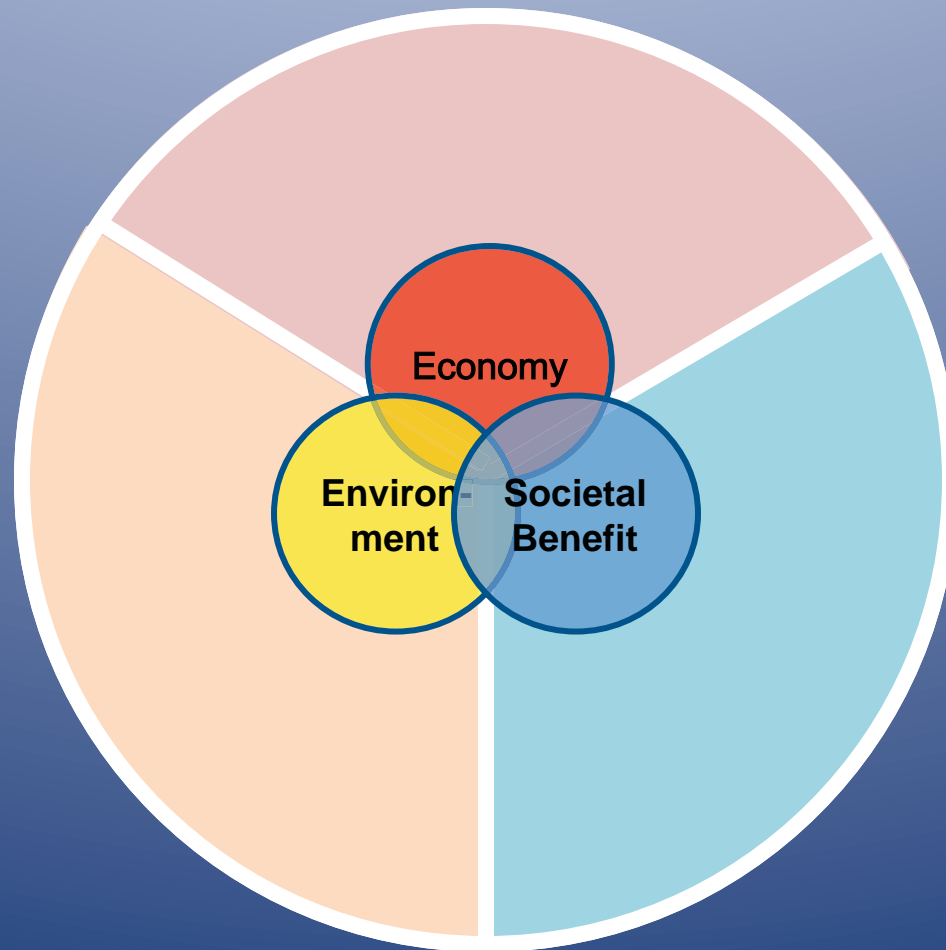


Visualizing Economic Activity at a Strategic Level

Jon Harrison, Project Manager
jharrison@esri.com
Local Government Solutions
ESRI, Inc.

**10th Annual New Partners for
Smart Growth Conference
February 3, 2011**

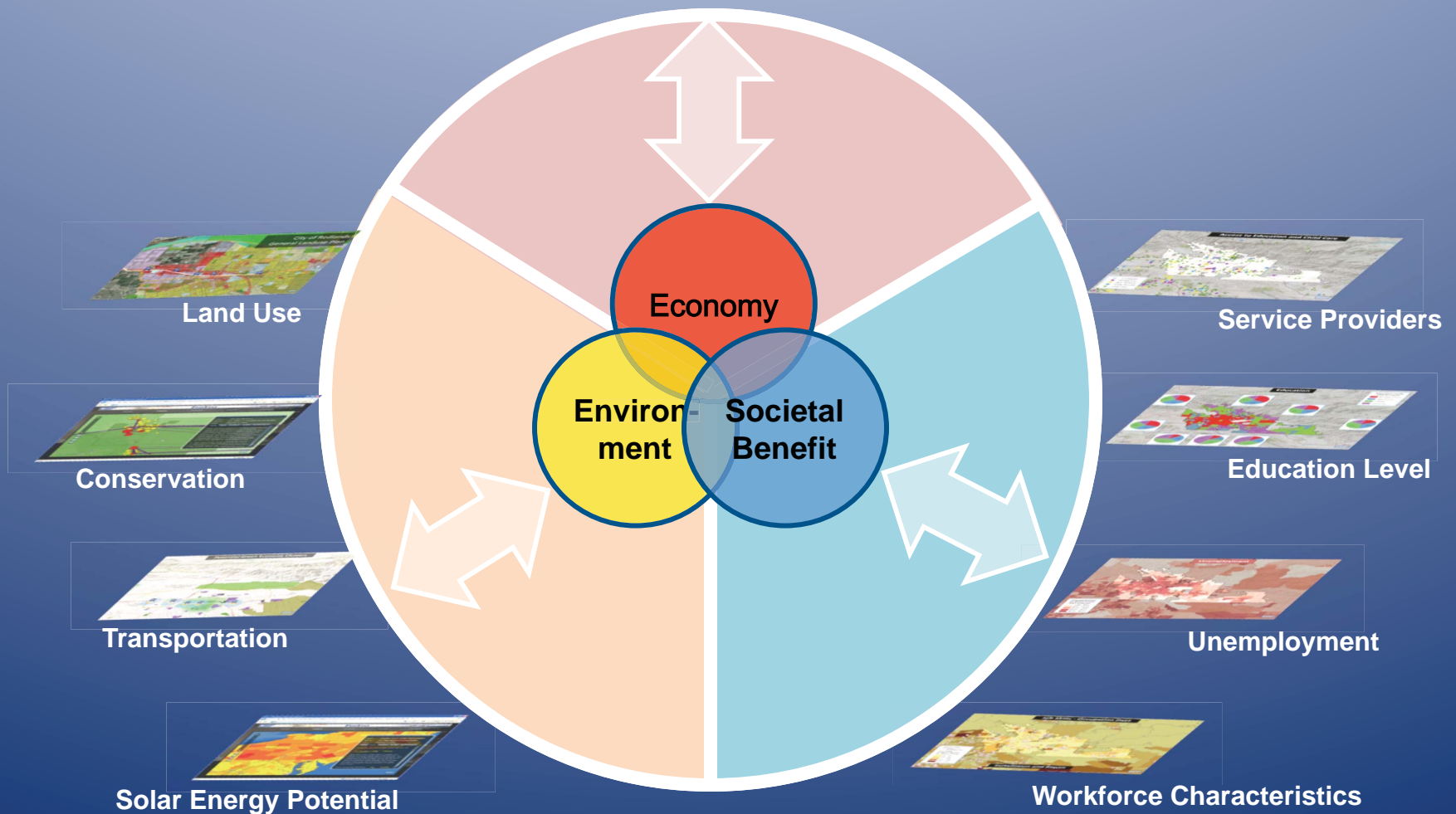
Sustainability Strategy



*... balances the interplay of the 3 e's
through policy and practice*

Visualizing Sustainability

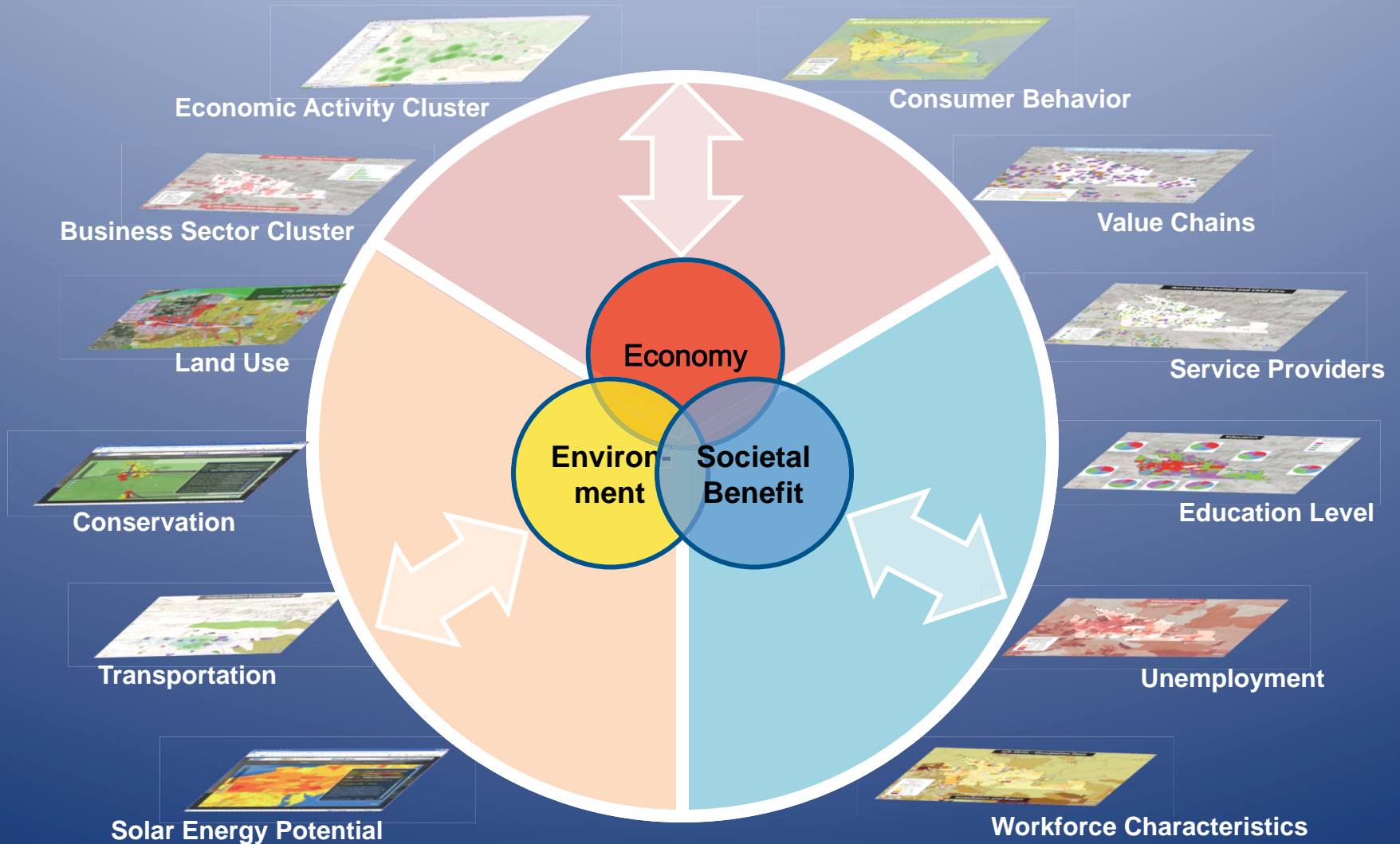
GIS provides granularity consistent with scale



