



The Great Seal

California Wireless E9-1-1 Statewide Deployments

California 9-1-1 Office

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2009 CALNENA

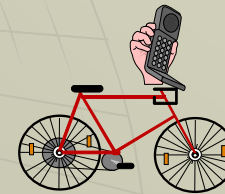
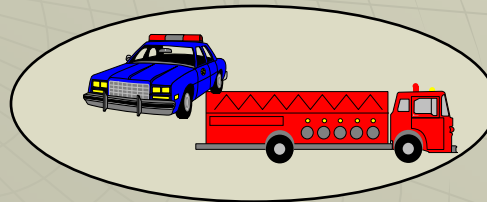
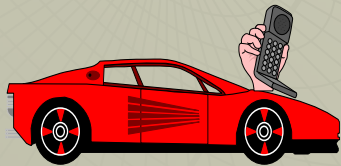
February 25, 2009

CA Wireless E9-1-1 Objective

To implement and maintain the capability to deliver wireless emergency phone calls to the appropriate Public Safety Answering Point (PSAP) with the most accurate caller identification and location information.

Wireless Caller Background

- ◆ US Subscribers grew from 60M in 1998 to 272.3M in 2008. Worldwide there are 2.5B subscribers*
- ◆ 84% of the US population uses cell phones and used a total of 2.23 Trillion wireless minutes in 2008.*
- ◆ 15.8% of US households are "wireless only."*
- ◆ Californians placed 24.8M E9-1-1 calls in 2008. 15.4M (62%) were wireless and 9,4M (38%) were landline.
- ◆ 67,874 E9-1-1 calls are made everyday in California with 36,578 of them being wireless.
- ◆ California has deployed 98,390 total cell sectors. 15,658 or 16% were deployed in 2008.



*CTIA "Wireless Quick Facts" January 2009.

2008 Goals and Status

- ◆ Continue to reduce CHP Busies with additional 9-1-1 trunks. **Orange County CHP added three trunks for a total of six to the Santa Fe Spring Area and reduced busies from 3,022 in Jan 08 to 217 in Dec 08.**
- ◆ Optimize routing to deploy more sectors to local PSAPs. **39,027 of 98,365 sectors or 40% of sectors are deployed to local PSAPs. Almost 10K (9,886) new sectors were deployed to local PSAPs.**
- ◆ Have Riverside SO, Sacramento PD, Long Beach PD and Stanislaus Regional 911 deploy Wireless. **Long Beach PD deployed in October 2008.**

2008 Goals and Status

- ◆ Develop a comprehensive process with identified assets to quickly locate and stop harassing callers. **A process is in development with the CHP, Harris Receivers and the State that will quickly pinpoint repetitive callers.**
- ◆ Work with County Coordinators to schedule more wireless cell sector deployments. **County Coordinators deployed 16K sectors in 2008.**
- ◆ Explore and develop new ways to reduce 9-1-1 call busies and have more calls answered. **Routing on Empirical Data (RED) Project was developed to reevaluate deployed sectors for more efficient routing.**

2008 Accomplishments

- ◆ All Phase 0 Towers were Upgraded to Phase I/II Service.
- ◆ Buffer Routing was Started in the LA Area.
- ◆ The Interalia/XMU's were Removed from all CHP Centers.
- ◆ Wireless Educational Brochure was Developed.
- ◆ All CHP Call Taking Positions now have a Vesta M1 Workstation.

2008 Local PSAP Status

- ◆ 378 of 391 or 97% of local PSAPs are Format 04 compliant for wireless.
- ◆ 364 of 391 or 93% of local PSAPs have a Letter Of Authorization (LOA) on file requesting to take wireless calls.
- ◆ 302 of 391 or 77% have deployed with at least one wireless carrier.
- ◆ The 24 CHP Dispatch Centers are Format 04 compliant and taking Phase II wireless calls.

The Wireless Team

- ◆ **Public Safety Answering Points (PSAPs)**
- ◆ **California Highway Patrol (CHP)**
- ◆ **Wireless/County Coordinators**
- ◆ **Wireless Service Providers (WSPs)**
- ◆ **Database Providers**
- ◆ **Incumbent Local Exchange Carriers**
(AT&T/Verizon)
- ◆ **Vendors**
- ◆ **State 9-1-1 Office**

Taking W E9-1-1 Calls Directly

- ◆ Allows Police, Fire and EMS to respond faster to their communities' needs.

- ◆ Time critical issues are:

- The size of a fire doubles every minute.*

1 Min



8 Min



- A person who has stopped breathing or had a heart attack needs CPR within 6 minutes.*

