

GIS for Large Community Planning Efforts

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LA County Dept. of Regional Planning
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For Today...

- Introduction to our GIS group
- How we use GIS for these large efforts
- GIS in our last three major planning efforts
 - Santa Monica Mountains Local Coastal Program
 - Antelope Valley Area Plan Update
 - General Plan 2035
- Lessons Learned

Introduction To Our GIS Group

- 7 full time staff
- 90 years of combined GIS experience
- Responsible for
 - Data management
 - Map creation and management
 - Project management
 - GIS web mapping applications development and management
- For UNINCORPORATED areas of Los Angeles County

How We Use GIS – For Large Projects

- Work with planning staff
 - Identify project boundaries
 - Create/update working data
 - Investigate County data sources
 - Identify other data sources
 - Make working maps
 - Make maps for public meetings and public hearings
 - Create and update data for the GIS web mapping applications (create new app, if appropriate)

How We Use GIS – For Large Projects

- Biggest issue is that every project is different
 - Different issues
 - Different community
 - Different customer
 - Different planning staff
- We do our best to keep things as uniform as possible
- These factors make mapping and GIS web mapping application creation and management very challenging ...

Our Last Three Large Planning Efforts

- These are planning efforts that encompass large areas
- Most cities might have only one for their entire city
- The County's most recent major planning efforts:
 - Santa Monica Mountains Local Coastal Program
 - Antelope Valley Area Plan Update
 - General Plan 2035
- Public-facing GIS Web Mapping applications created for each of these ...

Santa Monica Mountains LCP

- Balances natural resource protection and rural development through revised land use policies and zoning
- Key component – Sensitive Environmental Resource Areas (SERAs) – H1, H2, H3 habitats
- Replaced the Malibu Coastal Plan (adopted 1980) in coordination with California Coastal Commission
- Politically-charged, stop-and-go effort
 - Began in 1998
 - Progressed in 2006-2007
 - Paused until 2012, and then adopted and certified in 2014

Santa Monica Mountains LCP

Tasks performed by the DRP GIS Section broadly divided into three categories:

- Geo-processing, data analysis, and reporting of results – for use by County personnel and contracted consultants
- Production of Map Series (10 map themes) for the LCP and its Local Implementation Program (LIP)
- Development of web mapping application SMMLCP-NET

Santa Monica Mountains LCP

GIS work was conducted most closely with:

- DRP project planners and staff biologist
- Board of Supervisors 3rd District Planning Deputy
- DRP Director of Planning, Chief Deputy Director, and GIS Manager
- Consultants – ecologist, land use legal counsel, etc.

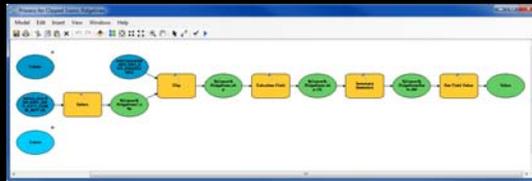
Santa Monica Mountains LCP

Data Sources include (but are not limited to):

- L.A. County GIS production layers
- NPS : Vegetation survey of the Santa Monica Mountains
- USGS: Hydrology, soils, seismicity, liquefaction
- FEMA: Flood hazards
- California Coastal Commission data

Santa Monica Mountains LCP

Analysis and Visualization



Geo-processing models were used to create new data from existing data; to answer analysis questions (e.g., how many vacant, privately-owned parcels contain at least 5K sq ft of slopes <25% gradient?); and to document how those questions were answered.



