

Scenario Planning with Envision Tomorrow

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November 16, 2011

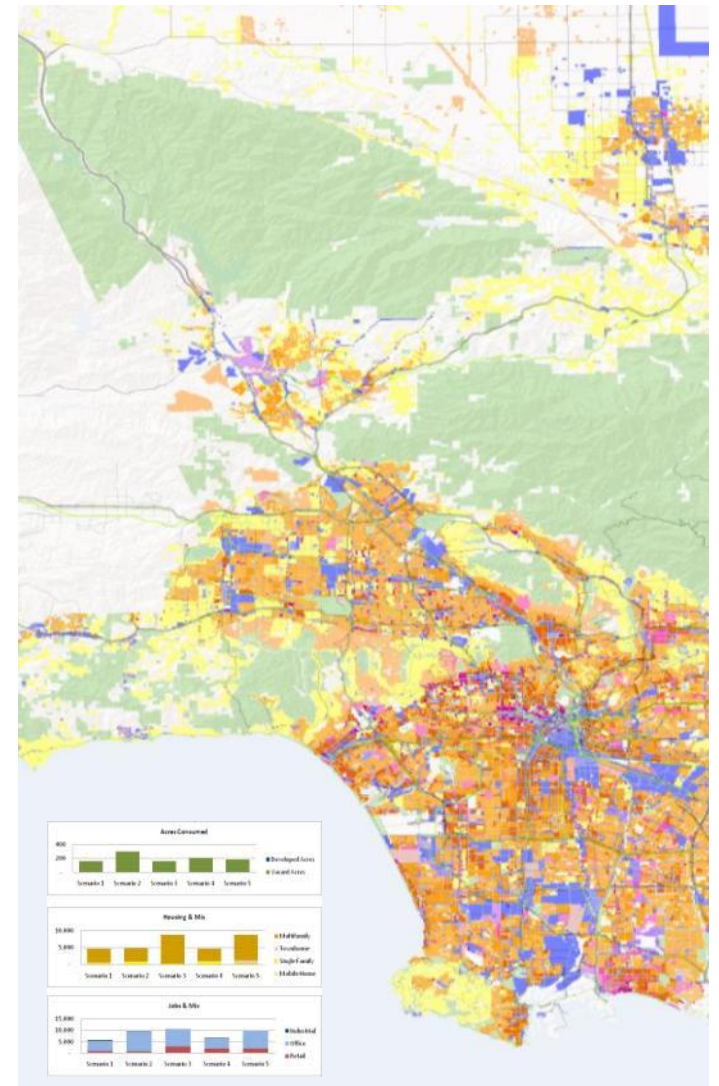
Why Use Scenario Planning?

- Weigh choices against consequences
- Test policy options quickly
- Prepare for uncertainty
- Develop strategies to optimize outcomes



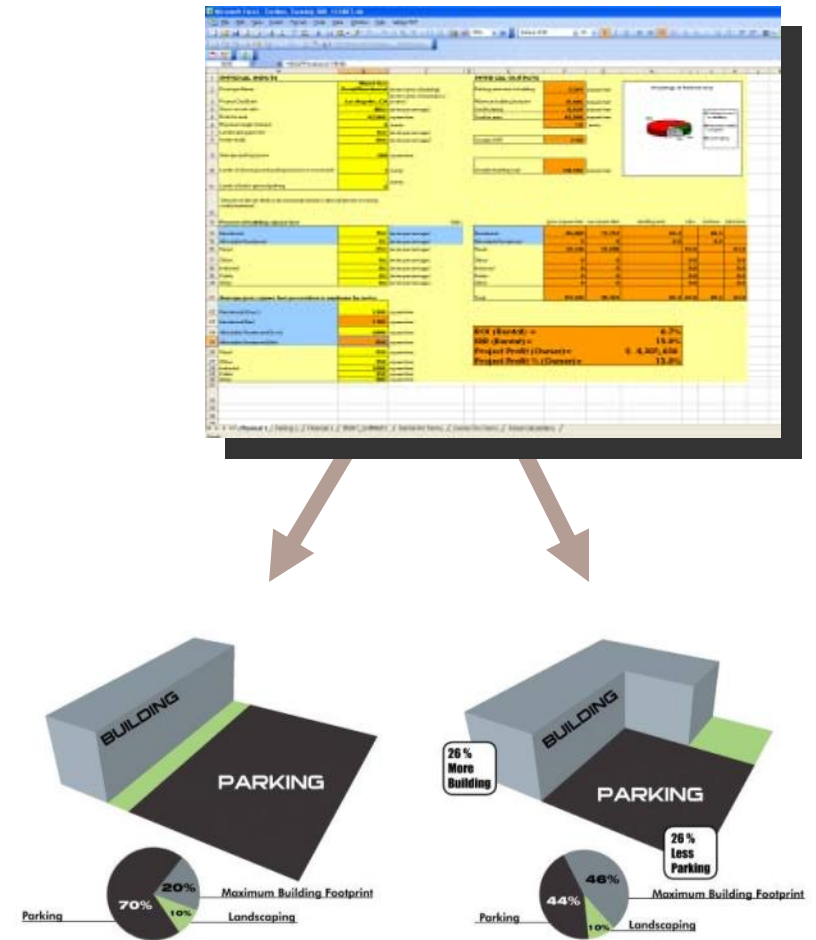
What is Envision Tomorrow?

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



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



Model Prototypes Using Real Market Research: Allows for “Reality-based Visualizations”



Use Prototypes for Reality-based Visualizations and 3D Modeling

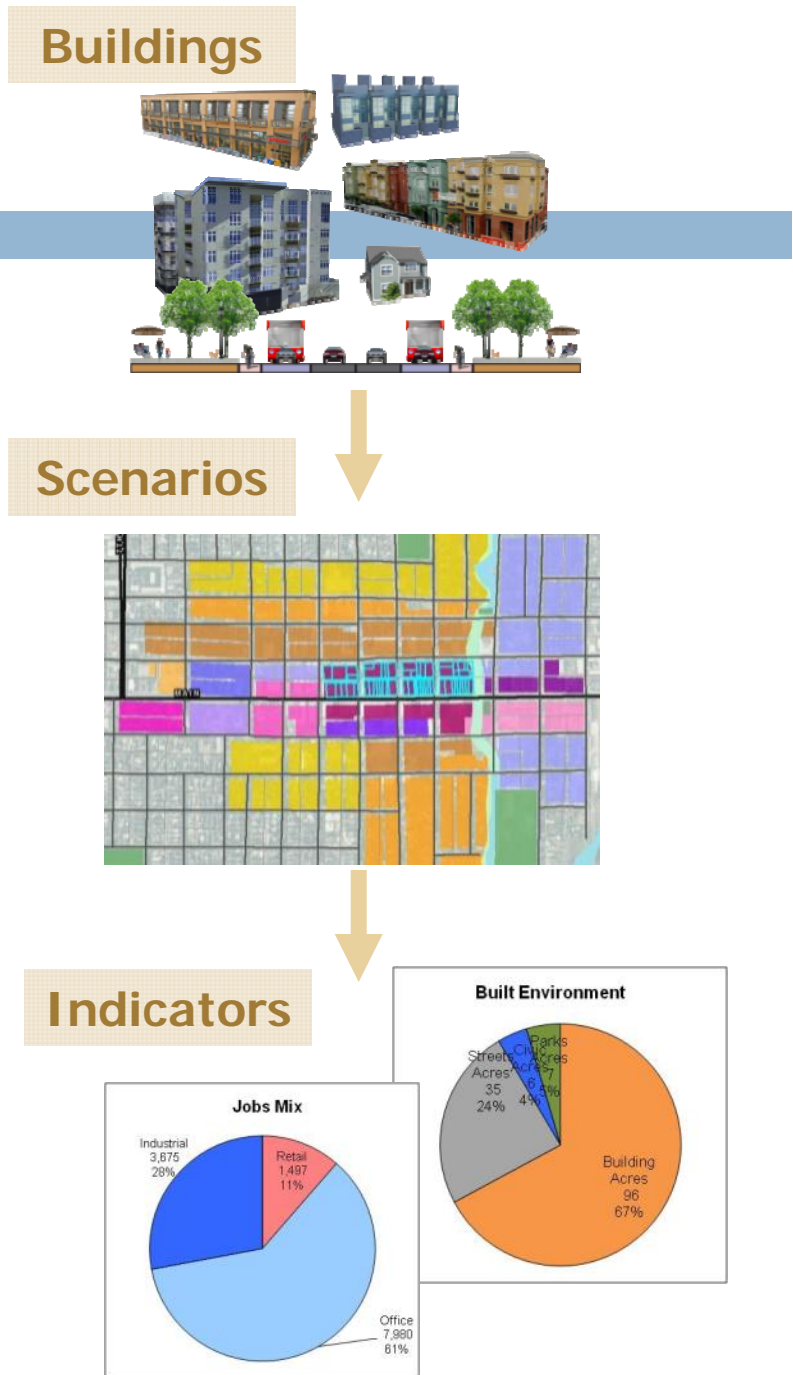


Reality-based Visualizations: *Exposition and Vermont Blvd, Los Angeles CA*



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



Scenario Indicators:

- ***Anything we can know about a building, we can know about a scenario...***
 - Housing and Jobs: mix and density
 - Land Consumption: vacant, agricultural, infill
 - Housing Affordability
 - Employment Profile: sq ft, jobs, income
 - Resource Usage: energy and water
 - Waste Production: water, solid, carbon emissions
 - Fiscal Impact: local revenue and infrastructure costs



Envision Tomorrow Apps in Development

- Household travel behavior (7Ds)
- Housing + Transportation Costs
- Transportation Safety
- Health Benefits from Active Transportation
- LEED-ND
- Redevelopment Timing:
 - ▣ Building age & value depreciation
- Impact of Public Investments on Development
 - ▣ Transit, streetscape, parks etc
- Housing Growth Model
 - ▣ Trend-based land growth model



Who is Using Envision Tomorrow?

