

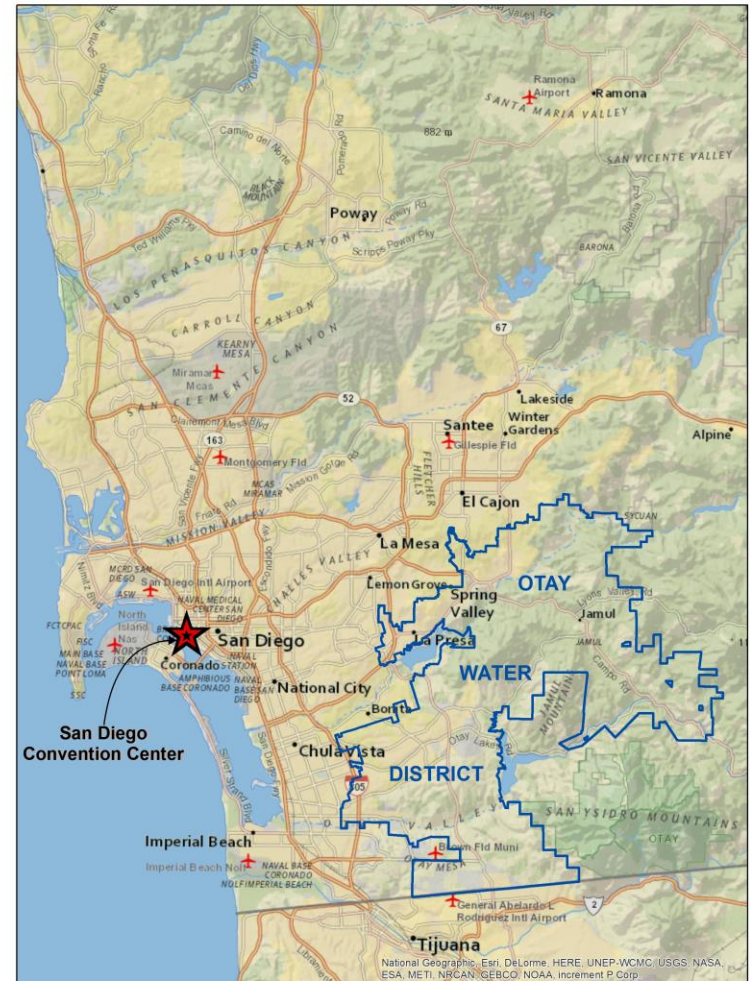


# **GIS Centric Operation at Otay Water District**

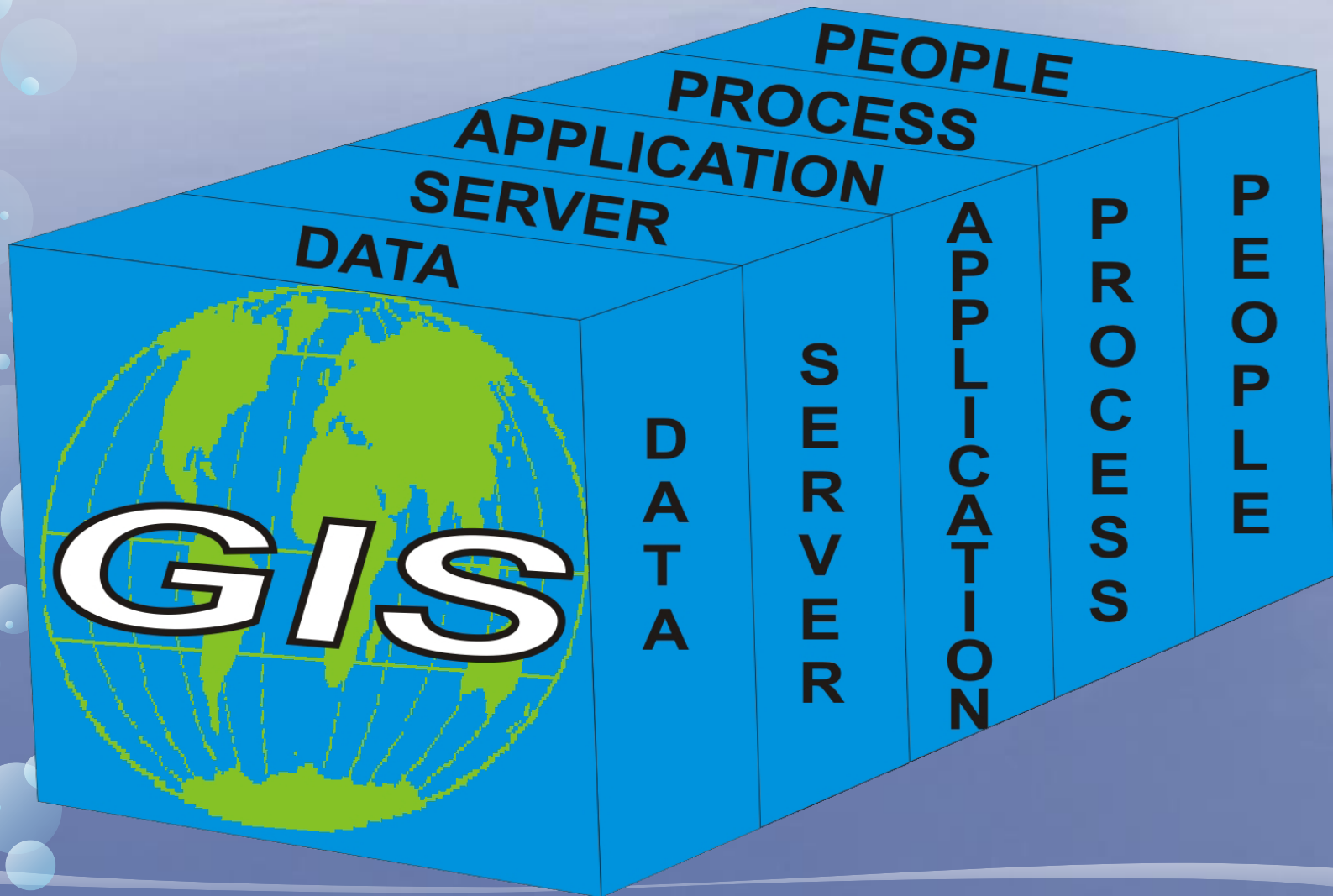
Ming Zhao

# Otay Water District

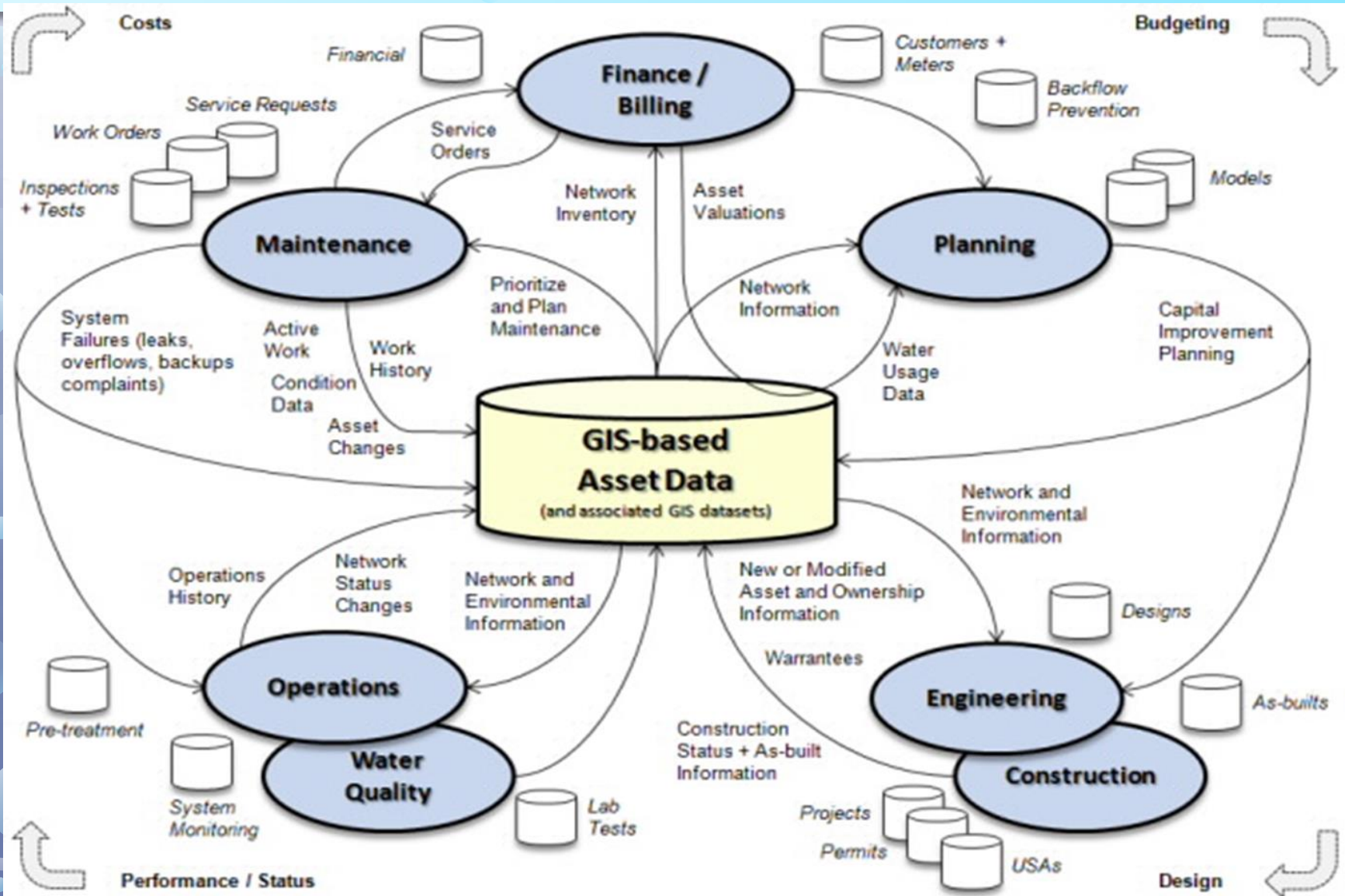
- Southern California
- Special Water Agency
- Established at 1956
- Service Area: 125 square miles
- Population served: 215,000
- Potable
- Recycle
- Sewer