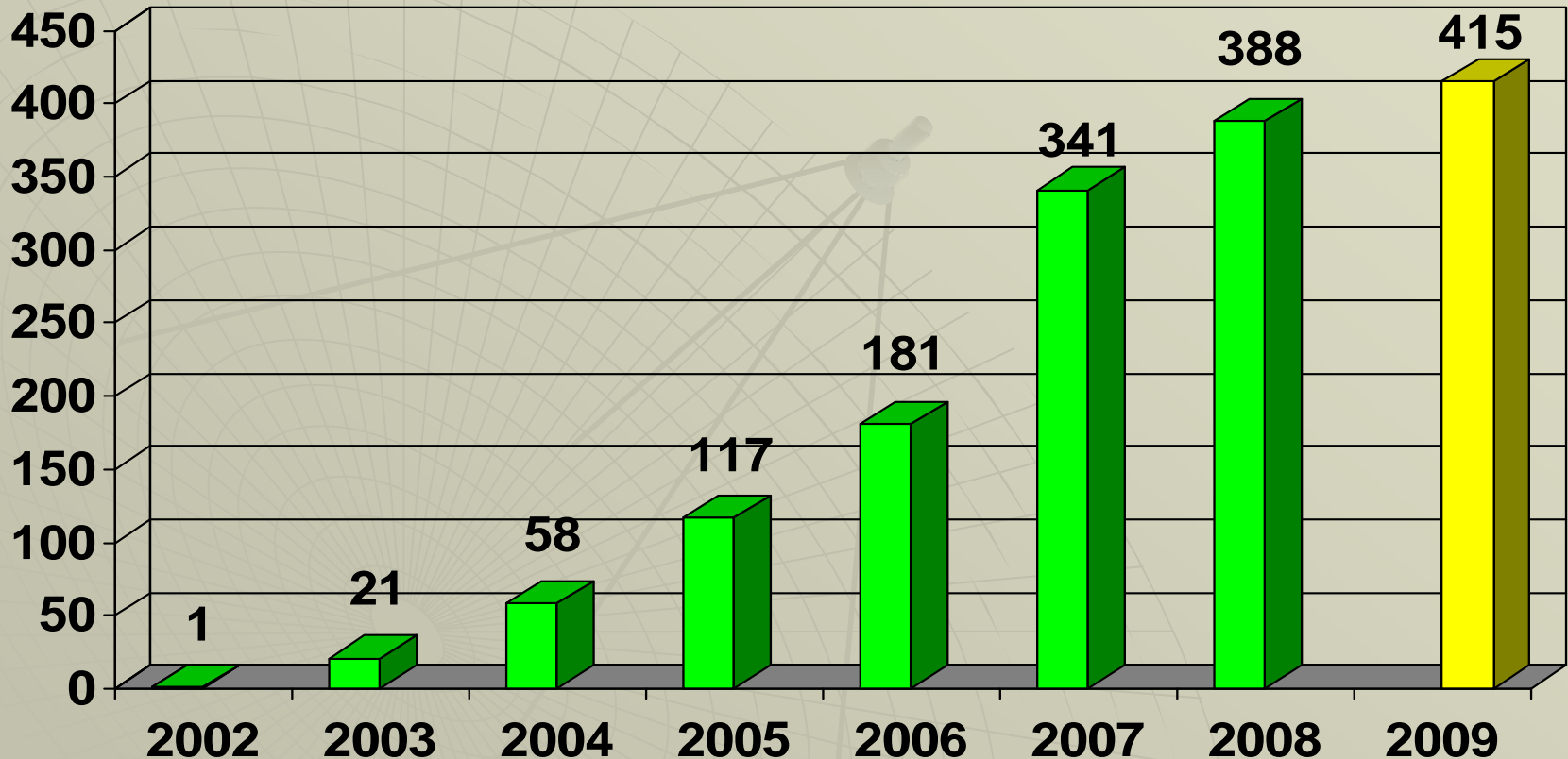


- Crimes in progress have a better chance of being stopped.



