



FEMA

You Say Potato...

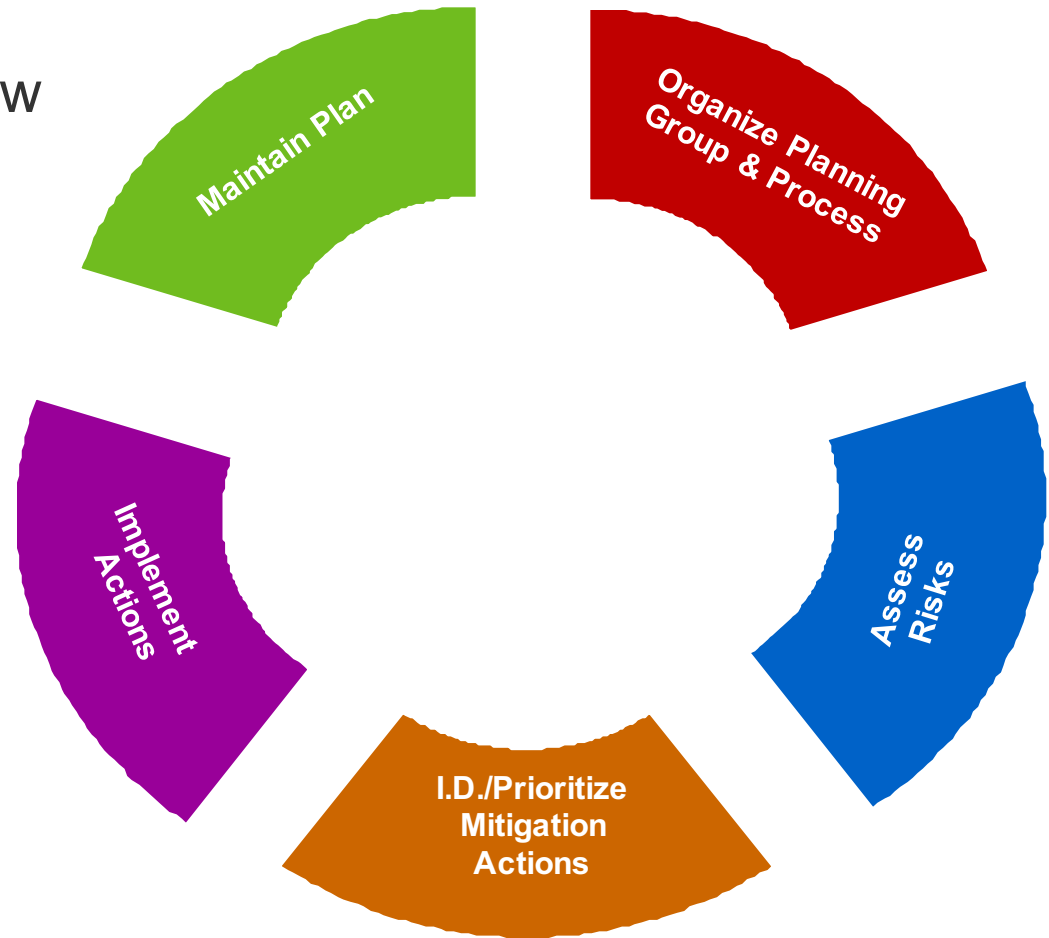
Juliette Hayes
Risk Analysis Branch Chief, FEMA Region IX
California Adaptation Forum
September 8, 2016

RiskMAP
Increasing Resilience Together



Natural Hazard Mitigation Planning

Mitigation planning is the process of determining how to reduce or eliminate the loss of life and property damage resulting from all kinds of natural hazards.

