



GIS @ UC San Diego

Background, Definitions, Future

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UC San Diego Libraries
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Agenda & Introduction

- ◎ 3 part agenda
 - Spatial thinking & analysis
 - What is GIS & what it is used for
 - Thinking ahead

- ◎ Who I am, what I did & what I do

Part 1 - Spatial Thinking & Analysis



Spatial Thinking & Analysis

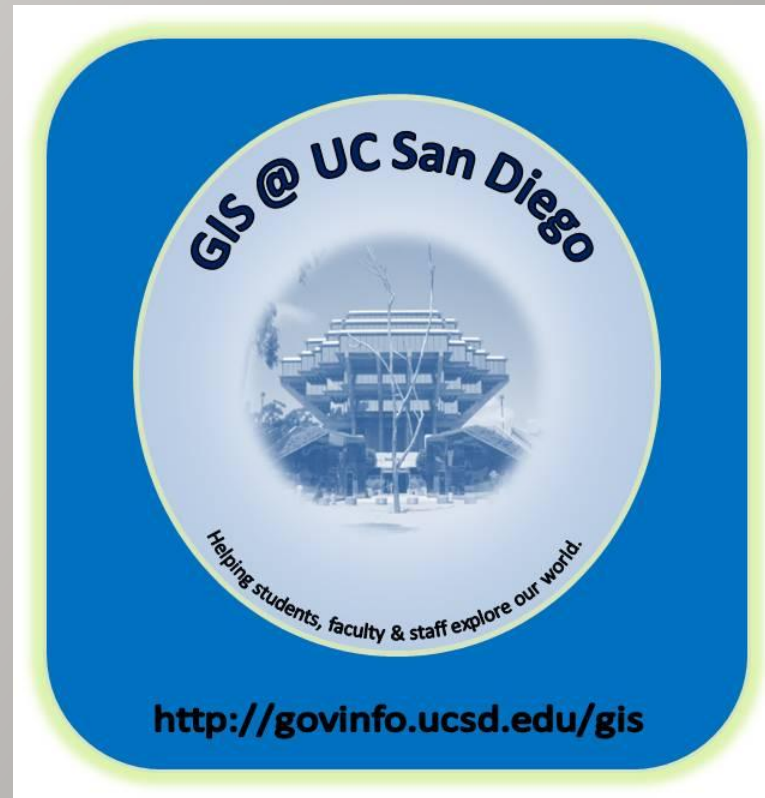
- What is spatial thinking?
 - Puzzles
 - Space planning
 - Imagine & visualize how to get somewhere and what the obstacles are
 - Parking the car
 - Problem solving
 - Representations of the world
 - Relationships
 - Domain knowledge

Spatial Thinking & Analysis

...we all do it!

- ⦿ Everyday, all the time
- ⦿ Some are better than others
 - Age
 - Gender
 - Experience
 - Nature
 - For GIS, technological capabilities

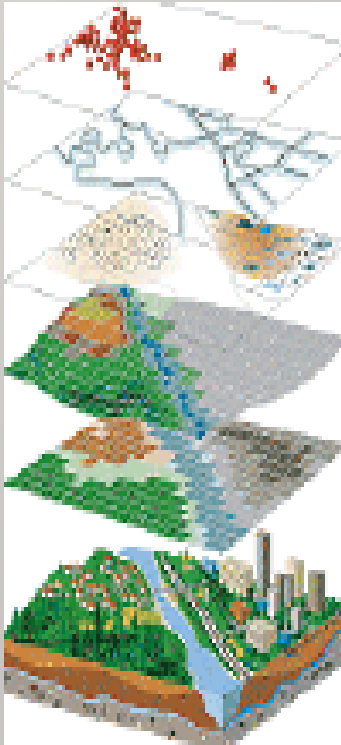
Part 2 – What is GIS & What it is being used for



What is GIS?