... Economy not well represented in past use of GIS for sustainability planning

Visualizing Sustainability

GIS provides granularity consistent with scale



... Including economy supports defensible sustainability strategic planning

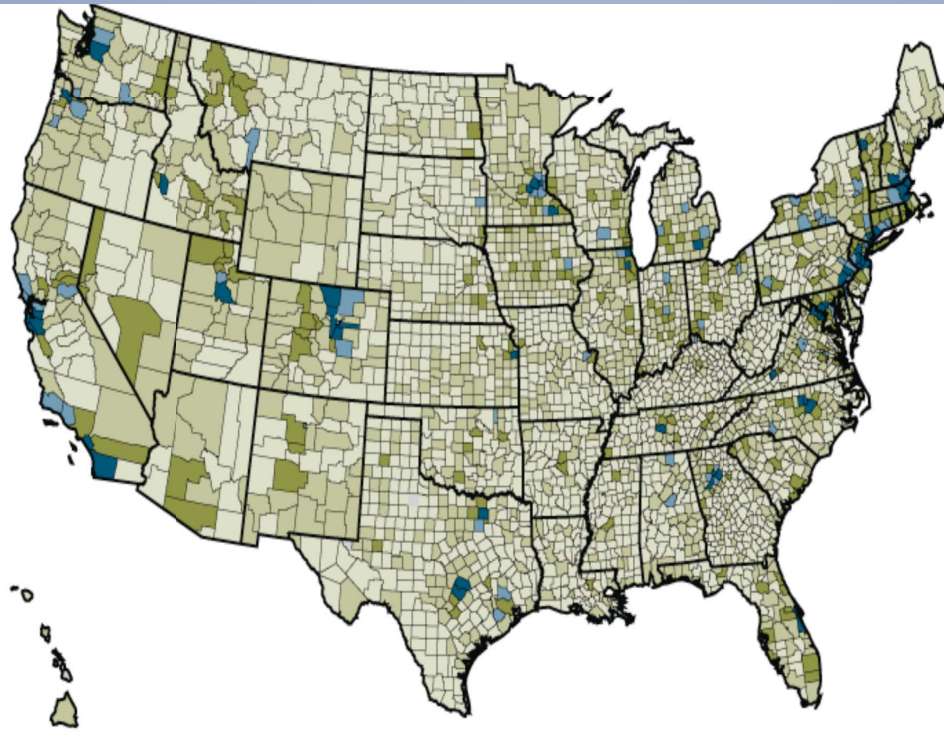
Importance of Clusters

- Measure of business activity relative to larger geography
 - Backbone of region's economy
 - Emerging economy based on innovation
- Coordinate economic growth and workforce investment

Traditional Cluster Map

United States = 100

- More than 110 (53 counties)
- 100.1 to 110 (75 counties)
- 90.1 to 100 (229 counties)
- 80 to 90 (1,001 counties)
- Less than 80 (1,748 counties)
- Missing (5 counties)



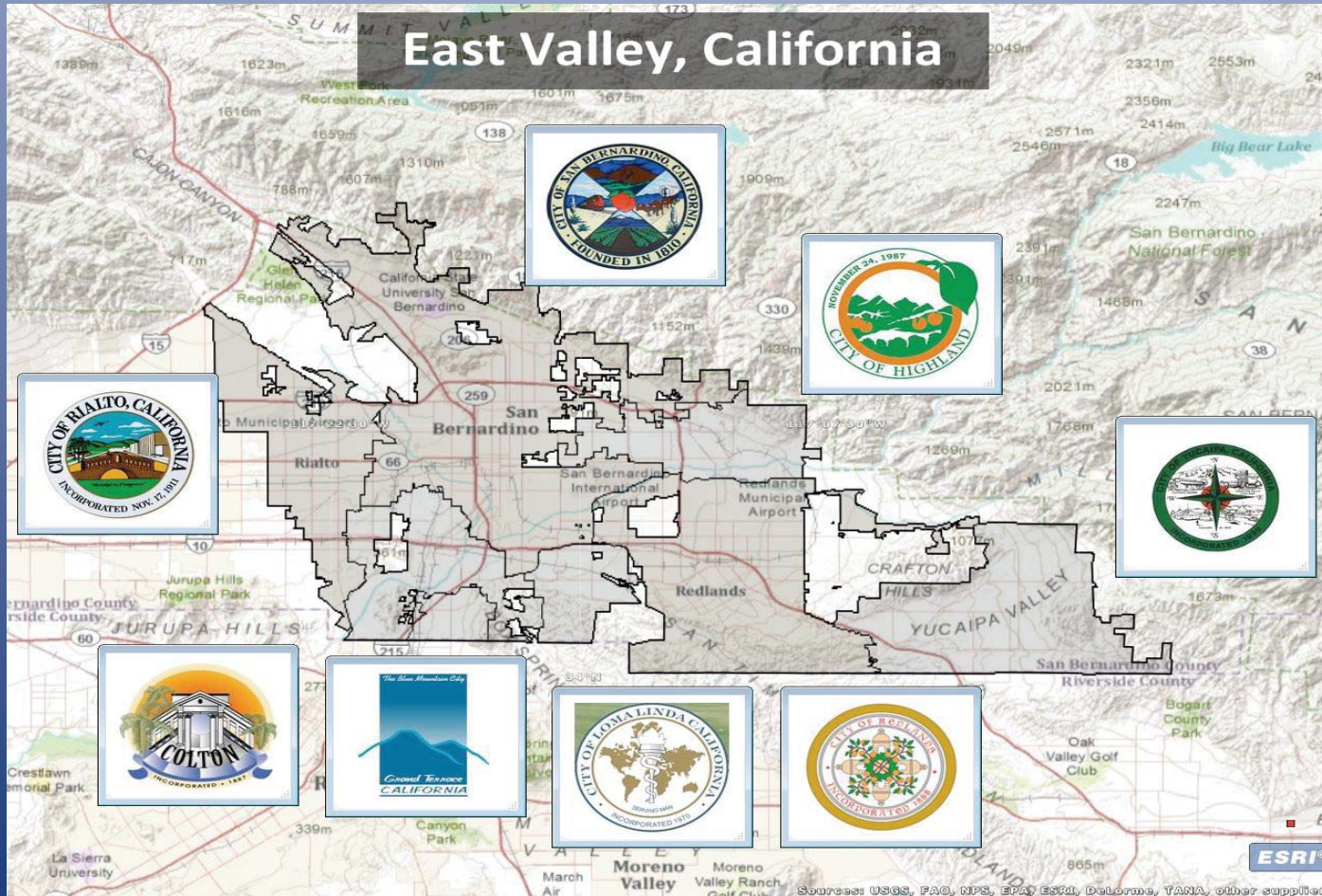
Location Quotient
Values for
Counties relative
to nation

Source: Purdue University

$$\text{Location Quotient} = \frac{\text{Sector Employment} / \text{Total Employment}}{\text{Sector Employment nation} / \text{total employment nation}}$$