- Sonoran/Lincoln Joint Venture
- Envision Utah
- Southern California (SCAG)
- Chicago (CMAP)
- City of Portland
- Portland Metro
- City of Tulsa
- City of Long Beach, CA
- City of Indianapolis
- **And now...
Fresno COG!**

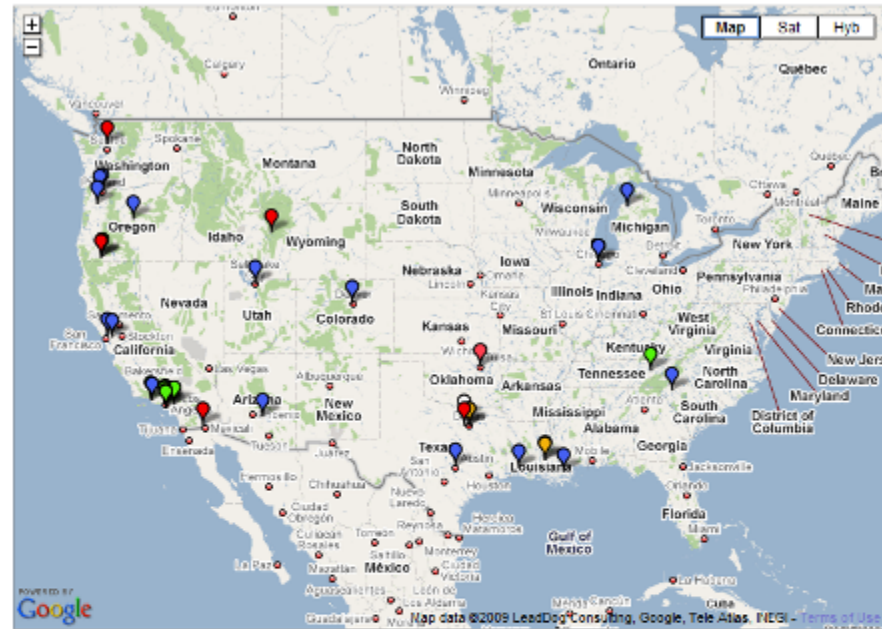
Small Area Plans

- Calle Guanajato
ASHLAND, OR
- Dallas Arts District
Exposition Line Light Rail Station Areas
LOS ANGELES, CA
- Hollywood Freeway Cap Park
HOLLYWOOD, CA
- Knoxville South Waterfront
KNOXVILLE, TN
- Long Beach Boulevard
LONG BEACH, CA
- Ontario New Model Colony
ONTARIO, CA
- Sunset Junction
LOS ANGELES, CA
- Ventura Freeway Cap Park
VENTURA, CA

Regional Projects

- Chicago Housing
- Chicago Metropolis 2020
- Deseret Ranches, FL
- Envision Utah
- Envision Central Texas
- The Grand Vision
GRAND TRAVERSE REGION, MI
- Louisiana Speaks
- Marion County, OR
- Metro 2040 Growth Concept
PORTLAND, OR
- The Oregon Big Look
- Southern California Association of Governments Compass Blueprint
- Superstition Vistas Area
ARIZONA

Selected Projects



Downtown Plans

- Arlington, TX
- Denton, TX
- El Centro, CA
- Jackson, WY
- Mountlake Terrace, WA
- Talent, OR

Comprehensive Plans

- Blueprint Denver
- Compton, CA
- ForwardDallas! Comprehensive Plan
- Pointe Coupee Parish, LA
- Tulsa, OK
- West Feliciana Parish, LA
- Watsonville, CA

Other Projects

- Denton Code Update
DENTON, TX
 - Damascus, OR
 - Envision Tomorrow Suite of Urban and Regional Planning Tools
-

International Projects

- Comune d'Arezzo
TUSCANY, ITALY
- St. Andrews
PERTH, AUSTRALIA

Lincoln Institute of Land Policy

Featured in *Urban
Planning Tools for
Climate Change
Mitigation* (2009)

Policy Focus Report • Lincoln Institute of Land Policy

Urban Planning Tools for Climate Change Mitigation



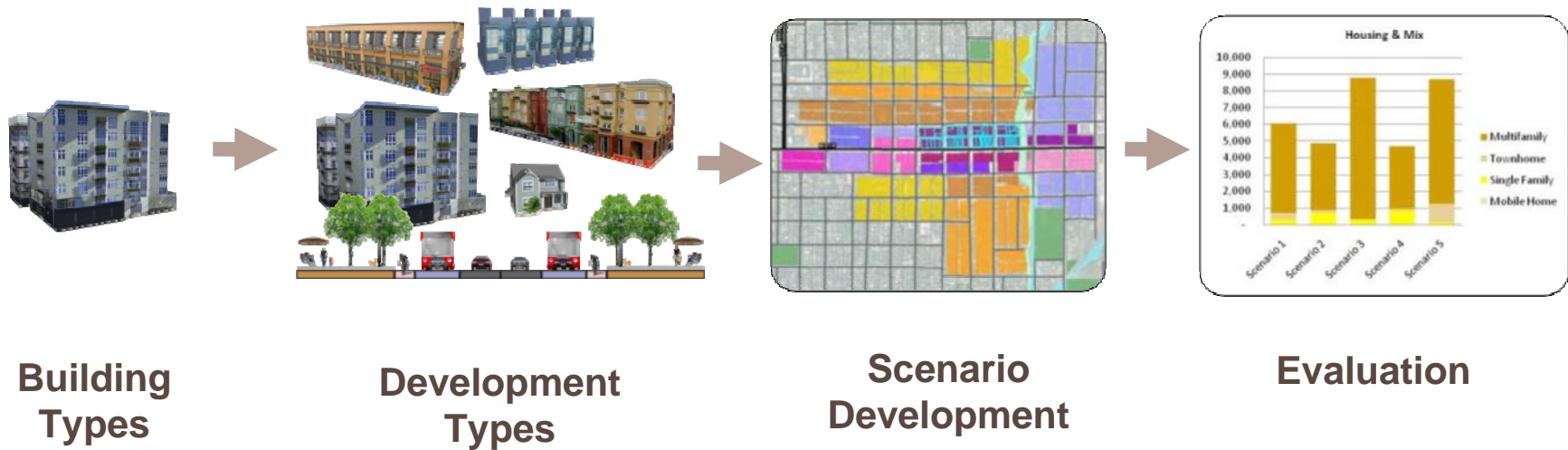
PATRICK M. CONDON, DUNCAN CAVENS, AND NICOLE MILLER

How is Envision Tomorrow unique?



- Transparent and accessible tool
 - ▣ simple Arc-Excel link
 - ▣ most calculations performed in Excel
- Start at Building level
 - ▣ financially feasible scenarios
 - ▣ wealth of available data on buildings
 - ▣ easily modeled indicators (land use, energy, financial)
- Open Source platform
 - ▣ University and institutional partners keep cutting edge

Scenario Building Process



1

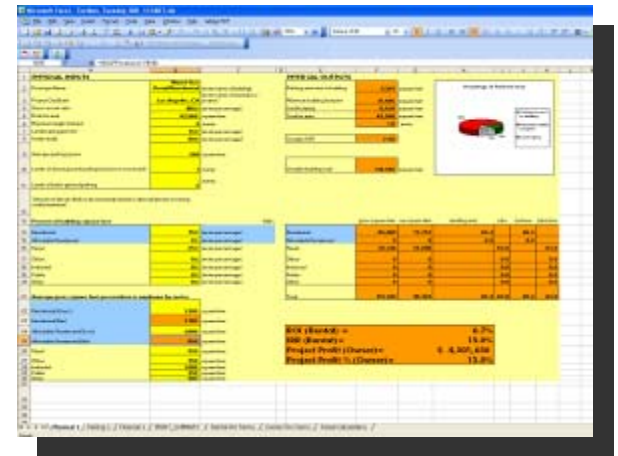
Step 1: Model a library of building types that are financially feasible at the local level.

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

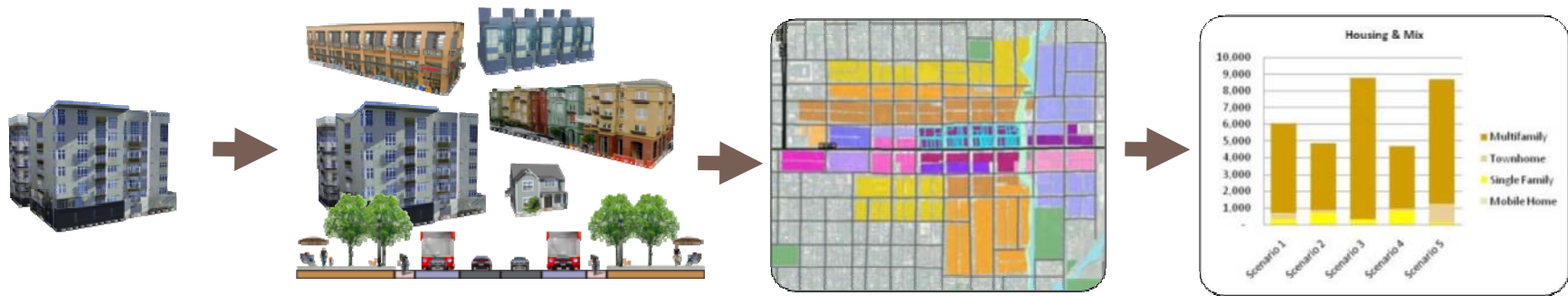
Use ROI Model...



...to Create a Range of Buildings



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

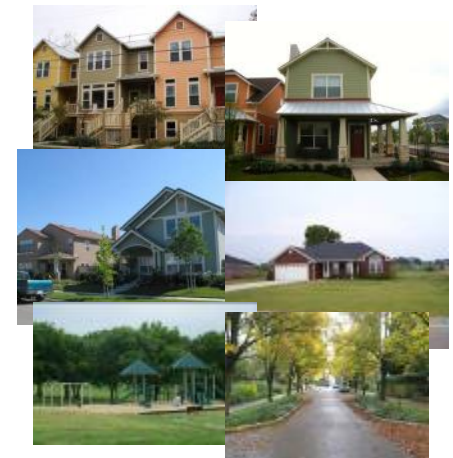
A Variety of Buildings, Streets and Amenities Create a “Place”



**Town
Center**

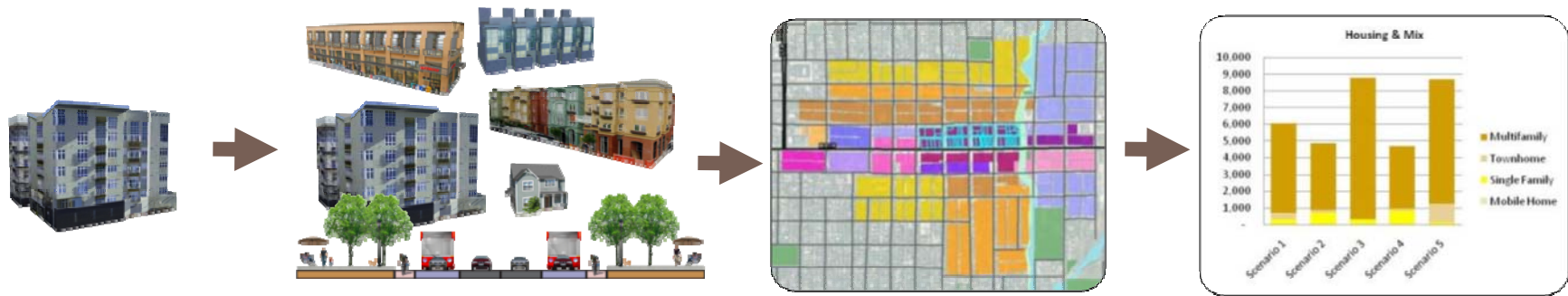


**Medium-Density
Residential**



**Single-Family
Residential**

Scenario Building Process



Building
Types

Development
Types

Scenario
Development

Evaluation

3

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

Real-time Scenario Building and Evaluation

Select

Paint

See Changes Instantly

File Edit Scenarios Paint Indicators Subareas

Apply Restore End Edit Save Edits

Paint Compare

Symbol Development Type

- Urban Core
- City Center
- Town Center
- Village Center
- Mixed-Use Corridor
- Main Street
- City Neighborhood
- Town Neighborhood
- Village Neighborhood
- Suburban Residential
- Rural Residential
- Office Park
- Regional Retail
- Strip Commercial
- Flex Park

