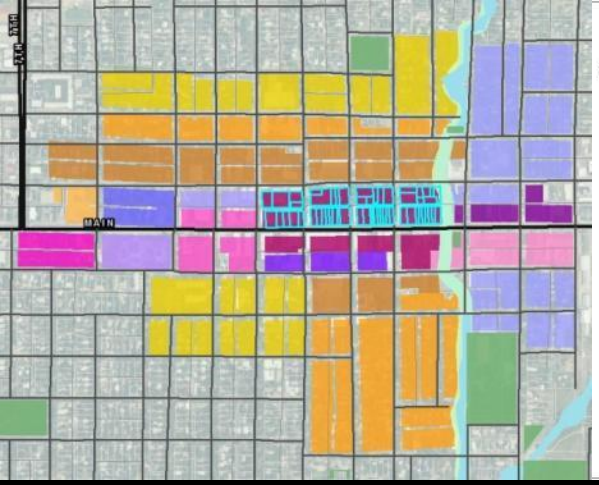

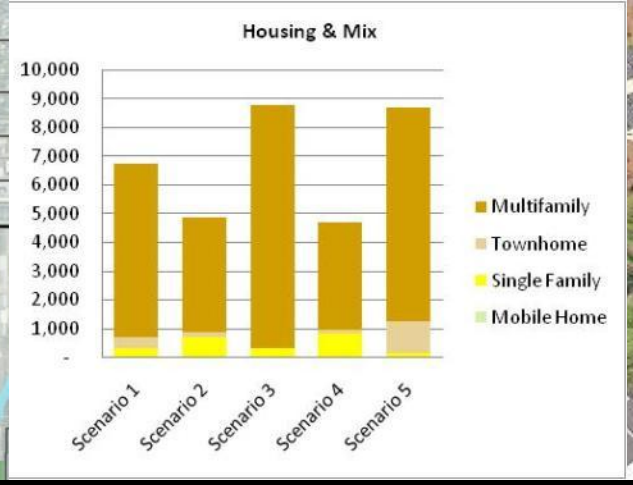

Scenario Planning with Envision Tomorrow +

FREGONESE ASSOCIATES

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envision tomorrow™
a suite of urban and regional planning tools

Metro 2040: Alternative Growth Concepts

Continuing with Current Policies

A

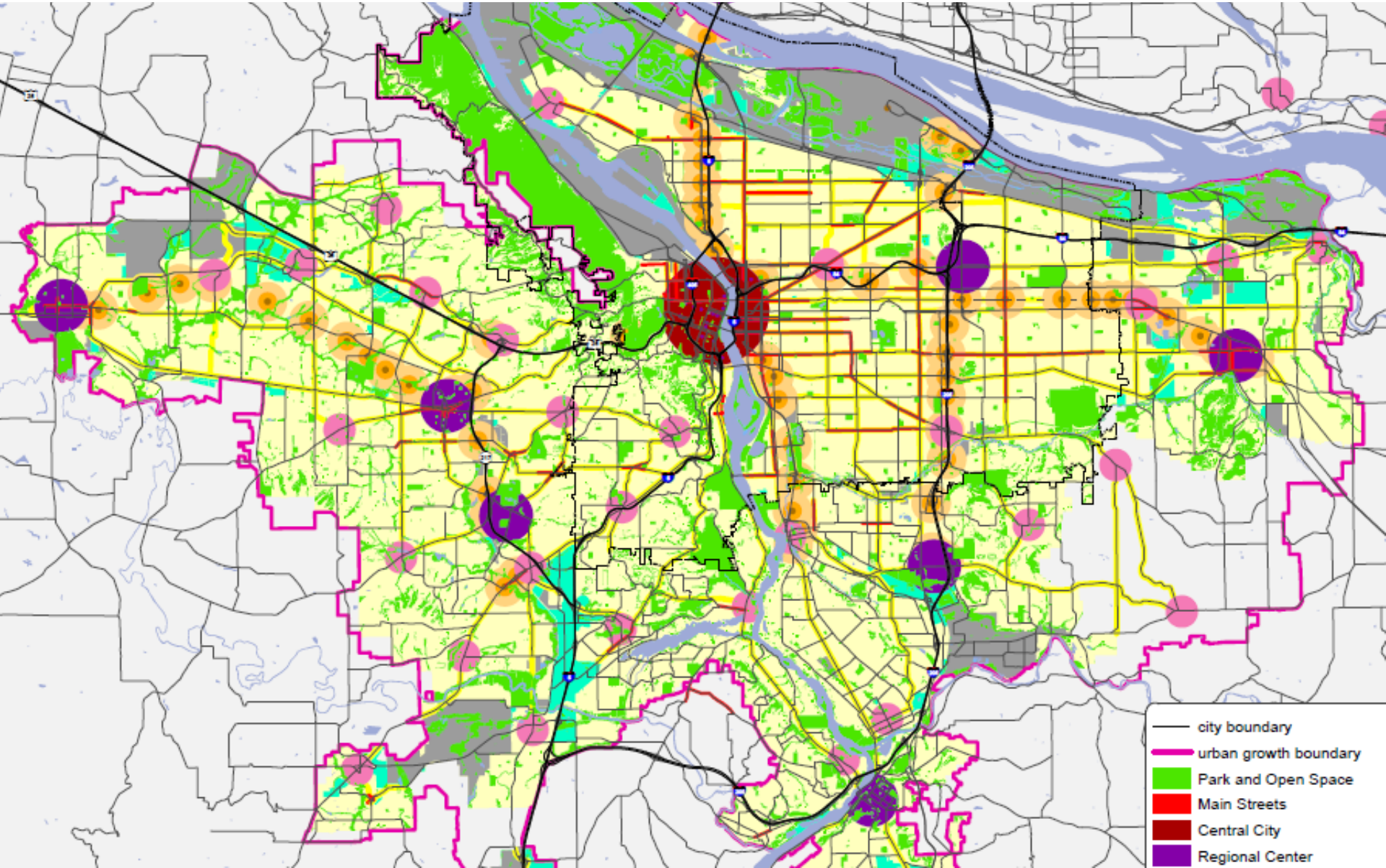
Growing Inside the Urban Growth Boundary

B

Communities Growing at the Edge

C

15 Years Later:
2040 Growth Concept is Still the Regional Roadmap



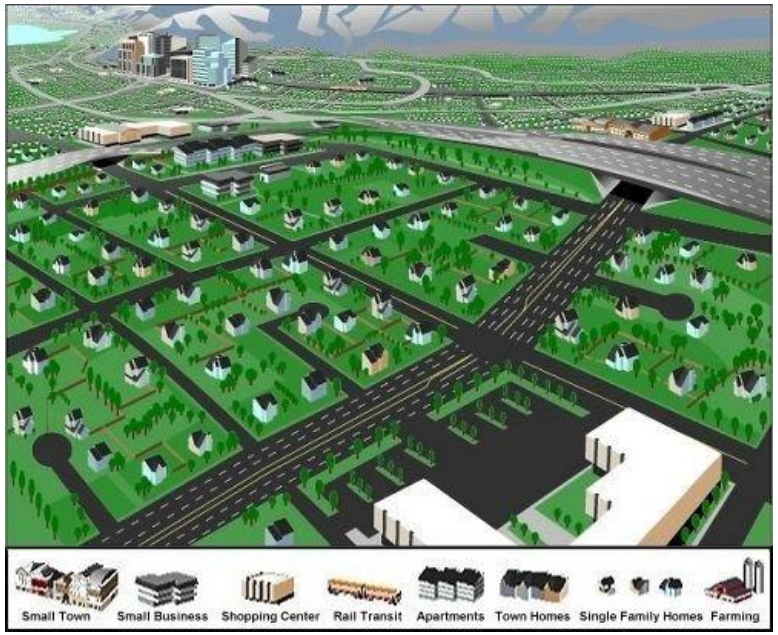
The Wasatch Front Region Scenarios

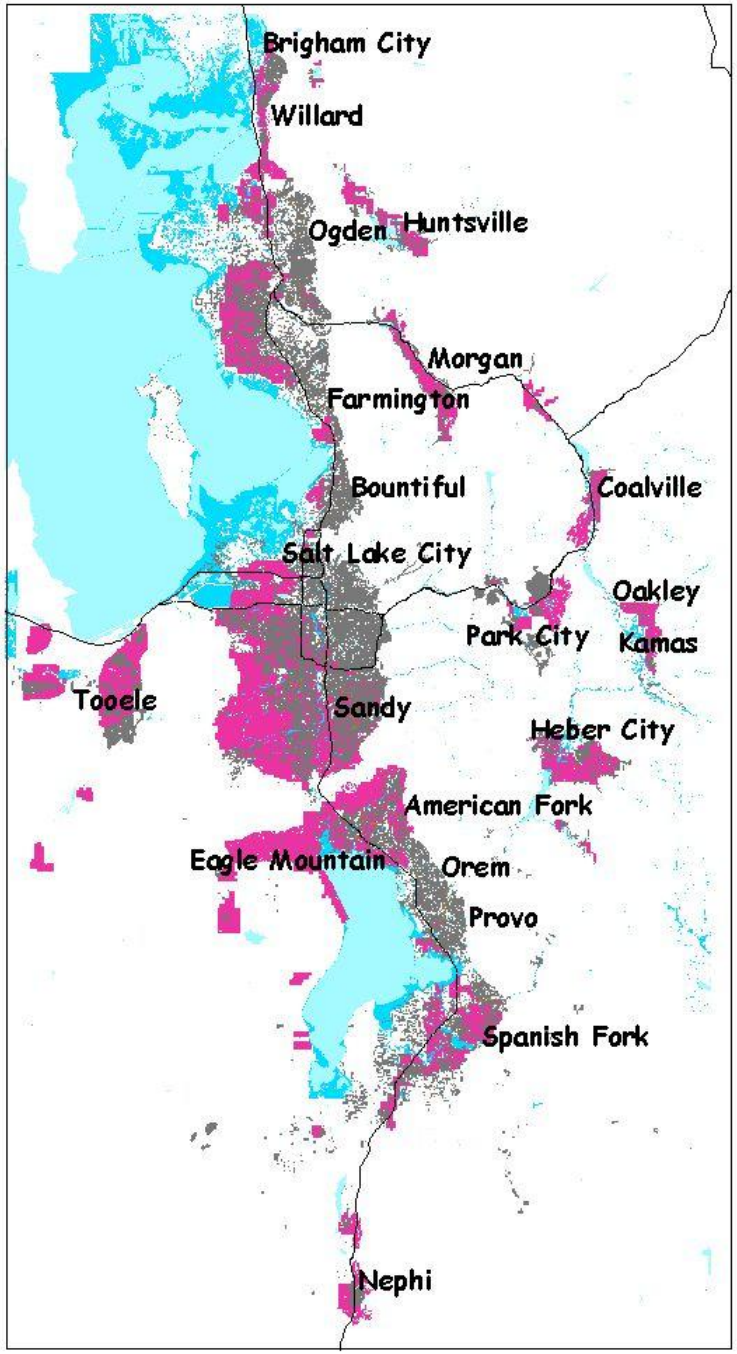
- The region was facing
  - Enormous future growth
  - Inadequate transportation - Doubling of VMT
  - Poor air quality increasing asthma and obscured mountain views

Scenario A

Trends Continue

- Urban area doubles
- Density drops
  - 84% single family
- Fewer people with access to transit
- Highest new infrastructure costs





ENVISION UTAH
A Partnership for Quality Growth

Scenario A

- Freeways
- New Development
- Existing Development
- Water Bodies
- Wetlands & Floodplain

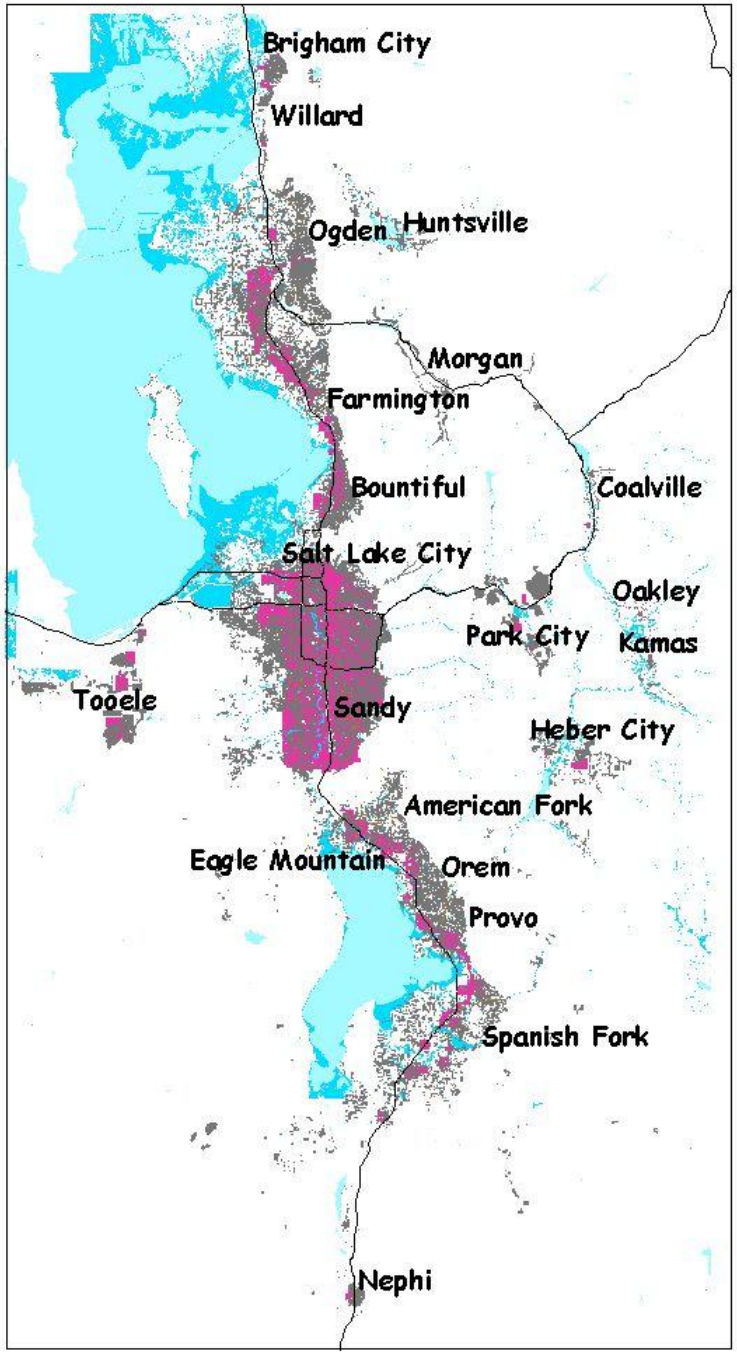
Fregonese Calthorpe Associates
Regional and Urban Planning

QGET

Scenario D

Aggressive Infill

- Urban area increases by 15%
  - Most ag land preservation
- 60% of new growth accommodated through infill
  - Portland Metro – 35%
- Most people within walking distance to transit
- Significant transit investment
  - 2nd lowest infrastructure costs