- ⦿ **Geographic Information System (or Science)**
- ⦿ Organize, analyze, visualize info
- ⦿ Layers & attributes
- ⦿ Another tool for your toolbox

Layers & Attributes



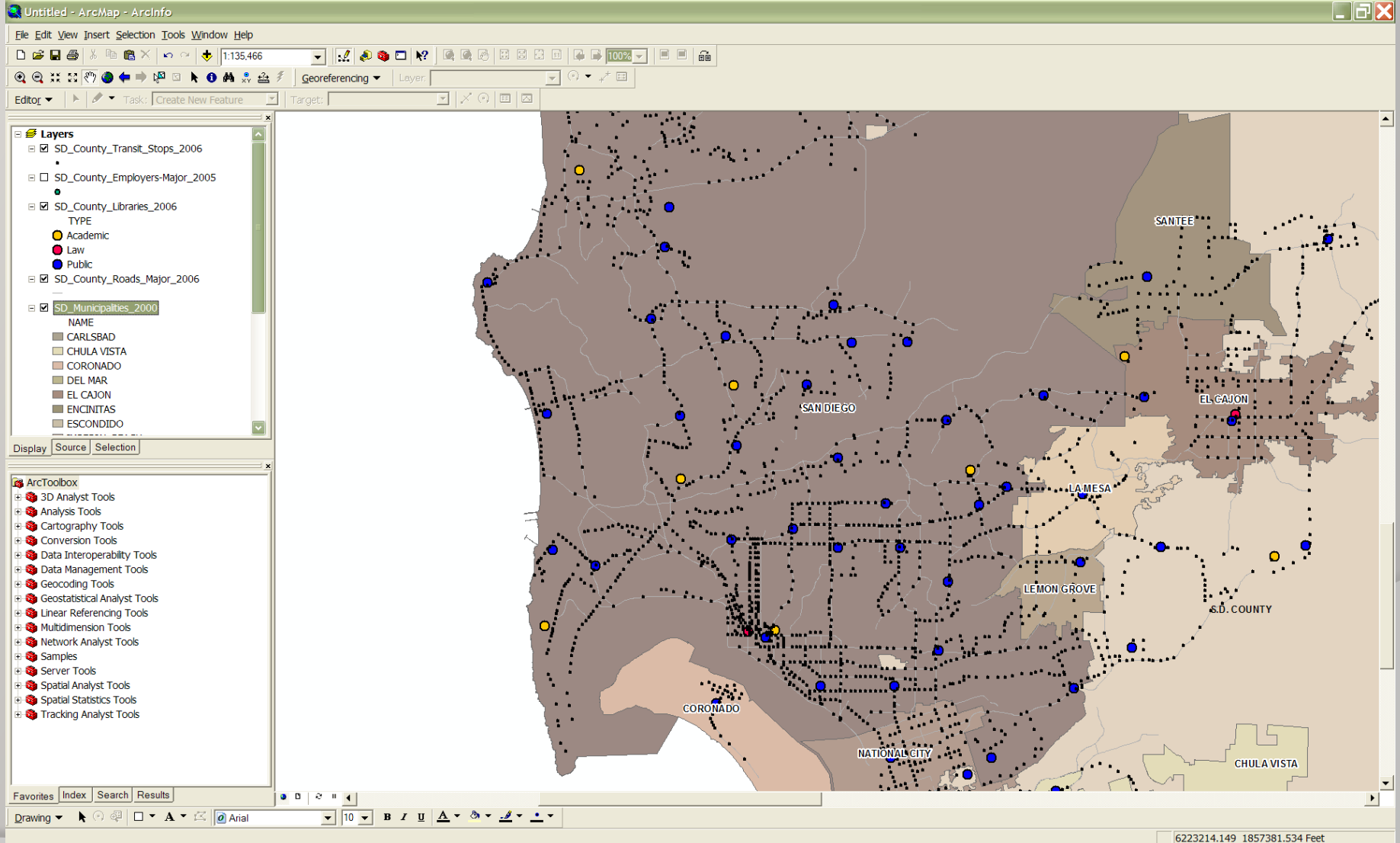
=

ID	ZIP_CODE	CITY	STATE	AREA_CODE	CITY_ALIAS_NAME
1	00501	HOLTSVILLE	NY	516	HOLTSVILLE
2	00501	HOLTSVILLE	NY	516	IRS SERVICE CENTER
3	00544	HOLTSVILLE	NY	516	HOLTSVILLE
4	00544	HOLTSVILLE	NY	516	IRS SERVICE CENTER
5	00601	ADJUNTAS	PR	787	ADJUNTAS
6	00601	ADJUNTAS	PR	787	JARD DE ADJUNTAS
7	00601	ADJUNTAS	PR	787	URB SAN JOAQUIN
8	00602	AGUADA	PR	787	EXT LOS ROBLES
9	00602	AGUADA	PR	787	AGUADA
10	00602	AGUADA	PR	787	ALTS DE AGUADA
11	00602	AGUADA	PR	787	URB ISABEL LA CATOLICA
12	00602	AGUADA	PR	787	URB MONTEMAR