* Source: Sacramento Metro Fire Department

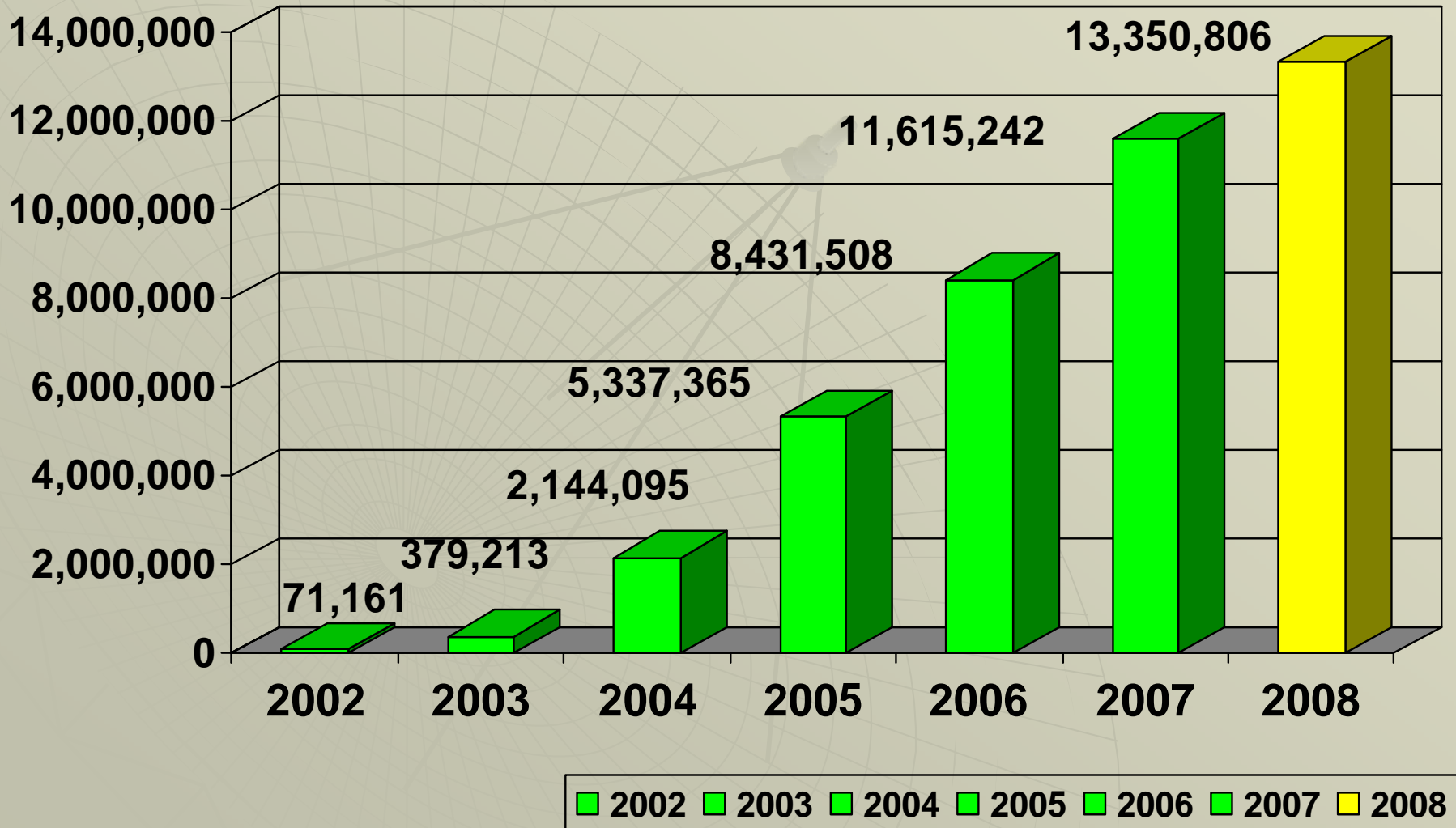
Wireless PSAPs Deployed or Scheduled



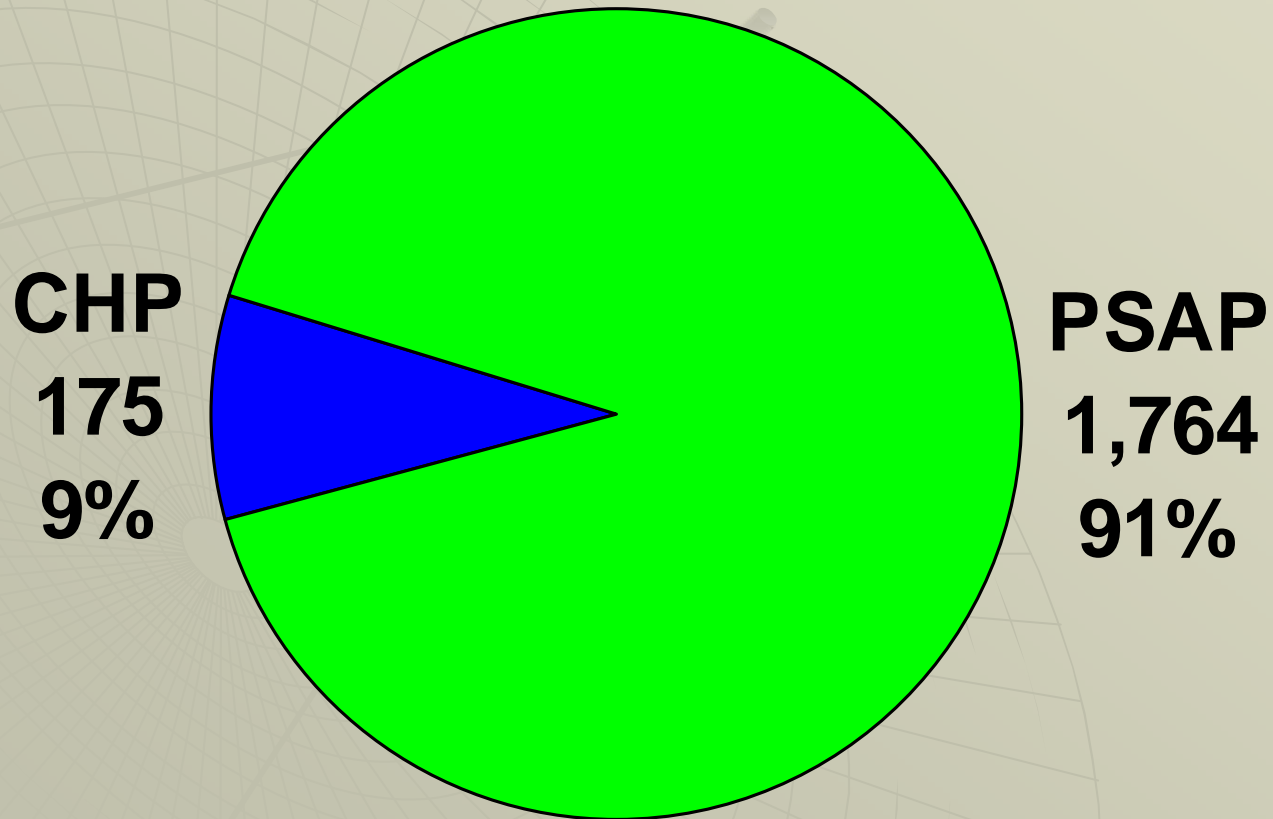
391 Local Primary + 24 CHP Communication Centers