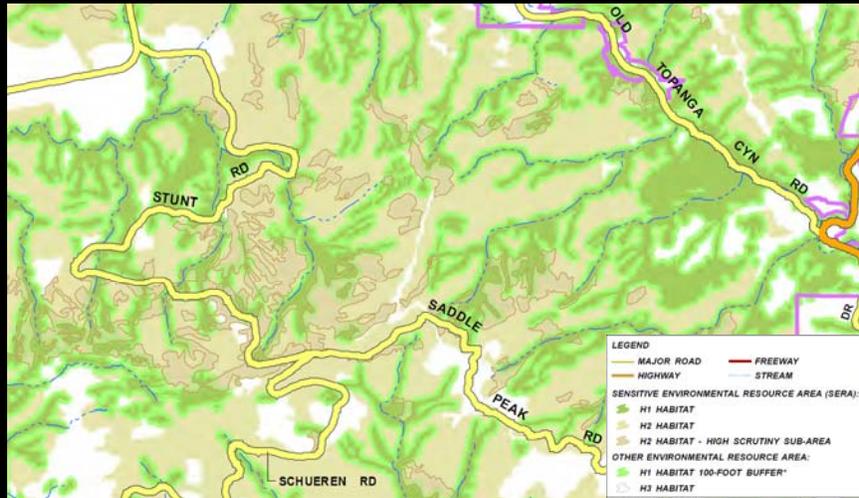
Santa Monica Mountains LCP

Sample of analyzed data variables:

- Public versus privately-owned parcels
- Vacant versus developed parcels
- Parcel size and accessibility
- Building footprints (outlines) – both existing and theoretical
- Fuel Modification Areas surrounding theoretical buildings
- Slopes – areas with gradients of <25%, between 25 and 33%, and > 33%
- Sensitive Environmental Resource Areas and their habitat categories – H1 (the most sensitive), H2 and H2 High Scrutiny (sensitive, but somewhat disturbed), and H3 (generally disturbed by development)

Santa Monica Mountains LCP

Sample View of SERAs:



Santa Monica Mountains LCP

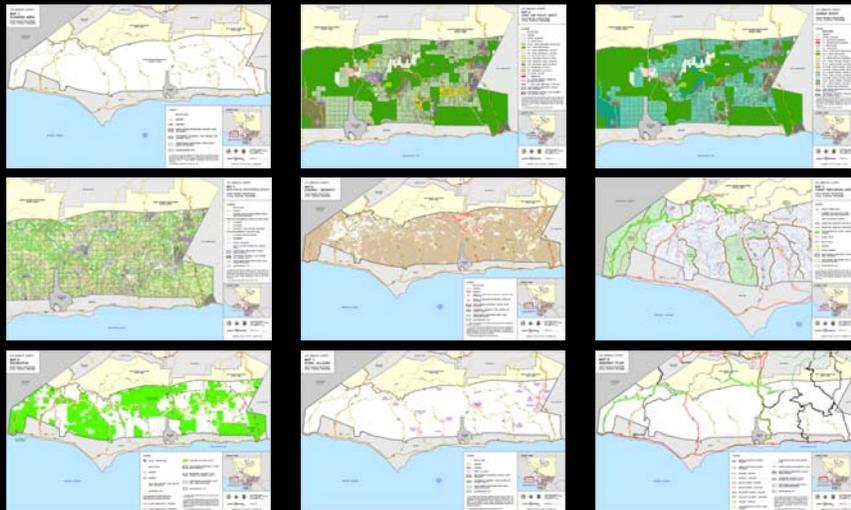
- Data analysis an iterative process of answering planning questions, which lead to further questions
- Underpinned formulation of land use policies for the LCP and mechanisms for Local Implementation Program (LIP)
- GIS analyses were incorporated into the LCP and LIP map series, as well as SMMLCP-NET

Santa Monica Mountains LCP

- LCP Maps:
 - Planning Area (general reference map)
 - Land Use Policy
 - Biological Resources (SERAs – H1, H1 buffers, H2, H2HS, and H3 habitat areas)
 - Rural Villages
 - Scenic Resources
 - Highway Plan
 - Recreation
 - Hazards – Fire and Flooding
 - Hazards – Seismicity (liquefaction and landslide potential)
- LIP Map
 - Zoning

