San Diego Geographic Information Source

SanGIS Business Model and Processes

Data Maintenance, Sharing and Reengineering

ESRI International User Conference
August 6, 2008

Andrew Abouna
Executive Director, SanGIS

SanGIS Overview

Quick Facts

- Began in 1984 as Regional Urban Information Systems (RUIS)
- Created in 1997 as JPA between City and County of San Diego
- Maintain regional GIS landbase, data warehouse, and GIS services
  - Landbase contains over 983,000 parcels and 151,000 road segments for a geographic area about the size of the State of Connecticut
- Annual Budget of $1.5M+
- Board of Directors – City Major Designee and County Deputy CAO
- Management Committee – City and County GIS Managers
- 15 Staff – full-time, part-time, contractors, interns
- 450+ spatial vector and raster layers (1TB+)
- 700+ City, County other Agency users
- 500 unique public users; 5,500 data downloads each month
- Model for landbase and GIS data warehousing systems

SanGIS Mission

To maintain and promote

the use of a regional

geographic data warehouse

for the San Diego region

and to assist in

the development of shared

geographic data

and automated systems

which use that data

SanGIS Objectives

- Formalize City/County GIS Partnership and Regional Support

- Develop, Centralize, Control & Standardize a Landbase Maintenance System

- Establish Regional GIS Data Warehouse

- Reduce GIS Data Redundancy

- Establish Strategic Partnerships

- Advance Local and Regional GIS

SanGIS Business Goals and Domains

1. Regional Landbase Maintenance System

2. Regional Geographic Data Warehouse

3. Regional Geographic Information Services
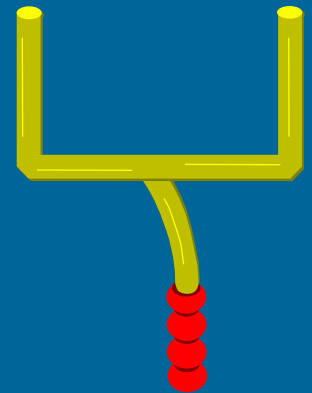
1. Regional Landbase Maintenance System

Ensure Centralized Landbase Data Accessibility, Currency and Integrity

- Maintain SanGIS landbase at a 99% minimum accuracy/integrity rate
- Maintain SanGIS landbase within 90 days currency with Assessor
- Ensure adequate backup and recovery of geographic databases
- Utilize appropriate technologies and resources to proactively ensure data integrity

2. Regional Geographic Data Warehouse

Provide Cost Effective Access To Geographic Data for Members and Public

- House and serve regional geographic information layers
- Employ appropriate Information Technology architecture to define and maintain GIS servers
- Engage in partnerships and outreach to encourage data sharing, ownership, and data warehouse publishing

3. Regional Geographic Information Services

Provide Affordable Ready Access to GIS

- Provide no/low-cost access for members to full data warehouse
- Provide no/low-cost public access to non-sensitive datasets
- Provide low-cost standard mapping products
- Promote access to SanGIS data using innovative technologies

Business Processes Flow Map

Three Levels of Access

Public Access
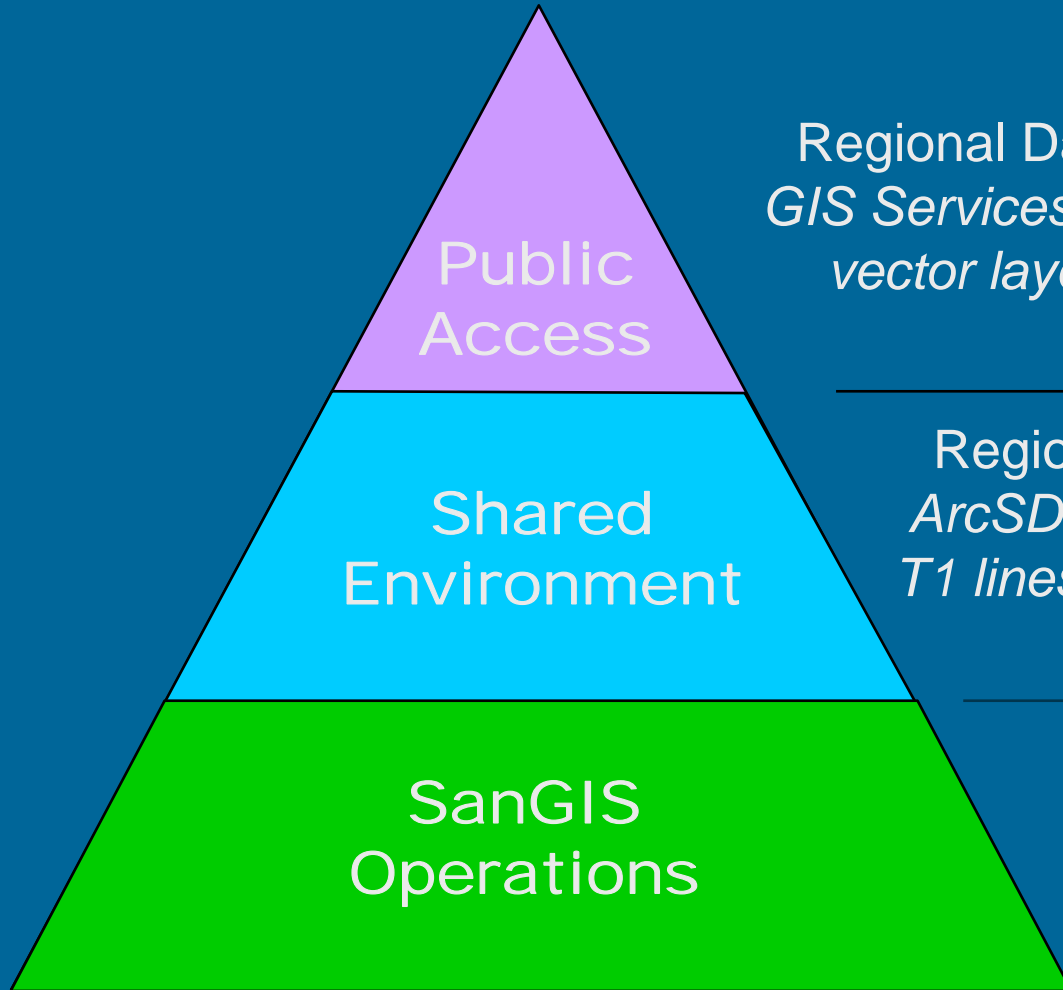
Regional Data Warehouse Internet
GIS Services and FTP download of 10+ vector layers including landbase

Shared Environment

Regional Data Warehouse Intranet
ArcSDE and FTP access via dedicated T1 lines to complete warehouse of 450+ vector and spatial data