415 Total Primary

Wireless E9-1-1 Network Call Volume

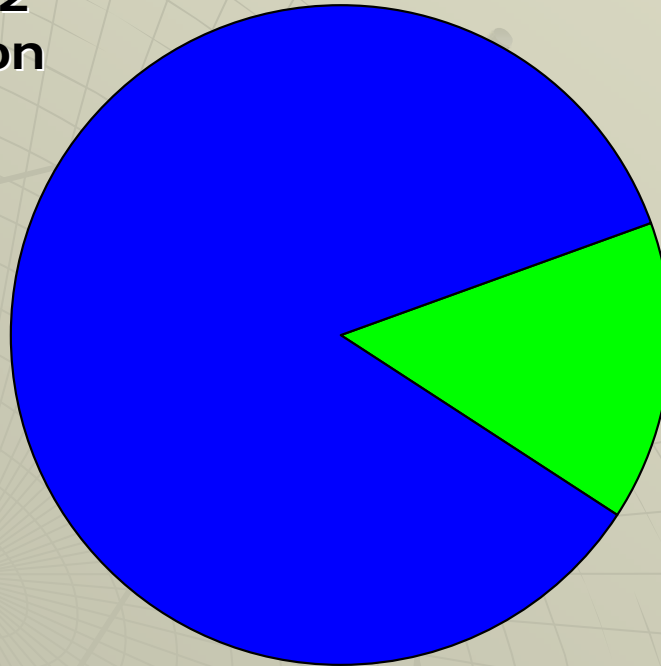


2008 Funded 9-1-1 Work Station Distribution



2008 Calls Per Workstation CHP vs. Local PSAPs

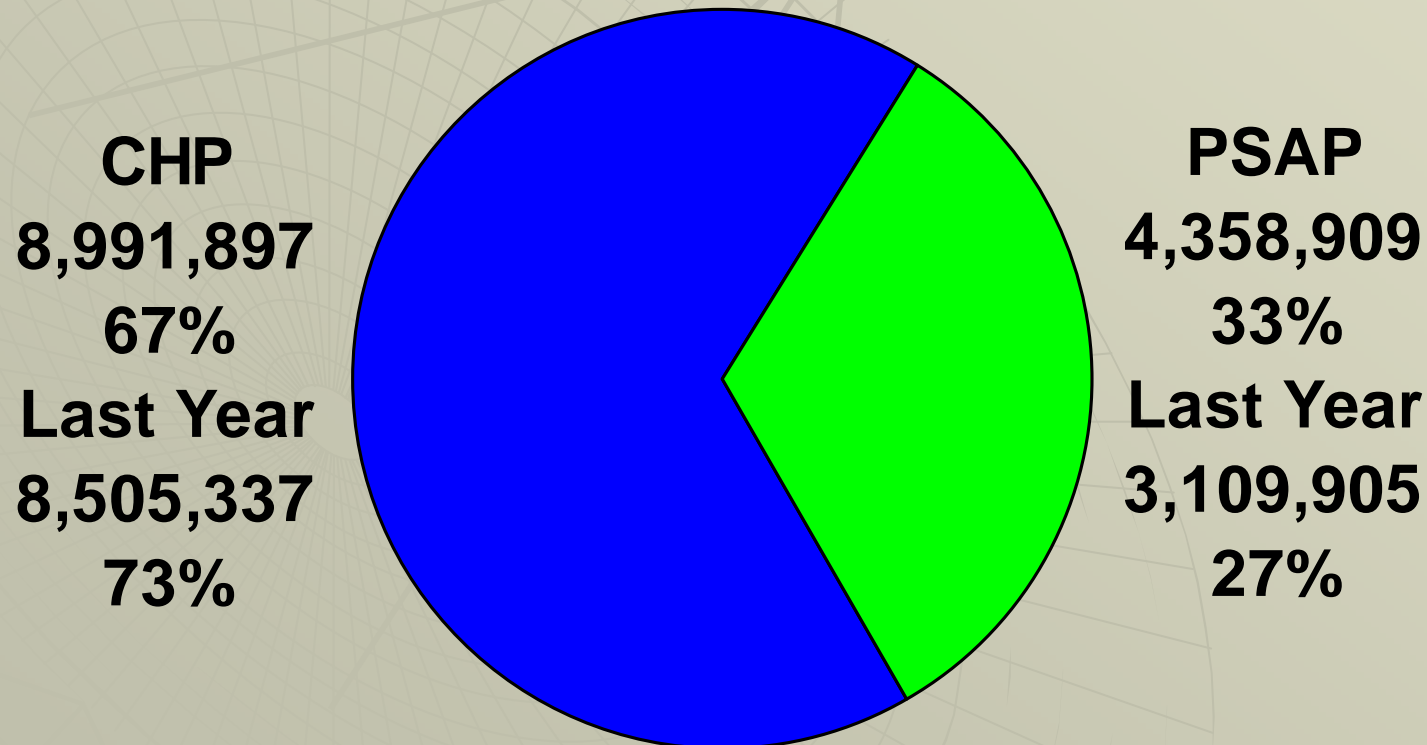
**CHP Receives 51,382
Calls Per Workstation**



**Local PSAPs Receive 8,946 Calls
Per Workstation (15% of the calls
CHP receives per Workstation)**

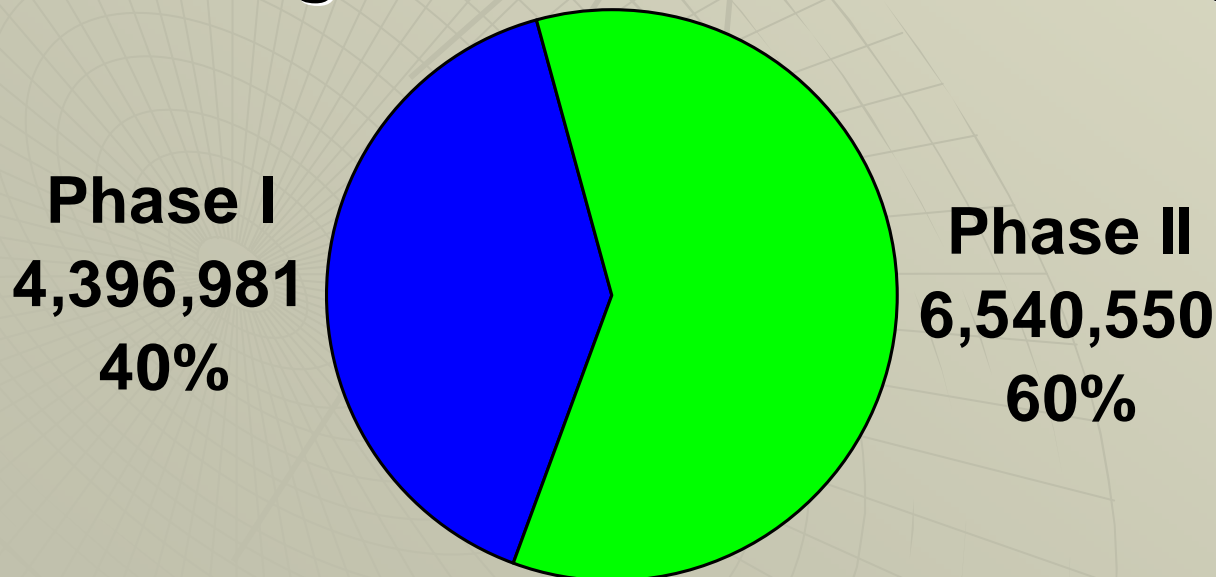
2008 Statewide Annual Call Distribution

Every month California receives an average of 1,112,567 Wireless E9-1-1 Calls.

