

# Federal Highway Administration (FHWA)

## *Scenario Planning Tools and Techniques for Effective Analysis and Assessment*

November 5, 2013  
1:00 – 2:30 pm ET



# Webinar Agenda

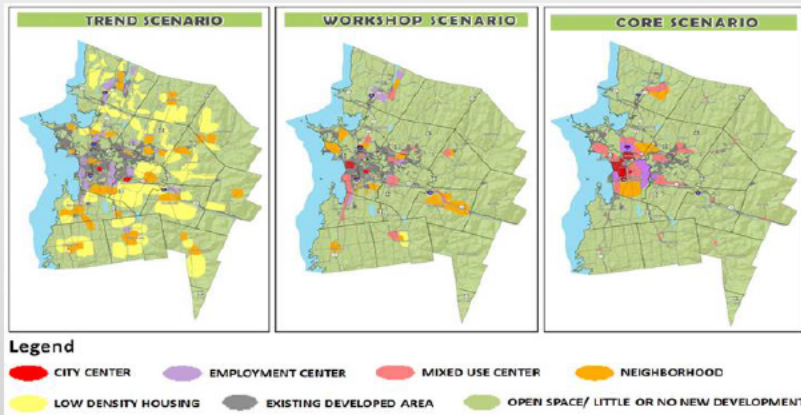
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- Overview of Scenario Planning
  - Key Benefits of Scenario Planning
  - MAP-21 Recommended Components
  - FHWA / FTA Scenario Planning Program
- Frameworks for Tools / Emerging Topics
  - **Ken Snyder**, PlaceMatters
- Peer Presentations
  - **Carl Miller**, Community Planning Association of Southwest Idaho
  - **Erin Aleman**, Chicago Metropolitan Agency for Planning
  - **Seth Scott**, Fresno Council of Governments
- Q&As / Discussion



# What is Scenario Planning?

- Scenario planning is a process that **identifies, explores, and assesses future alternatives** for transportation, growth, land use, economic development, and other issues.
- Scenario planning **proactively engages stakeholders and the public.**



# What are Some Benefits of Scenario Planning?

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- Scenario planning can support:
  - More strategic transportation and land use decision-making.
  - Active stakeholder involvement.
  - Dialogue among transportation and land use professionals, and members of the community.
  - Consensus building.



# MAP-21 Language

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- (4) *OPTIONAL SCENARIO DEVELOPMENT.* —

*(A) IN GENERAL.—A metropolitan planning organization may, while fitting the needs and complexity of its community, voluntarily elect to develop multiple scenarios for consideration as part of the development of the metropolitan transportation plan, in accordance with subparagraph (B).*

*- Subtitle B—Performance Management  
SEC. 1201. METROPOLITAN  
TRANSPORTATION PLANNING*



# MAP-21 Performance Management

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- *SEC. 1201. METROPOLITAN TRANSPORTATION PLANNING*

*Subparagraph B*

Recommended Components:

- Regional investment strategies;
- Population and employment;
- Maintains or improves baseline conditions for the performance measures identified in subsection (h)(2);
- Revenue constrained scenarios; and
- Estimated costs and potential revenues available to support each scenario.



# How Does FHWA Support Scenario Planning?

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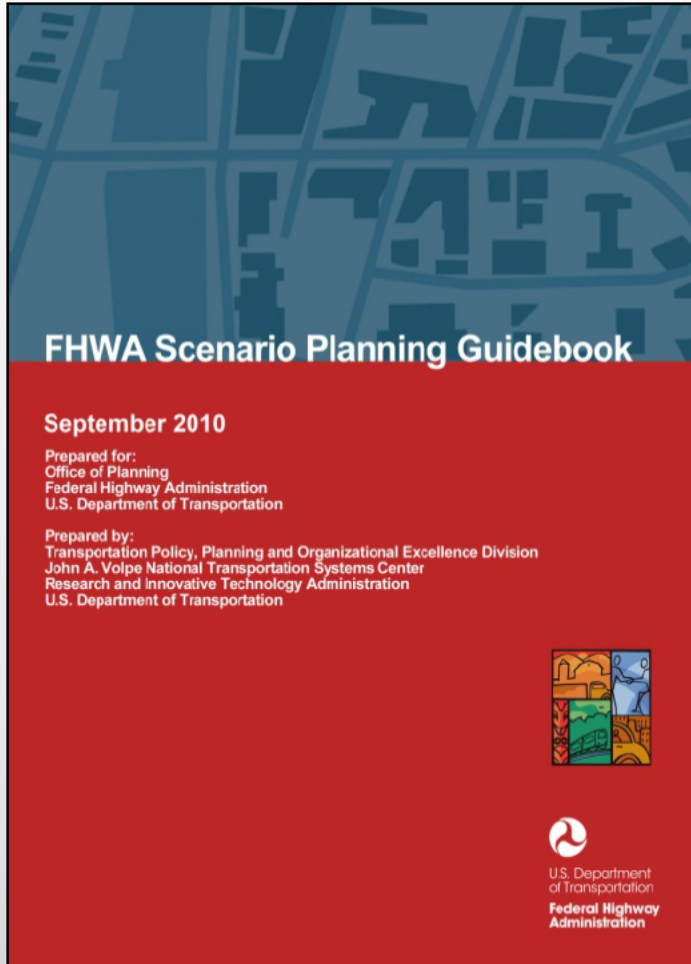
- **FHWA / FTA Scenario Planning Program:**
  - Sponsors scenario planning workshops and webinars.
  - Provides guidance and assistance to agencies using scenario planning.
  - Collects and shares innovative practices and lessons learned through case studies and research.
  - Provides information on tools and resources.

**FHWA Scenario Planning Program Website:**

[www.fhwa.dot.gov/Planning/scenplan/index.htm](http://www.fhwa.dot.gov/Planning/scenplan/index.htm)



# Scenario Planning Guidebook



|  |          |  |  |   |
|--|----------|--|--|---|
| Stakeholder Involvement<br>Identify, Prepare, and Refine Analysis Tools<br>Data Collection | <b>1</b> | How should we get started?             | <b>Scope the effort and engage partners.</b><br><b>Considerations:</b> Process goals, objectives, budget, and stakeholder roles and responsibilities.  | <b>Output:</b> Work plan.   |
|  | <b>2</b> | Where are we now?                      | <b>Establish baseline analysis; identify factors and trends that affect the state, region, community, or study area.</b><br><b>Considerations:</b> Transportation and land supply, suitability, and demand, state, regional, community, or study area trends.  | <b>Outputs:</b> Transportation systems inventory; land suitability analysis; evaluation of historic trends.   |
|  | <b>3</b> | Who are we and where do we want to go? | <b>Establish future goals and aspirations based on values of the state, region, community, or study area.</b><br><b>Considerations:</b> Key values and priorities for the state, community, region, or study area.   | <b>Outputs:</b> Set of working principles that document broad state, community, region, or study area goals and preferences.  |
|  | <b>4</b> | What could the future look like?       | <b>Create baseline and alternative scenarios.</b><br><b>Considerations:</b> Scenario types, analysis tools, travel demand model.   | <b>Outputs:</b> Identification of appropriate scenario analysis tool or refinement of travel demand model; baseline and alternative scenarios.  |
|  | <b>5</b> | What impacts will scenarios have?      | <b>Assess scenario impacts, influences, and effects.</b><br><b>Considerations:</b> Indicators to help evaluate scenario performance.   | <b>Outputs:</b> Refined or calibrated analysis tool(s) or model(s) if necessary. List of indicators to compare scenario outcomes. Qualitative or quantitative assessment of scenario impacts. |
|  | <b>6</b> | How will we reach our desired future?  | <b>Craft the comprehensive vision; identify strategic actions and performance measures.</b><br><b>Considerations:</b> Stakeholder feedback on scenarios and the future blueprint, potential actions, investments, or policies to lead the state, community, region, or study area toward the comprehensive vision. | <b>Outputs:</b> Comprehensive vision action steps; performance measures to assess progress; plan for monitoring progress.   |





**1** How should we get started?

**Scope the effort and engage partners.**  
**Considerations:** Process goals, objectives, budget, and stakeholder roles and responsibilities.

**Output:** Work plan.

**2** Where are we now?

**Establish baseline analysis; identify factors and trends that affect the state, region, community, or study area.**  
**Considerations:** Transportation and land supply, suitability, and demand; state, regional, community, or study area trends.

**Outputs:** Transportation systems inventory; land suitability analysis; evaluation of historic trends.

**3** Who are we and where do we want to go?

**Establish future goals and aspirations based on values of the state, region, community, or study area.**  
**Considerations:** Key values and priorities for the state, community, region, or study area.

**Outputs:** Set of working principles that document broad state, community, region, or study area goals and preferences.

**4** What could the future look like?

**Create baseline and alternative scenarios.**  
**Considerations:** Scenario types, analysis tools, travel demand model.

**Outputs:** Identification of appropriate scenario analysis tool or refinement of travel demand model; baseline and alternative scenarios.

**5** What impacts will scenarios have?

**Assess scenario impacts, influences, and effects.**  
**Considerations:** Indicators to help evaluate scenario performance.

**Outputs:** Refined or calibrated analysis tool(s) or model(s) if necessary. List of indicators to compare scenario outcomes. Qualitative or quantitative assessment of scenario impacts.

