

Climate Change

Health Care Costs

Failing Schools

Energy Security

Housing Costs

Budget Shortfalls

California is In Trouble

Asthma Rates

Water Shortages

Energy Prices

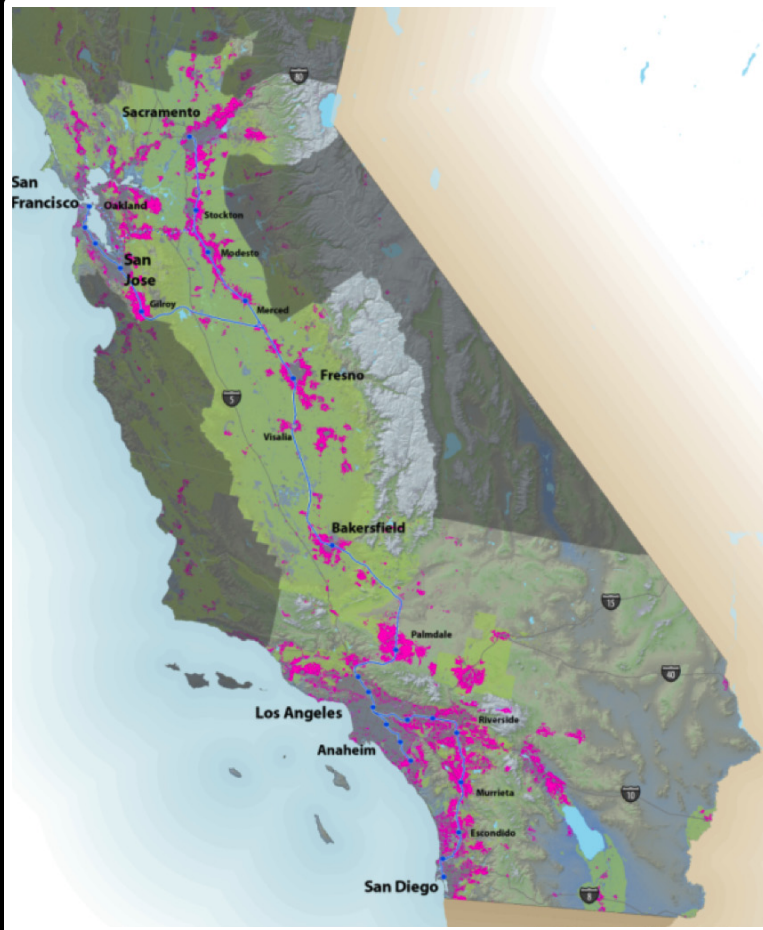
Political Gridlock

Obesity

Failing Infrastructure

Land Use is the Answer
▼
at least part of

Vision California



CALIFORNIA
HIGH-SPEED RAIL
AUTHORITY

CALTHORPEASSOCIATES
URBAN DESIGNERS, PLANNERS, ARCHITECTS

Next Generation Sketch Models

Scenario Definition: Land Use Options & Policy Package Selection

1 DEFINE LAND USE OPTIONS

a. LAND USE OPTION DEFINITIONS

restore default scenario definitions

		Urban		Compact		Standard		
	Scenario %	Refill %	Scenario %	Refill %	Scenario %	Refill %	% refill growth	
1. BAU	2005-2020	5%	200%	25%	25%	70%	0%	9%
	2020-2035	5%	200%	25%	25%	70%	0%	9%
	2035-2050	5%	200%	25%	25%	70%	0%	9%
2. Mixed Growth	2005-2020	10%	100%	40%	20%	50%	0%	18%
	2020-2035	10%	100%	40%	20%	50%	0%	22%
	2035-2050	10%	200%	40%	20%	50%	0%	26%
3. Smart Growth	2005-2020	25%	100%	55%	40%	20%	0%	47%
	2020-2035	20%	200%	55%	50%	15%	0%	58%
	2035-2050	35%	100%	55%	60%	10%	0%	68%
4. Ultra Smart Growth	2005-2020	25%	100%	55%	70%	10%	0%	74%
	2020-2035	25%	200%	60%	80%	5%	0%	83%
	2035-2050	35%	100%	60%	80%	5%	0%	83%

Load Scenarios
Restore Default Scenarios

b. LAND DEVELOPMENT CATEGORY (LDC) PROPORTIONS

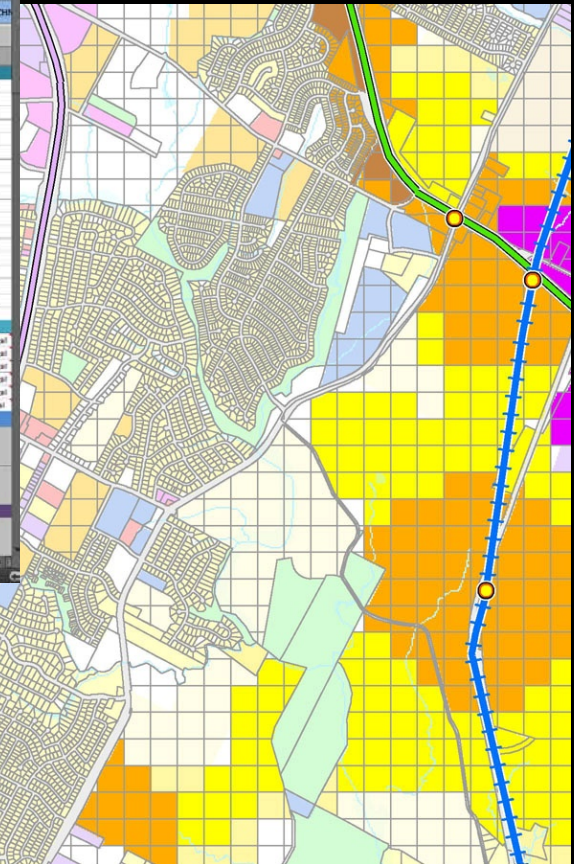
Enter values in cells below, or click button to restore default LDC proportions.

REFILL		GREENFIELD							
Scenario 1 Refill	SF Large Lot	SF Small Lot	Townhome	Multi-family	Scenario 1 Greenfield	SF Large Lot	SF Small Lot	Townhome	Multi-family
Urban	0%	0%	30%	70%	Urban	0%	0%	30%	70%
Compact	5%	40%	30%	25%	Compact	5%	40%	30%	25%
Standard	75%	8%	10%	7%	Standard	75%	8%	10%	7%

2 SELECT POLICY PACKAGE(S)

Click buttons to load policy group options:

		FULL POLICY GROUPS			AUTO and FUEL TECH	
		A	B	C	A	B
		EMFAC Straight	EMFAC Plus	Green	Low	Medium
TRANSPORTATION						
ICE Vehicle efficiency (mi/gal)	2020	19.33	23.7	24.7	22.5	24.7
	2035	19.24	27.0	28.9	27.1	28.9
	2050	19.15	27.8	24.2	32.7	24.2
Bike-sharing/carpooling vehicles	2020	0%	0%	0%	0%	0%
	2035	0%	0%	10%	0%	10%
	2050	0%	0%	20%	0%	20%
Battery Electric vehicle efficiency (mi/kWh)	2020	3.9	3.5	4	3.5	4
	2035	4	3.7	4.5	4	4.5
	2050	4	4	5	4	5
Plug-in Hybrid Vehicle efficiency (mi/kWh)	2020	3.3	3.5	4	3.5	4
	2035	4	4	4.5	4	4.5
	2050	4	4	5	4	5
Fuel price (\$/gal, 2005 dollars)	2020	\$4.74	\$3.92	\$3.92	\$3.28	\$3.92
	2035	\$5.24	\$5.60	\$5.60	\$3.64	\$5.60
	2050	\$5.74	\$8.00	\$8.00	\$4.06	\$8.00
Auto ownership and maintenance (\$/mile, 2005 dollars)	2020	\$0.24	\$0.24	\$0.24	\$0.54	\$0.54
	2035	\$0.24	\$0.24	\$0.24	\$0.54	\$0.54
	2050	\$0.24	\$0.24	\$0.24	\$0.54	\$0.54
TRANSPORTATION FUEL EMISSION RATES						
Waltco-Wheats Fuel Emissions (lbs CO ₂ /gal)	2020				24.64 lbs/gal	23.84 lbs/gal
	2035				23.84 lbs/gal	23.20 lbs/gal
	2050				22.82 lbs/gal	18.54 lbs/gal
Tank-to-Wheels Fuel Emissions	2020	19.62 lbs/gal	17.66 lbs/gal	17.66 lbs/gal	18.25 lbs/gal	17.66 lbs/gal
	2035	19.62 lbs/gal	17.66 lbs/gal	13.73 lbs/gal	17.27 lbs/gal	13.73 lbs/gal
	2050	19.62 lbs/gal	17.66 lbs/gal	9.83 lbs/gal	16.68 lbs/gal	9.83 lbs/gal
CO₂e EMISSION RATES						
Residential & commercial building electricity emissions (lbs CO ₂ e/kWh)	2020	0.83 lbs/kWh	0.890 lbs/kWh	0.58 lbs/kWh		
	2035	0.81 lbs/kWh	0.623 lbs/kWh	0.49 lbs/kWh		
	2050	0.81 lbs/kWh	0.581 lbs/kWh	0.35 lbs/kWh		
Residential & commercial building natural gas emissions (lbs CO ₂ e/therm)	2020	11.66 lbs/therm	11.66 lbs/therm	11.66 lbs/therm		
	2035	11.66 lbs/therm	11.66 lbs/therm	11.66 lbs/therm		
	2050	11.66 lbs/therm	11.66 lbs/therm	11.66 lbs/therm		
BUILDINGS						
New residential energy efficiency (% reduction from 2006)	2020	10%	10%	30%		
	2035	20%	20%	55%		
	2050	20%	20%	90%		



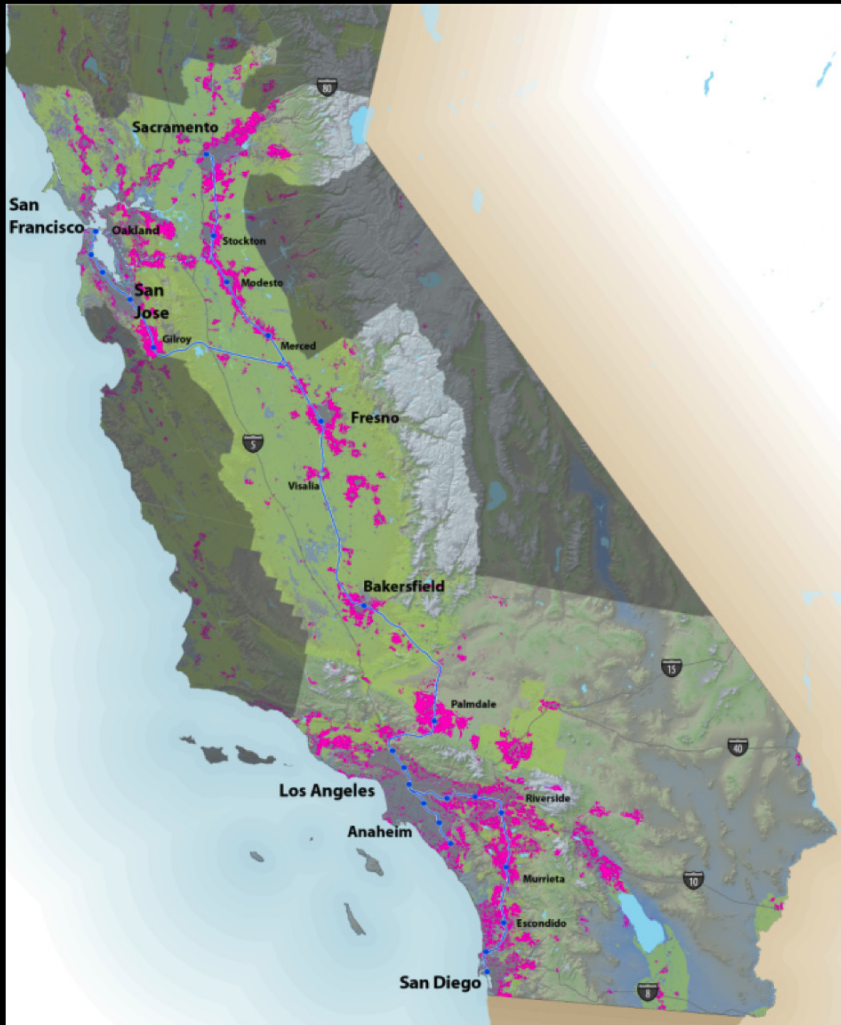
RapidFire

- ✓ Fully Operational
- ✓ Multiple Deployments

UrbanFootprint

- ✓ Pilot Deployment Underway

Scenarios and Metrics



Trend



Blueprints/Alternatives



Scenario
Modeling

Environmental

- Greenhouse Gas Emissions
- Air Pollution
- Water and Energy Consumption

Transportation

- Vehicle Miles Traveled
- Transit, Walk, Bike Mode share
- Vehicle Emissions

Fiscal

- Capital Infrastructure Costs
- O&M/Public Works Costs
- City Revenues
- Household/Business Costs

Social

- Public Health Impacts
- Housing Diversity & Affordability
- Access to Jobs and Services
- Cost of Living

Peer Review & Technical Advisory



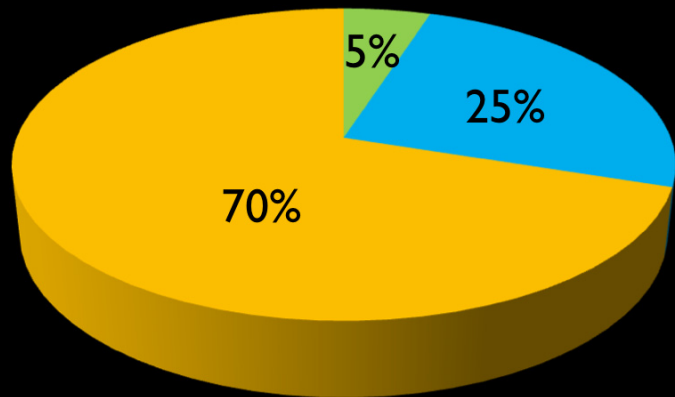
RapidFire Deployments

- ✓ **Vision California:** Statewide Scenarios and Analysis
- ✓ **Southern California:** SCAG SCS/RTP Alternatives Development and Modeling; SCS/RTP EIR Scenarios
- ✓ **Bay Area:** YouChooseBayArea Scenarios Process
- ✓ **San Diego:** North County Scenarios and Analysis
- ✓ **Honolulu:** Corridor and Island-Scale Scenarios and Analysis

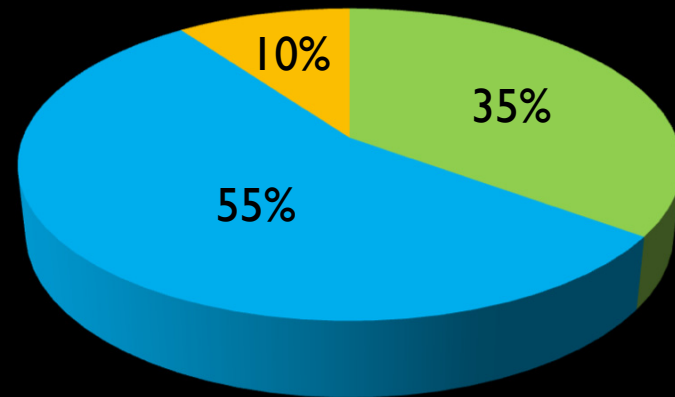
California Rapid Fire Scenarios

Land Use Mix for Growth Increment (2005-2050)