SanGIS Operations

Regional Landbase
Maintenance System
Regional Data Warehouse
Intranet Hosting

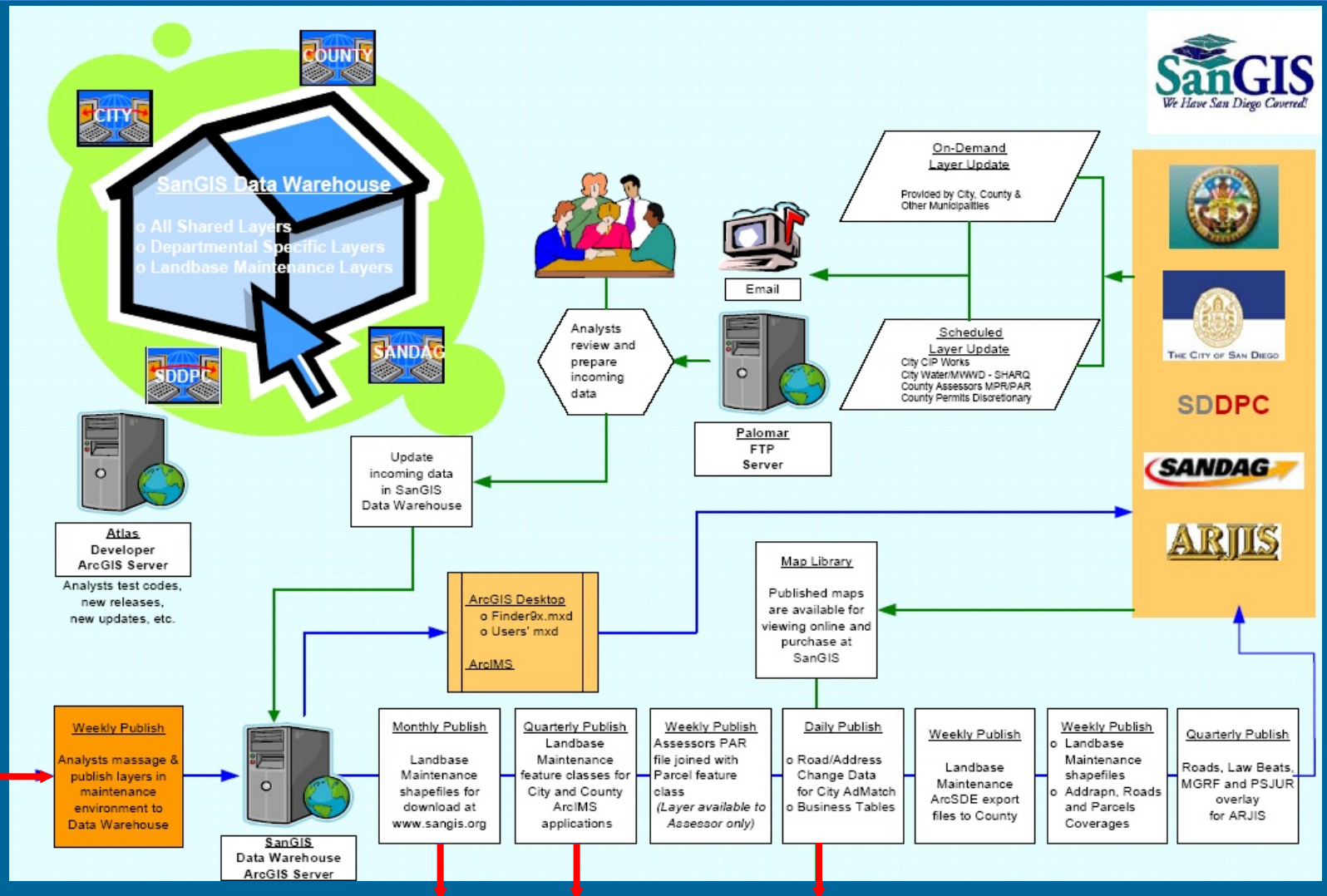# Regional Landbase Maintenance System
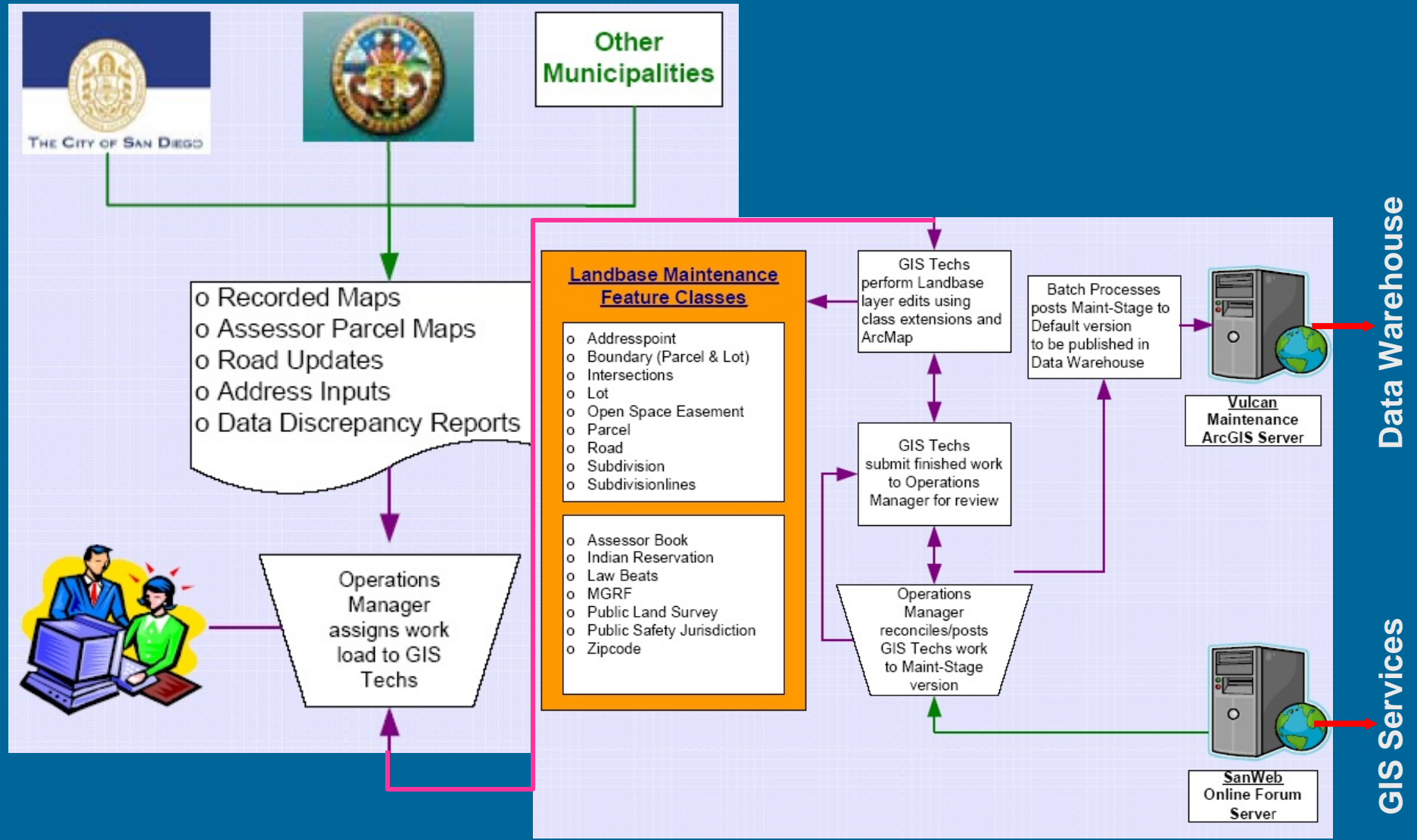
Regional Geographic Data Warehouse