**6** How will we reach our desired future?

**Craft the comprehensive vision; identify strategic actions and performance measures.**  
**Considerations:** Stakeholder feedback on scenarios and the future blueprint; potential actions, investments, or policies to lead the state, community, region, or study area toward the comprehensive vision

**Outputs:** Comprehensive vision; action steps; performance measures to assess progress; plan for monitoring progress.



# Decision Making Frameworks and Trends

*Ken Snyder, CEO*



# PlaceMatters

Supports the creation and maintenance of vibrant, sustainable communities by improving decision-making

Good decisions are:

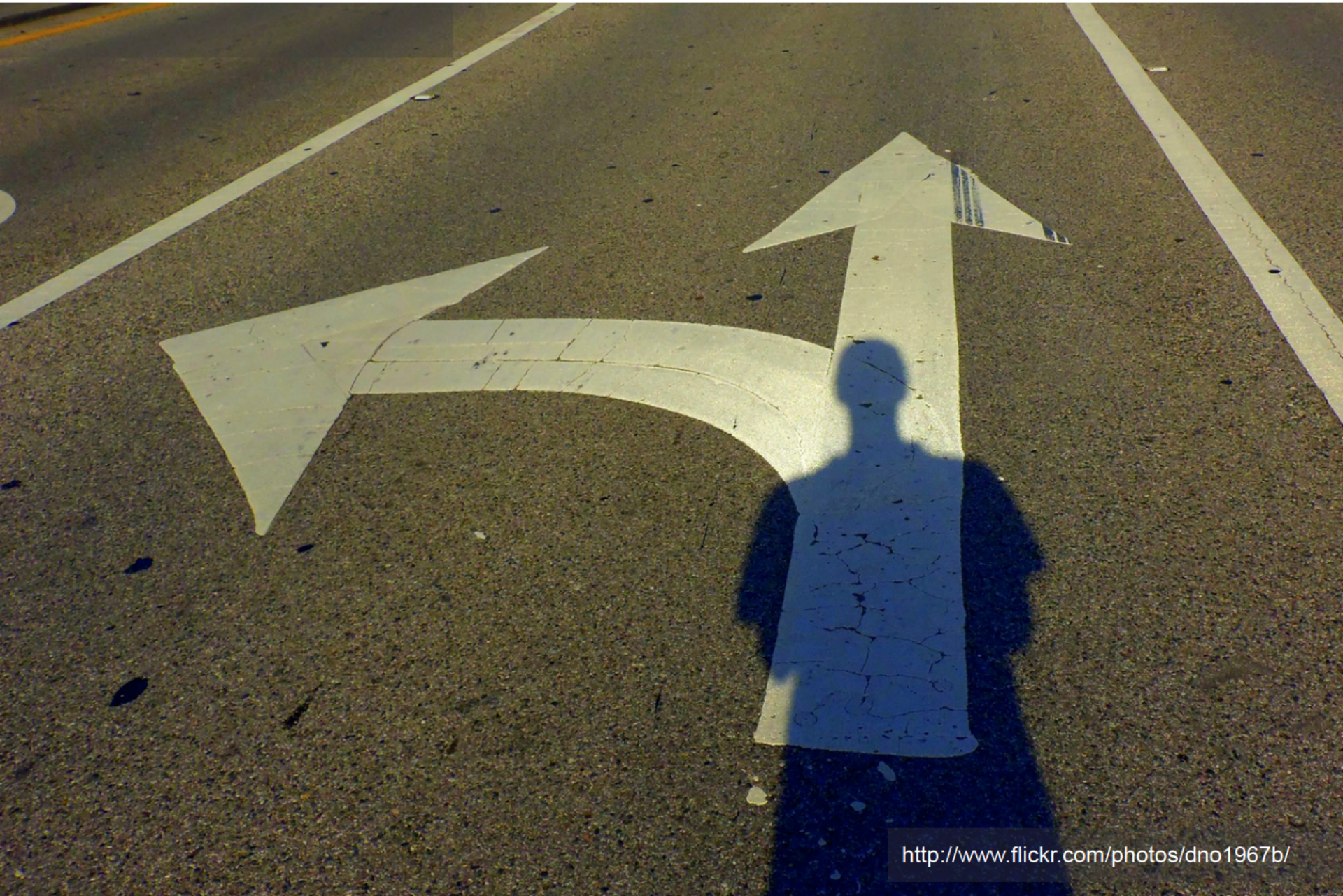
- Equitable
- Informed
- Transparent
- Lasting



This is not a decision maker



# Lasting Decisions Need People



# Evolution of Regional Decision Making

## Decision Making Analytics

- Travel demand
- Land consumption
- Housing choice
- Building energy
- Water use
- Air pollution (incl CO2)
- Household costs
- Government fiscal impacts
- Public health
- Social equity
- Agricultural economics
- Land conservation

# Evolution of Regional Decision Making

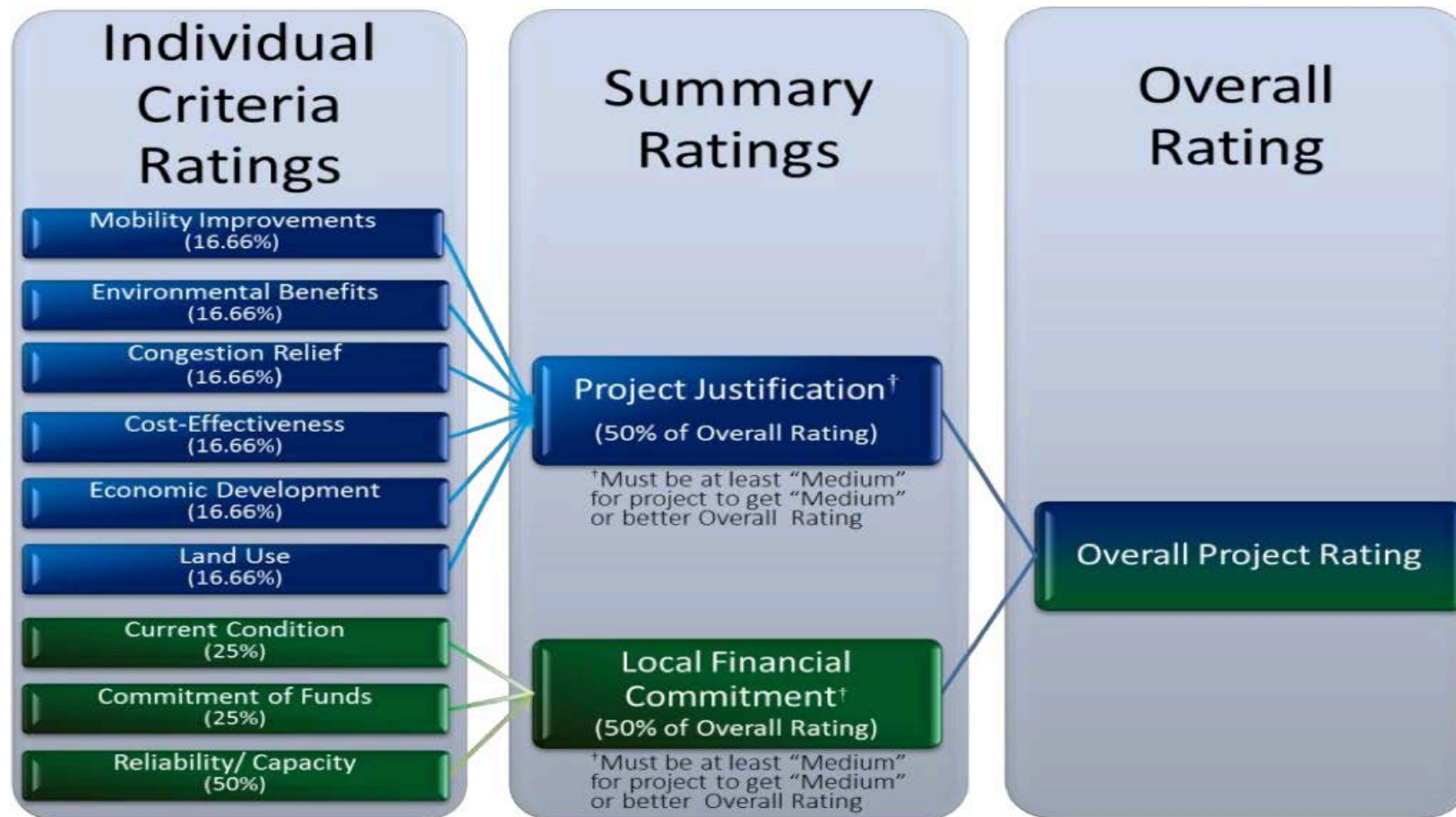
## Transportation Planning Example

- Travel Demand Models
- Tour-based and Activity-based Travel Models
- Integrated Economic/Land Use/Travel Models
- Scenario Planning and Exploratory Planning

# Funding Linked to Spatial Analysis

A number of Federal agencies now include requests for integrated spatial analysis in their proposals, project implementation, and/or evaluation. FTA's August 2013 New and Small Project NOFA is an example:

## New and Small Starts Project Evaluation and Rating under MAP-21



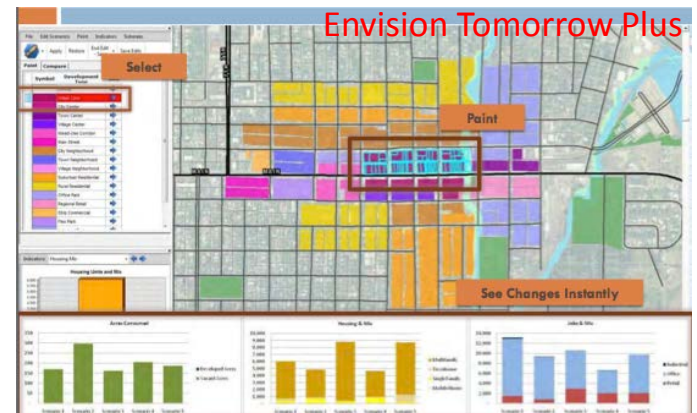


# How is Scenario Planning Different?

- Creates a dynamic environment that requires the staff and the planning tools to be responsive and flexible
- Scenarios developed by the participants pose questions that require analytics which require data
- Scenarios can produce more questions than were originally posed
- What may look like complexity is useful information to different interest groups
- The information must be delivered in a timely manner, whether in a public workshop, an internal study, or a public decision-making process.

# Planning Tools Contribute to Success

- The platform structure allows flexibility in metrics
- Once data and information is digital, it can be used in many forms and combinations
- Interactive programs (with an increase in web based programs) have powerful and flexible abilities



# Working with Complexity

Informed decision-making has multiple benefits:

- Finding common ground on challenges and strategies
- Understanding of opposing viewpoints and compromise
- Discovering creative solutions
- Building capacity for continuous improvement

# Scenario Planning Considerations

## Observations

- Most scenarios rely on creating compact activity centers for their success
- They move jobs and housing around from Trends to get there
- They typically do little market testing to support these shifts
- Pressure to limit and combine indicators and present most favorable ones for preferred scenario

## Recommendations

- We need market sensitivity throughout
- The use of rule-based allocations leads to more defensible and dynamic public input and more learning occurs
- Make rules around combining indicators super transparent
- Fiscal and social impacts critical to credibility

# Open Source Planning Tools

- An emerging solution to integrate separate fields of analysis, and do more with less.
- Open Planning Tools Group:
  - Foundations, software developers, planning consultants, staff from regional, state, and Federal government agencies, university researchers
  - Symposium November 19-21, 2013 in Sacramento
  - [www.ScenarioPlanningTools.org](http://www.ScenarioPlanningTools.org)

# Contact



*Ken Snyder, CEO  
PlaceMatters  
ken@placematters.org  
@theplacematters*

# Overview

- ▶ COMPASS and the Treasure Valley
- ▶ Communities in Motion 2030 & 2040
- ▶ CommunityViz (Visualize, Analyze, Engage)
- ▶ CommunityViz Benefits & Challenges