■ Urban ■ Compact ■ Standard



Business As Usual

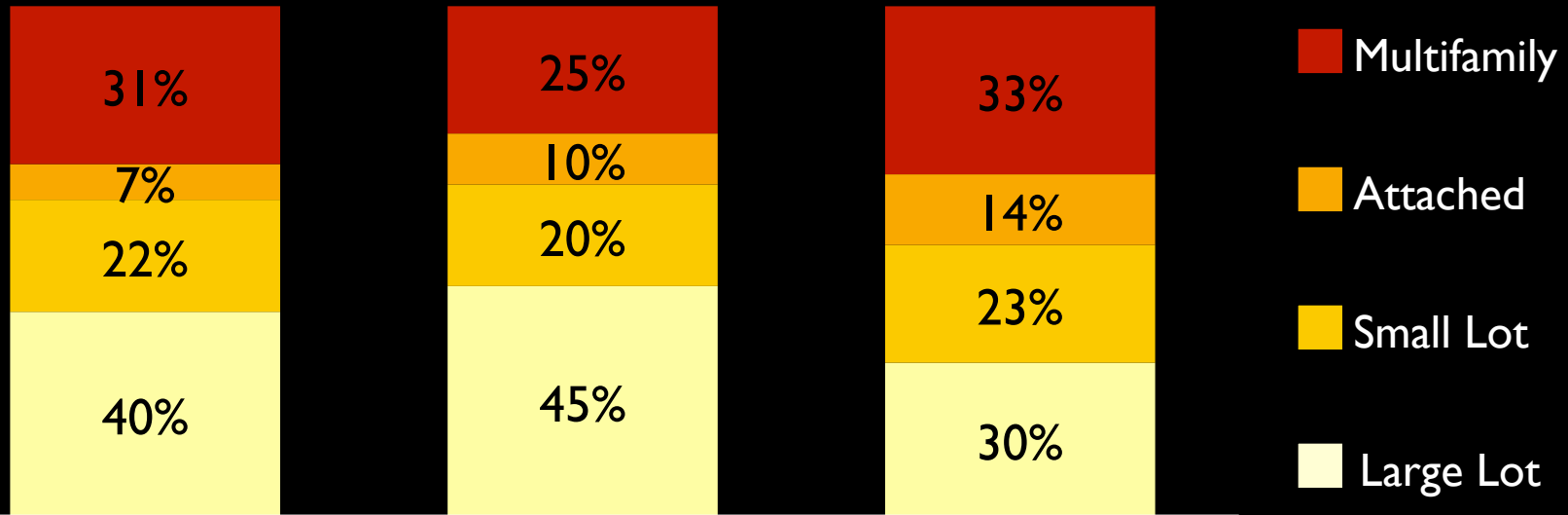


Growing Smart



Housing Product Mix

2050 Total (Base + Increment)



Existing (2005)

Business As Usual

Growing Smart



Who We Are (Really)

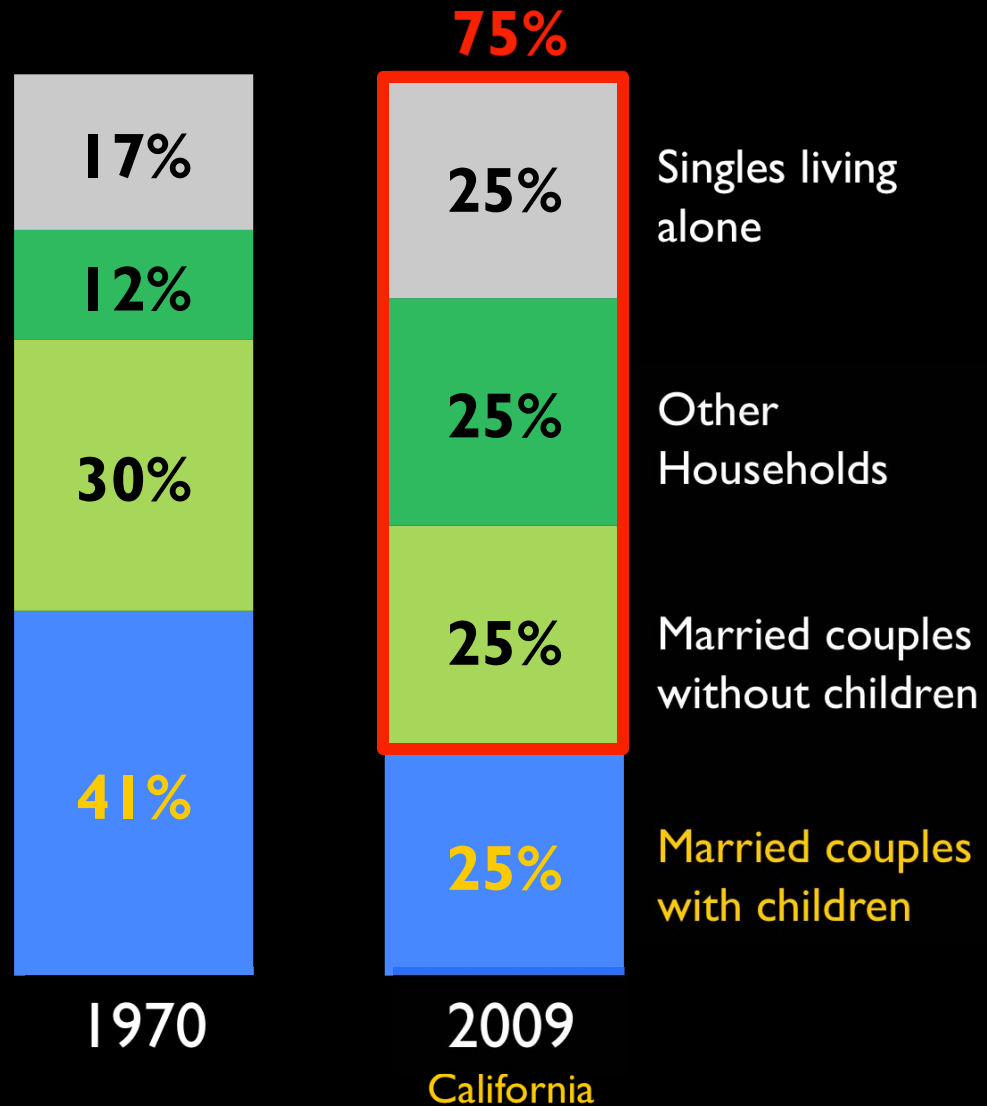


The New California Dream

How Demographic and Economic Trends May Shape the Housing Market

A Land Use Scenario for 2020 and 2035

ARTHUR C. NELSON

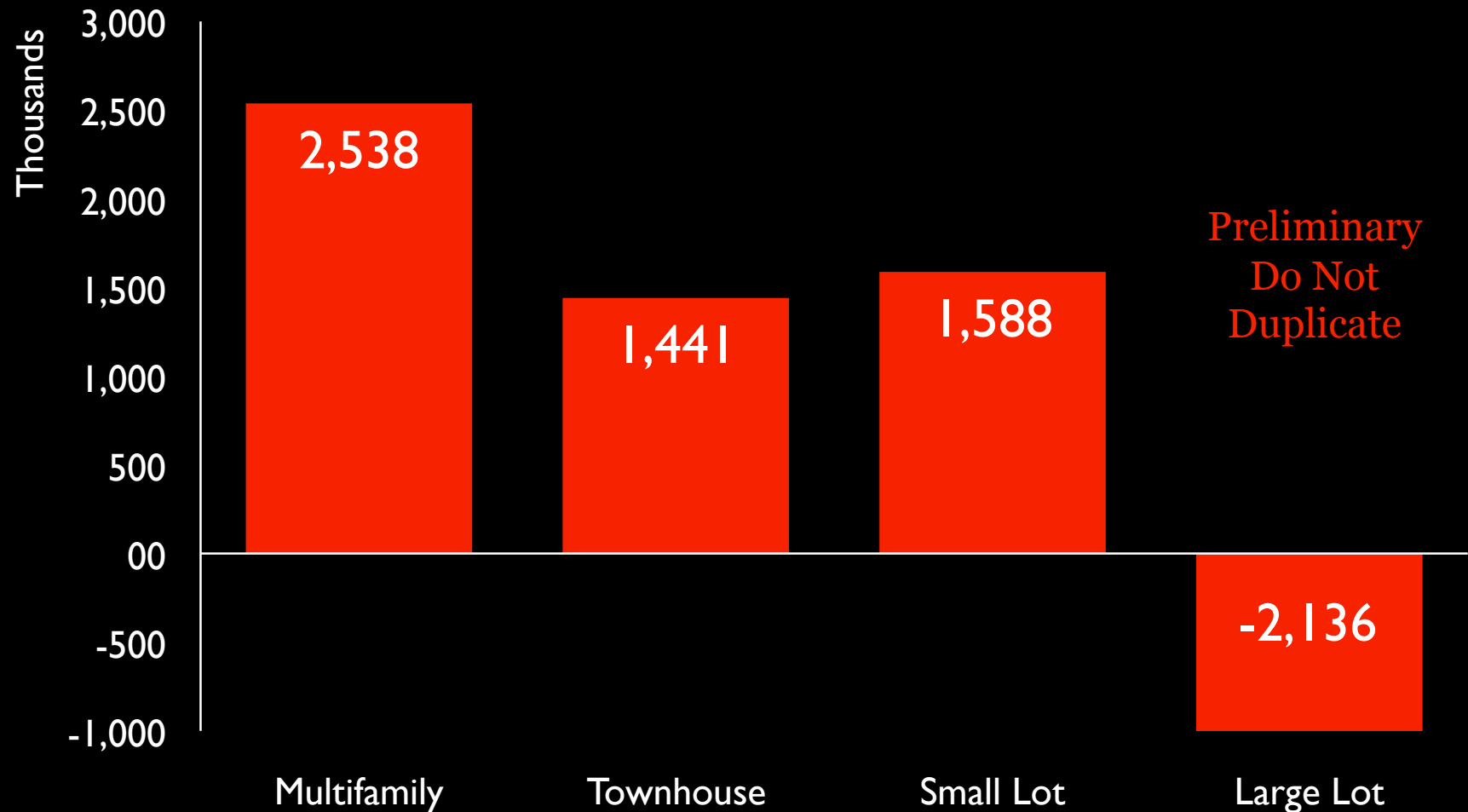


Source: US Census Bureau, American Community Survey 2005-2009

California Housing Demand 2035

■ New Units Needed by 2035

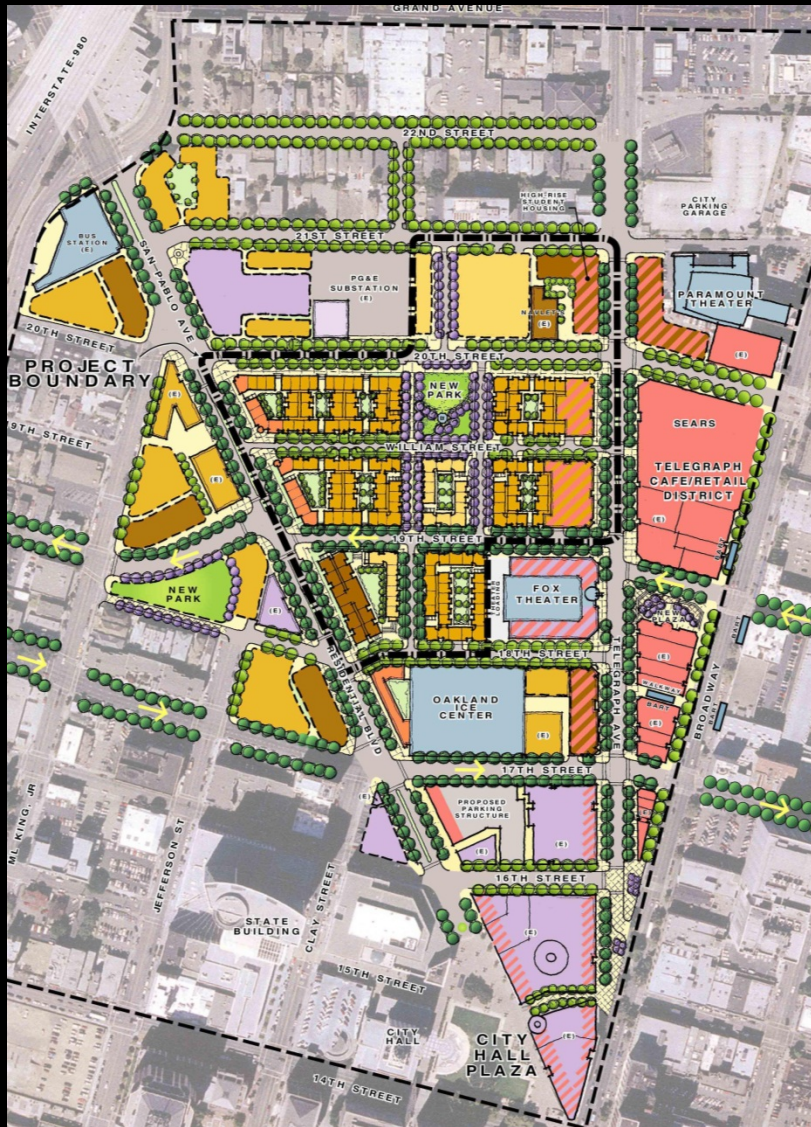
Four Largest MPOs Only – SCAG, SANDAG, MTC, SACOG



