

The Evolution of GIS at the Department of Regional Planning (DRP)

Nick Franchino, GIS Manager
November 16, 2011 (GIS Day)



Definition

- Definition of ev-o-lu-tion
 - *A gradual process in which something changes into a different and usually more complex or better form*
- GIS is changing all the time – and we need to keep up with it

Department History

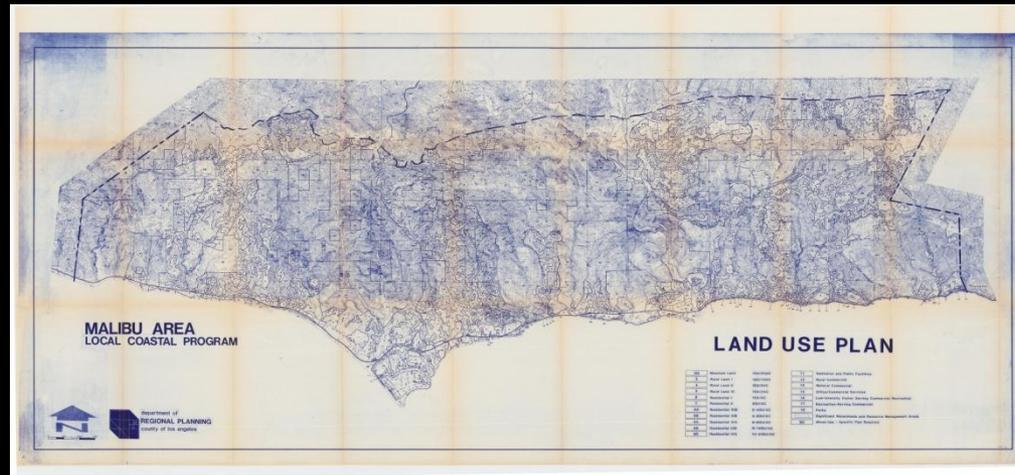
- Planning department for the unincorporated areas of Los Angeles County
- Staff to the Los Angeles County Regional Planning Commission since 1922 (oldest County planning body in the United States)
- Became an independent department in 1974
- ESRI Customer No. 20 – So we've been using GIS for a long time (early 80's)
- Seven (7) full time staff, one student worker and one unpaid intern (C-BEEP)



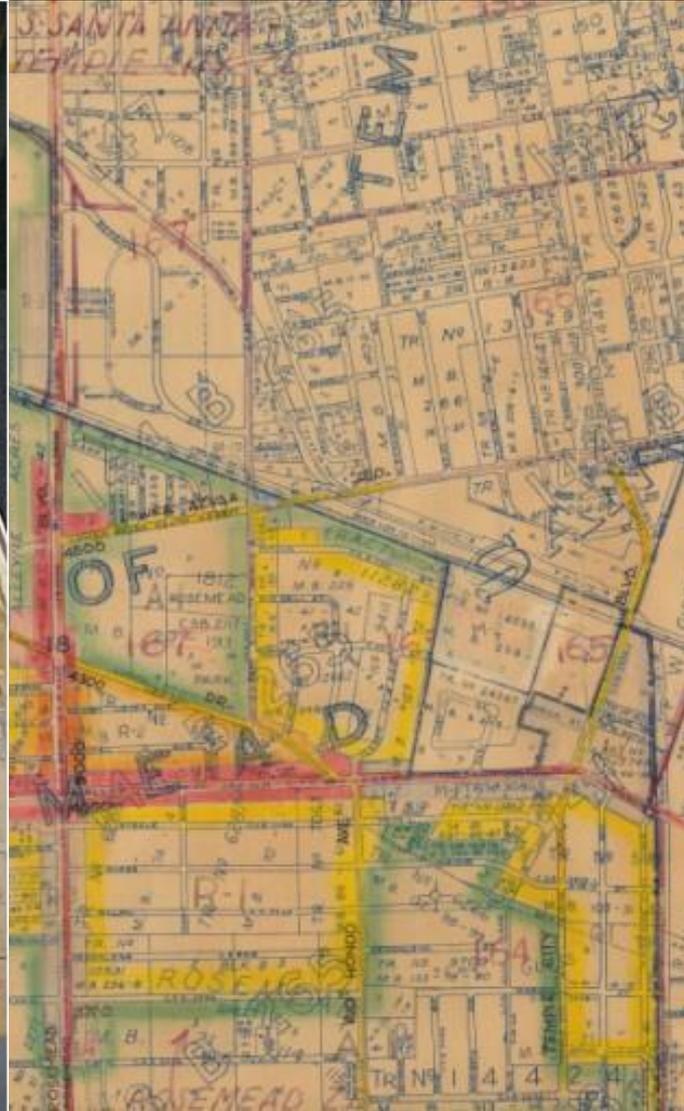
COUNTY OF LOS ANGELES
REGIONAL PLANNING
COMMISSION
FEB-23-1971