**COMPASS**  
COMMUNITY PLANNING ASSOCIATION  
of Southwest Idaho



# COMPASS and the Treasure Valley





# Communities in Motion 2030



# Communities in Motion 2030

## Reasons to Update the *Communities in Motion* Vision:

1. Economic Changes
2. Political Changes
3. Demographic Changes
4. Broader Stakeholder Buy-in



# Intro to communityviz®

## The Planner's Tool Belt



communityviz®

Software for Planners



POWERED BY  
esri

# Intro to communityviz<sup>®</sup> for Scenario Planning

The screenshot displays the communityviz software interface. The central window shows a 3D fly-through view of an urban neighborhood with a color-coded suitability map overlaid on a street grid. A red car and a cyclist are visible in the 3D view. Surrounding this central view are several panels and charts:

- Analysis Wizards:** A toolbar at the top of the main window contains various icons for analysis and editing.
- ArcGIS Extension:** A panel on the left side shows a list of layers including Public Facilities, Transportation, Natural Features, Building Footprints, and Study\_Area, along with a legend for Suitability.
- Multiple Scenarios:** A panel at the bottom left shows a dropdown menu for the Active Scenario, currently set to 'Base Scenario', and buttons for Modify, Assumptions, Start Edit, and Attributes.
- Intuitive Interface:** A panel at the bottom left contains icons for View, Indicators, Charts, Alerts, Visualize, Reports, Diagram, 3D, Present, Compare Scenarios, and Saved Views.
- Dynamic Charts:** Two charts are visible on the right side. The top chart, 'Chart Distance to New Stops', is a bar chart showing distances to new stops at 1/3 mile, 2/3 mile, 1.3 miles, and 1.7 miles. The bottom chart, 'Chart Suitability', is a pie chart showing the distribution of suitability weights.
- Interactive Controls:** A panel at the bottom right, titled 'Assumptions', shows a table of weights for various factors, with sliders for adjusting them.
- Optional Fly-through 3D:** A small inset window at the bottom center shows a 3D fly-through view of a street scene with a red car and a cyclist.

| Distance  | Value  |
|-----------|--------|
| 1/3 mile  | 141.00 |
| 2/3 mile  | 317.00 |
| 1.3 miles | 301.00 |
| 1.7 miles | 60.00  |

| Category                      | Percentage |
|-------------------------------|------------|
| Proximity to Parks Weight     | 25.4%      |
| Proximity to Hospitals Weight | 22.8%      |
| Proximity to Libraries Weight | 22.3%      |
| Proximity to Univ. Weight     | 29.5%      |

| Scenario                      | Weight |
|-------------------------------|--------|
| Covering Parks Weight         | 5.0    |
| Proximity to Univ. Weight     | 5.7    |
| Proximity to Hospitals Weight | 6.6    |
| Proximity to Libraries Weight | 5.1    |

ArcGIS Extension

Analysis Wizards

Sketch Tools

Multiple Scenarios

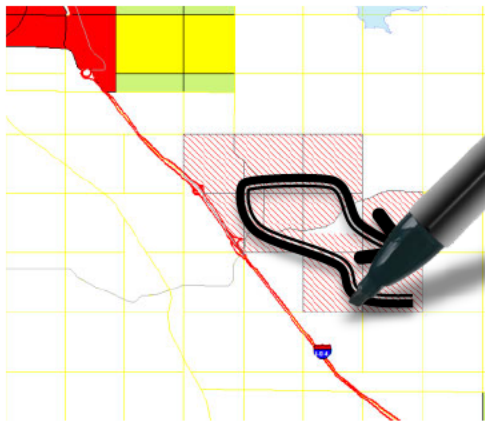
Interactive Controls

Dynamic Charts

Intuitive Interface

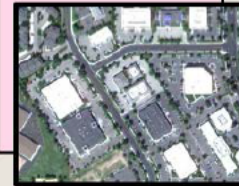
Optional Fly-through 3D

# communityviz<sup>®</sup> geodesign



## Scenarios

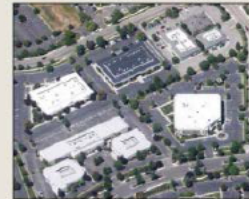
- City Center/CBD (10 DUs, 68 Jobs)
- City Center/CBD RD (10 DUs, 68 Jobs)
- Community Center (8 DUs, 9 Jobs)
- Community Center RD (8 DUs, 9 Jobs)
- Downtown Lofts (28 DUs, 6 Jobs)
- Downtown Lofts RD (28 DUs, 6 Jobs)
- Industrial Park (0 DUs, 22 Jobs)
- Neighborhood Center (6.5 DUs, 2 Jobs)
- Neighborhood Center RD (6.5 DUs, 2 Jobs)
- No Change
- Office Park (0 DUs, 25 Jobs)
- Office Park RD (0 DUs, 25 Jobs)
- Park (0 DUs, 0 Jobs)
- Planned Community (1 DU, 0.2 Jobs)
- Public/Quasi-Public or Open Space (0 DUs, 0 Jobs)
- Shopping Center (0 DUs, 11 Jobs)
- Shopping Center RD (0 DUs, 11 Jobs)
- Single Family High Density



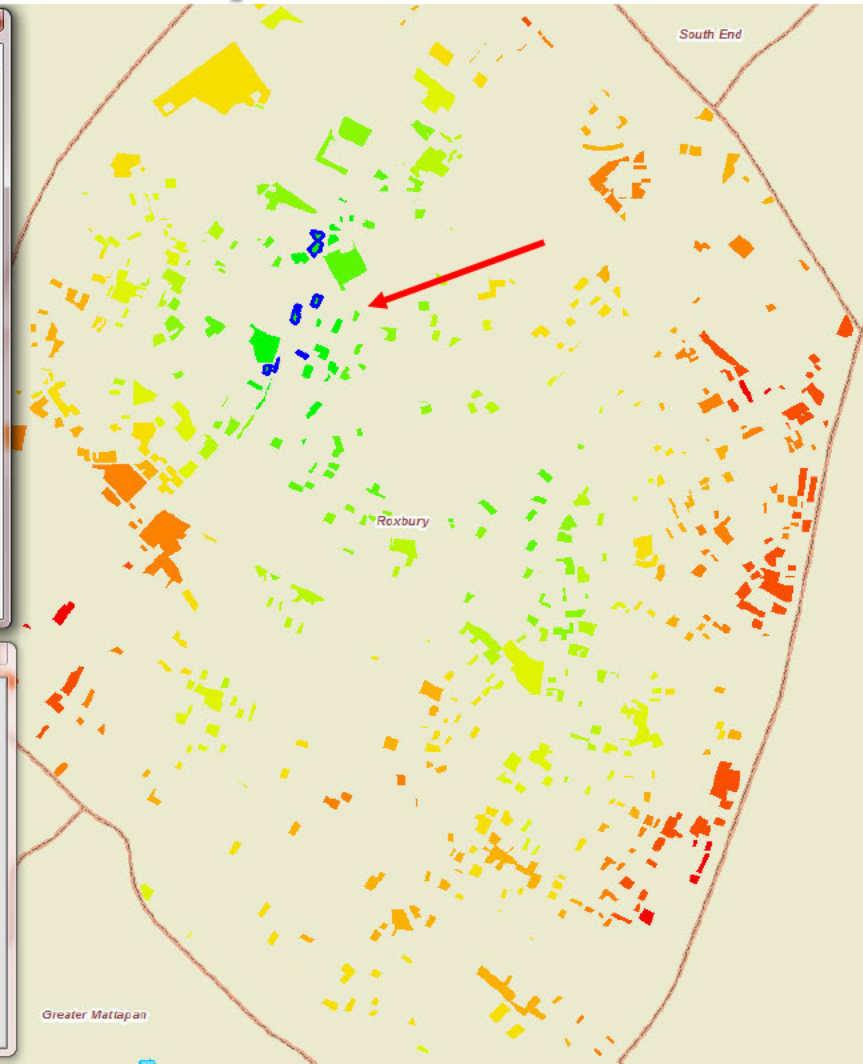
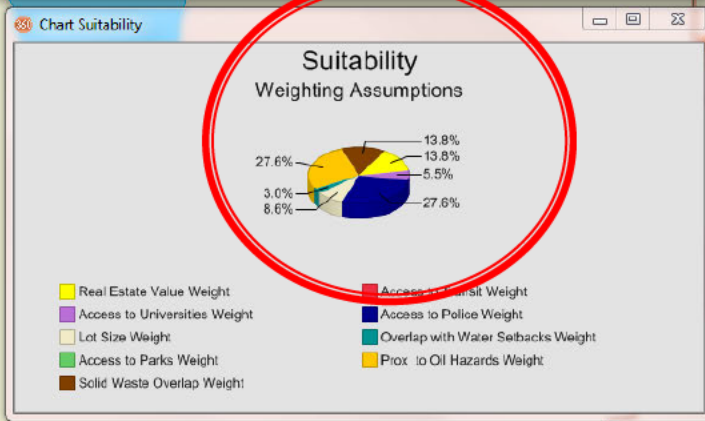
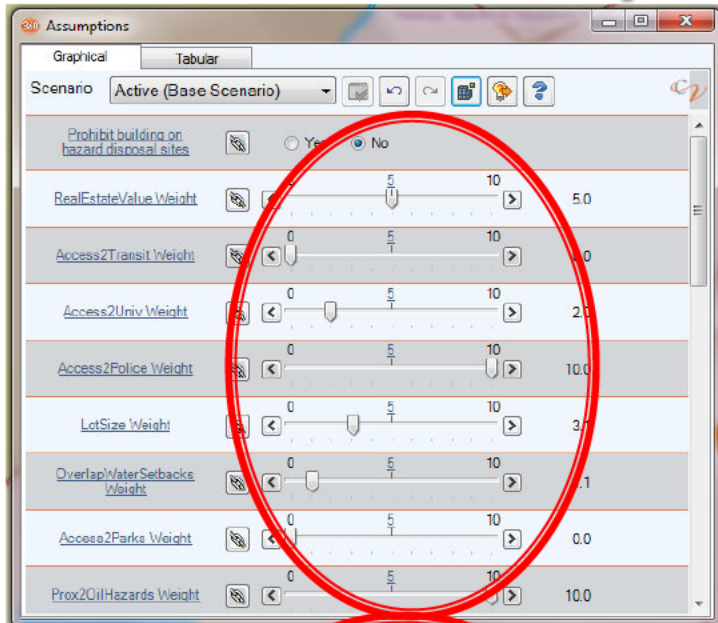
**Office Park**  
*Single Use Office Park*

**Houses:** None

**Jobs:** 25 jobs per acre



# CommunityViz Tools: Site Suitability Analysis



# CommunityViz Tools: Buildout Analysis

**Build-Out Wizard**

**NAVIGATOR**

- Welcome
- Numeric Build-Out
  - [Specify Land-Use Layer >>](#)
  - [Density Rules >>](#)
  - [Mixed-Use Land Area >>](#)
  - [Efficiency >>](#)
  - [Constraints to Development >>](#)
  - [Existing Buildings >>](#)
  - [End of Numeric Phase >>](#)
- Spatial Build-Out
  - [Spatial Layout >>](#)
  - [End of Spatial Phase >>](#)
  - [Visual Build-Out >>](#)
  - [Finish](#)

**Density Rules**  
Density is an indication of the number of buildings per unit area. Provide density rules or numbers for each land-use type.