Source: AC Nelson. The New California Dream. ULI 2011

CALTHORPE ASSOCIATES
URBAN DESIGNERS, PLANNERS, ARCHITECTS

Urban Oakland Uptown





Before





500 WILLIAM

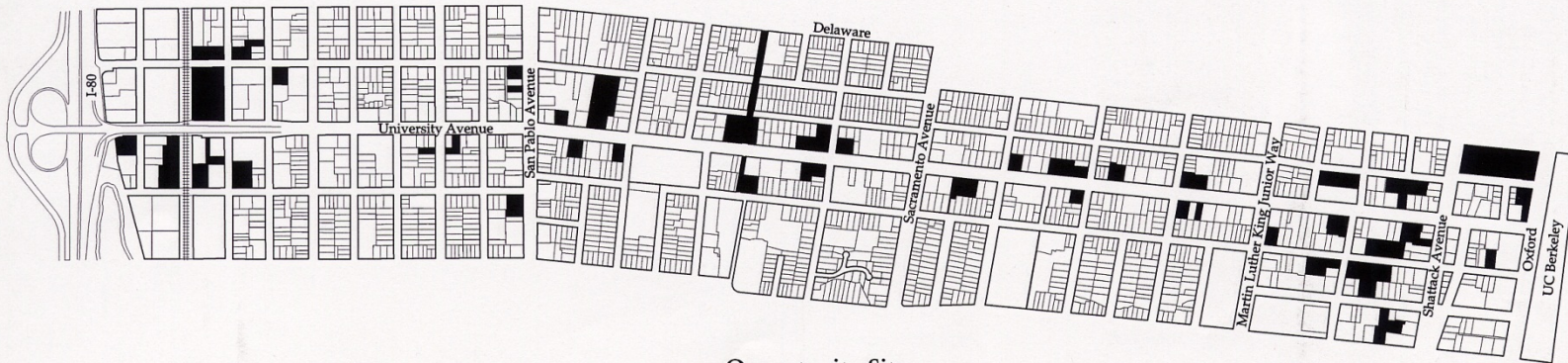
UPTOWN

WELCOME CENTER

THE UPTOWN WELCOME CENTER

William

Urban University Avenue

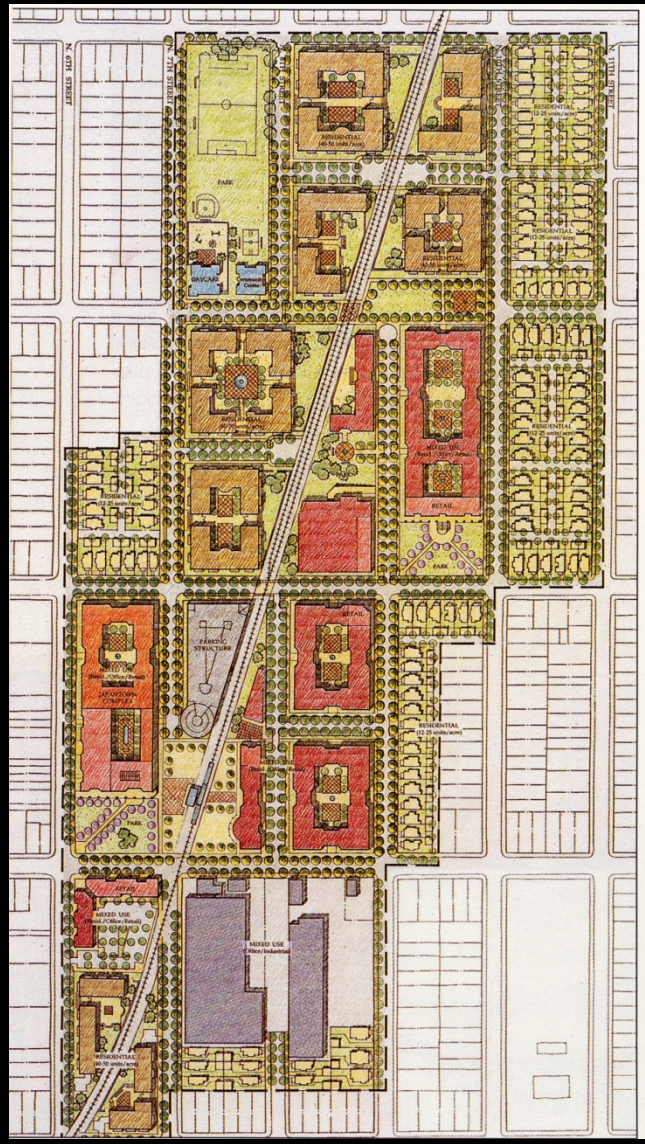
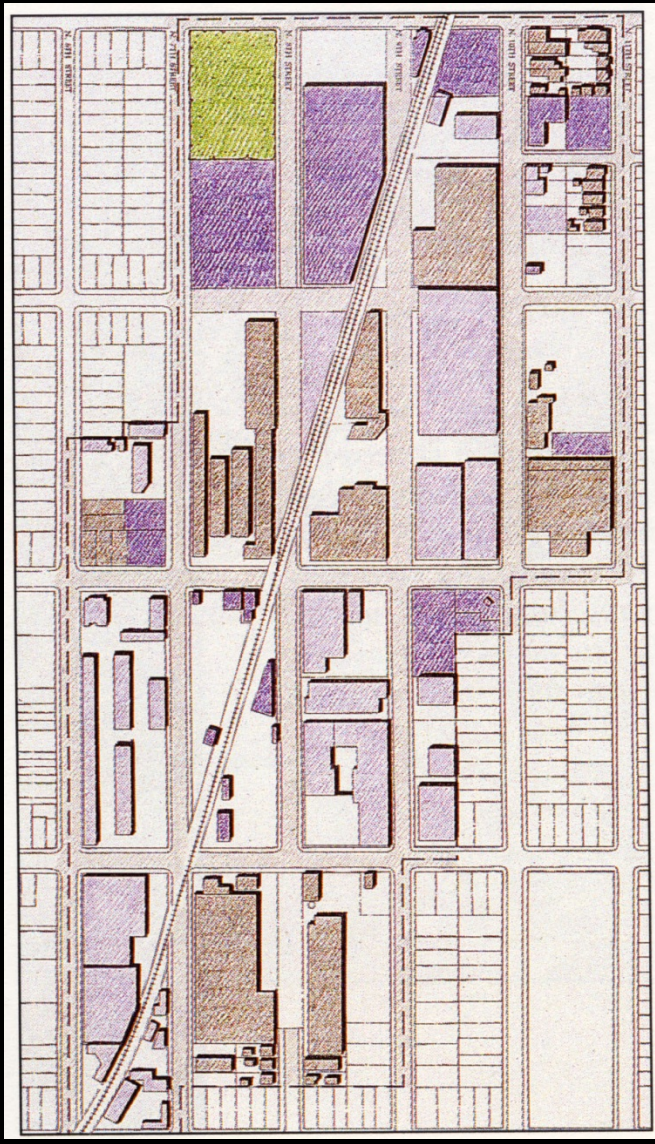


Opportunity Sites





Urban Jackson Taylor Neighborhood





Before



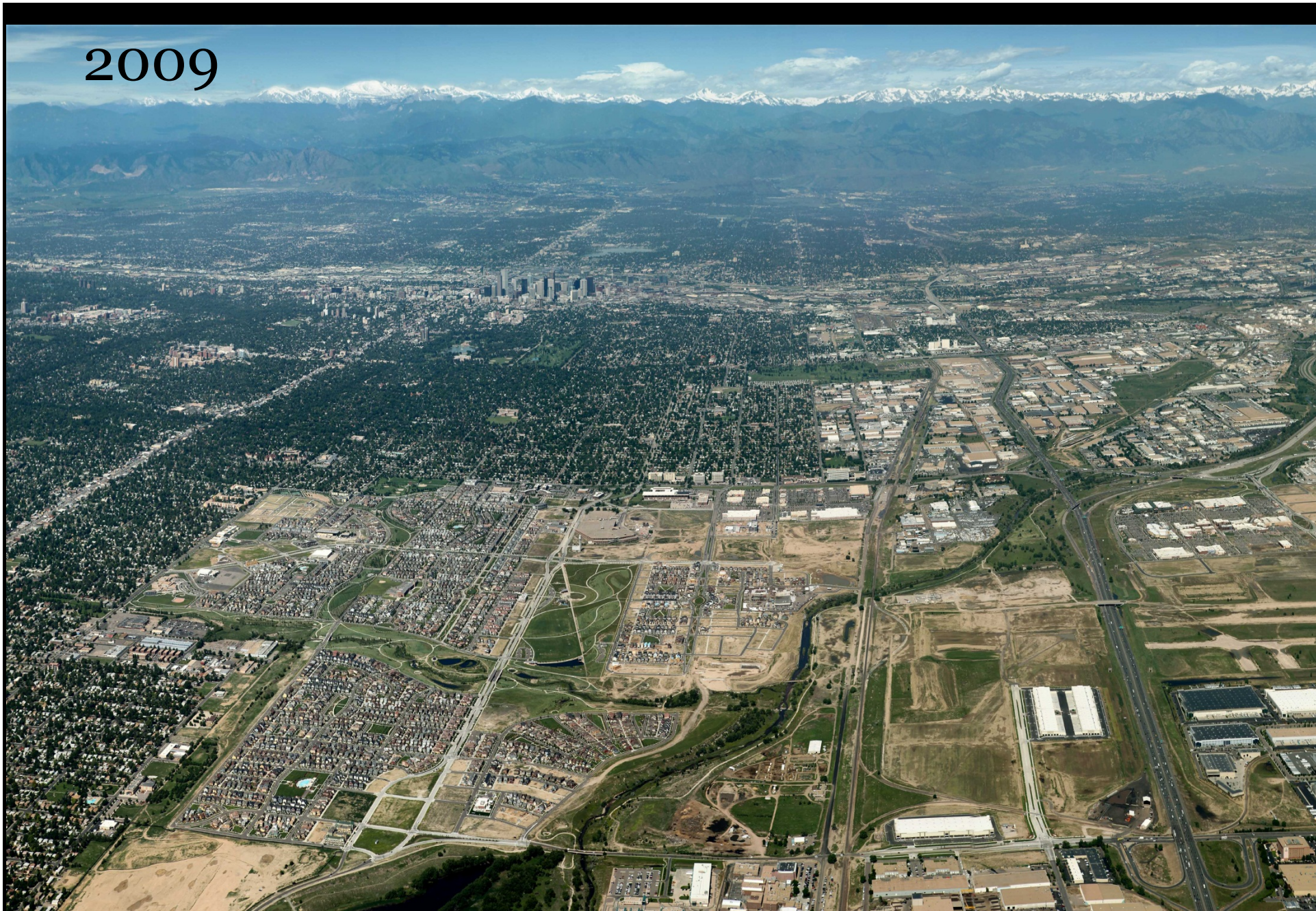


1999

Compact Stapleton



2009









Standard

Antioch



Valencia, California ~ 4 November 2005
photographed by Matt Jalbert ~ www.exuberance.com

Valencia

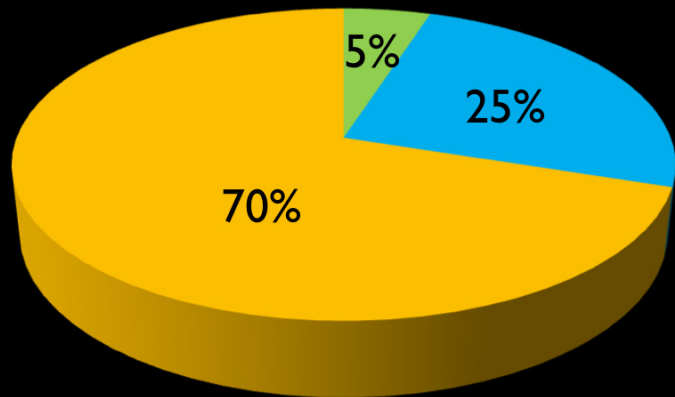


Source: Matt Jalbert, www.exuberance.com

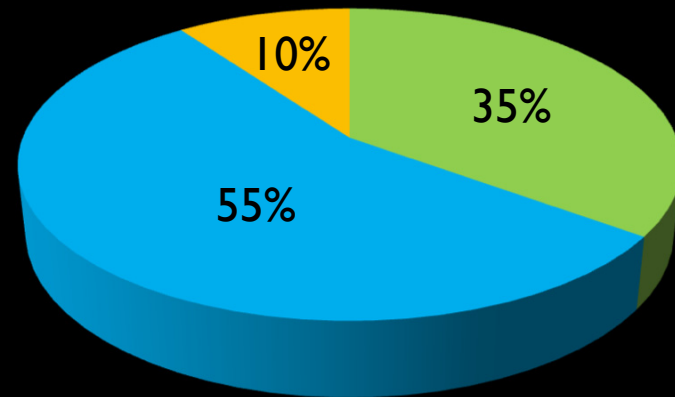
California Rapid Fire Scenarios

Land Use Mix for Growth Increment (2005-2050)

■ Urban ■ Compact ■ Standard



Business As Usual



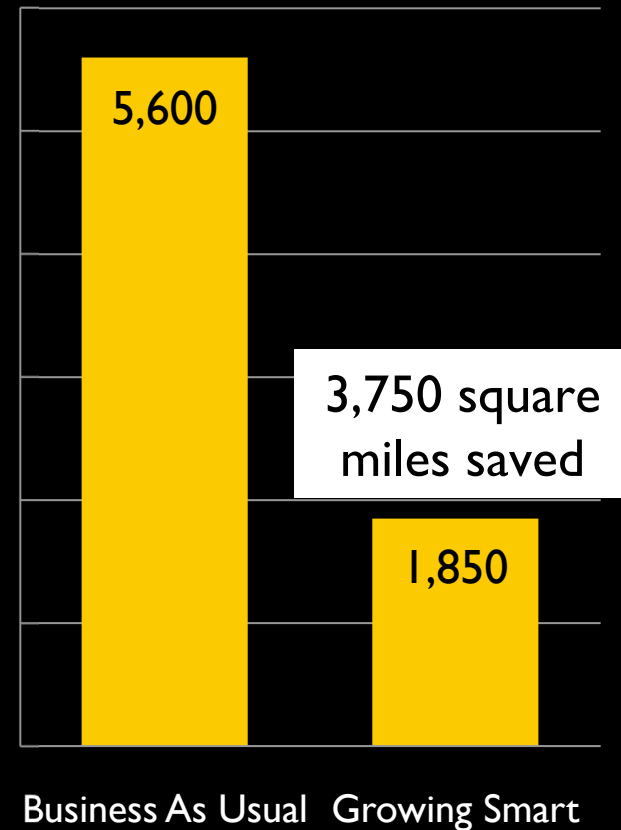
Growing Smart



Land Consumed

For New Growth to 2050 (mi²)

More land than Delaware and Rhode Island combined



Infrastructure Cost for New Growth

Capital Costs for New Growth to 2050

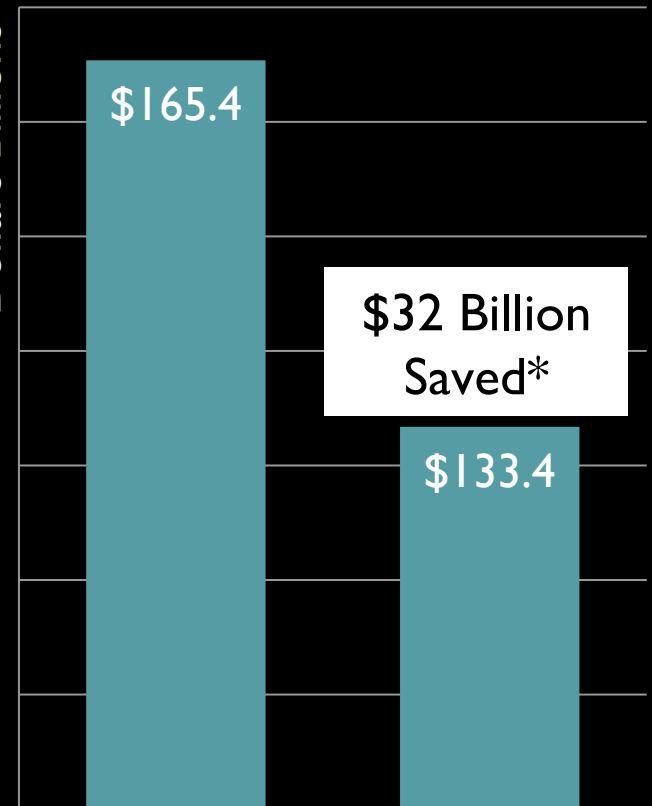
\$4,000 Saved per New Housing Unit : \$710 Million/Year



Flickr: sl-engineer

*Includes local roads, waste water and sanitary sewer, water supply, and parks & recreation

Dollars Billions



Business As Usual Growing Smart

O&M Costs for New Growth

Engineering & Public Works Costs for New Growth to 2050

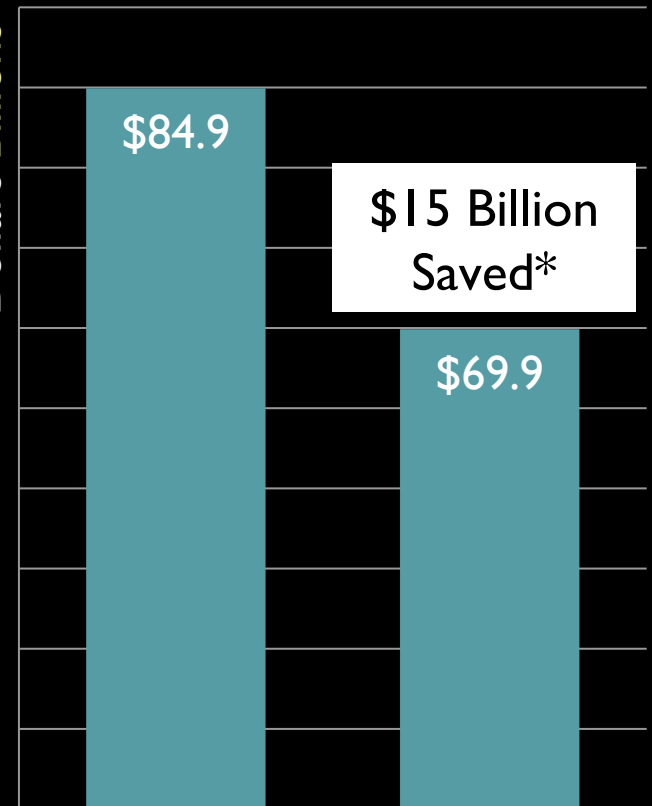
\$15 Billion Saved : \$334 Million Per Year