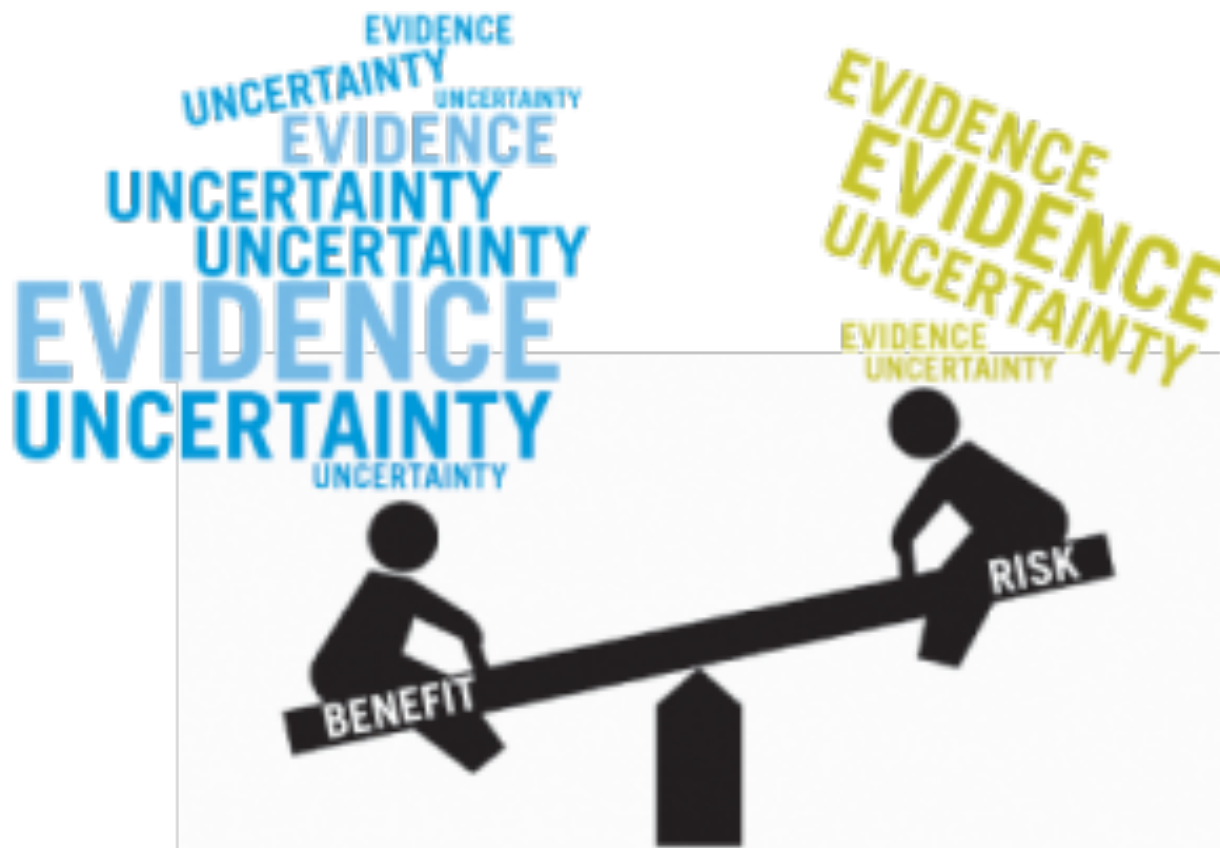


Risk Management

Transfer

Accept

Reduce
(Mitigate/
Adapt)



Natural Hazard Mitigation

Mitigation is the effort to reduce loss of life and property by lessening the impact of natural hazards.