*... Finer grain analysis needed to support
local strategic planning*

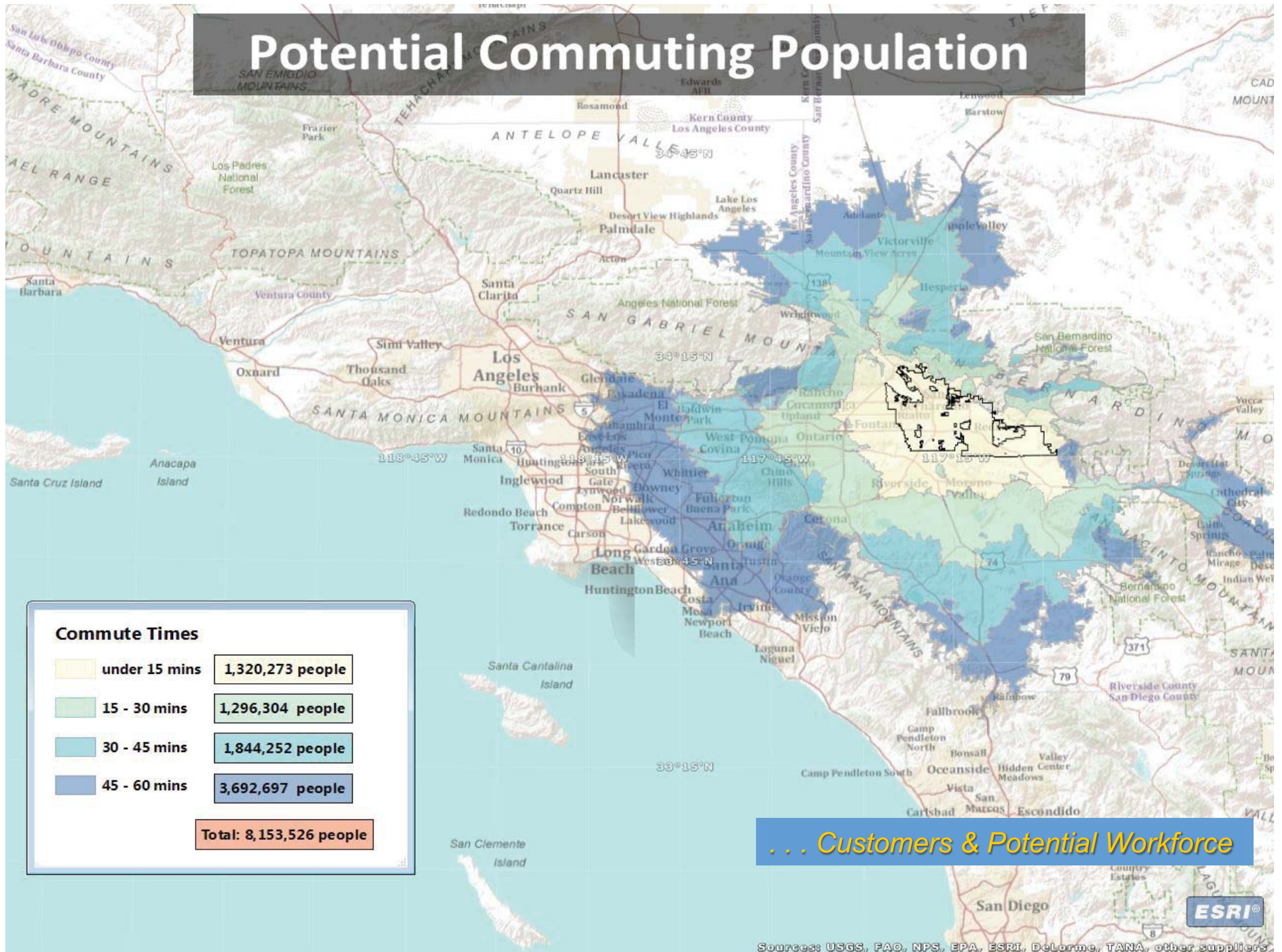
Case Study: Eastern San Bernardino Valley, California



Cities of:
San Bernardino
Highland
Yucaipa
Redlands
Loma Linda
Grand Terrace
Colton
Rialto

Population:
560,000

Potential Commuting Population



... Customers & Potential Workforce



Sources: USGS, FAO, NPS, EPA, ESRI, DeLorme, TANA, other suppliers

Existing Jobs

... Geography of jobs provides better picture of economic activity than land use

ESRI®

Sources: USGS, FAO, NPS, EPA, ESRI, DeLorme, TANA, other suppliers

East Valley – Existing Business Clusters and Jobs

East Valley Communities

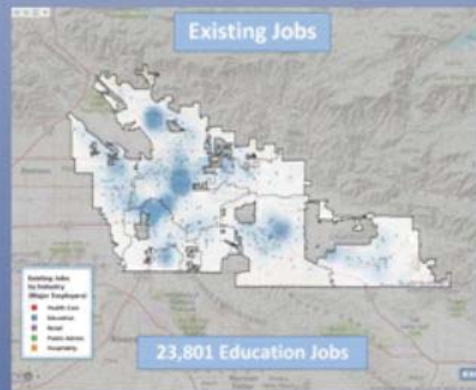
Colton	Grand Terrace
Highland	Loma Linda
Redlands	Rialto
San Bernardino	Highland

5 largest sectors of East Valley economy

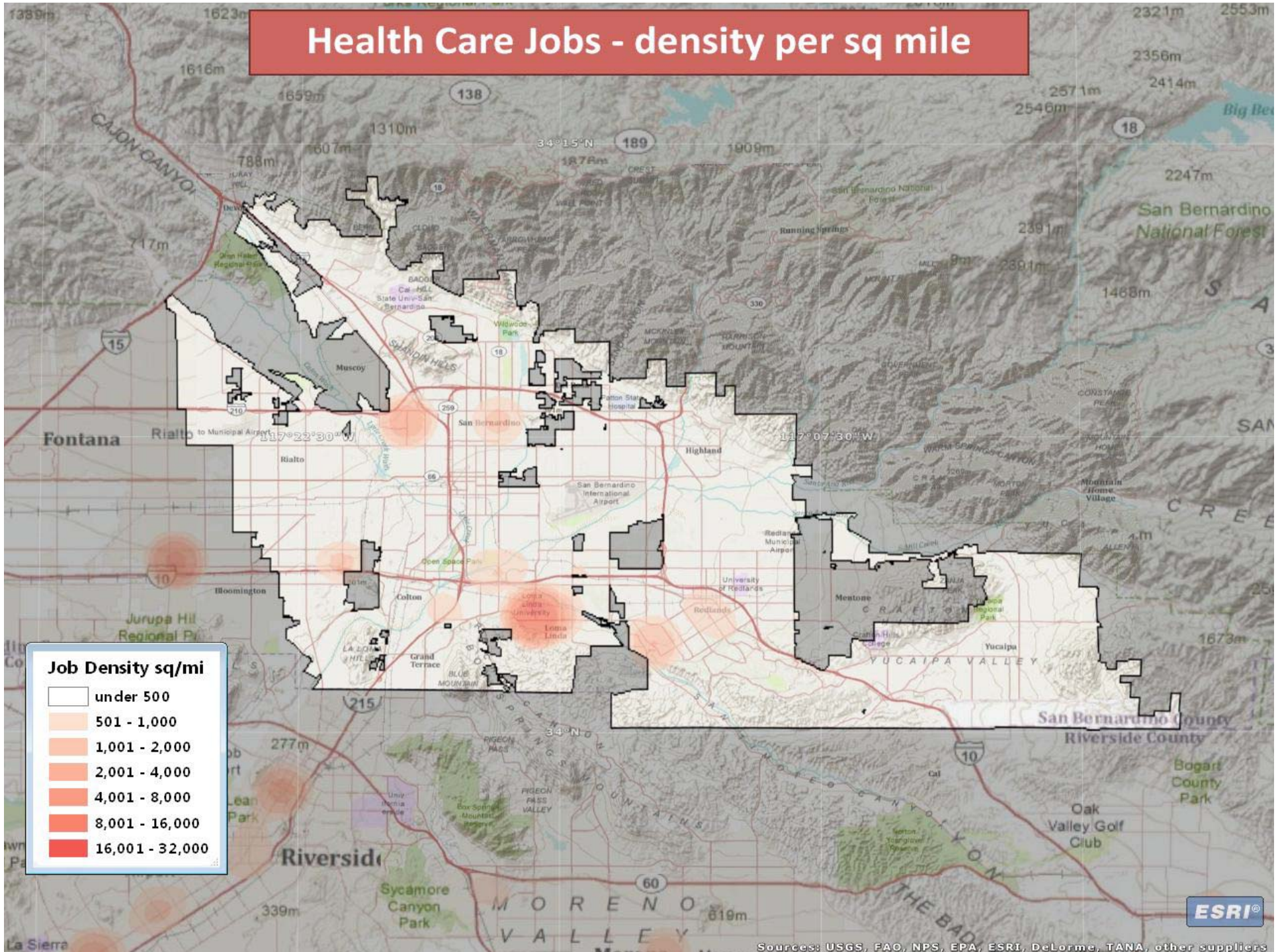
- Health Care
- Education
- Retail
- Public Administration
- Hospitality