Flickr: watchlooksee

*Includes City General Fund engineering and public works functions

Dollars Billions



Business As Usual Growing Smart

Revenues from New Growth

City Tax and Fee Revenue from New Growth to 2050

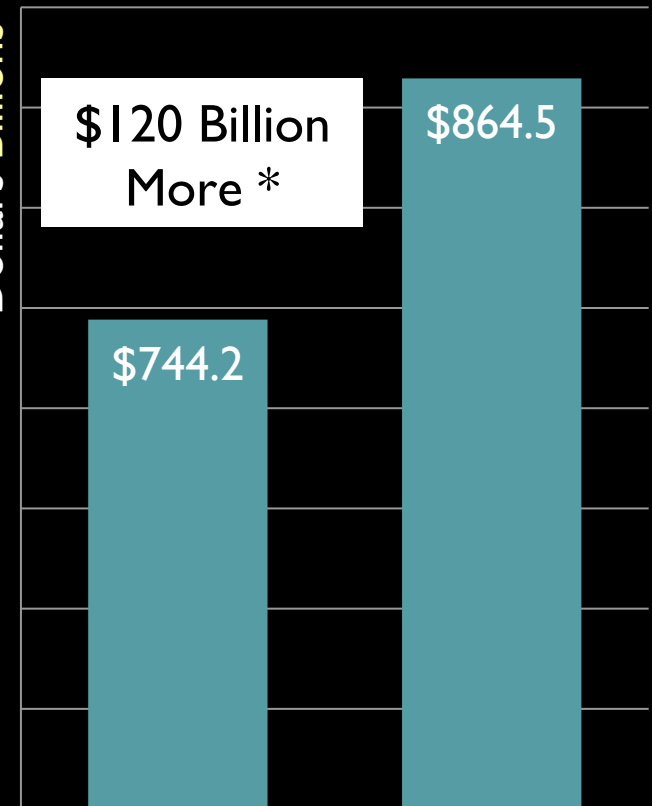
\$2.7 Billion/Year in Additional Revenue to Cities



www.livinginplainfield.com

*Includes City revenues from Vehicle License Fees, Property Tax, and Sales Tax

Dollars Billions



Business As Usual Growing Smart

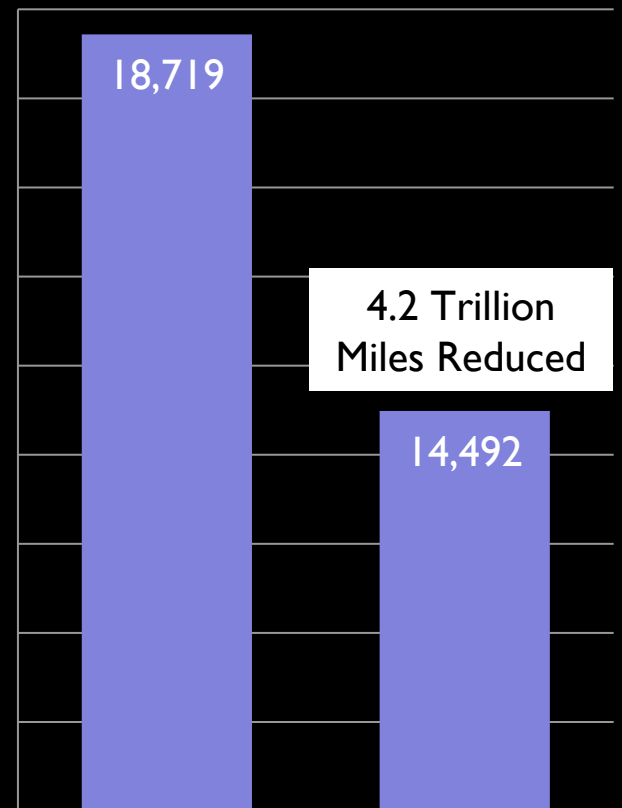
Vehicle Miles Traveled (VMT) Cumulative to 2050

Equivalent to taking ALL cars off California's roads for 15 years



Flickr: trash-photography

VMT Billions



Business As Usual Growing Smart

Auto Fuel Cost Cost Per Household in 2050

\$3,100 Annual Savings Per Household in 2050



Flickr: TheTruthAbout...