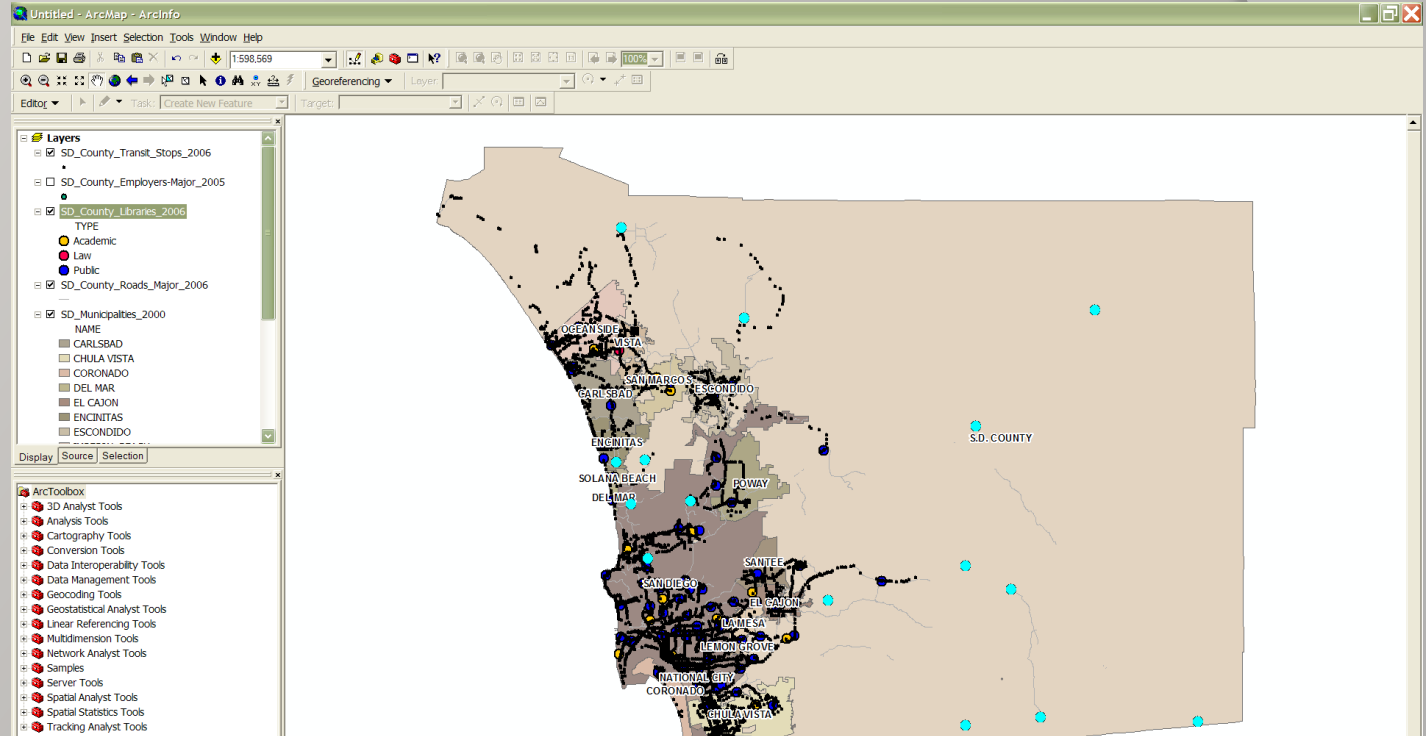
What is GIS?