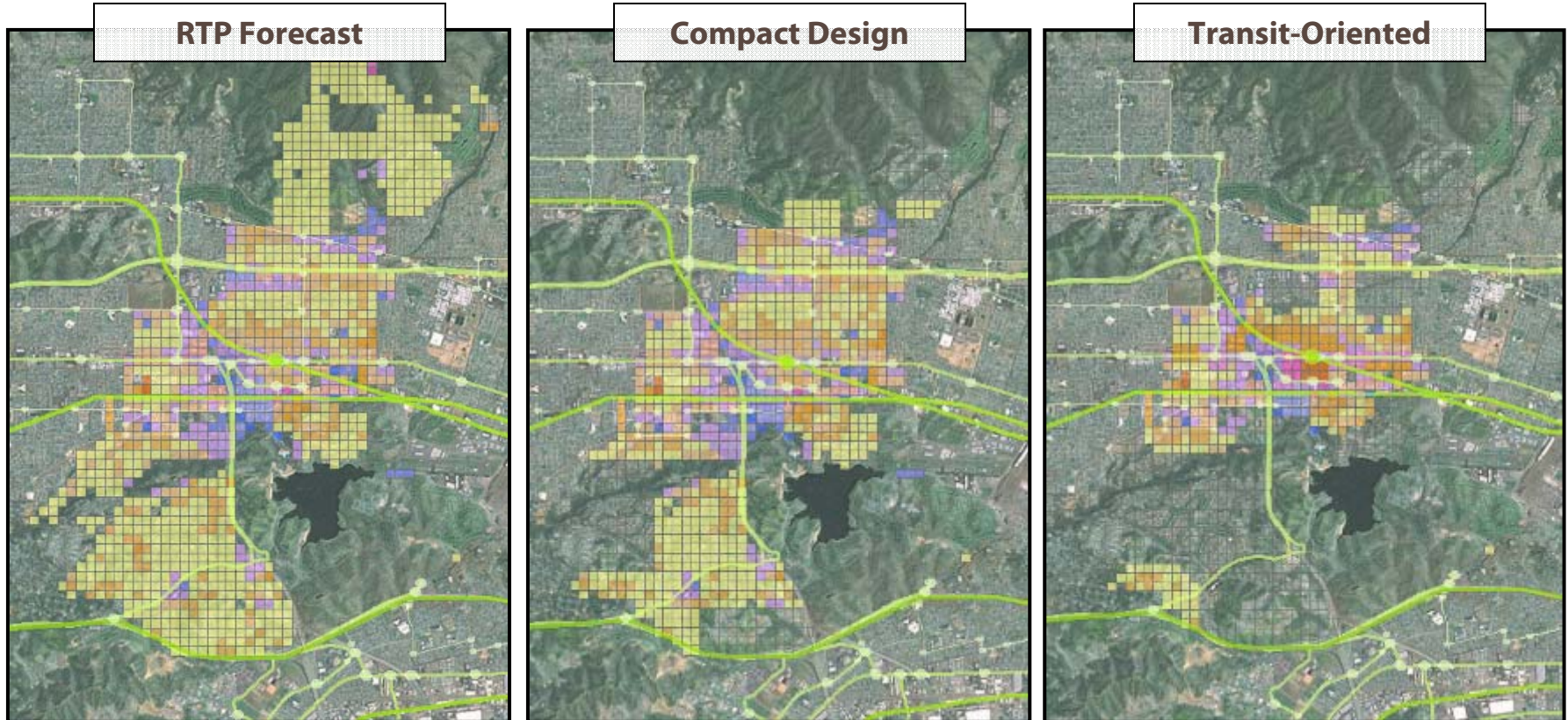
Indicators: Housing Mix

Housing Units and Mix

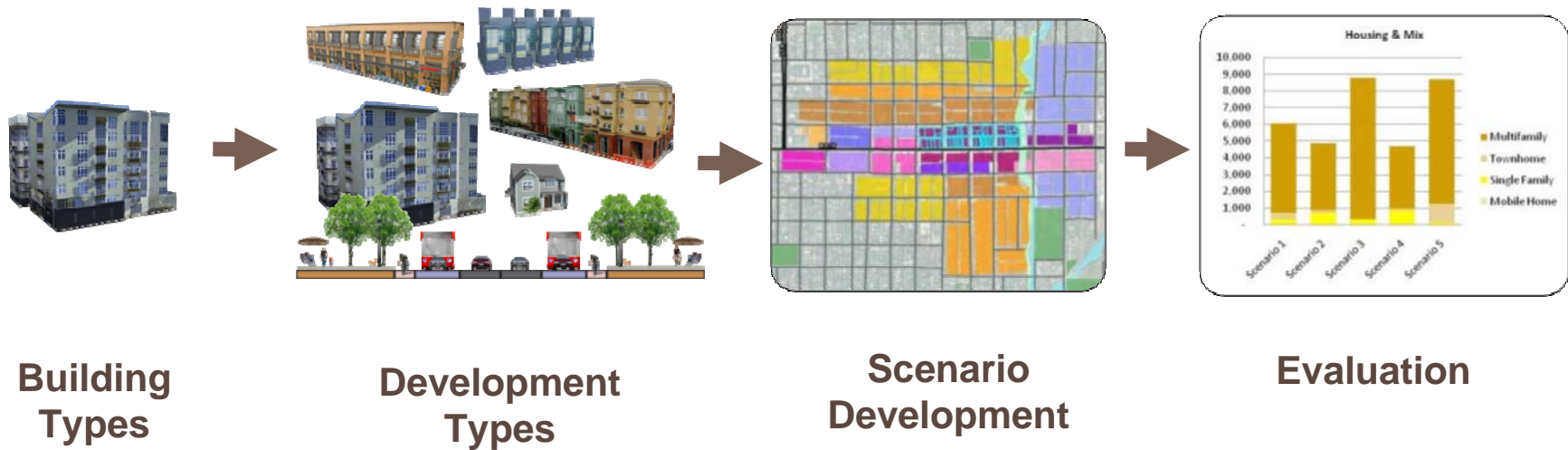


Compare Multiple Scenarios

- Test land use policies
- Experiment with new development patterns



Scenario Building Process



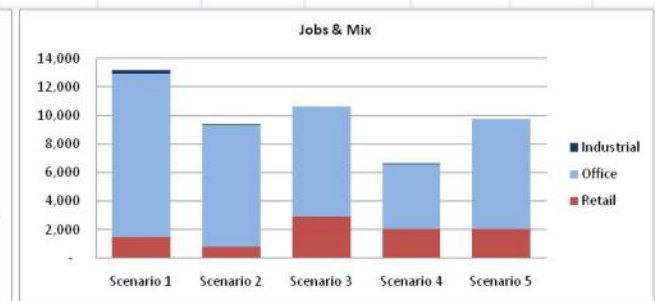
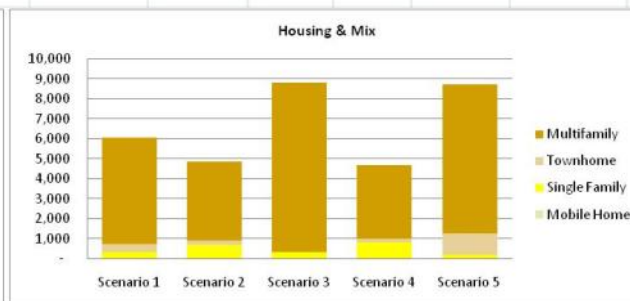
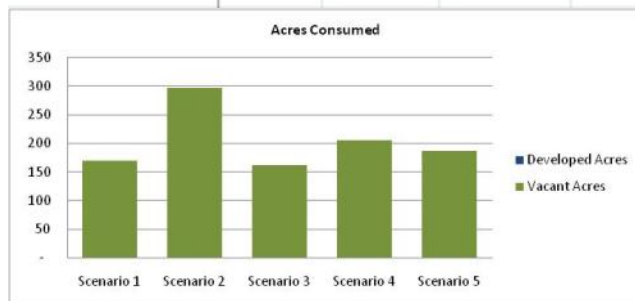
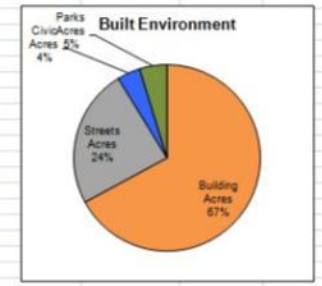
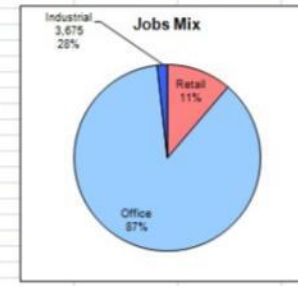
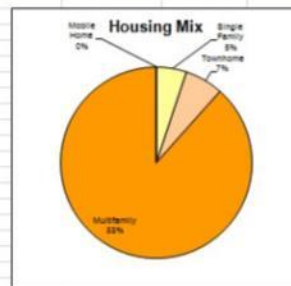
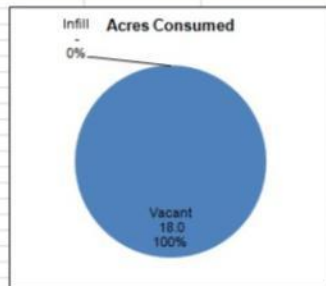
Step 4: Compare the scenarios and monitor the impact of land use decisions in real-time.

Monitor Indicators in Real-time

Detailed Tables

Enter Scenario Name or Theme	Acres Consumed			Total Acres	Total Housing Units	Housing Mix				Total Jobs	Employment Mix			Built Environment			
	Total Vacant Acres	Total Developed Acres	Discounted Developed Acres ("ReDev %")			Single Family	Townhome	Multifamily	Mobile Home		Retail	Office	Industrial	Building Acres	Streets Acres	Civic Acres	Parks Acres
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	114	41	7	
						5.1%	6.5%	88.4%	0.0%		11.3%	87.0%	1.7%	67.1%	24.1%	4.0%	