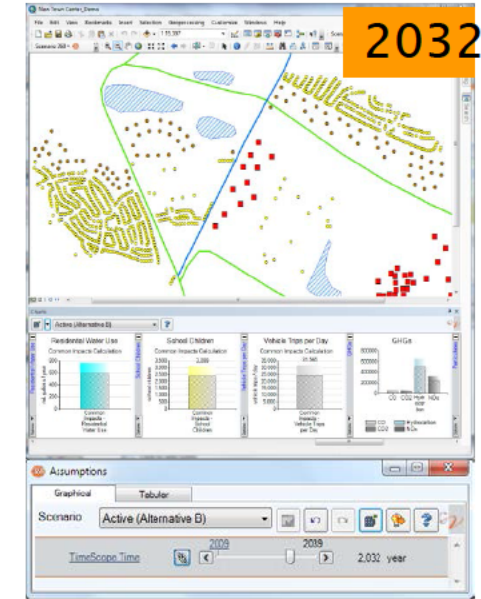
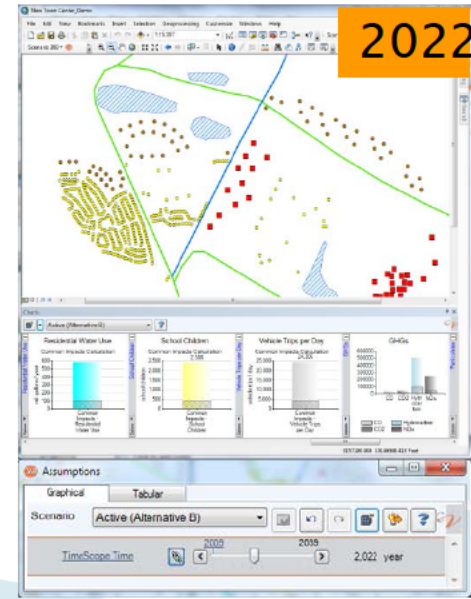
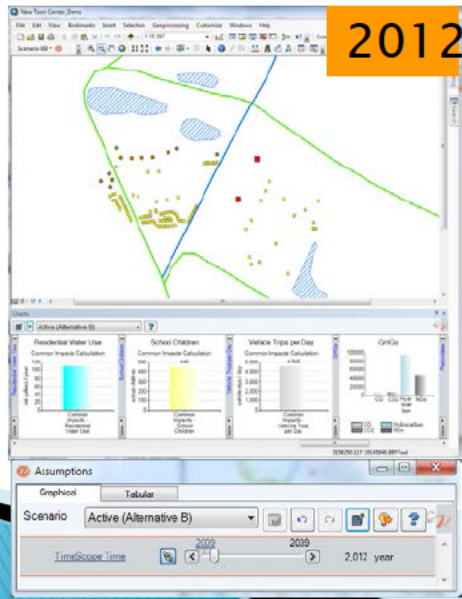
Click in any field to enter a number or to select an option from a provided drop-down list. You can enter information for dwelling units, floor area, or both.

| Designation               | Dwelling Units |             | Floor Area |             |
|---------------------------|----------------|-------------|------------|-------------|
|                           | Quantity       | Measurement | Quantity   | Measurement |
| Commercial                | 0              | DU per acre | 0.5        | FAR         |
| High Density Multi-family | 40             | DU per acre | 0          | FAR         |
| Med Density Multi-family  | 30             | DU per acre | 0          | FAR         |
| Park                      | 0              | DU per acre | 0          | FAR         |
| Single Family             | 4              | DU per acre | 0          | FAR         |

[How do I estimate floor area ratios using setbacks and building heights?](#)

For more Density Rules options, use the Advanced wizard.

Save & Exit    < Back    Next >    Cancel



# Visualization: What does it look like?

Maps plus...

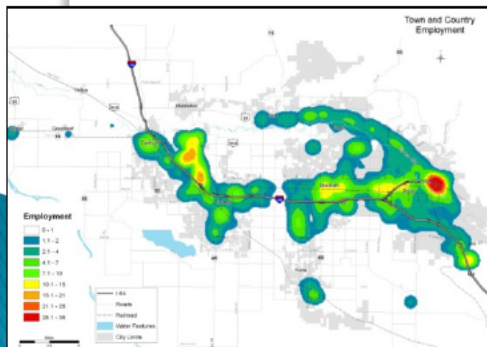
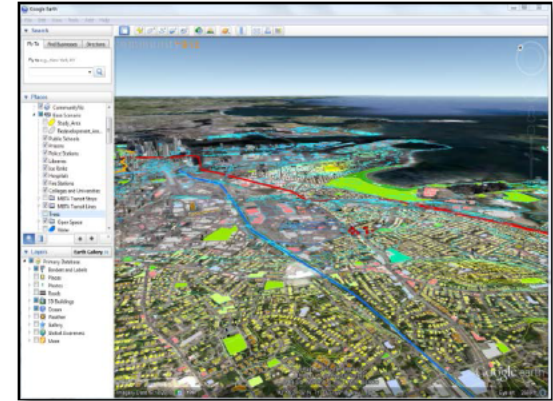
Side-by-side scenario  
comparison

3D streetscapes

Citywide massing and highlights

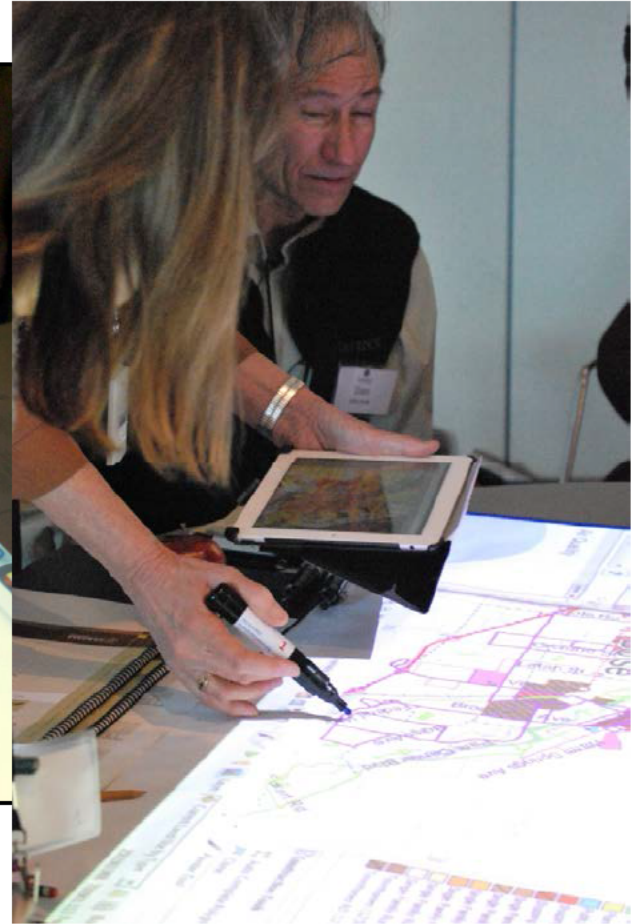
Presentation packages and kits

Interactive websites and media





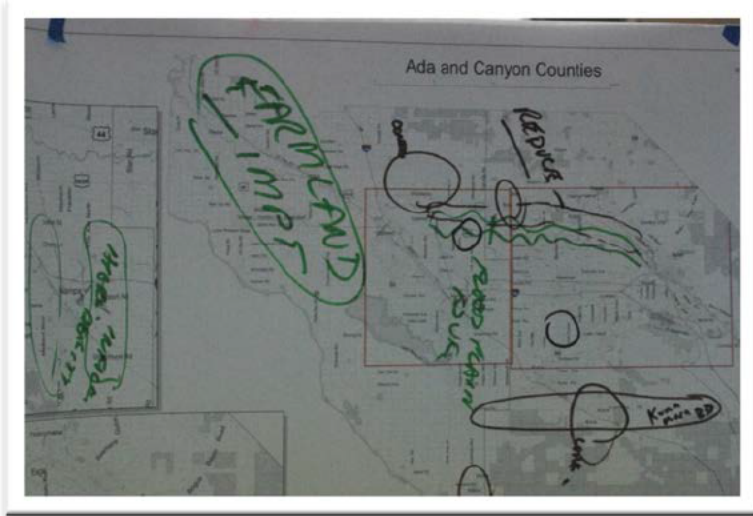
# Engage



<http://www.youtube.com/watch?v=J-ey1TOhiGk>

# CommunityViz Challenges

1.



2.



3.



4.



# CommunityViz Benefits

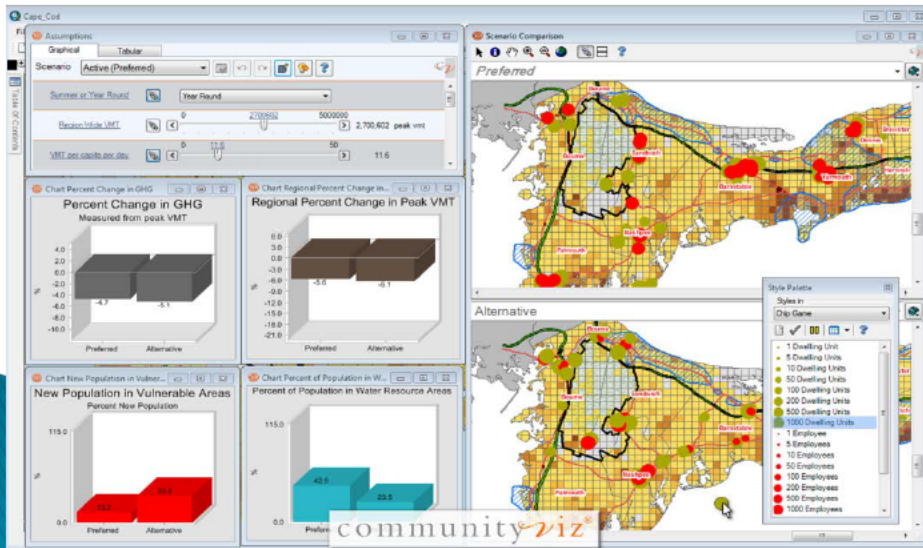
1.