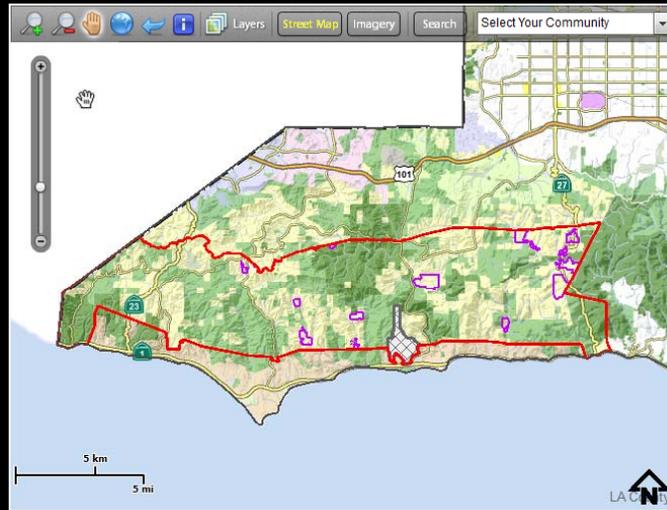
Santa Monica Mountains LCP

Map Series Samples:



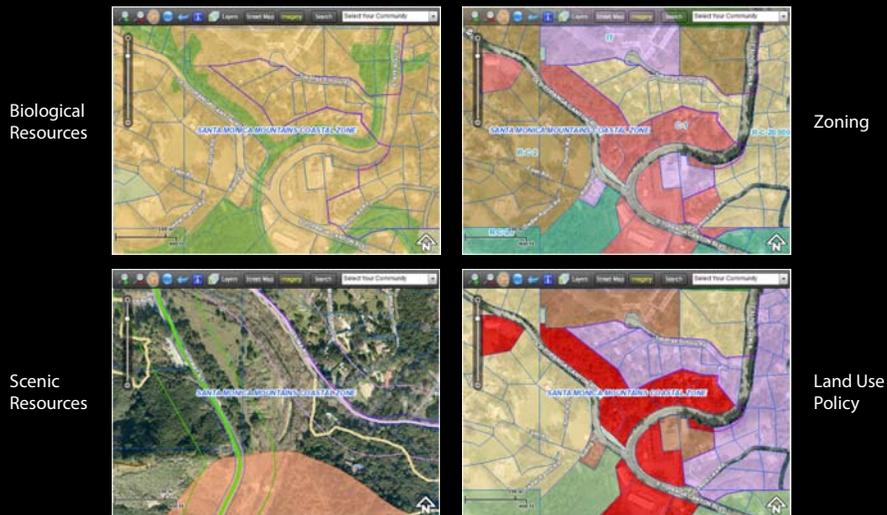
Santa Monica Mountains LCP

SMMLCP-NET (Default View):

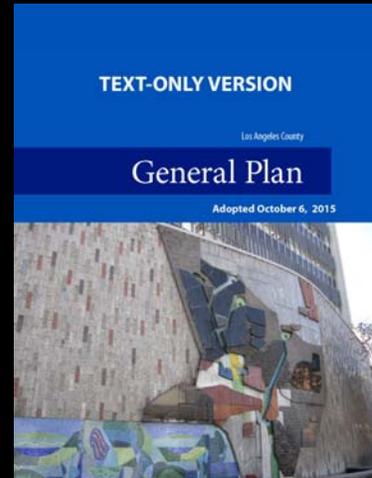
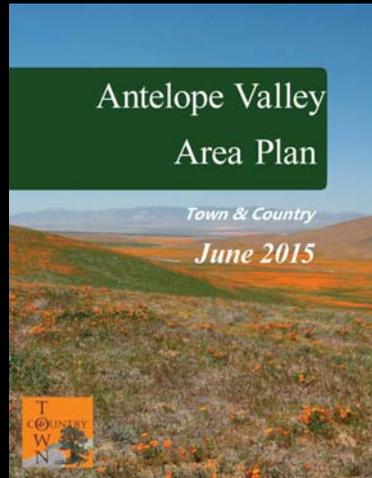


Santa Monica Mountains LCP

SMMLCP-NET (Larger Scale Views):



