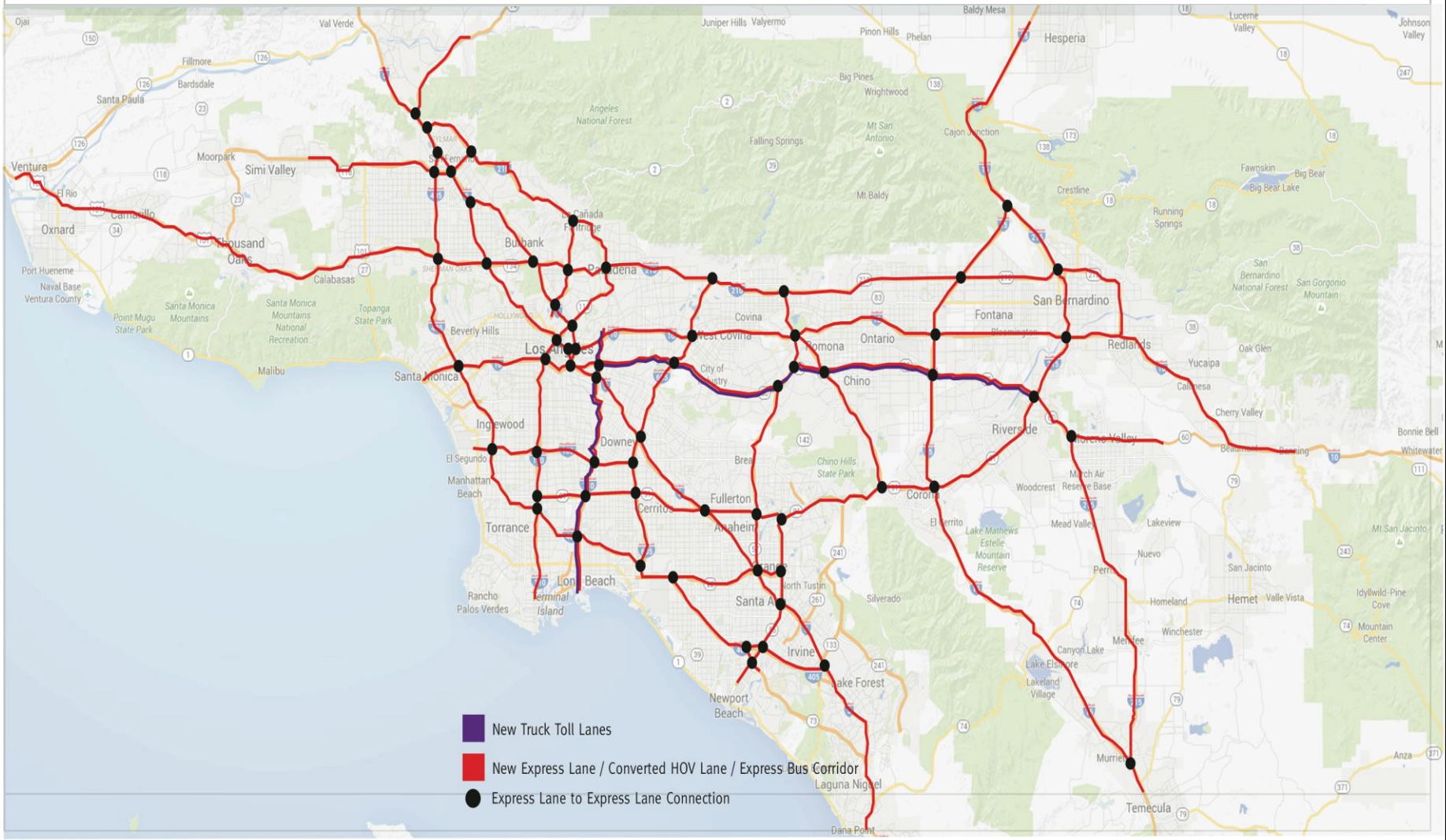
Transit Improvements (Part 2)

- BRT can include 3 other components to improve services
  - Land use/zoning changes
  - Elevated boarding platforms
  - Electronic/Next-bus signs