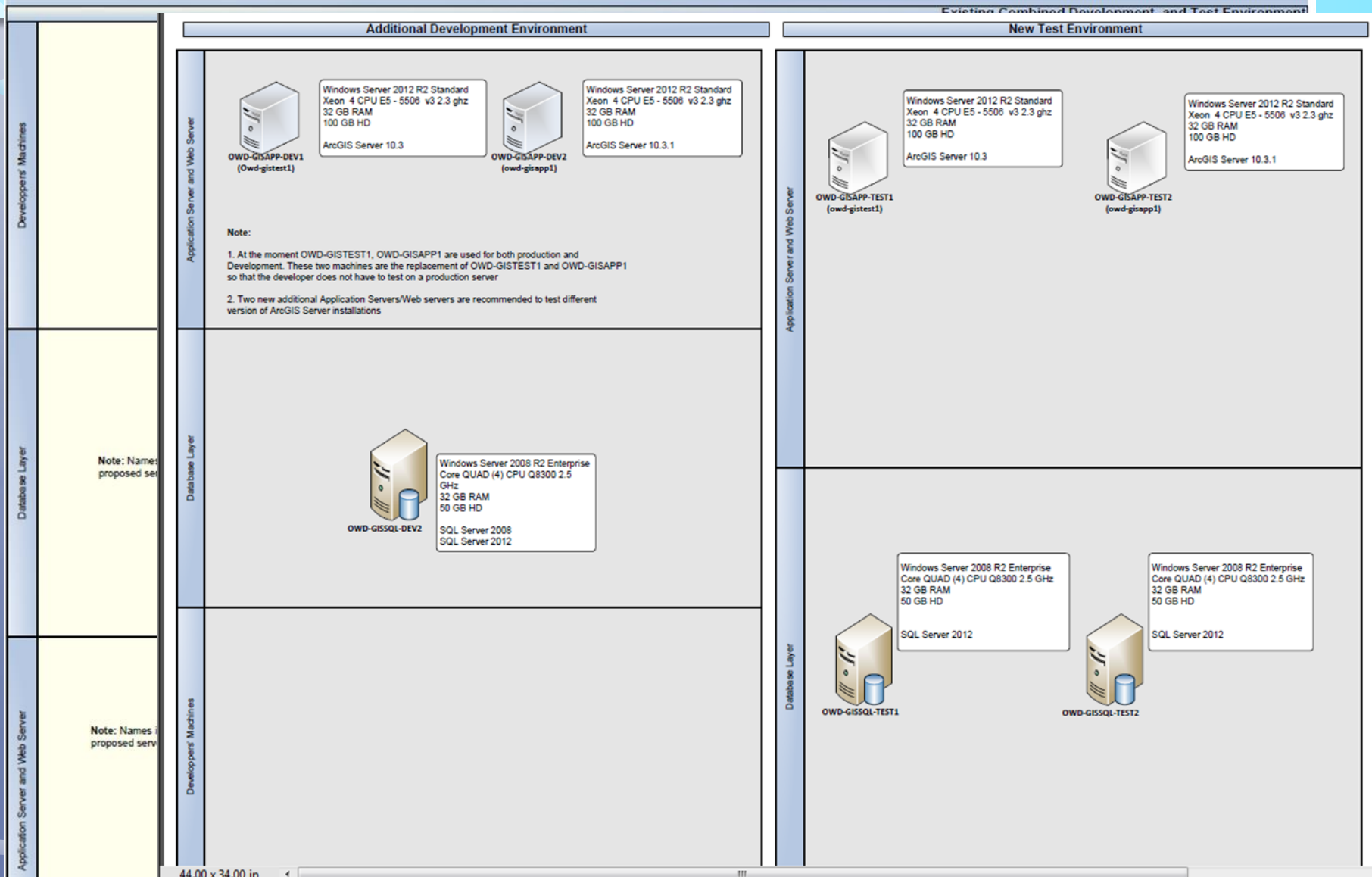
# GIS at Otay



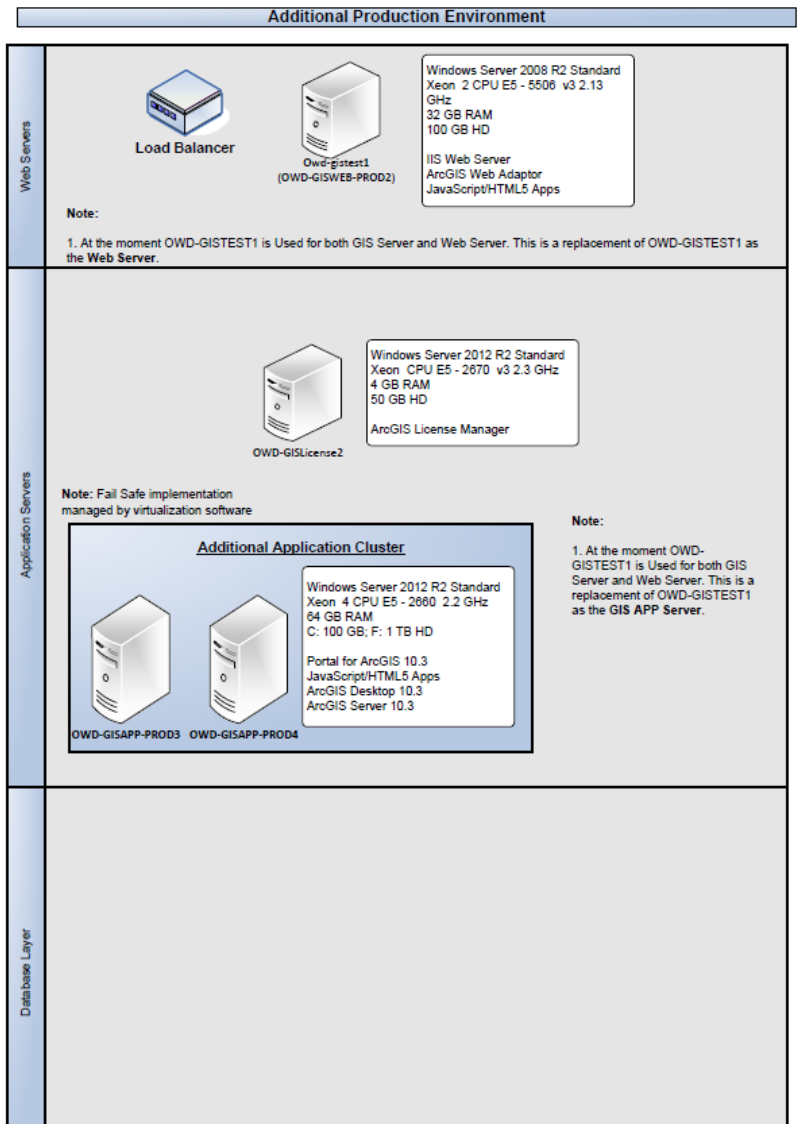
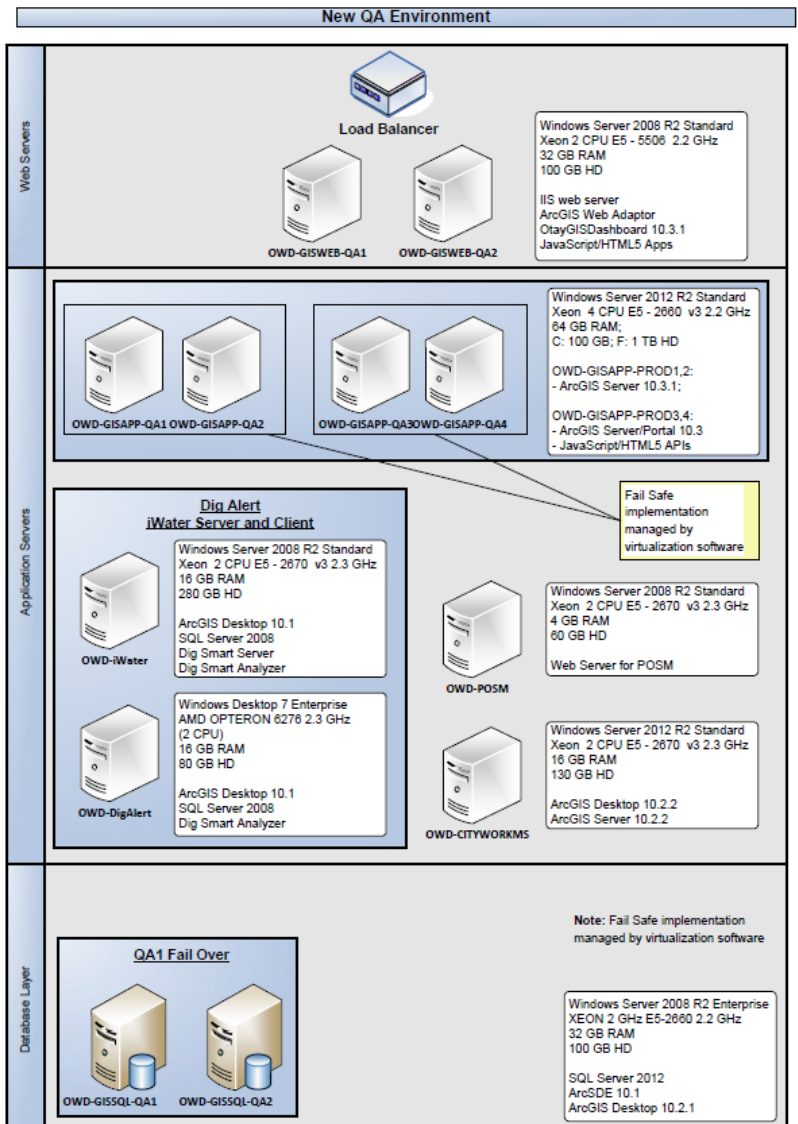
# GIS Data Architecture