- ① **An example to illustrate layers & attributes...**

Layers & Attributes



Layers & Attributes



Selected Attributes of SD_County_Libraries_2006

FID	Shape	WEBSITE	ADDRESS	DISTRICT	NAME	TYPE	PHONE	ZIP	TB	CITY	OBJECTID
4	Multipoi	http://www.miracosta.cc.ca.us/library/	3333 Manchester Ave, bldg 100	Academic	MiraCosta College, San Elijo	Academic	(760) 757-2121	92007	[1167-G4]	Cardiff-by-the-Sea, CA	5
24	Multipoi	http://www.sdcl.org	31356 Hwy 94	San Diego County	Campo-Morena Village Branch	Public	(619) 478-5945	91906	[1318-A5]	Campo, CA	25
25	Multipoi	http://www.sdcl.org	571-A Palm Canyon Drive	San Diego County	Borrego Springs Branch	Public	(760) 767-5761	92004	[1078-J2]	Borrego Springs, CA	26
28	Multipoi	http://www.sdcl.org	105 Juanita Lane	San Diego County	Crest Branch	Public	(619) 442-7083	92021	[1252-H4]	El Cajon, CA	29
30	Multipoi	http://www.sdcl.org	9545 River Dr.	San Diego County	Descanso Branch	Public	(619) 445-5279	91916	[1236-A2]	Descanso, CA	31
33	Multipoi	http://www.sdcl.org	124 South Mission Road	San Diego County	Fallbrook Branch	Public	(760) 728-2373	92028	[1027-F2]	Fallbrook, CA	34
36	Multipoi	http://www.sdcl.org	44605 Old Hwy 80	San Diego County	Jacumba Branch	Public	(619) 766-4608	91934	[1321-G5]	Jacumba, CA	37
37	Multipoi	http://www.sdcl.org	1850 Highway 78	San Diego County	Julian Branch	Public	(760) 765-0370	92036	[1136-B7]	Julian, CA	38
42	Multipoi	http://www.sdcl.org	28804 Old Hwy 80	San Diego County	Pine Valley Branch	Public	(619) 473-8022	91962	[1237-B7]	Pine Valley, CA	43
43	Multipoi	http://www.sdcl.org	24883 Portrero Valley Rd.	San Diego County	Potrero Branch	Public	(619) 478-5978	91963	[429-L10]	Potrero, CA	44
46	Multipoi	http://www.sdcl.org	17040 Avenida de Acacias	San Diego County	Rancho Santa Fe Branch	Public	(858) 756-2512	92067	[1168-D3]	Rancho Santa Fe, CA	47
51	Multipoi	http://www.sdcl.org	29200 Cole Grade Rd	San Diego County	Valley Center Branch	Public	(760) 749-1305	92082	[1090-F1]	Valley Center, CA	52
69	Multipoi	http://www.sandiego.gov/public-library/	3919 Townsgate Drive	San Diego Public (City)	Carmel Valley Branch	Public	(858) 552-1668	92130	[1188-A5]	San Diego, CA	70
87	Multipoi	http://www.sandiego.gov/public-library/	13330 Salmon River Road	San Diego Public (City)	Rancho Penasquitos Branch	Public	(858) 538-8159	92129	[1189-E4]	San Diego, CA	88
102	Multipoi	http://www.sandiego.gov/public-library/	8820 Judicial Drive	San Diego Public (City)	North University Branch Library	Public		92122	[1228-E4]	San Diego, CA	103