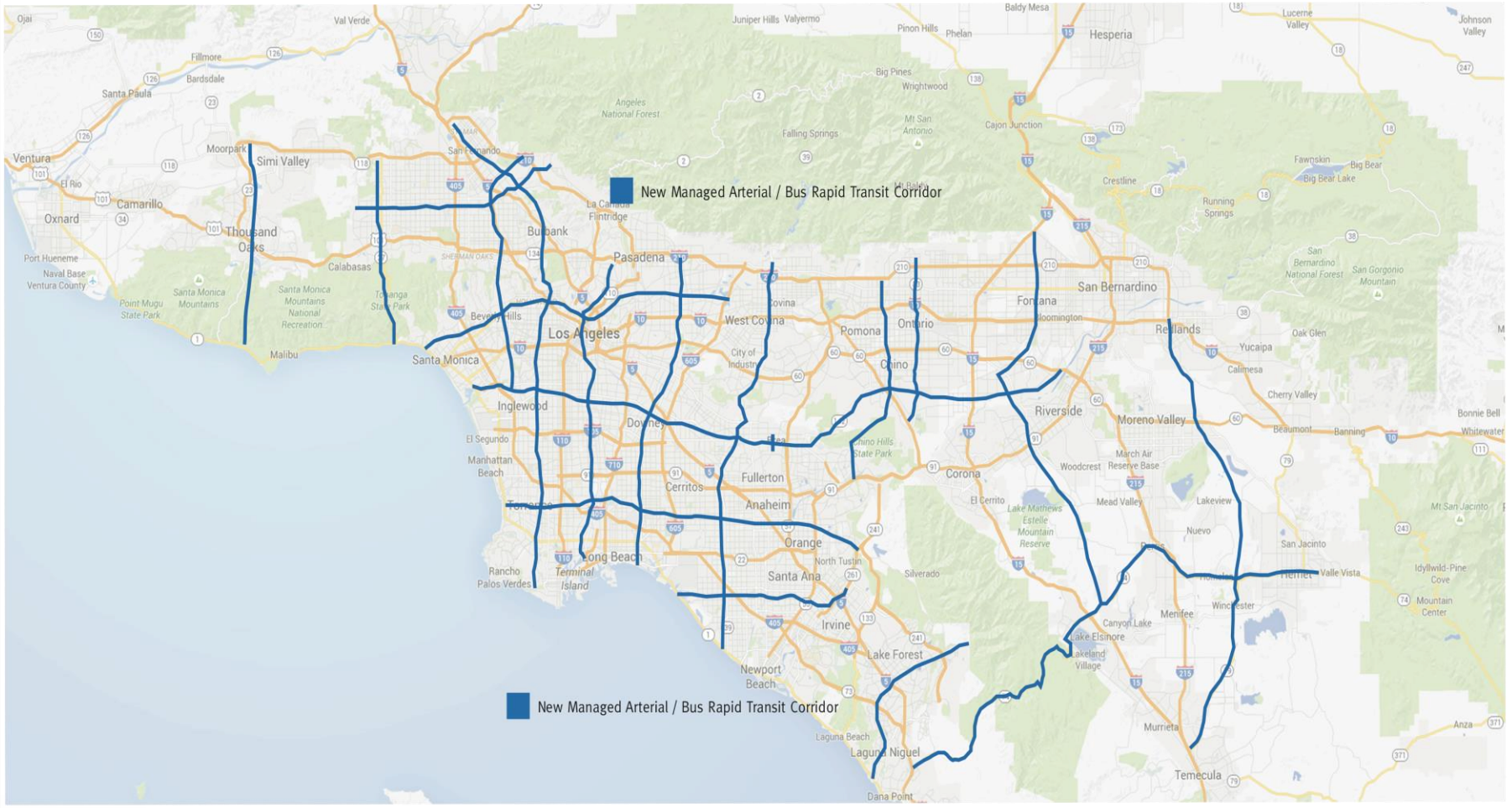
- BRT has two service levels: heavy and light
  - Heavy has dedicated lane for 50% of service
    - Ex) Orange Line
  - Light uses semi-dedicated lane with priority signaling and turnouts
  - Ex) Metro Rapid
  - For most region BRT light is better solution. BRT heavy corridors with 20+ buses per hour

- Our plan used express lanes on expressway and managed arterials to provide semi-dedicated running ways
  - Express bus operates in express lanes, BRT on managed arterials