When I started in 1996

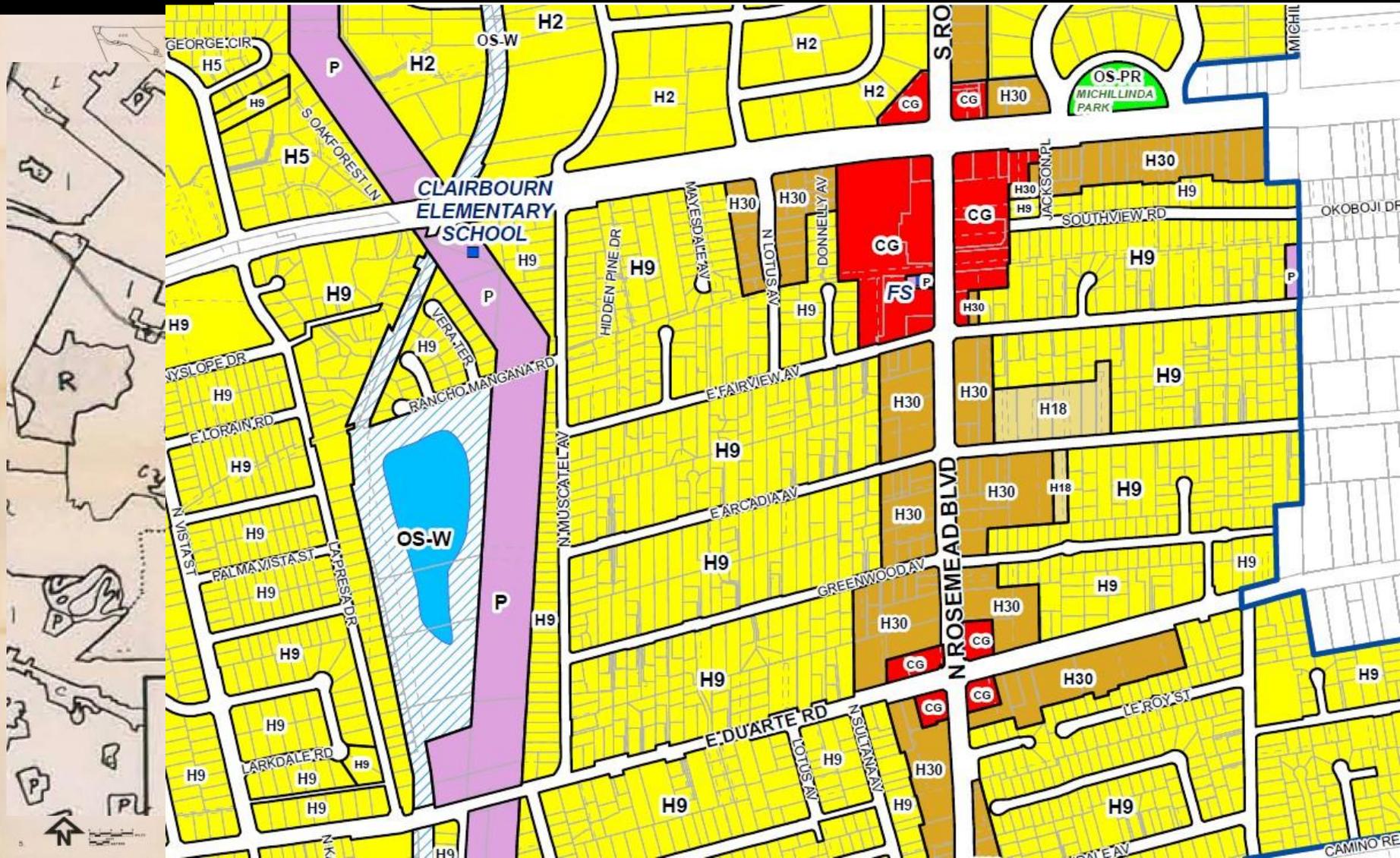
- ArcINFO for UNIX, PC ArcINFO (digitizer), CADD55 (Computer Vision)
- Not many PCs – mostly blue screens with floppy disk drives
- I digitized the Malibu Local Coastal Plan



We Had Old Maps Everywhere



Old Maps – And Now, New Maps



You Can See the Progression

Santa Monica Mountains Local Coastal Program Highlights

Regional Planning Department
Los Angeles County



Purpose

The California Coastal Act was enacted by the State Legislature in 1976 to provide long-term protection of California's 1,100-mile coastline. The Coastal Act established a zone along the State's coastline encompassing 1.5 million acres within which development must be carried out in a manner that protects, maintains, enhances and restores coastal resources.

Local governments were tasked with implementing the Coastal Act at the local level. The Coastal Act directs "each" local government lying, in whole or in part, within the coastal zone" to prepare a local coastal program (LCP) for its portion of the Coastal Zone, with the purpose of managing the conservation and development of coastal resources. An LCP identifies the location, type, densities, and other rules for development in the

Coastal Zone. The LCP also contains goals, policies and standards to ensure that public health, safety and welfare are protected and enhanced.

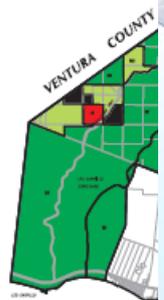
There are two components to an LCP: a land use plan and the implementing actions. The Plan includes the land use policy map as well as goals and policies for regulating development within the Coastal Zone. The Land Use Policy Map depicts the location, type and intensity of land uses throughout the Santa Monica Mountains Coastal Zone. The LCP's implementing actions contain a local implementation program and a zoning consistency program. These are the provisions and standards for development that will apply to projects and activities in the Coastal Zone.



Setting

The Santa Monica Mountains Coastal Zone (The Coastal Zone) encompasses about 92,000 acres of land that is approximately 20 miles east of downtown Los Angeles. The Coastal Zone stretches from the unincorporated area just east of the City of Los Angeles, east of Ventura County and south of the Coastal Zone boundary, including the City of Malibu. The area extends east from the shoreline encompassing the area and encompasses approximately 10 square miles.

Santa Monica Mountains (North Face)



Coastal Zone Plan

For this LCP the Santa Monica Mountains Coastal Zone Plan (the Plan) serves as the land use plan. The Plan's primary role is to provide focused policy for the regulation of development within the planning area as part of the overall County General Plan. The Plan reflects and expands upon Countywide General Plan policies as they apply to the Santa Monica Mountains Coastal Zone.