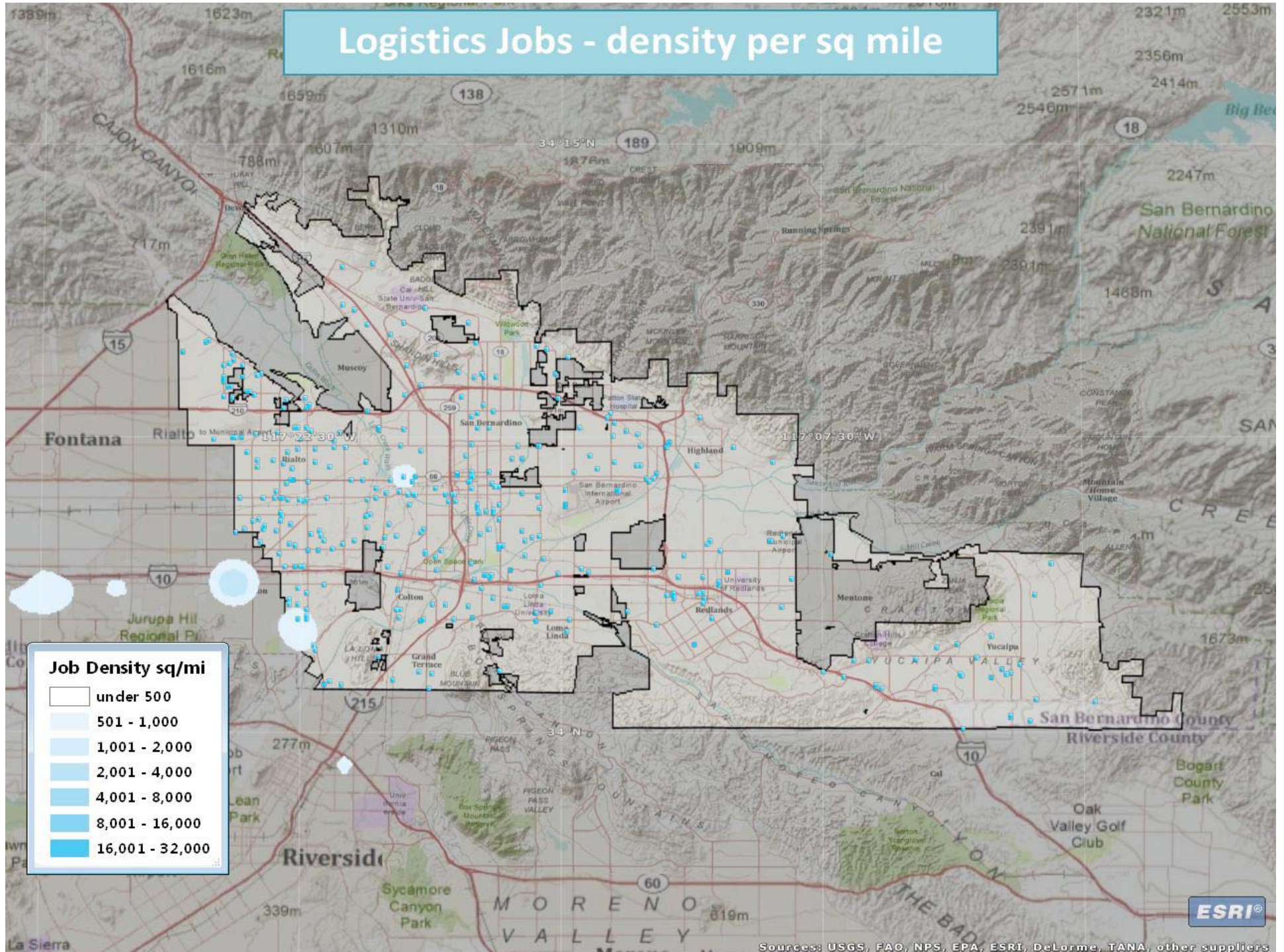
Each sector has its own geographic signature



Health Care Jobs - density per sq mile



Logistics Jobs - density per sq mile



Opportunities for Green Economy & Innovation (Emerging clusters?)

6 broad opportunities in East Valley

- Renewable energy
- Green Building / Energy Efficiency
- Biofuels / Farming
- Transportation / Alternative Fuels
- Water, Wastewater, Waste Management
- Environmental Compliance & Sustainability Planning

Source: Centers For Excellence,
California Community Colleges

Research Brief

The Green Economy

Industries & Jobs
in San Bernardino County

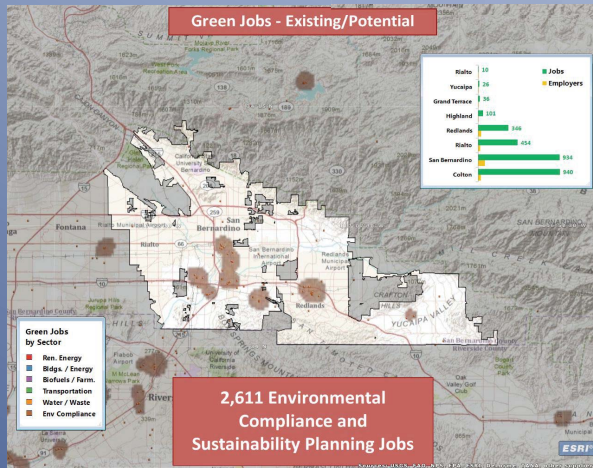


June 2009

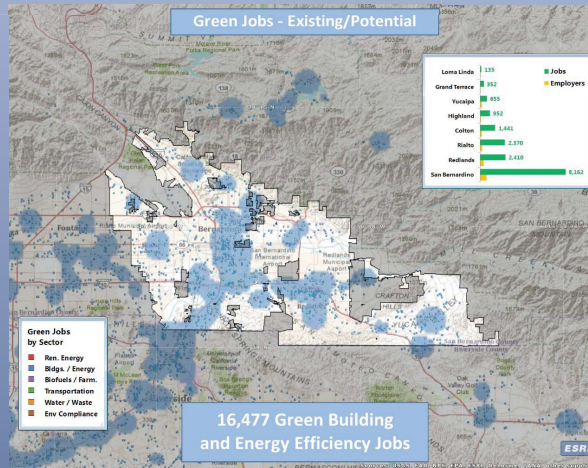
.... Opportunities will vary across Southern California . . . and the nation. 

