

Potential Travel Reductions with Managed Growth: A Sacramento Case Study

SACRAMENTO REGION

Blueprint
TRANSPORTATION / LAND USE STUDY

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SACOG region



Its members include the counties of **El Dorado, Placer, Sacramento, Sutter, Yolo and Yuba** as well as their constituent municipal governments.

Planning Process Overview



- Sacramento Blueprint Study used a 'regional conversation' framework
- Many participants, many objectives
- Planning principles aided the discussion
- Best available data and models
- Performance measures

Blueprint Overview



- Region will grow from 2 M to 3.7M population by 2050
- Base Case based on late 1990's development patterns
- Preferred Scenario developed over a 2+ year period, adopted December 2004
- City and county implementation has started

Study Parameters NOT Varied

- US EPA or Ca ARB policies
- Vehicle fleet
- Fuel economy
- Energy prices
- Goods movement
- Regional growth rate
- Economic structure

Overall Impact on Household Vehicle Miles Traveled

- 25% reduction from Base Case
- 17% reduction from 2000
- Major causes
 - Residential density
 - Mix residential and commercial uses
 - Improved transit system

Commercial Vehicle Travel

- Study was not focused on goods movement or regional economy
- 5.5% reduction in VMT

Seven principles of smart growth

Transportation
Choices



Compact
Development



Mixed
Land Uses



Housing
Choices



Use Existing
Assets



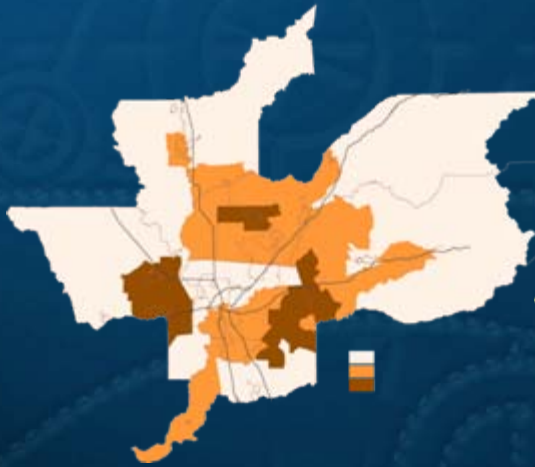
Conserve
Natural Resources



Quality
Design



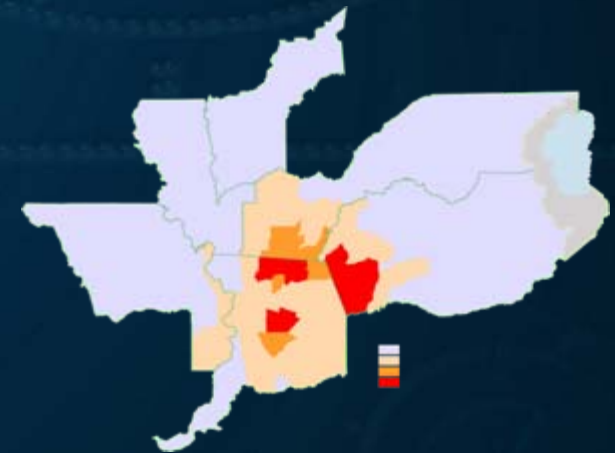
Develop Better Information and Tools for Decision Making



MEPLAN - Land Economics



PLACE³S - Land Use/Transportation Impacts



SACMET & 4Ds - Travel Demand & Impacts

Analytical Linkages for 2050 Scenarios



- Regional economic & demographic forecast
- Spatial economic model (MEPLAN) produced district level results for Base Case
- I-PLACE³S allocation to parcels, all scenarios
- Aggregate to TAZs for regional travel model
- 4Ds post-processor to modify vehicle trips, vehicle miles traveled, mode shares

Travel Demand Model

- 1280 TAZs, 15,000 one-way road links
- 4-Step model with auto ownership
 - Trip Generation, Trip Distribution, Mode Choice, Trip Assignment
- Personal and Commercial Trip Purposes
- Mode choice include walk & bike
- Pedestrian friendliness factor
- 4 time periods show congestion changes

4Ds Design, Diversity, Density, Destination

- Influence of land use on vehicle travel when used with a TAZ-based, 4-step travel model
- Early work by Cervero, Ewing, Walters in Atlanta
- Compares 2 alternatives which has positive and negative aspects