Business As Usual

Growing Smart

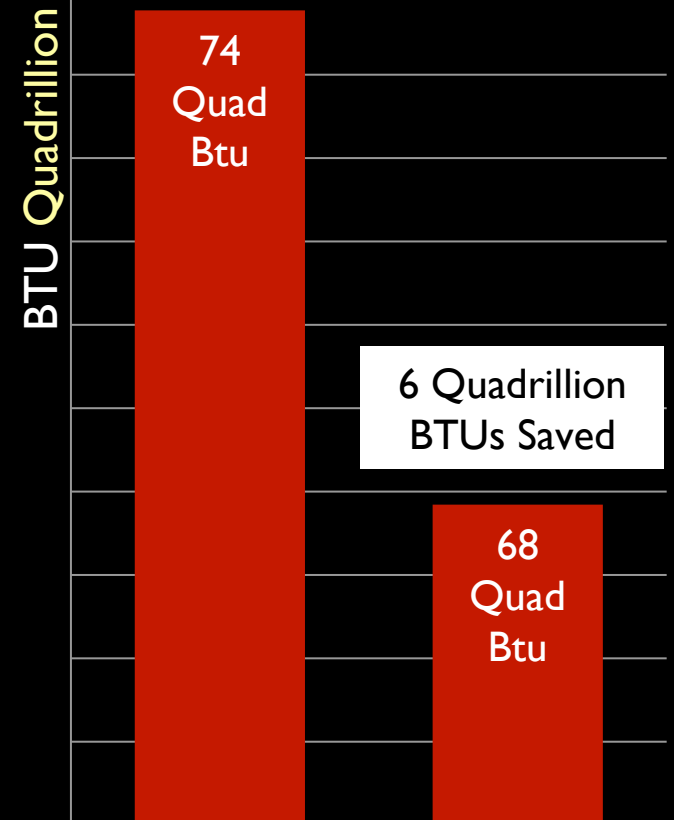
Building Energy

Cumulative to 2050

Would Power ALL Homes in California for 8 Years



Flickr: arbyreed



Business As Usual Growing Smart

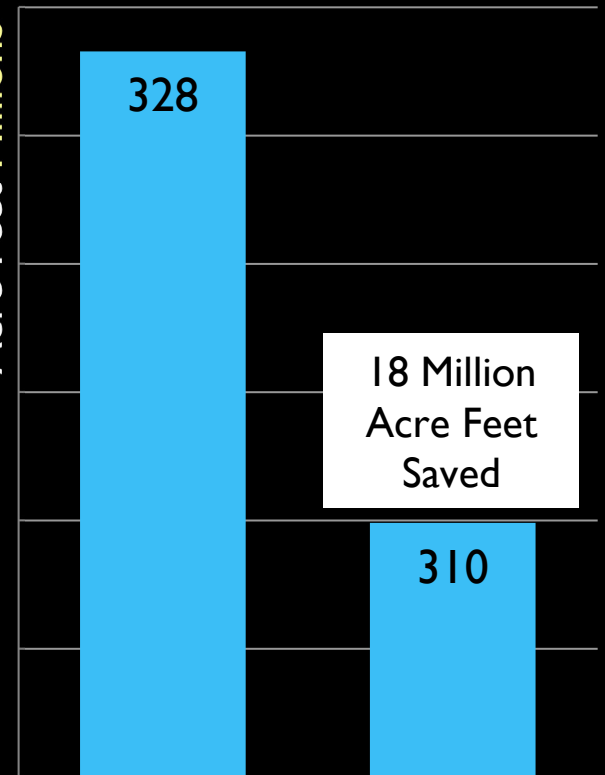
Residential Water Use

Cumulative to 2050

Water Savings Could Fill Hetch Hetchy 50 Times



Acre Feet Millions



Business As Usual Growing Smart

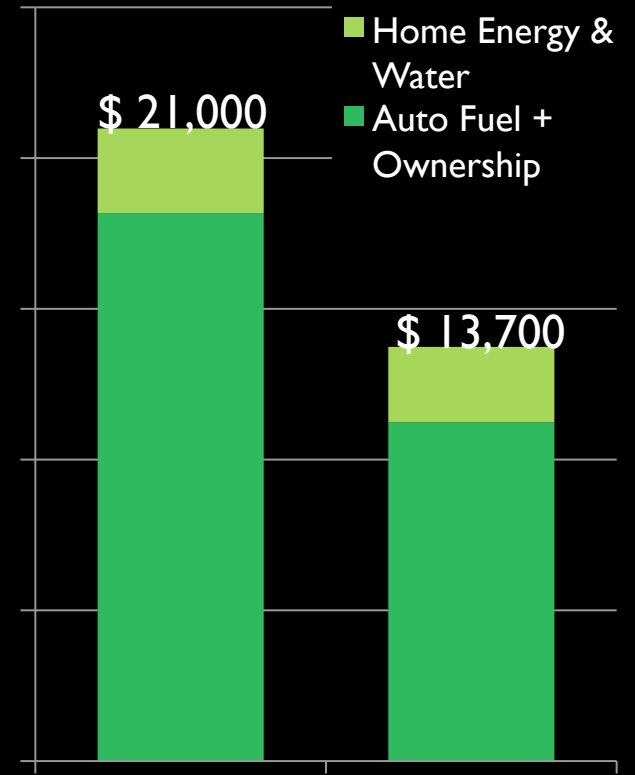
Annual Household Costs

Per Household Annual in 2050

\$7,300 Savings Per Household in 2050



Flickr: Diablo_Solar



Business As Usual Growing Smart

Public Respiratory Health Impacts

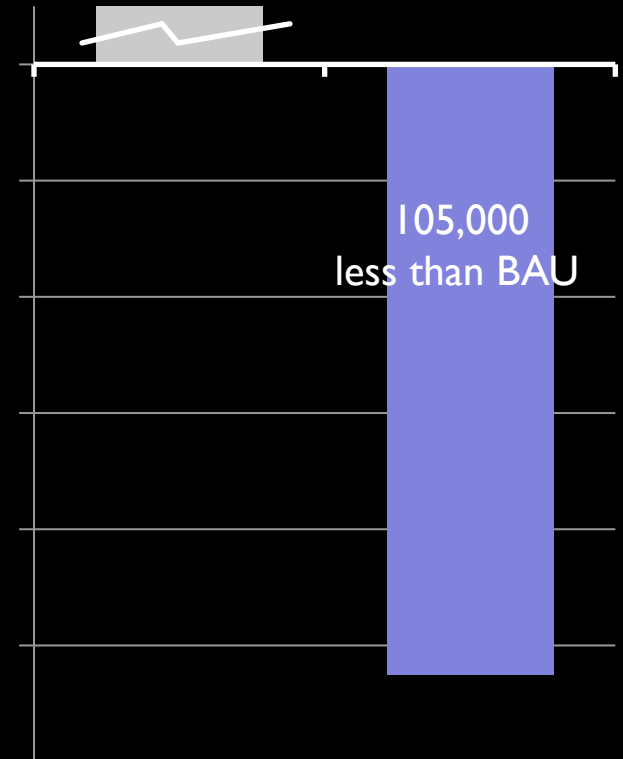
Total Annual in 2035

Can save 140 premature deaths and 105,000 health incidences annually



Flickr: themohers

Business As Usual Growing Smart

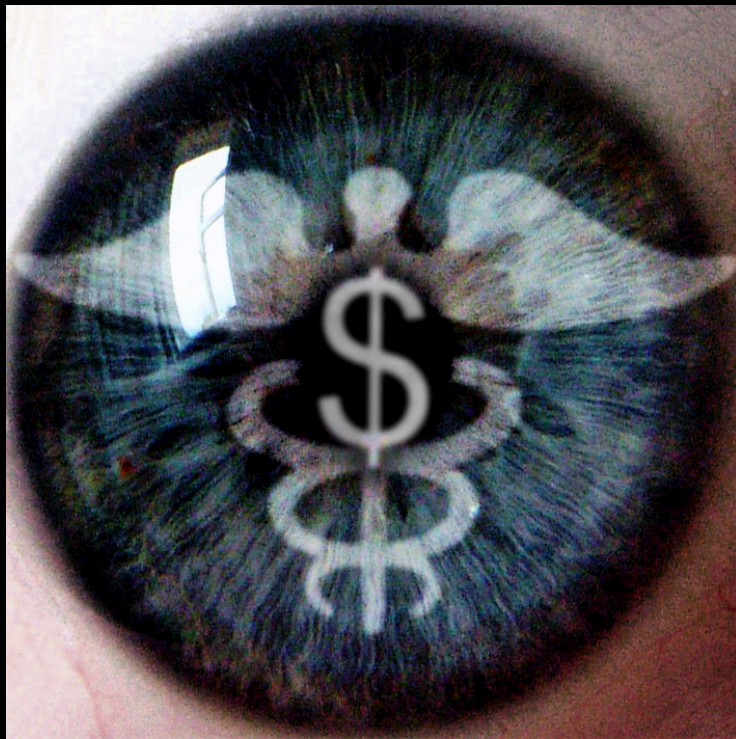


Based on Analysis of Vision CA Results by TIAX, LLC

Respiratory Health Costs

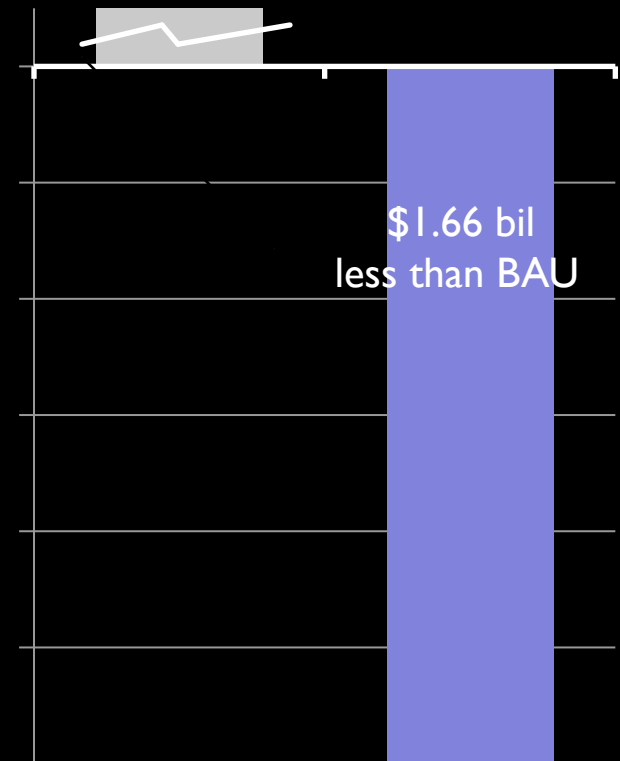
Total Annual in 2035

Saves \$1.66 billion annually by 2035



Flickr: Lance Page

Business As Usual Growing Smart

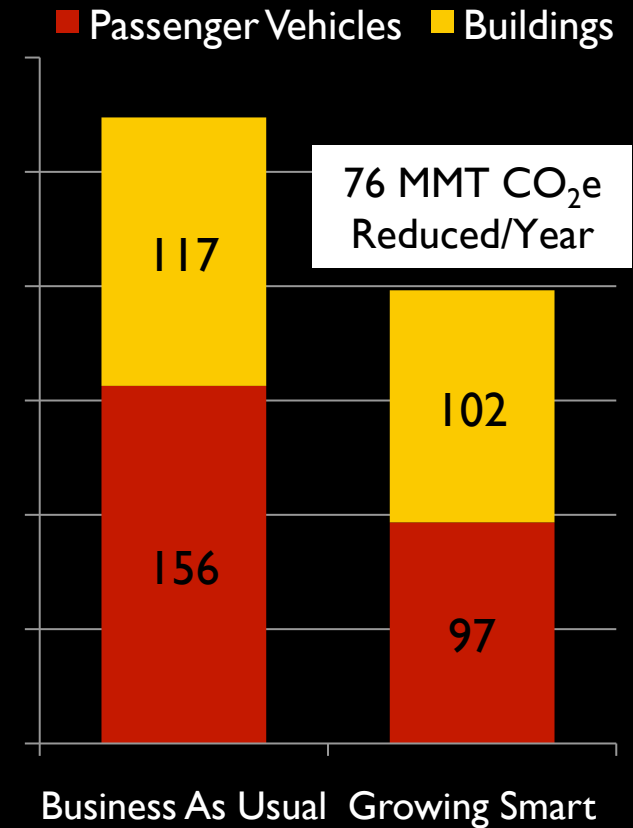


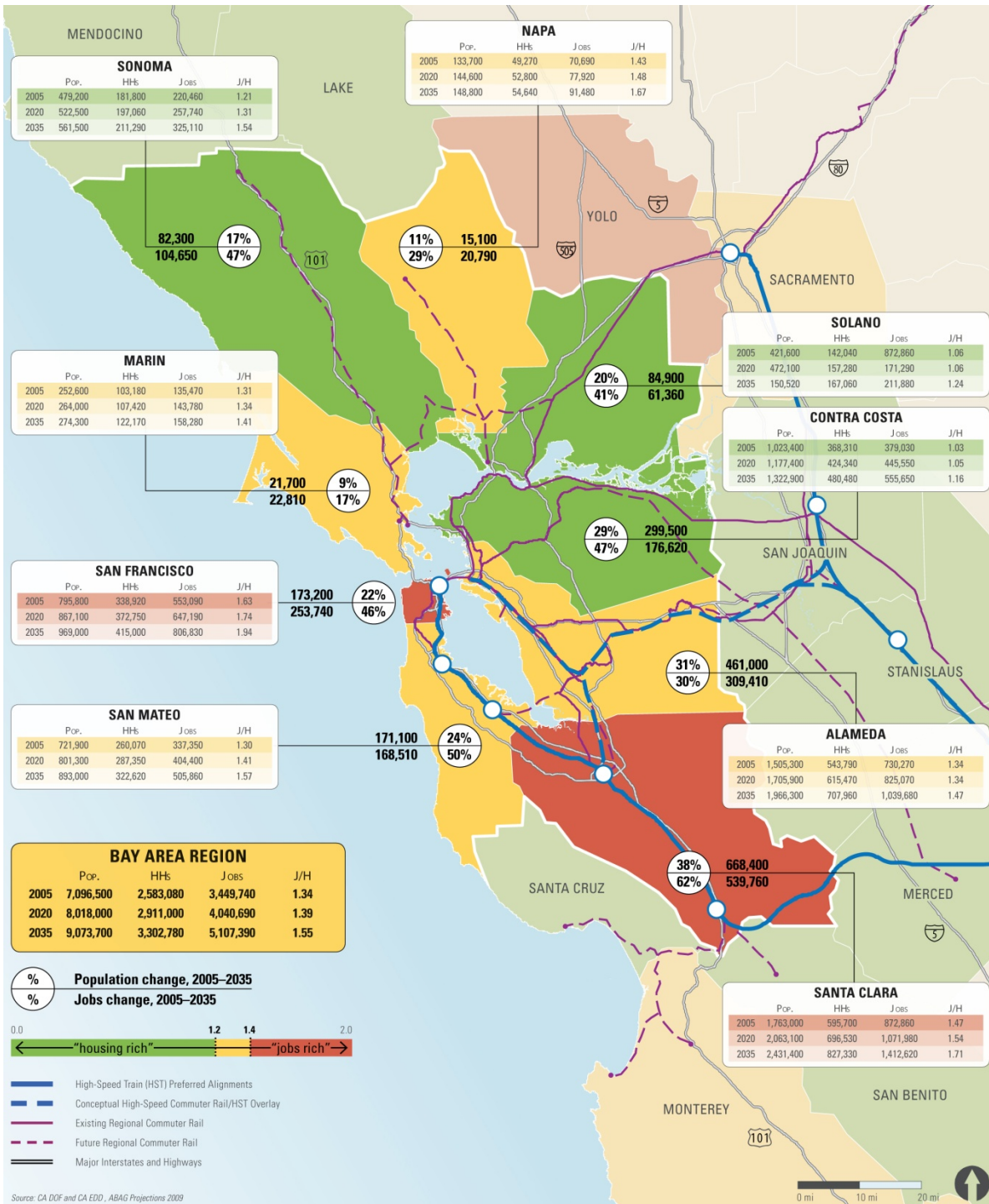
Based on Analysis of Vision CA Results by TIAX, LLC

Greenhouse Gas Emissions

Annual in 2050

Emissions offset by 47,000 square miles of trees in a year.
A forest covering 1/4 of California.





YouChoose
Bay Area

Your home, your future, your choice

County-Level Deployment

Explore Jobs-Housing Balance Issues

Capture Regional VMT and Climate Variation

← "housing rich" → "jobs rich" →

CALTHORPE ASSOCIATES
URBAN DESIGNERS, PLANNERS, ARCHITECTS

Web-Based Outreach Platform

Envision Bay Area (Beta)

1 Our Challenge How should we plan for future growth?

CHALLENGE

Welcome!
Your message, logo, etc. here

Slide 1 of 5

By 2035 the nine-county Bay Area is expected to add roughly 2 million new residents and up to 1.6 million new jobs.

This represents an increase of over 25 percent from the 2009 population of 7.4 million.

2 PRIORITIES

3 CHOICES

4 OUTCOMES

5 GET INVOLVED

About Our Challenge

When you have read enough information, click PRIORITIES to begin.

Send Feedback

Share: [f](#) [t](#) [e](#) [+](#)

Web-Based Outreach Platform

Envision Bay Area (Beta)

1 CHALLENGE

2 Set Priorities *What is most important to you as we grow?*

3 CHOICES

4 OUTCOMES

5 GET INVOLVED

- Low maintenance homes
- Public Health
- Large homes with big yards
- Clean air
- Vibrant downtown areas
- Shorter commutes
- Lower fees and taxes
- Walkable neighbourhoods
- Easy access to transit
- Lower cost of living
- Smaller eco-footprint


Agricultural land

1 of 12

Higher Priority

Lower Priority

Agricultural Land



Lorem ipsum dolor sit amet, consectetur adipiscing elit...

Read More Below

About this Priority

When done, click CHOICES. You can change your priorities later.

Send Feedback

Share:

Web-Based Outreach Platform

Envision Bay Area (Beta)

1 CHALLENGE

2 PRIORITIES

3 Make Choices What combination will best match your priorities?

4 OUTCOMES

5 GET INVOLVED

Jobs/Housing Balance
Where should we focus new housing development?

Development
How should we plan for increased traffic?

2 Balanced



Outside Bay Area: 0 New In-co House

Inside Bay Area: 1,039,100 New Households

B Planned Future



This development option is informed by the officially adopted regional distribution of jobs and housing from the region's Projections 2009 plan.

Jobs/Housing Balance

Unbalanced 1

Balanced 2

Development

Business as Usual A

Planned Future B

Compact Future C

Ultra-Compact D

random

About these Choices

After selecting a combination of choices, click OUTCOMES.

Send Feedback

Share: [f](#) [t](#) [e](#) [+](#)

Web-Based Outreach Platform

Envision Bay Area (Beta)

1 CHALLENGE

2 PRIORITIES

3 CHOICES

4 OUTCOMES

See Outcomes What could your choices affect?

Rate this Future: ★★★★★

5 GET INVOLVED

Jobs/Housing Balance

Unbalanced 1

Balanced 2

Development

Business as Usual A

Planned Future B

Compact Future C

Ultra-Compact D

random

View: **Summary**

Compared to Scenario 1A (Current Trend):

<p>421 square miles open space saved more...</p>	<p>20,100 tons less air pollution more...</p>
<p>2,900 \$ household costs savings more...</p>	<p>150 billion \$ infrastructure cost savings more...</p>
<p>16.6 billion fewer miles driven more...</p>	<p>4.9 million metric tons fewer GHG emissions more...</p>
<p>71 trillion Btu less energy used more...</p>	<p>262 thousand acre-ft. less water used more...</p>

Order by: **Your Top 7 Priorities**

worse than today ← → better than today

- Lower fees and taxes
- Agricultural land
- Shorter commutes
- Vibrant downtown areas
- Low maintenance homes
- Walkable neighbourhoods
- Smaller eco-footprint

About this Future: 2B

[Change the choices and drag the time slider to see things change.](#)

Send Fe [Share: f t e + More](#)

Web-Based Outreach Platform

Envision Bay Area (Beta)

The screenshot displays the 'See Outcomes' section of the Envision Bay Area platform. The interface is divided into five main vertical sections: 1. CHALLENGE, 2. PRIORITIES, 3. CHOICES, 4. See Outcomes, and 5. GET INVOLVED. The 'See Outcomes' section is currently active, showing a comparison of 'Open Space Developed' between 'Current trend (1A)' and 'Your choices (2B)'. The current trend shows 673 square miles, while the chosen scenario shows 252 square miles, resulting in a savings of 421 square miles. A text box explains that compared to Scenario 1A, the chosen scenario saves 421 square miles, equivalent to 8.5 San Franciscos. To the right, a 'Rate this Future' section allows users to rate the scenario (5 stars) and shows a list of 7 priorities with sliders indicating their impact: Lower fees and taxes (better), Agricultural land (worse), Shorter commutes (better), Vibrant downtown areas (better), Low maintenance homes (better), Walkable neighbourhoods (better), and Smaller eco-footprint (better). The bottom of the interface includes a 'Send Feedback' button, social media sharing options, and a 'More' link.

1 CHALLENGE 2 PRIORITIES 3 CHOICES 4 See Outcomes What could your choices affect? 5 GET INVOLVED

Rate this Future: ★★★★★

View: Open Space

Open Space Developed square miles

Scenario	Open Space Developed (square miles)
Current trend (1A)	673
Your choices (2B)	252

savings 421

Compared to Scenario 1A (Current Trend), your choices (2B) save 421 square miles of open space and agricultural lands from development, the equivalent of 8.5 San Franciscos.

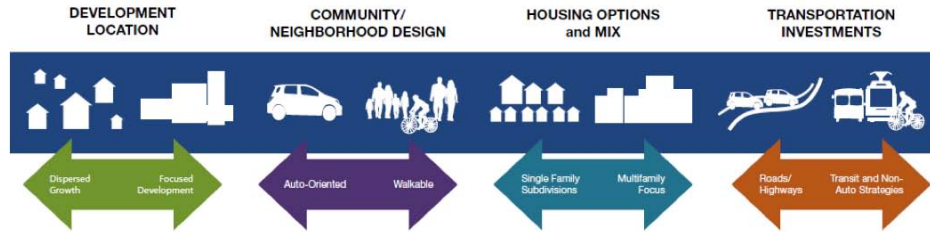
Order by: Your Top 7 Priorities

worse than today ← → better than today

- Lower fees and taxes →
- Agricultural land ←
- Shorter commutes →
- Vibrant downtown areas →
- Low maintenance homes →
- Walkable neighbourhoods →
- Smaller eco-footprint →

About this Future: 2B ⓘ Change the choices and drag the time slider to see things change. Send Feedback Share: Facebook Twitter Email More

FIGURE 4.2 Workshop Scenario Elements



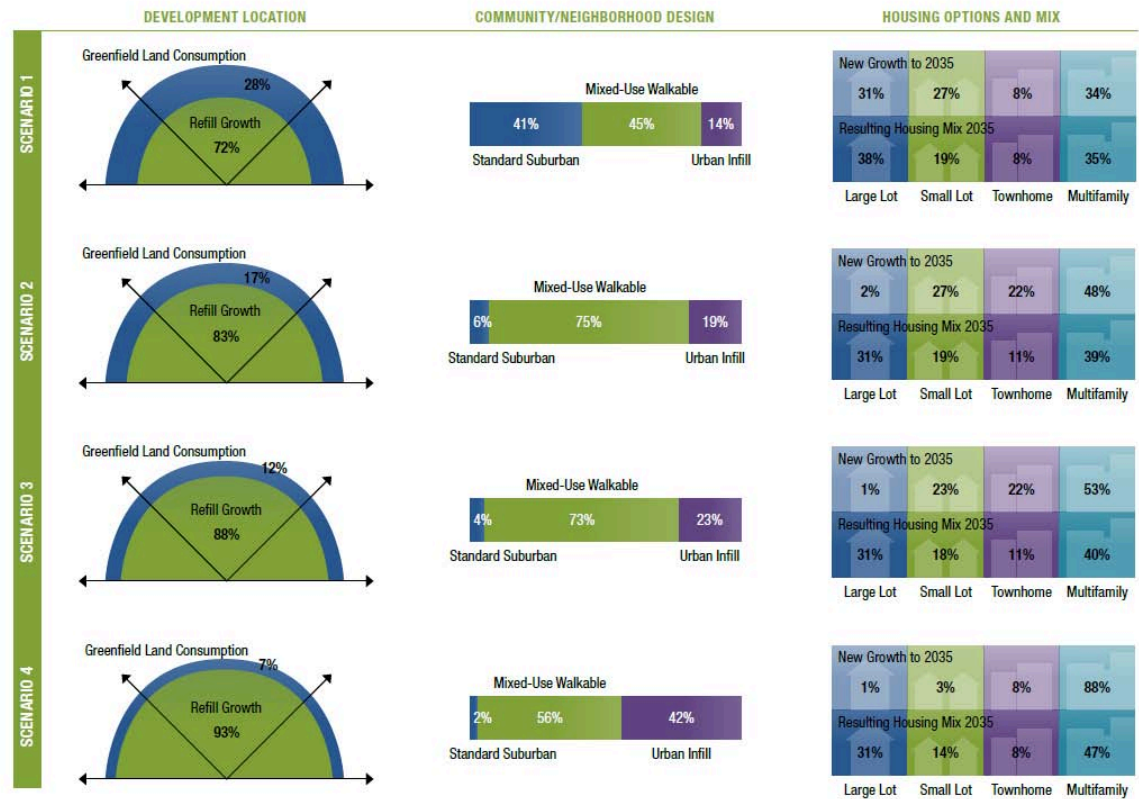
transit. New housing is mostly single family (58 percent), with an increase in smaller-lot single-family homes, as well as an increase in multi-family homes (42 percent). The transportation system is based on the package of improvements in the 2008 RTP. While these investments tend to favor automobile infrastructure, they also support new transit lines and other non-auto strategies and improvements.

Scenario 2. This scenario focuses more growth in walkable, mixed-use communities and in existing and planned high-quality transit areas. Under this scenario, there would be an increase in investments in transit and non-auto modes as compared to the 2008 RTP. Employment growth is focused in urban centers, around transit. Fewer new homes (29 percent) are single-family homes, as this scenario comes closer to meeting demand for a broader range of housing types, with new housing weighted less toward large-lot single-family homes (2 percent) and more towards smaller-lot single-family homes (27 percent), and multi-family condos, townhomes and apartments (70 percent).

townhomes, and multi-family condos and apartments. In terms of percentage, the mix of housing types is very similar to Scenario 2, but the location of the growth within the

region is shifted in already developed areas. Scenario 4. This scenario is similar to Scenario 2, but the location of the growth within the region is shifted in already developed areas. Scenario 4. This scenario is similar to Scenario 2, but the location of the growth within the region is shifted in already developed areas.

FIGURE 4.3 Workshop Scenarios (2035)



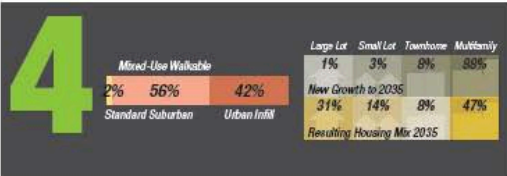
Southern California RapidFire

2012 RTP/SCS PUBLIC OUTREACH WORKSHOPS



* Scenario outputs are meant for comparative purposes only. Model outputs at this stage in the RTP/SCS process are preliminary and subject to refinement as the scenario development and modeling process progresses.

