



# SUSTAINABILITY TOOL DEMONSTRATION

DESKTOP VERSION 1.0

2010 ESRI International User Conference, July 12-15 San Diego  
**Climate Change and Conservation Showcase**

# WHAT IS SUSTAINABILITY TOOL ?

- A 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
- A communication tool that enables local planners and decision makers to quantify and visualize the outcomes of their different development options and choices

# REQUIREMENTS DRIVEN BY SB375

- Regional GHG reduction targets for 2020 and 2035 to be set by CARB in 2010
- Primary emphasis on reducing vehicle travel through compact, transit-oriented land use
- MPOs must develop Sustainable Communities Strategy (SCS)
  - ✓ Becomes land use element of RTP
  - ✓ Forecasts a development pattern and transportation network capable of achieving the GHG targets
- Regional SCS a bottoms-up approach
  - ✓ Actively involve subregions and local jurisdictions
  - ✓ Workshops to include urban computer simulation modeling

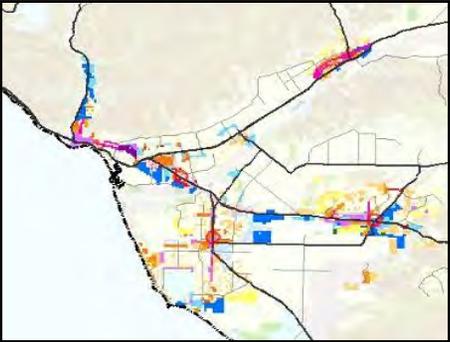
# CHARACTERISTICS OF SUSTAINABILITY TOOL

- ❑ ArcGIS based application integrated with Excel spreadsheet program
- ❑ “Instant feedback” on results of scenarios
- ❑ Sensitive to key land use strategies
- ❑ Geographically scalable
- ❑ Understandable to non-technical audiences
- ❑ Easy to customize

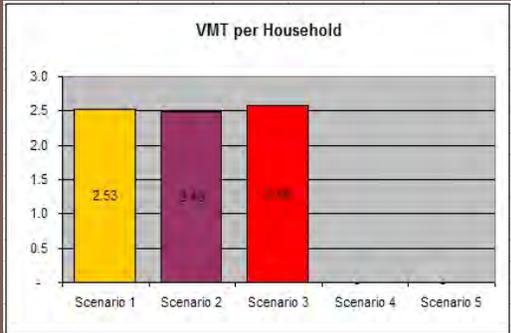
# SUSTAINABILITY TOOL PROCESS



Development Types



Scenario Development



Evaluation



# STEP 1 DEVELOPMENT TYPES

A Variety of Buildings, Streets and Amenities Create a “Place”