- The Plan serves to:
- Identify the community's environmental, social, and economic goals.
 - Set forth the County's policies on housing and future development in order to achieve community goals.
 - Establish the ability for government to respond to challenges and opportunities concerning community development in a way consistent with local, regional, and state goals and policies.
 - Identify the need for and methods of improving coordination of community development activities among all local government units.
 - Create a policy base for preparation of ordinances and programs that will implement the Coastal Zone Plan.

Elements of the Coastal Zone Plan:

The following five elements provide the policy framework for the Coastal Zone Plan:

- Conservation and Open Space
- Safety and Noise
- Land Use and Housing
- Circulation
- Public Facilities

Conservation and Open Space

The Santa Monica Mountains contain extensive significant natural resource valued by both residents and visitors to Los Angeles County. Guiding Principle: Resource protection has priority over development. To minimize the impacts that future development may have on public health, the region's environmental resources, and recreation opportunities, this element analyzes and establishes policy for the following resources:

- Water Quality
- Biological Resources and Habitat
- Landscapes
- Habitat Management
- Open Space
- Scenic Resources
- Recreation and Trails
- Shoreline and Beaches
- Paleontological and Historical/Cultural Resources



Each section provides goals and policies to guide decision-makers. To ensure compliance with the Coastal Act, these goals and policies address the following:

- Protection, enhancement, and restoration of environmentally sensitive habitat areas and habitats for public health and safety, and other and animal species tracked by the California Natural Diversity Database
- Protection of the scenic beauty of coastal landscapes and resources
- Protection and expansion of public access to the shoreline and recreational opportunities and resources, including commercial water-skiing facilities
- Protection of paleontological, archeological, and other cultural resources

Safety & Noise

The Santa Monica Mountains are subject to active hazards that require special attention in order to protect public health and safety. Guiding Principle: The cumulative use or abuse, misuse, improper damage, and associated economic activity resulting from activities, services, goods, flow, and other resources must be managed. Development should avoid environmentally sensitive areas, other than otherwise necessary.

- The Public and Noise Element addresses the following issues:
 - Seismicity and Non-seismic Geologic Hazards
 - Flood Hazards
 - Fire Hazards
 - Hazardous Materials
 - Noise Hazards



Land Use & Housing

The Land Use and Housing Element depicts the general location, type, character, and degree of future development within the Coastal Zone by integrating environmental resource management, public health and safety goals, and quality of life issues. Guiding Principle: The pattern of land use within the Santa Monica Mountains should be based on the following priorities:

- Preserving public health, safety, and welfare
- Preserving and protecting significant environmental resources
- Recognizing and acting on the value of habitats
- Encouraging recreational opportunities
- Protecting the physical integrity of existing and communities
- Protecting the unique cultural and social characteristics of the region's rural residential communities, including general industry activities



To ensure compliance with the Coastal Act, this element establishes goals and policies that:

- Direct new housing and other development into areas with adequate existing services to avoid additional urban sprawl and sprawling developments
- Protect, enhance, and restore sensitive environmental habitats
- Protect public access to the sea and to recreational opportunities

Circulation

An effective circulation policy for the Santa Monica Mountains must provide an efficient circulation system to serve residents, commuters, and those seeking coastal and inland recreational opportunities. Guiding Principle: Facilities and programs to improve traffic flow and access that do not detract from the scenic beauty of the region's natural environment and protecting the unique character of the individual communities within the Plan area.



The Circulation Element addresses the following three broad policy categories:

- Managing Roadway Capacity with Environmental Protection
- Managing Roadway Demand
- Encouraging Transportation Alternatives

Public Facilities

The Public Facilities Element establishes policies that support the ability of new housing and other development in areas with adequate public services and facilities to avoid additional urban sprawl and sprawling development. New development must allow for increased environmental protection and the provision of new recreational and services that be consistent with the context. Guiding Principle: Public facilities should be planned and approved based on, and second intended to reduce further development, consistent with environmental carrying capacity and the need to protect the unique character of existing communities.



This element addresses the following public facilities:

- Water and sewer services
- Public transit
- Fire and emergency services
- Parks services
- Solid waste services

© Data Images obtained in 2008 through the Los Angeles Region - Images Acquisition Consortium (LAC-AC) Digital Elevation Model (DEM) County, LAC-AC 7.7 miles DEM Data Source: National Center for Earth and Spatial Information (NCEI) 30m DEM

Moving Forward with Oblique



Imagery

Paper Based Zoning Map

GIS Layer

Oblique GIS Layer (Overhead View)

Oblique GIS Layer (Horizon View)

Oblique GIS Layers over Oblique Image

Oblique Imagery



Timeline – GIS Milestones

- 1996 - Digitized the Malibu Local Coastal Plan
- 1999 - Updated the Master Plan of Highways
(with DPW)
- 2000 – Purchased first large-format ink-jet plotter
(electrostatic plotter before that)
- 2002 – Setup the first Pictometry project (called
OADI) – Silver Eagle Award Winner
GIS-NET Deployed (1st generation)
- 2004 – Created subdivision activity layer

Timeline – GIS Milestones (contd.)

2005 – LAR-IAC Created

Updated GIS-NET and created E-NET,
Z-NET and SUB-NET (2nd generation)

2006 – Public GIS-NET launched

2007 – GIS Data Downloads available

2008 – First eGIS County GIS Day Event

And we could go on and on and on...