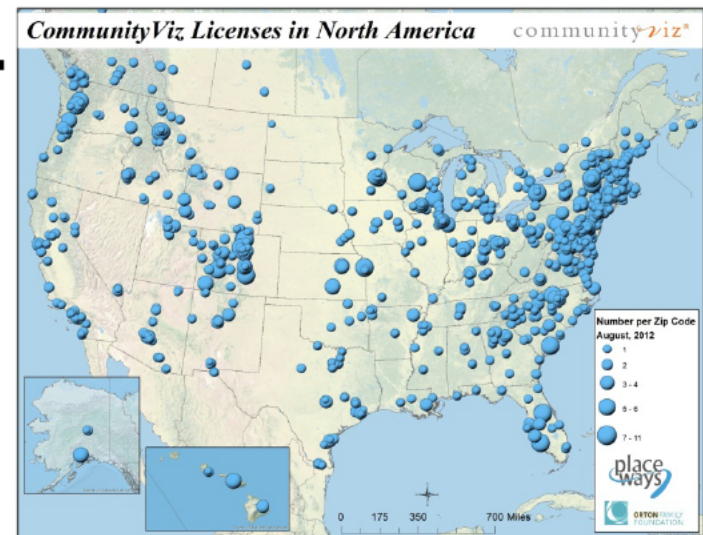
2.



3.



4.



Carl Miller, AICP  
Community Planning Association  
of Southwest Idaho (COMPASS)

[www.compassidaho.org](http://www.compassidaho.org)

208-475-2239

[cmiller@compassidaho.org](mailto:cmiller@compassidaho.org)

<http://www.youtube.com/watch?v=J-ey1TOhiGk>

“CommunityViz is changing the way planners use GIS. With its transparent and flexible design, CommunityViz opens up the planning process to more people. At the same time, it takes a lot of guesswork, speculation, and pure subjectivity out of the planning equation.”

—Jack Dangermond, President, Esri

“The more time you spend contemplating what you should have done...you lose valuable time planning what you can and will do.”

—Lil' Wayne



 CMAP **GO TO 2040**

**FHWA Scenario Planning Webinar  
November 2013**



## **ABOUT CMAP**

**CMAP serves the third largest  
U.S. metropolitan region:**

**7 Counties**

**284 Municipalities**

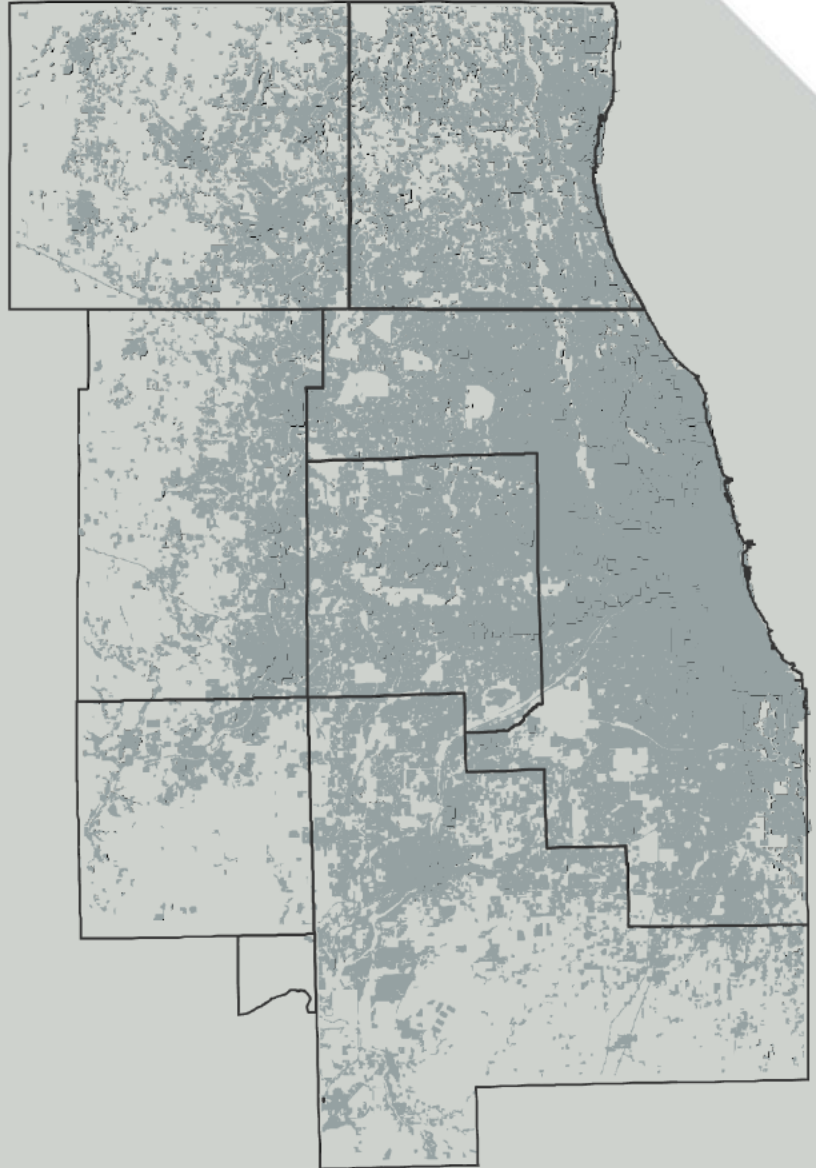
**Over 1,200 units of local government**



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## **DEVELOPED AREA, 2005**

Source: U.S. Environmental Protection Agency and CMAP





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**By 2040, our region will need to  
accommodate 25% more residents**

**8,600,000**

**TODAY**

**11,000,000**

**BY 2040**





## DEVELOPING THE GO TO 2040 PLAN



- 1 **Regional Vision**  
(Fall 2007 to Spring 2008)
- 2 **Research of Existing Conditions** (2008-2009)
- 3 **Public Input on Potential Strategies** (Continuous)
- 4 **Preferred Regional Scenario** (January 2010)
- 5 **Draft Plan**  
(June-September 2010)
- 6 **Plan Adopted Unanimously**  
(October 2010)



## **What we were looking for**

**Tool that could show trade-offs**

**Comparing multiple scenarios**

**Visually engaging and educational**

**Use online, at workshops, and kiosks**



# Experience

Selected MetroQuest

## VISIT 2040



ENTER

Take a quick tour. Change the future through a couple of choices and spend a little time in 2040! (Best with speakers on) [¿Prefieres español? Entra aquí.](#)

## INVENT 2040

ENTER

Get creative. Make choices about the future and see maps and graphs showing what life might be like in 2040. Send feedback on issues you care about and get your friends involved!

## COMPARE 2040



ENTER

Go even deeper. Dig into the *GO TO 2040* scenarios and see how they stack up against each other and scenarios you build yourself.

### About *GO TO 2040*

Population in metropolitan Chicago is expected to reach nearly 11 million by 2040. To accommodate 2.8 million new residents, our region has urgent decisions to make in the very near future. *GO TO 2040* is the Chicago Metropolitan Agency for Planning (CMAP) campaign to guide development and investment decisions to accommodate our region's growth.

[Click here](#) to really dig into CMAP's three sample scenarios.

### About MetroQuest

Use the tools above to create your own growth scenarios and compare them to others. Experiment with trade-offs regarding transportation, housing, economic development, open space, the environment, and other quality-of-life issues.

Choices

Development Density

- Low density growth
- Current patterns of growth
- Moderately compact
- Highly compact

Development Location

- Unfocused
- Community and metros
- Metropolitan centers

Road Network

- Minimum maintenance
- Moderate increase
- Significant increase

Transit System

- Minimum maintenance
- Moderate increase
- Significant increase

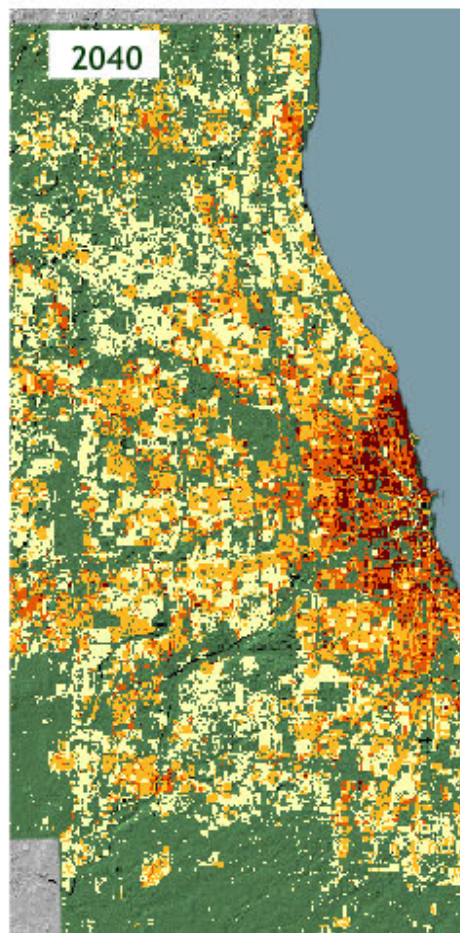
Transportation Policy

- Favor driving
- Maintain current mix
- Support alternatives
- Strongly favor alternatives

Resource Policy

- Reduce programs
- Maintain programs
- Expand programs
- Maximize programs

Outcomes: Land Consumption



Show Roads

Land Consumption shows where people will live and at what density.

Red areas have the highest density, with more mixed-use development and taller buildings. Light yellow areas have the lowest density, with more homes and larger yards.

Your choices will determine how much open space we have in the region.