Antelope Valley Area Plan & General Plan Updates

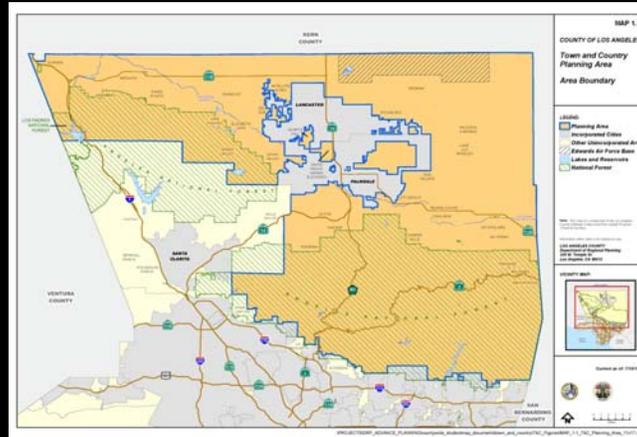


Town & Country - Antelope Valley Area Plan Update

- Adopted June 2015 (initiated in Fall 2007)
- Comprehensive update to 1986 Antelope Valley Area-wide General Plan
- Covers approximately 1,800 sq. miles
- Purpose: balancing future development while maintaining communities' rural nature

Antelope Valley Area Plan Update

- Project Location



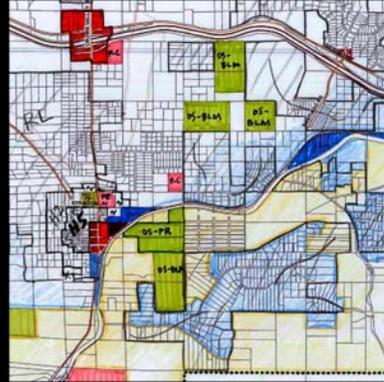
Antelope Valley Area Plan Update

- Community Input



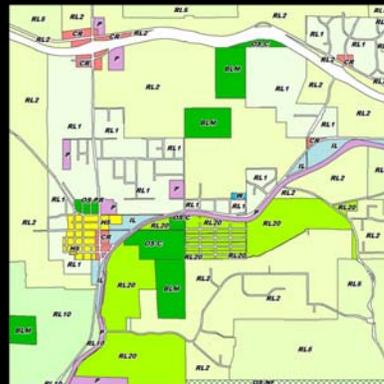
Antelope Valley Area Plan Update

- Community Input
- Early draft from community input



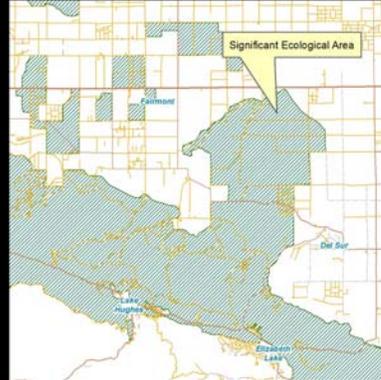
Antelope Valley Area Plan Update

- Community Input
- Early draft from community input
- Conversion to GIS



Antelope Valley Area Plan Update

- Community Input
- Early draft from community input
- Conversion to GIS
- Environmental / Hazards Constraints



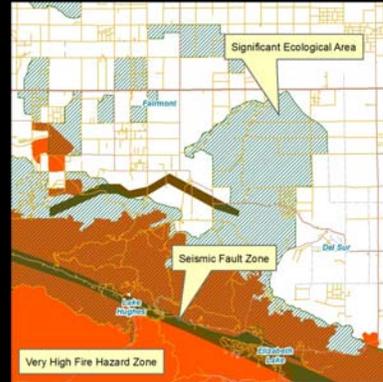
Antelope Valley Area Plan Update

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Antelope Valley Area Plan Update

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Antelope Valley Area Plan Update

- Community Input
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Antelope Valley Area Plan Update

- Community Input
- Early draft from community input
- Conversion to GIS
- Environmental / Hazards Constraints
- Land Use Policy further modified



General Plan 2035

- 15+ years in the making
- Policy framework for unincorporated County growth through the year 2035
- Land use policy & zone changes for unincorporated areas not covered by a community/neighborhood/area plan only
- Adopted by the BOS on October 6, 2015; effective date November 5, 2015