Tornado



Erosion



Flooding

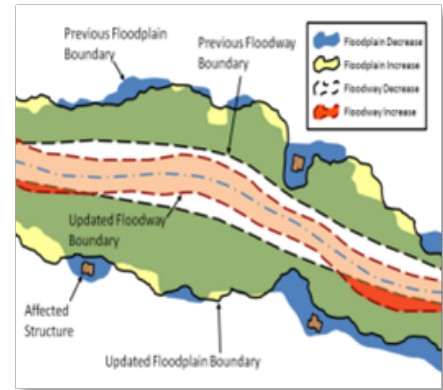
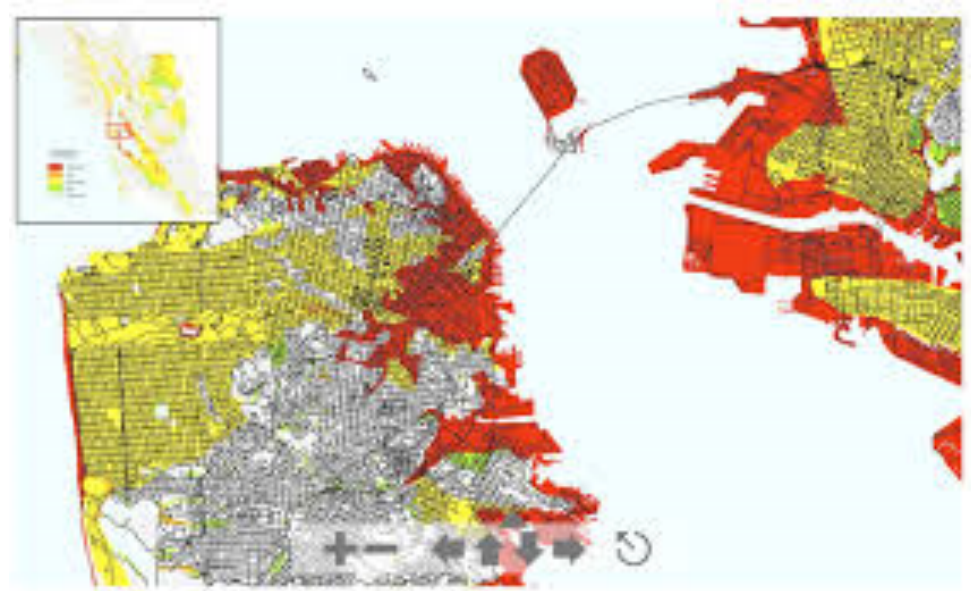
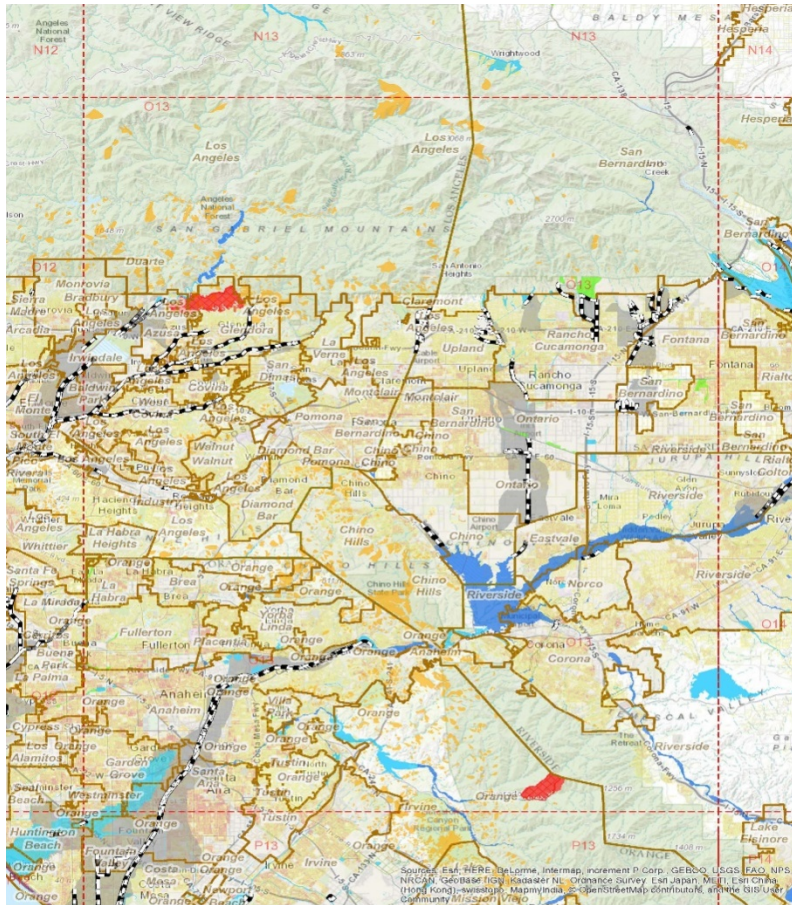


Drought



San Diego County

Risk Analysis



Achieving Risk Reduction

The mitigation plan provides a foundation for risk-based decision making in all aspects of community development.



Integrating risk
reduction into capital
improvement
projects



Habitat restoration and sea
level rise



Zoning for
hazards

Approaches to Risk Reduction

Land Use Planning and Regulations

- Building Codes
- Zoning and Ordinances
- Integrating Natural Hazards into other Planning Mechanisms
- Established Funds for Risk Reduction
- Incentives for Risk Reduction
- Etc...