	LAND CONSUMPTION	LOCAL INFRASTRUCTURE COSTS	VEHICLES MILES TRAVELED (VMT)	FUEL CONSUMPTION	HOUSEHOLD COSTS	GREENHOUSE GAS (GHG) EMISSIONS	BUILDING ENERGY USE	WATER CONSUMPTION	PUBLIC HEALTH
	Greenfield (Open Space) Land Consumption	Cumulative Capital Costs and General Fund Operations and Maintenance Expenditures <i>Includes local roads, waste water and sanitary sewer, water supply, and parks and recreation</i>	VMT (Auto Passenger Vehicle Travel)	Automobile Fuel Use	Annual Fuel, Auto Operating, Energy, and Water Costs per Household (HH)	GHG Emissions from Auto Passenger Transportation and Building Energy Use	Annual Commercial and Residential Energy Use	Annual Water Use, Total and per Household (HH)	Annual Savings in Health Costs due to Reductions in Transportation-Related Pollutant Emissions
	[square miles]	[2009 dollars]	[miles]	[gallons]	[2009 dollars]	[Million Metric Tons CO ₂ e]	[Btu]	[acre feet and gallons]	[2009 dollars]
1	251 sq mi	\$35 bil	20,920 mi per HH	5.5 bil gal	\$15,100 per HH	96 MMT	835 tril Btu	3.0 mil ac ft	\$635 mil Savings from status quo
2	127 sq mi	\$31 bil	18,630 mi per HH	4.9 bil gal	\$13,600 per HH	88 MMT	775 tril Btu	2.9 mil ac ft	\$915 mil Savings from status quo
3	84 sq mi	\$29 bil	18,250 mi per HH	4.8 bil gal	\$13,350 per HH	86 MMT	760 tril Btu	2.9 mil ac ft	\$960 mil Savings from status quo
4	46 sq mi	\$25 bil	17,990 mi per HH	4.7 bil gal	\$13,150 per HH	85 MMT	745 tril Btu	2.8 mil ac ft	\$990 mil Savings from status quo



UrbanFootprint

Open Source
Geo-Spatial Model

Model Includes:

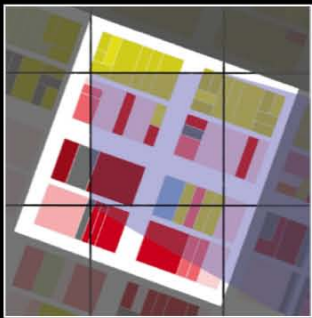
- Automated base data loading
- 35+ Place type library
- 90+ Building type library
- Scenario translation engine
- Web-based scenario painter
- 8d sketch travel engine
- Full co-benefits analysis
- Modular, expandable

- *Pilot deployment underway*
- *Will be fully loaded with all major California MPO base data by June 2012*
- www.calthorpe.com for model info

True Open Source Platform



UrbanFootprint Model Schema



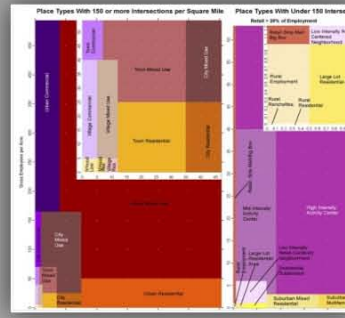
Base Data

Automated
Normalize
Data
Loaded Grid



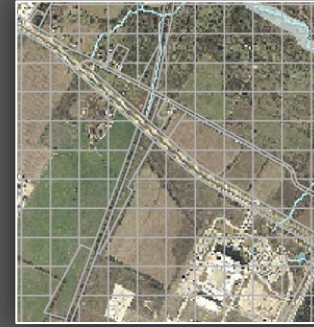
Common Language

Place Types
Building Types



Translation

Convert Input
Scenarios
to Future
Scenarios



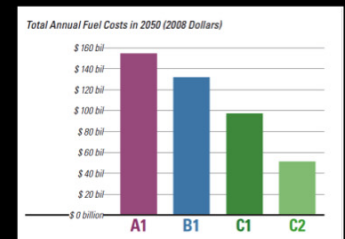
Painting

Scenario
Sketching
Scenario
Editing



Analysis

- 8D Travel
- Health
- Fiscal
- Energy
- Water
- Emissions



Place Type Studies (90+)



Downtown San Diego (Gaslamp District) San Diego, California

Location: Bounded by E St., 8th Ave., Market St., and 4th Ave.

Planner: (incremental)

Site Statistics:

- Site Size (gross) 30 acres
- Site Size (net) 16.6 acres
- Block Size (average) 200' x 320'

- Density (gross) 28 du/ac
- Density (net) 51 du/ac

- FAR (gross) 1.61



Building Type Studies (300+)



East End Gateway (Site 1)

Sacramento, California

Location: NW corner of 16th and N Street, Sacramento, CA

Developer: Em Johnson Interest & Nehemiah Community Reinvestment Fund Holdings (NCRFH)

Architect: Devroux + Purnell Architects; 202.483.2878

Planner: N/A

Contact Info: Marc de la Vergne; mdelavergne@cadanet.org; 916.322.2114

Site Statistics:

• Area	0.7 ac	0.28 ha
• Length	190 ft	57.9 m
• Width	160 ft	48.8 m
• General Shape	Rectilinear	
• Orientation	W-NW to E-SE	
• FAR	2.66	

Building Statistics:

• Height	100 ft	30.5 m
• No. of Stories	8 floors	
• Construction Type	Type II (assumed)	
• Efficiency (GLA/total area)	85% (assumed)	

Program:

• Retail Area	6 k-sqft	557 sqm
• Residential Area	75 k-sqft	6,967 sqm
• No. of Units	98 du	
• Unit Type	Condominium	

Parking:

• Parking Area	38,400 sqft	
• No. of Parking Stalls	120 stalls	
• Parking Typology	Below grade structure	

Other Information:

• Project Cost	\$37 MM	
• Construction (start date)	2010 (Oct)	
• Construction (completion)	2012 (Jan)	

