TO: MTC Planning Committee, ABAG Administrative Committee

DATE: September 7, 2012

FR: Executive Director

RE: Briefing on Modeling Technologies for Plan Bay Area

In response to committee members' requests at the July 2012 meeting, MTC and ABAG staff will provide an overview of the agencies' modeling technologies, including the activity-based Travel Model One and the new UrbanSim land use model.

Over the past eighteen months, ABAG and MTC staff have been working closely with Professor Paul Waddell of the University of California to develop and refine a spatially-explicit economic and land use model known as UrbanSim. When combined with MTC's existing activity-based Travel Model One, UrbanSim will produce detailed results for Plan Bay Area Environmental Impact Report (EIR) alternatives currently under development this fall.

The UrbanSim model has been developed to predict economic behavior based on detailed market and regulatory information stored at a parcel level and subsequently simulate economic behavior of developers and development patterns. This modeling approach is analogous to Travel Model One's simulation of household travel behavior, allowing for the development of regional travel forecasts. UrbanSim and Travel Model One work in an integrated manner to help us examine the connections between transportation investments and land use patterns.

At your meeting, staff will brief you on how the models work, the sources of data used to run the models, and the manner in which the results will be presented for the draft EIR later this year.

Steve Heminger

SH: KK

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BayArea Plan

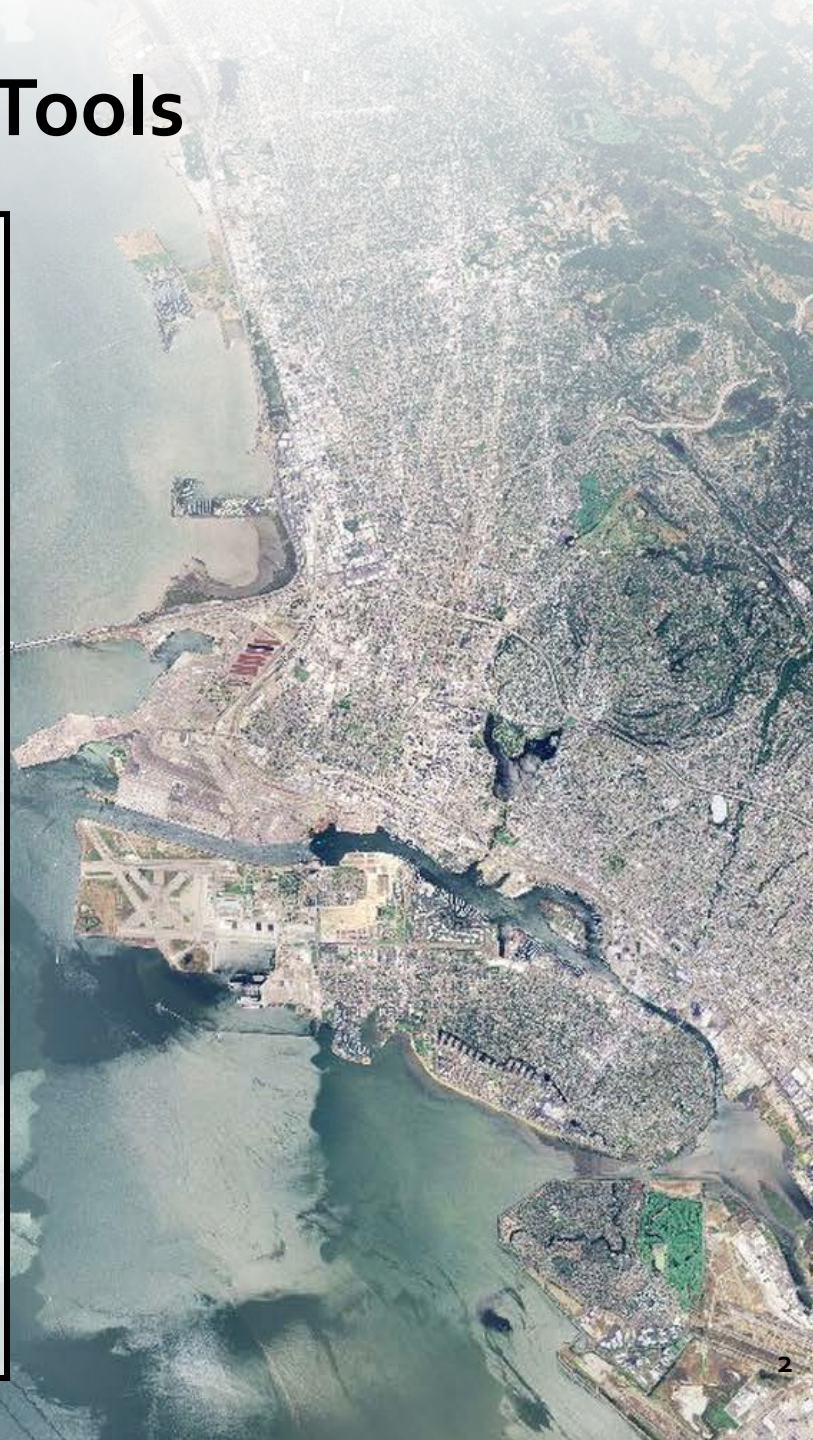
Land Use and Transportation Modeling Briefing

Joint MTC Planning/ABAG Administrative Committees

September 14, 2012

New Analytical Tools

- Starts with policies and projects as inputs into the models
- Examines potential consequences of policies/projects on outcomes such as land use patterns, land use mix, density, and travel patterns
- Allows interactive testing of how different policy strategies fare in achieving an outcome
- Assesses growth inducing and cumulative impacts – two key areas for SB 375 CEQA streamlining



UrbanSim

Integrated

Explicit land use policies → Analytical model of relevant behaviors → Detailed outcomes

Travel Model

Explicit transport projects & policies → Analytical model of relevant behaviors → Detailed outcomes

Largest MPOs should "build formal microeconomic land use models, as soon as is practical, so that they can be used to analyze and evaluate the effects of growth scenarios on economic welfare (utility), including land prices, home affordability, jobs-housing fit, the combined housing-transportation cost burden, and economic development (wages, jobs, exports)."