ENVISION UTAH
A Partnership for Quality Growth

Scenario D

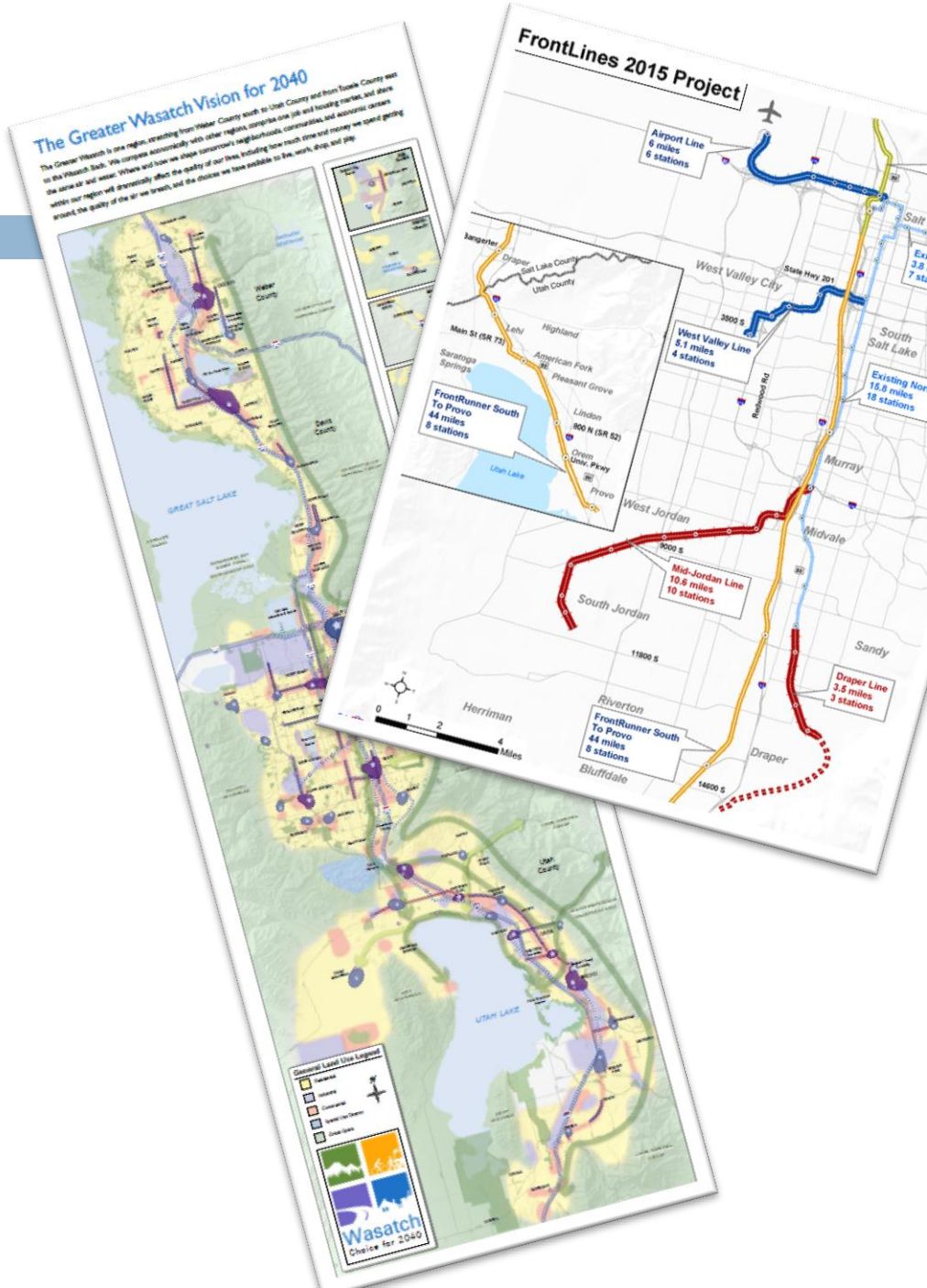
Freeways
New Development
Existing Development
Water Bodies
Wetlands & Floodplain

Fregonese Calthorpe Associates
Regional and Urban Planning

QGET

Envision Utah: Vision for 2040

- The region is blazing a new path – a well connected region
- ***Salt Lake City is investing more, per capita, in new public transit than any other metro area in the country***
- Currently focused on intensive, small-scale implementation around transit

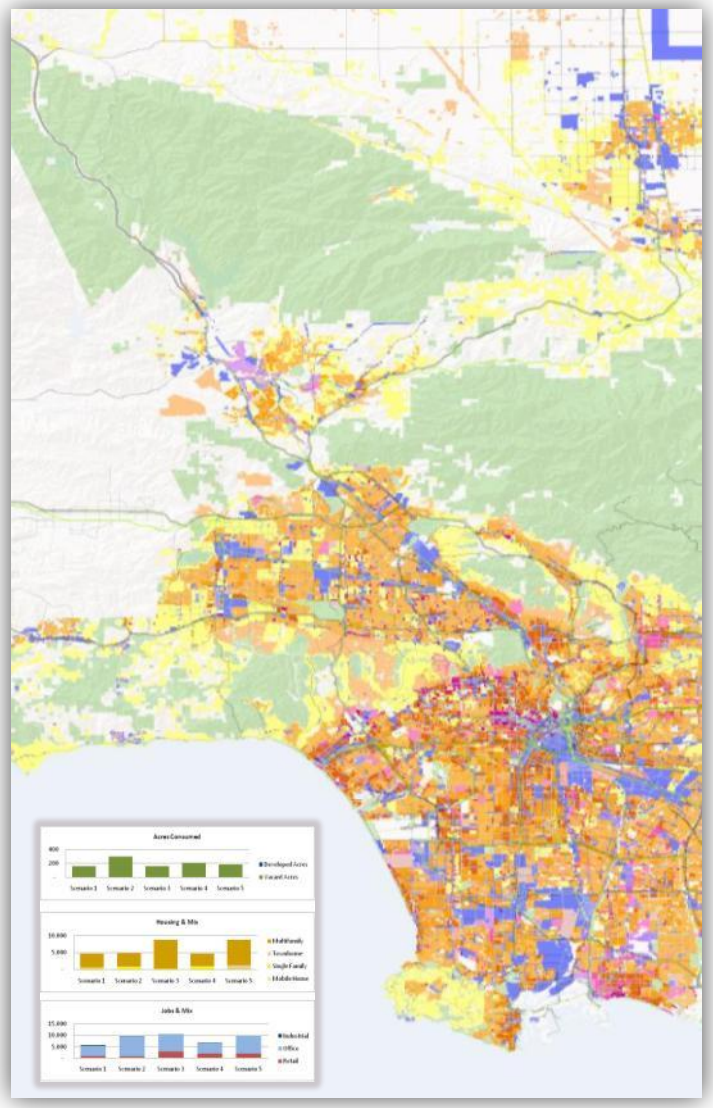


What is Envision Tomorrow?

- Suite of planning tools:
  - Prototype Builder
    - Return on Investment (ROI) model
  - Scenario Builder
    - Extension for ArcGIS

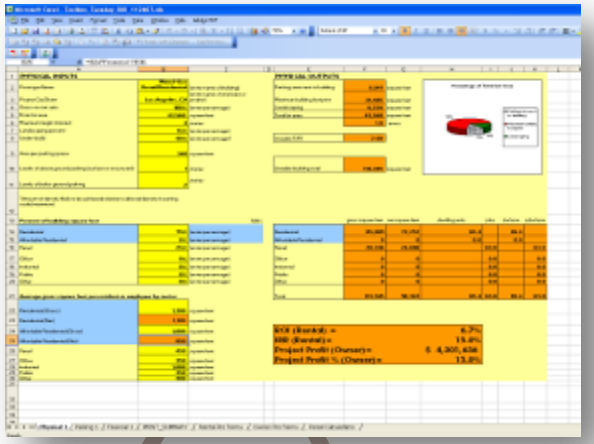
envision tomorrow™

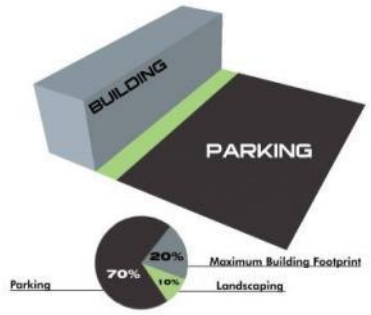
a suite of urban and regional planning tools

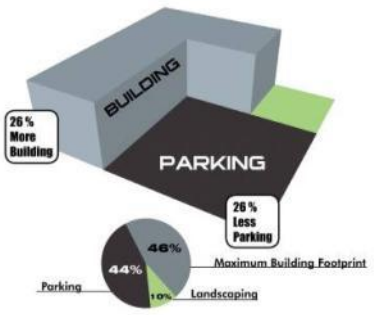


Prototype Builder (ROI Model):
Quick Building Modeler: Physical & Financial

- Powerful as standalone tool or integrated with Scenario Builder
- Test existing regulations for financial feasibility
  - Identify regulatory roadblocks
- Test impact of new development regulations on:
  - Financial feasibility
  - Fiscal impact
  - Housing affordability, etc.
- Experiment with sensitivity of key variables:
  - Height / FAR
  - Parking / Landscaping
  - Land Costs / Rents / Subsidies







Development Feasibility Varies

Can be impacted by regulations and market conditions

Main Street Retail

Townhomes

Compact Single Family

3- and 4-story mixed-use

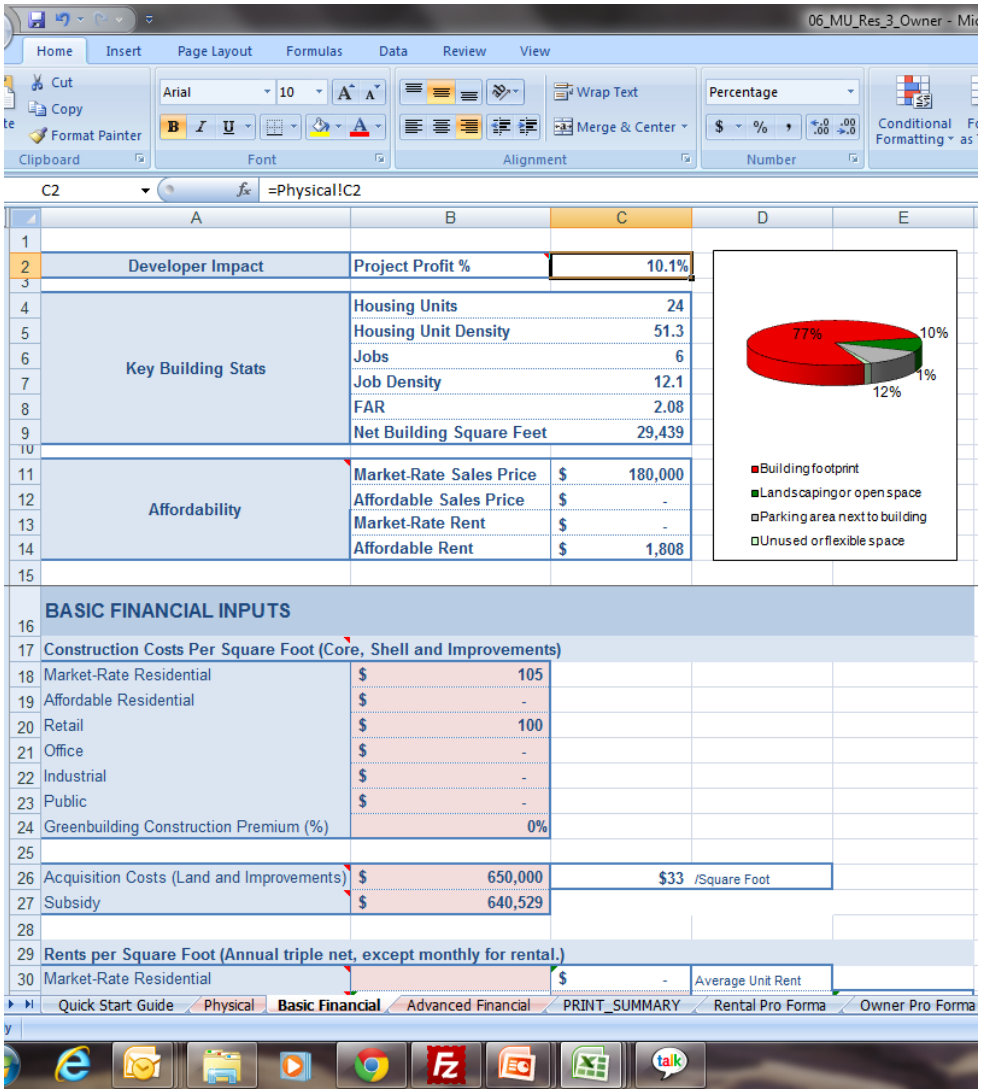
6+ Story

Most Feasible

Most Challenging

Optimize Development Regulations

- Use ROI analysis to make regulations market feasible
- Experiment with:
  - Height
  - Parking requirements / type
  - Unit sizes
  - Landscaping requirements
  - Etc.