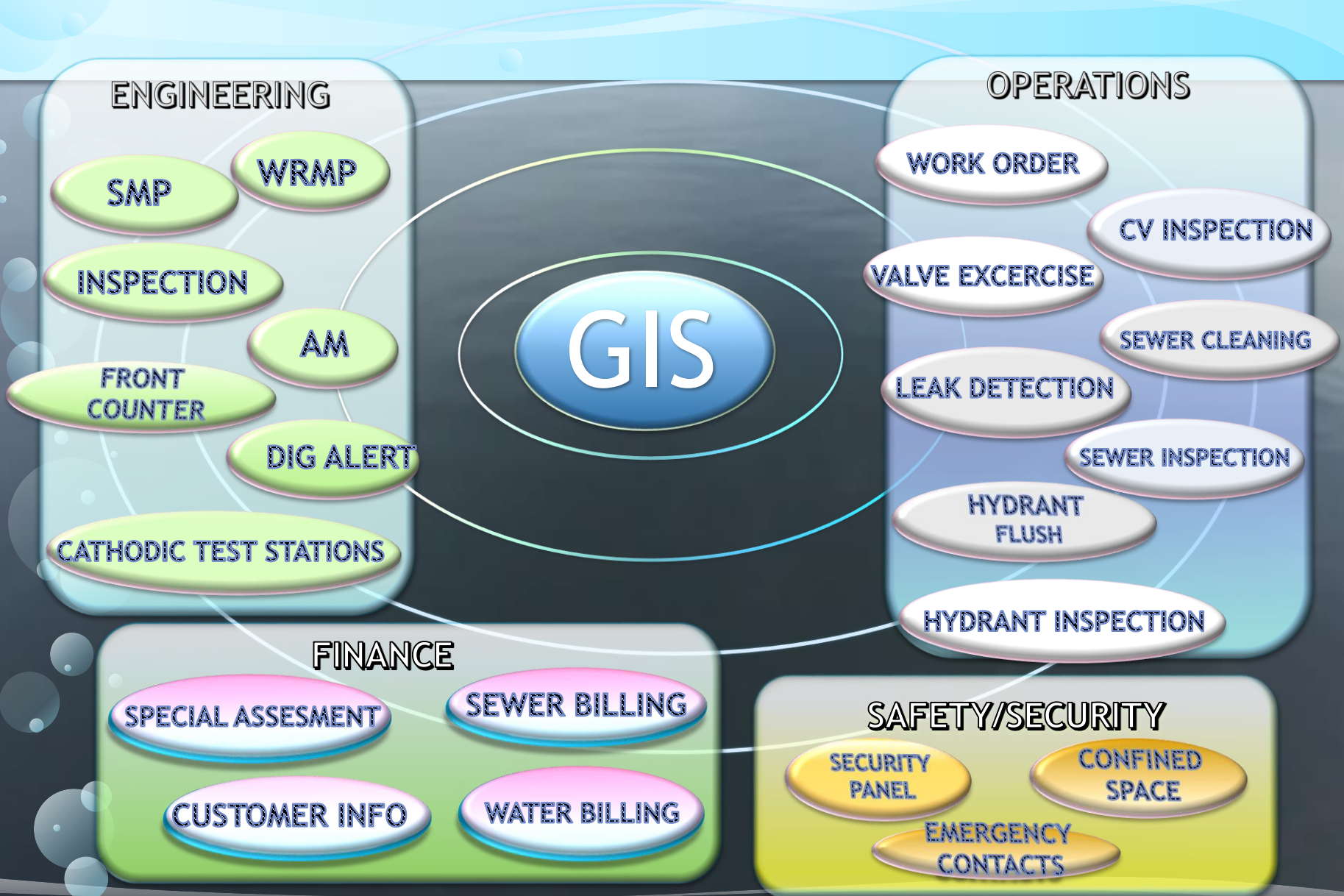
# GIS System Architecture



# GIS System Architecture



# Business Operations Supported by GIS



# Customer Service

- Special Assessment
- Sewer billing cleanup
- Water billing cleanup
- Meter service location ID collection - InfraMap
- GIS integration with billing
- Water isolation tracing and AutoDialing





# Meter service ID collection - InfraMap

The screenshot displays the InfraMap GIS application interface. At the top, there are two tabs: "GIS" and "Billing". The main toolbar includes various navigation and editing tools such as zoom in (+), zoom out (-), pan, rotate, and a search icon. A search box contains the number "620". The main window is titled "Potable Meters" and features a central "Inspection" form. The form has a table with columns "Date" and "Description". Below the table are "Save" and "Cancel" buttons. To the right of the table is a satellite map showing a residential area with streets labeled "Heatherwood Ave" and "Blairwood Ave". A "Map" button is located at the bottom left of the map area. On the right side of the form, there are several input fields: "Service Location ID" with the value "46231", "Transponder ID", "Meter #", and "Re-enter Meter #". Each of these fields has a numeric keypad icon next to it. The "Inspection" title is highlighted in a yellow box.

# Information integration - Web GIS

**Otay Water District**  
GIS Operations Dashboard

**Facility Search**

Search Layer:

Example: 087878  
08624251

**Facility Search**

Features Selected:

**M-112-0393**

ServiceLocationID: 11961  
Account Number: 622-2670-47  
Meter Number: 08624251  
Meter Size: 0.75  
Meter Install Date: 2012-01-25  
Account Setup Date: 2005-02-19  
LifeCycle Status: Existing  
GIS APN: 6404005900  
IG APN: 640-400-59-00  
Customer Name: CHANG HEE AHN  
Home Phone: (619) 397-0604  
Email: chahn@translead.com  
SitusAddress: 1181 CALLE DULCE  
SitusCity: CHULA VISTA  
SitusZip: 91910-7018  
Owner Name: AHN CHANG HEE&EUN HFF

Search Results	Number	Meter Size	Meter Install Date	Account Setup Date	LifeCycle Status	GIS APN	IG APN	Customer Name	Home Phone	Email	SitusAddress	SitusCity	SitusZip	Owner Name	SewerID	WaterID	AsBuiltN
1	251	0.75	2012-01-25	2005-02-19	Existing	6404005900	640-400-59-00	CHANG HEE AHN	(619) 397-0604	chahn@translead.com	1181 CALLE DULCE	CHULA VISTA	91910-7018	AHN CHANG HEE&EUN HEE	55	49	57-27