Our History with Web GIS

- Desktop only when I started with the County
- Over time we put PDFs online, we put shapefiles online and then we put web applications online
- We started with ArcIMS (screenshots) – 2002 (w/ some custom programming) – GIS-NET born (internal and public facing versions)
- Then we bought IMF from Latitude Geographics – middle ware – Upgraded all our sites, then added Z-NET, E-NET and SUB-NET
- Now we have ArcGIS Server and Flex – Z-NET Public created
- This is important to show how we are constantly evolving

1st Generation - ArcIMS

- GIS-NET (ArcIMS Based) – went live in

20

Parcel Viewer - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address <http://10.2.8.11/website/lapl/g/viewer/lac/viewer.asp>

GIS-NET | Los Angeles County Dept. of Regional Planning

Map Tools: zoom in, pan, zoom last, zoom out, full extent, overview map

Function Tools: layers, identify all, parcel find, cursor selection, clear selection, measure, identify, locate, buffer parcel, print map

[DRP Home](#) | [FAQs](#)
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[Disclaimer](#) | [Data Sources & Updates](#)

Version 1.0 - July 2002

Map Layers

update map | map legend

Visible | Active | Layer

Land Ownership

- Parcel Boundary

Roads/Streets

- Freeway shield
- Master Plan of Highways
- Railroad or rapid transit
- Arterial street
- Highway
- Ramp, interchange or feeder
- Freeway
- Street network and names

Land Features

- Inland Water body
- River or channel or stream
- Other County or Ocean

Administrative Boundaries & Districts

- Los Angeles County Boundary
- Community Name
- Nonincorporated Area

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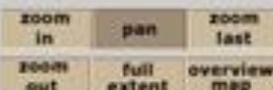
Tool: Zoom In

Map: X: 6455000.21, Y: 1980326.89

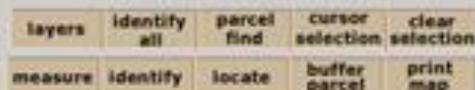
Internet

GIS-NET | Los Angeles County Dept. of Regional Planning

Map Tools

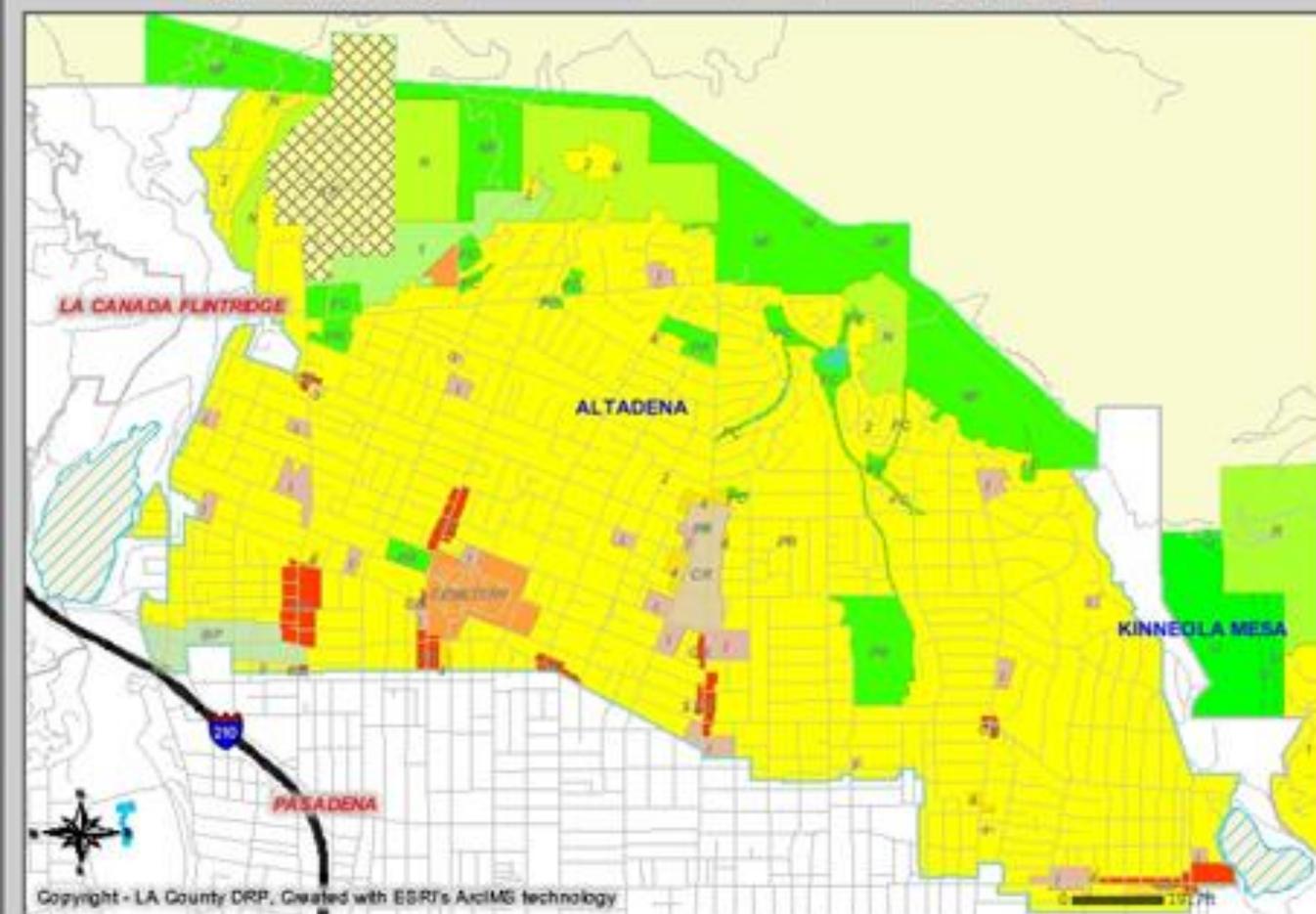


Function Tools



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[Help](#) | [Tutorial](#)
[Disclaimer](#) | [Data Sources & Updates](#)