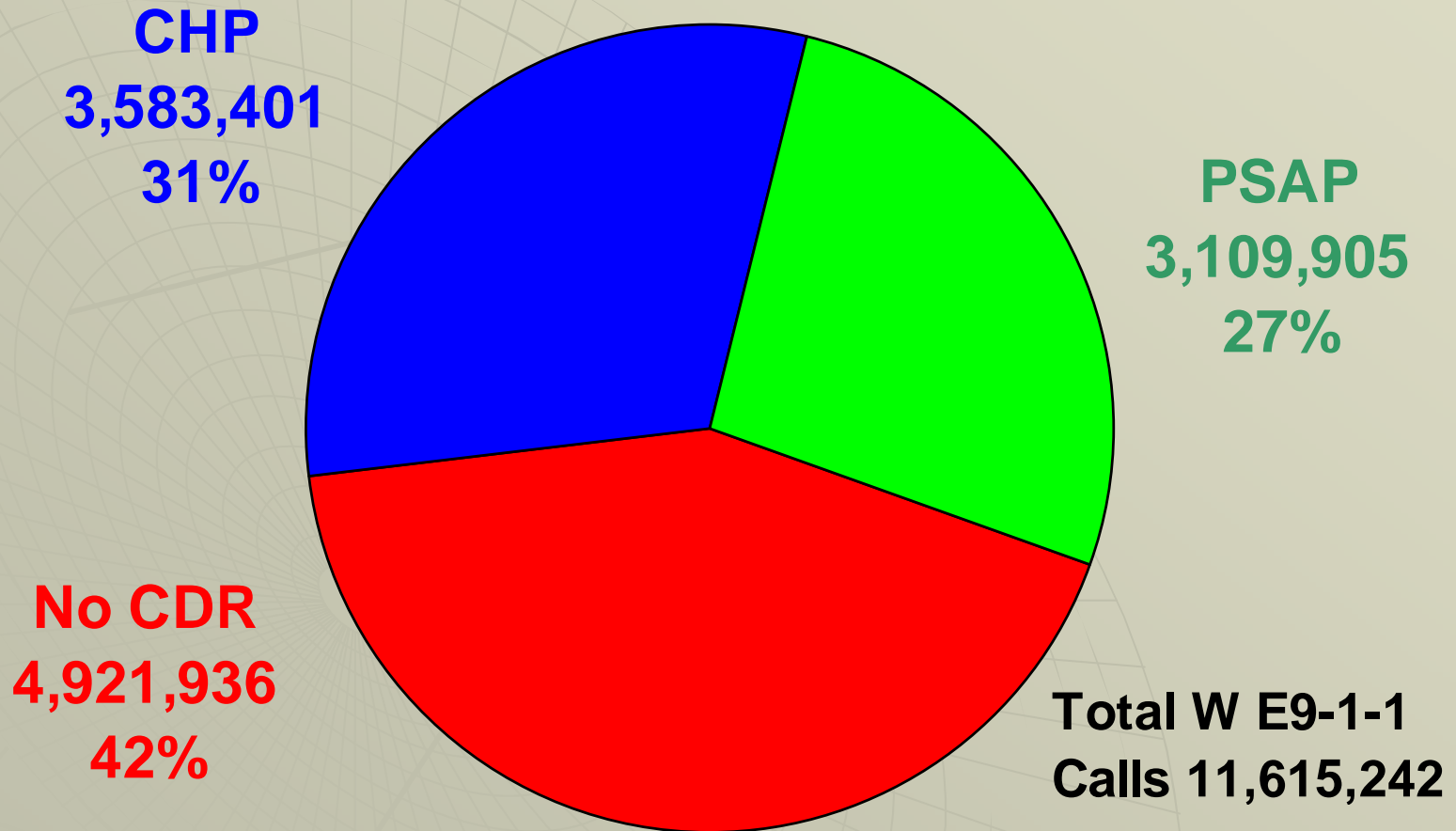


2008 Wireless Calls Types

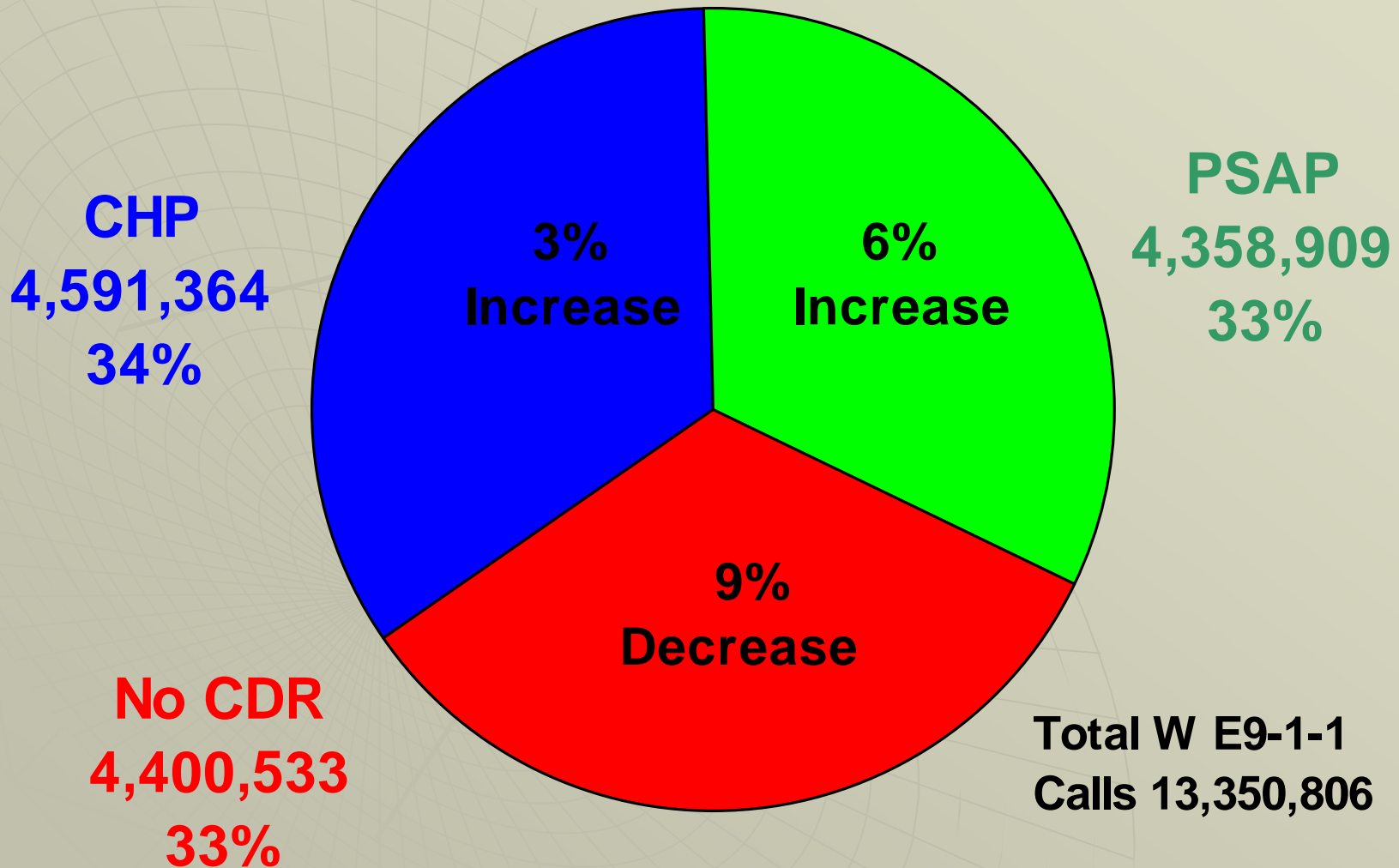
- ◆ **Phase I** - Provides the Latitude/Longitude and Street Address of the Cell Tower with cell sector directional from the tower.
- ◆ **Phase II** - Provides the Latitude/Longitude of the caller using a GPS fix or tower triangulation.