Approaches to Risk Reduction

Structural & Infrastructure Projects

- Retrofit
- Acquisition/Elevation
- Flood Control/Management
- Urban Heat Island Albedo Enhancement
- Soil Stabilization or Erosion Control
- Underground Utilities
- Etc...



Approaches to Risk Reduction

Natural Systems

- Open Space Preservation
- Forest/Vegetation Management
- Protect/Restore Natural Functions
- Stream Maintenance
- Tree Management
- Fuel Reduction
- Etc...



Approaches to Risk Reduction

Natural Systems

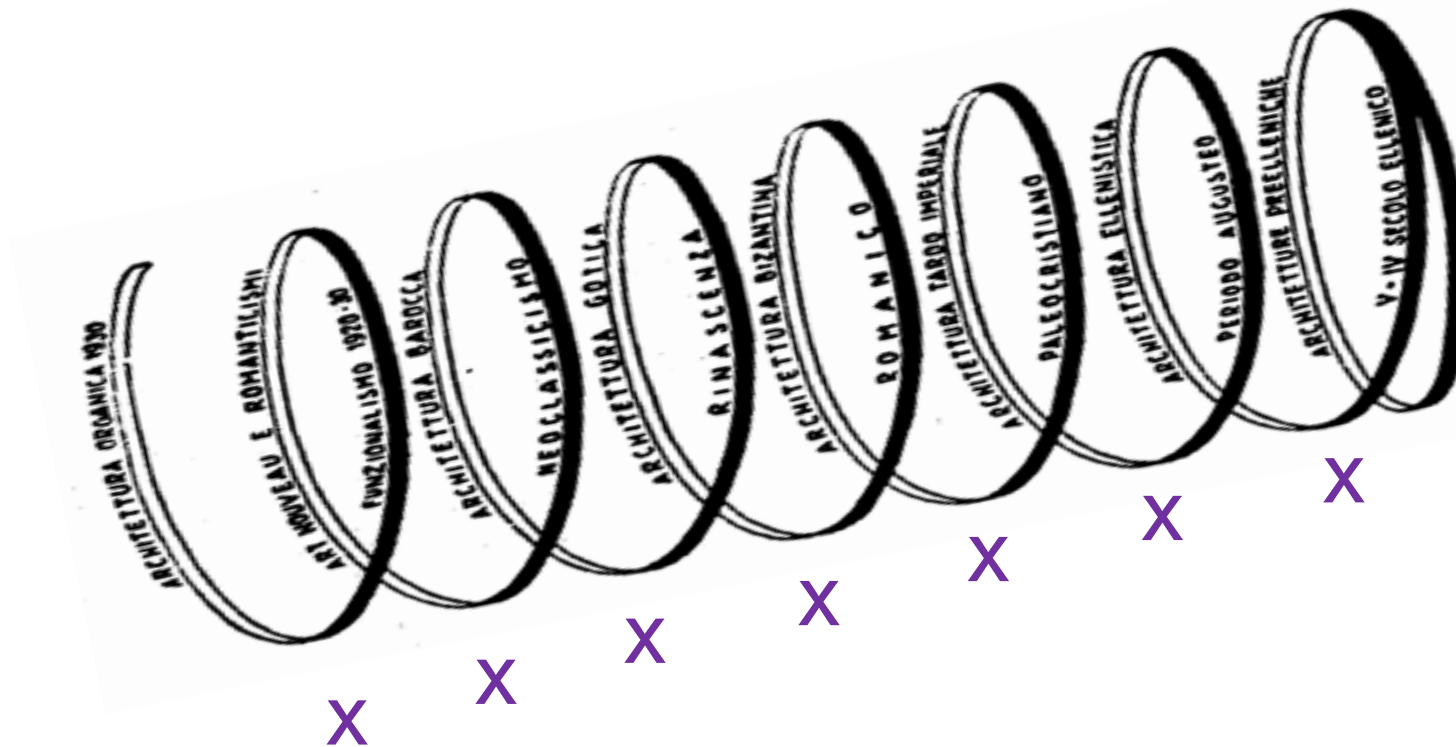
In September 2015, FEMA announced the Climate Resilient Mitigation Activities (CRMA) eligible for HMA funding

- Floodwater Diversion, Storage, & Recovery
- Aquifer Storage & Recovery
- Floodplain & Stream Restoration

<https://www.fema.gov/media-library/assets/documents/110202>



Mitigation/Adaptation



X = party and reflection

Implementation

- Asking the right questions
- Change management
 - What are achievable goals in the short term and the long term?
 - Did it do what it was supposed to do?
 - What were the unintended consequences? How do we find out?
- *Keeping the faith
- Community engagement for solution design
 - What are the core values of the community?
 - Who has the most to lose?

