



SOUTHERN CALIFORNIA ASSOCIATION of GOVERNMENTS

Global Climate Change: Innovations in Planning and Modeling

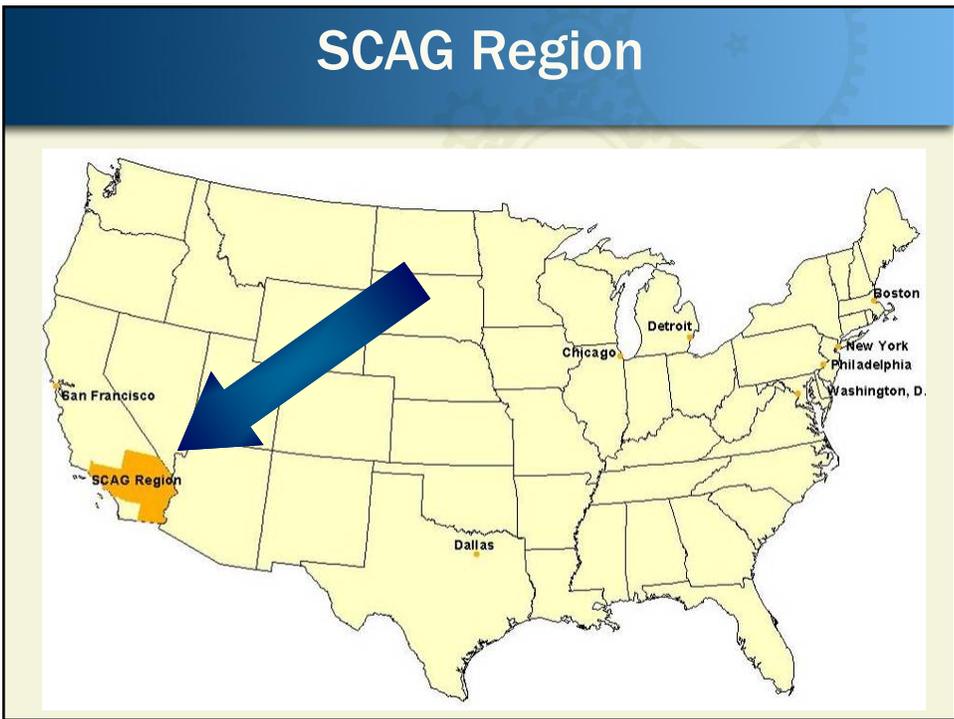
January 26, 2012



SOUTHERN CALIFORNIA
ASSOCIATION of GOVERNMENTS
www.scag.ca.gov

Presentation Outline

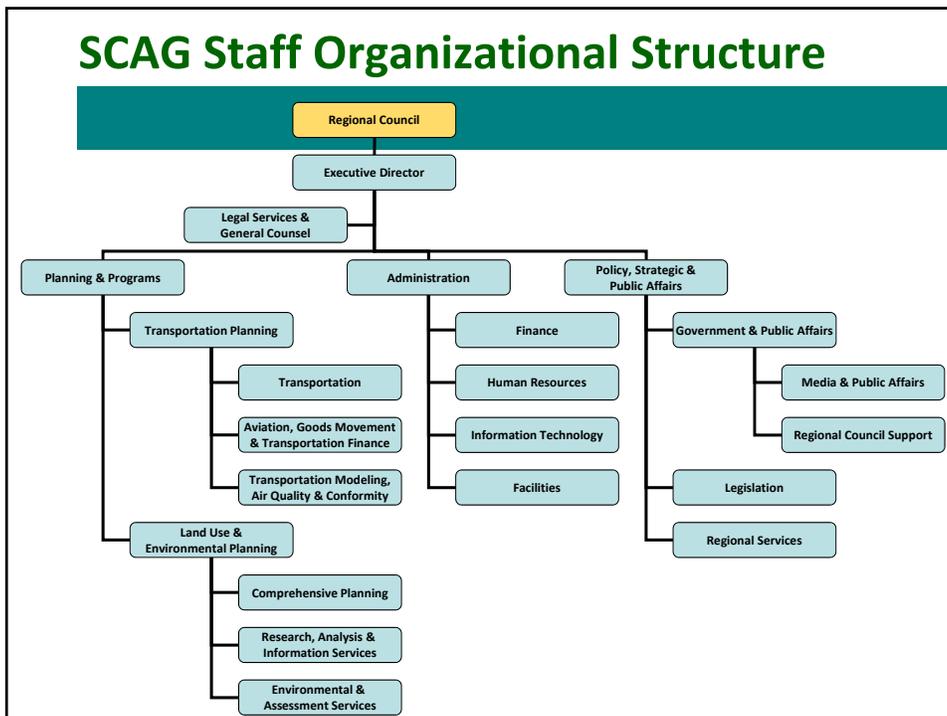
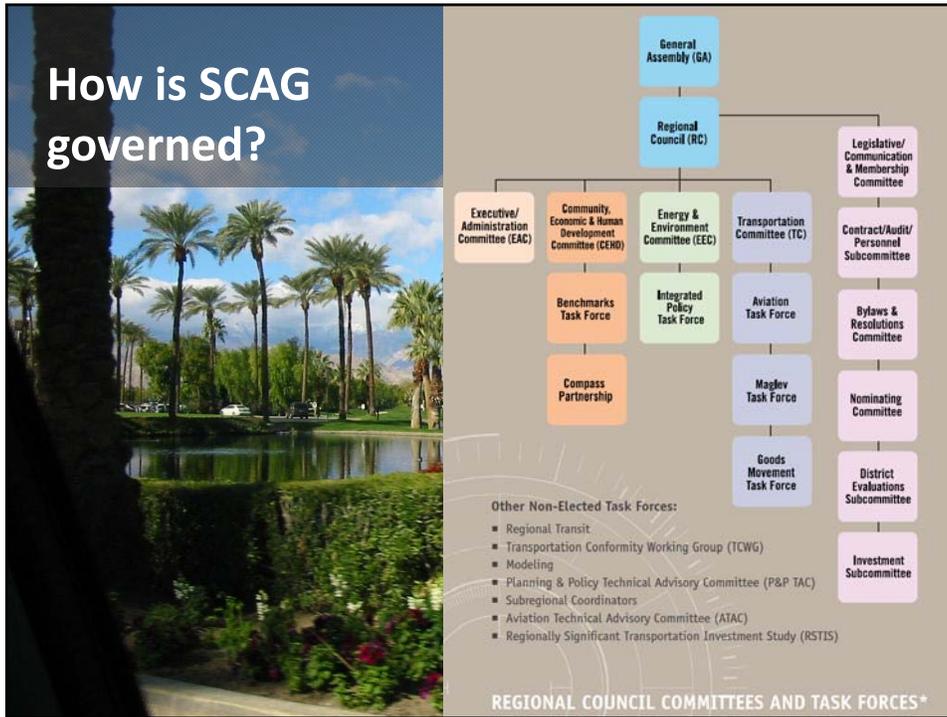
- A. Introduction & Background
- B. RTP/SCS Development
- C. Innovations in Planning and Modeling



SCAG Quick Facts

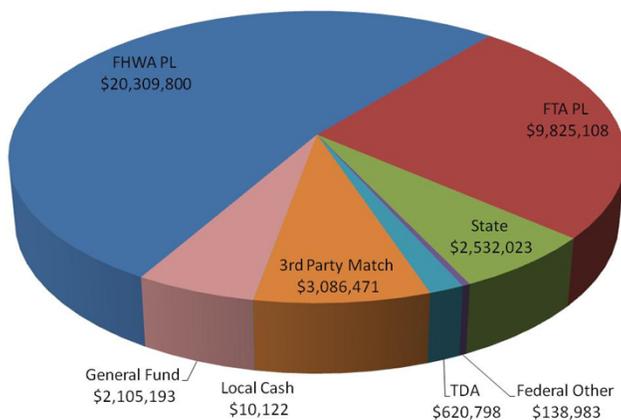
- The nation's largest Metropolitan Planning Organization (MPO) and Council of Governments (COG)
- Governed by a Regional Council of 84 local elected officials
- 6 counties, 191 cities and over 18 million residents
- 15th largest economy in the world. Nation's global gateway for trade

A map of the six counties in the SCAG Region: Ventura, Los Angeles, San Bernardino, Orange, Riverside, and Imperial.