Map Legend

Zoom

Out

In

Animate Map Over Time

Outcomes

LEGEND

- High Density
- Medium Density
- Low Density
- Very Low Density

Land Consumption

< less ◆ more >

Detached Homes

Single Occupant Vehicles

Commute Time

Energy Use

Water Use

Government Costs

Household Costs

Choices

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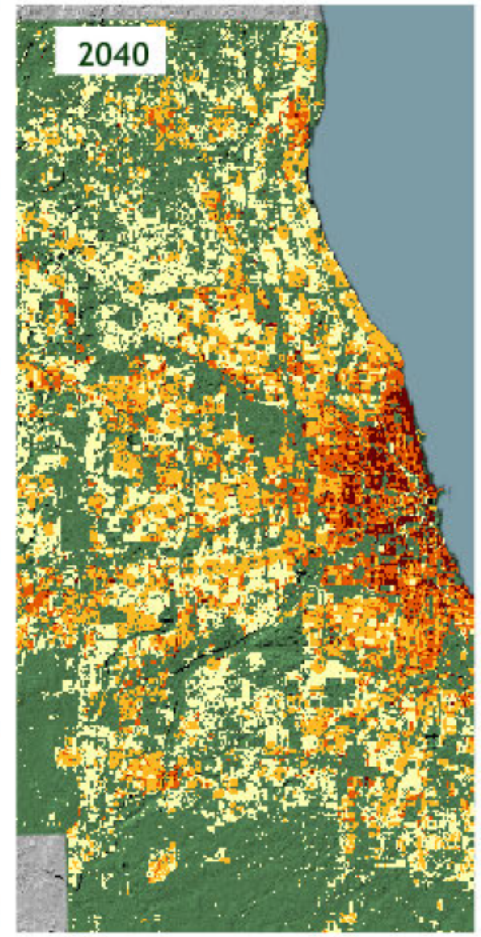
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Land Consumption

< less [Slider] more >

Detached Homes [Slider]

Single Occupant Vehicles [Slider]

Commute Time [Slider]

Energy Use [Slider]

Water Use [Slider]

Government Costs [Slider]

Household Costs [Slider]

Choices

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- Development Location**

  - Unfocused
  - Community and metros
  - Metropolitan centers
- Road Network**

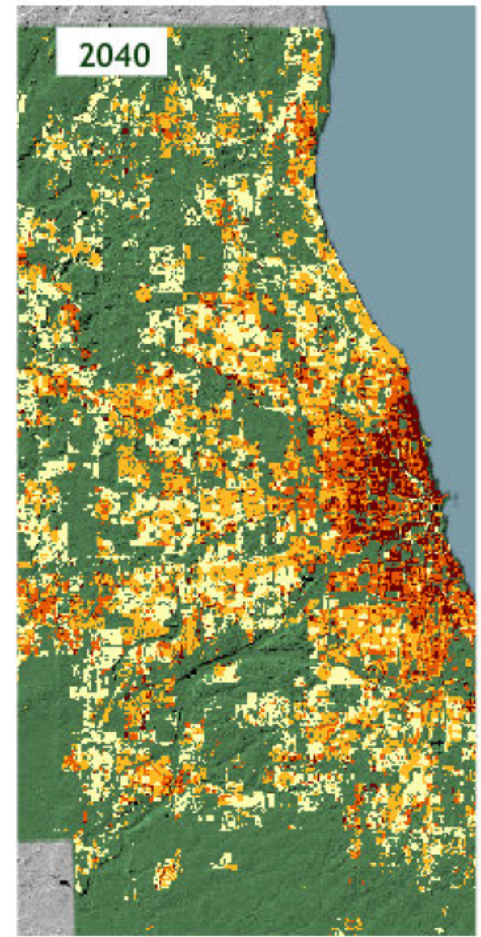
  - Minimum maintenance
  - Moderate increase
  - Significant increase
- Transit System**

  - Minimum maintenance
  - Moderate increase
  - Significant increase
- Transportation Policy**

  - Favor driving
  - Maintain current mix
  - Support alternatives
  - Strongly favor alternatives
- Resource Policy**

  - Reduce programs
  - Maintain programs
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Outcomes: Land Consumption



Show Roads

**Land Consumption** shows where people will live and at what density.

Red areas have the highest density, with more mixed-use development and taller buildings. Light yellow areas have the lowest density, with more homes and larger yards.

Your choices will determine how much open space we have in the region.

Map Legend

Zoom

Out  In

Animate Map Over Time

Outcomes

LEGEND

- High Density
- Medium Density
- Low Density
- Very Low Density

Land Consumption

< less more >

Detached Homes

Single Occupant Vehicles

Commute Time

Energy Use

Water Use

Government Costs

Household Costs

< less more >

Replay Last Choice

Choices

- Development Density**

  - Low density growth
  - Current patterns of growth
  - Moderately compact
  - Highly compact
- Development Location**

  - Unfocused
  - Community and metros
  - Metropolitan centers
- Road Network**

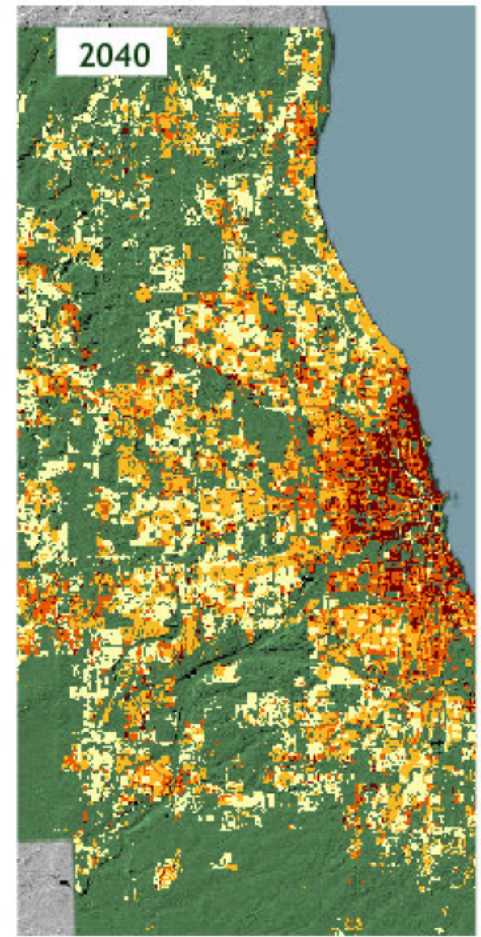
  - Minimum maintenance
  - Moderate increase
  - Significant increase
- Transit System**

  - Minimum maintenance
  - Moderate increase
  - Significant increase
- Transportation Policy**

  - Favor driving
  - Maintain current mix
  - Support alternatives
  - Strongly favor alternatives
- Resource Policy**

  - Reduce programs
  - Maintain programs
  - Expand programs
  - Maximize programs

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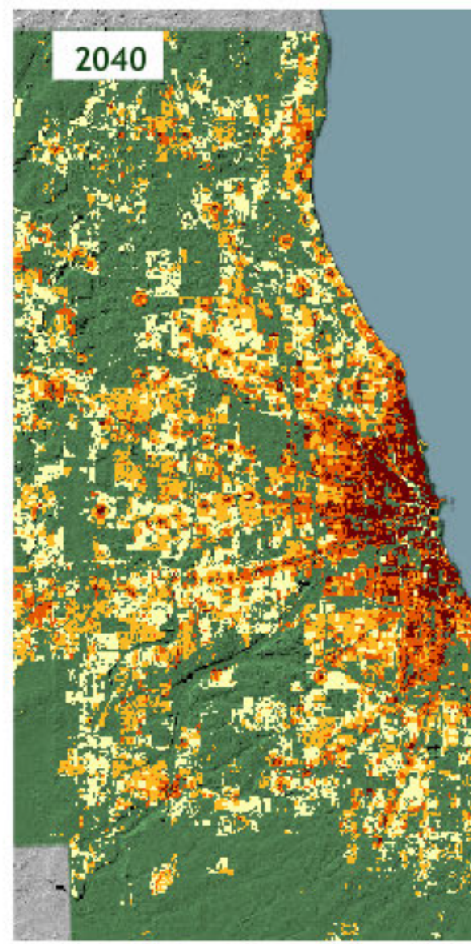
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↻ Replay Last Choice

## Development Density

## Development Location

- Unfocused \*
- Community & metropolitan
- Metropolitan centers

## Road Network

- Minimum maintenance \*
- Moderate increase
- Significant increase

## Transit System

- Minimum maintenance \*
- Moderate increase
- Significant increase

## Transportation Policy

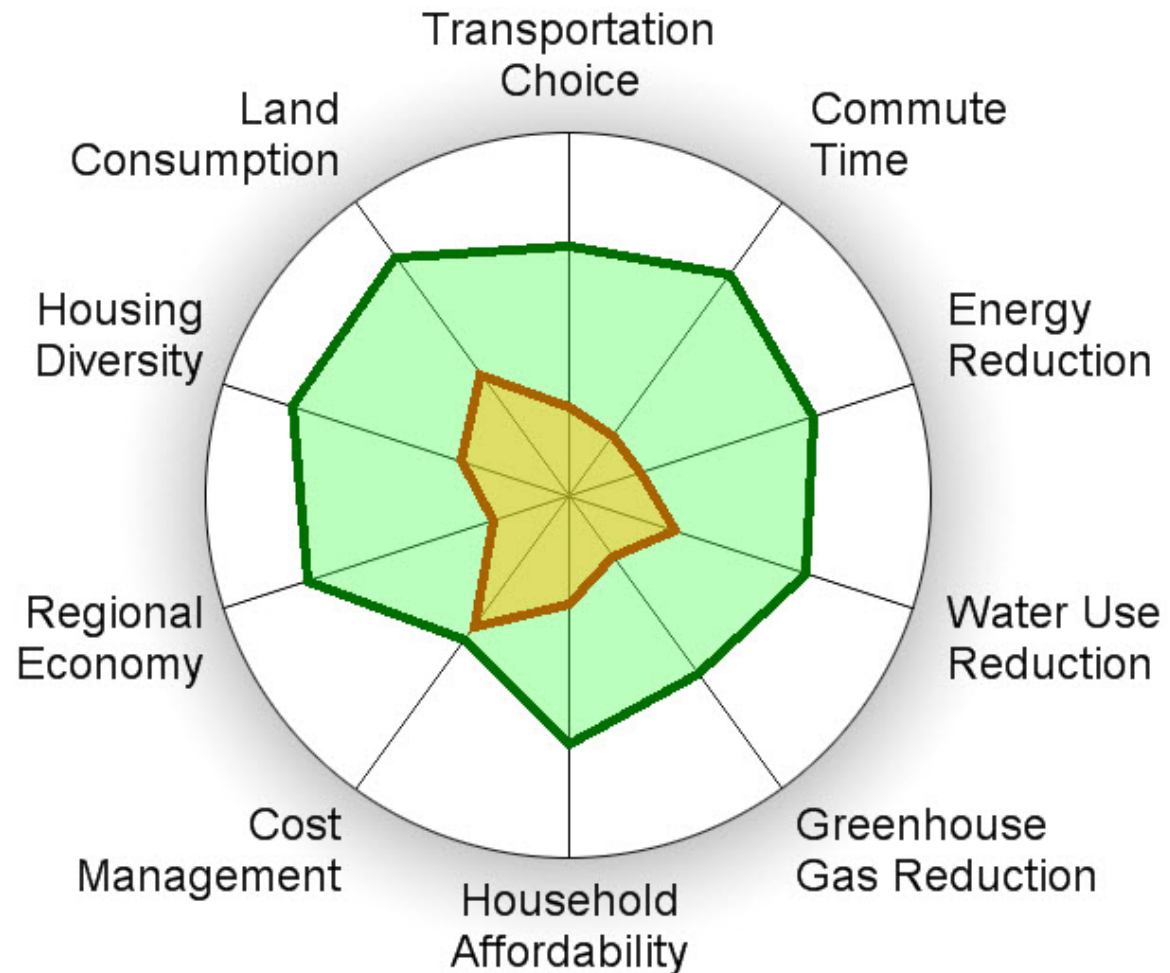
- Favor driving
- Maintain current mix \*
- Support alternatives
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## Resource Policy