Regulatory Analysis

Long Beach Blvd, Long Beach, CA

Baseline

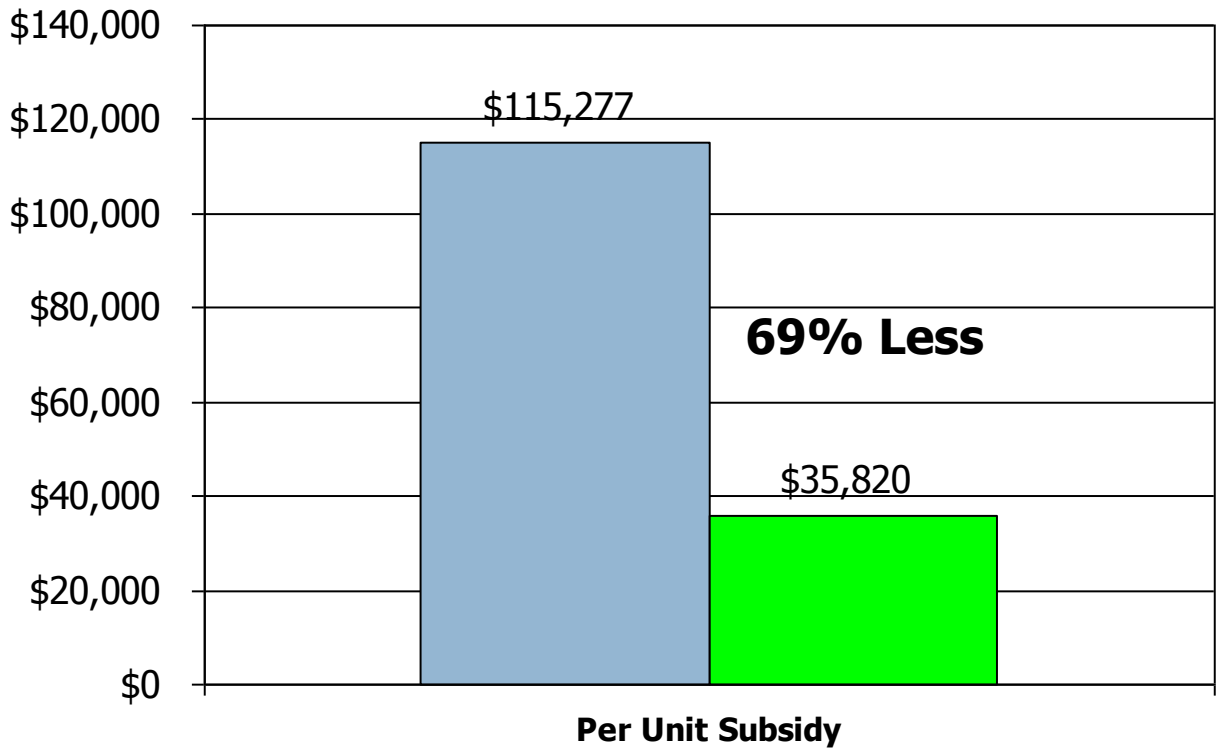
4 story Mixed Use with existing parking

Optimized

6 story Mixed Use with lower parking requirements

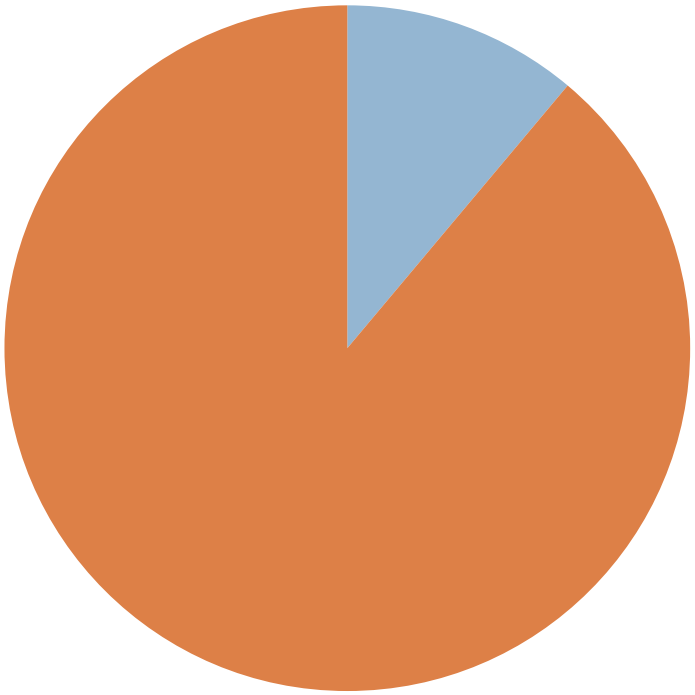
Baseline			**Optimal**	**Change**
Height	4 Stories		6 Stories	+2
Parking Spaces	127		115	-10%
Land Used	43,000 Square Ft		43,000 Square Ft	0%
Density	31 DU / Acre		63 DU / Acre	+103%
Floor Area Ratio	1.1		2.0	+79%
Project Value	$17.3 Million		$23.5 Million	+35%
Unit Cost	$519,272		$369,590	-29%

Per Unit Subsidies



Competitiveness of Place:
Capture More of the Regional Housing Demand

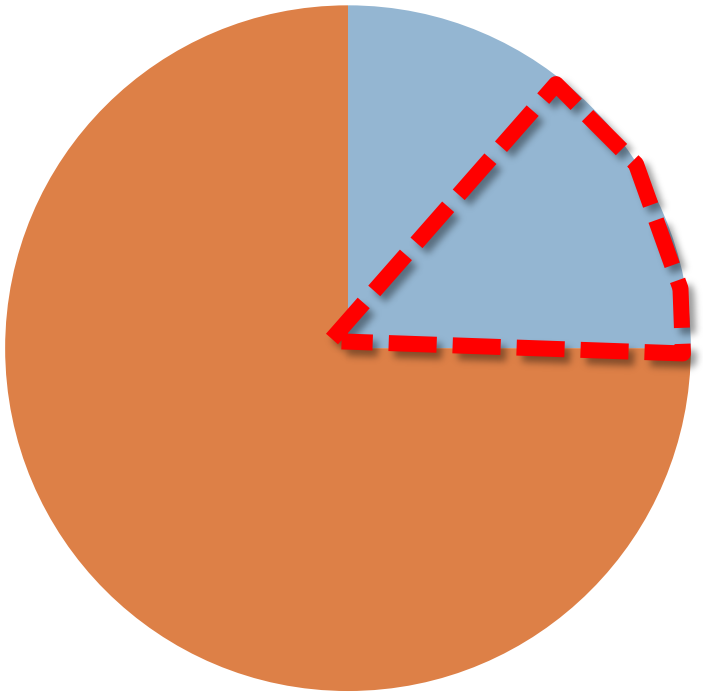
TOD Housing Segment Demand



80% MHI
$43,679

Young Family (25-35)

Project assistant and retail assistant
$1,092 month/rent (63% likelihood)
$142,000 purchase (37% likelihood)



Development Feasibility Spectrum Changes with Increase in Desirability

What Can Be Built?

Today's Rents & Sales Prices

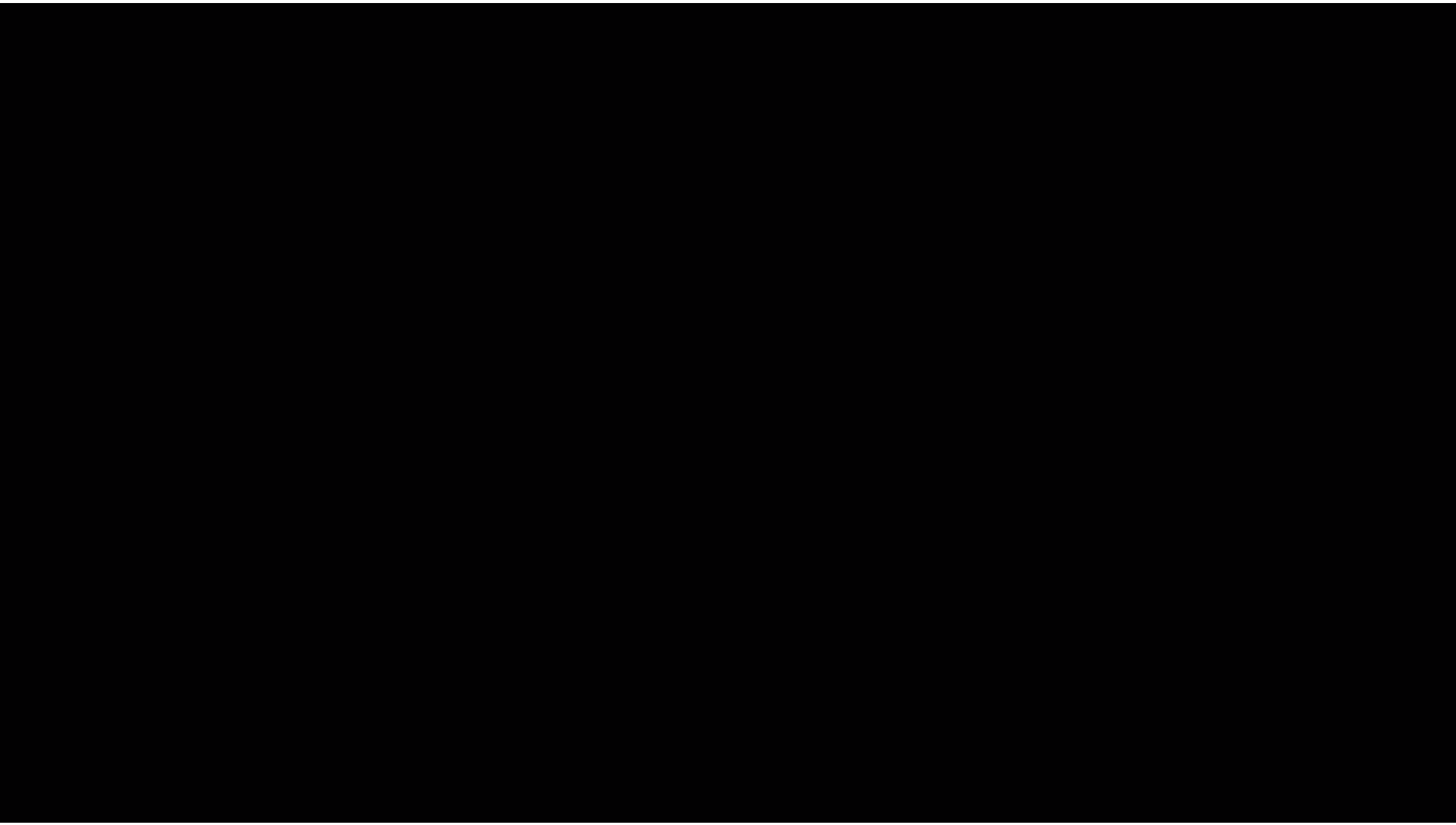
10% Increase in Average Rent

20% Increase in Average Rent

Downtown St Johns: Existing

Downtown St Johns: 100% Amenitized

Canyon Road, Beaverton OR



Scenario Builder:

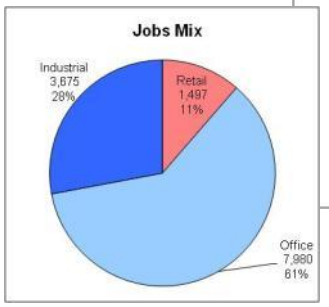
Scenario Painter for ArcGIS

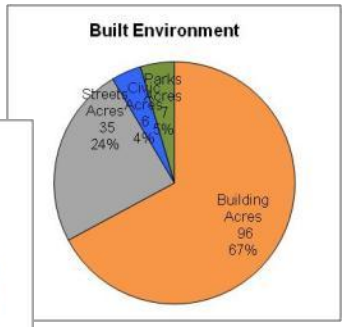
- Quickly paint scenarios using financially feasible building blocks
- Compare multiple scenarios across variety of indicators
- Track progress in real-time