Sources: USGS, FAO, NPS, EPA, ESRI, DeLorme, TANA, other suppliers

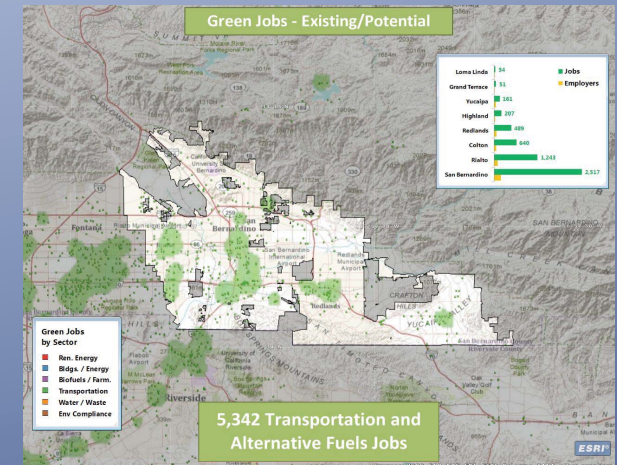
Green Economy Opportunities



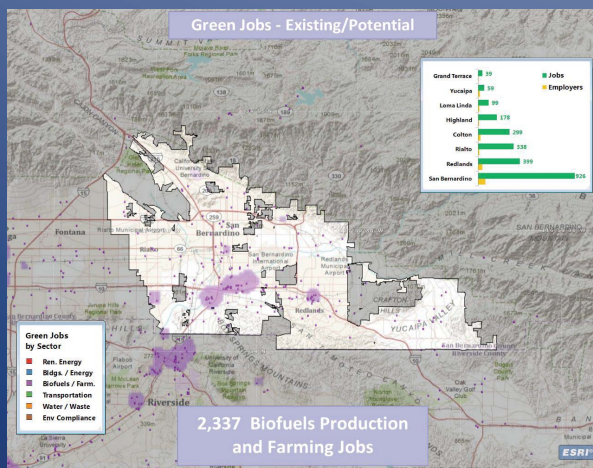
Environmental Compliance



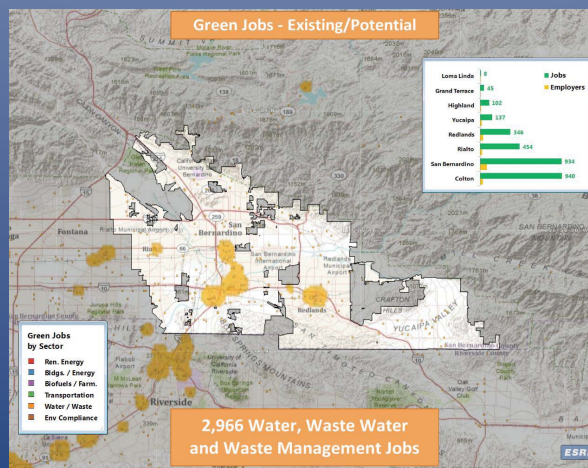
Energy Efficiency



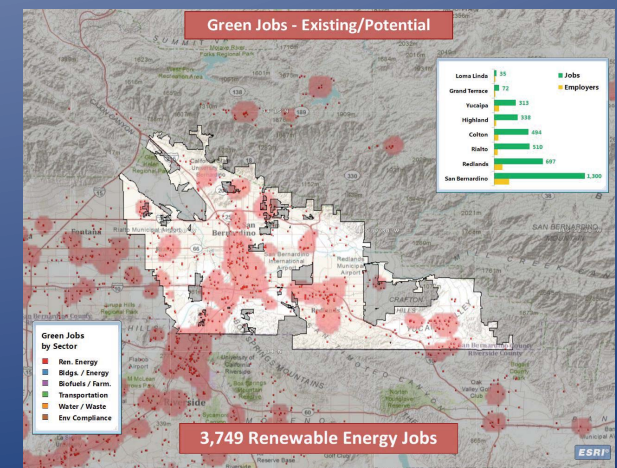
Transportation / Alt. Fuels



Biofuel / Farming

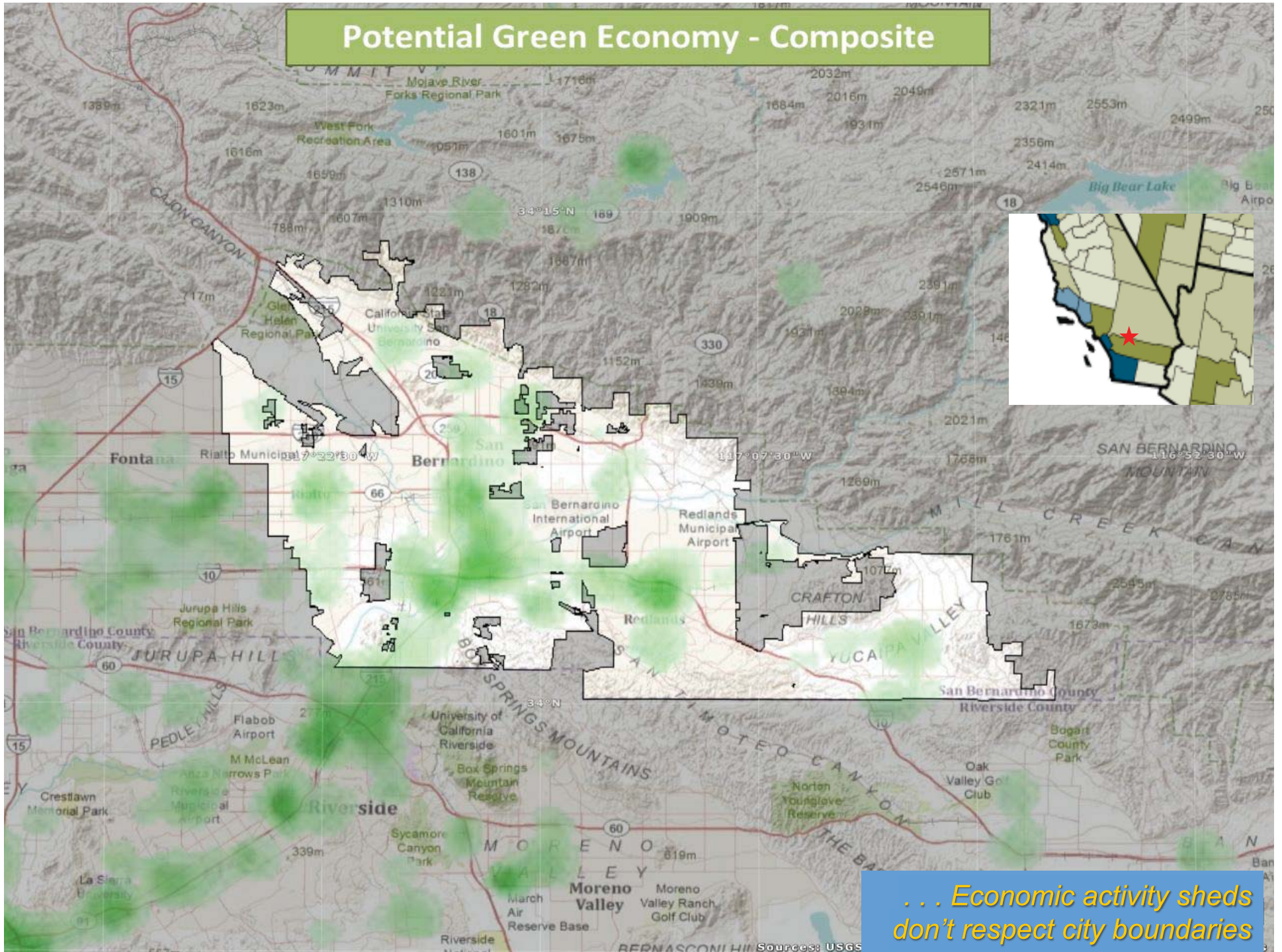


Water, Waste Management



Renewable Energy

Potential Green Economy - Composite



... Economic activity sheds don't respect city boundaries

Sources: USGS

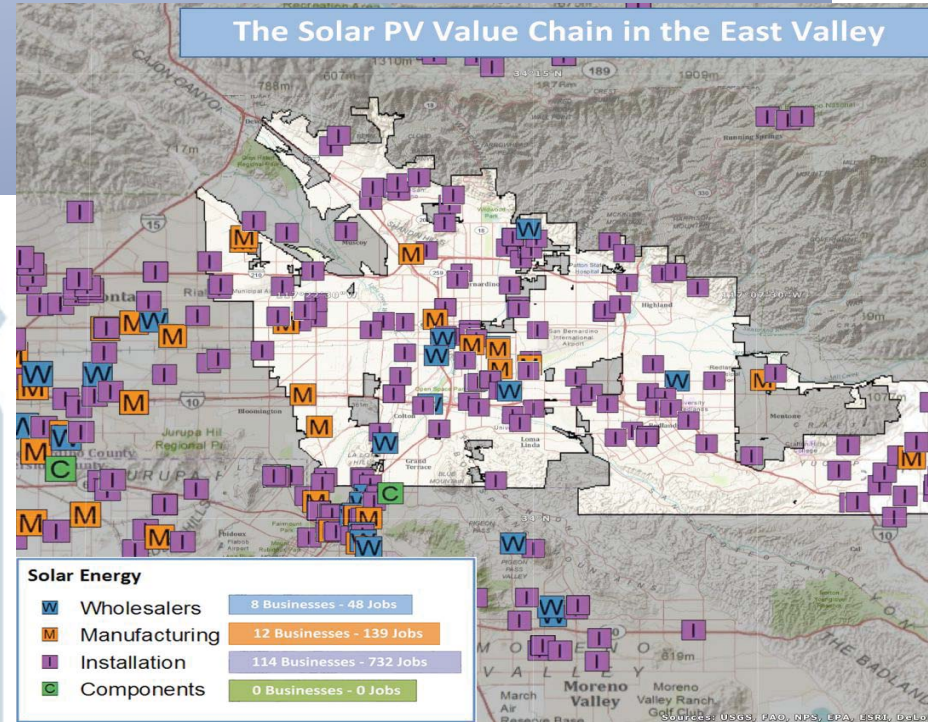
Value Chain

Steps in a process from raw resource through consumption

Figure 4-2: Simplified Concentrating Solar Power Value Chain



-Government grants & partnerships
 -Solar technology components
 -Emerging solar power companies
 Infinia Corp (Kennewack, WA)
 Sopogy (Honolulu, HI)