Faster and More Efficient

Place Type Translation for 8- County San Joaquin Valley

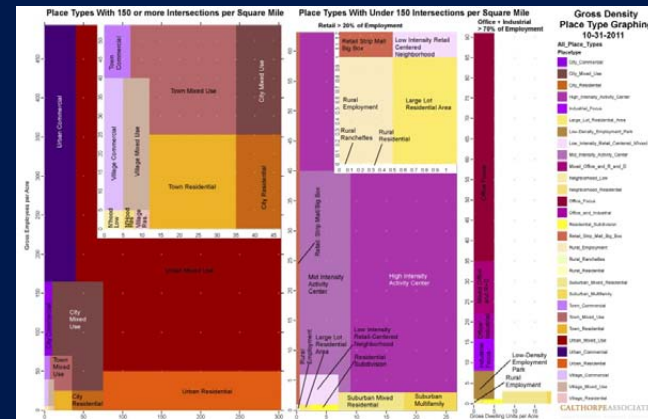
12 days

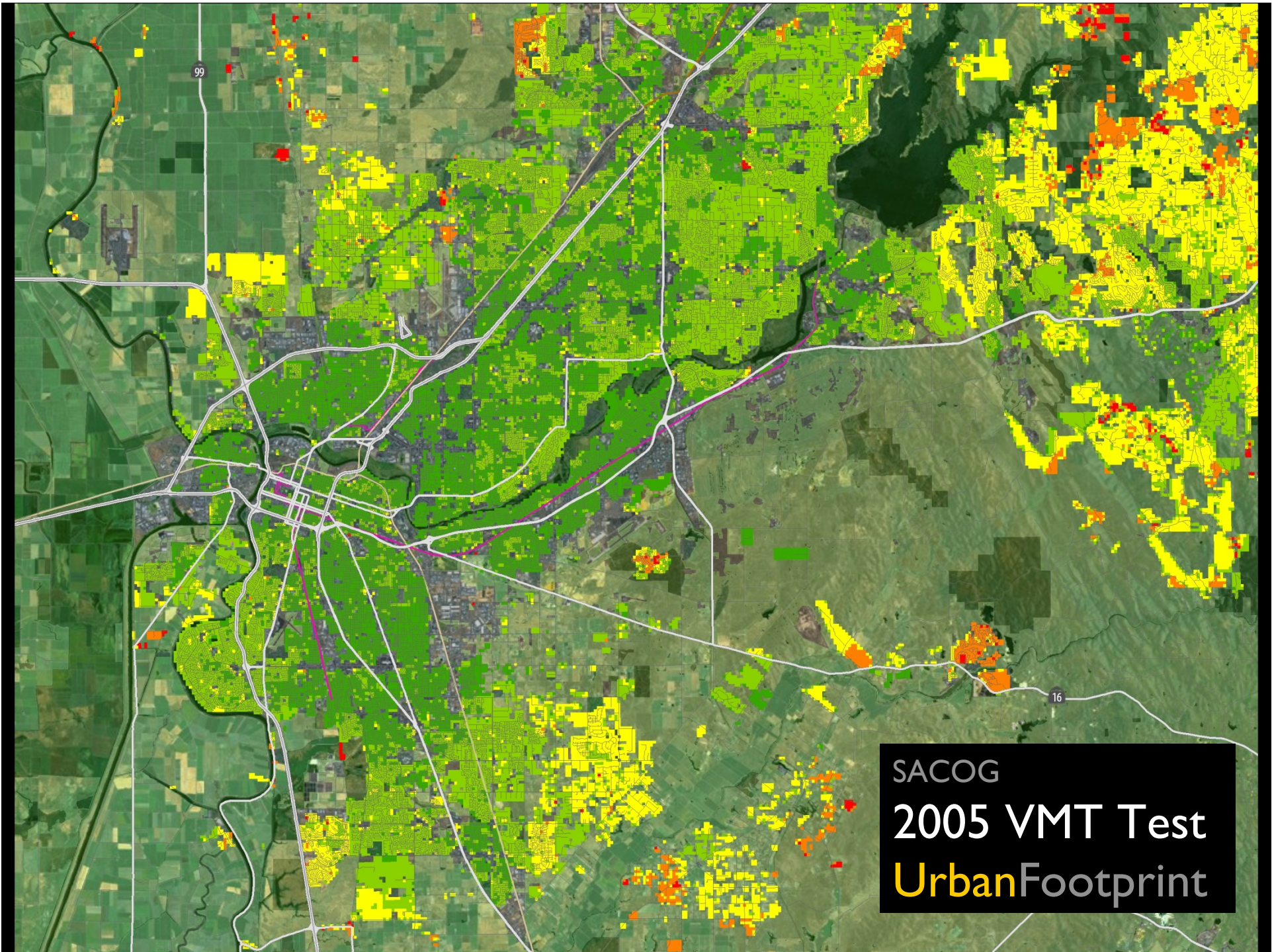
ArcGIS

Open Source

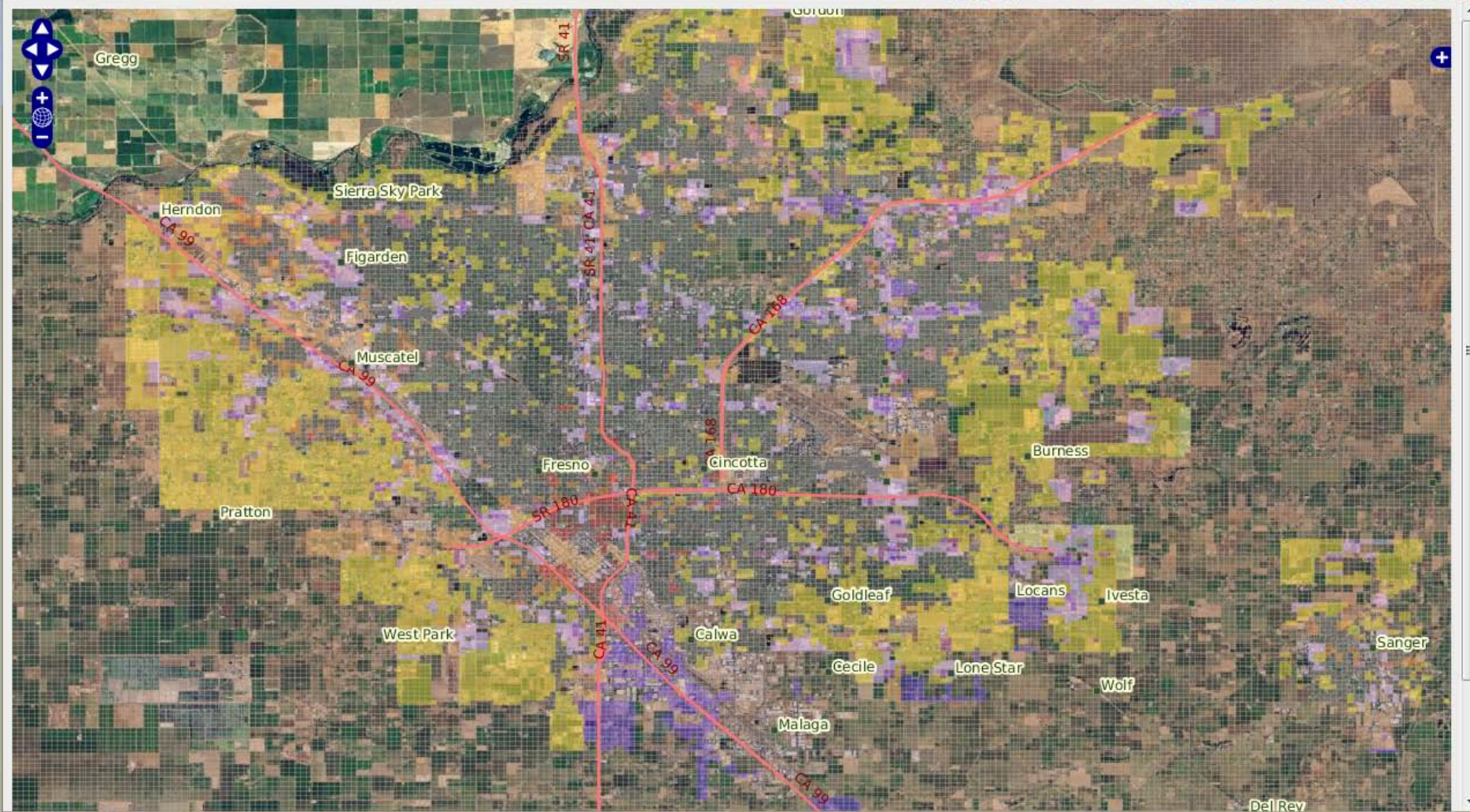
8 minutes

Run Time





SACOG
2005 VMT Test
UrbanFootprint



Scenario Reports & Model Documentation

www.calthorpe.com

www.visioncalifornia.org

www.youchoosebayarea.org

www.scag.ca.gov/rtp2012

CALTHORPE ASSOCIATES

URBAN DESIGNERS, PLANNERS, ARCHITECTS

Joe DiStefano
joed@calthorpe.com

CALTHORPE ASSOCIATES

URBAN DESIGNERS, PLANNERS, ARCHITECTS

Honolulu TOD Study



Land Consumed

2010-2050

11 sq. mi developed 1992 - 2005

Developed Land
1992: 141 sq. miles
2005: 152 sq. miles

2050

Bus. As Usual: 209 sq. miles
TOD Future: 162 sq. miles

53

44 square
miles saved

9

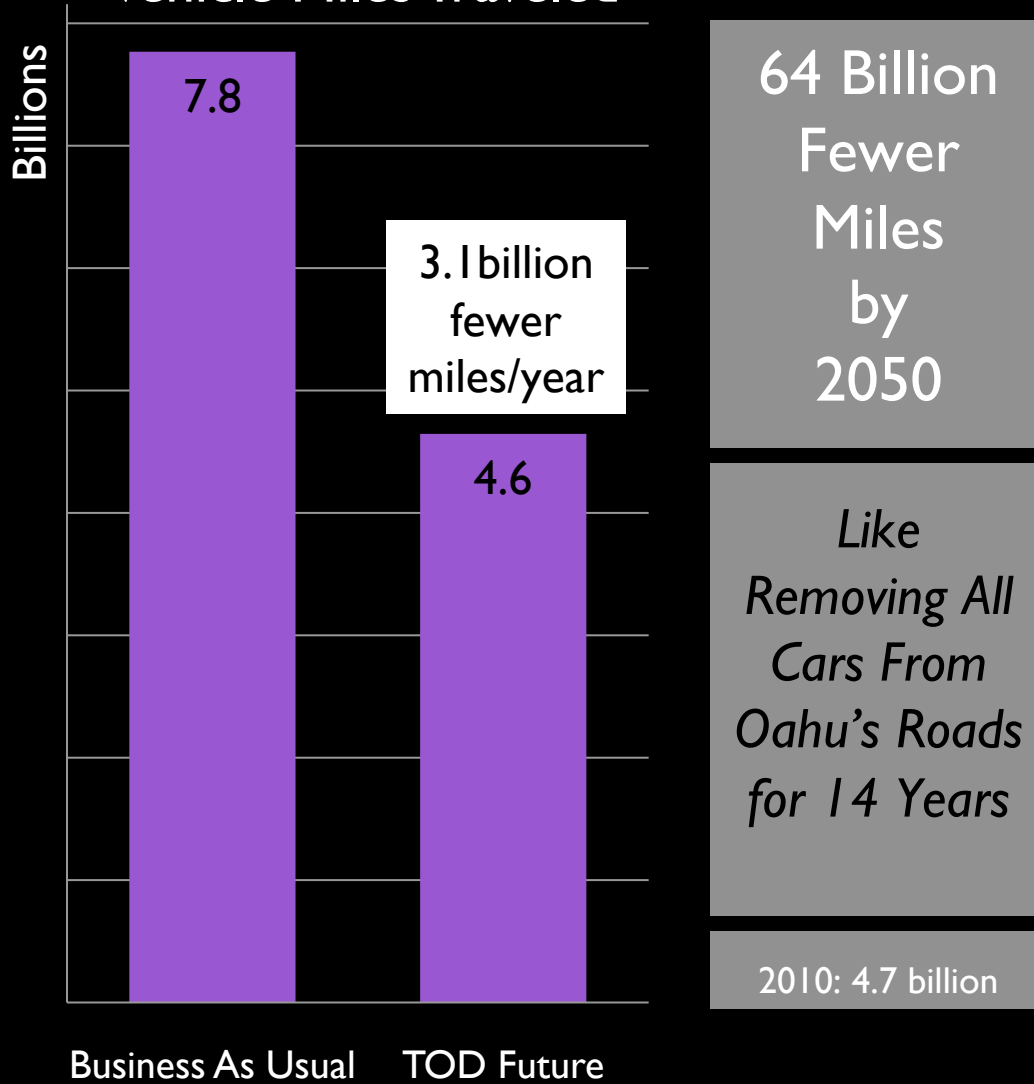
Business As Usual

TOD Future

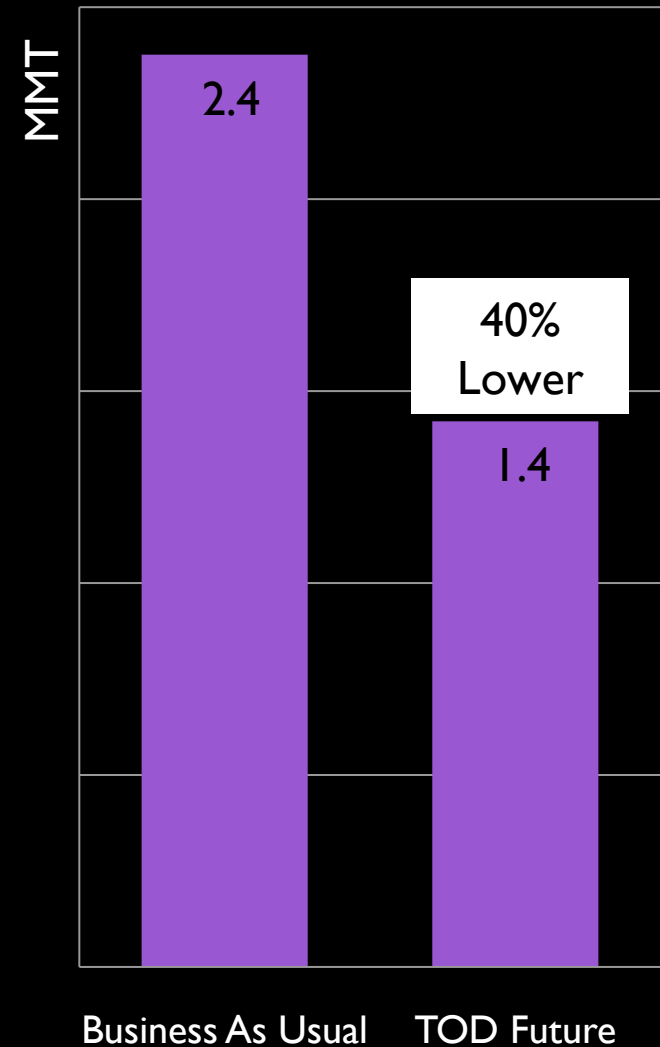
flickr - beatjoan9

Driving Impacts

Vehicle Miles Traveled

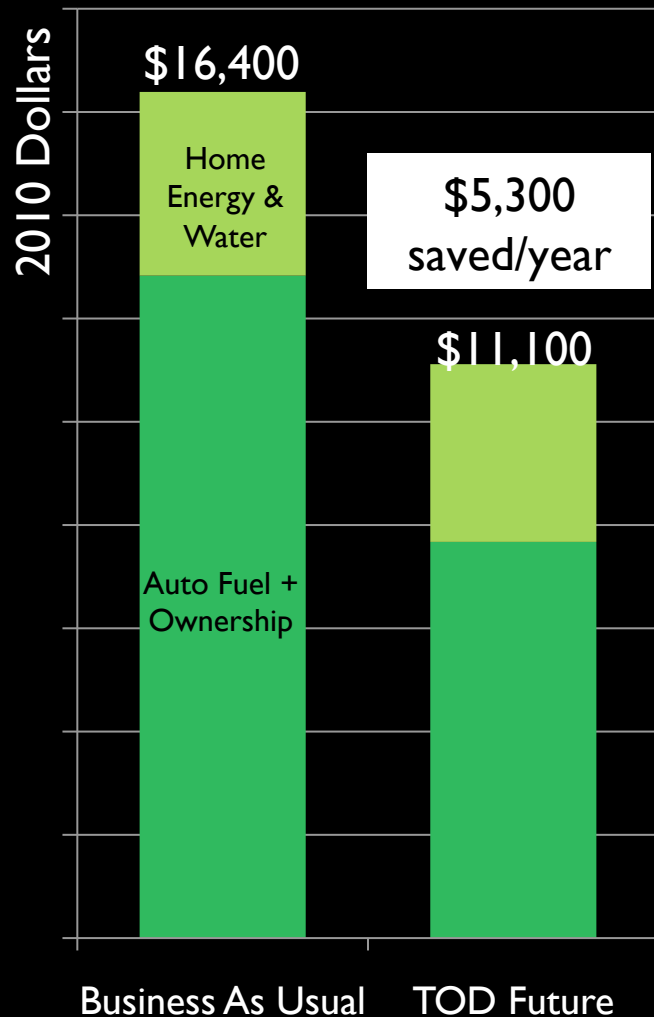


Greenhouse Gas Emissions



Total Costs & Emissions

Annual Household Costs

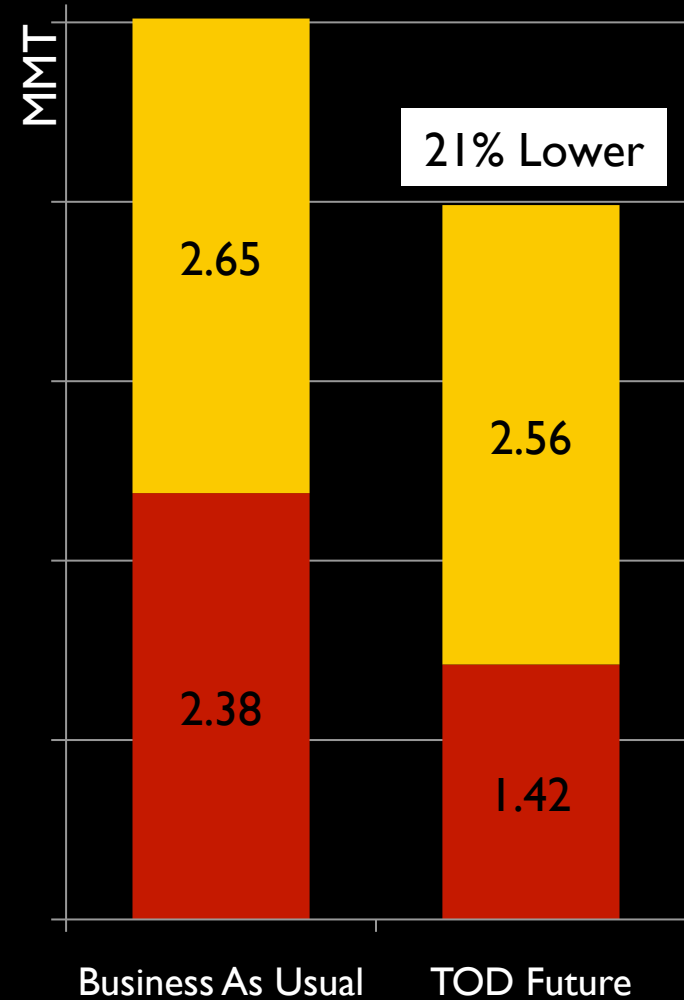


\$30 Billion
Total
Household
Savings

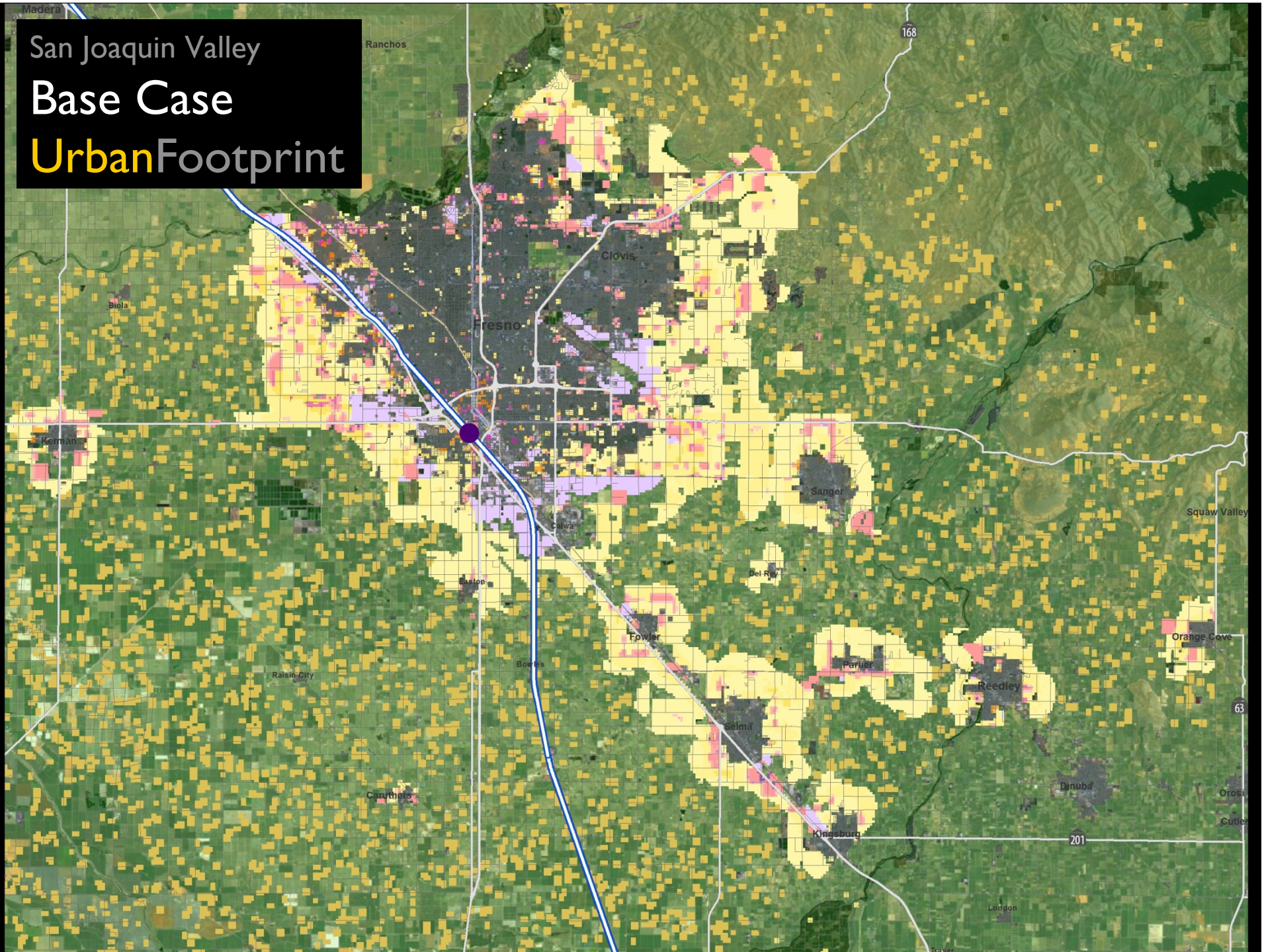
Annual GHG
Emissions
Reductions
Equivalent to
That Offset
by a Forest
the Size of
Oahu