Auto hide

Export to CSV... Export to Txt... Export... Print

# Isolation Tracing and AutoDialing Portal for ArcGIS

ParcelsofIsolatedMeters\_autoDialing.csv - Excel

FILE HOME INSERT PAGE LAYOUT FORMULAS DATA REVIEW VIEW DEVELOPER Foxit PDF Team

Clipboard Font Alignment Number Styles Cells Editing Privacy

B30

	B	D	F	H	J	K	L	N	O	P	Q	R	S	T	U	V
	apn	EventName	FACILITYID	AsBuiltNo	InstallDate	ServiceLocationID	meter_number	acct_no	SitusAddress	SitusCity	SitusZip	OwnerName	customer	email_address	home_phone	work_phone
2	620-500-14-00	LantanaAv-001	M-080-0987	13-10	5/12/1970,	4906	5913767	200-1116-24	1411 LANTANA AVE	CHULA VISTA	91911-5612	RAMOS JOSE M&CAROLINA	CAROLINA RAMOS	jm.ramos1@yahoo.com	(619) 482-0998	
3	620-500-15-00	LantanaAv-001	M-080-1016	13-10	5/12/1970,	24635	5955856	200-1118-05	1413 LANTANA AVE	CHULA VISTA	91911-5612	PETTY FAMILY TRUST 01-20-03	ELIZABETH PETTY		(619) 421-7459	
4	620-500-16-00	LantanaAv-001	M-080-1030	13-10	5/12/1970,	33786	6782100	200-1120-01	1415 LANTANA AVE	CHULA VISTA	91911-5612	HERBERT LIVING TRUST 03-15-01	D HERBERT	delsdcoys@hotmail.com	(619) 421-1034	
5	620-500-17-00	LantanaAv-001	M-080-1048	13-10	5/12/1970,	42708	5913784	200-1122-28	1417 LANTANA AVE	CHULA VISTA	91911-5612	CARRILLO ARNOLDO&ANGUIANO-CARR	RACHEL CASTILLO	tonyandsierra@msn.com	(619) 227-8834	(858) 492-3951
6	620-500-18-00	LantanaAv-001	M-080-1077	13-10	5/12/1970,	24330	5913785	200-1124-49	1419 LANTANA AVE	CHULA VISTA	91911-5612	JIMENEZ JOSE A&TERESA	JOSE JIMENEZ	arreola49@yahoo.com	(619) 421-5266	
7	620-500-19-00	LantanaAv-001	M-080-1098	13-10	5/12/1970,	25281	5913786	200-1126-05	1421 LANTANA AVE	CHULA VISTA	91911-5612	COY JIMMY L&GEORGIA R TRS	DAVID COY	trishcoy@cox.net	(619) 934-6920	
8	620-500-20-00	LantanaAv-001	M-080-1120	13-10	5/12/1970,	27185	5913781	200-1128-45	1423 LANTANA AVE	CHULA VISTA	91911-5612	BARKER HARRY&MCCLLENAHAN KATHLE	HARRY BARKER	hab49@hotmail.com	(619) 421-4109	
9	620-500-21-00	LantanaAv-001	M-080-1142	13-10	5/12/1970,	43536	5913782	200-1130-17	1427 LANTANA AVE	CHULA VISTA	91911-5612	KOZAR TRUST 12-02-14	PAUL KOZAR	pjkozar@cox.net	(619) 421-7863	(619) 545-7342
10	620-500-22-00	LantanaAv-001	M-065-0013	13-10	5/12/1970,	25641	5955665	200-1132-07	1429 LANTANA AVE	CHULA VISTA	91911-5612	IRENE CARMEN L	CARMEN IRENE	carmensandiego@cox.net	(619) 482-9342	
11	620-500-23-00	LantanaAv-001	M-065-0030	13-10	5/12/1970,	26631	5955667	200-1134-62	1431 LANTANA AVE	CHULA VISTA	91911-5612	LIZARRAGA SAMUEL&SONIA	SONIA LIZARRAGA		(619) 656-9627	(619) 585-0438
12	620-500-24-00	LantanaAv-001	M-065-0057	13-10	5/12/1970,	28349	5955669	200-1136-29	1433 LANTANA AVE	CHULA VISTA	91911-5612	SALLEE LIVING TRUST 04-25-88	M SALLEE		(619) 421-4699	
13	620-500-25-00	LantanaAv-001	M-065-0083	13-10	5/12/1970,	31697	6782102	200-1138-01	1435 LANTANA AVE	CHULA VISTA	91911-5612	LANGLAND FAMILY TRUST 11-22-95	WILLIAM LANGLAND	btlangland@att.net	(619) 421-8402	(619) 435-0280
14	620-500-34-00	LantanaAv-001	M-065-0088	13-10	5/12/1970,	17475	5955806	200-1156-92	1434 LANTANA AVE	CHULA VISTA	91911-5613	G G ADVISORS LLC	SETH MADER	sethmader@gmail.com	(619) 458-0097	
15	620-500-35-00	LantanaAv-001	M-065-0052	13-10	5/12/1970,	17199	5955805	200-1158-06	1432 LANTANA AVE	CHULA VISTA	91911-5613	VILLANUEVA JOSE C&PATRICIA O	JOSE VILLANUEVA		(619) 398-5933	
16	620-500-36-00	LantanaAv-001	M-065-0037	13-10	5/12/1970,	32131	5955808	200-1160-02	1430 LANTANA AVE	CHULA VISTA	91911-5613	LEAL GUILLERMINA H	MARIA MERCADO		(619) 421-7431	
17	620-500-37-00	LantanaAv-001	M-065-0016	13-10	5/12/1970,	35429	5955807	200-1162-42	1428 LANTANA AVE	CHULA VISTA	91911-5613	RACZKOWSKI ROBERT&MONICA A G	MONICA GARCIA	monica.garcia@cox.net	(619) 216-2969	(619) 595-5163
18	620-500-38-00	LantanaAv-001	M-080-1148	13-10	5/12/1970,	41331	5955720	200-1164-16	1426 LANTANA AVE	CHULA VISTA	91911-5613	LASCHINSKI FAMILY TRUST 08-04-	ARLENE LASCHINSKI		(619) 421-3727	
19	620-500-39-00	LantanaAv-001	M-080-1118	13-10	5/12/1970,	13214	5955722	200-1166-26	1424 LANTANA AVE	CHULA VISTA	91911-5613	CESENA FAMILY TRUST 04-27-05	DORA CESENA		(702) 606-3691	
20	620-500-40-00	LantanaAv-001	M-080-1103	13-10	5/12/1970,	41788	5955724	200-1168-60	1422 LANTANA AVE	CHULA VISTA	91911-5613	SILVA CARLA	CARLA SILVA SOTO	arnoldo.1@hotmail.com	(619) 730-3330	
21	620-500-41-00	LantanaAv-001	M-080-1087	13-10	5/12/1970,	29632	6782103	200-1170-00	1420 LANTANA AVE	CHULA VISTA	91911-5613	STAHL CLARENCE T&HIROE LIVING	C STAHL		(619) 421-2471	
22	620-500-42-00	LantanaAv-001	M-080-1051	13-10	5/12/1970,	36224	5955723	200-1172-08	1418 LANTANA AVE	CHULA VISTA	91911-5613	YANIK 1994 TRUST	RONALD YANIK		(619) 421-7058	(619) 255-2087
23	620-500-43-00	LantanaAv-001	M-080-1042	13-10	5/12/1970,	4516	5955721	200-1174-14	1416 LANTANA AVE	CHULA VISTA	91911-5613	ORTIZ MARIA C, TORRE KARINA F	MARIA ORTIZ		(619) 656-6284	(619) 427-1091
24	620-500-44-00	LantanaAv-001	M-080-1022	13-10	5/12/1970,	36814	5955719	200-1176-10	1414 LANTANA AVE	CHULA VISTA	91911-5613	THOMAS REGINALD W&THERESA L	REGINALD THOMAS	reggie.w.thomas@gmail.com	(619) 750-9445	
25	620-500-45-00	LantanaAv-001	M-080-1010	13-10	5/12/1970,	6375	6782115	200-1178-02	1412 LANTANA AVE	CHULA VISTA	91911-5613	UDO TOM&TAEKO TRUST	TOM UDO		(619) 421-5962	
26	620-500-46-00	LantanaAv-001	M-080-0980	13-10	5/12/1970,	7023	5955661	200-1180-57	1410 LANTANA AVE	CHULA VISTA	91911-5613	STROMP MICHAEL&ROBIN	MICHAEL STROMP		(619) 482-8495	(619) 787-5679
27																
28																
29																
30																
31																

Options: Show Sel, Show Rel, Filter, Show/Hic, Export All

0170515-0

0170515-0

KATHLE



# OPERATIONS

- GIS centric work order system -Cityworks
- Sewer cleaning - POSM
- Control valves inspection - InfraMap
- Hydrant flush - InfraMap
- Sewer inspection - InfraMap
- Water leak detection program - ArcGIS
- Hydrant inspection - InfraMap
- Valve exercise program - InfraMap
- Redline - InfraMap

# GIS Centric Work Order System - Cityworks

**Cityworks** | [Inbox](#) | [Recent Activity](#) | [Service Requests](#) | [Work Orders](#) | [Inspections](#) | [GIS Search](#) | [Manager](#) | [Designer](#) | [Reports](#)