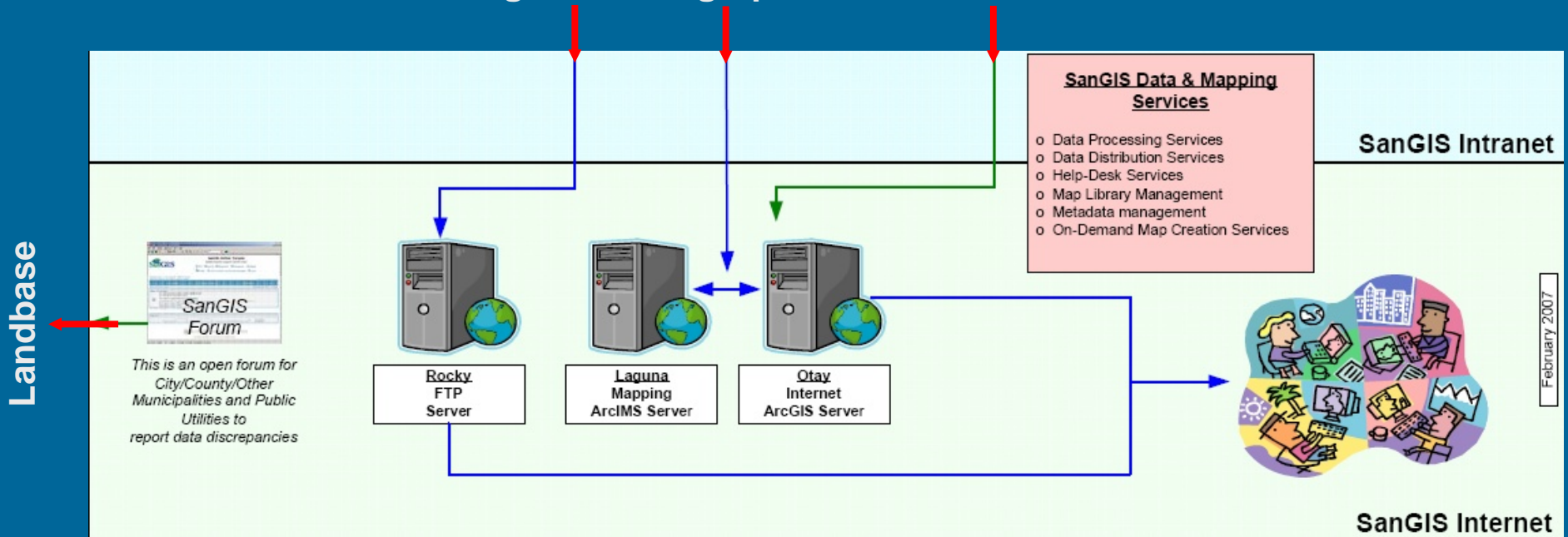**Weekly**
- Landbase

Daily
- Road updates

Landbase

Regional GIS Services

Regional Geographic Information Services

Regional Geographic Data Warehouse

Data and Mapping Services

- Maps-2-Go!
- Member Agencies/Depts. (free)
- Businesses
- Public
- Map Creation
- Data Processing/Analysis
- Data Distribution
- Map Library (Dept. made)
- Metadata Management

SanGIS

The San Diego Geographic Information Source

Maps-2-Go!

SanGIS creates custom maps while you wait.
Choose from over 300 digital map layers in the SanGIS geographic data warehouse
to create a map that meets your needs.
Custom maps made from 8:00 AM to 4:00 PM daily.

Standard Map Pricing

Size	Dimension	Without Aerial Photos	With Aerial Photos	Reprints
		Price each	*Price each*	*Price each*
A	8½" x 11"	$10	$15	$5
B	11" x 17"	$15	$20	$10
C	18" x 22"	$20	$25	$10
D	24" x 36"	$25	$40	$15
E	36" x 48"	$30	$50	$15

Student Discount: $5 off ($10 minimum charge; reprints are not discounted)

Custom and Bulk Maps: $50 per hour any size

Map Library Maps: View and print maps created by County & City staff.
Free viewing online at www.sangis.org.   Reprints: $20 each

Self Service Maps: Create your own map using ArcMap on the SanGIS Public Access PC
Half off above prices (reprints are not discounted; no SanGIS staff support)

Digital Map Images: $25 each, or $10 each with the same printed map (BMP or JPEG format)

Data Extracts: $75 for each simple data extracts taking 1 hour or less.
Extracts may be shapefile(s) or DXF file(s) on DVD or CD

Mailing Tubes: $3.50 (large), $2.50 (small)

We will be reviewing this schedule often and making adjustments as best we can to meet your needs while still recovering our actual cost. We are also compiling a list of County and City departments that perform similar functions and may have services and/or fees that better meet your needs.