City Employment  
High Mix



Town Residential  
Low Mix



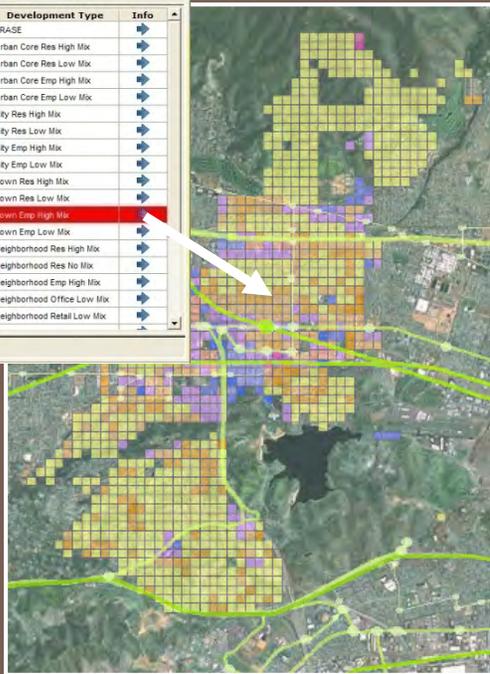
Suburban Residential  
No Mix

# STEP2 PAINT A SCENARIO

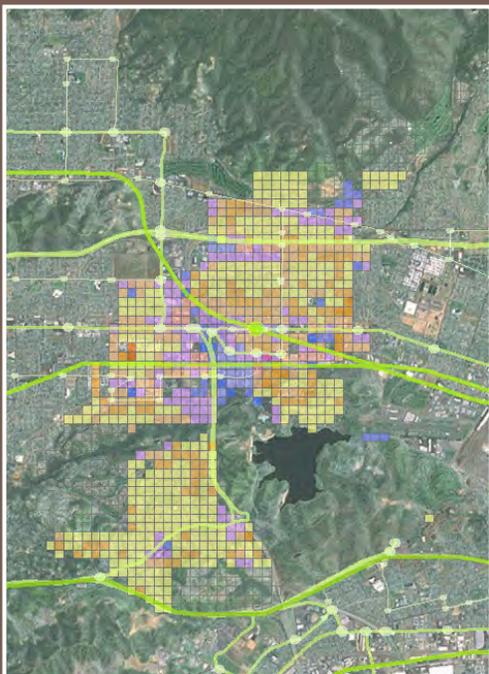
Design Scenarios by Painting Development Types on to the Landscape



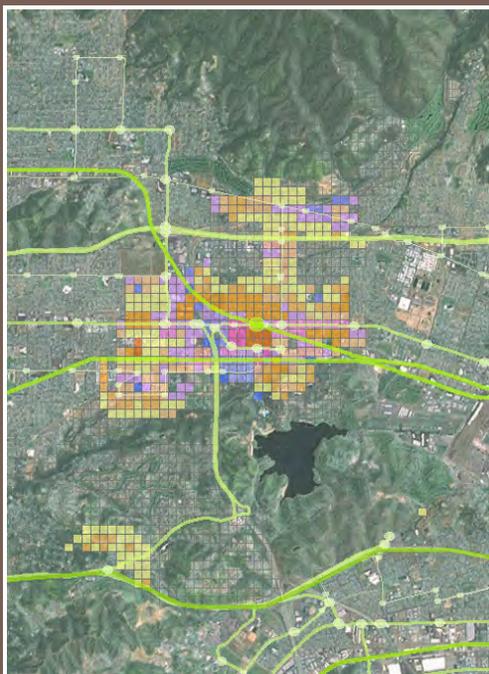
Symbol	Development Type	Info
	ERASE	
	Urban Core Res High Mix	
	Urban Core Res Low Mix	
	Urban Core Emp High Mix	
	Urban Core Emp Low Mix	
	City Res High Mix	
	City Res Low Mix	
	City Emp High Mix	
	City Emp Low Mix	
	Town Res High Mix	
	Town Res Low Mix	
	Town Emp High Mix	
	Town Emp Low Mix	
	Neighborhood Res High Mix	
	Neighborhood Res No Mix	
	Neighborhood Emp High Mix	
	Neighborhood Office Low Mix	
	Neighborhood Retail Low Mix	