Greenhouse Gas Emissions

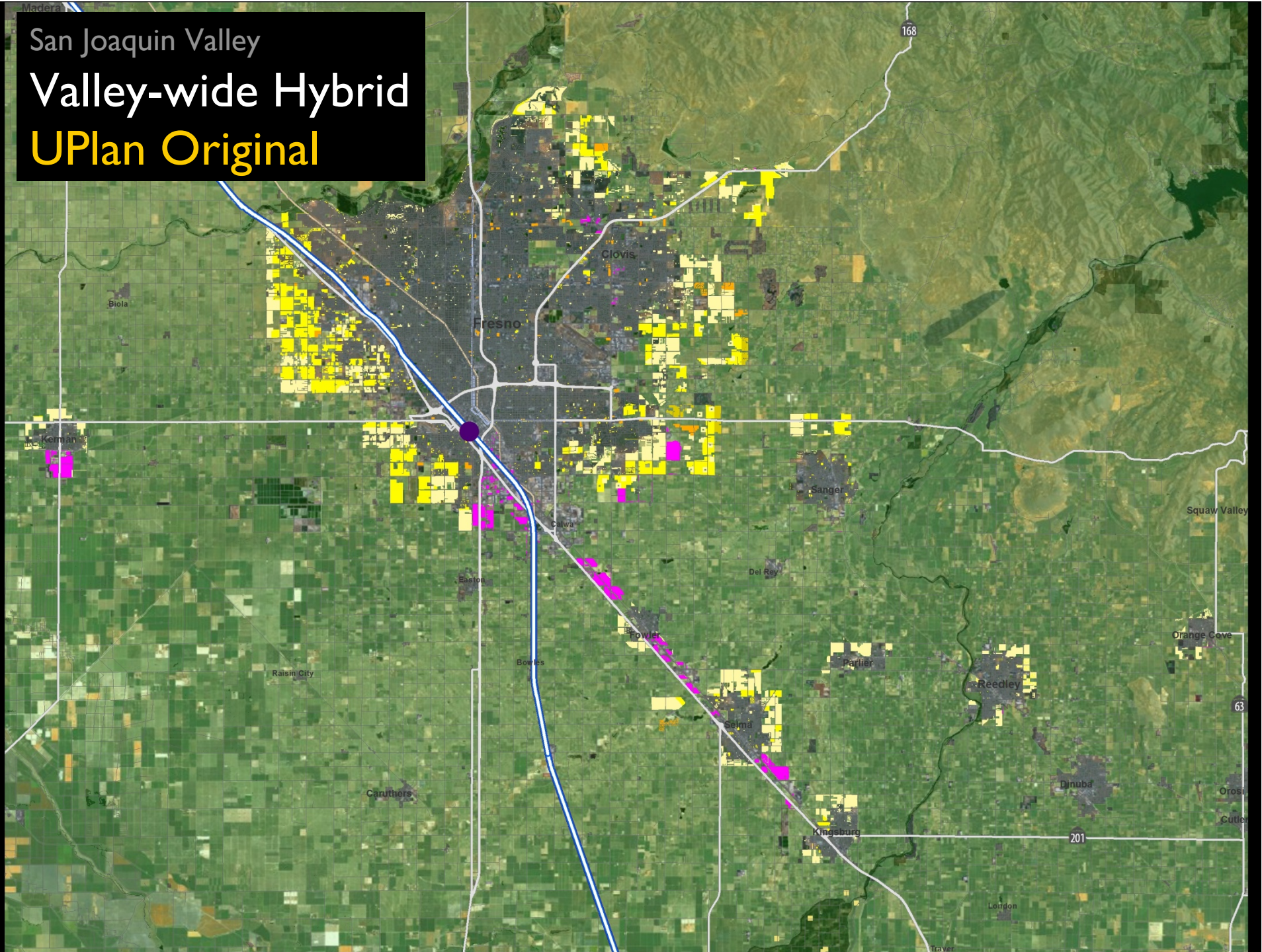
■ Passenger Vehicles ■ Res Bldgs



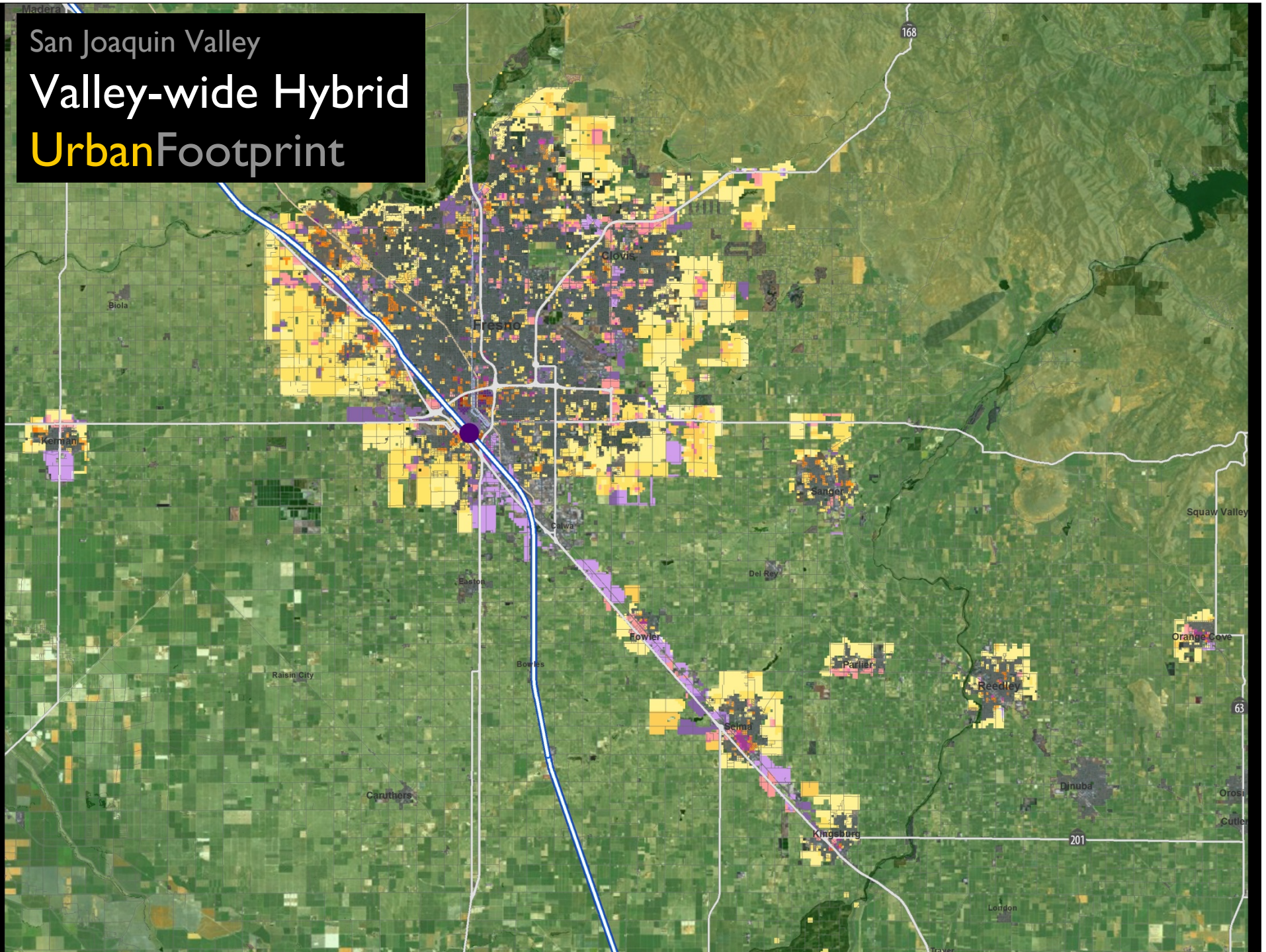
San Joaquin Valley Base Case UrbanFootprint



San Joaquin Valley Valley-wide Hybrid UPlan Original



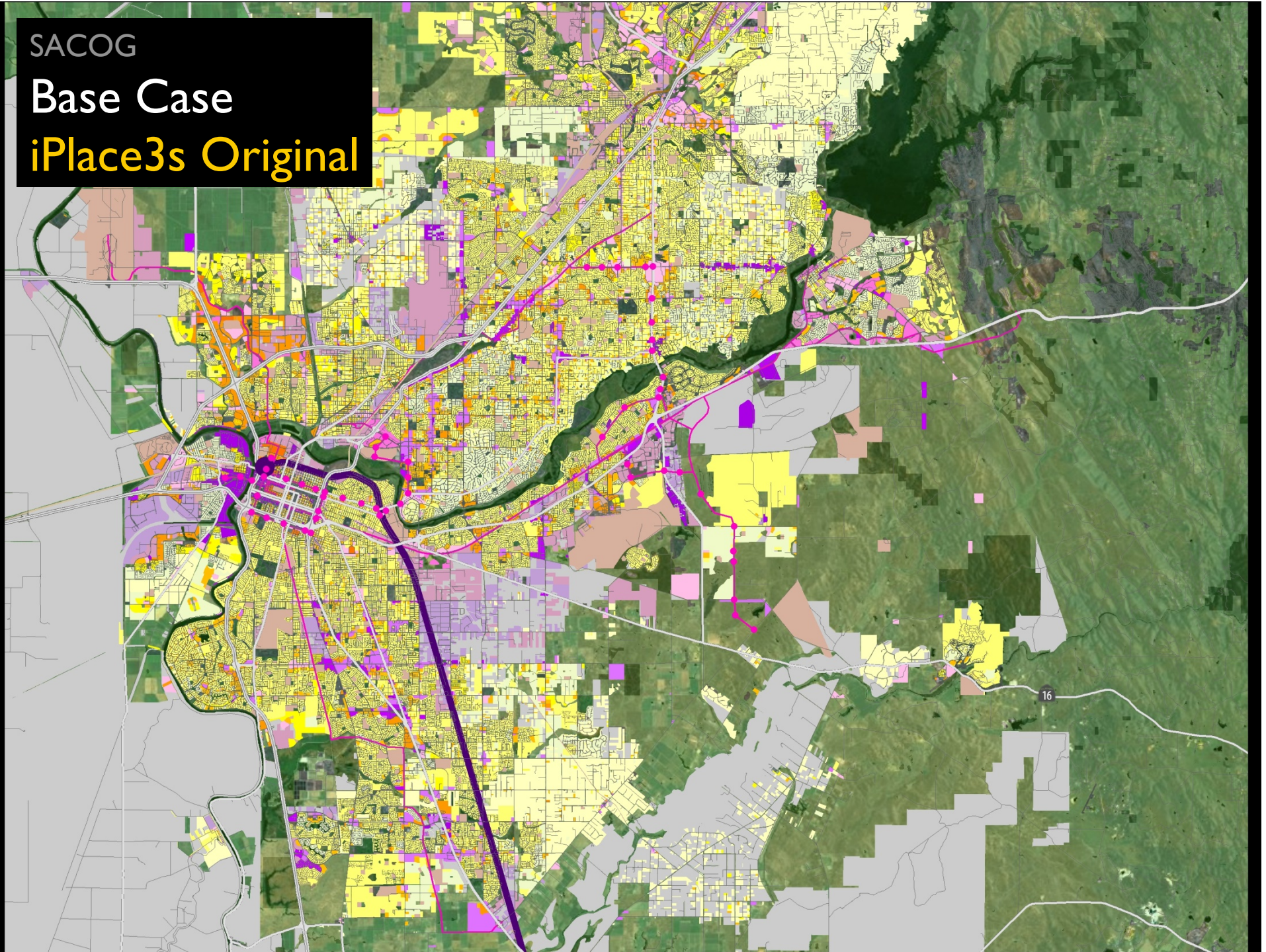
San Joaquin Valley Valley-wide Hybrid UrbanFootprint



SACOG

Base Case

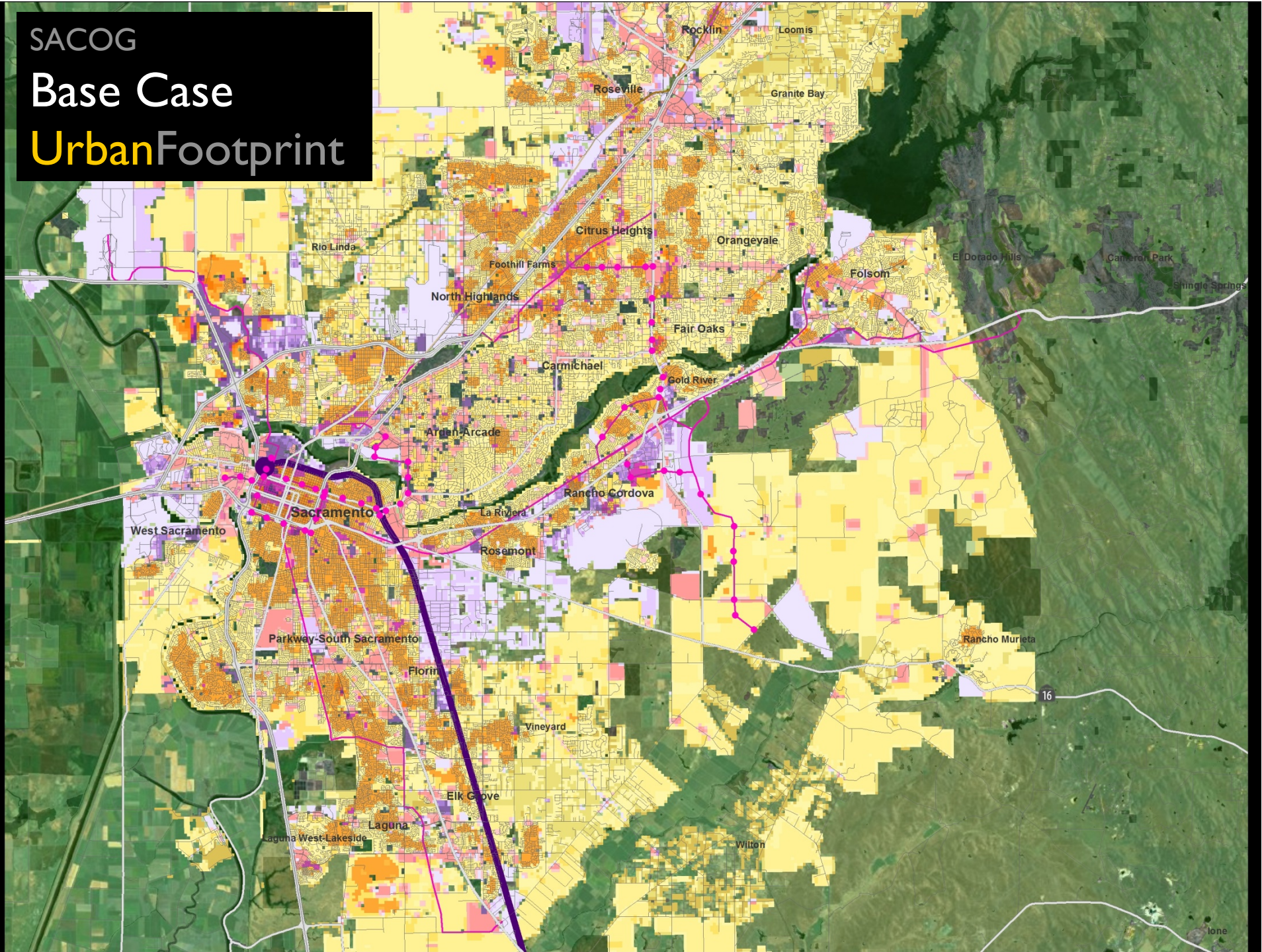
iPlace3s Original



SACOG

Base Case

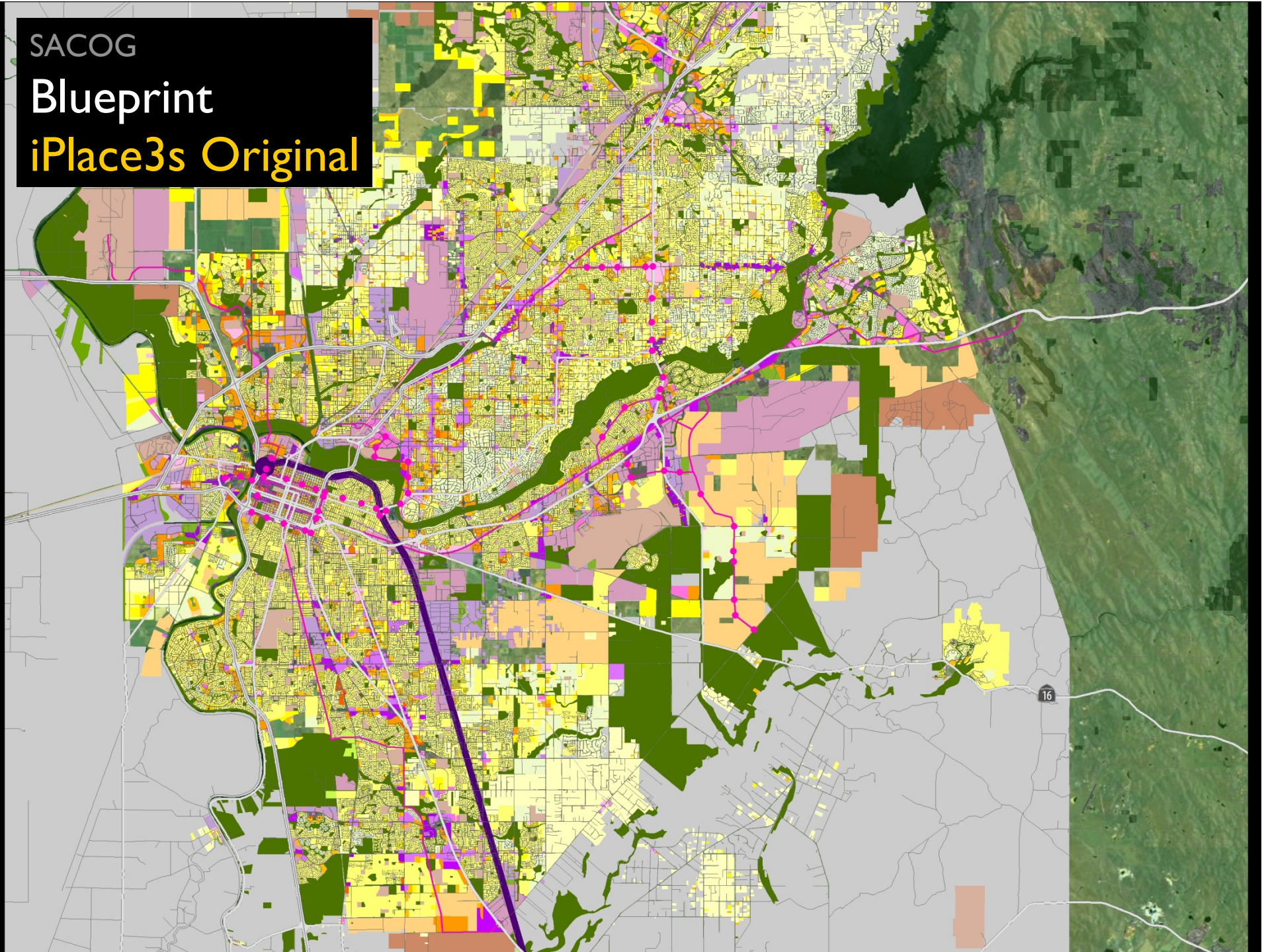
UrbanFootprint



SACOG

Blueprint

iPlace3s Original



SACOG

Blueprint

UrbanFootprint