For further information contact SanGIS:
5469 Kearny Villa Road, Suite 102
San Diego, CA 92123
Phone: (858) 874-7000

Effective February 1, 2007

Technical Environment…

ESRI GIS Software
- ArcGIS: desktop editing, mapping and developer applications
- ArcSDE: server and geodatabase sharing
- ArcIMS: Internet/interactive mapping

Oracle Database
- Maintain landbase features and user account access to ArcSDE geodatabase and data warehouse

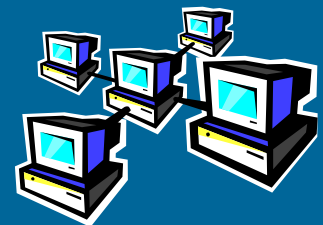Data Servers
- Sun, HP, Dell (12 in total for all internal and external operations)

Other
- Workstations and Plotters

Upgrade…
- Two, Dual Quad-core CPU servers with VMWare

Technical Environment (current)
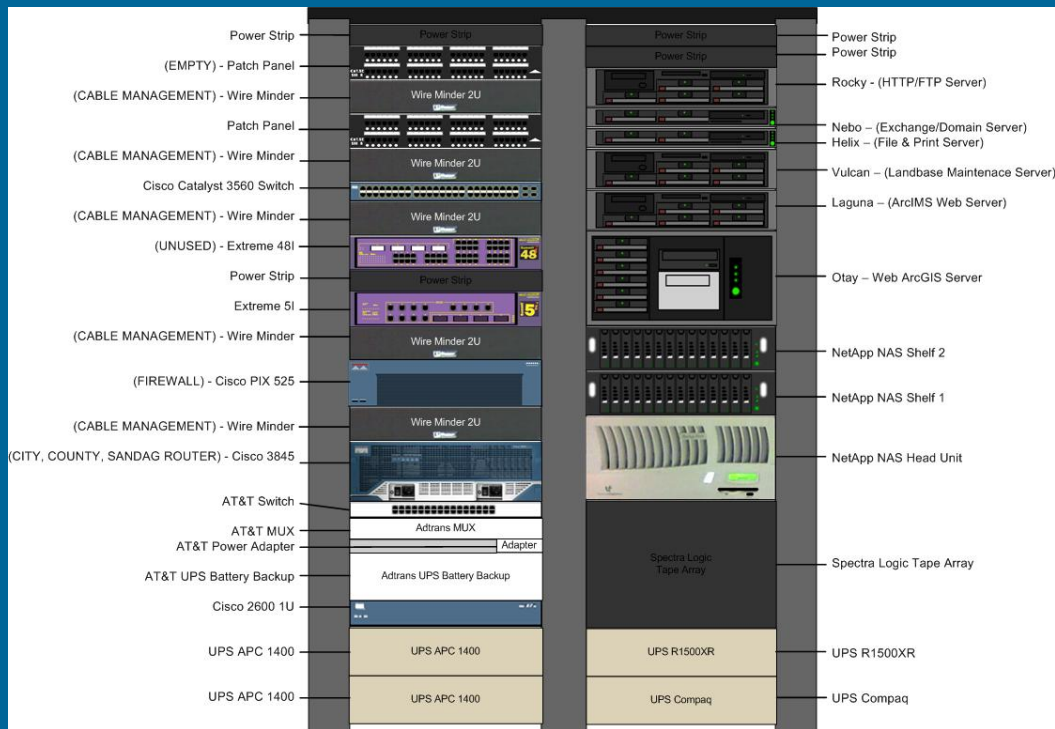
- Server Racks
- Routers
- Dedicated T1s
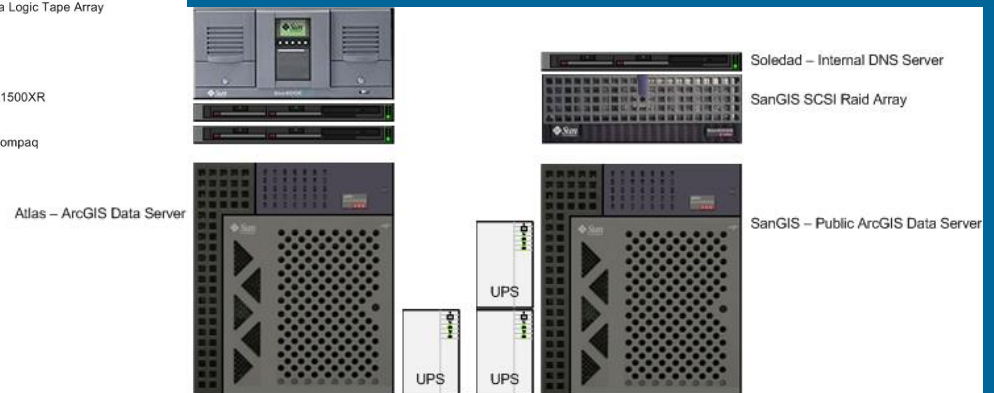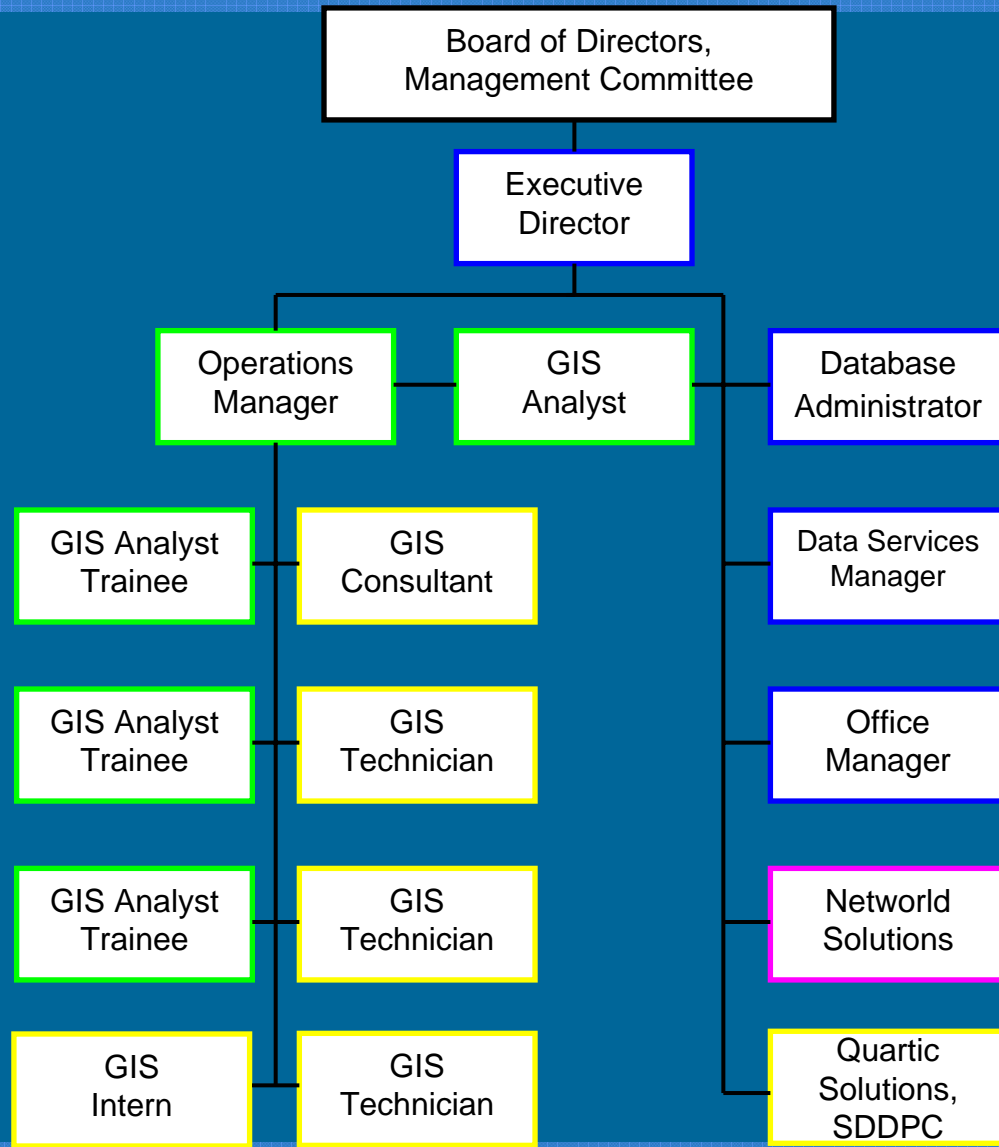
SanGIS Clients