Base Year



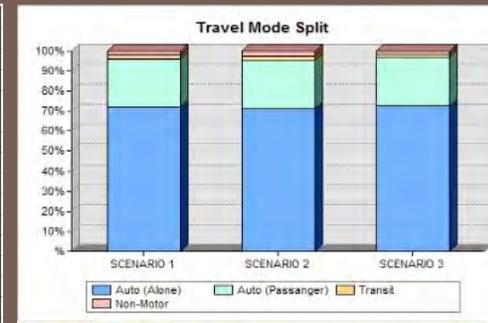
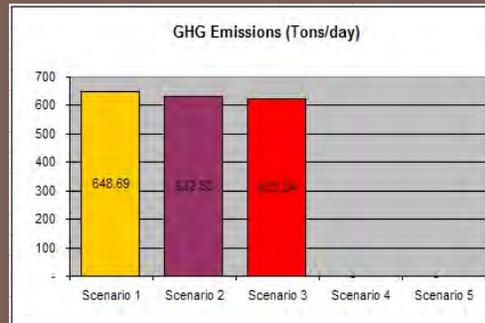
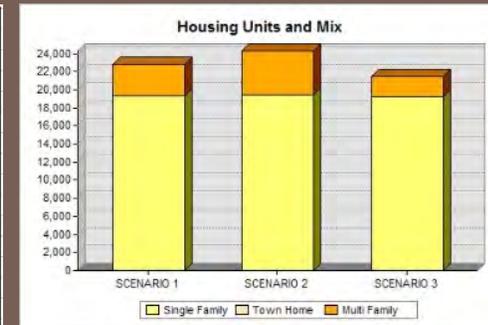
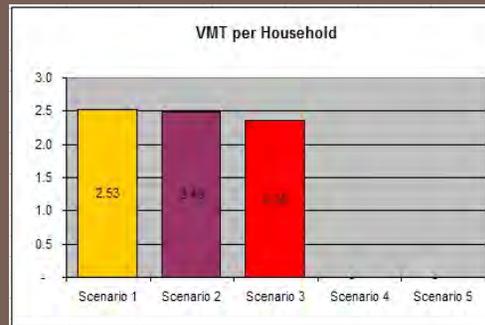
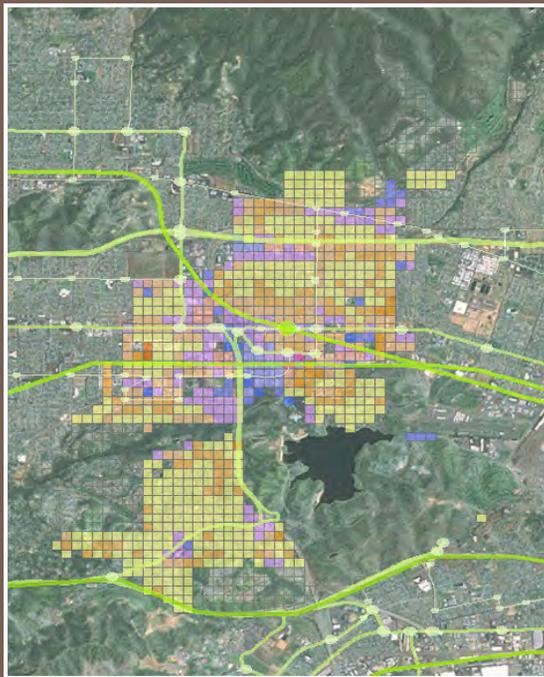
Compact Design