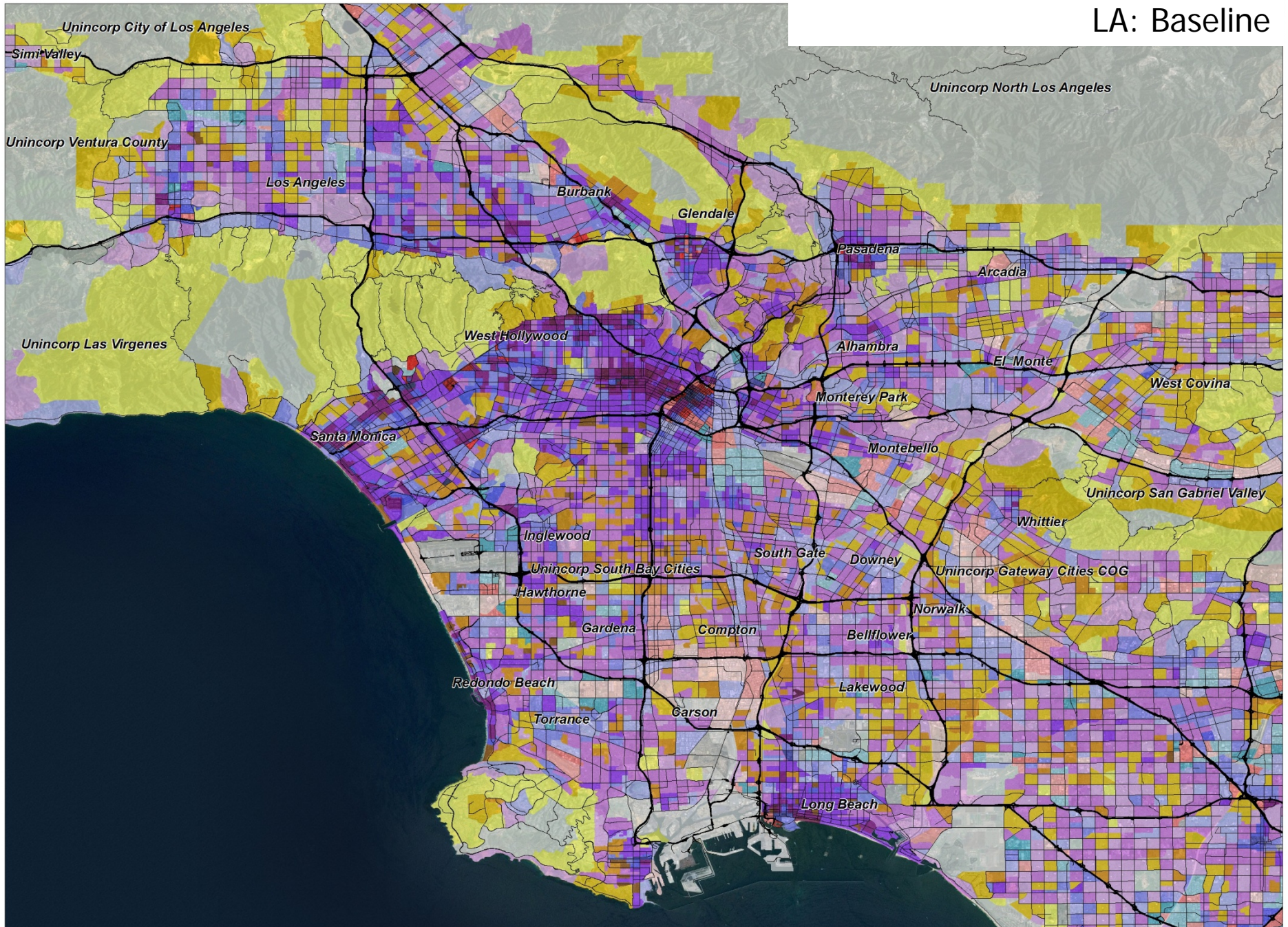
Quick Reference Graphs



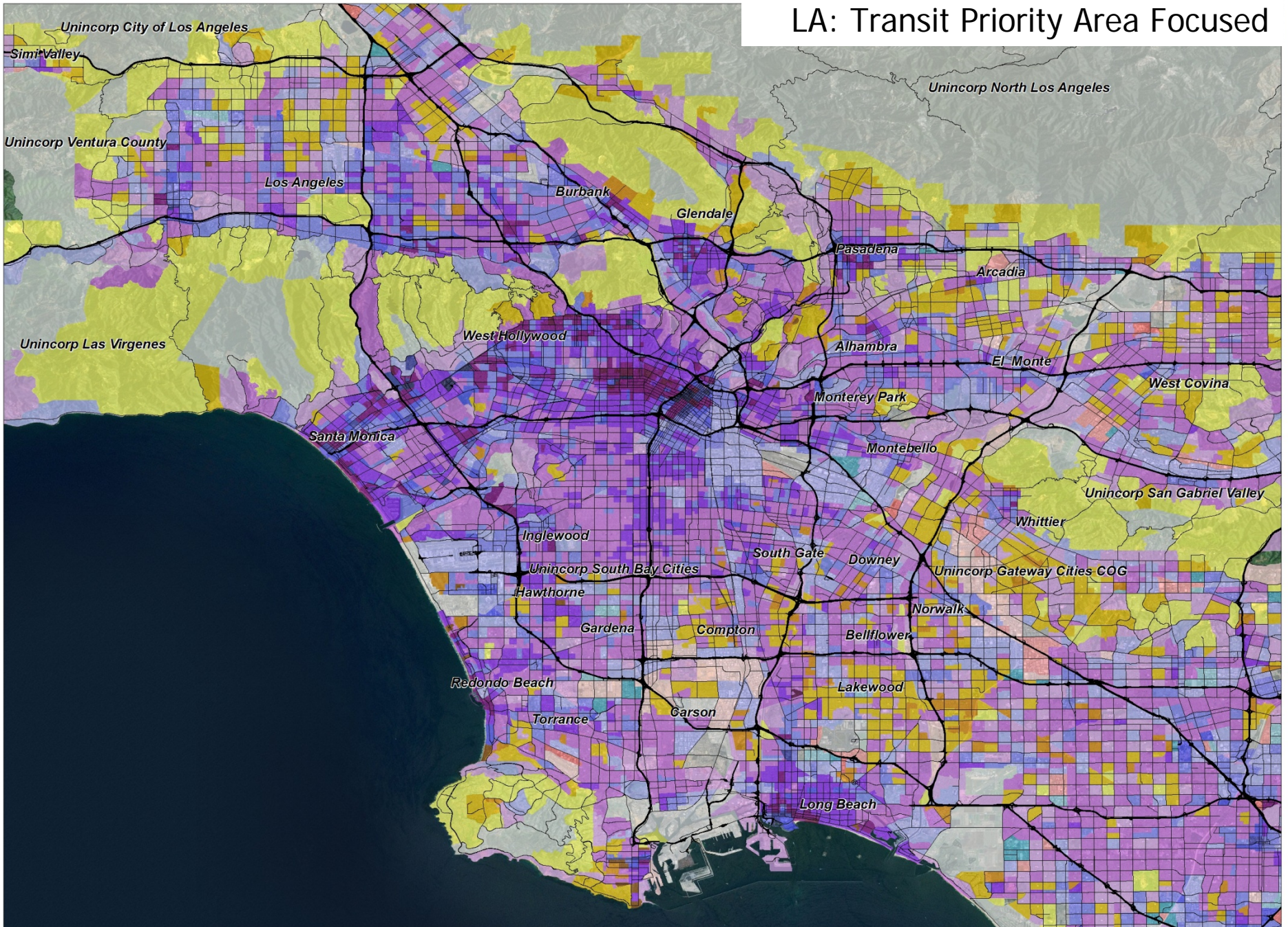
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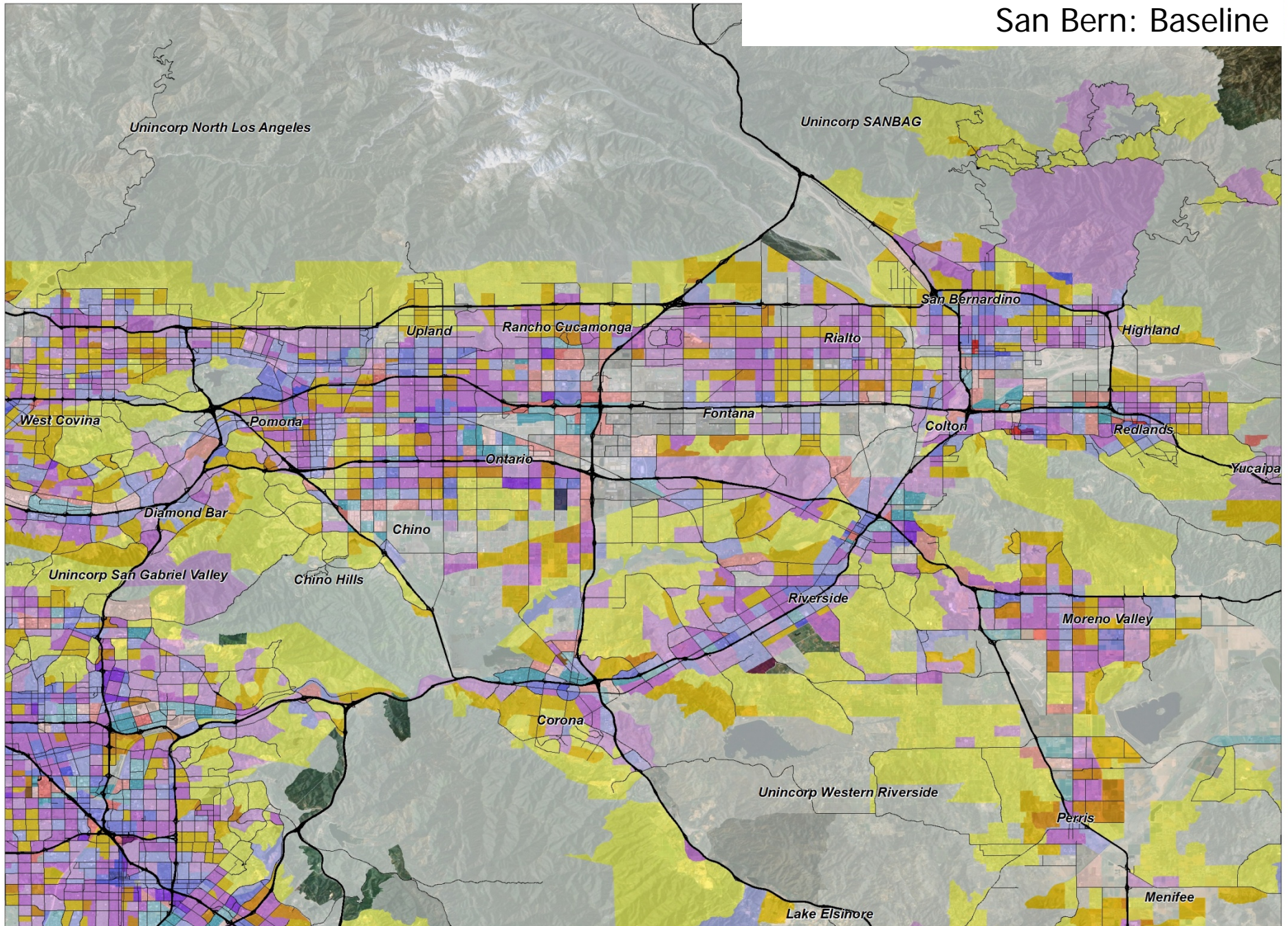
LA: Baseline