2007 Total CDR Call Volume



2008 Total CDR Call Volume



Buffer Zone Trial

- ◆ Towers outside 1/8 Mile each side of the freeways were evaluated.
- ◆ Buffer Zone Trial started in June 2008 and will continue in Los Angeles area.
- ◆ Buffer Zone Trial and Empirical Routing will occur in parallel
- ◆ Evaluation will occur after 90 days

Routing on Empirical Data (RED Project)

- ◆ **Uses actual caller location data to determine the optimal sector routing**
- ◆ **Contract issued by California 9-1-1 Emergency Communications Office**
- ◆ **Awarded to Boar's Head Corporation using MSA 2034 Consulting Contract**
- ◆ **CHP Ventura/Golden Gate/Monterey jurisdictions covering 14 counties**

Routing on Empirical Data

- ◆ **Boundary Shape Files**
- ◆ **Call Data for each Cell Sector**
- ◆ **Develop and Provide Reports by WSP**
- ◆ **Provide Top 20 Sector Reports for CHP and PSAPs**
- ◆ **Develop and Prepare Redeployment Plan**
- ◆ **Coordinate Redeployment Plan**
- ◆ **Monitor and Evaluate Progress**
- ◆ **Sector Analysis (90 Days Post Deployment)**
- ◆ **Provide Closure Report**

RED Deployment System

Routing on Emperical Data (RED)

Sector Selection and Status

Tower Sectors For Review

Filter lists below for Provider: (all) or jump to ID:

ID	Provider	City	Address	Sector	Calls
Select 10390	SPPCS	VENTURA	1575 MONTGOMERY	S	5
Select 10406	SPPCS	OXNARD	2401 EASTMAN	SE	3
Select 10574	TMOB	OXNARD	650 MOUNTAIN VIEW AVE	N	293
Select 10552	TMOB	OXNARD	500 E. ESPLANADE DR.	SW	216
Select 10505	TMOB	OXNARD	261 MONTGOMERY AVE	SW	126
Select 10576	TMOB	OXNARD	650 MOUNTAIN VIEW AVE	SE	120
Select 10509	TMOB	OXNARD	2889 W 5TH	N	67
Select 10526	TMOB	OXNARD	4000 S ROSE AVE	N	62
Select 10533	TMOB	OXNARD	4164 RAYTHEON RD	SW	17
Select 10707	VZW	OXNARD	3804 GONZALES RD	S	82

1 2

Tower Sectors Status

ID	Provider	City	Address	Sector	Calls	PSAP	CC	CHP
Select 10179	ATTMO	OXNARD	2900 SAVIERS RD	NW	1556	Accepted		
Select 10178	ATTMO	OXNARD	2900 SAVIERS RD	NE	840	Accepted		
Select 10184	ATTMO	OXNARD	300 W 3RD	NE	573	Add'l. Data Req.		
Select 10103	ATTMO	PORT HUENEME	1642 1ST	NE	540	Accepted		
Select 10180	ATTMO	OXNARD	2900 SAVIERS RD	S	506	Accepted		
Select 10100	ATTMO	OXNARD	1600 N ROSE AV	NE	506	Accepted		
Select 10281	ATTMO	OXNARD	500 ESPLANADE DR	S	488	Accepted		
Select 10186	ATTMO	OXNARD	300 W 3RD	S	453	Accepted		
Select 10099	ATTMO	OXNARD	1597 W 5TH	S	378	Accepted		
Select 10101	ATTMO	OXNARD	1600 N ROSE AV	NW	361	Accepted		

1 2 3 4 5

Routing on Emperical Data (RED)

Additional Sector Data

ID	Region	Provider	Address	City	Sector	Status: PSAP	CC	CHP
10178	VEN	ATTMO	2900 SAVIERS RD	OXNARD	NE	Accepted		

Reporting Period: 1/1/2008-7/31/2008 = 213 days = 5112 hours

Call Detail

Jurisdiction	# Calls	# Calls Off Highway	# Calls On Highway	# Calls Abandoned	Av. Talk Time Seconds	Av. Calls	Per
Oxnard PD	805	805	0	178	26	4	Day
Port Hueneume PD	17	17	0	7	27	2	Month
Port Hueneume USN	6	6	0	0	86	< 1	Month
Ventura PD	6	6	0	1	16	< 1	Month
Ventura County SO	5	5	0	1	29	< 1	Month
Other	1	1	0	0	1	< 1	Month
Total	840	840	0	187	27	4	Day

Transfer Analysis

Disposition of calls not abandoned

Jurisdiction	# Calls Transferred From CHP
Oxnard PD	180
Port Hueneume PD	6
Other	4
Ventura Fire	3
Ventura County SO	2
Total	195

Volume Analysis

Projected call volume

Projected Average New Calls per Day: 3

RED Additional Info

Routing on Emperical Data (RED)