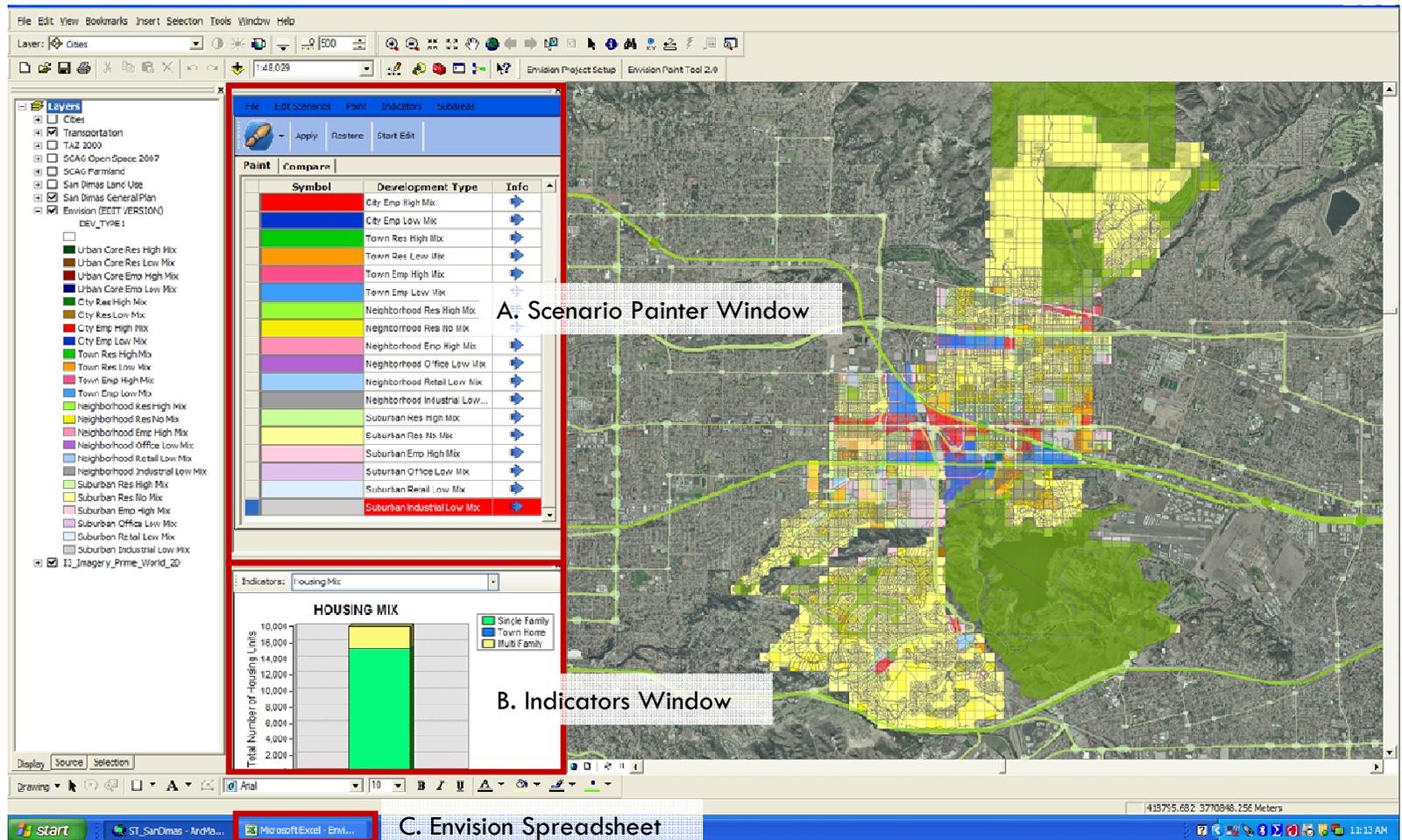


Transit Oriented

# STEP3 MONITOR INDICATORS ON-THE-FLY

Compare the Scenarios and Monitor the Impact of Land Use Decisions in Real Time

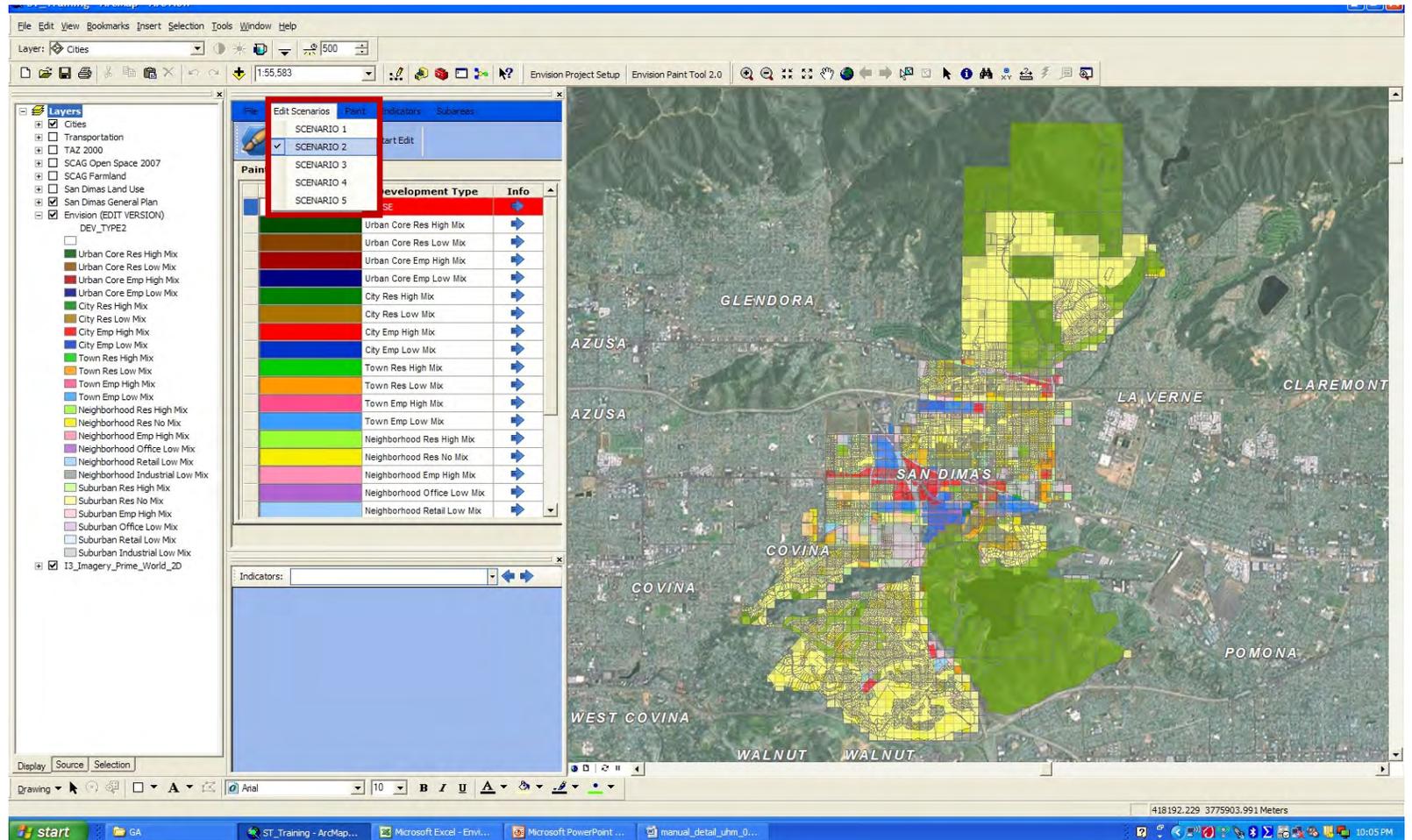