Buildings

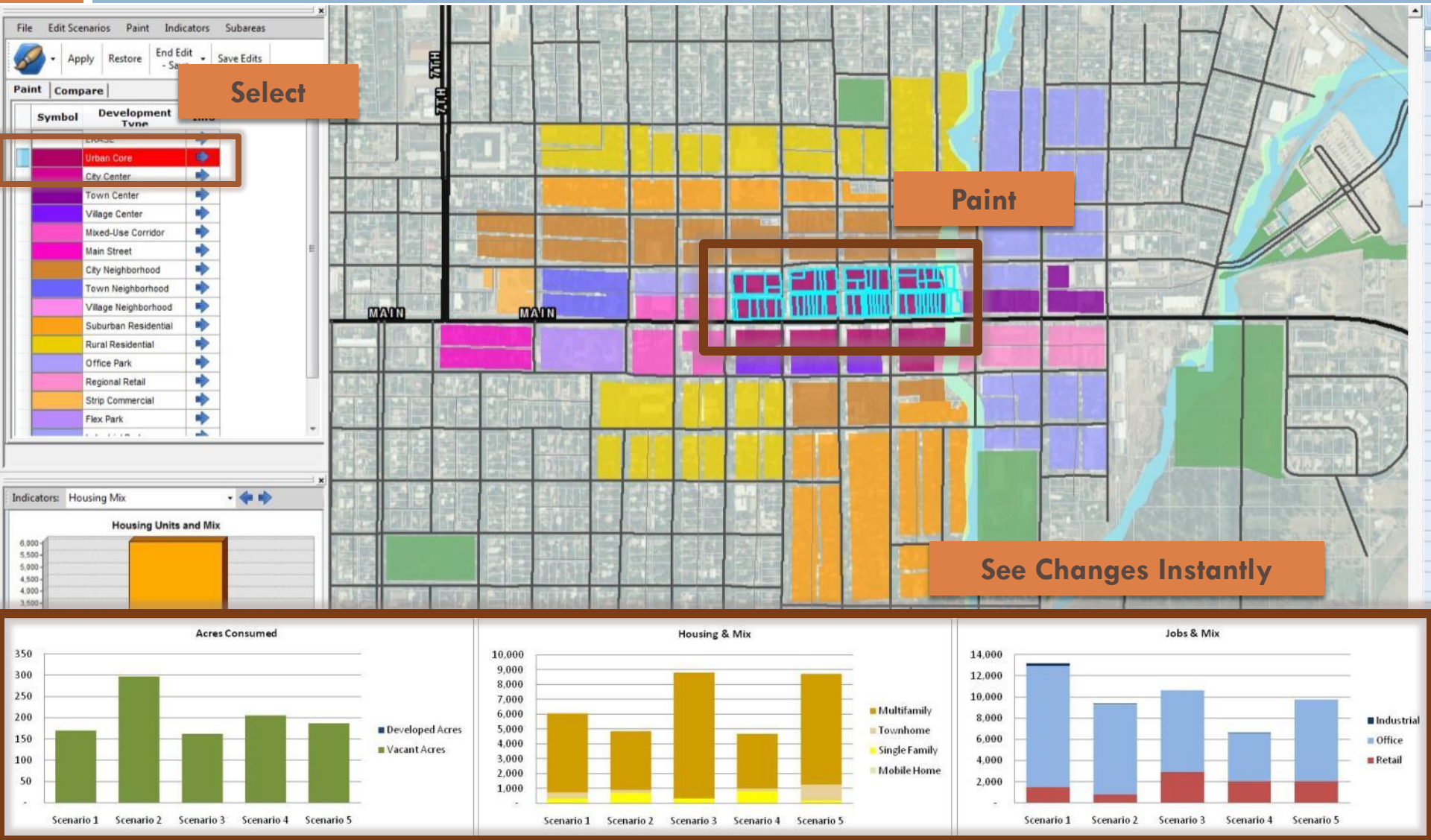
Scenarios

Indicators

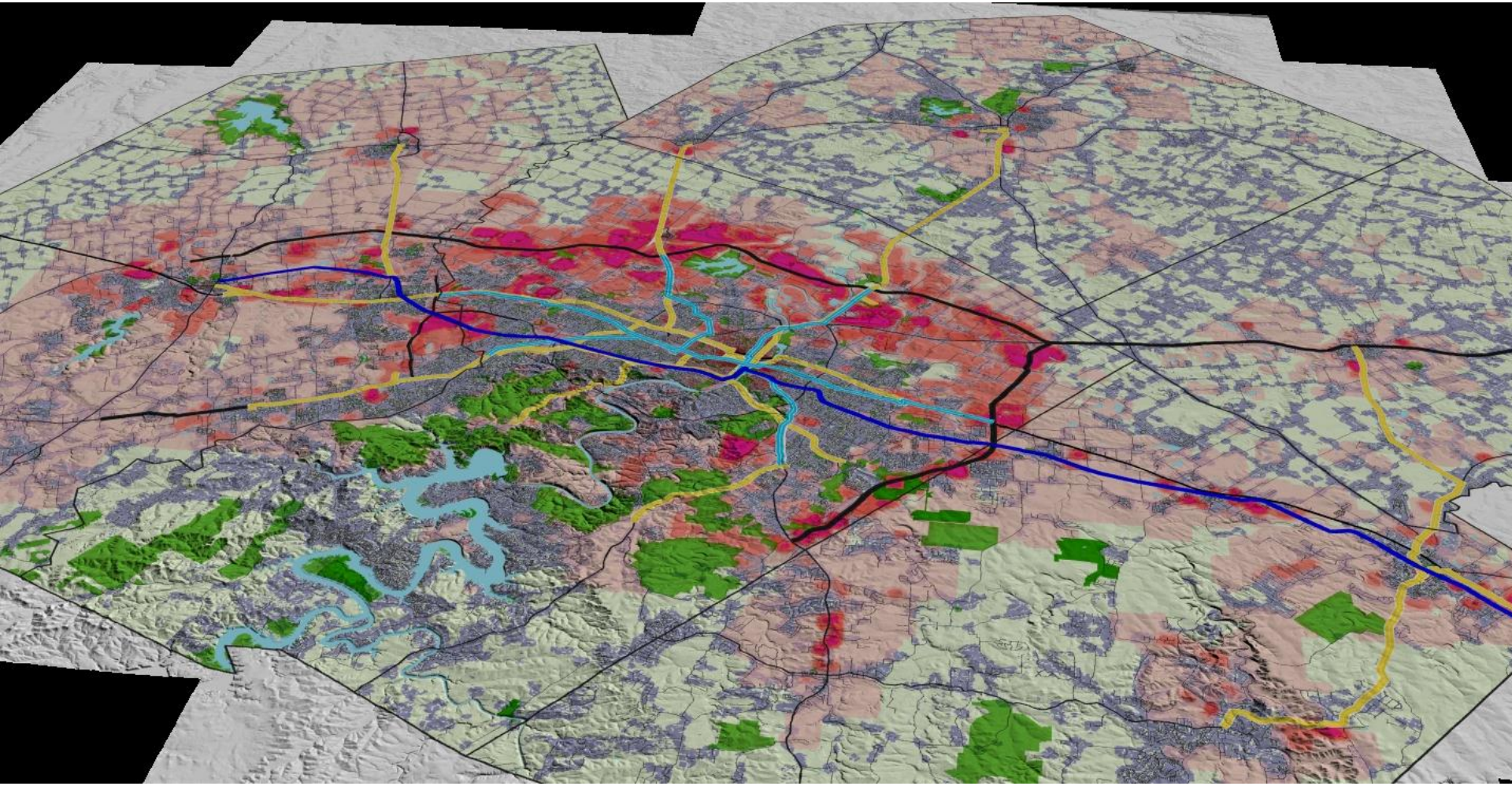




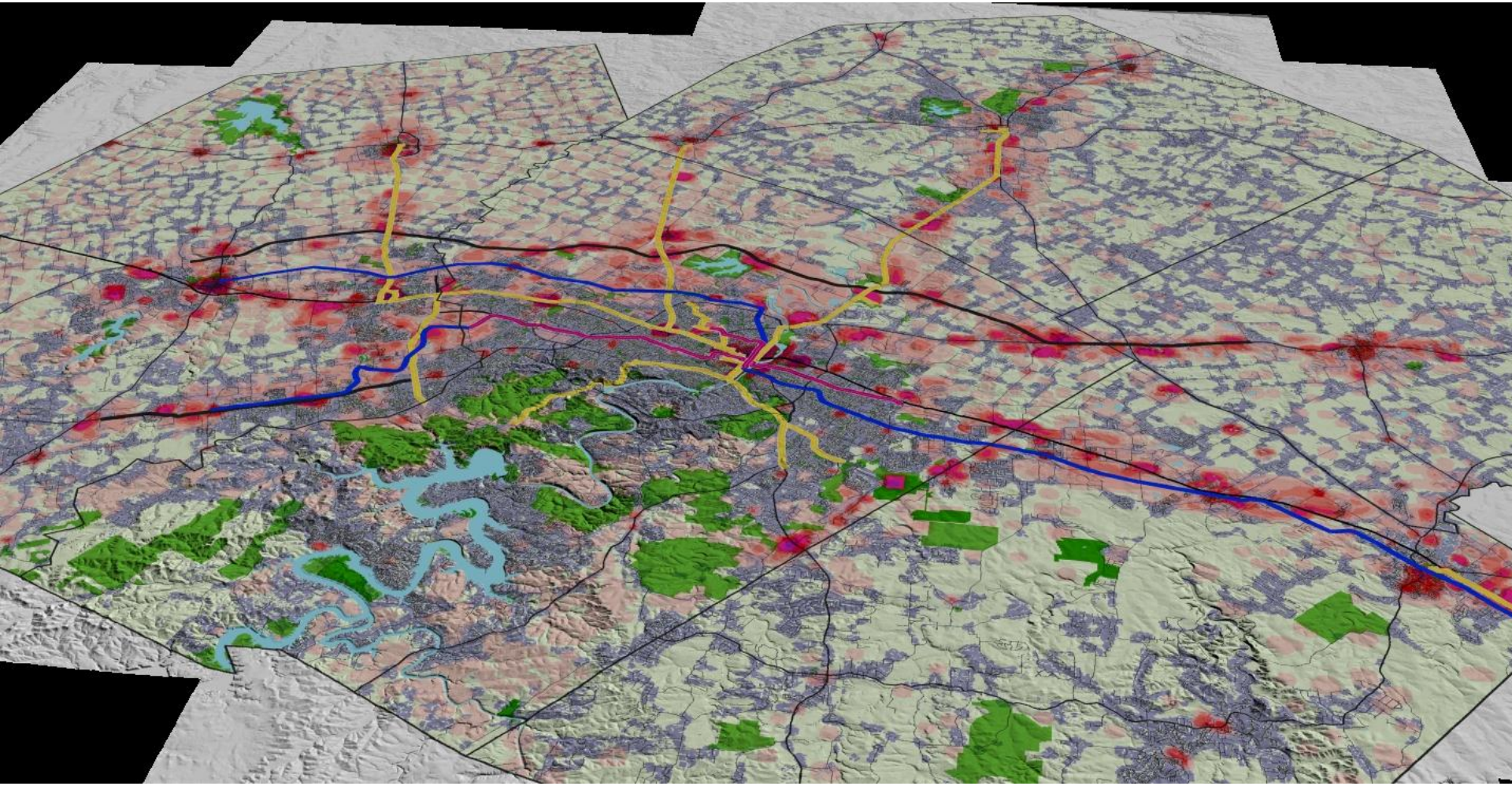
Real-time Scenario Building and Evaluation



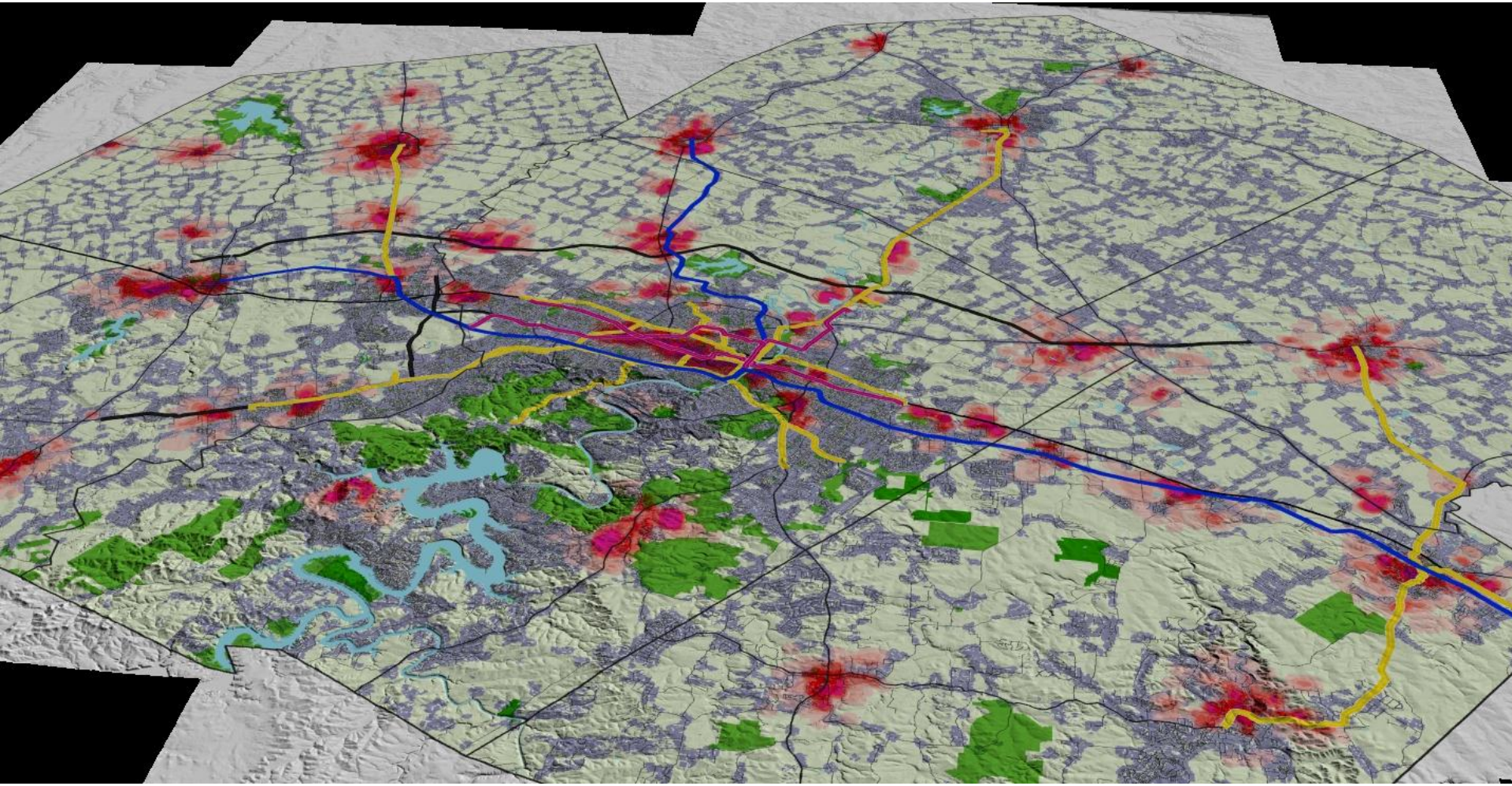
Greenfield on the Beltway



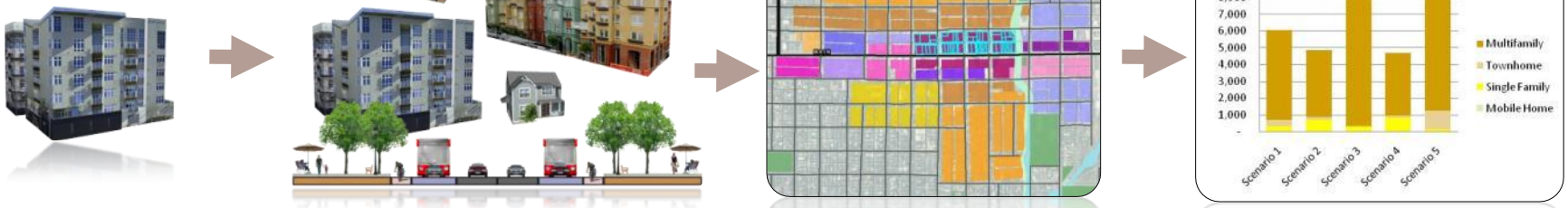
Freewheeling Around Freeways



A Networked Metropolis



Scenario Building Process



Building Types | **Development Types** | **Scenario Development** | **Evaluation**

1

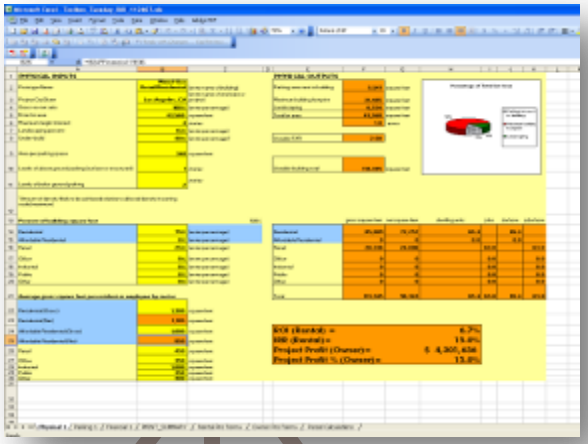
Step 1: Model a library of building types that are financially feasible at the local level.

Create Prototype Buildings

Why start with buildings?

- *Easily modeled & lots of existing data*
  - Density and Design
  - Rents and Sales Prices
  - Costs and Affordability
  - Energy and Water Use
  - Fiscal Impacts

Use ROI Model…



…to Create a Range of Buildings

Use Real World Examples

Dorchester, MA 18.4 units / acre

context

neighborhood

plan

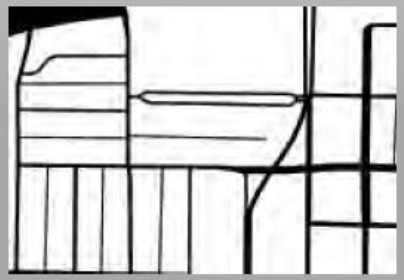
street pattern

Phoenix, AZ 31.5 units / acre

context

neighborhood

plan



street pattern

Boston, MA 52.9 units / acre

context

neighborhood

plan

street pattern

San Francisco, CA 222.0 units / acre

context

neighborhood

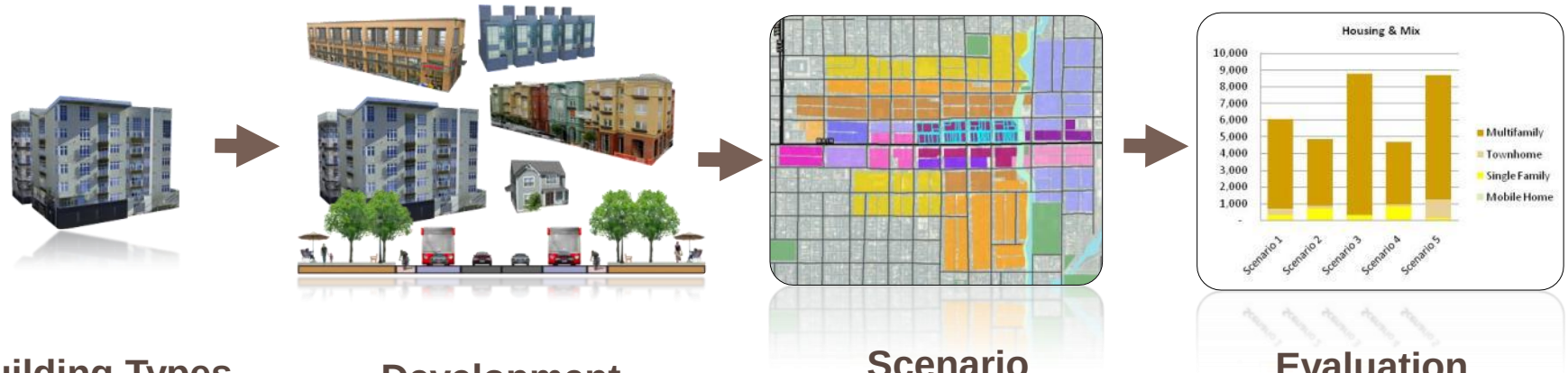
plan

street pattern

Johnson Street Townhomes Portland (Pearl)

- 3 Stories
- 30 units / acre
- Avg Unit Size: 2,390 sq ft

Scenario Building Process



Building Types → **Development Types** → **Scenario Development** → **Evaluation**

2

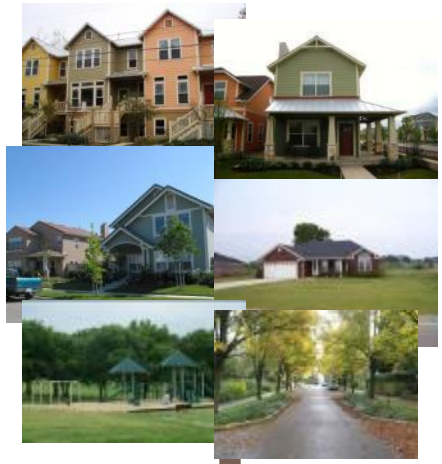
Step 2: Define the buildings, streets and amenities that make up all the "places" in which we live, work and play.