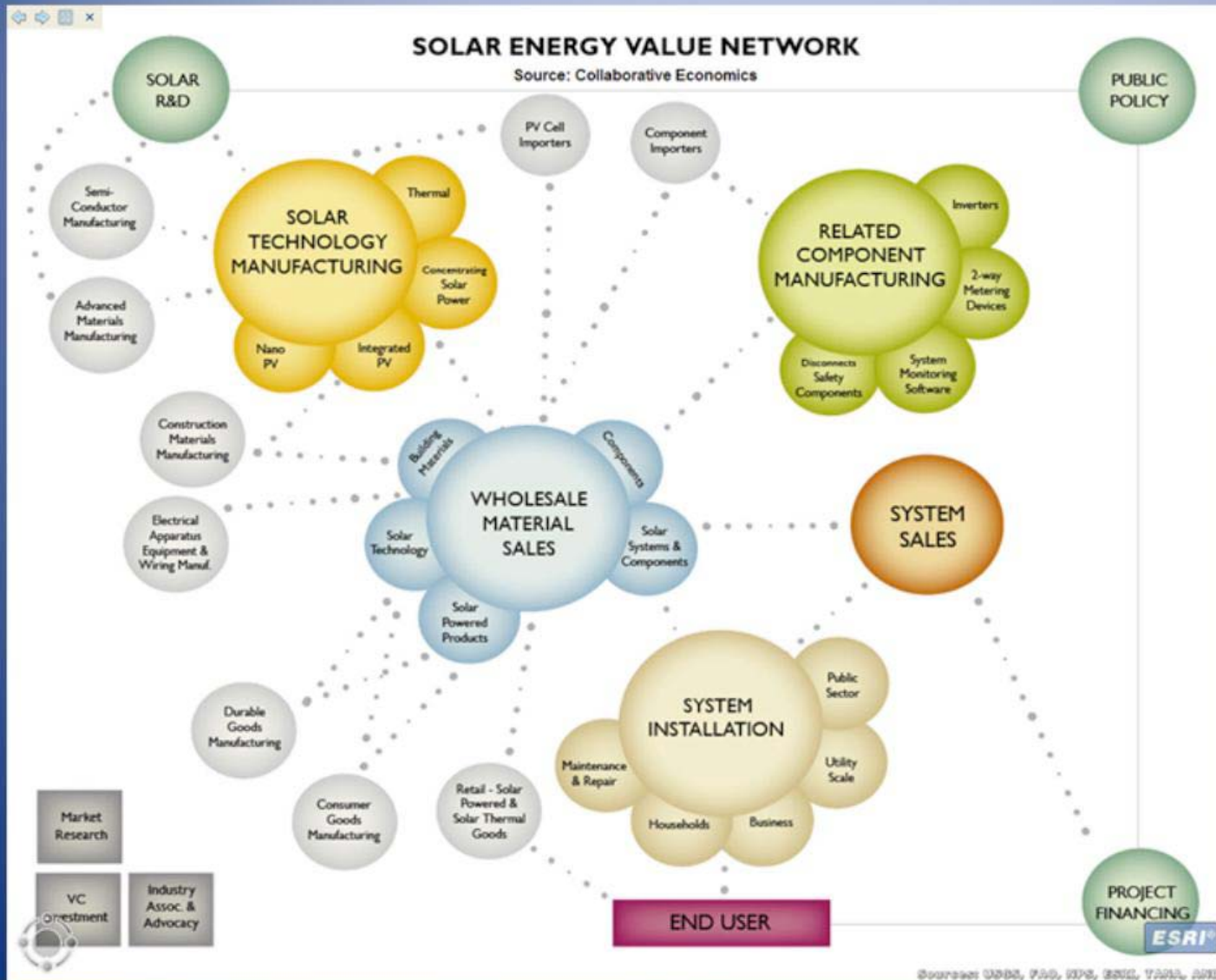


Steps correspond to businesses at known locations

Source: Center on Globalization, Duke University

... Value chains can be local or global

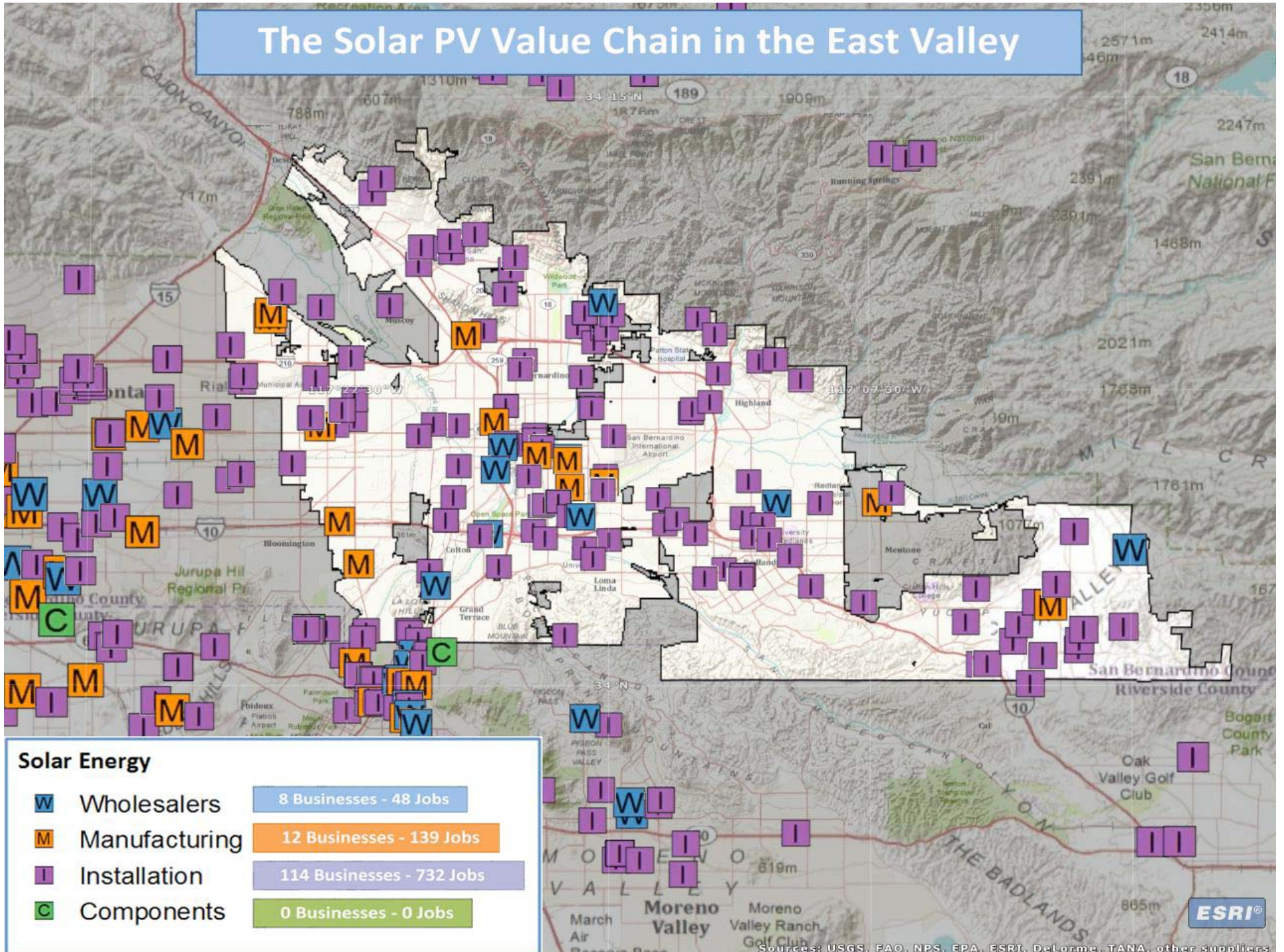
Solar PV Value Chain



Source: Collaborative Economics



The Solar PV Value Chain in the East Valley



Sources: USGS, FAO, NPS, EPA, ESRI, DeLorme, TANA, other suppliers

Other Factors for a Sustainable Region

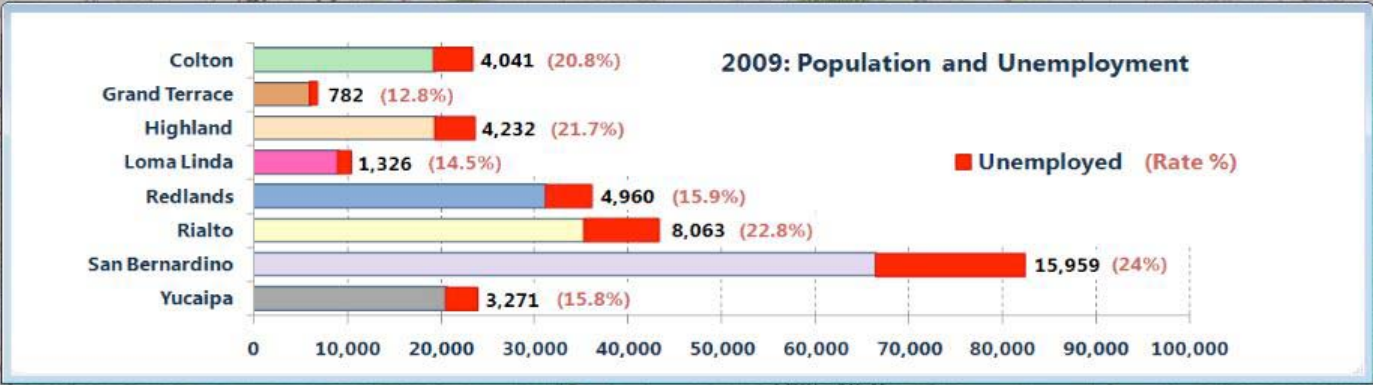
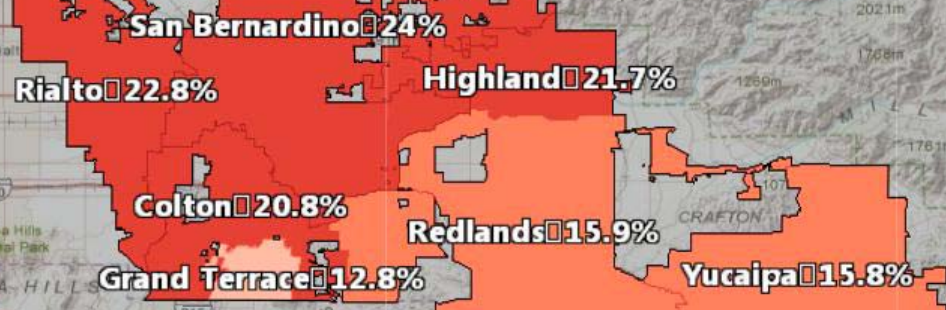
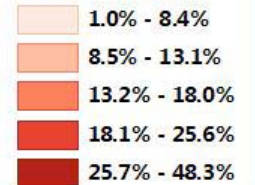
- Workforce / employment
- Education
- Consumer Market
- Transportation
- Quality of Life