**Work Order** | [View](#) | [Save](#) | [Close](#) | [Delete](#) | [Tools](#)

### Work Order

**Description:** Repair Hydrant

**Number:** 1046

**Entity Type:** WHYDRANT [Change](#)

**Category:** CM

**Project:** p1000-000000-5204 | **Account:** 11

**Initiated By:** SAVAGE, DEANDRE | **Date:** 11/2/2015 4:21 PM

**Status:** Closed

**Requested By:** SAVAGE, DEANDRE | **Supervisor:** CREW, UM SUPERVISOR

**Submit To:** CREW, UM SUPERVISOR | **Date:** 11/2/2015 4:22 PM

**Projected Start:** 11/2/2015 4:21 PM | **Projected Finish:**

**Opened By:** | **Date:**

**Closed By:** PLASTERER, MICHAEL | **Date:** 11/4/2015 6:07:41 AM

**Completed By:**

**Actual Start:** | **Actual Finish:** 11/3/2015 6:07 AM

**Add Comments:**

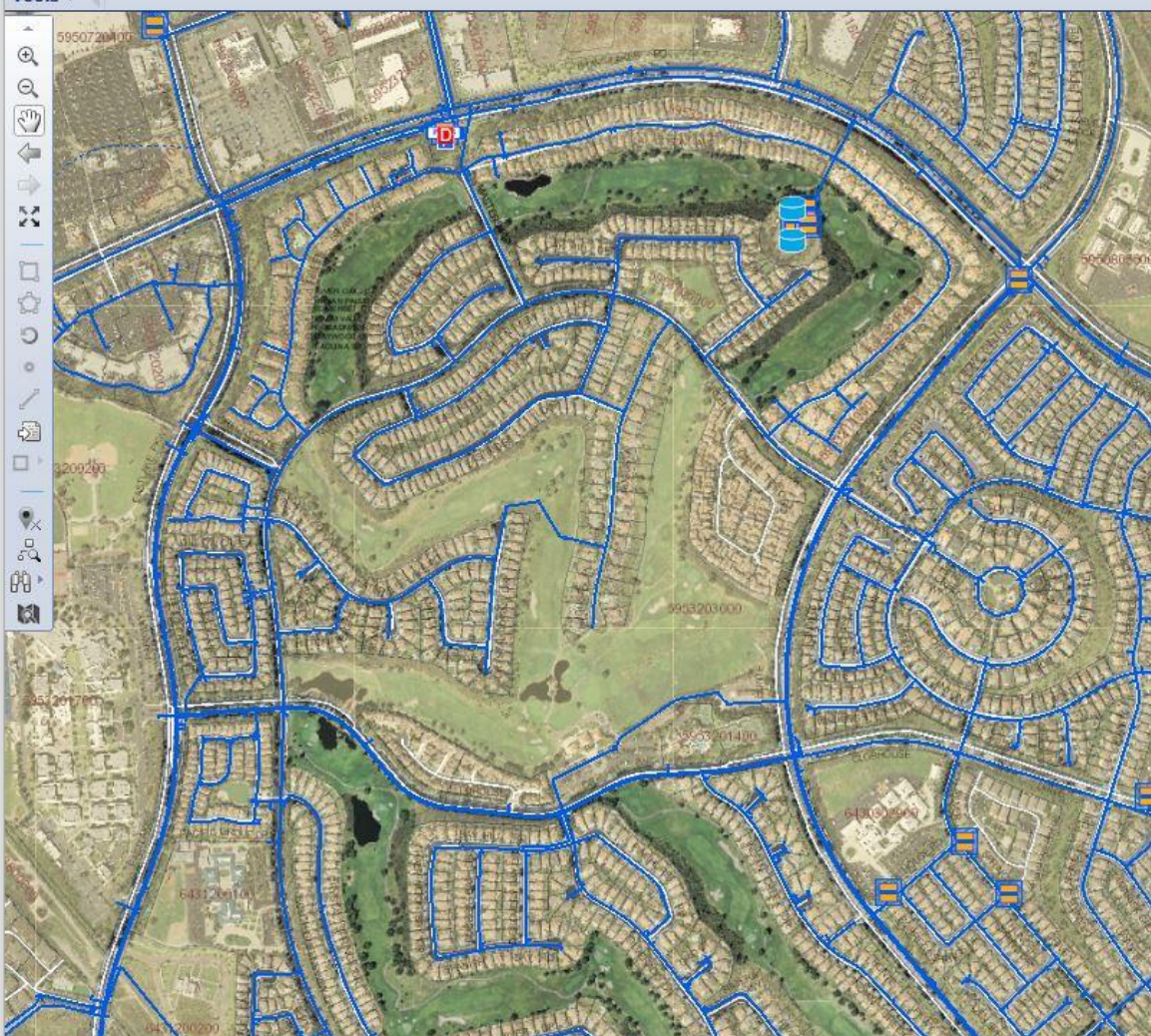
[Select](#)

**Existing Comments:**

From Request 662:  
Code: WLW-HL  
Description: Hydrant Leak  
Details: CUSTOMER REPORTS A LEAKING HYDRANT LOCATED ON SPIRIT WAY AND MAXFIELD RD  
Comments: By GUTIERREZ, DANA: 11/2/2015 10:22:10 AM  
DeAndre received the info  
By SAVAGE, DEANDRE: 11/2/2015 4:19:10 PM

**Instructions:**

- Flush hydrant
- Paint hydrant
- Water loss report
- General work - potable



# Sewer Cleaning - POSM

Version: 1.4.67

Project Name:  
Date: 5/23/2013 1:34:00 PM  
Street: 1112 Cadoglenn dr.  
Length Surveyed: 212.1  
Pacp Quick Overall Rating: 4C11  
Height (Diameter): 8  
Street: 1112 Cadoglenn dr.

Facility ID: MH-377-001\_MH-377-003  
Upstream MH: MH-377-001  
Downstream MH: MH-377-003  
Direction of Survey: Downstream  
Material: Polyvinyl Chloride

Severity  
Light  
Moderate  
Heavy  
Severe

OSM  
SERVATION SYSTEM MANAGEMENT

Otay Water District  
GIS Operations Dashboard

332 Division 91978

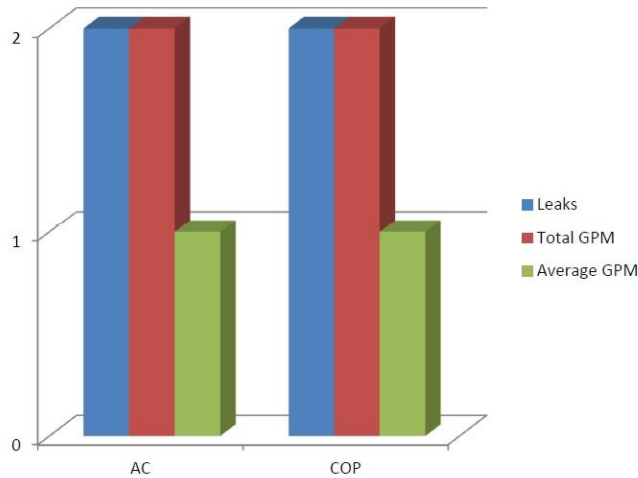
POSM Link  
CO-332-001\_MH-332-024  
POSM Link: [http://owd-posm/POSM/Gis/Reports/GroupIndex-CO-332-001\\_MH-332-024-152015-103547/Index.html](http://owd-posm/POSM/Gis/Reports/GroupIndex-CO-332-001_MH-332-024-152015-103547/Index.html)  
CO-332-002\_MH-332-019  
POSM Link: [http://owd-posm/POSM/Gis/Reports/GroupIndex-CO-332-002\\_MH-332-019-152015-103453/Index.html](http://owd-posm/POSM/Gis/Reports/GroupIndex-CO-332-002_MH-332-019-152015-103453/Index.html)  
CO-332-003\_MH-332-030  
POSM Link: [http://owd-posm/POSM/Gis/Reports/GroupIndex-CO-332-003\\_MH-332-030-152015-105044/Index.html](http://owd-posm/POSM/Gis/Reports/GroupIndex-CO-332-003_MH-332-030-152015-105044/Index.html)  
CO-332-004\_MH-332-031  
POSM Link: [http://owd-posm/POSM/Gis/Reports/GroupIndex-CO-332-004\\_MH-332-031-152015-103639/Index.html](http://owd-posm/POSM/Gis/Reports/GroupIndex-CO-332-004_MH-332-031-152015-103639/Index.html)