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## SUSTAINABILITY TOOL USER INTERFACE

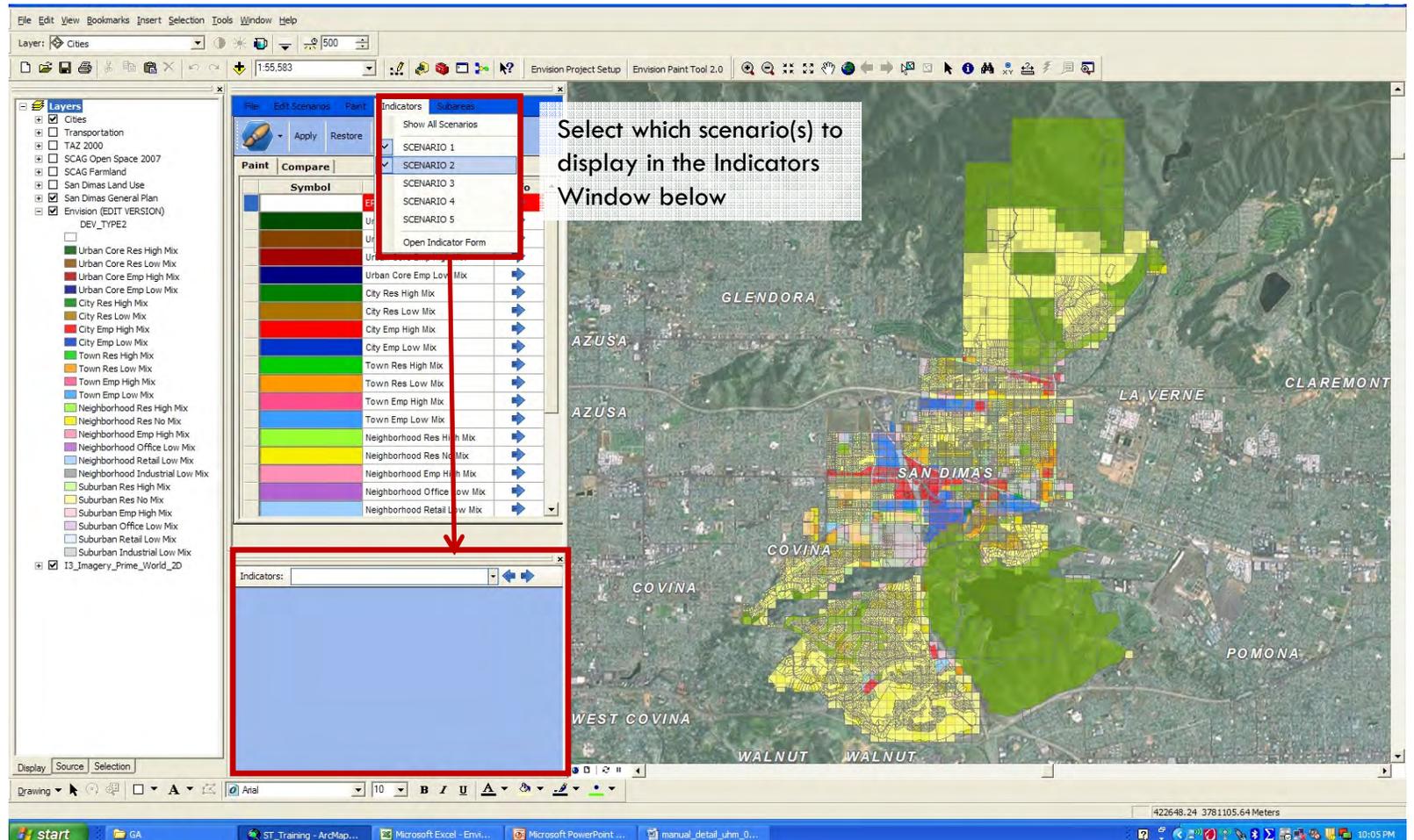
Installation of the Sustainability Tool adds:  
 A. Scenario Painter Window, B. Indicators Window, and C. Envision Spreadsheet