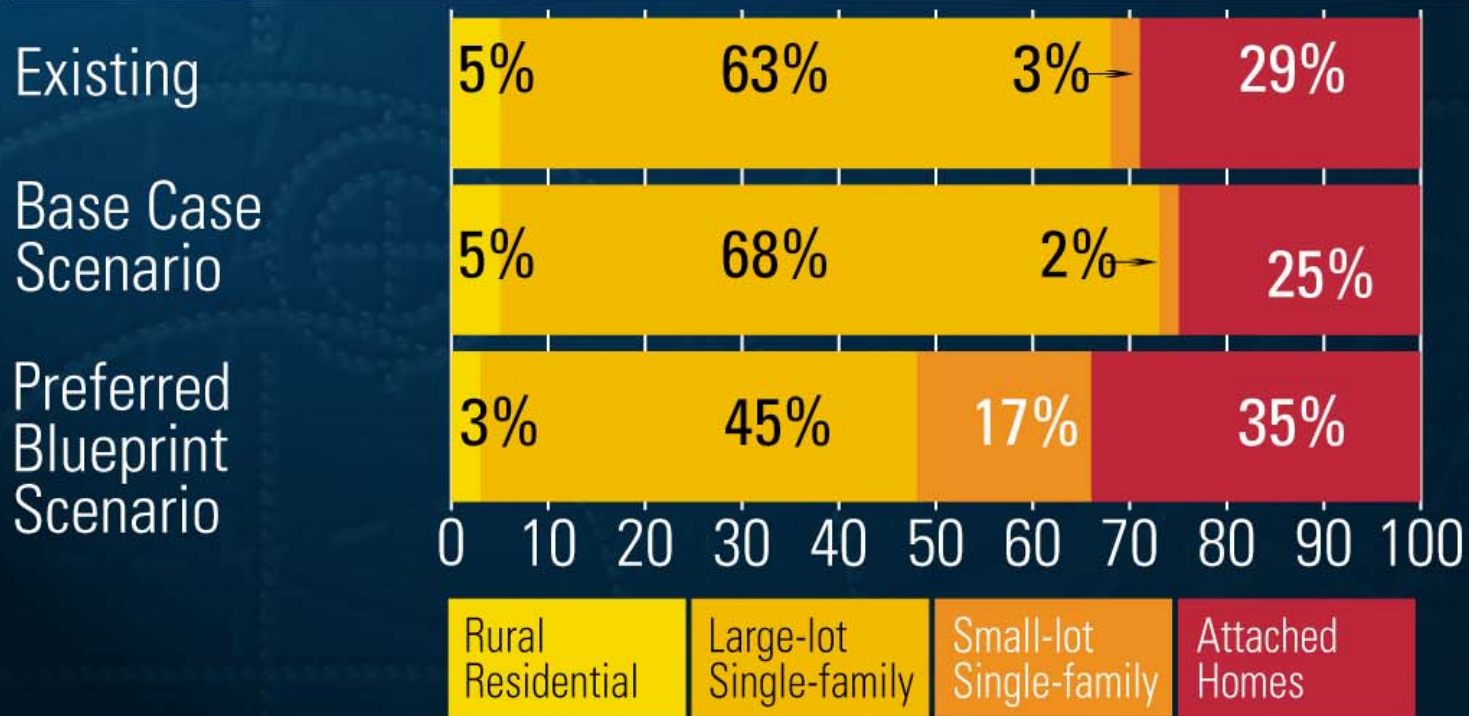
Vehicle Emissions

- EMFAC model (CA ARB)
- Default values for fleets, temperature
- Trips, Vehicle miles traveled, speed from travel demand model
- 2040 rates used because EMFAC does not have 2050 rates

Housing Choices

ALL HOUSING TYPES

Existing Plus Growth in 2050
(in percent)



Compact Development

ADDITIONAL URBANIZED LAND Through 2050 *(in square miles)*



Conserve Natural Resources

AGRICULTURAL LAND CONVERTED TO URBAN USES

(in square miles)

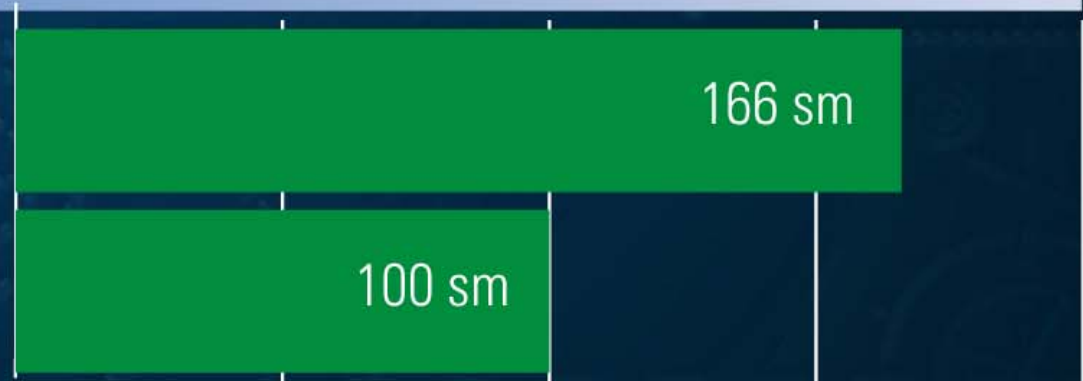
Base Case Scenario

166 sm

Draft Preferred Blueprint Scenario

100 sm

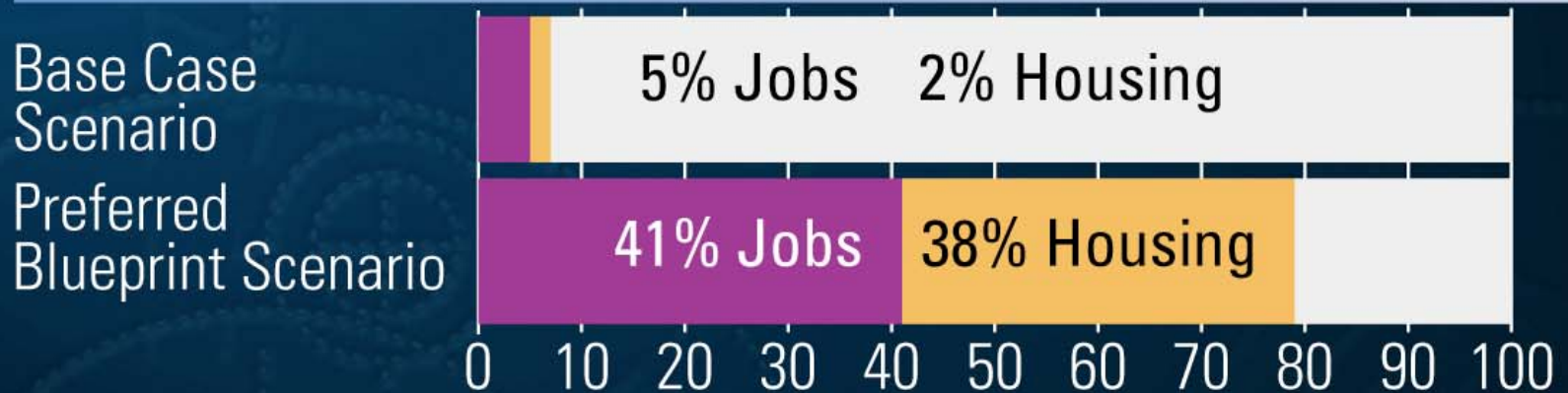
0 50 100 150 200



Use Existing Assets

GROWTH NEAR TRANSIT

Within walking distance of 15-minute or better transit service



Use Existing Assets

GROWTH THROUGH REINVESTMENT

in 2050
(in percent)

Base Case
Scenario

0% Housing 0% Jobs

Preferred
Blueprint
Scenario

13% Housing 10% Jobs



Mixed Land Uses

PEOPLE LIVING IN AREAS

With Good Mix of Jobs and Housing in 2050

(in percent)

Base Case Scenario



26%

Draft Preferred Blueprint Scenario



53%



Quality Design

PEOPLE LIVING IN AREAS

With Good or Excellent Pedestrian Features

(in percent)

Base Case Scenario



34%

Draft Preferred Blueprint Scenario

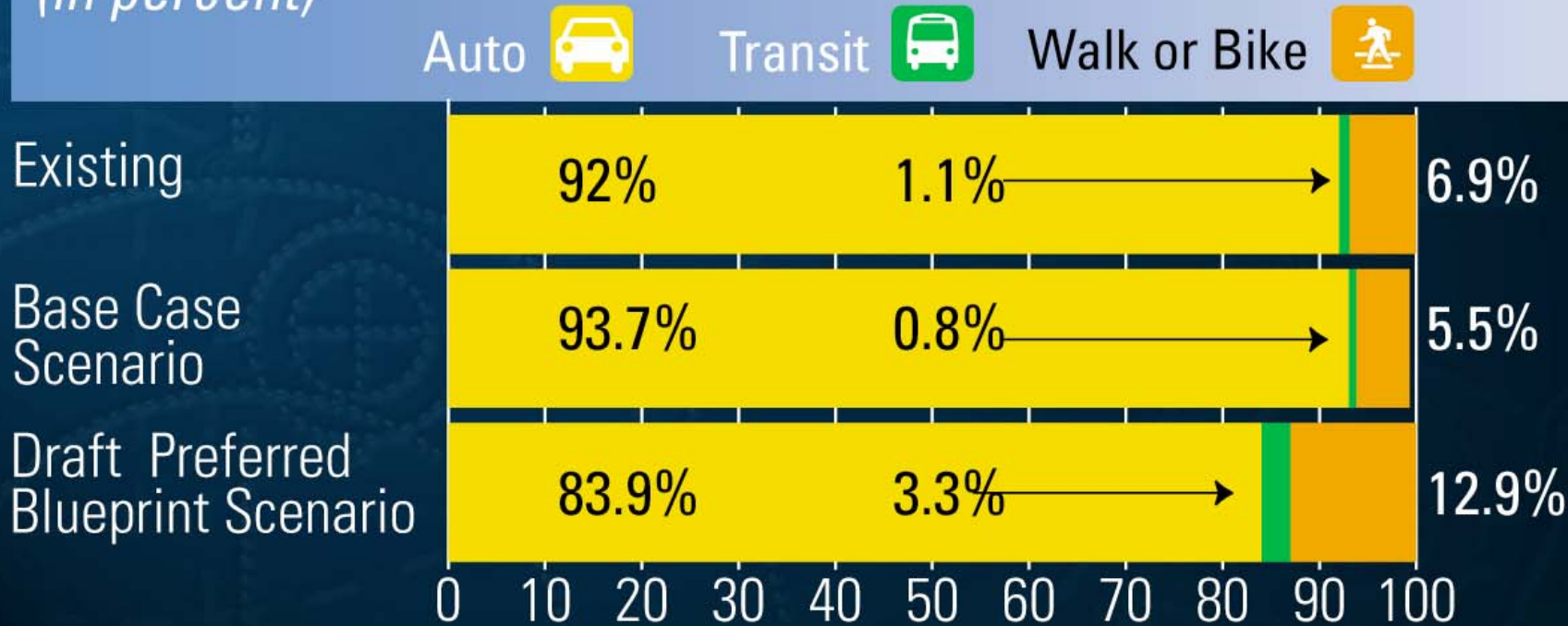


70%

0 10 20 30 40 50 60 70 80 90 100

Transportation Choices

TYPE OF TRIPS *(in percent)*



Transportation Choices

DAILY VEHICLE MINUTES OF TRAVEL *(per household per day)*



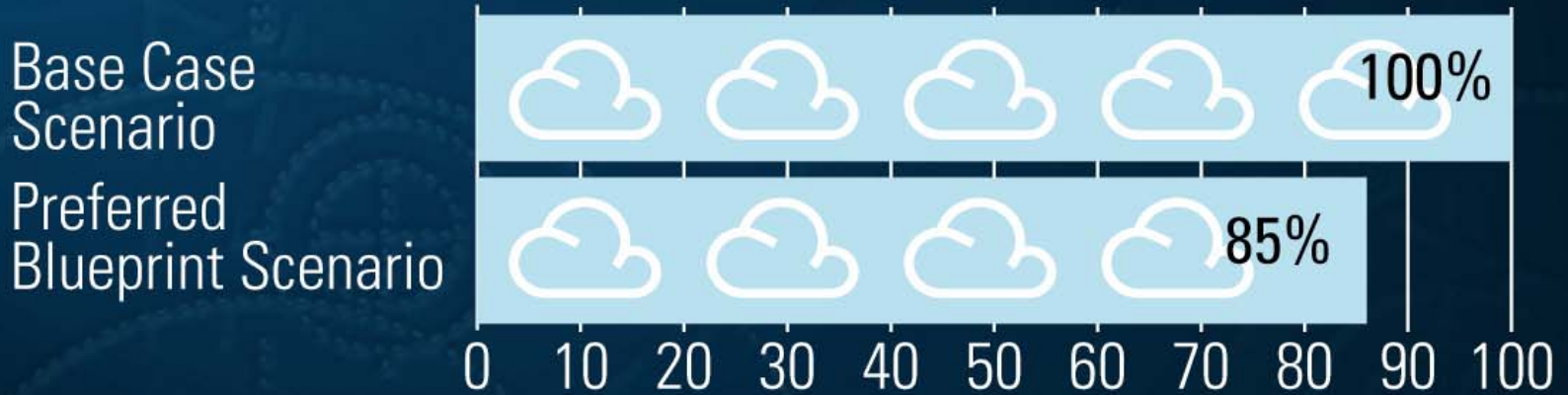
Transportation Choices

VEHICLE MILES TRAVELED *(per household per day)*



Lower Emissions

PER CAPITA CARBON DIOXIDE AND SMALL PARTICULATES EMISSIONS *(from vehicles 2050)*



Lessons Learned

- Regional Land Use Planning is Achievable
 - Sound planning principles
 - Good data and tools
 - Strong partnerships
 - Effective public outreach
- Multiple Objectives Create Better Support for Implementation



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