CO-332-002\_MH-332-019  
POSM Link: [http://owd-posm/POSM/Gis/Reports/GroupIndex-CO-332-002\\_MH-332-019-152015-103453/Index.html](http://owd-posm/POSM/Gis/Reports/GroupIndex-CO-332-002_MH-332-019-152015-103453/Index.html)

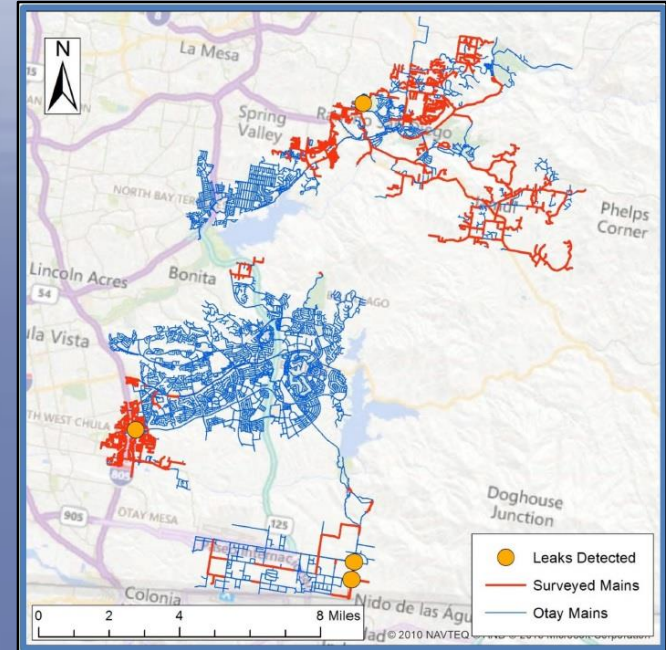


# Water Leak Detection

Leaks By Pipe Material



Graph 1: Leaks by Pipe Material



LEAK TYPE	GPM	GPD	GPY
SERVICE	1	1,440	525,600
VALVE	3	4,320	1,576,800
METER	0	0	0
OTHER	0	0	0
TOTAL	4	48,960	2,102,400

Table 2: Estimated Potential Savings (GPM)

# Field Inspection - InfraMap

The screenshot shows the InfraMap software interface. At the top, a toolbar contains various navigation and editing tools. The main window displays a map of a residential area with a fire hydrant highlighted. A data entry form is overlaid on the map, titled "Fire Hydrant". The form has three tabs: "General", "Tag", and "Tasks". The "Tasks" tab is currently selected, showing a list of tasks: "Checked/OK", "Paint", "Vegetation Control", and "Repair/Replace". The "General" tab shows an "Inspection" table with the following data:

Date	Description
5/14/2015	Hydrant Flush

Below the table are "Save" and "Cancel" buttons. A small map inset at the bottom left of the form shows the location of the hydrant on the main map, with a "Map" button below it. The background map shows a street named "Coyote Ridge Ter" and several houses.

# Valve Exercise - InfraMap



1578 Potable Valves

**Inspection**

Date	Description
5/14/2015	Exercise Valve

**Save** **Cancel**

Map Torque

**Valve ID**  
V-115-012

**Operational Status**  
[Yellow dropdown]

**Valve Function**  
[Yellow dropdown]

**Turns**  
0

**Depth**  
3

**Assembly Type**  
Gate

**Critical Valve**  
No

**Diameter**  
6 inch

**Operation Comments**  
[Yellow text area]

**Valve Open**  
[Yellow dropdown]

**Right Hand**  
True

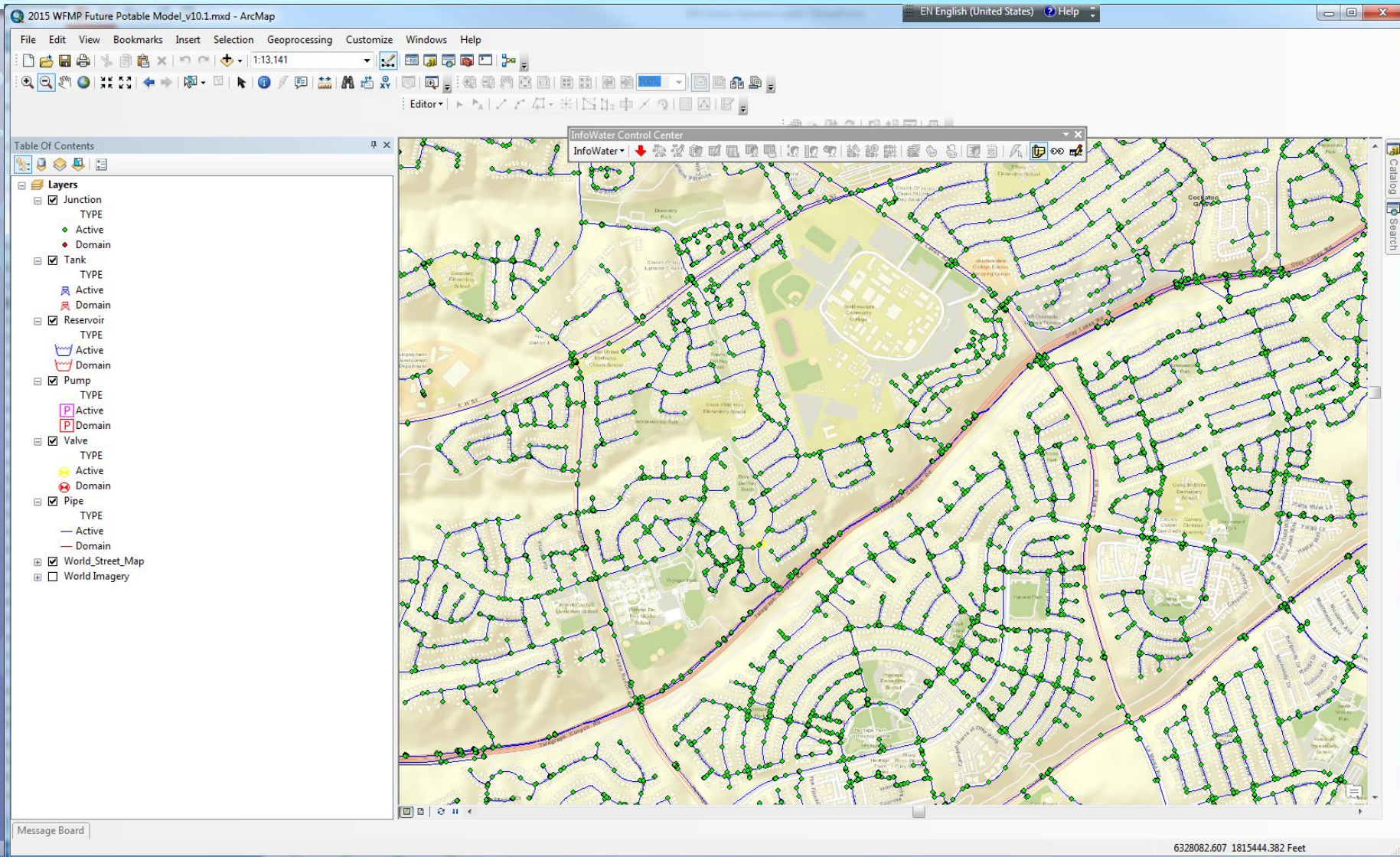
**Location Details**  
[Yellow text area]