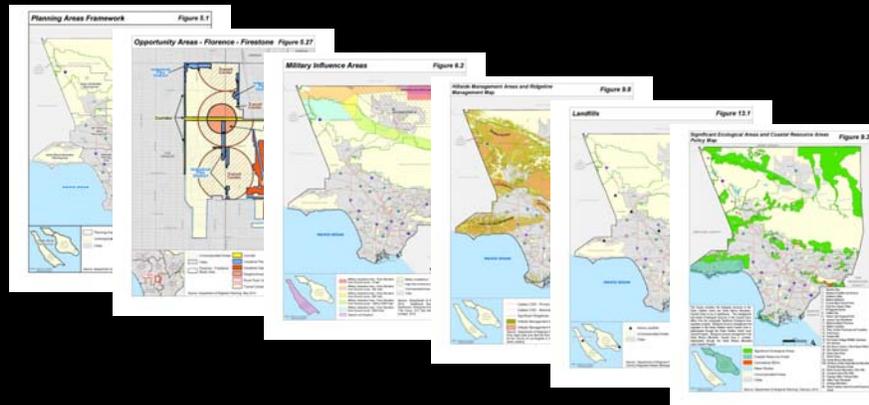
General Plan 2035

- Project Location



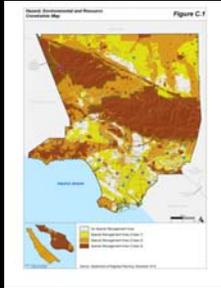
General Plan 2035

- Well over 50 GIS layers created / managed for 86 figure maps....



General Plan 2035

- 9 GIS layers created for 78 zoning / land use / appendices....



General Plan 2035

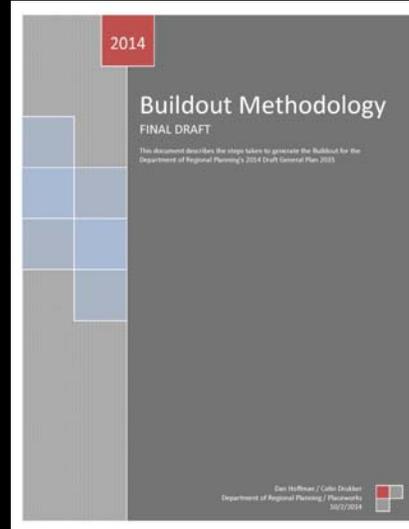
OVER 60 LAYERS AND 160 MAPS

FILE MANAGEMENT IS IMPORTANT!!



General Plan 2035

- General Plan Buildout



General Plan 2035

- General Plan Buildout
- Complex analysis

Overview of Buildout Models

The buildout for the General Plan 2035 was established by Placemarks (formerly The Planning Center) and put into a GIS format by the Department of Regional Planning. Three basic datasets were derived that show existing conditions, current conditions (adopted General Plan), and proposed conditions (General Plan 2035). The following is a generalized description of the buildout and the basic steps and formulas used to arrive at the final projected numbers.

1. Existing Conditions

Existing Conditions are based on data from the Los Angeles County Assessor for the unincorporated areas only. The parcels were taken from the April, 2011 version of the Assessor Database. Figure 1.A shows a sample of parcels in the Florence-Firestone Community.

Figure 1.A



Within the Assessor Parcel data is a 'Use Code' with categories that were established by the Assessor. The parcels were aggregated by Assessor Use Code and in Figure 1.B below, the different colors represent the different Residential, Commercial, and Industrial categories (among others) in this area. Red is commercial, yellow is single-family residential, brown is multi-family residential, and blue is industrial.