Scenario A  Current Trend

# Scenario Summary

By Key Indicator



# Development Density

- Low density growth
- Current patterns of growth \*
- Moderately compact growth
- Highly compact growth

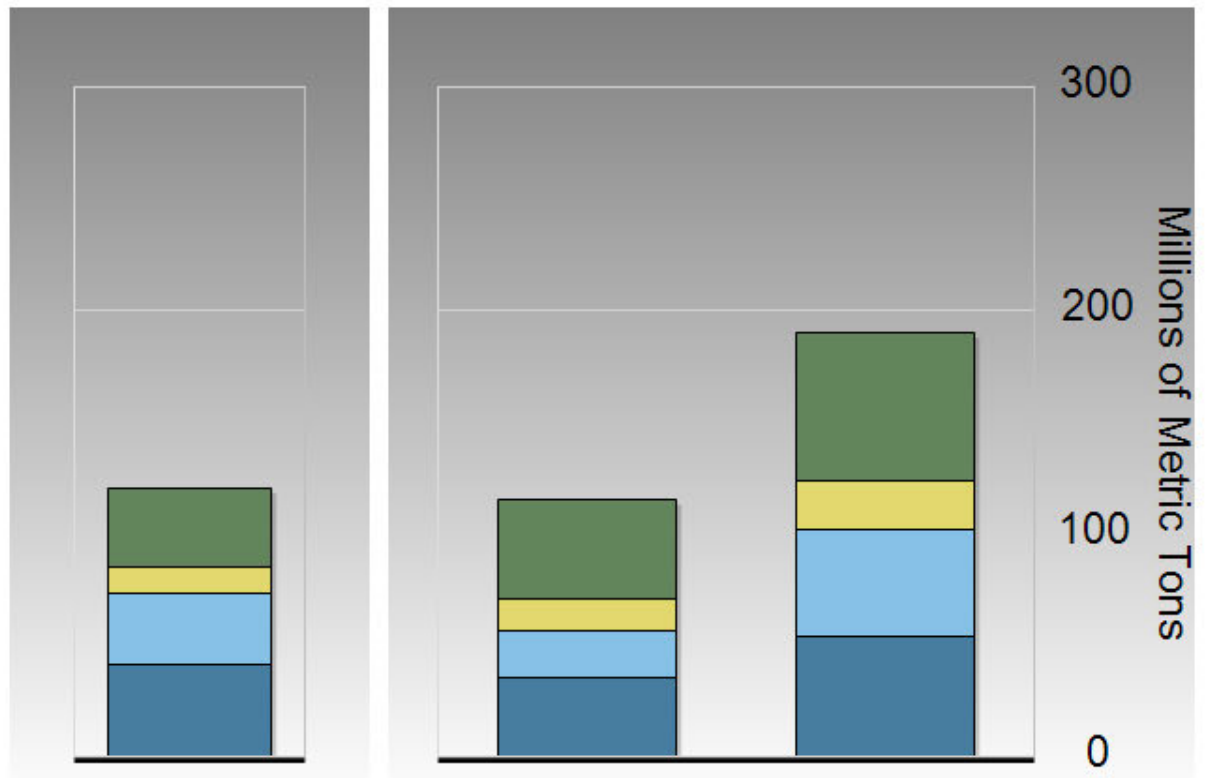
- Development Location
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Scenario 1

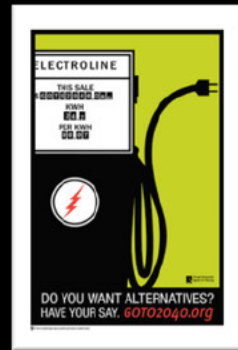
Current Trend

# Greenhouse Gas Emissions

## CO2 Equivalent, By Sector (Annual)



- 2040
- 2040
- Residential
- Transportation
- Industrial
- Commercial





# **Benefits**

**Educational**

**Immediate results**

**Visually compelling**

**Could spend 3 minutes or 2 hours**

**Helped us engage over 35,000 people**



## **Key Takeaways**

**The tool paints a broad picture, which may not satisfy everyone**

**Only as good as the data you have**

**Helped us reach consensus to move forward with plan development**



# CMAP GO TO 2040

**Questions?**

**Erin Aleman**

**Principal Planner**

**[ealeman@cmmap.illinois.gov](mailto:ealeman@cmmap.illinois.gov)**

**312.386.8816**



# Fresno Council of Governments

## Scenario Planning with *Envision Tomorrow*





# Fresno COG's Scenario Planning Process

- **San Joaquin Valley Blueprint (2006)**
  - Result of a grant from Caltrans to explore alternative growth patterns and to educate the public about land-use planning
  - Goal: To analyze the impacts of different smart-growth policies in Fresno County
  - Used UPlan for this process

<http://valleyblueprint.org/>



# Fresno COG's Scenario Planning Process

- **SB 375 (2008)**

<http://www.fresnocog.org/senate-bill-375>

- Bill passed by California lawmakers that required metropolitan planning organizations to develop sustainable community strategies (SCS)
- An SCS seeks to reduce greenhouse gas (GHG) emissions through integrating land-use and transportation planning



# Fresno COG's Scenario Planning Process

- Target-Setting (2010)
  - Per-capita GHG reduction targets were set by the Air Resources Board: 5% reduction by 2020, 10% by 2035 (compared to 2005)
- Scenario Planning (2011)
  - Fresno COG considered several scenario planning tools, including iPlaces, RapidFire and CommunityViz
  - Decided to use Envision Tomorrow



# Envision Tomorrow's Scenario Building Process

## Building Types



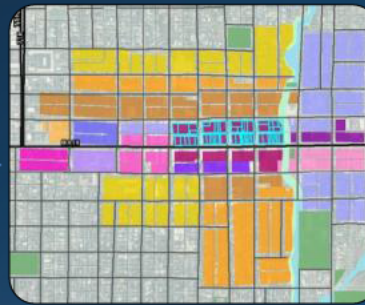
- Easily modeled
- Lots of existing data to draw from
- Tracks density, rent/sale prices, energy/water use, etc.

## Development Types



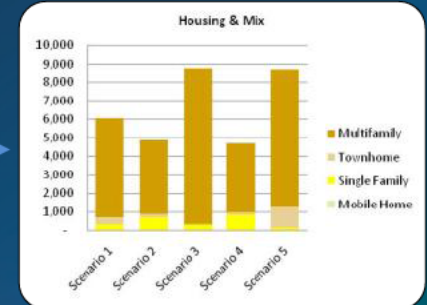
- Could include one or several building types
- Can be applied to small or large geographic areas (parcels, census blocks, uniform grid, etc.)

## Scenario Development



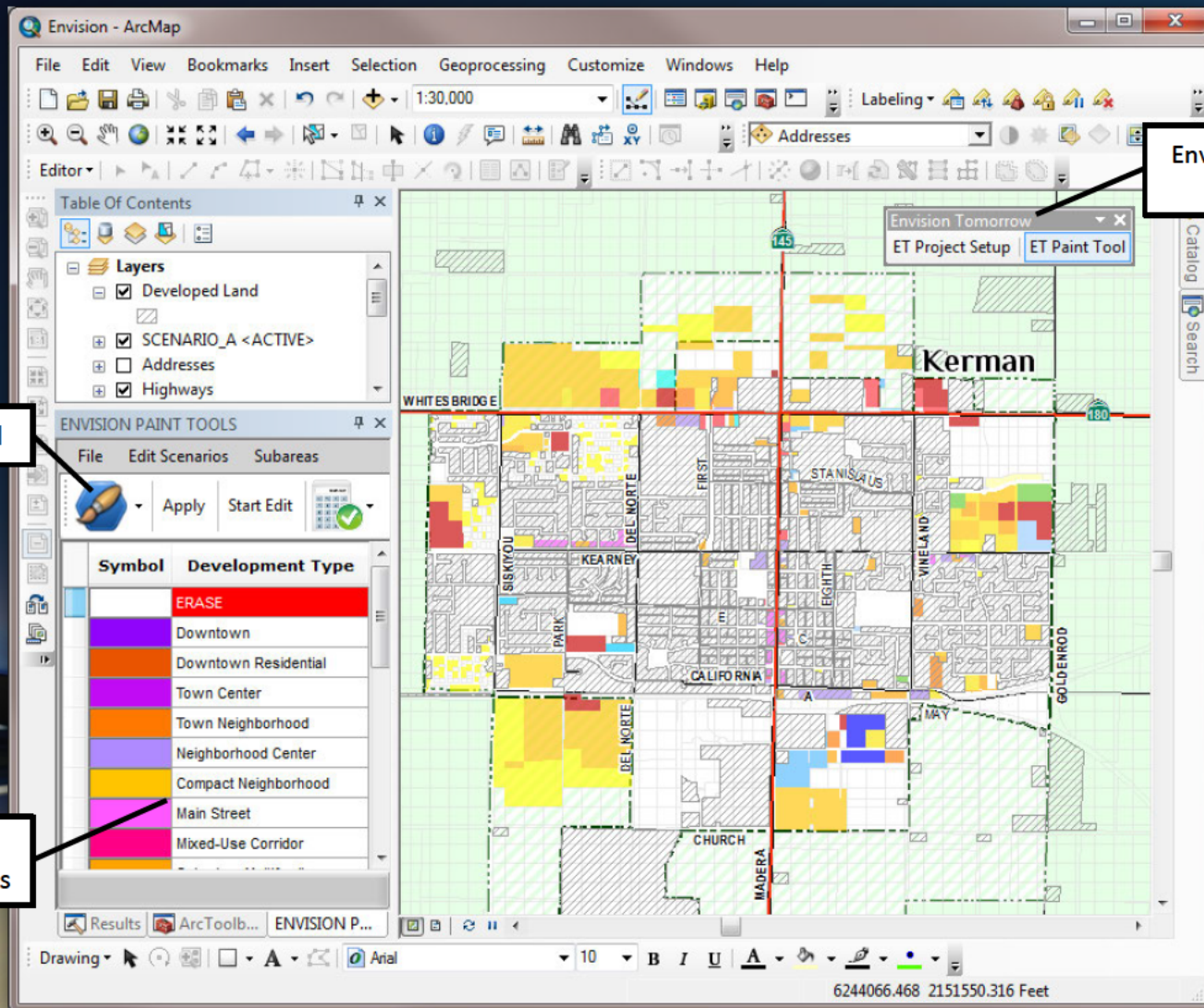
- Test land use policies
- Experiment with new development patterns

## Evaluation



- Monitors performance indicators in real-time
- Side-by-side comparison of scenarios