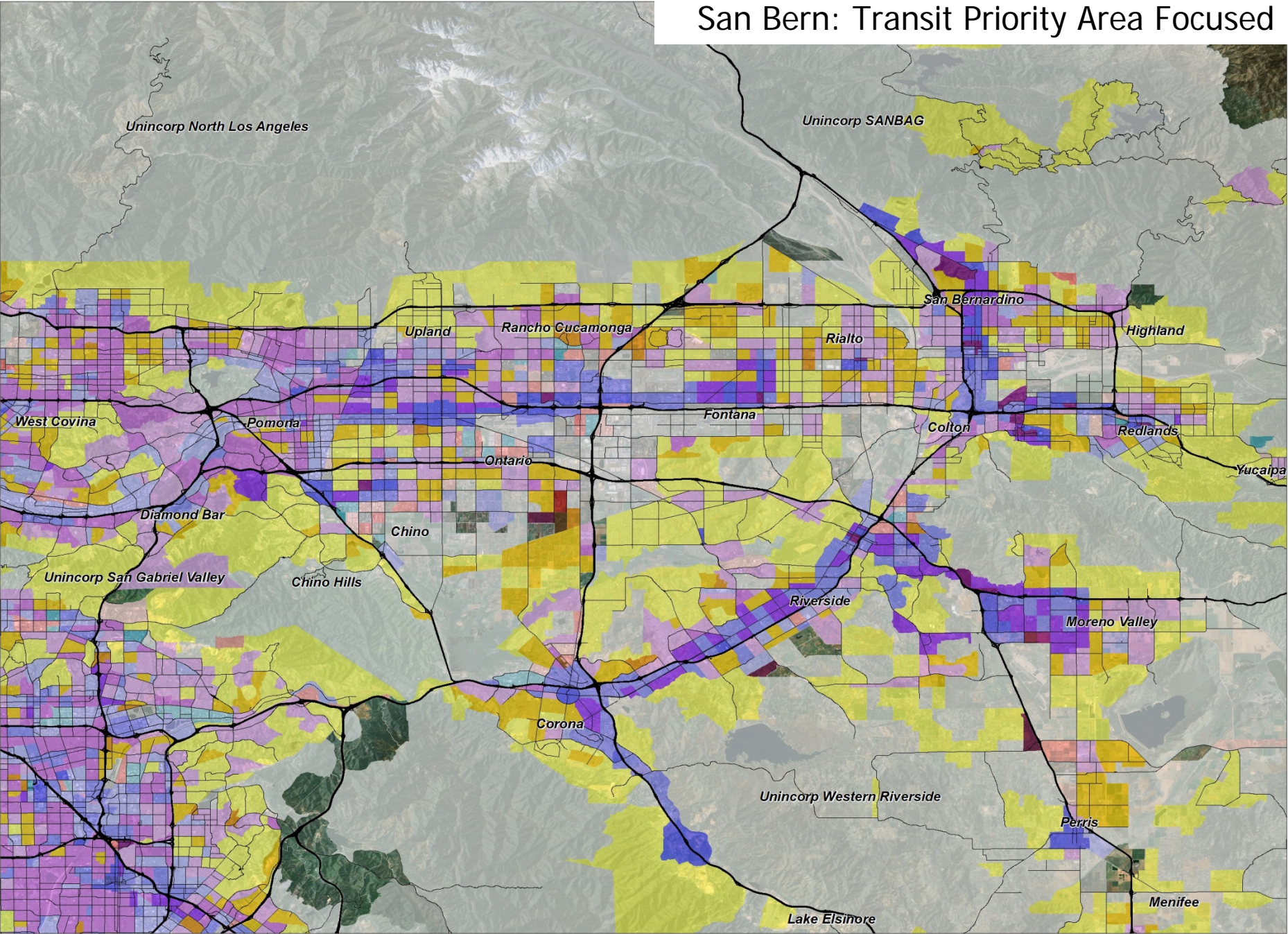
LA: Transit Priority Area Focused



San Bern: Baseline

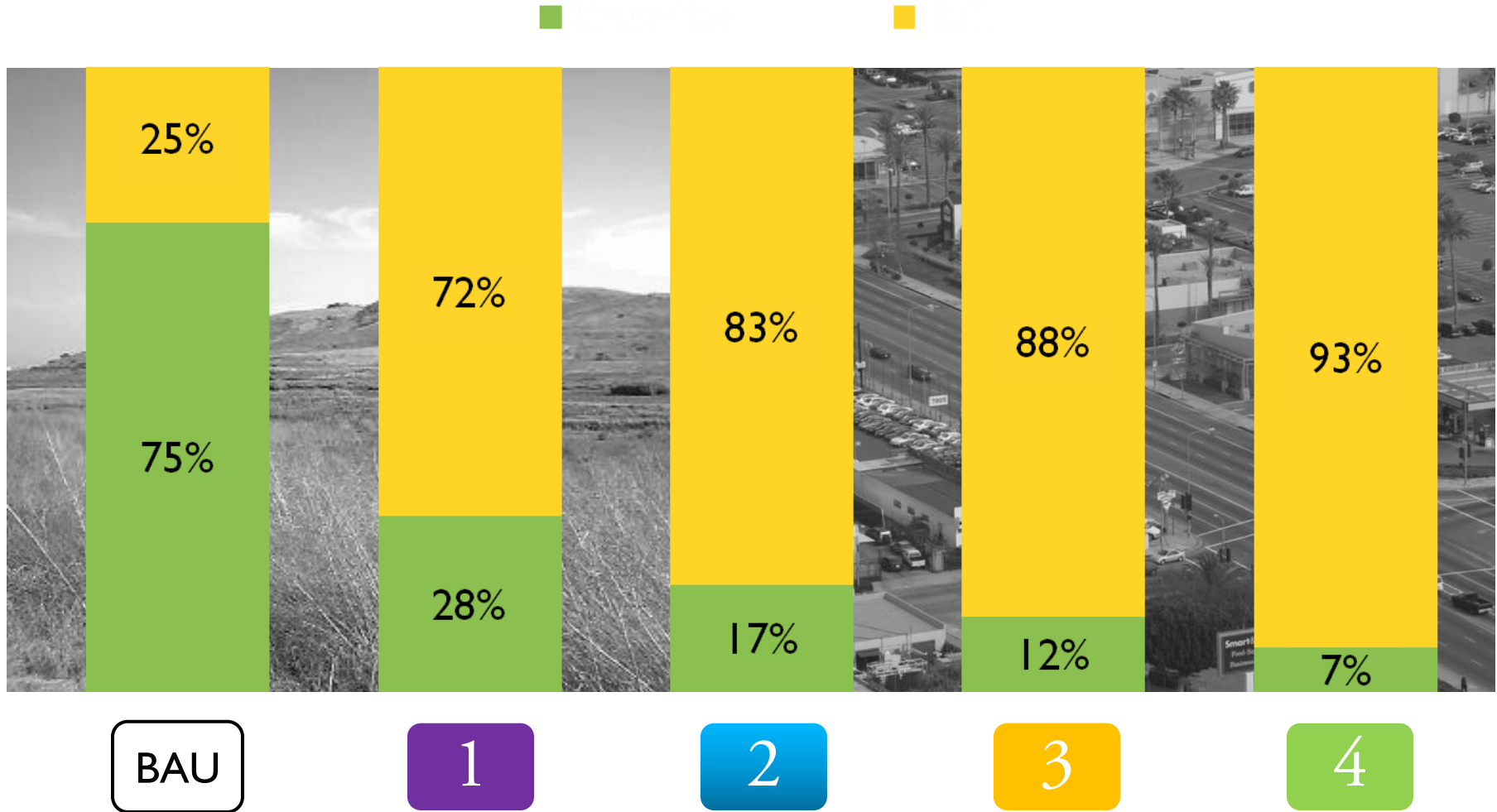


San Bern: Transit Priority Area Focused



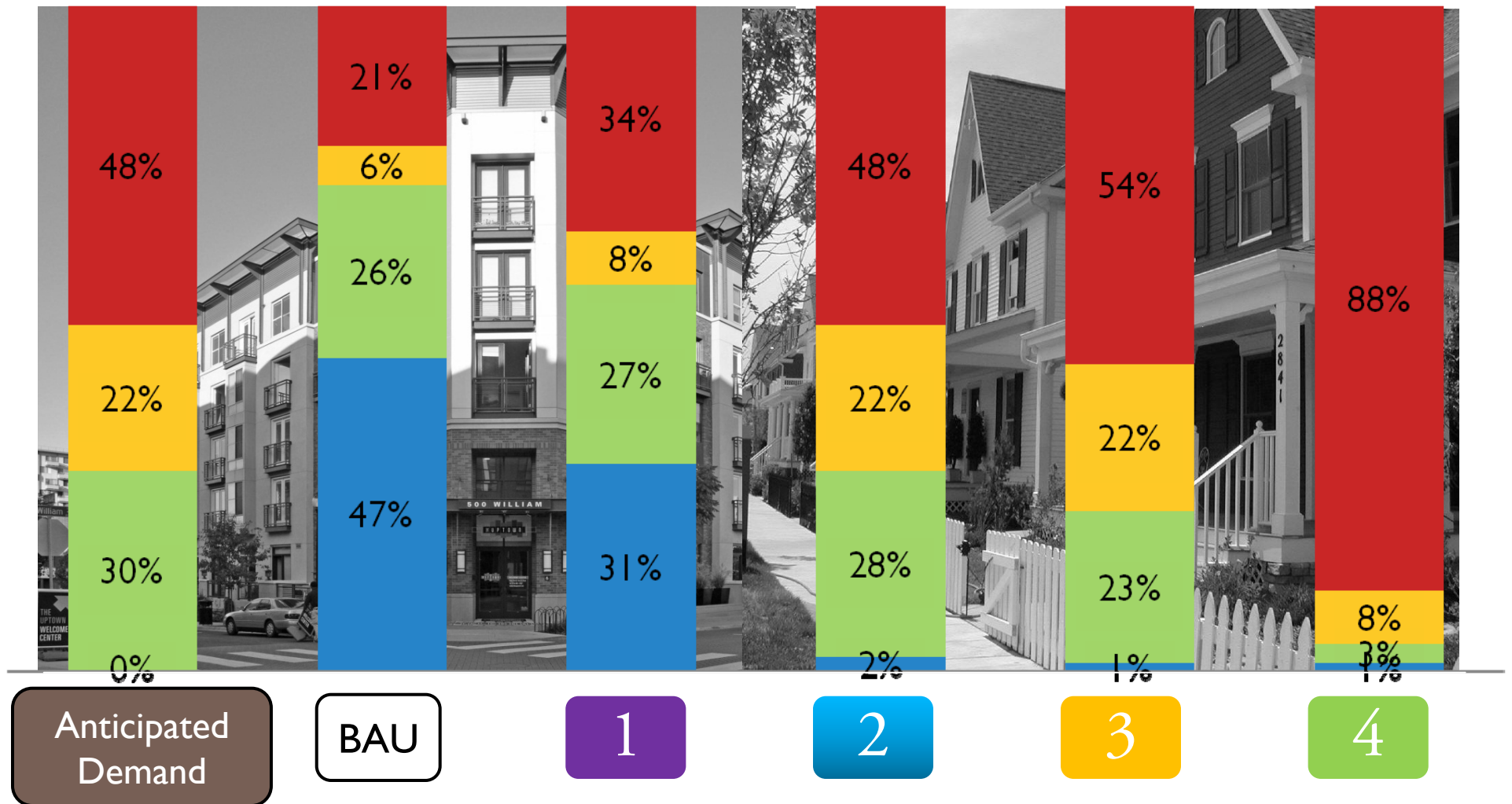
Greenfield vs. Refill Development

New Development 2008-2035