... must be included in modeling a sustainable growth strategy



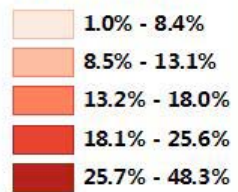
Unemployment

Unemployment by City 2009 Estimate



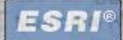
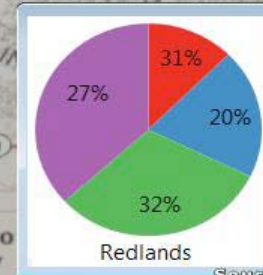
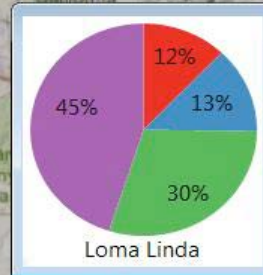
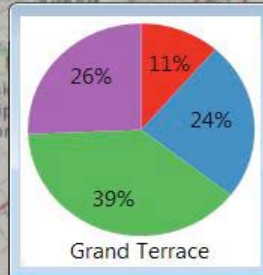
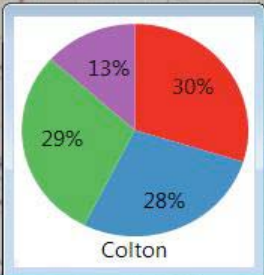
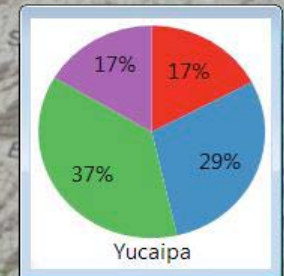
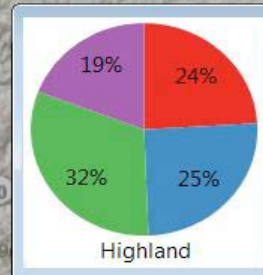
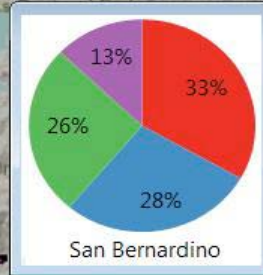
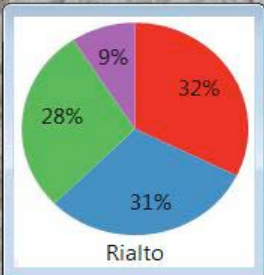
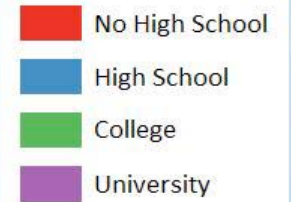
Unemployment