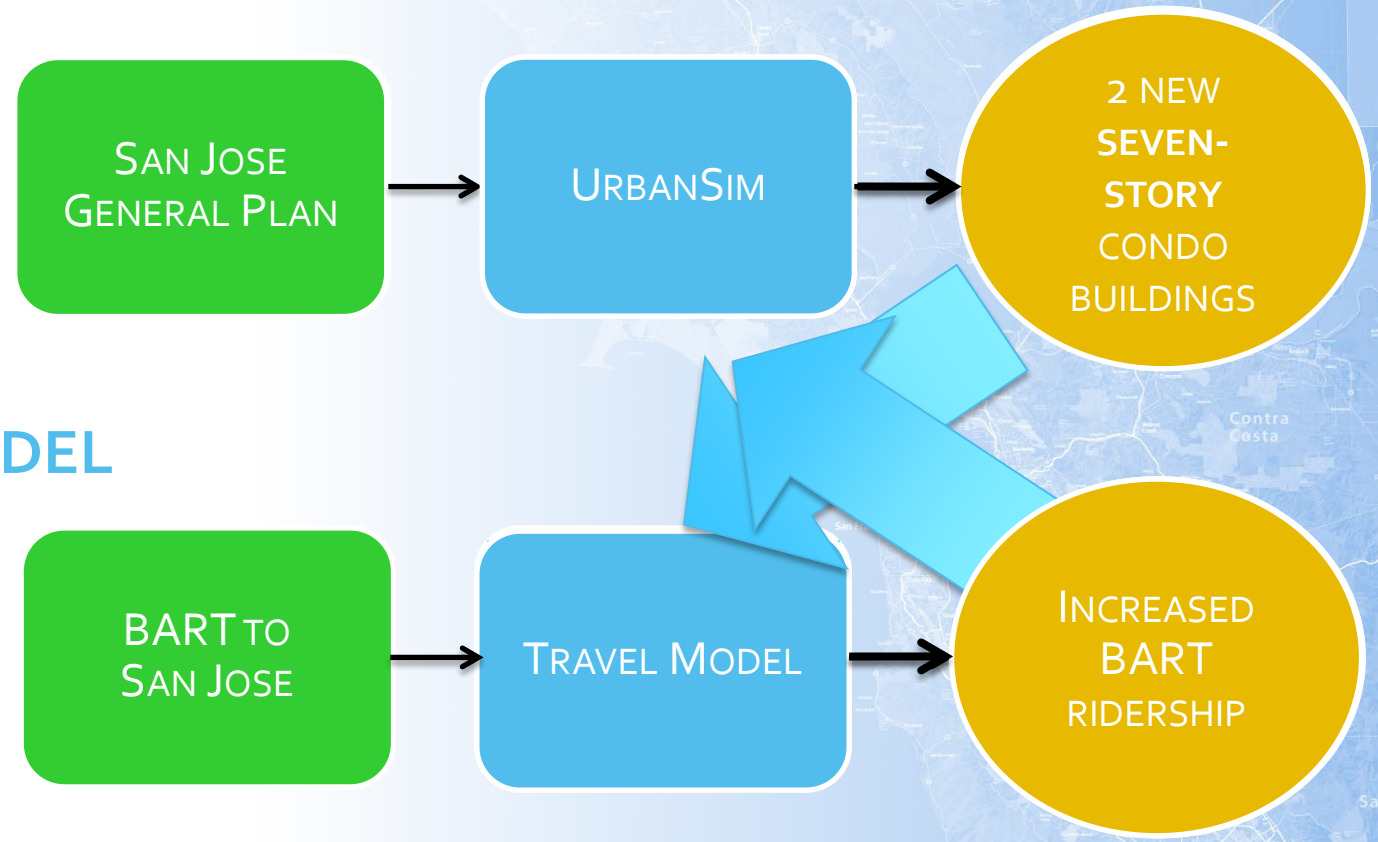
Source: *California Transportation Commission's 2010 RTP Guidelines*

The Power of Analytical Tools

URBANSIM

Integrated

TRAVEL MODEL



Travel Model One

- Utilized throughout the Plan Bay Area process
- Forecasts regional travel demand using a tour-based framework, rather than a trip-based framework
- Leverages extensive transportation data collected as part of decennial Bay Area Travel Survey & U.S. Census
- Activity-based models are being used by many MPOs nationwide, including Atlanta, Denver, and Sacramento

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UrbanSim

- Developed for use in analyzing land use in EIR alternatives
- Relies on an economic framework to forecast future land use pattern using a policy-based approach
- Based on residential and commercial development data, integrated with cities' General Plan frameworks
- UrbanSim has been used for land use analysis worldwide, including Seattle, Phoenix, Salt Lake City, Paris, and Zurich

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Questions and Answers