SCAG Funding

Fiscal Year 2011 Budget of \$38,628,498



Planning for the Future

SCAG undertakes a variety of planning and policy initiatives to shape a livable and sustainable Southern California



Why do a Regional Transportation Plan/Sustainable Communities Strategy?

Federal Law Requires:

A 20 years-plus transportation plan that implements recommended improvements, operation, and maintenance of the system

Plan must balance expected revenues versus estimated costs (can include new reasonable revenue sources)

Meet Air Quality Requirements (addresses ozone, particulate matter, carbon monoxide, nitrogen dioxide)

California Law Requires:

Meet California SB 375 requirements (addressed greenhouse gas emission reductions)

SB 375 Background

- Enacted in 2008 to reduce greenhouse gas emissions from automobiles and light trucks through integrated transportation, land use, housing and environmental planning.
- Accomplished through a Sustainable Communities Strategy (SCS), a new required element of the 2012 Regional Transportation Plan (RTP) to meet GHG emission reduction targets

What SB 375 Means for the SCAG Region

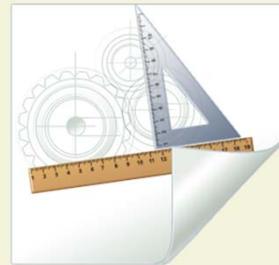
- Develop a Sustainable Communities Strategy to lay foundation for regional policy
- Encourage voluntary efforts by 2035 through incentive grants funded locally to replace state funds
- Encourage a new urban form for a sustainable Southern California through a variety of policies and strategies
- Seek a regional permanent funding source for voluntary implementation of SCS

Sustainable Communities Strategy Goals

- Meet and Exceed the Greenhouse Gas Emission Reduction Targets
- Create a Better and More Livable Place to Live
- Lower Costs to Households and Taxpayers
- Improve Public Health and the Environment
- Respond and Adapt to Changing Demographics and Housing Market
- Improve Access and Mobility

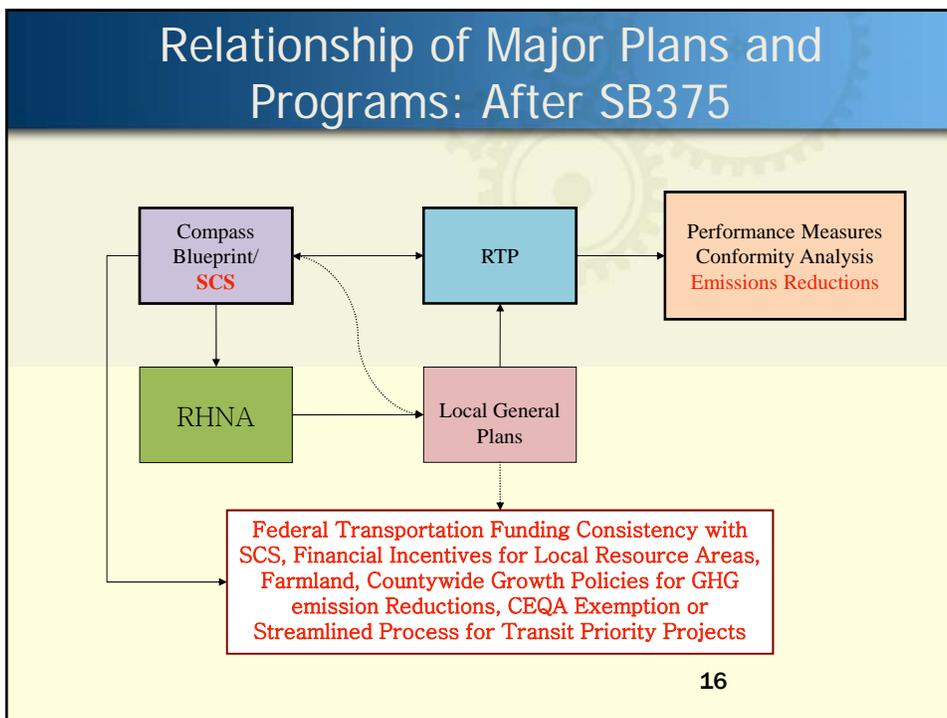
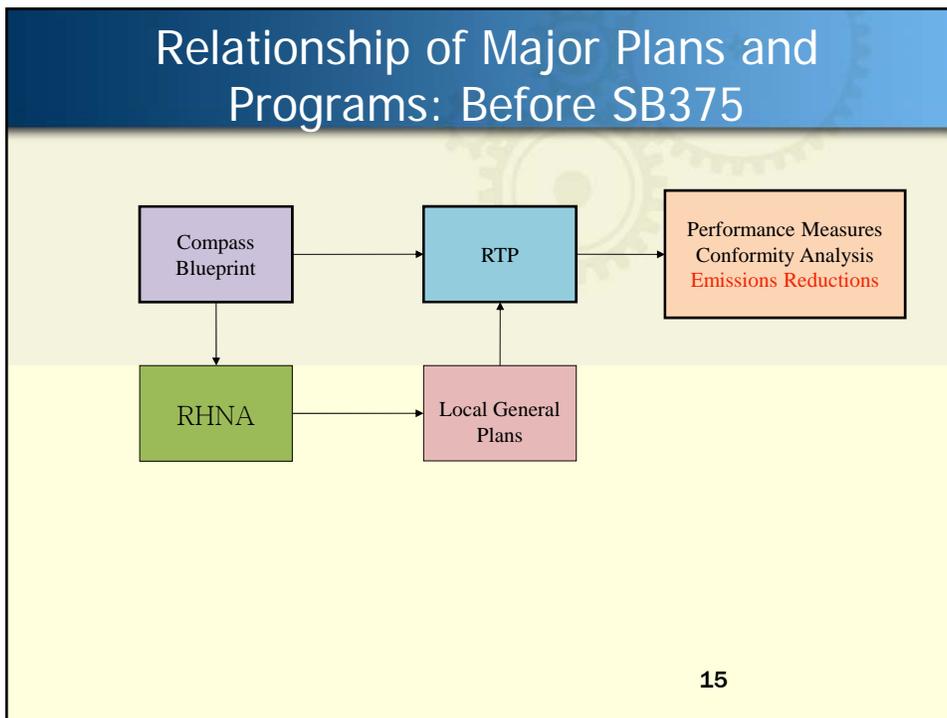
Innovations in Planning and Modeling