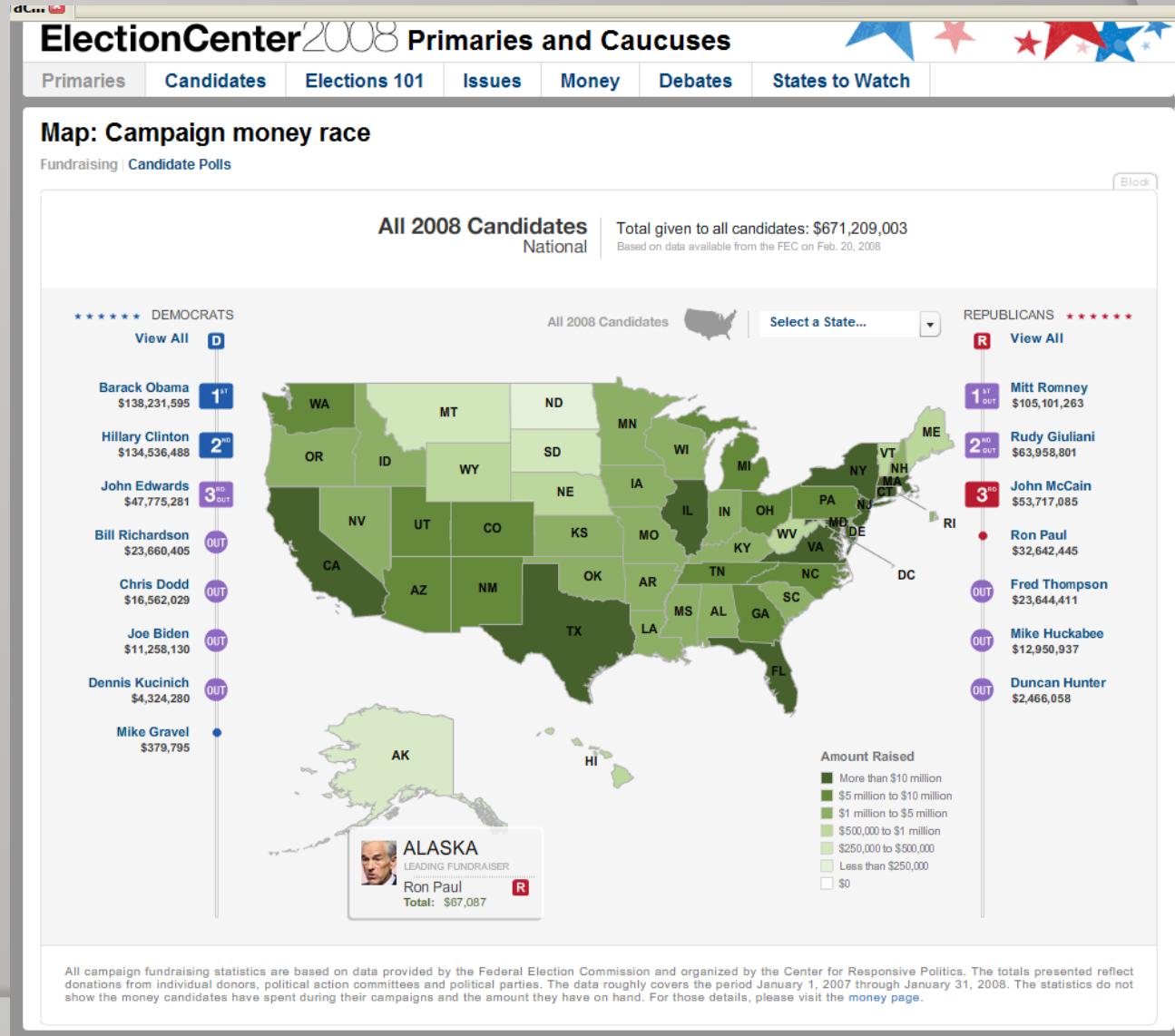
Record: 1 | Show: All Selected | Records (15 out of 104 Selected) | Options

What is GIS?

- ⦿ **A 'real world' example to illustrate layers & attributes...**

What is GIS?

From
cnn.com on
3/8/08



What is GIS?

Map: Campaign money race

Fundraising Candidate Polls

Hillary Clinton
National



National Fundraising Total: \$134,536,488
Based on data available from the FEC on Feb. 20, 2008