The SanGIS Landbase is used by numerous public agencies and private companies in the San Diego Region, including:

- Cities/County/Departments
- Water Districts
- School Districts
- State Agencies
- Regional Agencies
- Federal Agencies

- Title Companies
- Engineering Firms
- Environmental Agencies
- Consultants
- Public
- Students
- Others…

Benefits of SanGIS

Standard, Timely Landbase for the Region

- Map layers registered to SanGIS enables cross-agency sharing and assured standards of first order accuracy

- Other regions report their #1 problem is multiple, non-timely landbases

No-cost Landbase for Public/Private agencies

- 450 data layers + annual regional orthophotography real-time access by member agencies

- 100 data layers for free download from SanGIS www.sangis.org by public

- Compare to internal staff to complete same currency/quality

Centralized Public Access

- One-stop shop for data, analysis and maps

Reflect

SanGIS processes are complex, involving many agencies and departments

Internal and external processes have evolved over time, but have not been reviewed

Ramifications of data currency and availability are large

SanGIS still central to regional GIS but expansion of GIS use could result in decentralization

Survey Says:
- Most Regional GIS users want to share their GIS data
- Most Regional GIS users want centralized access to GIS data
- 85% of Regional GIS users utilize SanGIS Data Warehouse

Affect

Define process maps of all operations

Streamline and reduce steps/handoffs

Standardize data integration and other policies

Multi-fold increase in the number of SanGIS partners who contribute, access, share data through the SanGIS Data Warehouse

Time to Review Processes, Needs and Goals…..

Business Process Reengineering

Scope of Work:

Reengineer the complex landbase management process from the time data is originally generated until the data is published on SanGIS's servers.

Landbase = parcels, lots, addresses, roads & open space easements

Objectives:

- Improve the overall completeness of the SanGIS Landbase data
- Allow selective editing outside of SanGIS based on agreed standards
- Develop *Work in Process* Landbase to meet customer needs
- Develop standards for the use of GIS data

Goals:

- Reduce the number of Assessor parcel maps in queue by 95% within 90 days
- Eliminate 100% backlog of recorded maps within 90 days

Stakeholder Participation

City of San Diego

Office of the CIO, City Planning and Community Investment, Development Services, Engineering and Capital Projects, Environmental Services, Fire and Police, Water and Wastewater,

County of San Diego

Assessor, Environmental Health, Land Use and Environmental Group, Planning and Land Use, Public Works, Sheriff

City of Carlsbad   City of Chula Vista

San Diego Association of Governments

San Diego Data Processing Corporation

SanGIS   Guidon Performance Solutions

Kaizen Methodology

- "Continuous Improvement"
- Clear objectives
- Team process
- Tight focus on time
- Quick & simple
- Necessary resources immediately available
- Immediate results: start changing process by end of week
- 5S "mindset" use of steps to support the event activities:
  - Sort
  - Set in order
 - Shine
  - Standardize
  - Sustain

"SIPOC"

Suppliers	Input	Process	Output	Customers

• Assessor's Office
• Recorder's Office
• Public Works Depts
  - Cities and Counties
• Police / Sherriff Depts
• Fire Dept
• Development Svc Dept
• City Planning Depts
• Post Office
• CALTRANS
• DPLU
• Federal Government
• Indian Reservations
• Staff
• ESRI (Software Vendor)
• Hardware Vendor
• SDG&E / AT&T
	• Recorded Maps
	• E-Mail Requests
	• SANGIS Forms
	• Assessor Parcels
	• Assessor Property
	  - Owner Records
	• Attribute Records
	• Recorded Docs
	• Road Info
	• Address Info
	• Easements
	• Block Ranges
	• Equipment
	• Labor
		• Log Map
		• Input in GIS
		• Set up For Reconciliation and Posting
		• Uploads Defaults in SANGIS
		• Move to Database
			• Parcel Layer
			• Lot Layer
			• Open Space Layer
			• Road Layer
				• Assessor's Office
				• Recorder's Office
				• Public Works Depts
				  - Cities and Counties
				• Police/Sherriff Depts
				• Fire Dept
				• Dev. Svs. Dept
				• City Planning Depts
				• Post Office
				• CALTRANS
				• DPLU
				• Federal Government
				• Indian Reservations
				• General Public
				• Google