- Integration of Local, State, and Federal Plans and Programs
- Development and Application of Models and Tools



Integration of Local, State and Federal Plans and Programs





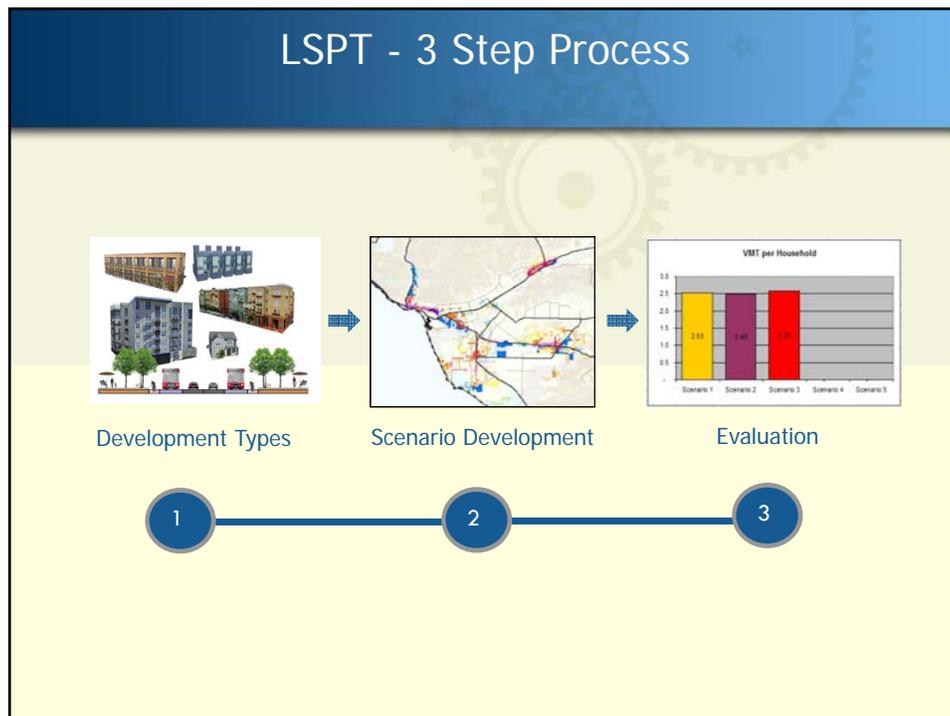
SCAG Model/Tool Development

- Sustainability Tool (**ST**)
- Production Exchange Consumption Allocation System (**PECAS**)
- Activity Based Model (**ABM**)
- Regional Economic Models, Inc. Model (**REMI Model**)
 - Climate & Economic Development Project (CEDP)