★★★★★ DEMOCRATS

View All **D**

Barack Obama
\$138,231,595

1st

Hillary Clinton
\$134,536,488

2nd

John Edwards
\$47,775,281

3rd OUT

Bill Richardson
\$23,660,405

OUT

Chris Dodd
\$16,562,029

OUT

Joe Biden
\$11,258,130

OUT

Dennis Kucinich
\$4,324,280

OUT

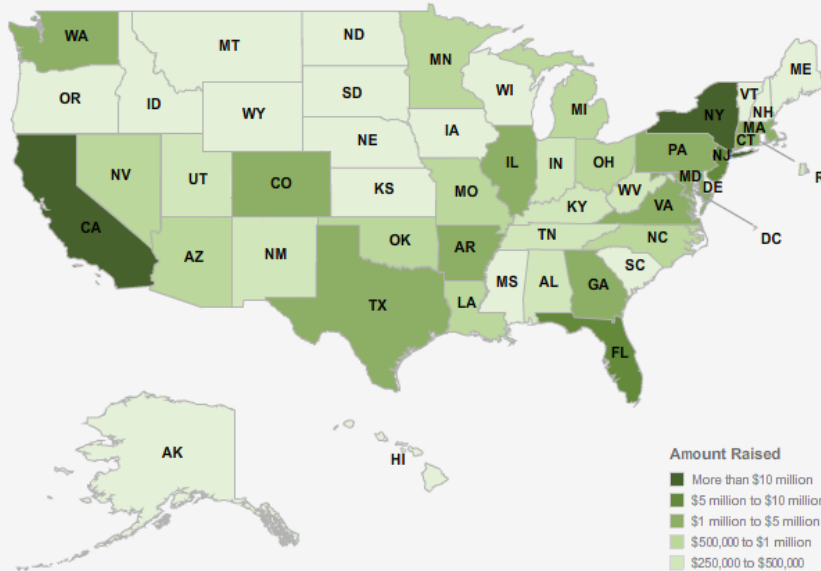
Mike Gravel
\$379,795

OUT

All 2008 Candidates



Select a State...



Barack Obama
National

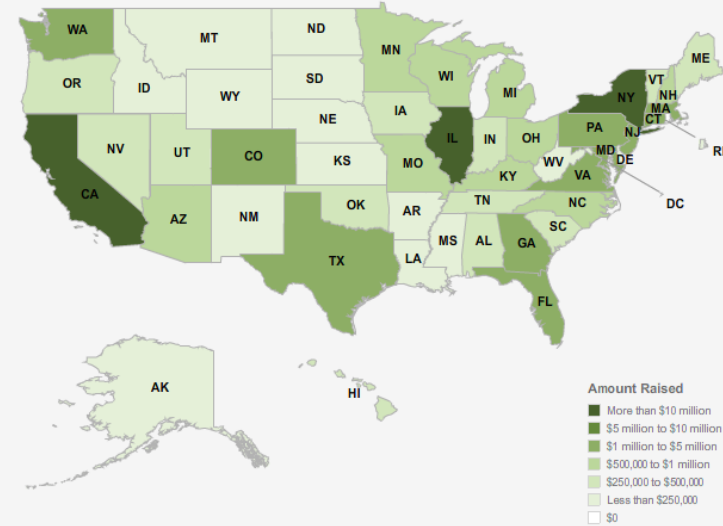


National Fundraising Total: \$138,231,595
Based on data available from the FEC on Feb. 20, 2008

All 2008 Candidates



Select a State...



\$23,044,411

OUT

Mike Huckabee
\$12,950,937

OUT

Duncan Hunter
\$2,466,058

All campaign fundraising statistics are based on data provided by the Federal Election Commission and organized by the Center for Responsive Politics. The totals presented reflect donations from individual donors, political action committees and political parties. The data roughly covers the period January 1, 2007 through January 31, 2008. The statistics do not show the money candidates have spent during their campaigns and the amount they have on hand. For those details, please visit the [money page](#).

From cnn.com
on 3/8/08

What is GIS?

Barack Obama
California



State Fundraising Total: \$18,989,420
Based on data available from the FEC on Feb. 20, 2008

All 2008 Candidates



California



Hillary Clinton
California

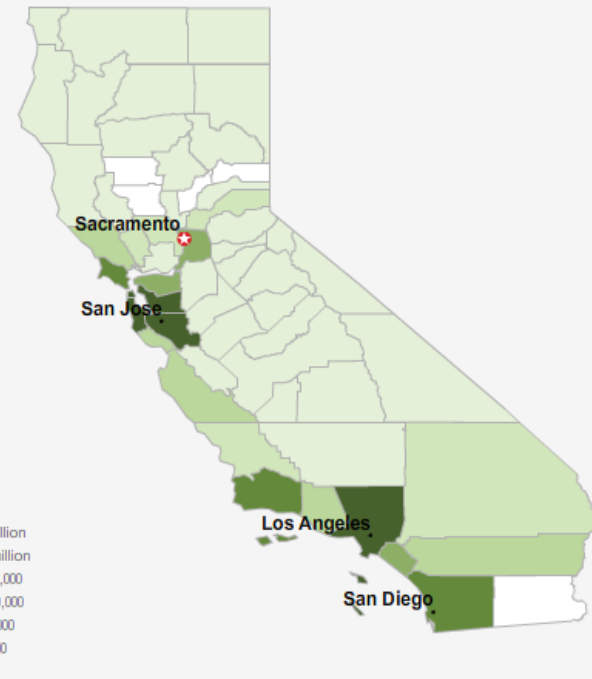
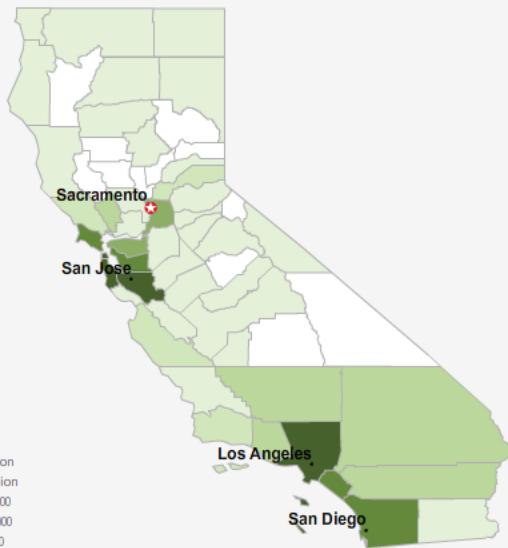