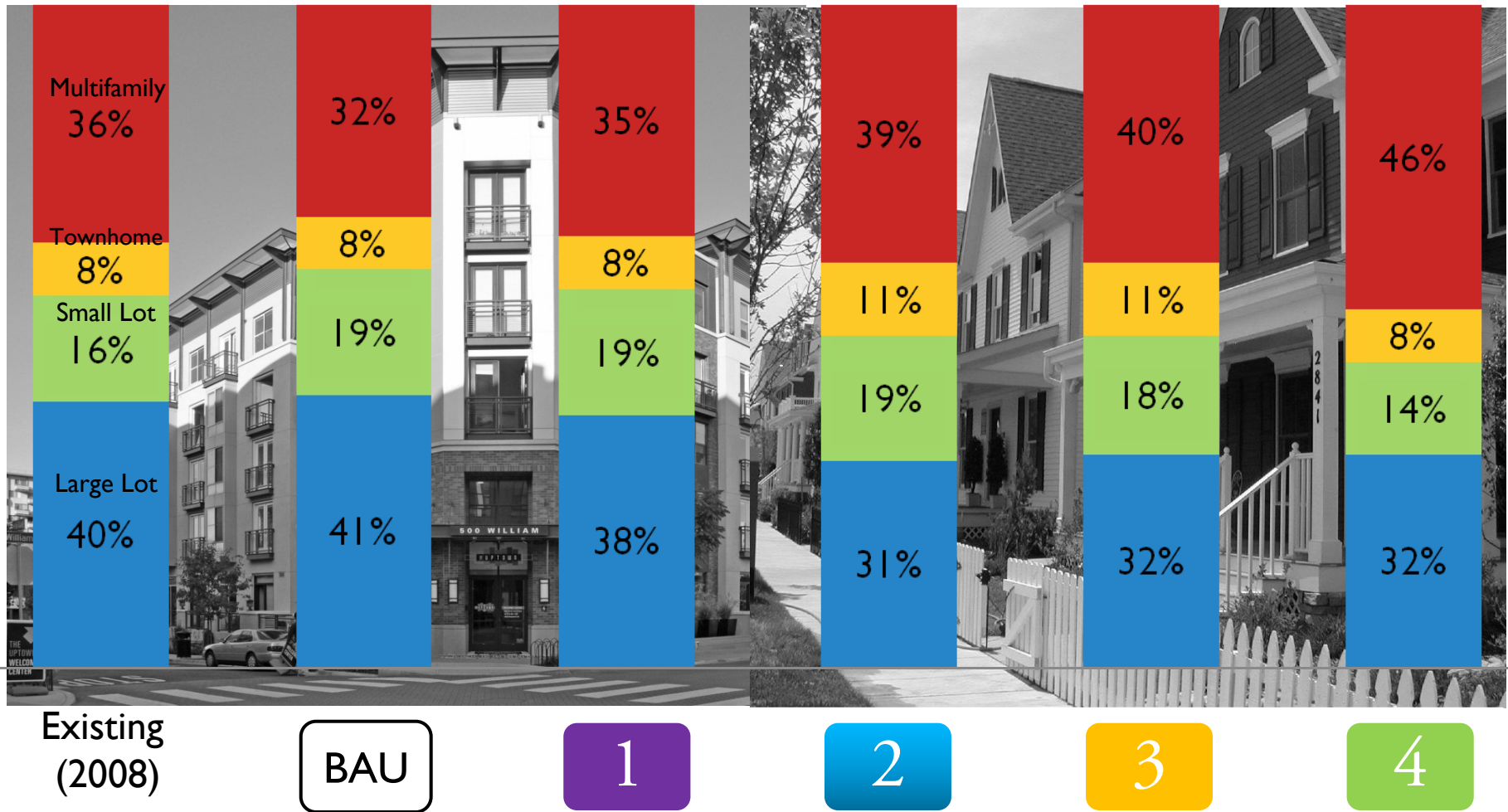
SGAG Region: New Housing Units 2008-2035 (Increment)

■ Large Lot
 ■ Small Lot Single Family
 ■ Attached Single Family
 ■ Multifamily



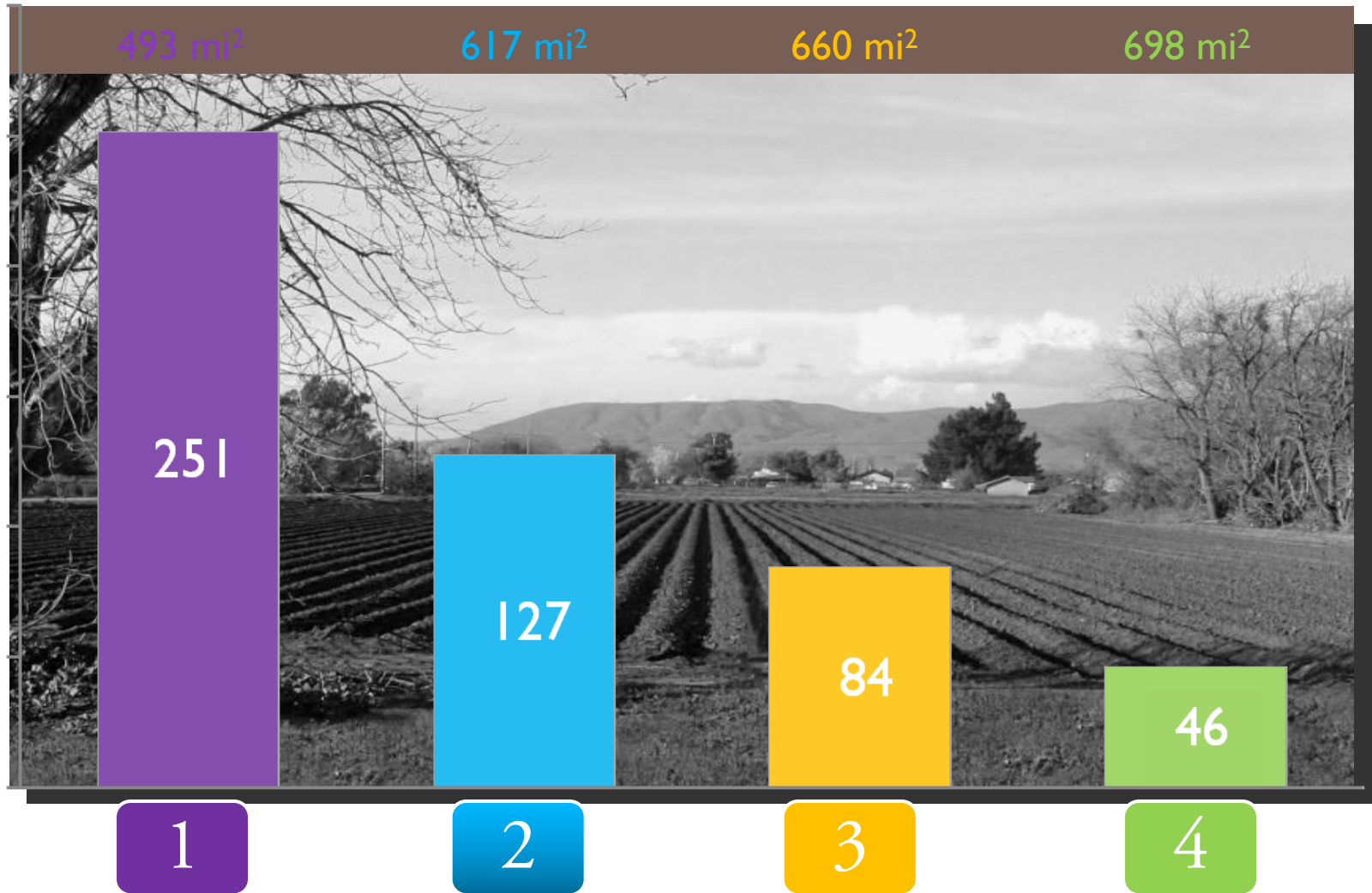
All Housing Units in 2035 (Existing + New)