Version 1.0 - July 2002



Map Layers

update map	map legend
------------	------------

Visible | Active | Layer

Land Ownership

 Parcel Boundary

Roads/Streets

- Freeway shield
- Master Plan of Highways
- Railroad or rapid transit
- Aerial street
- Highway
- Ramp, interchange or feeder
- Freeway
- Street network and names

Land Features

- Inland Water body
- River or channel or stream
- Other County or Ocean

Administrative Boundaries & Districts

- Los Angeles County Boundary
- Community Name (Unincorporated Area)

GIS-NET | Los Angeles County Dept. of Regional Planning

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Version 1.0 - July 2002

Map Tools

zoom in pan zoom last
 zoom out full extent overview map

Function Tools

layers identify all parcel find cursor selection clear selection
 measure identify locate buffer parcel print map



save to file print report

25 Parcels Found:

Record 1

AIN 5840001902
Site Address 02555 EL MOLINO AVE
City State and Zip ALTADENA CA 910010000
Owner Name L A COUNTY
Use Code 8800

Record 2

AIN 5841030003
Site Address 02629 LAKE AVE
City State and Zip ALTADENA CA 910010000
Owner Name LAVICK, NEIL A AND
Use Code 0500

Record 3

AIN 5841030005
Site Address 00765 E PINE ST
City State and Zip ALTADENA CA 910010000
Owner Name LAVICK, NEIL A AND
Use Code 0200

Tool: Zoom Out

GIS-NET | Los Angeles County
Dept. of Regional Planning

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Version 1.0 - July 2002

Map Tools

zoom in pan zoom last
 zoom out full extent overview map

Function Tools

layers identify all parcel find cursor selection clear selection
 measure identify locate buffer parcel print map



Copyright - LA County DRP. Created with ESRI's ArcIMS technology

Locate

Choose a locate method:

- [by Community Name \(Unincorporated Areas only\)](#)
- [by The Thomas Guide' Page](#)
- [by House Numbering Map](#)
- [by USGS Quadrangle Map](#)
- [by Supervisorial District](#)
- [by Community Standards District \(CSD\)](#)

Note: if the layer you are searching by is not a "Visible" layer then other items in that particular layer will not be drawn and the map may not appear the way you intended.

Z-NET Sample



Layers

Visible Active

- Ordinance Maps
- APN (last 6 digit label)
- House Number (text)
- Lot Number (text)
- Subdivisions (text)
- C-TRACK (text)
- Map Reference (text)
- Civic Names (text)
- School (text)
- School buffer (text)
- Sewage book (text)
- Setbacks (text)
- Ownership hooks
- Street width (text)
- Survey reference (text)
- Easements (text)
- Zoning Map Grid
- Setback district setbacks
- Condo lines
- Easements (DPW)
- Vacated street sideline
- Streets
- Highway Plan

Zoom In

The 2nd Generation – ArcIMS & Geocortex

The screenshot displays a web GIS application interface. The main map area shows a grid of zoning districts in Los Angeles, including 'LOS ANGELES', 'WATHENS - WESTMONT', and 'HAWTHORNE'. A specific area is highlighted with a red dashed border, labeled 'SOUTHWEST DISTRICT 4 SW EXTENSION DIST. 50' and 'R-1 R-3-20U'. The map includes a scale bar (Scale: 1: 29,239) and a 'Map Tool' with a 'Zoom In' button. The 'Active Layer' is set to 'Contours Test'. The interface includes a navigation menu with options like 'About', 'Layers', 'Legend', 'Key Map', 'Bookmarks', 'Create PDF', 'Help', 'ZCO Imagery', and 'Exit'. A 'ZCO Imagery' panel on the right lists two image names: '11113' (checked) and '1924'. Below the list are links for 'Find new Image(s)', 'Remove All', and 'Back', along with a 'Refresh Map' button. A small window titled '11113 - Microsoft Internet Explorer' is open in the foreground, displaying a document titled 'SOUTHWEST DISTRICT 4 SW EXTENSION DIST. 50' with a table of zoning districts and their corresponding codes.

Image Name	Actions
<input checked="" type="checkbox"/> 11113	
<input type="checkbox"/> 1924	

Find new Image(s) | Remove All | Back

Refresh Map

11113 - Microsoft Internet Explorer

File Edit Go To Favorites Help

Back Forward Stop Home Search Favorites

Address: \\gis_fct\Print_Center\Ordinance\ad_ Go Links

Save a Copy Print Search Select

Sign

extension zones overlays shown on the map attached hereto.

SOUTHWEST DISTRICT 4 SW EXTENSION DIST. 50 ADOPTED BY ORDINANCE 11113

Code	Description
R-1	Single-Family Residential
R-3-20U	Single-Family Residential with Urban Use

3rd Generation – ArcGIS Server

Vicinity Map Generator

Department of Regional Planning

[GIS Web Apps / Regional Planning Home](#)

Generate a Vicinity Map for a Parcel

APN: (Example: 5866025023)

Find APN

Save Image

Add Arrow

Clear

Generate a Vicinity Map for a Tract or Parcel Map

Tract #: (Example: PM062535)

Find Subdivision

Save Image

Add Arrow

Clear



NOTE: The suffix ".png" must follow the file name when saving the image. If you do not see it, please add it.