State Fundraising Total: \$18,552,677
Based on data available from the FEC on Feb. 20, 2008

All 2008 Candidates



California



From cnn.com on 3/8/08

Who uses GIS at UCSD?

Over 50 departments including:

- Archaeology
- Anthropology
- Biological Anthropology
- Biological Sciences
- Center for Comparative Immigration Studies
- Center for Iberian and Latin American Studies
- Center for Immigration and Population Studies
- Center for US-Mexico Studies
- Chemistry
- Communication
- Computer Science
- Economics
- Engineering
- Environment & Sustainability Initiative
- Environmental Studies
- Environmental Systems
- Ethnic Studies
- Family Medicine
- Film
- Fraternity/Sorority
- Hazardous Materials Management
- History
- IRPS
- Medicine
- Medical Outreach
- Natural Resources
- Political Science
- Preuss School
- Regional Workbench Consortium
- San Diego Supercomputer Center
- SIO
- SIO Geologic Data Center
- SIO OARF Dry Lab
- Sixth College
- Sociology
- Spatial Ecology
- Superfund Basic Research Grant
- TRIO
- Urban Studies & Planning
- Visual Arts
- UCSD Decision Support
- UCSD Environmental Health & Safety
- UCSD Extension
- UCSD Facilities
- UCSD Forestry
- UCSD Natural Reserve System
- UCSD Upward Bound

Who uses GIS at UCSD?

⦿ Patron Statistics for August 06 – July 07

- 122 Undergraduate students
- 36 Masters students
- 27 PhD students
- 6 Postdocs
- 46 faculty
- 76 staff (different depts. such as EH&S, Facilities, Physical Planning, Police)
- 1 Visiting Scholar
- 3 Librarians
- 1 UCSD alumni
- 18 Non-UCSD

What they use it for

Health

- Measure disease clustering distribution of health services
 - Needle use locations & homes
- Epidemiology and disease transmission
 - Proximity to roadways, stagnant water bodies, wind patterns

Economics

- Value of recreational or natural assets
 - Property values & kayak parks
 - Property values & canyons
- Floodplain Cost
 - Flood zone delineations & insurance payouts

What they use it for

⦿ Planning

- Zoning/Redevelopment
- Density studies
- Affordable housing

⦿ Engineering

- Weather monitoring & microclimates
- Google Earth video for outreach

What they use it for

- ⊙ Political Science
 - Redistricting
 - Ethnic composition & policy
- ⊙ Oceanography
 - Remote sensing
 - Fisheries
 - Coral bleaching
- ⊙ IR/PS
 - Alumni resource tracking
 - Latin American politics (future)