Development Type Mix

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

Town Center

Medium-Density Residential



Single-Family Residential

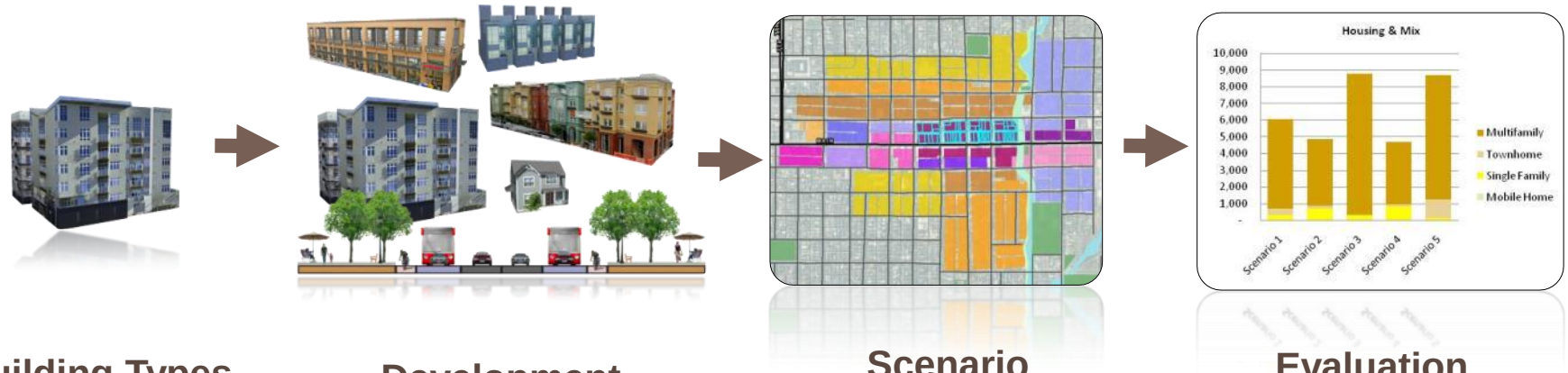
Urban Center

Housing Units per Acre	Jobs per Acre
40 DU/Gross Acre	50 Jobs/Gross Acre

Development Types are Scalable from Parcels to Districts

- Include one or many building types depending on scenario planning geography
- Parcels, Census Blocks, uniform grid

Scenario Building Process

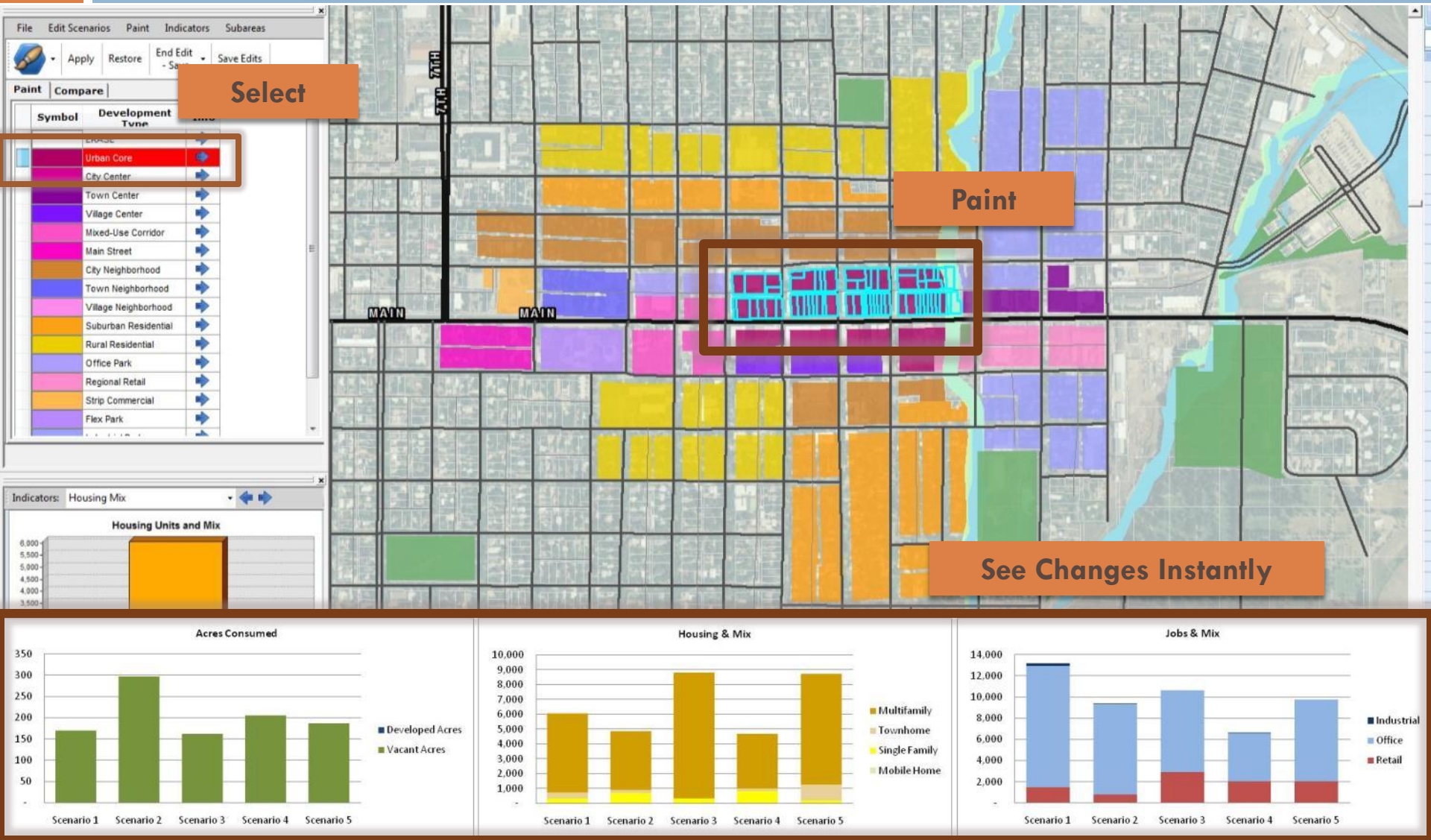


Building Types | **Development Types** | **Scenario Development** | **Evaluation**

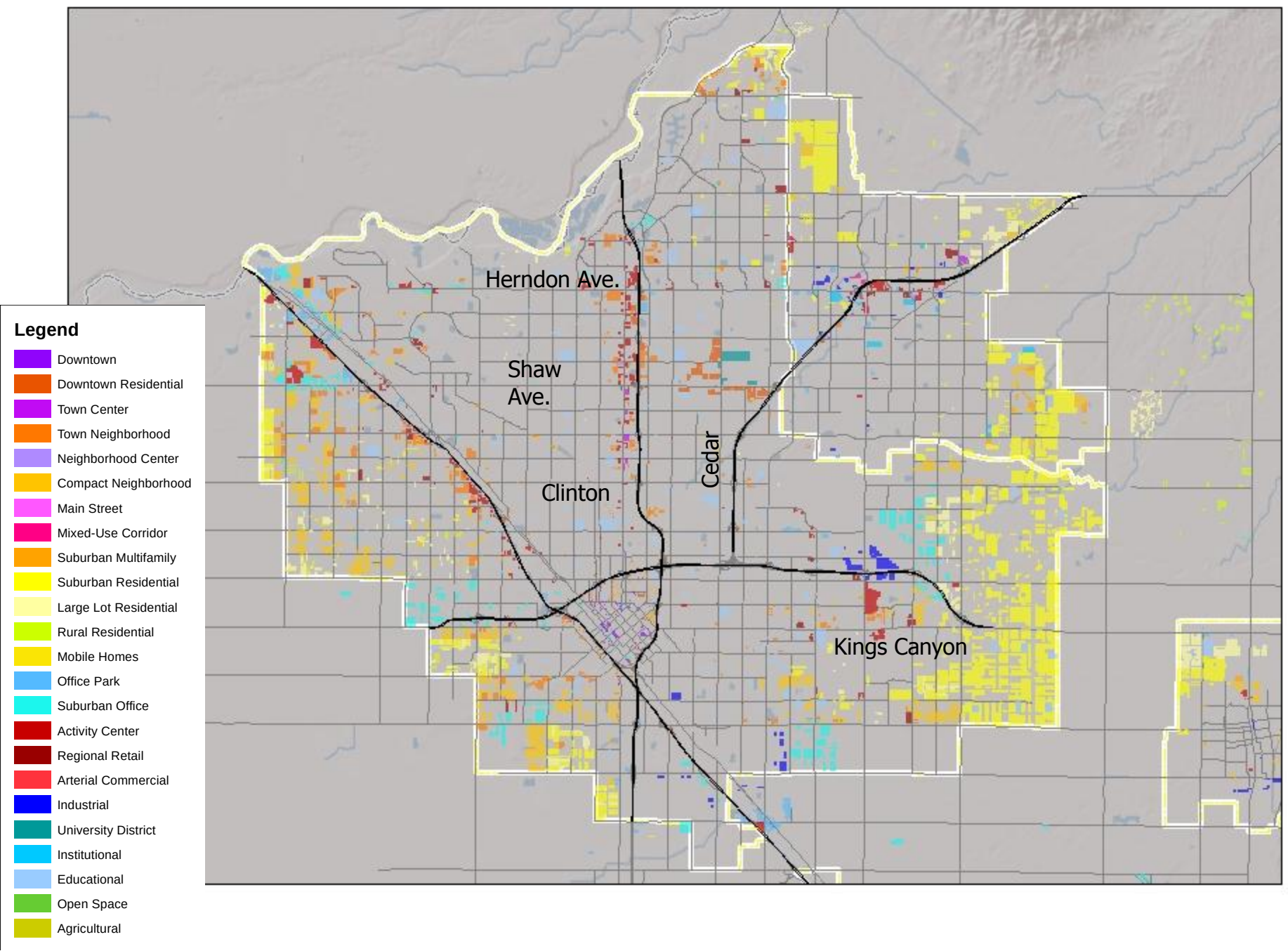
3

Step 3: Paint future land use scenarios to test the implications of different decisions or policies.

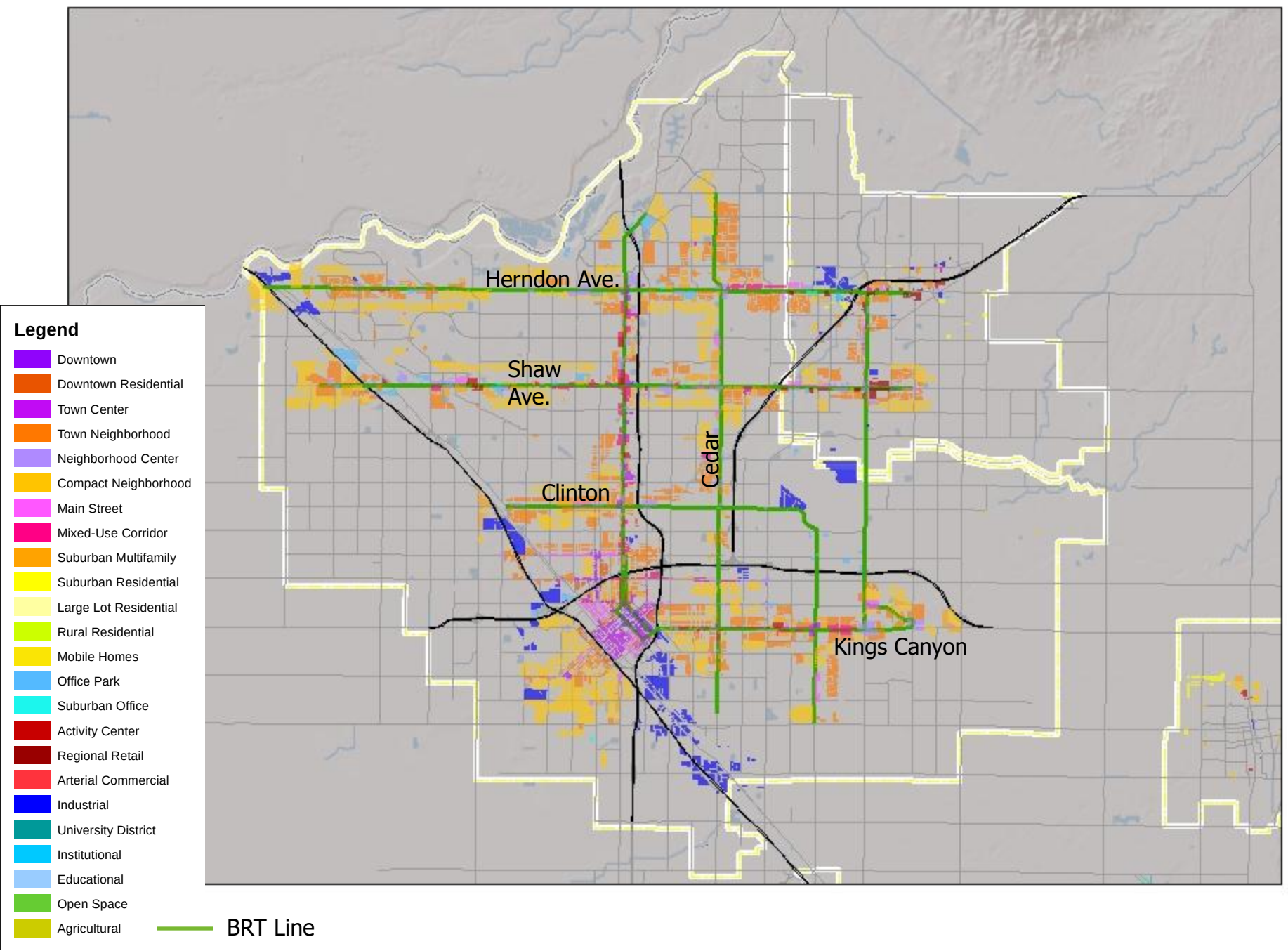
Real-time Scenario Building and Evaluation



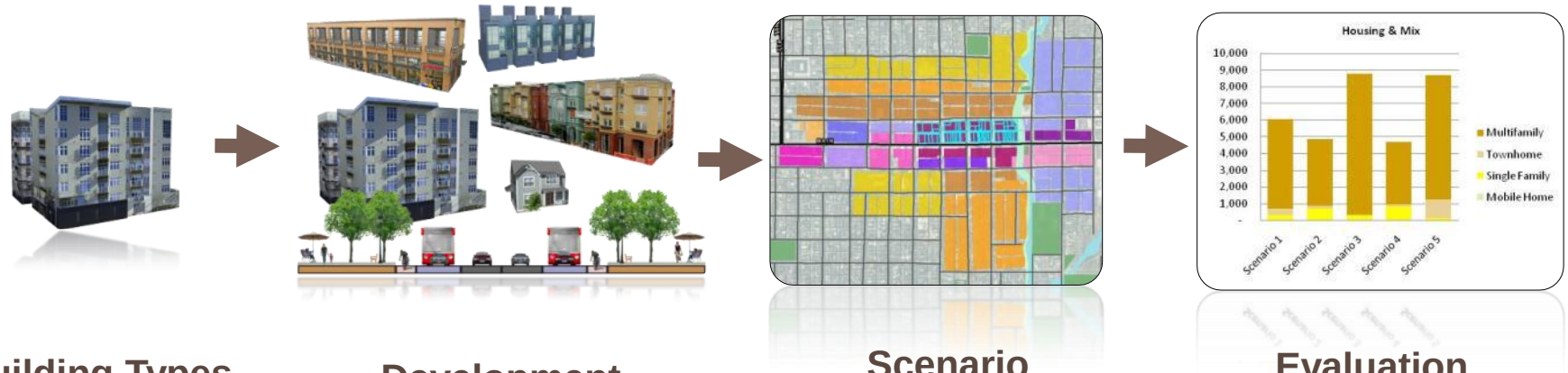
Fresno & Clovis SOI // Scenario 1



Fresno & Clovis SOI // Scenario 3



Scenario Building Process



Building Types | **Development Types** | **Scenario Development** | **Evaluation**

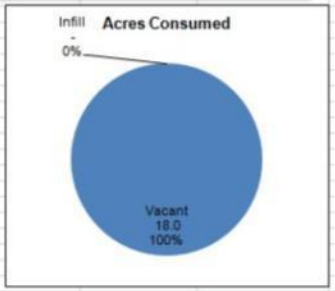
Step 4: Compare the scenarios and monitor the impact of land use decisions in real-time.