Case Study: LA River, river

- LA River Watershed: 870 square miles
- LA River Length: 51 miles
(First 32 miles in the City of LA)
- Elevation: 772 feet at Canoga Park to 0 at Pacific Ocean
- Average Annual Precipitation: 15 inches
- Average Daily Discharge: 207 million gallons per day
- 3 major floods (1914, 1934 & 1938) plus focus on large infrastructure projects caused the river to be channelized by USACE in the 1930s-1940s

Case Study: LA River, people

- The first 32 miles of the River that flow through the City of Los Angeles intersect 7 U.S. Congressional Districts, 10 Council Districts, approximately 20 Neighborhood Council areas, and 12 Community Plan areas.
- Then the river flows through 11 Cities to the Pacific: Vernon, Commerce, Maywood, Bell, Bell Gardens, South Gate, Lynwood, Compton, Paramount, Carson, and Long Beach.
- Many of these communities have high unemployment rates and an array of environmental justice issues.

LA River: Now and Then



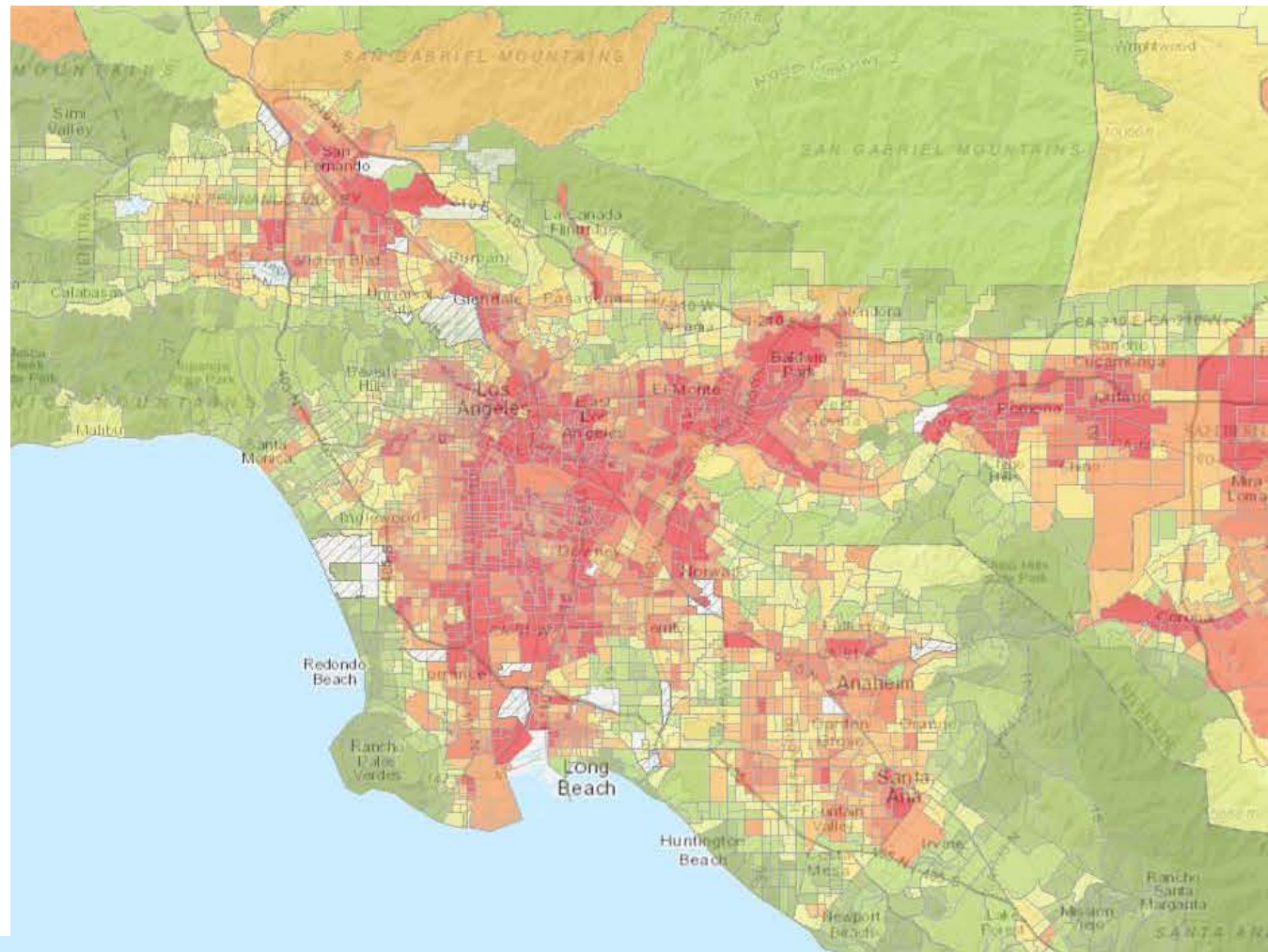
LA River

Town of Compton

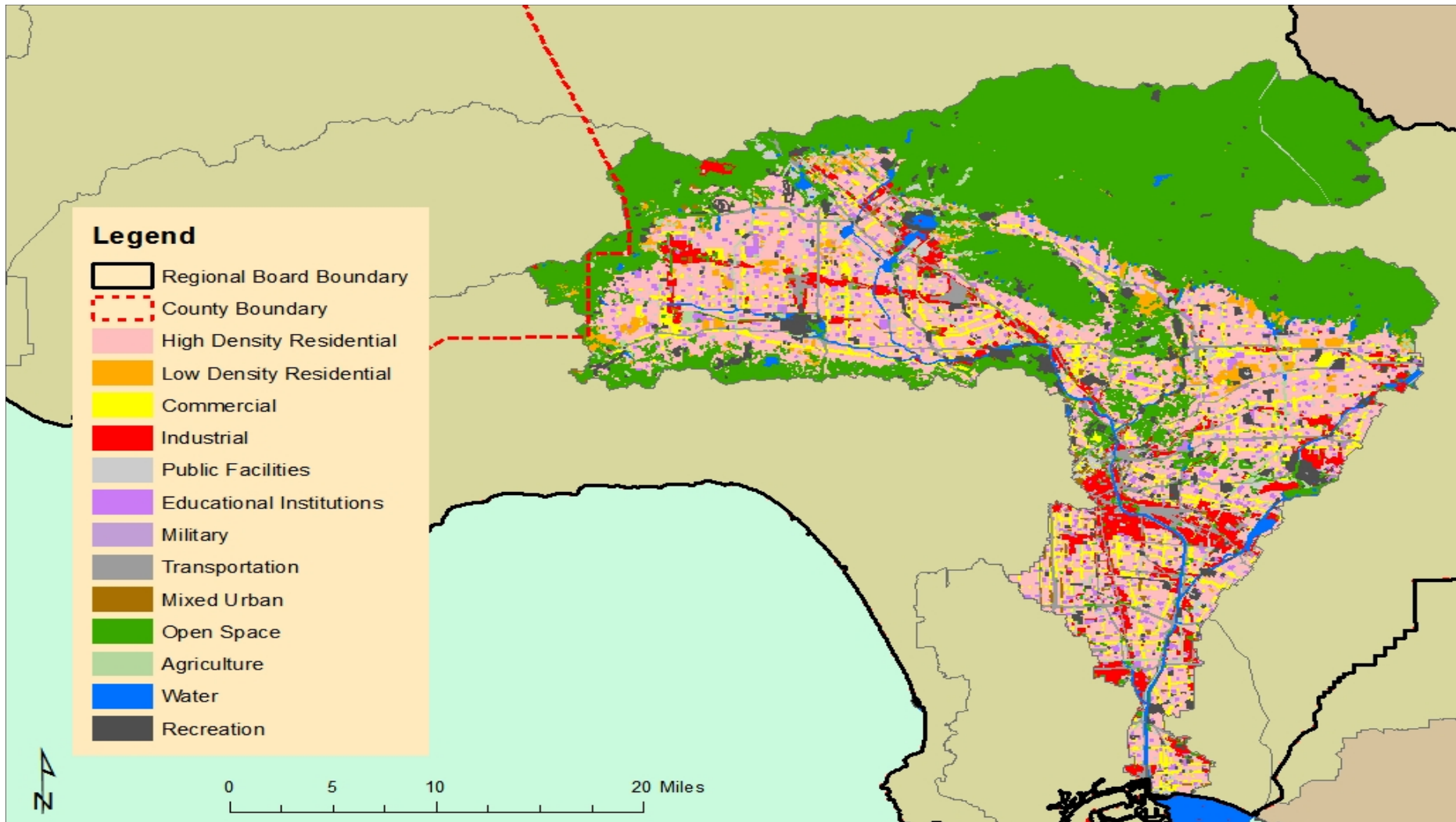
CalEnviroScreen Score: 91-95%
Population: 7,518