# Envision Tomorrow and ArcMap

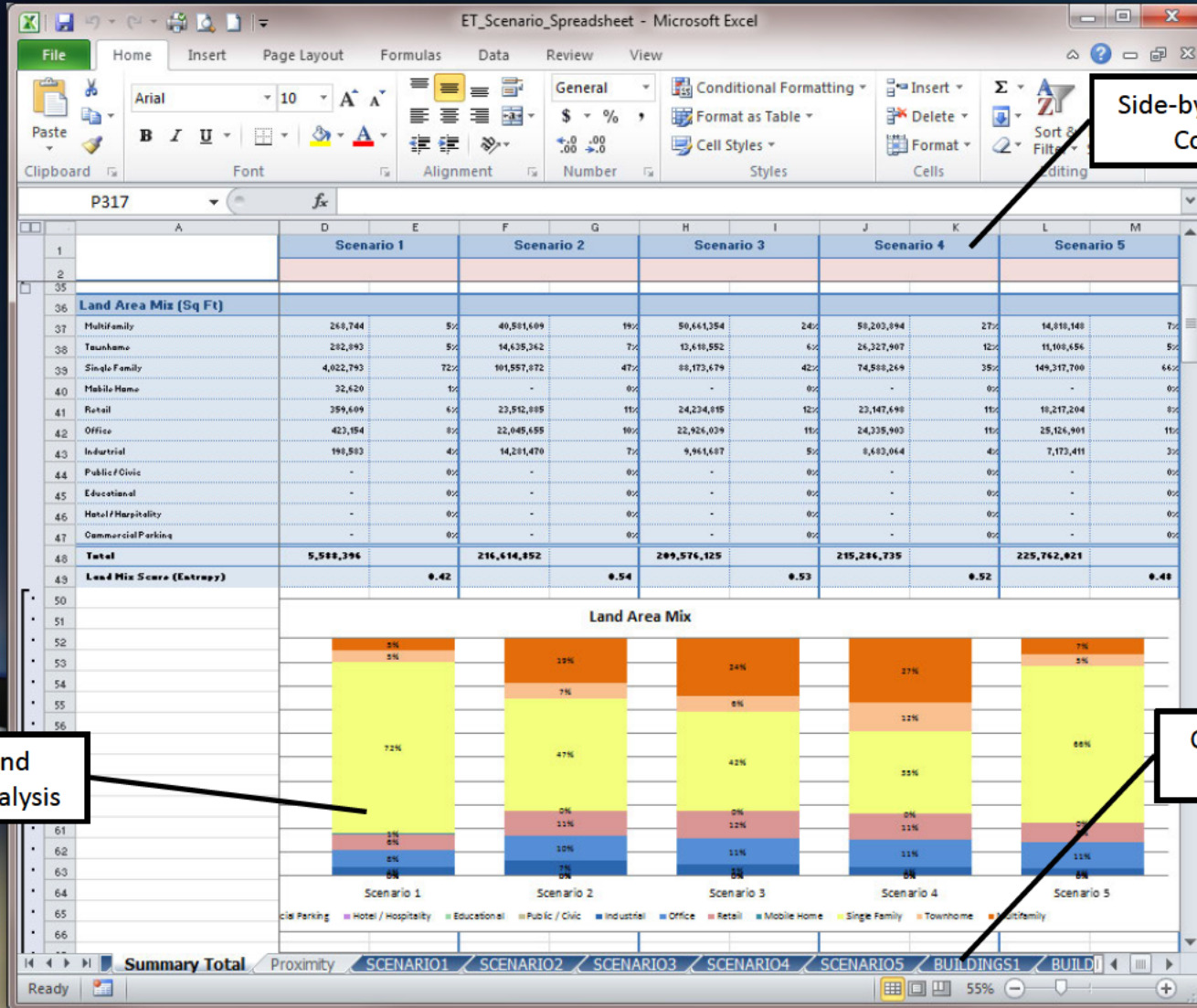


Envision Tomorrow  
Toolbar

Paint Tool

Available  
Development Types

# Envision Tomorrow Spreadsheet



Side-by-Side Scenario Comparison

Graphical and Numerical Analysis

Customizable Inputs and Assumptions

# Using Envision Results for Internal and Public Outreach

- The “Chip Games” Public Workshop
  - Fregonese helped Fresno COG host a public workshop where participants would place development “chips” on maps of Fresno County
  - The results of this exercise were digitized and combined to create one of Fresno COG’s SCS scenarios



# Using Envision Results for Internal and Public Outreach

- The Mini-Grant Outreach Workshops
  - Fresno COG provided grant money to community organizations to recruit members of the public to educational workshops about the SCS process and scenarios
  - Performance indicators and maps based on Envision analysis were shared as part of the presentation



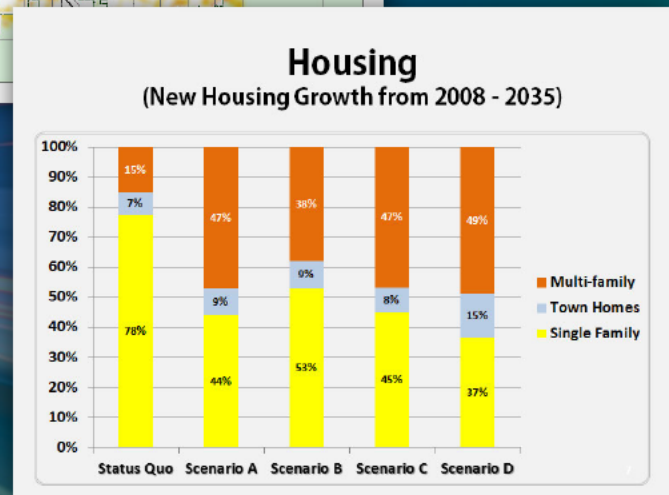
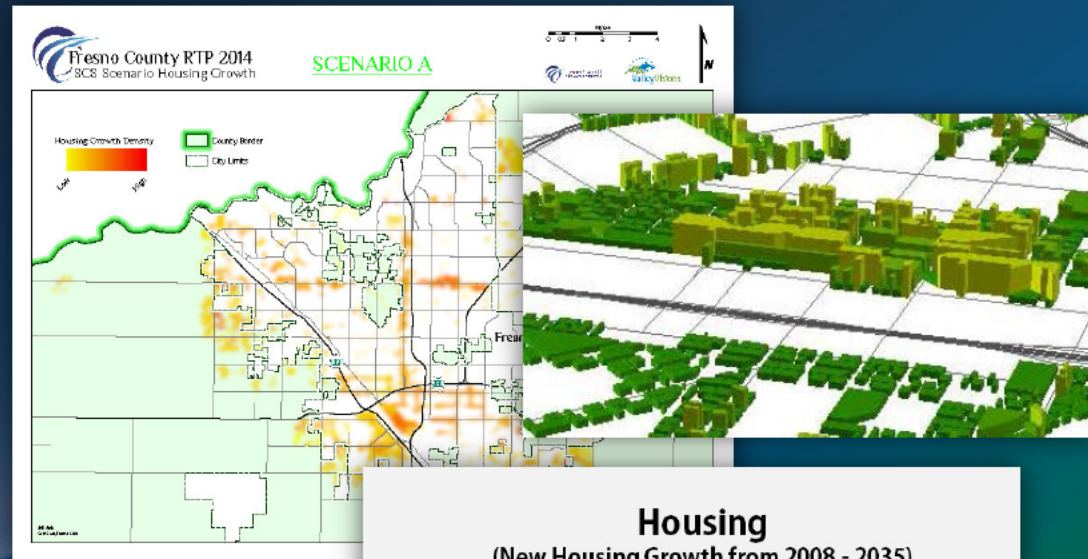


# Using Envision Results for Internal and Public Outreach

- Scenario Maps and Performance Analysis

- Envision dataset can be used with other software to create “heat maps” or 3D imaging

- Makes performance indicator analysis easy



# Fresno COG's Experience with Envision Tomorrow

- Usability
  - Software package relatively easy to install and use
  - Envision's system of using development types is intuitive, though initial set-up is complicated
- Robustness
  - Runs noticeably slower when dealing with large, regional datasets (though “SUBAREA” function makes this shortfall manageable)
  - Currently contains some bugs that can cause program to freeze or shut down; data corruption sometimes, though rarely, occurs (make lots of back-ups)

# Fresno COG's Experience with Envision Tomorrow

- User Control
  - Planning/building assumptions customizable to any particular region
  - User has option of using built-in summary tools, or using the geodataset directly for more customized analysis
- Customer Service
  - Developers at Fregonese Associates have shown a consistent value for personalized, prompt, and thorough attention to problems

# Fresno COG's Experience with Envision Tomorrow

- Overall Experience
  - Sufficiently suited the needs of Fresno COG well
  - Financially viable
  - Strength of customer service somewhat balanced the existence of bugs and other software issues, which invariably proved to be surmountable



# Advice for Other Agencies Regarding Scenario Planning

- Consider your organization's resources and staff capabilities
  - To enjoy the full benefits of user-driven tools such as Envision Tomorrow, experience with GIS (geographic information systems) software, especially ArcMap, is essential
- Consider your organization's approach to planning
  - More detailed planning exercises would require parcel-level tools (Envision, Urban Footprint, etc.)
  - More high-level or broad-focused exercises may be better served with products such as RapidFire or UPlan

# Contact Information

**Seth Scott**

*GIS Specialist*

*Fresno Council of Governments*

sscott@fresnocog.org

559.233.4148 x243

<http://www.fresnocog.org>

*Thanks for watching!*

# For Additional Information

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## FHWA Scenario Planning website:

[www.fhwa.dot.gov/planning/scenario](http://www.fhwa.dot.gov/planning/scenario) and [visualization/scenario planning](http://www.fhwa.dot.gov/visualization/scenario)

## Contacts:

- FHWA Headquarters
  - Rae Keasler at 202-366-0329 or [Rae.Keasler@dot.gov](mailto:Rae.Keasler@dot.gov)
  - Dave Harris at 334-274-6345 or [Dave.Harris@dot.gov](mailto:Dave.Harris@dot.gov)
- FTA Headquarters
  - Jeff Price at 202-366-0843 or [Jeff.Price@dot.gov](mailto:Jeff.Price@dot.gov)
  - Tomika Monterville at 202-366-5038 or [Tomika.Monterville@dot.gov](mailto:Tomika.Monterville@dot.gov)
- FHWA Resource Center
  - Brian Betlyon at 410-962-0086 or [Brian.Betlyon@dot.gov](mailto:Brian.Betlyon@dot.gov)
  - Jim Thorne at 708-283-3538 or [Jim.Thorne@dot.gov](mailto:Jim.Thorne@dot.gov)
- USDOT Volpe Center
  - Rachel Strauss at 617-494-2207 or [Rachel.Strauss@dot.gov](mailto:Rachel.Strauss@dot.gov)