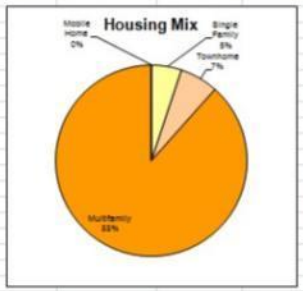
Monitor Indicators in Real-time

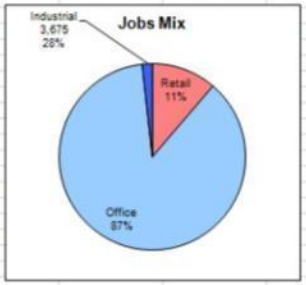
Detailed Tables

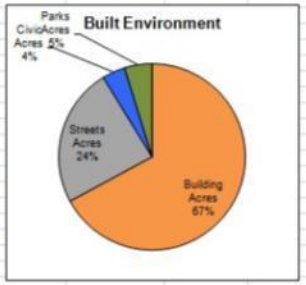
Enter Scenario Name or Theme	Acres Consumed				Total Housing Units	Housing Mix				Total Jobs	Employment Mix			Built Environment			
Dev type	Total Vacant Acres	Total Developed Acres	Discounted Developed Acres (*Redev %)	Total Acres		Single Family	Townhome	Multifamily	Mobile Home		Retail	Office	Industrial	Building Acres	Streets Acres	Civic Acres	Parks Ac
Urban Core	13.6	-	-	13.6	2,179	-	-	2,179	-	11,838	888	10,950	-	9.26	3.40	0.54	
City Center	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Town Center	3.4	-	-	3.4	343	-	-	343	-	121	121	-	-	2.32	0.85	0.14	
Village Center	3.2	-	-	3.2	132	-	-	132	-	113	113	-	-	2.17	0.80	0.13	
Mixed-Use Corridor	5.7	-	-	5.7	149	-	-	149	-	199	199	-	-	3.80	1.42	0.23	
Main Street	4.0	-	-	4.0	2,567	-	-	2,567	-	-	-	-	-	2.65	0.99	0.16	
City Neighborhood	24.5	-	-	24.5	344	-	344	-	-	-	-	-	-	16.44	6.14	0.98	
Town Neighborhood	4.0	-	-	4.0	50	-	50	-	-	-	-	-	-	2.67	1.00	0.16	
Village Neighborhood	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Suburban Residential	35.9	-	-	35.9	210	210	-	-	-	-	-	-	-	24.07	8.62	1.44	
Rural Residential	34.3	-	-	34.3	100	100	-	-	-	-	-	-	-	22.96	8.23	1.37	
Office Park	1.9	-	-	1.9	-	-	-	-	-	487	-	487	-	1.30	0.47	0.08	
Regional Retail	5.6	-	-	5.6	-	-	-	-	-	98	98	-	-	3.74	1.28	0.22	
Strip Commercial	2.1	-	-	2.1	-	-	-	-	-	62	62	-	-	1.42	0.49	0.08	
Flex Park	3.7	-	-	3.7	-	-	-	-	-	27	-	-	27	2.51	0.86	0.15	
Industrial Park	27.5	-	-	27.5	-	-	-	-	-	201	-	-	201	18.42	6.32	1.10	
Totals	169.5	-	-	**169.5**	**6,073**	310	394	5,370	-	**13,145**	1,480	11,437	228	**116**	**41**	**7**	
			0%			5.1%	6.5%	88.4%	0.0%		11.3%	87.0%	1.7%	67.1%	24.1%	4.0%	
			0%		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	

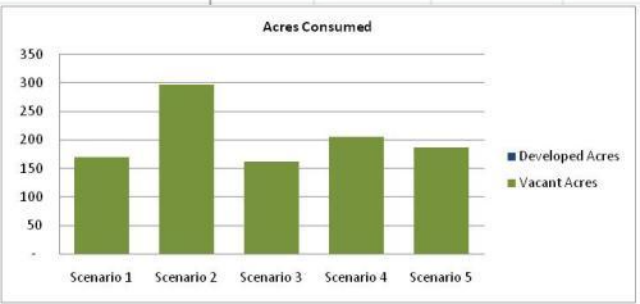
Quick Reference Graphs

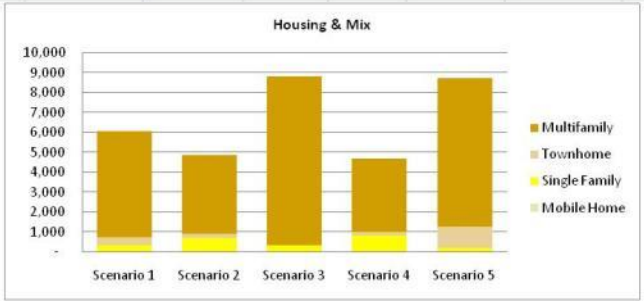


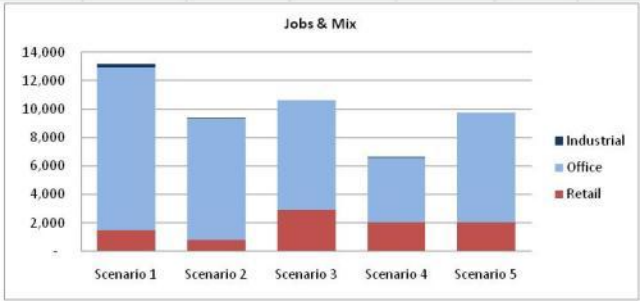










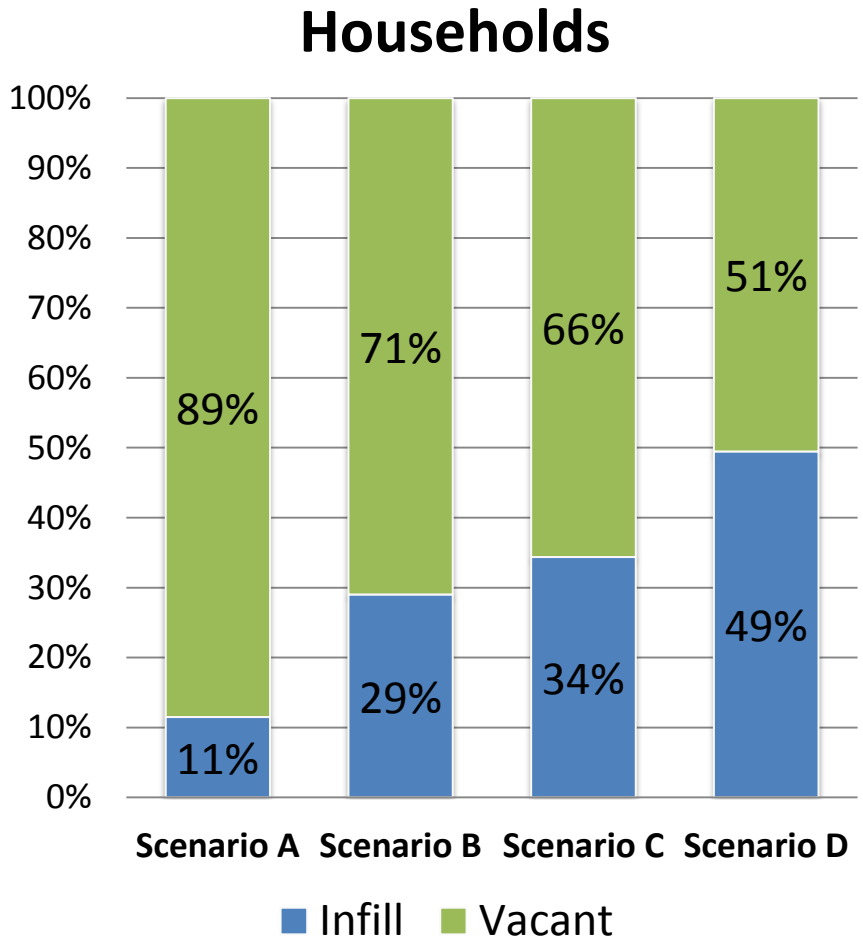


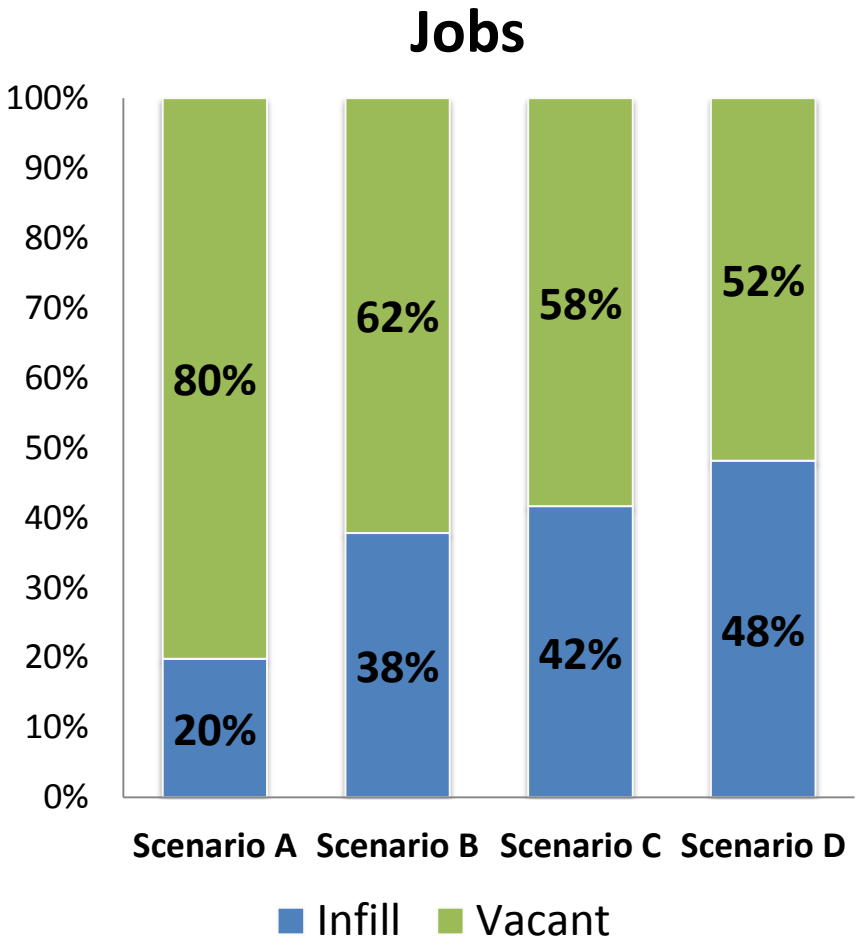
Land Consumption

- Scenario 1: 15% increase in urban area
- Scenario 2: 12% increase
- Scenario 3: 10% increase
  - Scenario 3 has a 35% increase in infill over scenario 1 & 2