3rd Generation – ArcGIS Server

The screenshot displays a web browser window with the URL `10.2.8.73/GIS-NET3/Viewer.html`. The browser's address bar and tabs show multiple instances of the GIS-NET3 application. The main interface features a blue header with the text "GIS-NET3 Department of Regional Planning" and a search bar. Below the header, there are navigation tabs for "Map & Data Sources", "Search and Locate", "Tasks", and "Printing & Reports". The central map area shows a satellite-style view of a region with a red rectangular boundary. A detailed inset map window is open, showing a parcel map with labels such as "SERVICE AREA C (EAST)", "Rowland Heights", and "A-1-6000". The inset map includes a scale bar (0 to 10 feet) and a north arrow. The main map interface also includes a "Map Layer" list on the left and various tool icons like "Print to PDF" and "Create Report".

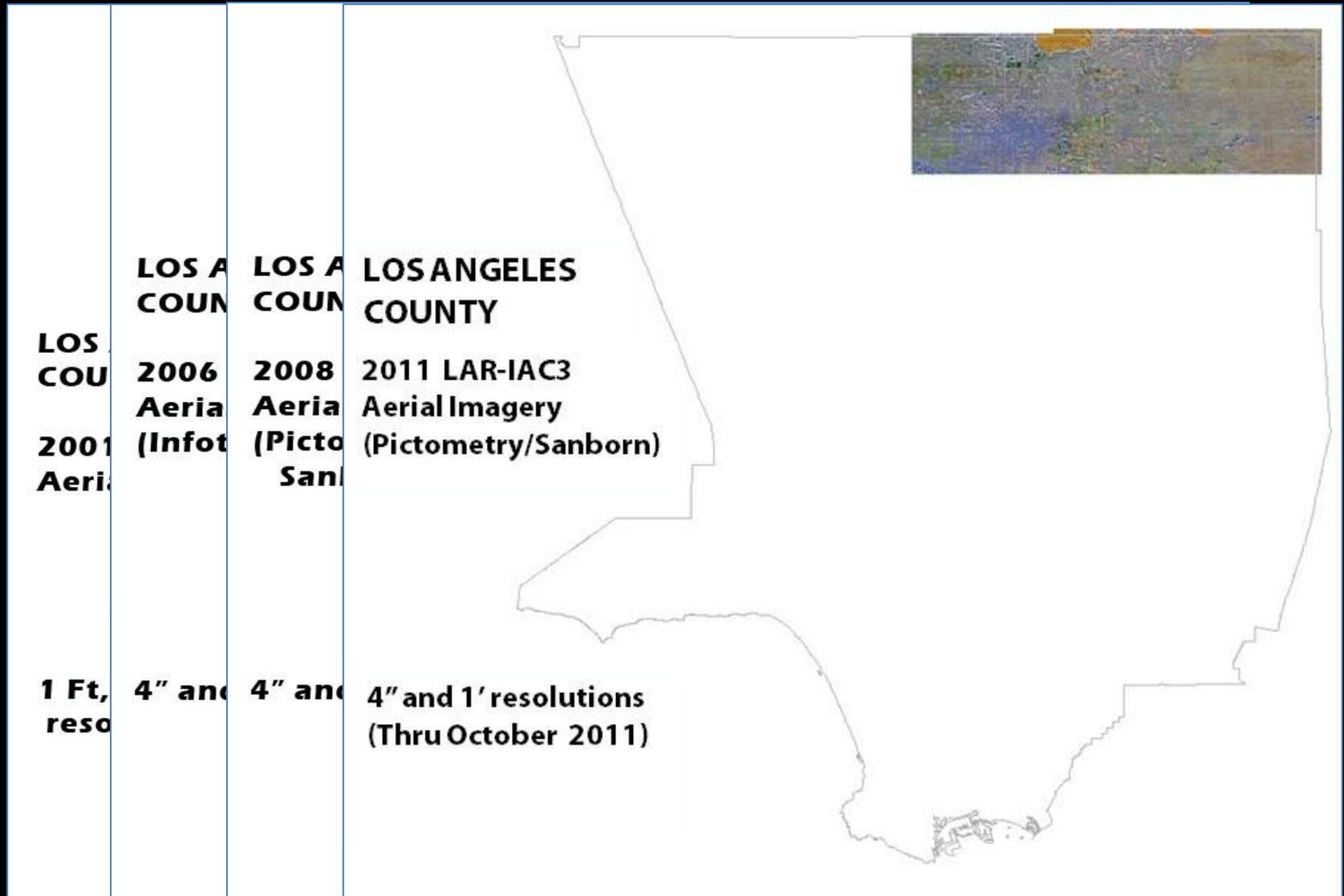
Why Web Apps and Not Desktop GIS?

- Most Cost Effective
 - Reduces software costs
 - Reduces training costs
- Easier to Use
- Vendors are developing that way anyway
 - (EFS desktop vs. POL web)
- Gets us closer to an Enterprise GIS

Aerial Imagery – Through the Years

- We started in 1998
- Emerge project in 2001-02
- Oblique Aerial Digital Imagery in 2002-03
- Los Angeles Region Imagery Acquisition Consortium (LAR-IAC) Program
2006, 2008, 2011