<u>Ozone:</u>	32
<u>PM2.5:</u>	79
<u>Diesel:</u>	83
<u>Drinking Water:</u>	63
<u>Pesticides:</u>	0
<u>Toxic Releases:</u>	90
<u>Traffic Density:</u>	73
<u>Cleanup Sites:</u>	87
<u>Groundwater Threats:</u>	83
<u>Hazardous Waste:</u>	69
<u>Impaired Water:</u>	0
<u>Solid Waste:</u>	43

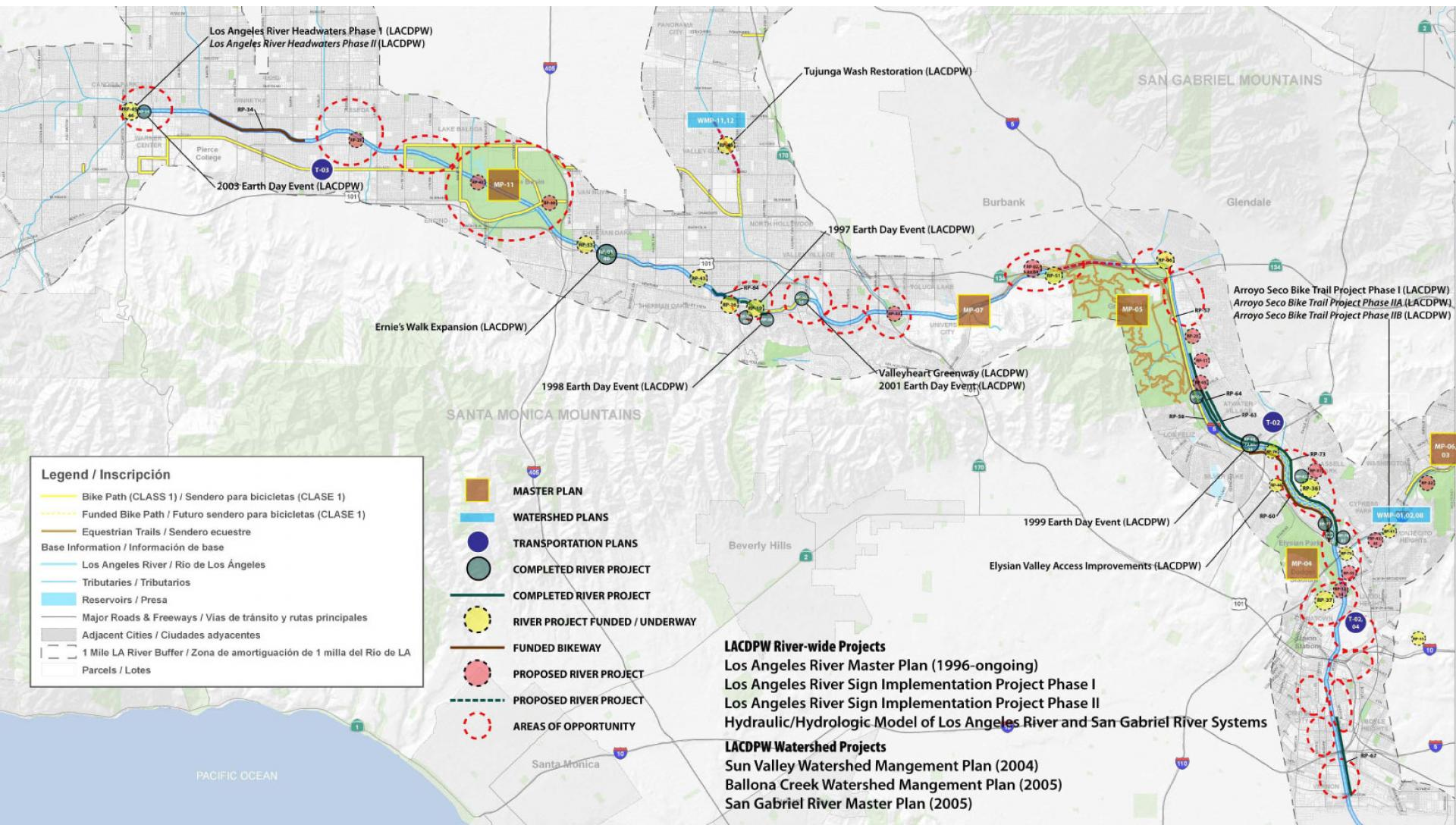
<u>Age:</u>	37
<u>Asthma:</u>	66
<u>Low Birth Weight:</u>	84
<u>Low Education:</u>	74
<u>Linguistic Isolation:</u>	67
<u>Poverty:</u>	50
<u>Unemployment:</u>	85