New Growth Accommodated through Infill Development

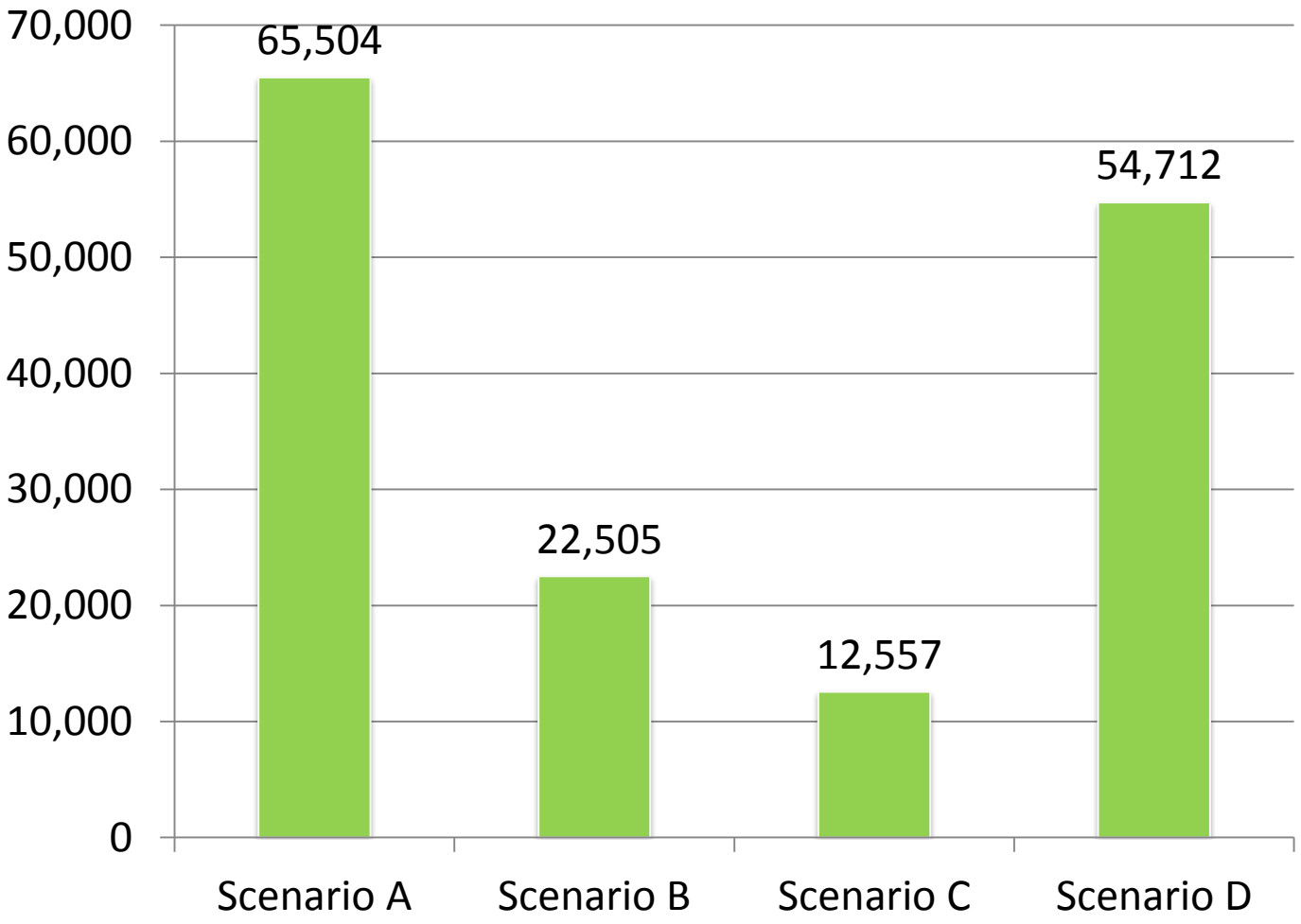
Growth on Infill vs. Vacant Land



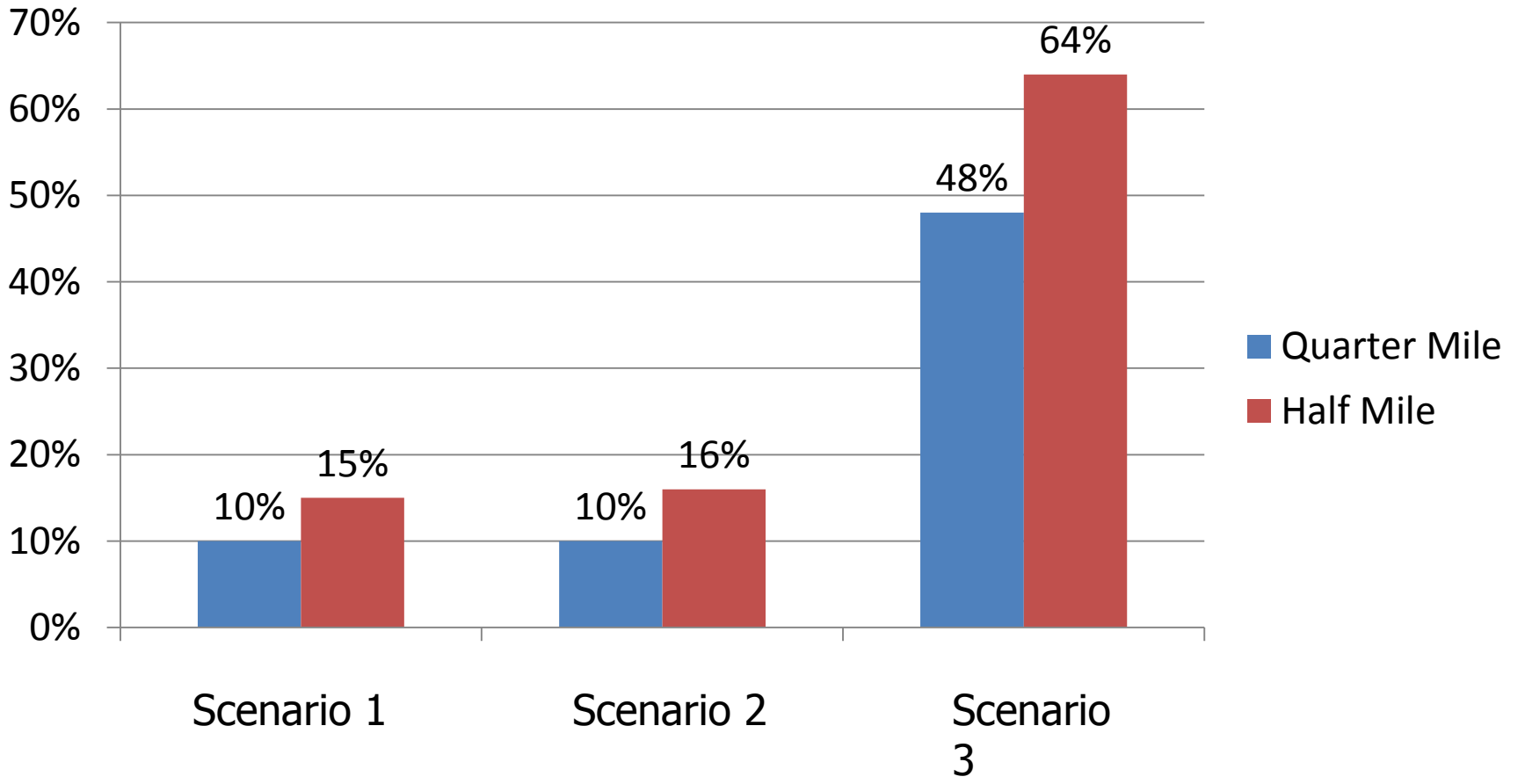


Growth on Agricultural Land & Steep Slopes

Agricultural Lands & Steep Slopes Over 25%



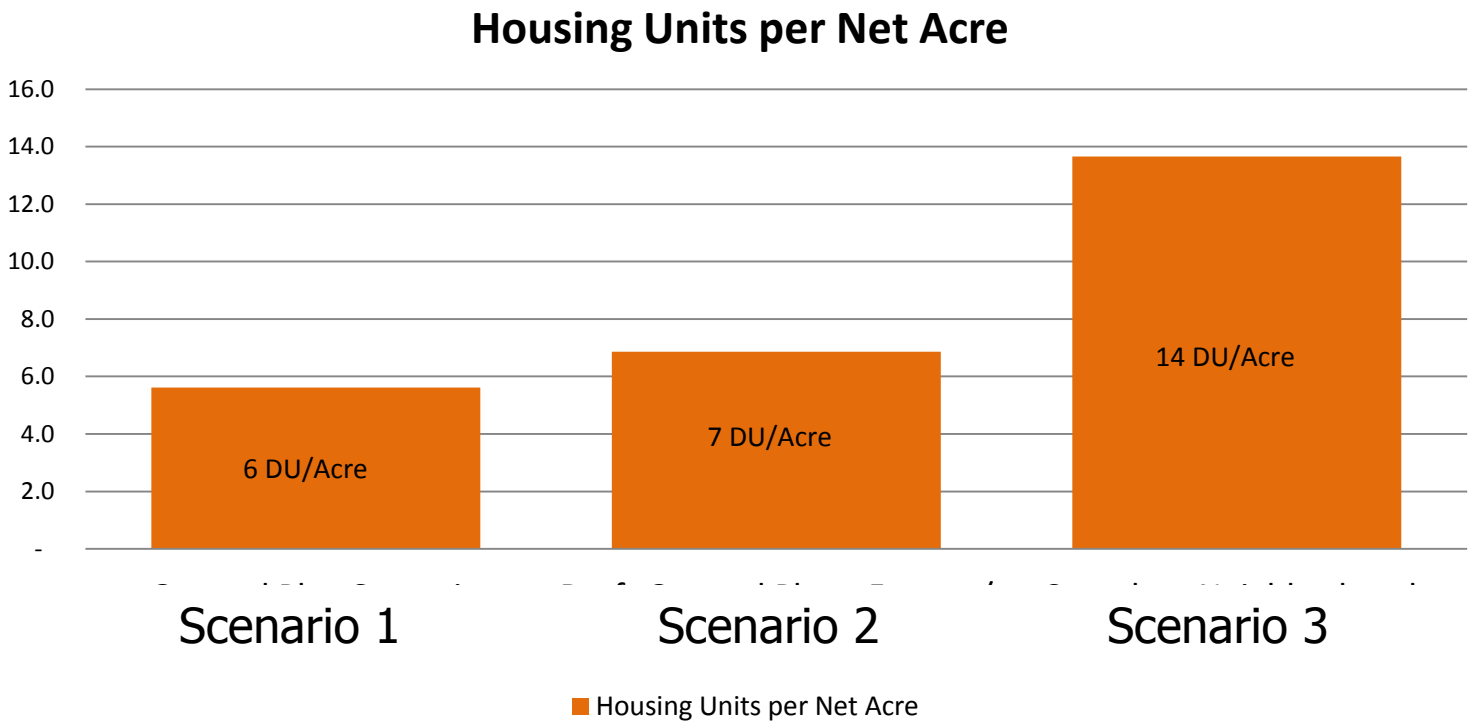
Percent Housing Units within BRT corridor buffer



Percentage of new growth

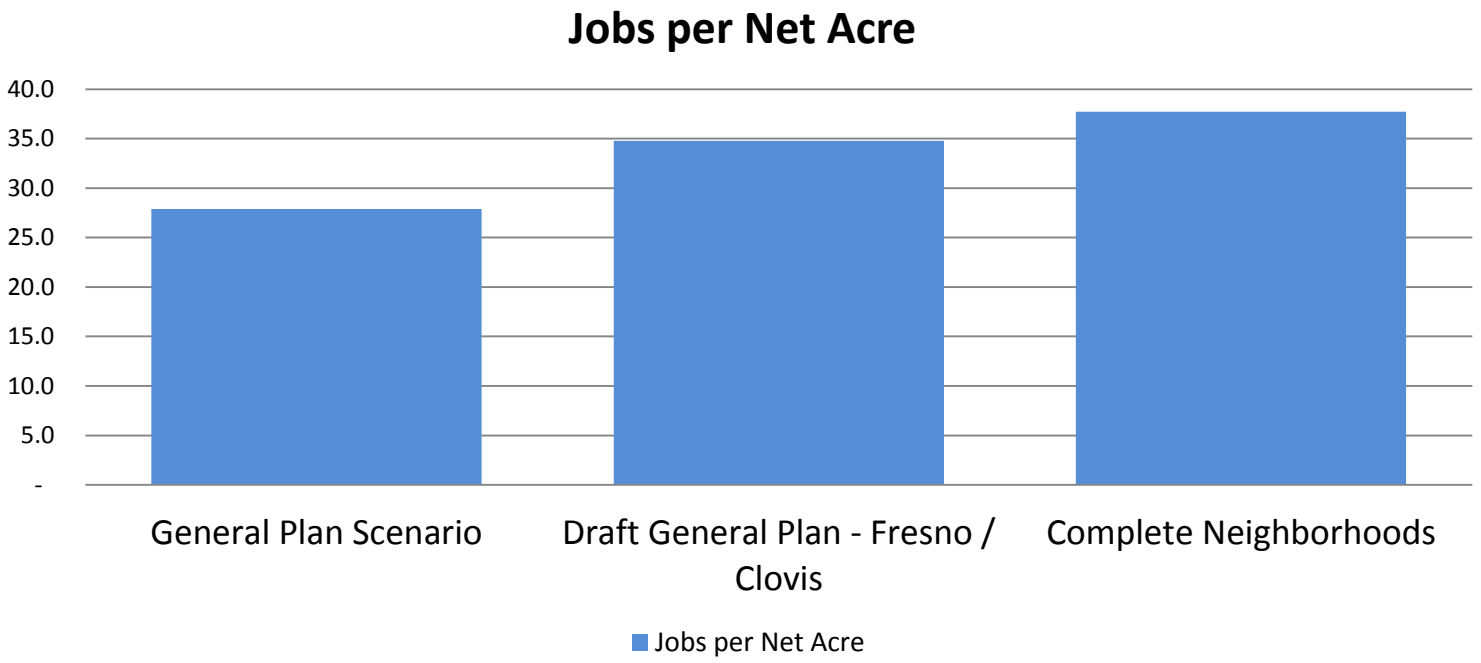
Housing Density

- Continued increase in overall housing density
- Scenario 3: significantly shifts to smaller units and increases modest density multifamily



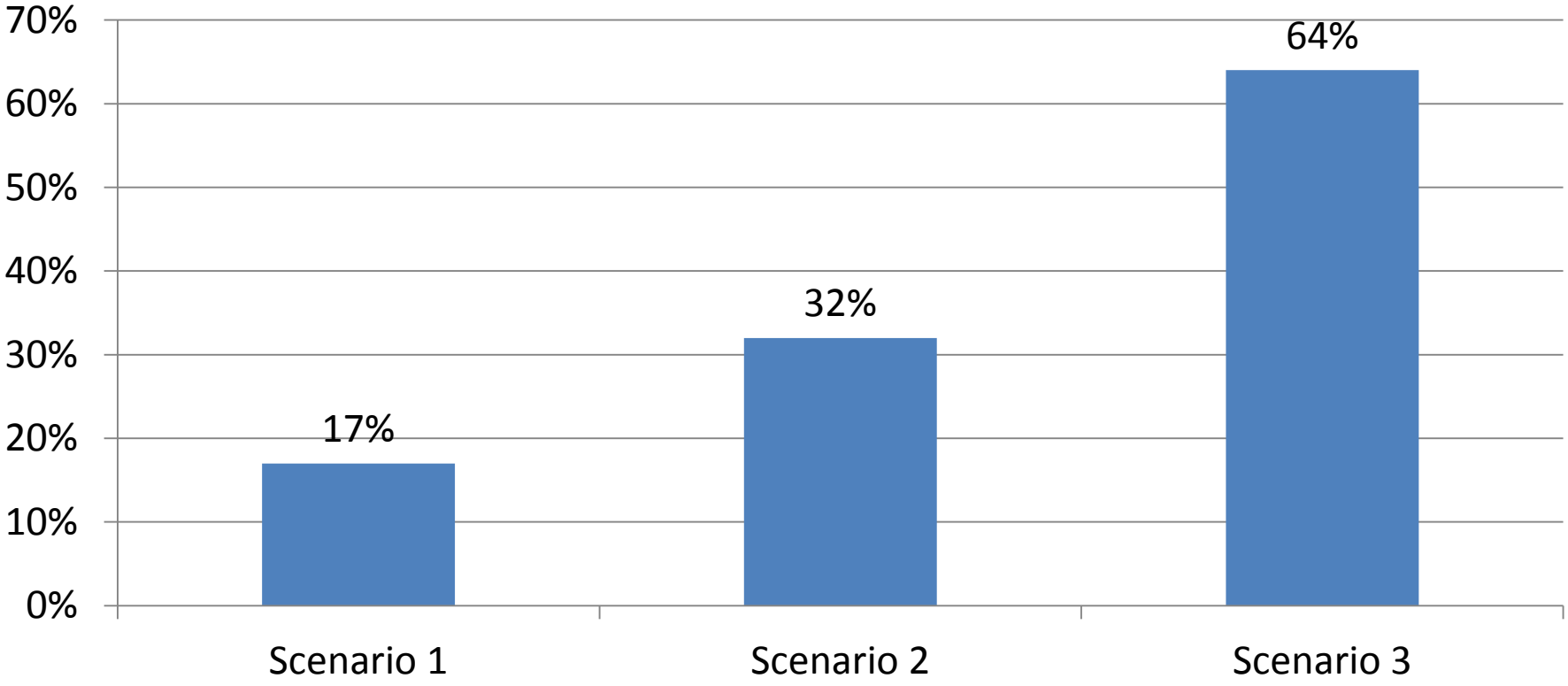
Job Density

- Interestingly, job density did not increase significantly.