How The Imagery Has Evolved



How The Imagery Has Evolved

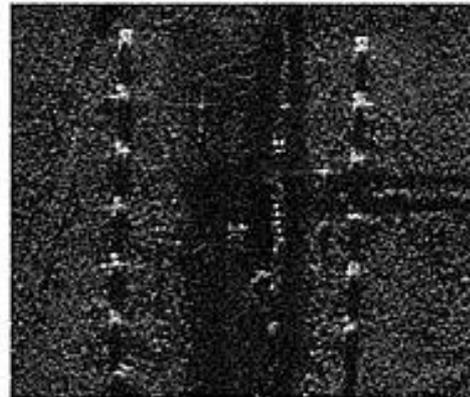
4 Inch Resolution



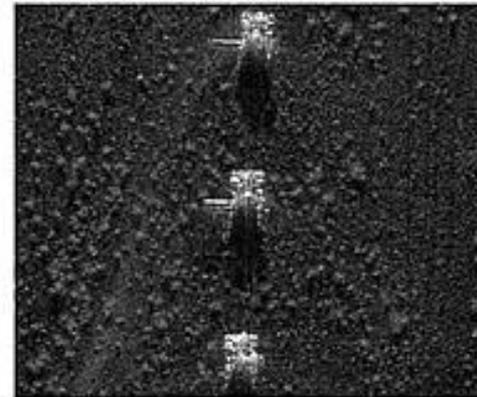
M-47 Tanks On Kirtland AFB
Comparison of Resolutions At Actual and 4x Enlarged Views



Resolution = 1 Meter



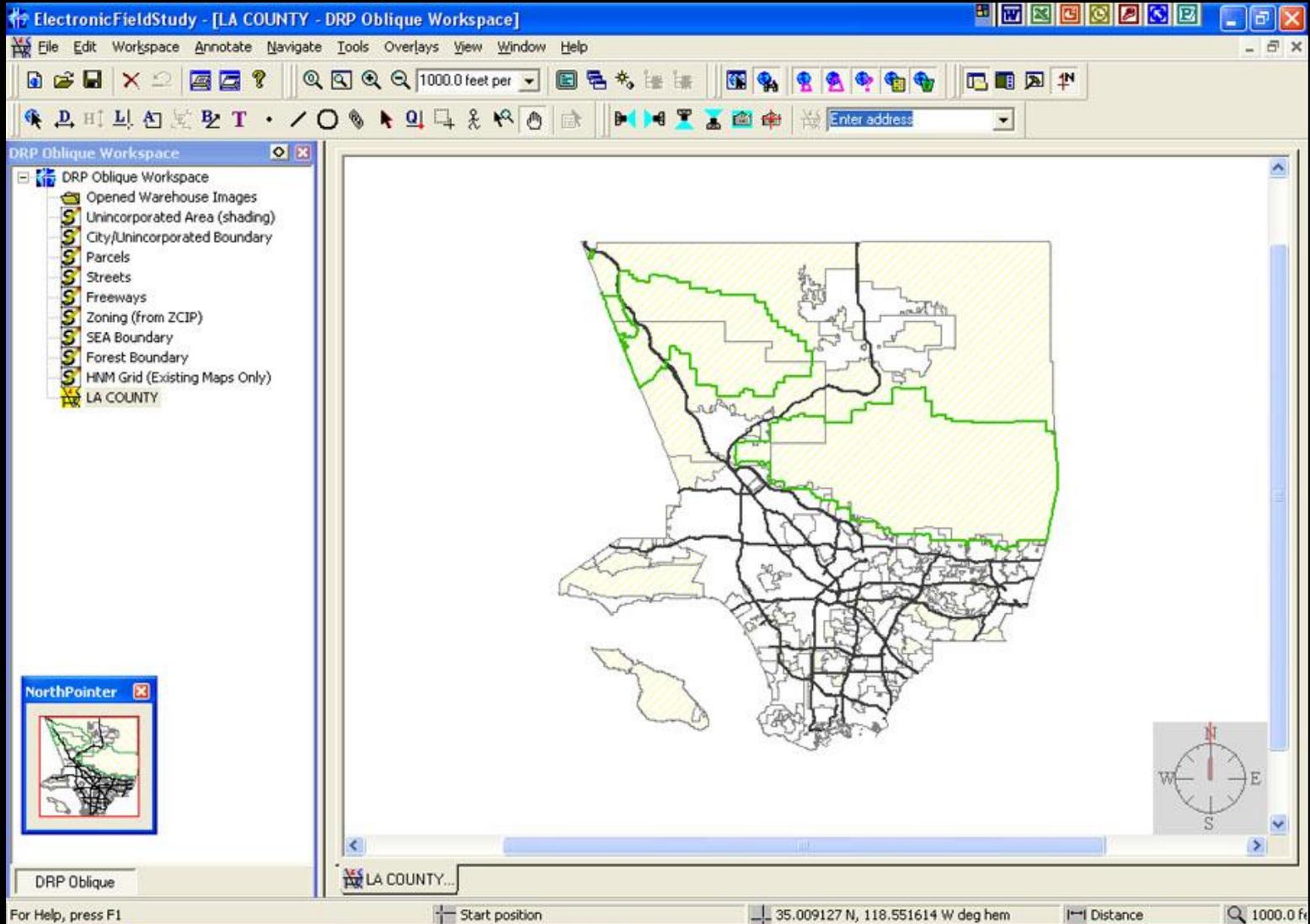
Resolution = 1 Foot



Resolution = 4 Inches



Pictometry Desktop App (EFS)



Pictometry – ActiveX Control

The image shows a screenshot of a web browser displaying two windows. The background window is titled "GIS-NET beta - Microsoft Internet Explorer" and shows the GISNET Los Angeles County department of regional planning website. The foreground window is titled "Pictometry Images - Microsoft Internet Explorer" and displays an aerial oblique photograph of a residential area. The Pictometry window includes a navigation panel on the right with buttons for "Looking North", "Looking South", "Looking East", and "Looking West", along with a "Filter Settings" button. Below the photograph, it shows "View From: South" and "CALOSA028033NeighObliq36N_030204.psi 100 %". The bottom of the browser shows a scale of 1:214,642 and a "Map Tool" set to "Oblique Imagery".