Local Sustainability Planning Tool (LSPT)



- A GIS-based sketch planning tool that local jurisdictions can use to analyze the impact of different land use scenarios on vehicle ownership, vehicle miles traveled (VMT), mode use, and their associated effects on GHG emissions.
- Requirements driven by SB 375 to assist in the development of SCS through a bottom-up process.



Comparison of Impacts on Per Household Vehicle Trips (VT) & Vehicle Miles Traveled (VMT): TAZ-Based Model vs. Parcel-Based Model

	2008		2020			
	TAZ-Based	TAZ-Based	% Difference from 2008 Model Result	Parcel-Based	% Difference from 2008 Model Result	% Difference from 2020 TAZ-Based Model Result
VT*	92.7%	92.5%	-0.3%	92.5%	-0.3%	0%
VMT	51.99	50.88	-2.1%	49.15	-6.7%	-4.6%

Note: * the probability of making a vehicle trip per household.
 Source: Hsi-Hwa Hu, Preliminary SCAG's Parcel-Based LSPT Result, October 30, 2011.

PECAS Model

- PECAS is an urban spatial economic input-output model that links with a space distribution (SD) that produces results at the grid cell and parcel levels
- Links aggregate economic interactions—production, consumptions, exchanges, freight movement, etc. to small area land uses and consumer trends
- SCAG's Draft PECAS Land Use Model has been completed
- Using the PECAS model, SCAG staff can conduct a sensitivity analysis on the growth distribution and land use impacts of various policy options
 - On example is an analysis on the impacts of an increase in the gasoline tax on average travel distance in 2020

Impacts of Gas Tax Increase on Average Travel Distance in 2020



Source: Sungbin Cho, Preliminary SCAG-PECAS Model Result on Gas Tax Increase and Average Distance, October 30, 2011.

	Average Distance (Mile)	Business As Usual Approach		Base Year Approach	
		Difference from Trend	% Difference from Trend	Difference from 2007	% Difference from 2007
2007	32.517				
Trend	33.257			0.740	2.3%
Gas Tax	32.776	-0.481	-1.5%	0.259	0.8%

Activity Based Model (ABM)

- The model has been successfully run through all of the sub-modules
- Consultants are analyzing, estimating, and calibrating the model with SCAG region travel survey data

SCAG Activity-Based Model (SimAGENT)

- Activity-based travel demand forecasting model = a simulation engine that recreates activities and travel for each person of the entire resident population in a region
- Outcome of SimAGENT = every person of the 17 million (or any size) population with a day timer attached to them + all the data used in a four step application
- Population synthesis -> add person and household attributes -> simulate schedules

REMI Model Economic Impact Analysis

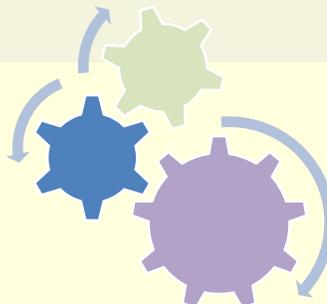
- SCAG uses a 70-sector REMI PI+ model for the six-county SCAG region
- The model provides information about industry production change, income, consumer spending, regional interactions between counties, etc.
- SCAG uses the REMI model to perform socio-economic impact analysis for 2012 RTP and SCS: an annual average of 167,000 jobs will be created

Economic Impact Analysis - AB 32 / SB 375

- Climate and Economic Development Project (CEDP)
- Understand and analyze socioeconomic impact of various green house gas reduction measures associated with AB 32 / SB 375
- Consultant team:
 - The Center For Climate Strategies (CCS)

Model Integration

- To analyze the impact of various policies, SCAG will integrate its PECAS Land Use Model, Activity-Based Model, REMI Model, and Local Sustainability Planning Tool



Southern California Association of Governments

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