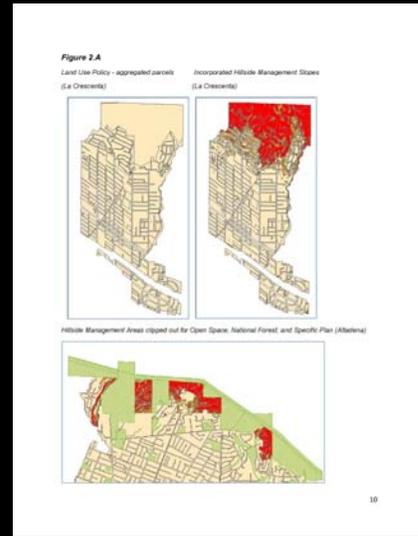
General Plan 2035

- General Plan Buildout
- Complex analysis
- Needed detailed methodology document (45 pages)



General Plan 2035

- General Plan Buildout
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- Needed detailed methodology document (45 pages)
- Simple language for a very technical project



General Plan 2035

- General Plan Buildout
- Complex analysis
- Needed detailed methodology document (45 pages)
- Simple language for a very technical project
- Serves as institutional memory

Formulas:

(Acres) x (Density SF) = Single-Family Units

(Acres) x (Density MF) = Multi-Family Units

(Acres) x (Density SF / 2; Density MF / 2) = Single / Multi-Family splits

[for Mixed Use categories – 80/20 split in example below]

(Acres / 2) x (Density SF; Density MF) = Single / Multi-Family residential / commercial reductions

(Single-Family Units) + (Multi-Family Units) = Total Units

2. **Population** - Single-Family and Multi-Family Population figures were derived by multiplying the Single-Family and Multi-Family Units by the "Persons per Household" (PPH) figures that are in Appendix A.

a) Consult the "MF vs. SF" field to see whether the Single-Family or Multi-Family populations should be calculated.

b) For land use designations with target densities that could accommodate both Single-Family and Multi-Family housing, a PPH factor of 3.80 was used. This PPH factor is an average of 3.85 and 3.34 PPH, reflecting both an assumption of 50/50 SF and MF mix in that designation, and the assumption that household sizes are bigger in lower density multifamily projects than the 2.79 PPH factor for higher density Multi-Family projects.

Formulas:

(Units SF) * (PPH_SF) = Single-Family Population - includes those with 50/50 split

(Units MF) * (PPH_MF) = Multi-Family Population - includes those with 50/50 split

(Single-Family Population) + (Multi-Family Population) = Total Population

3. **Building Square Footage** - Target Floor Area Ratio (FAR) factors were used to determine Building Square Footage, which will then determine Employment. The "Target FAR" field shown in the table in Appendix A has these factors for the non-residential land use categories, and these are simply multiplied by the total square footage of the aggregated land use polygons. For Mixed Use categories, these figures need to be reduced based on a split between Residential and Commercial (usually 50/50).

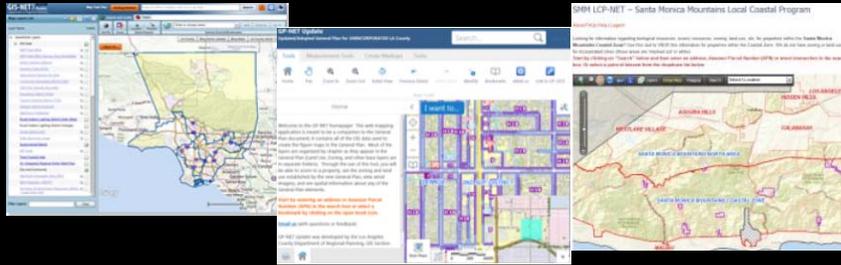
13

Other Projects

- East Los Angeles 3rd Street Specific Plan
- Significant Ecological Areas boundary update / Ordinance update
- Santa Clarita Valley Area Plan update ("One Valley One Vision")

Interactive Maps & Data Made Available

- GIS Web Mapping Apps were created, when needed: <http://planning.lacounty.gov/gis/interactive>



- Data uploaded to Enterprise GIS Data Portal and Open Data Portal

Lessons Learned

- Work with planning staff early
- Stay involved as the project goes through the various phases
- Assign a project lead for each project
- Manage the changes and revisions – file management, file management, file management!

Last Thoughts

- We have a great team!
- We've worked hard on these large planning efforts over the years
- We've had lots of practice lately – because so many plans have been updated/adopted
- We are working to integrate all the changes and updates and save previous versions
- We make as much available to the public as soon as we can – and give them multiple ways to see the information

Questions?

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<http://planning.lacounty.gov/gis>