■ Large Lot
 ■ Small Lot Single Family
 ■ Attached Single Family
 ■ Multifamily



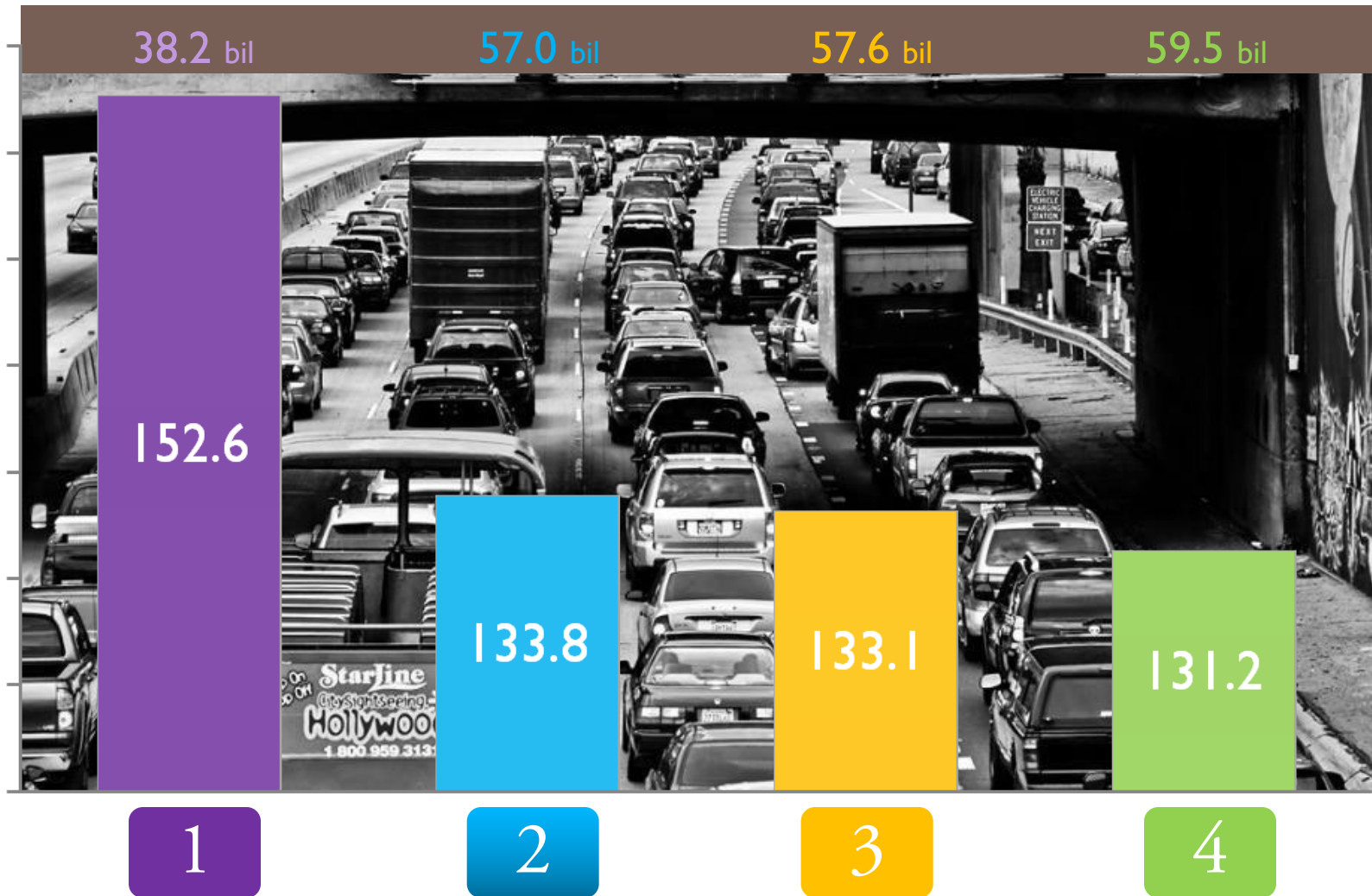
Land Consumed

Square Miles



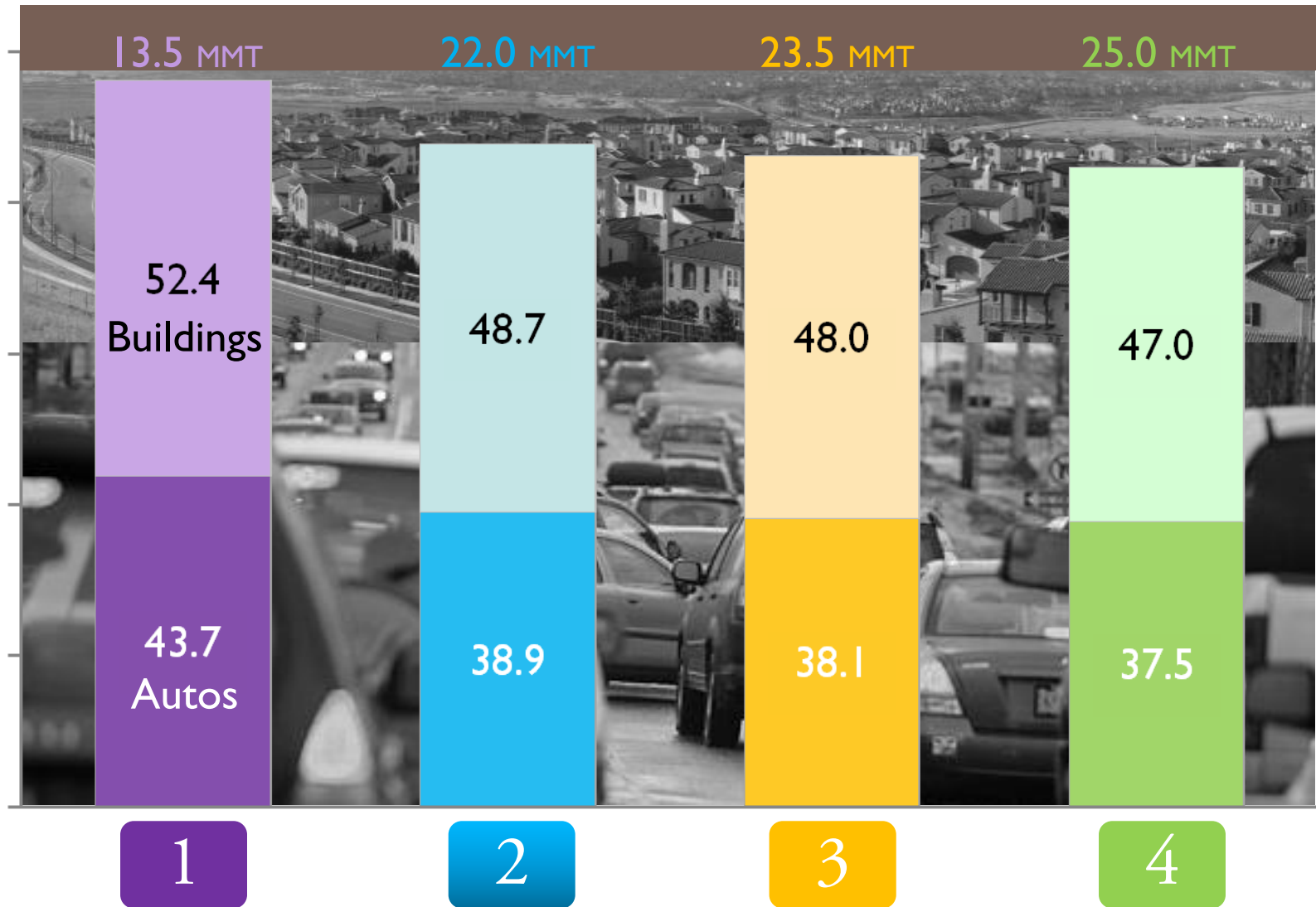
Vehicle Miles Traveled

Billions of Miles, Annual, 2035



Greenhouse Gas Emissions

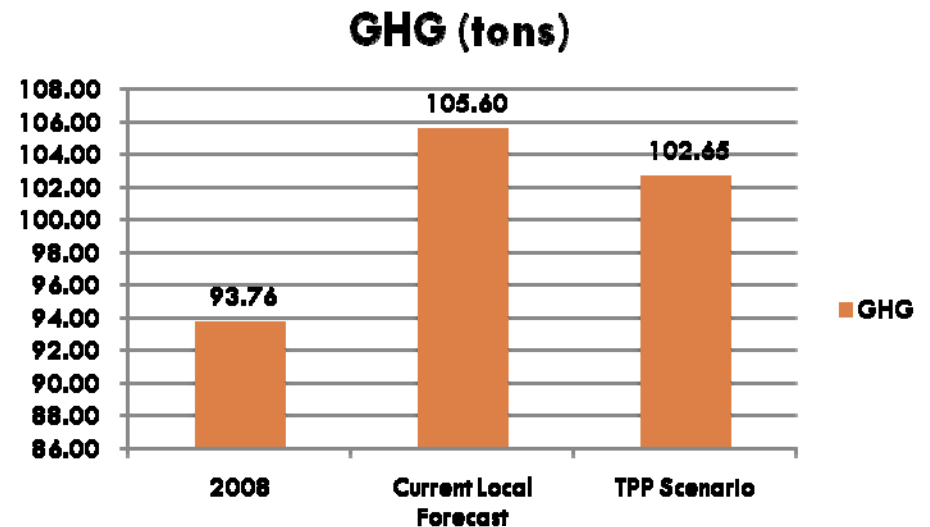
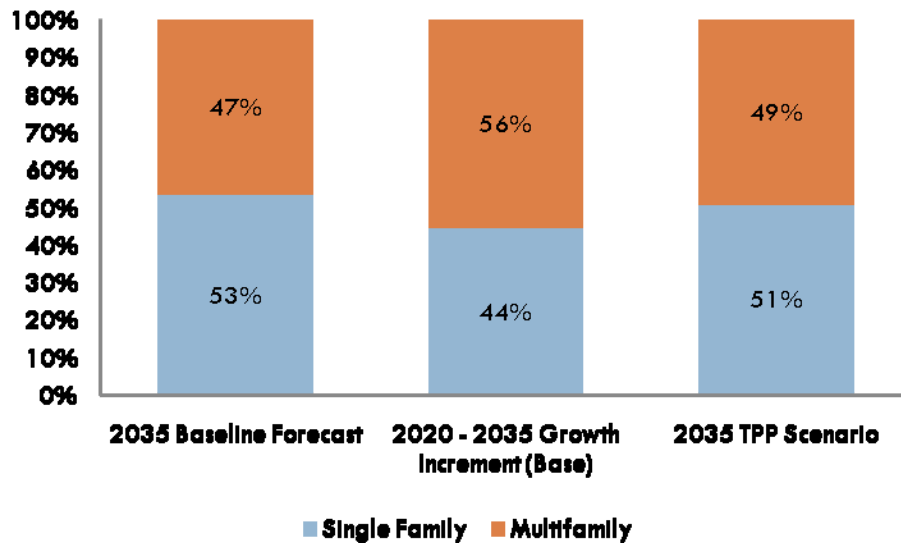
Annual Emissions from Buildings and Auto Transportation, 2035



Responding to the Changing Housing Market – Reduce GHG

- Relatively small shift in housing type (small lot single family, townhomes, cottage homes)

- Significant reduction in GHG per capita



What is Prototyping?



- Approach used by innovation leaders around the world
 - ▣ IDEO: “Right, Rapid & Rough”
 - ▣ Apple: "We make lots and lots of prototypes: the number of solutions we make to get one solution is quite embarrassing, but it's a healthy part of what we do."

Apple Chief Designer Jonathan Ive

Prototyping is Like Using a Crash Test Dummy



Microsoft Excel - ROI_Model_FregoEnvisionTomorrow_V2.11.XLT

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Home Physical Parking Layouts Parking Financial Financial Assumptions Fiscal Impact PRINT SUMM



Overview Page

Envision Tomorrow™ Return on Investment Model

Version 2.11 BETA Updated Feb. 18, 2010.

Licensed to:

What is the ROI Model?

Do you want to examine redevelopment potential in your city? Do you want to study the relationship between land use regulations and the current development market?

The ROI Model is a versatile, easy-to-use tool that can be used to test the physical and financial feasibility of a proposed development or existing development regulations. The ROI Model considers a range of factors including parking, height and use requirements, costs associated with construction, fees, rents and subsidies. The ROI Model allows you to model single-use and mixed-use buildings at a range of scales.

Quick Start Guide

A few quick and easy steps will get you started at modeling prototype buildings and testing land use regulations.

- 1. Save this Excel File Under a New Name**
- 2. Gather Data for Use in the ROI Model**
 - Existing land use regulations (examples: parking requirements, height limits, landscaping and setbacks)
 - Local area estimates for construction costs, rents, sales prices, and land values
 - Local tax rates
- 3. Work Through the 'Physical', 'Parking', 'Financial' and 'Fiscal Impact' Tabs**

Using the inputs you have gathered above, work through each of the four main tabs in the ROI Model. The accompanying manual and hyperlinks are available to provide answers to common questions.

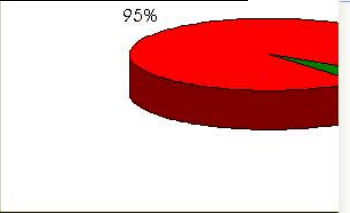
Input Cells Output Cells
- 4. Make Adjustments to Create a Building That Meets Your Goals**

PHYSICAL INPUTS		
3	Prototype Name	Mixed-Use Residential (enter name of building)
4	Project City/State	Long Beach, CA (enter name of city/state or project)
5	Site area	34,848 square feet
6		0.80 acres
7	Site gross-to-net ratio	100% (enter percentage)
8	Landscaping or open space	5% (enter percentage)
9	Building height (stories)	13 stories
10	Under-build	100% (enter percentage)
Parking Configuration		
13	Surface or Structured Parking	0.00 (number of levels)
14	Internal Parking (Tuck Under or Sandwich)	0.00 (number of levels)
15	Underground Parking	3.00 (maximum number of levels to test)
16		2.62 actual underground levels after factoring underbuild
Building Uses		
19	Residential	Owner (choose 'RENTER', 'OWNER' or 'NONE')
20	Market-Rate	85% (enter percentage)
21	Affordable	(enter percentage)
22	Retail	15% (enter percentage)
23	Office	(enter percentage)
24	Industrial	(enter percentage)
25	Public	(enter percentage)
26		100%
27	Average residential unit size or gross square footage per employee by sector	

Checks
2.62 levels will maximize site without surface or structured parking

Physical

Building footprint	33,100	square feet
Landscaping or open space	1,742	square feet
Parking area next to building	-	square feet
Unused or flexible space	-	square feet
FAR	12.35	
Useable building total	430,373	square feet



Square Footage by Use	Gross Square Feet	Net Square Feet	Total Dwelling Units
Market-Rate	365,817	292,654	243.9
Affordable Residential	0	0	0
Retail	64,556	51,645	
Office	0	0	
Industrial	0	0	
Public	0	0	
Internal Parking	0	0	
Total	430,373	344,298	243.9

Developer Impact	Project Profit % (Owner)	
	Project Profit \$ (Owner)	\$ 17

Municipal Impact	Estimated Annual Revenues from Prototype	\$
	Estimated Annual Expenditures from Prototype	\$
	Annual Impact of Prototype	\$