Part 3 – Thinking Ahead

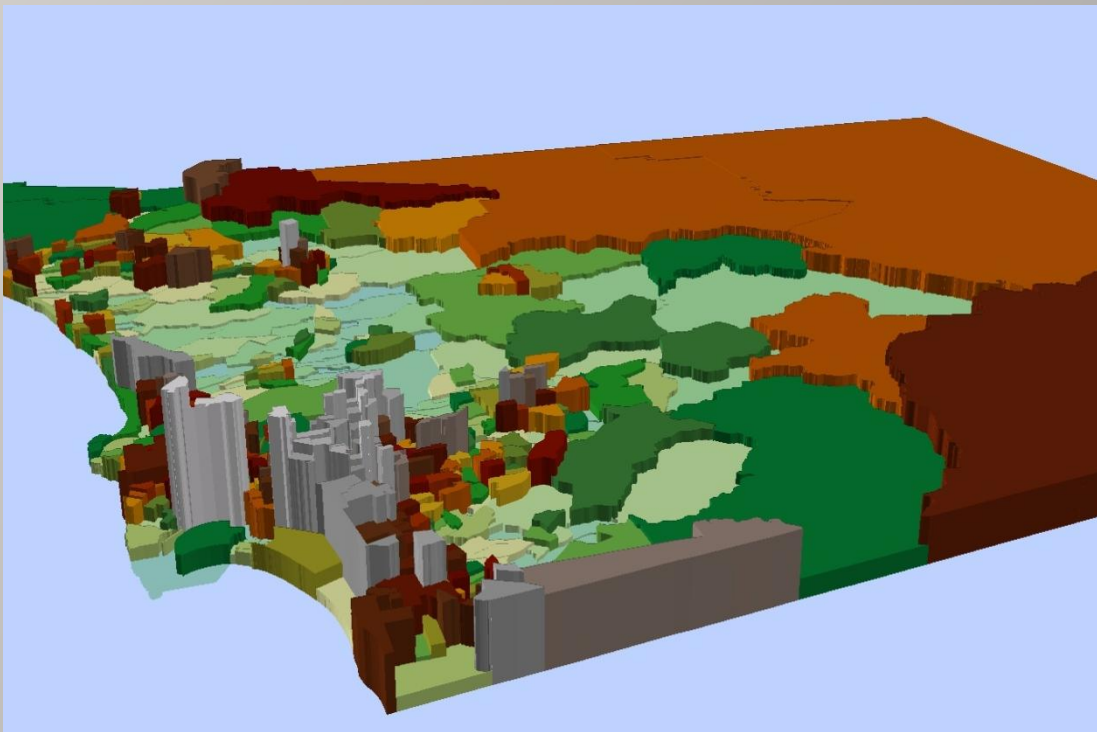


Upcoming GIS Integration

- ⊙ Art & History
 - Visual Arts/objects/cultures/places
- ⊙ Spatial Ecology
 - Instruction
 - GPS to GIS
- ⊙ Business Analyst
 - Data
 - Tools

Thinking Ahead...

- ① New visualizations & communication



Thinking Ahead

- ① Digital humanities



Thinking Ahead


- ◎ Places & Spaces: Mapping Science
 - Power of maps
 - Maps as metaphors
 - Topic Maps
 - World Wide Web

Thinking Ahead

🕒 Books & Maps & Catalogs & Digital Libraries

Key terms
[Aouda](#), [Reform Club](#), [Captain Speedy](#), [Hong Kong](#), [Mongolia](#), [Parsee](#), [Savile Row](#), [Andrew Stuart](#), [Rangoon](#), [Bombay](#), [Salcette](#), [Thomas Flanagan](#), [Liverpool](#), [Calcutta](#), [Allahabad](#), [Brindisi](#), [Mormon](#), [steamer](#), [Fort Kearney](#), [John Sullivan](#)

Places mentioned in this book



[Yokohama](#) - Page 110
In fact, the steamer which crossed the Pacific from Yokohama to San Francisco was in direct connection with the Hong Kong steamer, and the former ...
more pages: [109](#) [126](#) [127](#) [128](#) [130](#) [134](#)

[Allahabad](#) - Page 82
Meanwhile the train was about to leave Allahabad. The Parsee was waiting. Mr Fogg paid him the compensation agreed upon, without exceeding it a ...
more pages: [22](#) [53](#) [65](#) [66](#) [80](#) [83](#)

[Hong Kong](#) - Page 110
Then he told Mrs Aouda that he was going immediately to look for the relative in whose care he was to leave her at Hong Kong ...
more pages: [107](#) [108](#) [109](#) [120](#) [130](#) [154](#)

[more >](#)

How you might use GIS

- ⦿ Have it in your toolkit for patrons
 - Research/teaching/education
 - Integration with other resources
- ⦿ For yourself
 - Manage your info
 - Analyze a problem or question
 - Visualize info you already have
 - Marketing & advertising of services/resources