Unemployment by Block Group 2009 Estimate

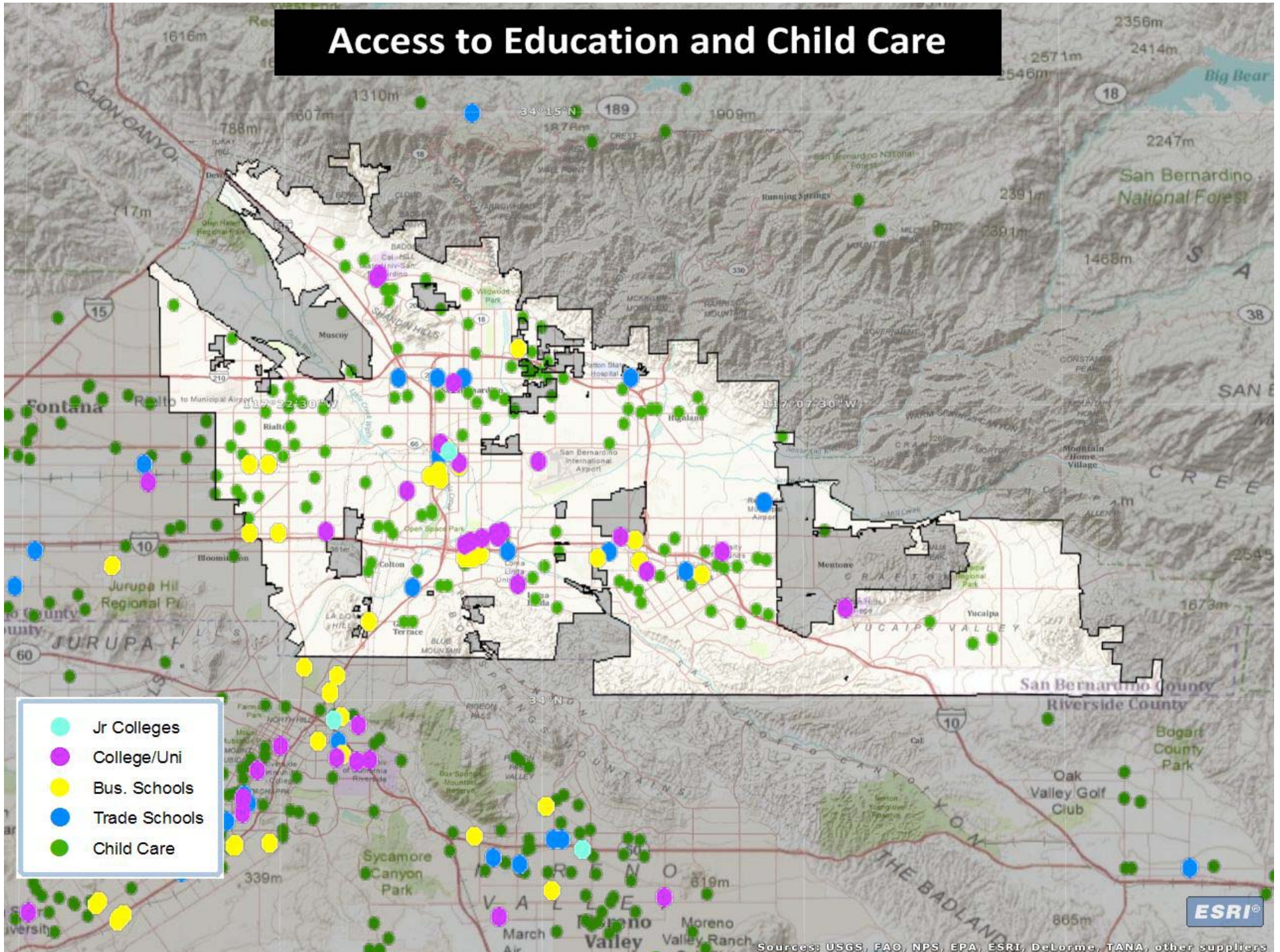


Education

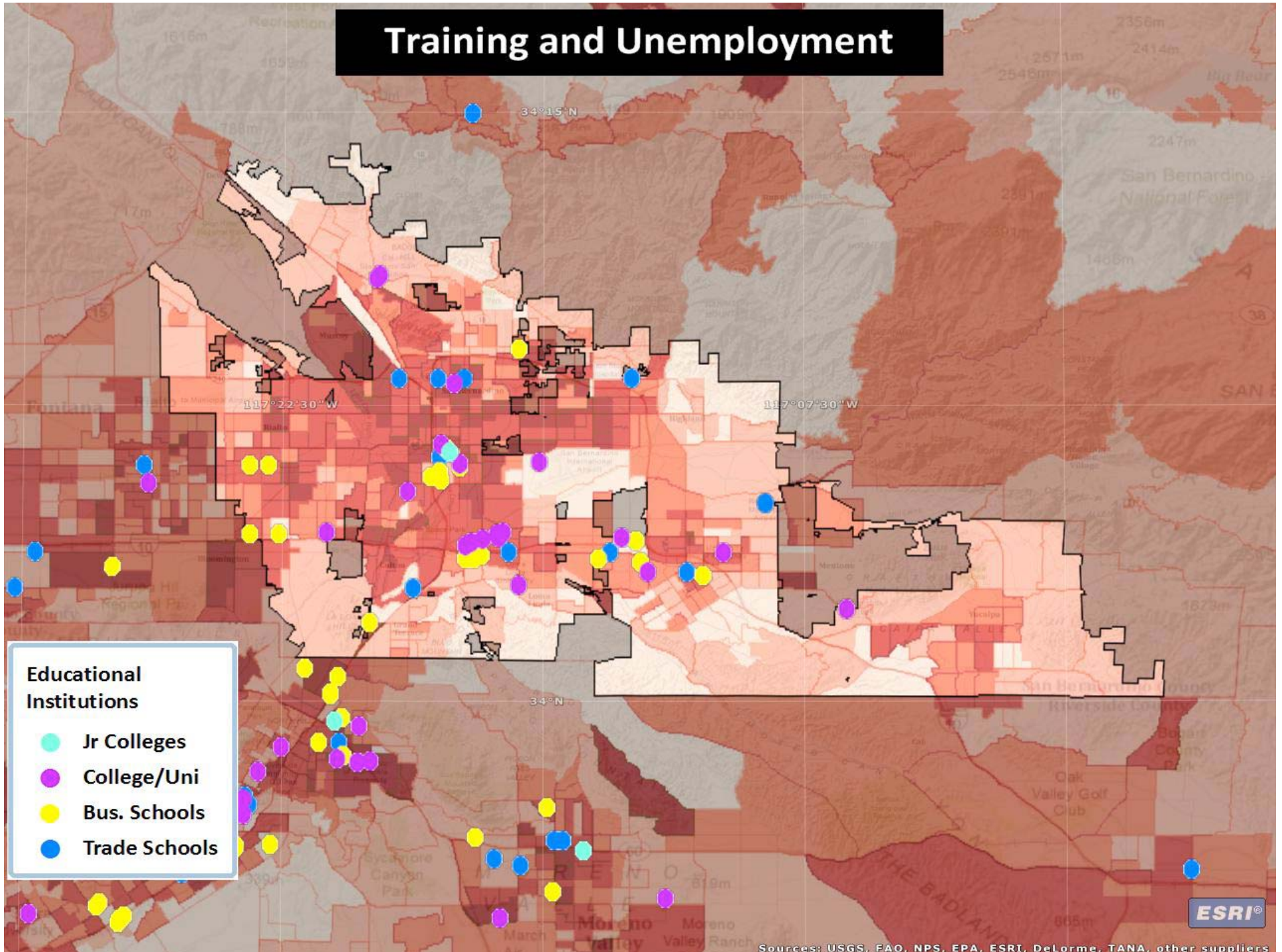
Education Levels 2009 Estimates



Access to Education and Child Care



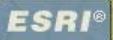
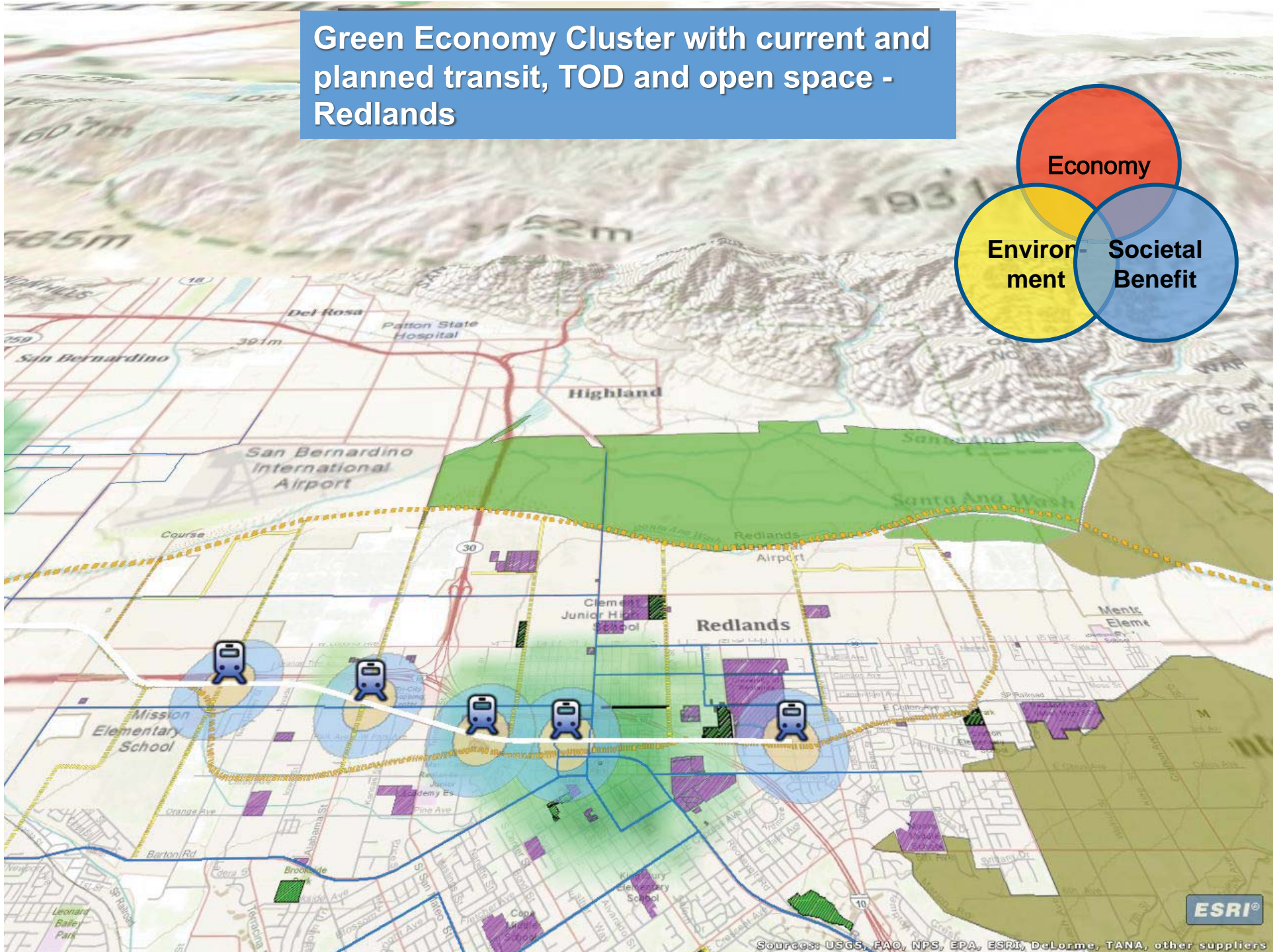
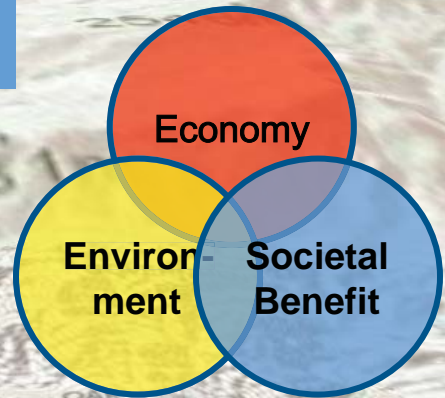
Training and Unemployment



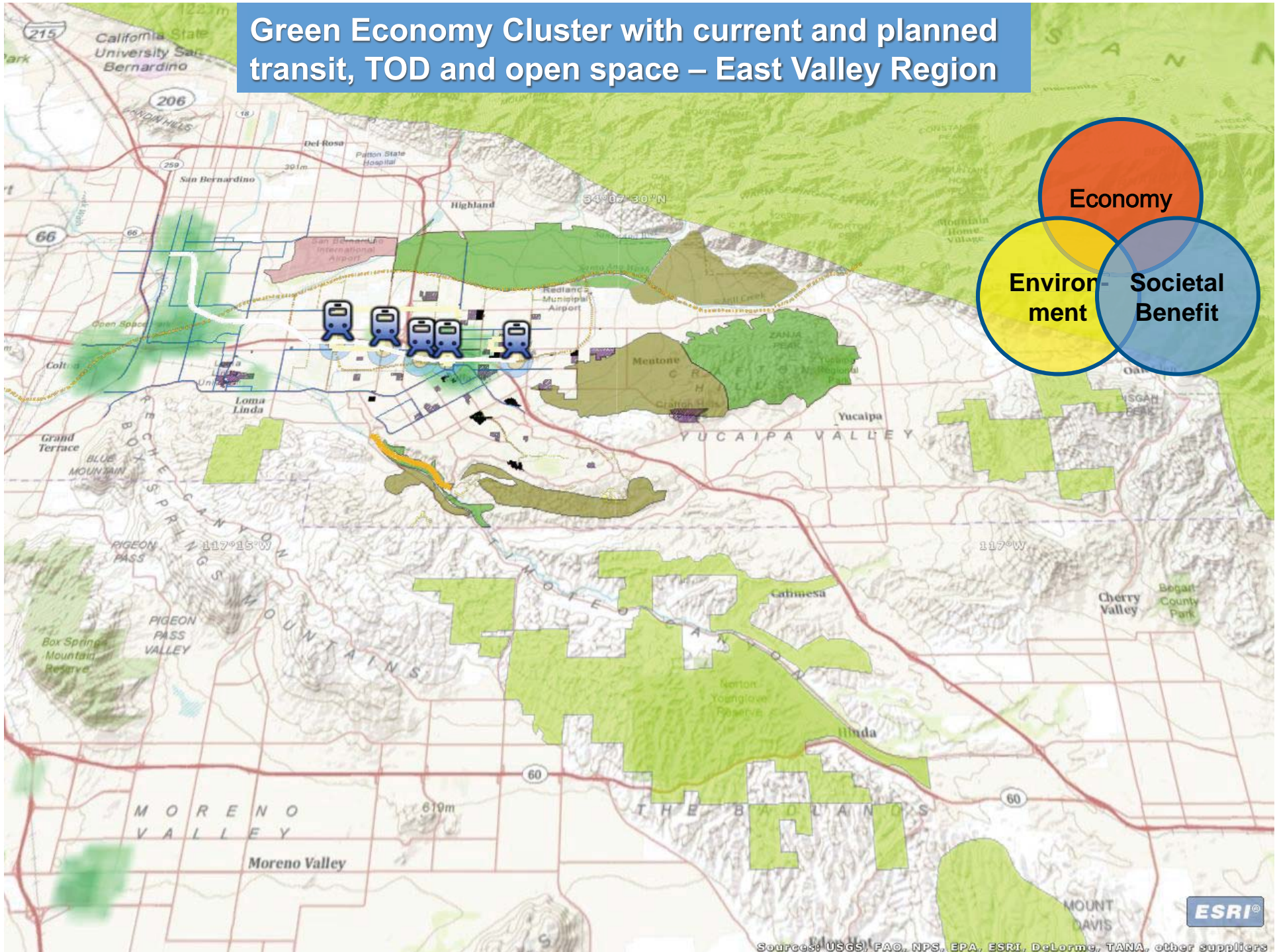
Conclusion:

Visually combining economic,
environmental and social equity
can contribute to strategic
sustainability planning

Green Economy Cluster with current and planned transit, TOD and open space - Redlands



Green Economy Cluster with current and planned transit, TOD and open space – East Valley Region



Additional Reading

Publications:

- *Industry Clusters of Opportunity User Guide*, California Regional Economies Project, September 2008
- *Cluster-Based Strategies for Growing State Economies*, National Governors Association, Council on Competitiveness, February 2007
- *The New Cluster Moment: How Regional Innovation Clusters Can Foster the Next Economy*, Mark Muro and Bruce Katz, Metropolitan Policy Program at Brookings, September 2010

Websites:

- Center on Globalization, Governance & Competitiveness, www.cggc.duke.edu
- Purdue Center for Regional Development, www.pcrd.purdue.edu
- Next 10, www.next10.org