LA River Watershed Land Use



LA River: Current Projects



Legend / Inscripción

- Bike Path (CLASS 1) / Sendero para bicicletas (CLASE 1)
- Funded Bike Path / Futuro sendero para bicicletas (CLASE 1)
- Equestrian Trails / Sendero ecuestre
- Base Information / Información de base
- Los Angeles River / Río de Los Ángeles
- Tributaries / Tributarios
- Reservoirs / Presa
- Major Roads & Freeways / Vías de tránsito y rutas principales
- Adjacent Cities / Ciudades adyacentes
- 1 Mile LA River Buffer / Zona de amortiguación de 1 milla del Río de LA
- Parcels / Lotes

- MASTER PLAN
- WATERSHED PLANS
- TRANSPORTATION PLANS
- COMPLETED RIVER PROJECT
- COMPLETED RIVER PROJECT
- RIVER PROJECT FUNDED / UNDERWAY
- FUNDED BIKEWAY
- PROPOSED RIVER PROJECT
- PROPOSED RIVER PROJECT
- AREAS OF OPPORTUNITY

LACDPW River-wide Projects
 Los Angeles River Master Plan (1996-ongoing)
 Los Angeles River Sign Implementation Project Phase I
 Los Angeles River Sign Implementation Project Phase II
 Hydraulic/Hydrologic Model of Los Angeles River and San Gabriel River Systems

LACDPW Watershed Projects
 Sun Valley Watershed Mangement Plan (2004)
 Ballona Creek Watershed Mangement Plan (2005)
 San Gabriel River Master Plan (2005)

LA River: Goals



Access and Safety



Mobility and Connectivity



Recreation

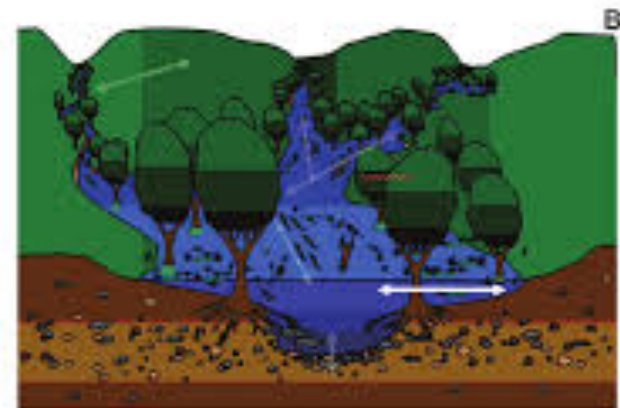
LA River: Goals



improved Air Quality



Increased Habitat



Storm Water Management & Recharge