Express Bus Network Map

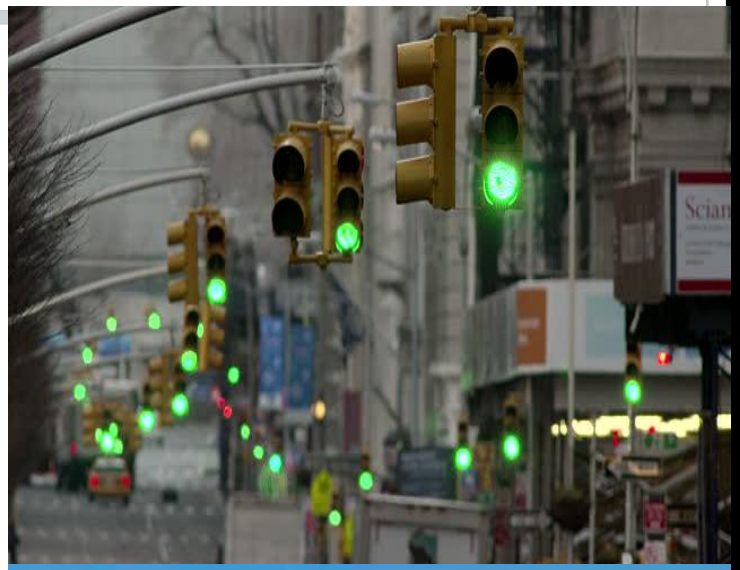


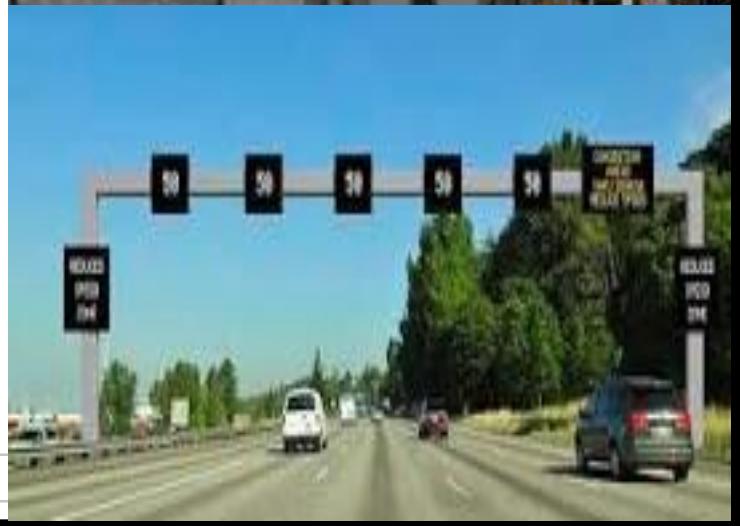
Arterial BRT Network



Operations Management

- Features to improve traffic operations
  - Dynamic signal synchronization
    - Adjust traffic signals to traffic conditions
    - TTI: 91% on arterials but numbers on local roads much lower
  - Dynamic ramp metering
    - Varies length of green on-ramp signal
  - Static queue warnings
    - Signs that warn of slow traffic ahead
  - Speed harmonization
    - Variable speed limits
  - Hard shoulder running
    - Converts shoulder to travel lanes
    - Uses shoulders during rush hour
  - Junction control
    - Closes lane ahead of accident/event





Operations Management Helps Transit

- Transit signal priority
  - Early green or extended green for transit vehicles
  - Transit vehicles have priority over automobiles
  - Buses use right turn lane to avoid backups
- Dynamic ramp metering
  - Provides priority signal for buses
- Junction control
  - Allows transit vehicles to use certain roads passenger cars cannot

Reason Plan

- Includes many of the projects of the SCAG plan
- Uses tolling to provide more funding without tax hikes than SCAG's plan provides with $220B in tax hikes
- Includes full funding for bike lanes and sidewalks
- Includes extra funding for maintenance and operations of roads and transit
- Includes debt service and contingency

Reason Plan Details

Component	Cost		Component	Cost
New expressways/tunnels	$97.2B		Toll contingency	$32.5B
Expressway interchanges	$2.9B		Transit capital	$42.7B
Arterial/local roads capital	$74B		Roadway O&M	$90.5B
Arterial interchanges	$15.6B		Transit O&M	$102.4B
Express toll lanes	$105B		Operations Man./ITS	$10B
Express TL interchanges	$24.0B		Active Transportation	$7.7B
Managed arterial widenings	$16.5B		TDM	$5.2B
M.A. grade separations	$33.7B		Debt Service	$50.1B
M.A. new alignments	$2.9B		**Total**	**$714.1B**

Next Steps: Implementation

- Get ideas included in long-range plans, implemented by L.A. Metro, Caltrans
- Provide feedback on most promising corridors
- Identify other folks to educate
- Be a champion
- Communicate/discuss with other elected officials