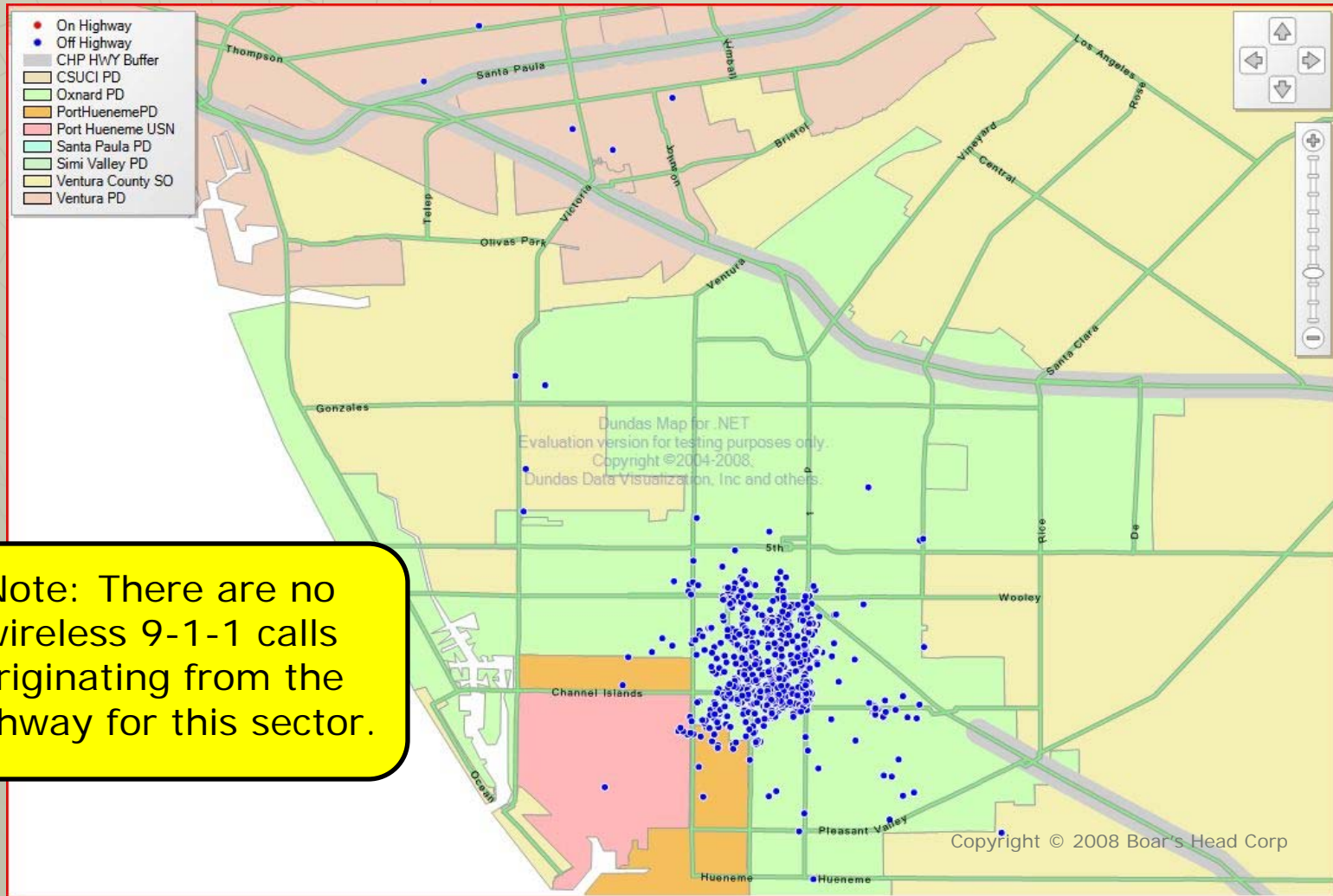
Sector Cut-over Decision

ID	Region	Provider	Address	City	Sector	Status:	PSAP	CC	CHP
10178	VEN	ATTMO	2900 SAVIERS RD	OXNARD	NE		Accepted		