GIS-NET beta - Microsoft Internet Explorer

GISNET Los Angeles County
department of regional planning

About Layers Legend Key Map Bookmarks

gisNET internal beta
department of regional planning

Navigation

- Looking North
- Looking South
- Looking East
- Looking West

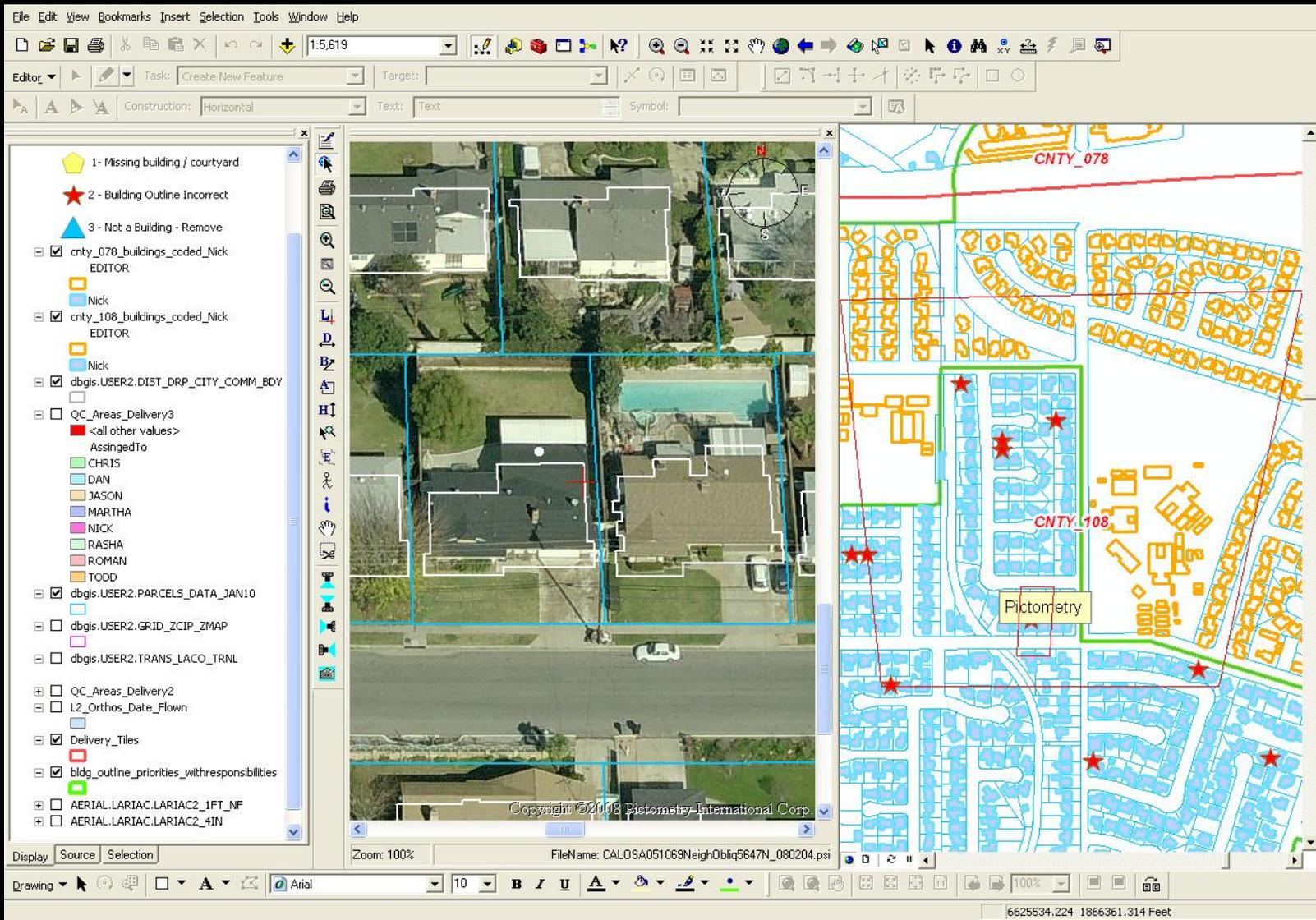
Filter Settings

View From: South CALOSA028033NeighObliq36N_030204.psi
100 %

Scale: 1: 214,642 Quick View: Select a location Map Tool: Oblique Imagery

Cursor Location: STP CA Zone 5: 6452914 2089860225 1930738 5675652616

Pictometry – ArcGIS Extension



Pictometry Online (POL)

Pictometry Online 1.9

Welcome Iariac Iariac | Coverage | Logout

Source: Address Enter search criteria

Preferences | Feedback | Help

Workspace

- Workspace (Author)
- Annotations
- Bookmarks
- Layers - BETA
 - Address Points
 - Building Outlines
 - Cities and Communities
 - General Plan
 - Parcels
 - Points of Interest
 - Streets
 - Zipcodes

Properties

Name	Value
------	-------

Selections

Map 7/21

Powered by Pictometry

Date: 02/07/2011 | Level: Neighborhood | Scale: 100%

Where We Are Headed...

- More Integration
 - ECM (document management)
 - PALMS (permit tracking replacement)
- Dashboard Applications
 - One example - Cognos (Business Intelligence)
- Mobile & Field Applications (like CitySourced or The Works iPhone app)
- 3-D GIS (I talked about that last year)

Questions?

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