Current State Process Map
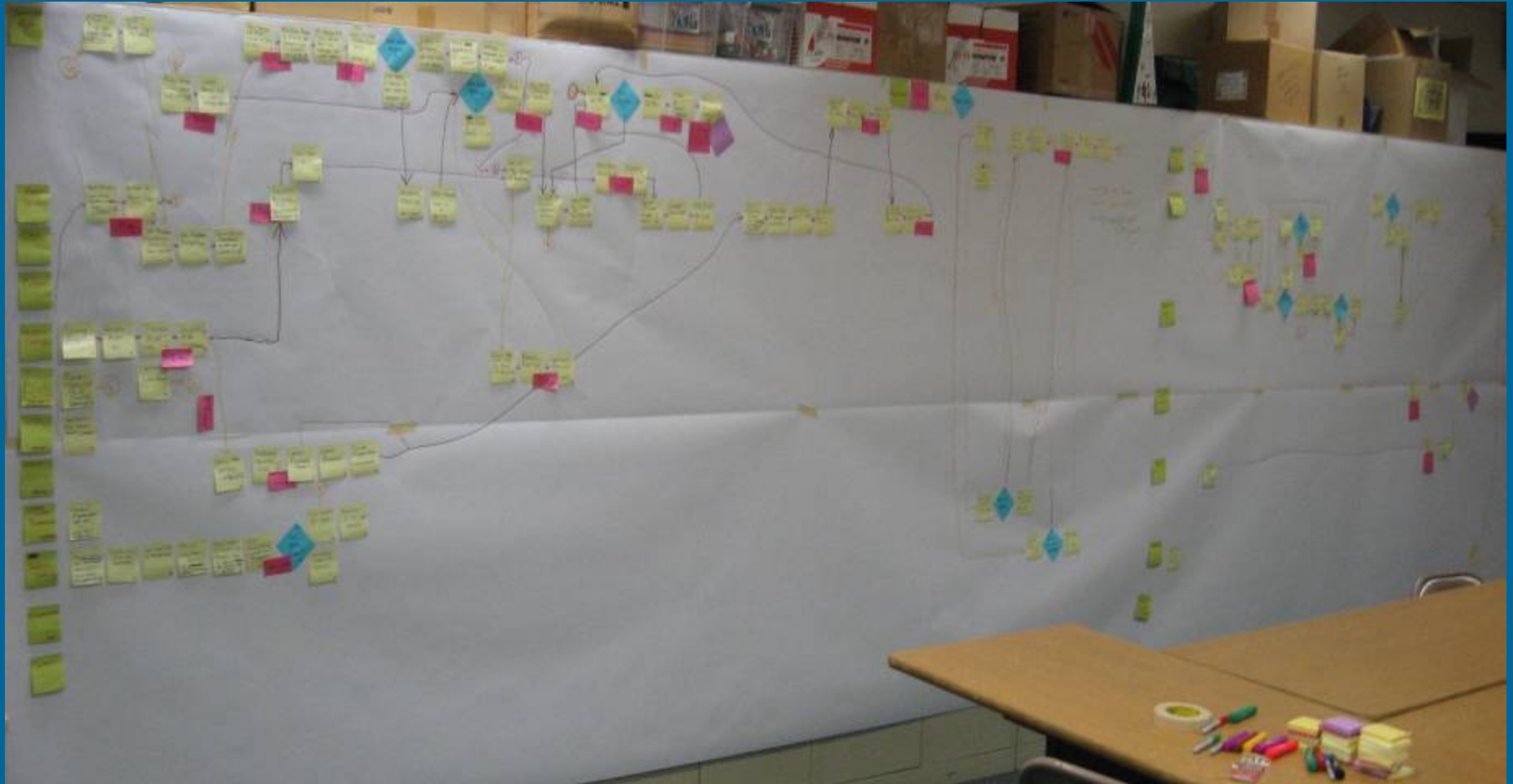
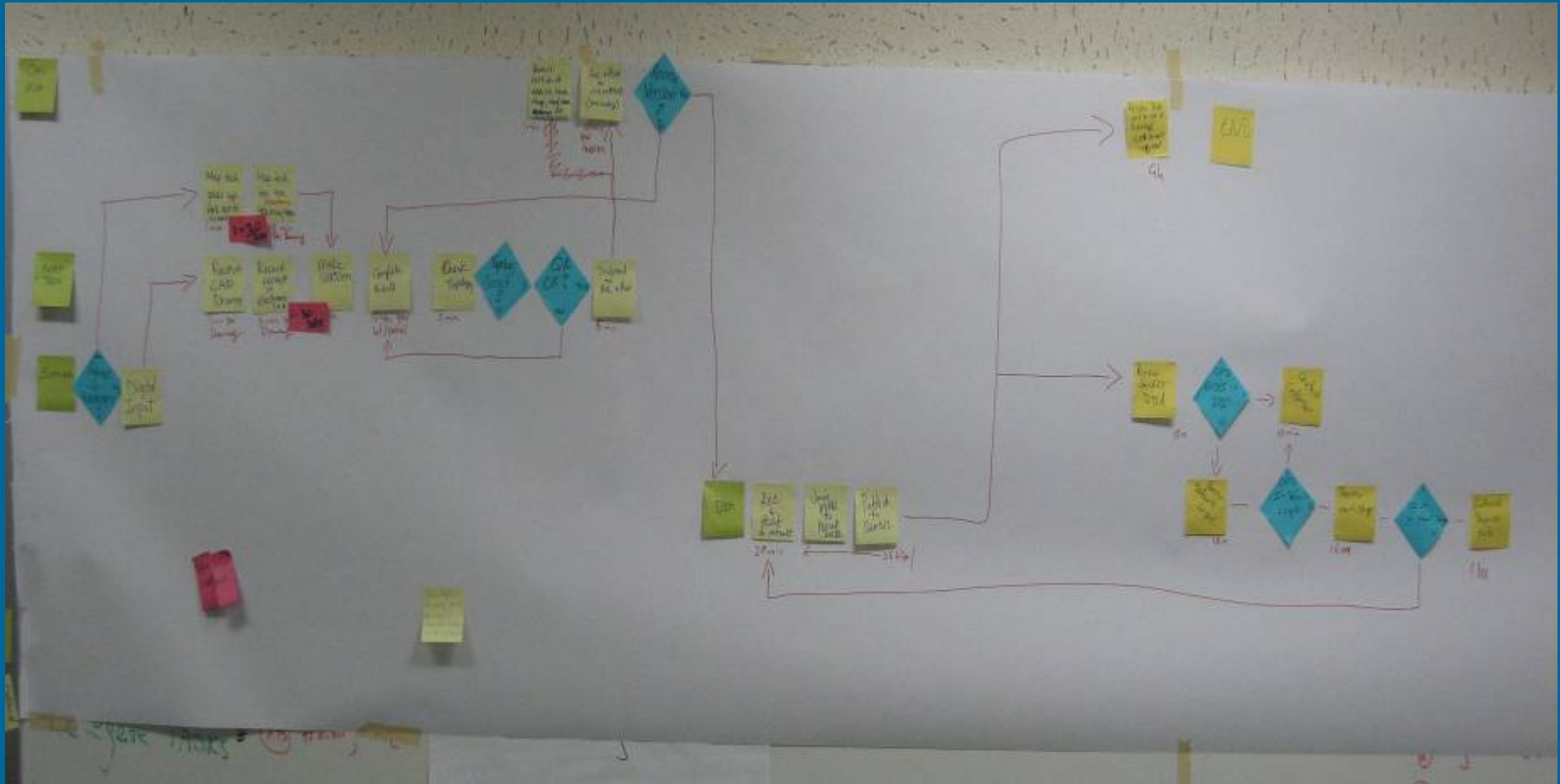114 Steps, 28-310 days of Potential Delay