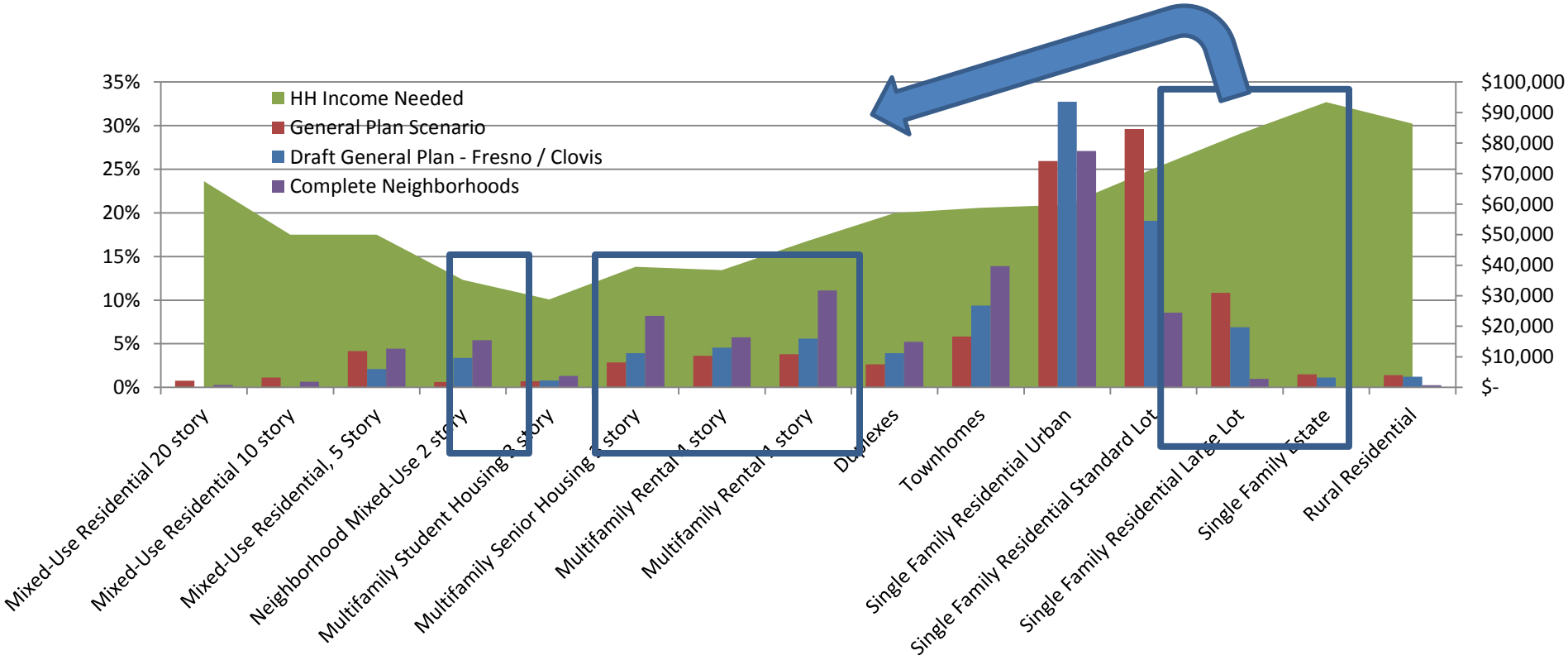
Land Use Mix – Walkability

- Land area with high degree of mixed-use
- Tripling of mixed-use between Scenario 1 – 3

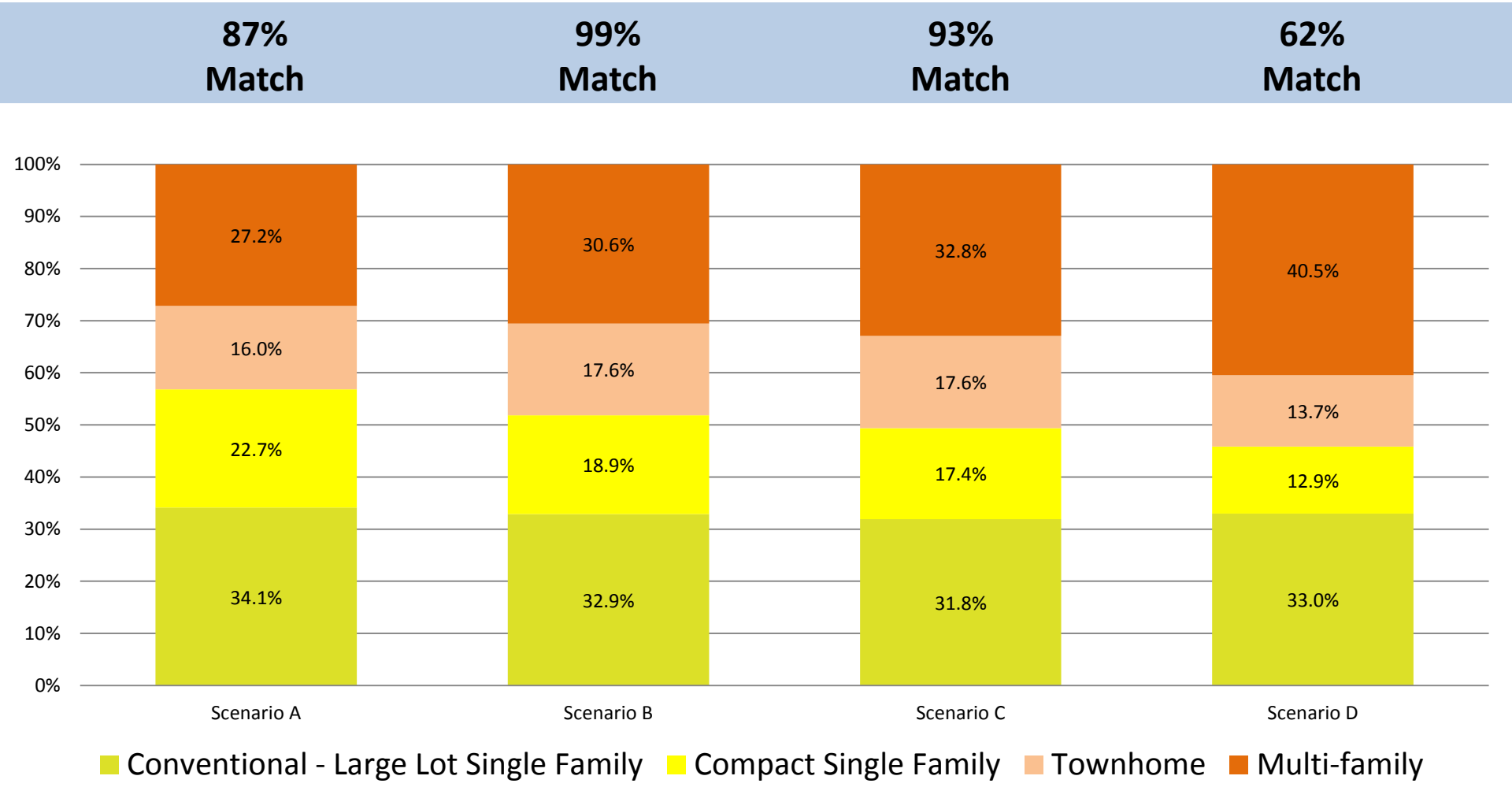


Housing Affordability

- Average NEW home cost: Scenario 1: $240,166 | Scenario 2: $234,887 | Scenario 3: $222,208
  - Similar to self reported 2010 Census Home Value figure; Double current average home prices
- Median income needed to afford average NEW home :
  - Scenario 1: $62,384 | Scenario 2: $59,575 | Scenario 3: $53,677

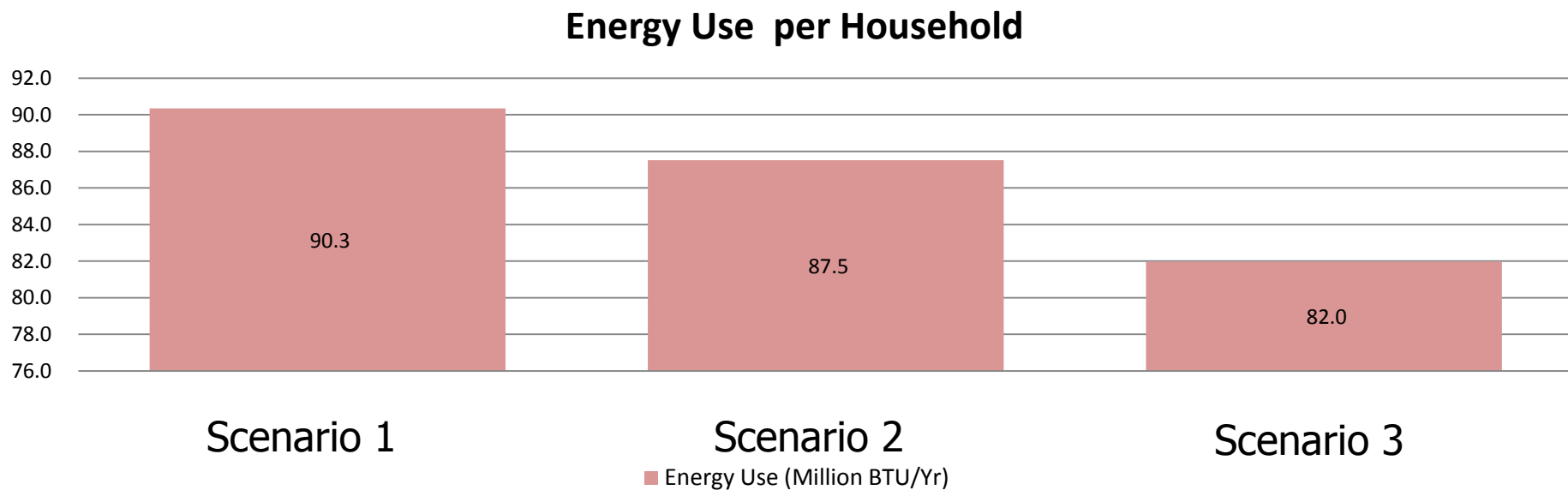


How Well do the Scenarios Match Future Housing Market Demand?



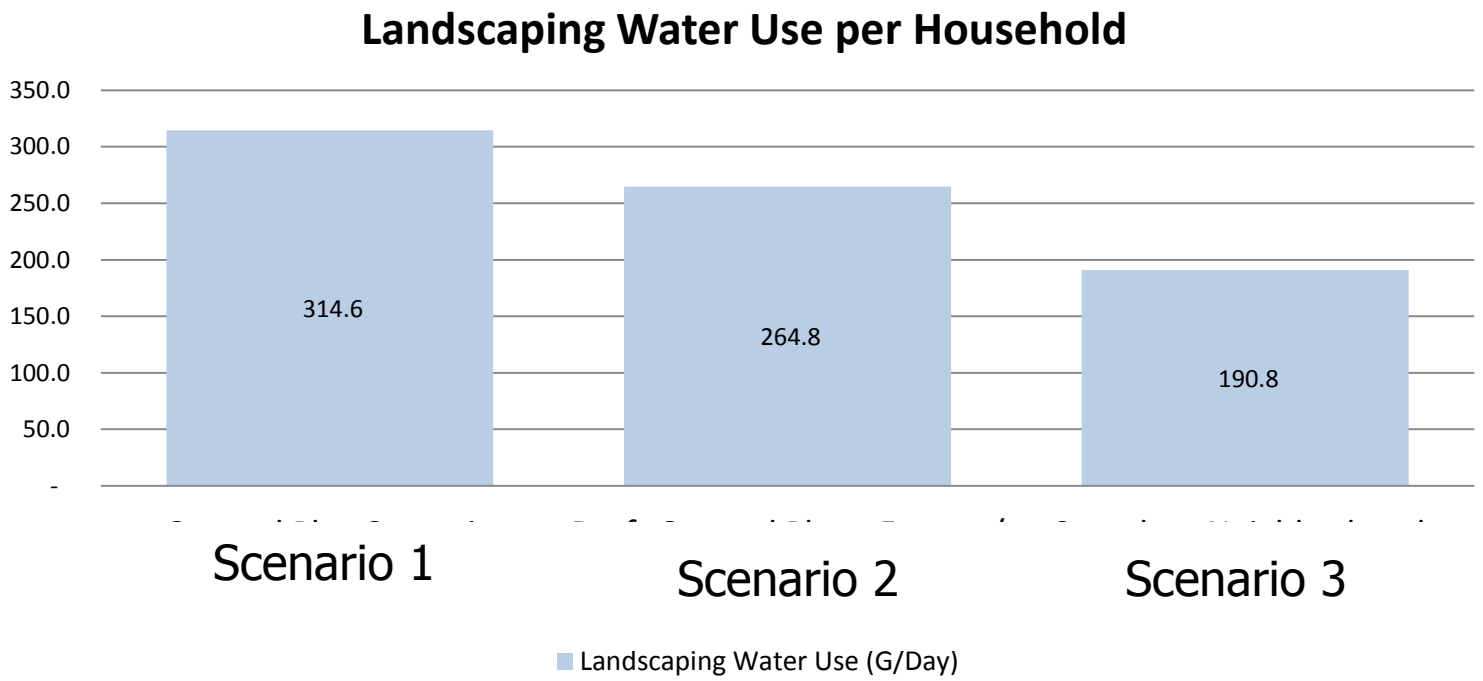
Building Energy Use

- Energy efficiency increases with smaller units and shared walls in multifamily



Landscaping Water Use

- Significant reduction in lawn area between scenarios



Scenario Indicators:

- ***Anything we can know about a building, we can know about a scenario…***
  - Housing and Jobs: mix and density
  - Jobs-Housing Balance
  - Land Consumption: vacant, agricultural, infill
  - Impervious Surface
  - Open Space
  - Housing Affordability
  - Resource Usage: energy and water
  - Waste Production: water, solid, carbon
  - Fiscal Impact: local revenue and infrastructure costs
  - Balanced Housing Index: how scenario housing mix matches expected future demographic profile

Additional Apps Under Development – Sustainable Communities Grant:

- Household travel behavior (7Ds)
  - Measure the impact of different land use scenarios on walking, transit and auto usage
  - Health Benefits & Active Transportation
  - Transportation Safety
- Housing + Transportation + Energy Costs
  - A true measure of "affordability"
- Fiscal Impact Model
  - Costs (and potential costs savings) from different growth patterns
- Return on Investment and Leveraging Options
  - Evaluate development regulations for market feasibility
  - Experiment with leveraging tools to make desired projects viable
- Redevelopment Timing:
  - Building age & value depreciation
- Impact of Public Investments on Development
  - Transit, streetscape, parks etc
- LEED-ND Dashboard