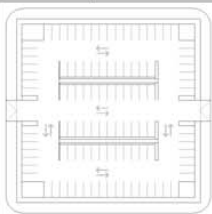
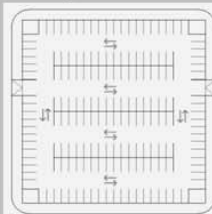
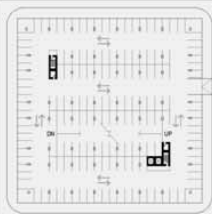
Parking Layouts

Microsoft Excel - ROI_Model_FregoEnvisionTomorrow_V2.11.XLT

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	A	B	C	D	E	F	G	H	I	J	K
1	PARKING LAYOUTS										
2											
3			Avg. Square Feet Per Space (Including Circulation)								
4	Suburban Perpendicular		400	sf							
5	Urban Perpendicular	X	255	sf							
6	Structured		260	sf							
7	Mechanical		125	sf							
8	Custom		325	sf							
9											
10											
11	<i>Suburban Perpendicular</i>	<i>Urban Perpendicular</i>	<i>Structured</i>								
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Home Physical Parking Layouts Parking Financial Financial Assumptions Fiscal Impact PRINT_SUMMARY Scenario Spreadsheet Rental Pro Forma Owner Pro Forma Building Envelope Calculator

Draw AutoShapes

Ready Calculate NUM

Parking Parameters

PARKING INPUTS		PARKING OUTPUTS	
Parking Characteristics <i>Urban Perpendicular configuration</i>		Market-Rate Residential	
Area per parking space (select on 'Parking Layouts' tab)	255 sf	Affordable Residential	0
Mechanical parking?	no	Retail	0
Parking Costs Per Space		Office	0
Surface	\$ 3,000	Industrial	0
Structured (above ground)	\$ 20,000	Public	0
Underground	\$ 55,000	Total	359 91,418
Internal (Tuck Under or Sandwich)	\$ 20,000	Required spaces per 1,000 sf of development	
Mechanical	\$ 45,000	0.83	
Parking Spaces Per Dwelling Unit or 1,000 sf of Commercial		Allocation of Spaces by Type	
Market-Rate Residential	1.47 space(s)/dwelling unit	Surface	0
Affordable Residential	0.00 space(s)/dwelling unit	Structured (above ground)	0
Retail	0.00 space(s)/1000 sf	Underground	359
Office	0.00 space(s)/1000 sf	Internal (Tuck Under or Sandwich)	0
Industrial	0.00 space(s)/1000 sf	Total	359
Public	0.00 space(s)/1000 sf		
Developer Impact		Project Profit % (Owner) 15.0%	
		Project Profit \$ (Owner) \$ 17,327,098	
Municipal Impact		Estimated Annual Revenues from Prototype \$ 444,220	
		Estimated Annual Expenditures from Prototype \$ 374,351	
		Annual Impact of Prototype \$ 69,869	

Financial

FINANCIAL INPUTS			
Construction Costs Per Square Foot (Core, Shell and Improvements)			
Market-Rate Residential	\$ 165	Green Building	
Affordable Residential		Construction Premium (%)	3%
Retail	\$ 165		
Office			
Industrial			
Public			
Acquisition Costs (Land and Improvements)			
Market-Rate Residential	\$ 4,000,000	\$115 /Square Foot	
Affordable Residential	\$ -	\$0 /Per Square Foot Subsidy	
Rents per Square Foot (Annual triple net, except monthly for rental.)			
Market-Rate Residential		\$0 Average Unit Rent	
Affordable Residential	\$ -	100% of AMI:	\$62,100
Retail	\$ 25.68	\$1,553 Average Unit Rent	
Office	\$ 30.00		
Industrial	\$ 7.68		
Public	\$ 30.00		
Sale Prices per Square Foot (Ownership Residential)			
Market-Rate Residential	\$422	\$505,962 Average Unit Sales Price	
Affordable Residential	\$250	\$0 Average Unit Sales Price	

	Rental	For Sale
Building Construction Costs	\$ (58,870,271)	\$ (58,870,271)
Parking Costs	\$ (19,717,530)	\$ (19,717,530)
Demolition Costs	\$ -	\$ -
Total Building Costs	\$ (80,945,435)	\$ (80,945,435)
Total Costs		
	\$ (116,466,733)	\$ (115,568,356)
Average Market-Rate Unit Sales Price		\$ 505,962
Average Affordable Unit Sales Price		\$ -
Average Market-Rate Unit Rent	\$ -	
Average Affordable Unit Rent	\$ 1,553	

Developer Impact	Project Profit % (Owner)	15.0
	Project Profit \$ (Owner)	\$ 17,327,09

Municipal Impact	Estimated Annual Revenues from Prototype	\$ 444,22
	Estimated Annual Expenditures from Prototype	\$ 374,35
	Annual Impact of Prototype	\$ 69,86

GENERAL FINANCIAL ASSUMPTIONS (manual inputs and assumptions in 'Financial Assumptions' tab)

Gross to Net Square Footage Low Average High Manual

Operating Expenses Low Average High Manual

Microsoft Excel - ROI_Model_FregoEnvisionTomorrow_V2.11.XLT

Type a question for help

Detailed Financial

1 DETAILED FINANCIAL INPUTS						
2						
3 Building Efficiency						
4 Gross to Net Square Footage (% Rentable)	Low	Average	High	Manual	Notes/Data Source	Value for Pro Forma
5 Market-Rate Residential	75%	80%	85%	100%	Expert interviews	80%
6 Affordable residential	75%	80%	85%		Expert interviews	80%
7 Retail	75%	80%	85%		Expert interviews	80%
8 Office	75%	80%	85%		http://orf.od.nih.gov/Planning+and+Space+Man	80%
9 Industrial	75%	80%	85%		Expert interviews	80%
10 Public	75%	80%	85%		Expert interviews	80%
12						
13 Annual Operating Expenses (% by type)	Low	Average	High	Manual	Notes/Data Source	
14 Market-Rate Residential	30%	35%	40%			35%
15 Affordable Residential	30%	35%	40%			35%
16 Retail	30%	35%	40%			35%
17 Office	30%	35%	40%			35%
18 Industrial	20%	25%	30%			25%
19 Public	35%	40%	45%			40%
21						
28 Occupancy Rate (%)	Low	Average	High	Manual	Notes/Data Source	
29 Market-Rate Residential	90%	95%	100%			95%
30 Affordable Residential	90%	95%	100%			95%
31 Retail	90%	95%	100%			95%
32 Office	90%	95%	100%			95%
33 Industrial	90%	95%	100%			95%
34 Public	90%	95%	100%			95%
36 General (for proforma cash flow)	90%	95%	100%			95%
37						
38 Pre Development Costs	Low	Average	High	Manual	Notes/Data Source	
39 Due diligence (above and beyond entitlement and professional fees e.g. brownfield site, site assembly etc)					Enter manually if applicable	
40 Land carry (% of raw land cost)	3.0%	5.0%	7.0%		Expert interviews	5%
41 Land entitlement / legal fees (% raw land)	2.0%	2.0%	2.0%		Expert interviews	2%
42 Professional fees (% of hard costs)	3.0%	5.0%	7.0%		Expert interviews	5%
43						
44 Development Costs	Low	Average	High	Manual	Notes/Data Source	
45 Demolition Costs (total)					Enter manually if demolition is required	
46 Site development costs (per sf)	\$1.0	\$3.0	\$5.0		Highly variable depending on site conditions	\$3.00
47 Additional infrastructure enhancement costs (total)					Enter manually if costs are required	
48						
49 Indirect Costs	Low	Average	High	Manual	Notes/Data Source	
50 Impact fees (per unit)				\$ 10,000	Enter manually if costs are required	\$10,000.00
51 Building permit fees (per unit)				\$ 5,000	Enter manually if costs are required	\$5,000.00
52 Insurance during construction (% of total building costs)	1.0%	1.0%	1.0%		1% Expert interviews	1.0%
53 Taxes during construction (% raw land)	1.0%	1.0%	1.0%		1% Expert interviews	1.0%
56 Developer fee	3.0%	4.0%	5.0%		4% Expert interviews	4%

Home / Physical / Parking Layouts / Parking / Financial / Financial Assumptions / Fiscal Impact / PRINT_SUMMARY / Scenario Spreadsheet / Rental Pro Forma / Owner Pro Forma / Building Envelope Calculator

Ready Calculate NUM

Summary

U13

Long Beach, CA Mixed-Use Residential

Building Summary		
6 Lot area (sf)	34,848	sf
7 Lot area (acres)	1	acre(s)
8 Height	13	stories
9 Usable FAR	12.35	
10 Residential units/acre	305	/acre
11 Avg. unit size (sf)	1,200	
12 Employees/acre	65	/acre

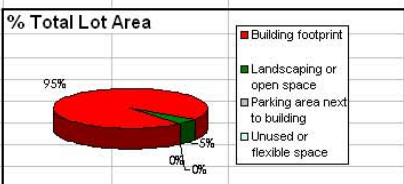
Insert Photo

Financial Summary		
17 Average unit sale price	\$ 505,981.64	
18 Average cost/sf	\$ 421.63	/sf
19 Average unit rent	N/A	/month
20 Average rent (sf/month)	N/A	/sf
21 Retail rent (sf/year)	\$ 25.68	/sf (triple net)
22 Office rent (sf/year)	N/A	/sf (triple net)
23 Estimated land value	\$115	/sf
24 Estimated land value	\$4,000,000	
25 Total project costs	\$115,568,358	

Construction Costs		
Parking Construction		
Surface	\$ 3,000	/space
Structured (ab)	\$ 20,000	/space
Underground	\$ 55,000	/space
Tuck-Under	\$ 20,000	/space
Building Construction*		
Residential	\$165	/sf
Retail	\$165	/sf
Office	\$0	/sf

* includes building hard costs and \$25/sf tenant improvement allowance (commercial)

Parking and Open Space Summary		
30 Residential parking/unit	1.47	
31 Retail parking/ksf	-	
32 Office parking/ksf	N/A	
33 Total parking spaces	359	
34 Open space (%)	5%	



Prototype Brainstorm



- Our next step is to create a prototype library for Fresno COG
- This library will include about 30 buildings including mixed-use, residential, and commercial
- Some of these buildings may be commonly seen in the Fresno region, while others may be more “aspirational”
- Your help is critical in helping us:
 - ▣ Identify any building types we may be missing
 - ▣ Prioritize crucial building types

Mixed-Use



- Neighborhood Mixed-Use
- Mixed-Use Residential, Suburban Low
- Mixed-Use Residential, Suburban Medium
- Mixed-Use Residential, Suburban High
- Mixed-Use Residential, Mid-Rise
- Mixed-Use Residential, High-Rise
- Live-Work Units

Residential

- Student Housing
- Apartment (3-Story)
- Senior Housing
- Courtyard Apartment
- Affordable Apartment
- Duplex
- Townhomes
- Cottage Home
- Small Lot Single Family
- Traditional Single Family
- Large Lot Single Family
- Estate Single Family
- Rural Residential (5 acre lots)
- Rural Residential (20 acre lots)
- Farmworker Housing



Commercial

- Low Rise Office
- High Rise Office
- Large Format Retail
- Strip Commercial
- Shopping Center
- Main Street Commercial
- Business/Flex Space
- Light Industrial
- Heavy Industrial



Other



- Agricultural

Next Steps



- Market research to refine financial parameters of the buildings
- Create draft building prototype library
- Create draft development types (based on the building prototypes)