Current State Process Map
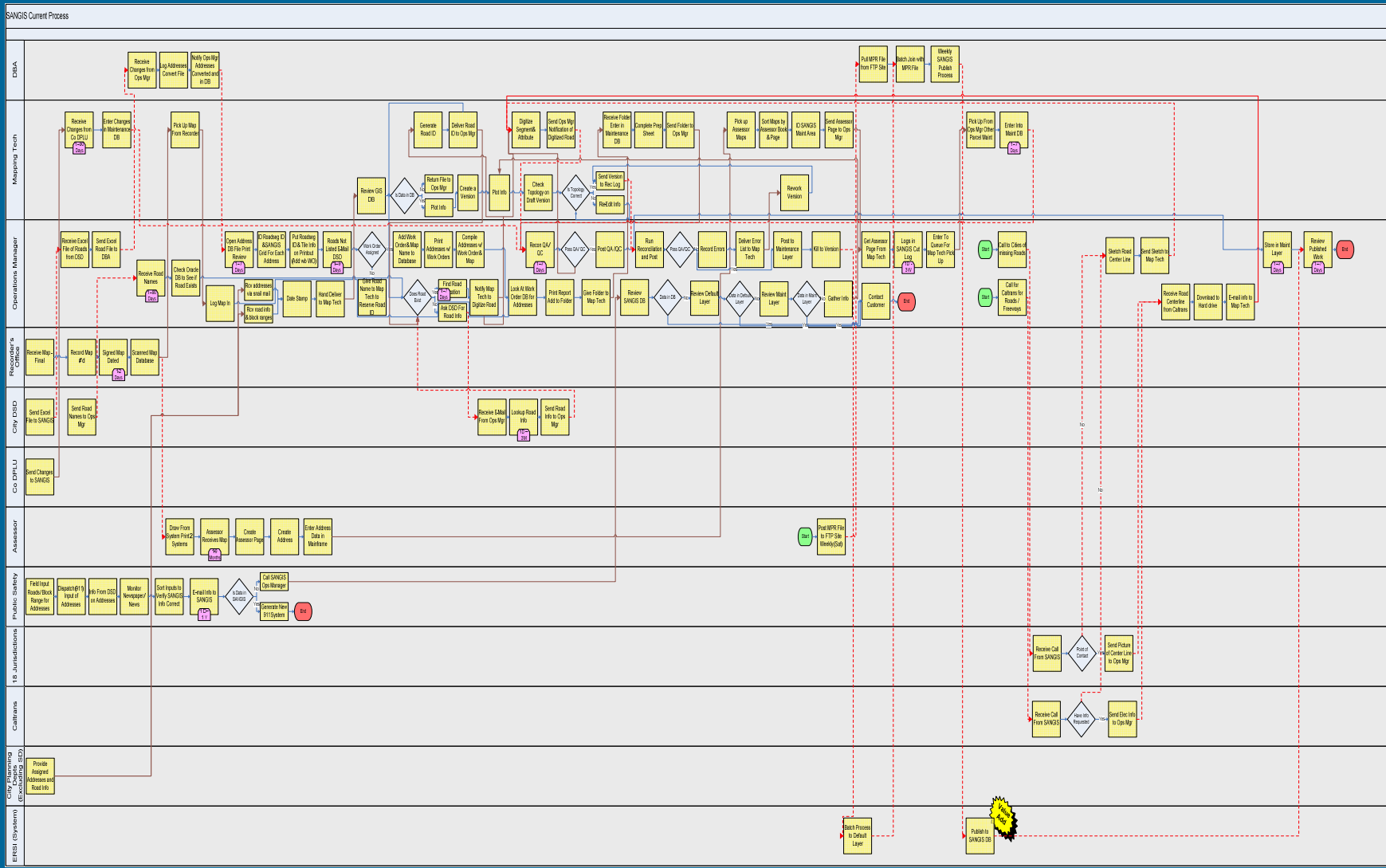
Brainstorm for Improvement

- Reduce lead time, higher value-added %

- 100+ ideas for ways to reduce steps and delays

- Selected high-impact, low-difficulty ideas

- Mapped new process steps and delays

Future State Process Map

20 Steps, 2-60 days of Potential Delay

Future State Process Map
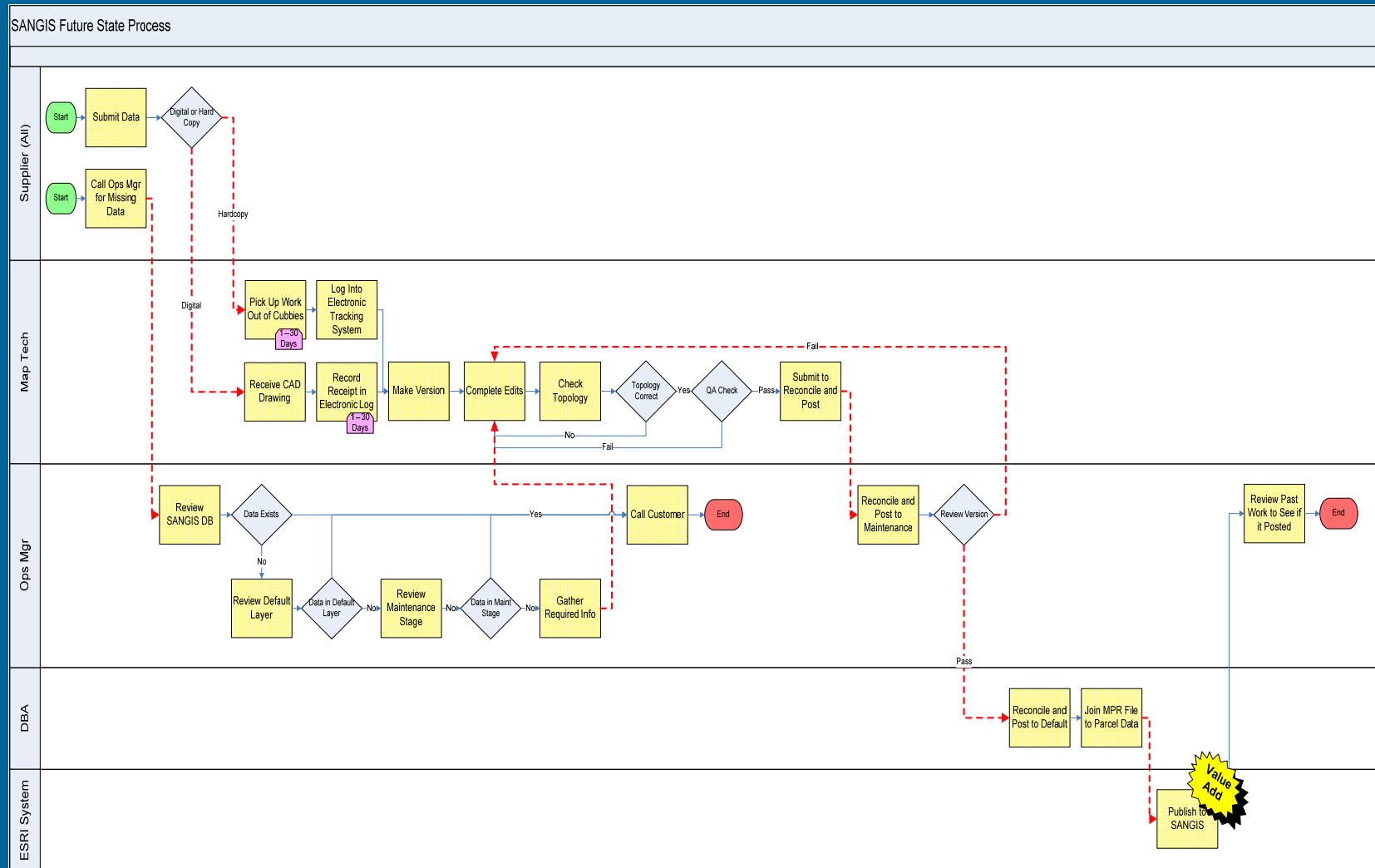
Process Improvements

Process Metrics			
	Current	Future	Change
Steps	114	20	82.5%
Decisions	13	7	46.2%
Electronic Handoffs	14	6	57.1%
Physical Handoffs	13	7	46.2%
Delays	19	2	89.5%
Delay Time Min - Days	28	2	92.9%
Delay Time Max - Days	310	60	80.6%
Loop Backs	5	3	40.0%
Value Added Steps	1	1	0.0%

Σ Cycle Times - Hours			
	Current	Future	Change
Current	81.4	6.9	91.5%

Lead Times - Hours			
	Current	Future	Change
Min	813.4	114.9	85.9%
Max	7581.4	1506.9	80.1%
Avg	4197.4	810.9	80.7%

Action Items

	WHAT	WHO	UPDATE	STATUS	WHEN
1	Develop standards (include SANGIS) in SDRGC for digital submittal	Karl	Document being finalized for submission to jurisdictions	95%	14-Jul
2	Setup SANGIS user meeting (define who, where, how often and agendas)	Andrew	1st Meeting agenda complete	100%	12-Sep
3	Add public contacts to "The Source" mailing list (2nd mail list)	Andrew	Merge mailing lists	75%	13-Jun
4	Create public consumption newsletter "The Source"	Andrew	Draft complete	100%	7-Jun
5	SDE View of changes from last week	Chris Pyle	Created test view need feedback and finalize	85%	11-Jun
6	Have County Assessor sign off on digital submission of tentative APN's	Joe H	Waiting for cities to respond by 7/1	100%	1-Jul
7	Test digital APN submittal	Karl, Joe	Waiting for Carlsbad. File being sent today will rework to make visible	25%	12-Jun
8	Establish a lead position that would take some of Operation Manager's duties	Andrew, Dave	Take existing position and add duties	25%	1-Jul
9	Recognition and advancement of ALL SANGIS staff based on performance	Frank	Use existing county program in place, and other rewards for non-monetary recognition	80%	1-Jul
10	Evaluate (analysis) of current process versus buying new plotter	Frank, Dave, Desiree	Plotter found not to be financially beneficial	100%	7-Jun
11	Change pick up of map to be twice per week	Frank, Joe	Will run twice per week, Use DPW mail stop	75%	15-Jun
12	Create online message board that shows status of project	Frank, Drew			15-Jun
13	Test Beta of ArcEngine road editing applications	Drew, Deena, Laura	Notified all of meeting next week	50%	1-Jul

Action Items

	WHAT	WHO	UPDATE	STATUS	WHEN
14	Communicate elimination of SANGIS Grid	Laura, Andrew	Write up complete, to be sent on 6/21	75%	21-Jun
15	Publish Landbase layers weekly on public ftp site	Drew (Bin)	Hold for Bin's return on 6/26 Also need to determine feasibility		7-Jul
16	Notify users of increased frequency in the public "The Source"	Andrew, Pam G	Write up complete, to be sent on 6/21	75%	21-Jun
17	Update Landbase for interactive mapping weekly	Drew (Bin)	Hold for Bin's return on 6/26		7-Jul
18	Query City of San Diego DSD for feasibility for compiling address/road info	Phyllis, Susan B	Responsibilities / discussions, more analysis required	50%	21-Jun
19	Meeting (SANGIS/DSD) for address/road info	Phyllis, Susan B, Mike K.	Meeting with Deputy Director	25%	Dependent on #18
20	Understand/quantify process (issues?) for data model changes	Deena, Drew, Susan W	Meeting with staff 6/28 to evaluate change management	25%	28-Jun
21	Delegate log/date stamp to map tech	Ross	Will be delegated starting 7/1	75%	1-Jul
22	SANGIS to develop MOA with other jurisdictions to submit digitally	Tom	Laura will inform Tom this was assigned to him		15-Jun
23	Create digital submittal policy standard through LUEG	Ross, Dave, Karl, Desiree	Policy statement drafted waiting for decision makers to review in report out	75%	7-Jun
24	Contact Sheriff for address updates	Sandy, Melissa	Draft complete and reviewed	100%	7-Jun
25	SANGIS to develop address submittal form with input from suppliers	Frank, Phyllis	Developed draft standard submit to regional meeting by Monday	75%	15-Jun
26	Create cubby system for incoming mail	Frank, Andrew			15-Jun
27	Deploy LAN assets to SANGIS from county network	Dave		25%	30-Jun

Key Points, Goals and Results

Requirements

- Digital recorded map viewable on screen to aid digitizing

- Digital submission saves most digitizing = 75-85% reduction in process!

- 100% of all recorded maps to be submitted digitally by 6/30/08

Metrics

- Current parcel/recorded map processing = 60/30 days

- New parcel/recorded map processing = 14/7 days

Continuous Improvement Sought

- Typical implementation 90 days, reevaluation at 360 days

- Long term change requires 2-3 years of sustained leadership commitment

- Change and improvement now occurring

SanGIS

San Diego Geographic Information Source

Thank you.

Questions?

Andrew Abouna
Executive Director
SanGIS
5469 Kearny Villa Road, Suite 102
San Diego, CA 92123
(858) 874-7020
aabouna@sangis.org