Wachs Machine

# ENGINEERING

- Water Resource Master Plan - InfoWater
- Sewer Master Plan - InfoSewer
- Construction Inspection - InfraMap
- Front Counter - e-Facilitybook
- Dig Alert - InfraMap
- Cathodic Test Stations - Collector

# GIS Based Hydraulic Model - InfoWater





## CH R VII-W P C I SAN DIEGO EA

DEVELOPER: CH R VII-W P C I SAN DIEGO EA

PROJECT#: D0954-090275

APH#: 595-231-33-00

AREA: 5.4 ACRES

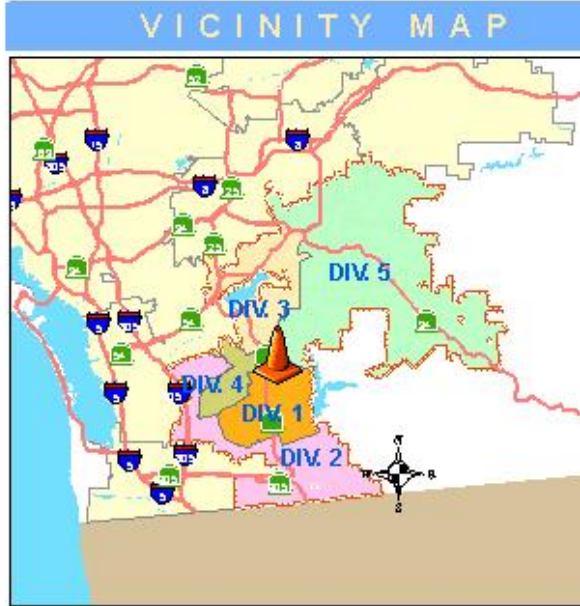
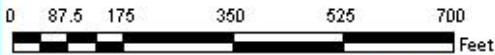
ADDRESS: 2391 FENTON ST  
CHULA VISTA, CA 91914

OWNER: CH R VII-W P C I SAN DIEGO EA

DIR: DIV. 5

WID: Id 22

DATE: 2017-05-15



## LOCATION MAP



# Construction Inspection - InfraMap

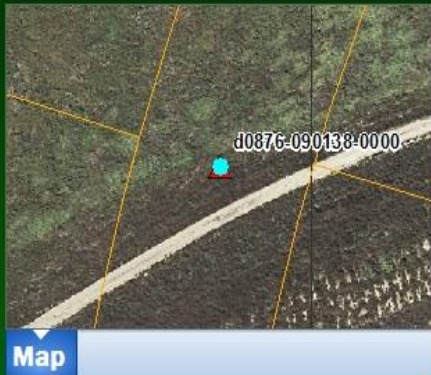
Construction Inspections

<Select an Activity>

Date	Description

Save

Exit



Map

Inspection **Bacti Test**

Project ID Permit # Construction Activity

d0876-090138-0000

Assigned To

Employee

Status

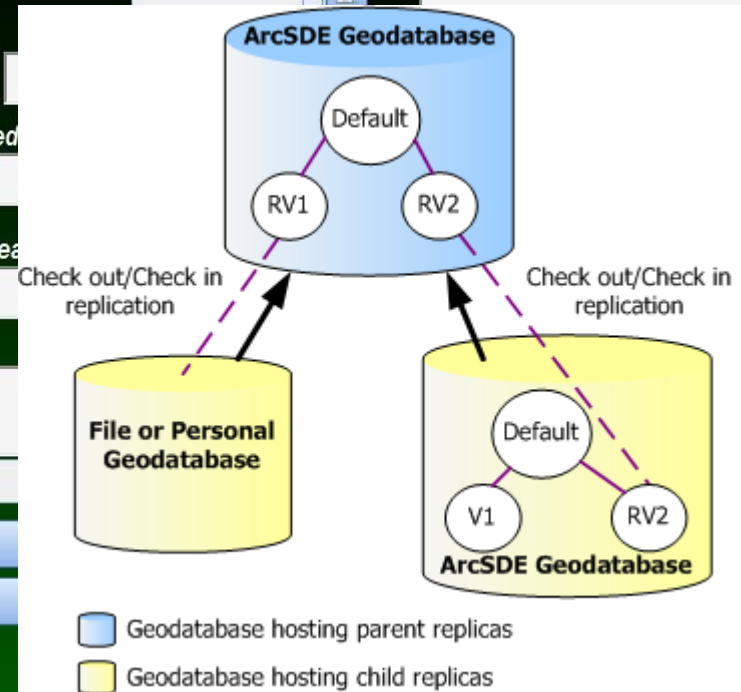
Contractor

Subcontractor

Equipment (In Use)

Equipment (Not In Use)

In Office



# SAFETY / SECURITY

- Emergency contacts - ArcGIS Online
- Security panel - Explorer for ArcGIS



# Security Panel - Explorer for ArcGIS

The screenshot displays the mobile application interface for the Security Panel Explorer. At the top, the status bar shows the time as 12:22 PM and battery level at 96%. The app title bar includes a 'Done' button and the identifier 'DMP112316'. The main interface is divided into several sections:

- Search Bar:** Located at the top left, containing the text 'Dmp1'.
- Feature List:** A vertical list on the left side with 'DMP11 Security' highlighted in a red box.
- Contents Panel:** A list of map layers on the left side, including 'EOC Member', 'Otay Staff EC', 'Security Panel', 'MetroE', 'Confined Space', 'SecuritySites', 'OWD Boundary', 'OWD Divisions', 'OtayBasicWaterDistributionNetwork', 'FireMap online', 'Imagery with Labels', and 'SecurityPanelAttached - SecurityPanelAttached Match'. The 'Security Panel' layer is checked.
- Map View:** The central area shows a satellite map of a region in San Diego, California, with various colored overlays representing different security divisions (Division 1 through Division 5) and numerous small icons representing security sites.
- Footer:** At the bottom, there is a 'Comments' section with the text 'No sprin' and 'Attach', and a 'DMP112' label with a share icon.

# Asset Management Program

- Asset hierarchy - in GDB
- Asset registry - horizontal data in GDB
- Asset registry - vertical data in GDB
- Asset condition - partially in GDB
- Asset criticality - in progress
- Decision making tool - InfoMaster

Thank you!

- Q & A