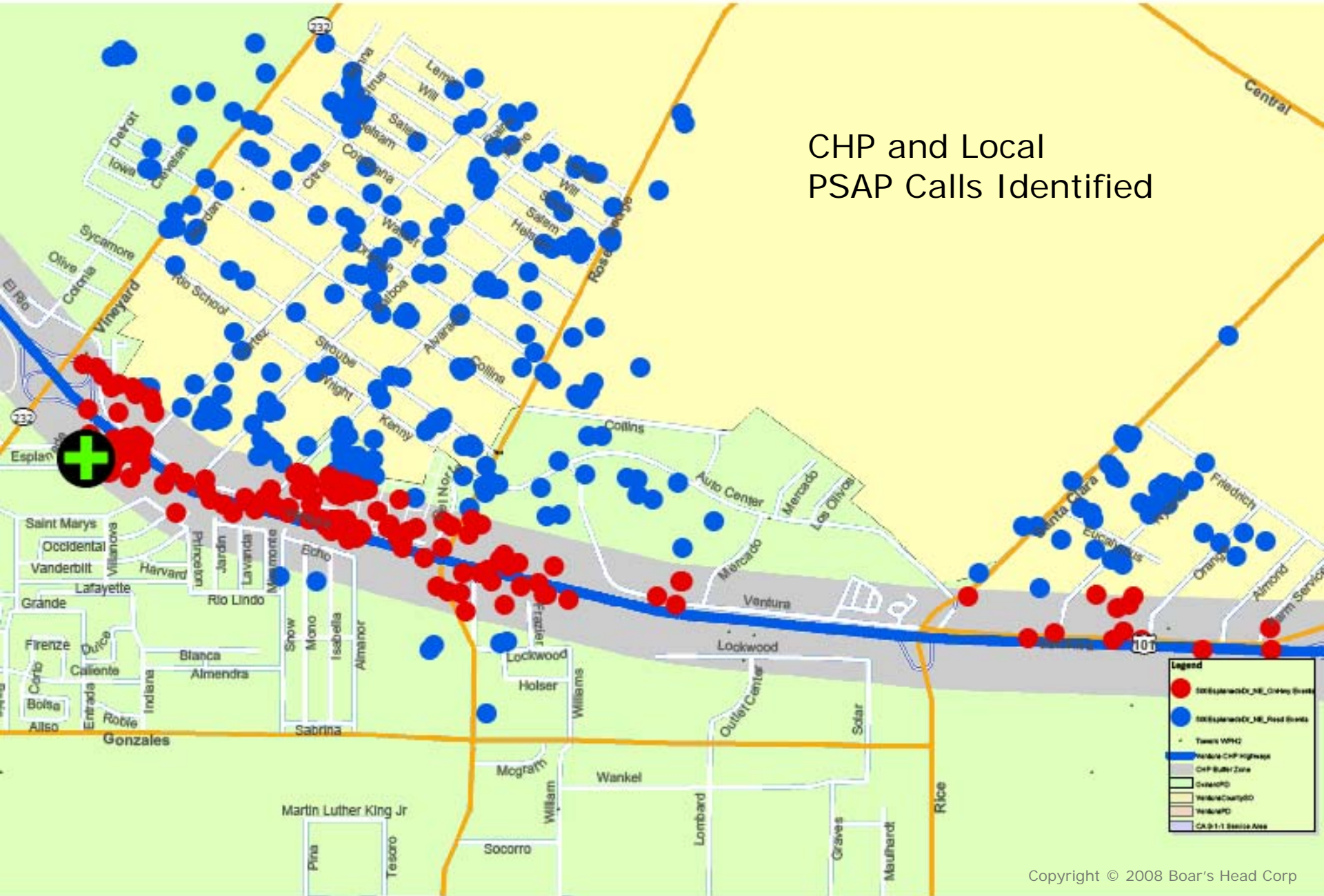
Projected Average New Calls per Day: 3

Jurisdiction	# Calls from Jurisdiction	Percent of Calls from Jurisdiction
Oxnard PD	805	95.8 %
Port Hueneme PD	17	2.0 %
Port Hueneme USN	6	0.7 %
Ventura PD	6	0.7 %
Ventura County SO	5	0.6 %
Other	1	0.1 %
On Highway	0	0.0 %

RED Sector Mapping



CHP and Local PSAP Calls Identified



Non-Initialized Wireless Calls

- ◆ **Usually, but not always, display 911-xxx-xxxx as the call back number and come from:**
 - A handset without an account with any WSP. The handset may have had an account at one time that is now deactivated.
 - A new, off-the-shelf handset that was never activated.
 - An active phone that has not completed the network registration process after being powered on or has not completed the network registration process after entering a service area from a no service area.
 - An active phone which does not have local service and the WSP does not have roaming agreement with a local carrier.
 - A phone that had service suspended or shut off due to unpaid bills or a prepaid phone that has no minutes left.
 - A handset with an account that has had the SIM card removed.

Other Types of Wireless Calls

- ◆ **Phantom Call:**
 - A 9-1-1 call with no audio or only one-way audio between the caller and the PSAP.
- ◆ **Phase Zero Call:**
 - A 9-1-1 call delivered to the CHP via PSTN lines rather than via the E9-1-1 network. They do not have any caller or location data. Local PSAPs will only receive a Phase Zero call if it was transferred from the CHP.
- ◆ **Abandoned Call:**
 - A completed 9-1-1 call that made it to the PSAP but was hung up by the caller, dropped by the WSP, or dropped by the auto attendant before a dispatcher answered.
- ◆ **Butt Calls:**
 - A call mistakenly placed to 9-1-1 by an auto dial button or unintentional dialing of 9-1-1.
- ◆ **Busy signal when dialing 9-1-1:**
 - All 9-1-1 trunks between the S/R and PSAP are busy.

Harassing and Spoofing Calls

◆ Harassing Calls:

- Intentionally calling 9-1-1 to harass the PSAP or dispatcher, though not welcome or wanted, is a valid call. A 9-1-1 call was placed and it arrived at the PSAP.
- 9-1-1 calls from persons who intentionally call 9-1-1 and hang up prior to being answered to determine if a phone is working is also a valid call. These types of calls are not caused by the network.

◆ Spoofing Calls:

- A caller who intentionally displays a false callback number.
 - ◆ Handsets that require the cell phone number to be programmed manually can be reprogrammed to display another number.
 - ◆ Several websites offer a service and require the caller to call a specific number to have the call spoofed.
 - ◆ “SpoofCards” offer the ability to change what someone sees on their caller ID when they receive a call. The card can also display a predetermined spoofing number so, when the caller uses the card, a false call back number is displayed.

2009 Wireless Goals

- ◆ Continue to reduce CHP Busies with additional 9-1-1 trunks.
- ◆ Optimize routing by deploying more sectors to local PSAPs.
- ◆ Have Riverside SO, Sacramento PD, and Stanislaus Regional 911 deploy Wireless.
- ◆ Complete a comprehensive process with identified assets to quickly locate and stop harassing callers.
- ◆ Work with County Coordinators to schedule more wireless cell sector deployments.
- ◆ Expand the Routing on Empirical data (RED) project throughout the rest of California.

WSP Maintenance Testing

- ◆ **The 9-1-1 Office recommends WSPs follow the NENA E9-1-1 Wireless Testing Procedure outlined in the NENA 57-002 Document to determine when to test with PSAPs.**
 - **WSPs have the ability to perform internal routine maintenance test of cell sectors without the call being delivered to the PSAP.**
 - **WSPs should be placing E9-1-1 test calls to the PSAPs only when initially deploying a PSAP, a physical change has been made to a sector, or when an ESN routing assignment has been changed.**

Contact Information

CA 9-1-1 Emergency Communications Office

Wireless E9-1-1 Project Web Page:

<http://www.td.dgs.ca.gov/Services/911/we911>

Wireless E9-1-1 Meetings are held during March, June, Sept. and Dec. on the 2nd Friday from 9:00-10:30 am PST

9-1-1 Office Consultants

<http://www.documents.dgs.ca.gov/td/911/OfficeAssignments.pdf>

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