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## SELECT A SCENARIO TO VIEW/CREATE/EDIT

Users can work on up to 5 scenarios at a time



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## SELECT SCENARIO(S) TO ANALYZE

Users can view any combination of scenarios

The screenshot shows the Envision software interface. The main map displays a grid of development types over a geographic area including San Dimas, Glendora, Azusa, La Verne, Claremont, Covina, West Covina, and Walnut. A callout box with a white background and black text says "Browse to select an indicator". Below this callout, a red-bordered window titled "Indicators" is open, showing a dropdown menu with "Greenhouse Gas Emissions (Tons)" selected. Below the dropdown is a bar chart titled "Greenhouse Gas Emissions (tons/day)" with a y-axis from 0 to 600. Two bars are shown, labeled "SCENARIO 1" and "SCENARIO 2", both reaching approximately 550 tons/day.

Symbol	Development Type	Info
[Red]	ERASE	[Info]
[Green]	Urban Core Res High Mix	[Info]
[Brown]	Urban Core Res Low Mix	[Info]
[Dark Blue]	Urban Core Emp High Mix	[Info]
[Light Blue]	Urban Core Emp Low Mix	[Info]
[Dark Green]	City Res High Mix	[Info]
[Light Green]	City Res Low Mix	[Info]
[Red]	City Emp High Mix	[Info]
[Blue]	City Emp Low Mix	[Info]
[Light Green]	Town Res High Mix	[Info]
[Orange]	Town Res Low Mix	[Info]
[Light Blue]	Town Emp High Mix	[Info]
[Light Green]	Town Emp Low Mix	[Info]
[Yellow]	Neighborhood Res High Mix	[Info]
[Light Blue]	Neighborhood Res No Mix	[Info]
[Light Green]	Neighborhood Emp High Mix	[Info]
[Light Blue]	Neighborhood Office Low Mix	[Info]
[Light Green]	Neighborhood Retail Low Mix	[Info]

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## SELECT AN INDICATOR

Available indicators include:

Total Acre, Housing Mix, Employment Mix, Job Housing Balance, Vehicle Ownership, VMT, Travel Mode, and Greenhouse Gas Emissions

Turn on/off GIS layers to use as reference

Symbol	Development Type	Info
[Red box]	ERASE	[Info icon]
[Green box]	Urban Core Res High Mix	[Info icon]
[Brown box]	Urban Core Res Low Mix	[Info icon]
[Dark Red box]	Urban Core Emp High Mix	[Info icon]
[Blue box]	Urban Core Emp Low Mix	[Info icon]
[Light Green box]	City Res High Mix	[Info icon]
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[Light Green box]	Town Res High Mix	[Info icon]
[Orange box]	Town Res Low Mix	[Info icon]
[Pink box]	Town Emp High Mix	[Info icon]
[Light Green box]	Town Emp Low Mix	[Info icon]
[Light Green box]	Neighborhood Res High Mix	[Info icon]
[Yellow box]	Neighborhood Res No Mix	[Info icon]
[Pink box]	Neighborhood Emp High Mix	[Info icon]
[Purple box]	Neighborhood Office Low Mix	[Info icon]
[Light Blue box]	Neighborhood Retail Low Mix	[Info icon]

Indicators: Vehicle Ownership per Housing Unit

Vehicle Ownership per Housing Unit

Scenario	Vehicle Ownership per Housing Unit
SCENARIO 1	~2.0
SCENARIO 2	~2.0

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## USE REFERENCE LAYERS

Users can turn on/off additional GIS layers to use as reference when they edit scenarios



ERROR: stackunderflow  
OFFENDING COMMAND: ~

STACK: