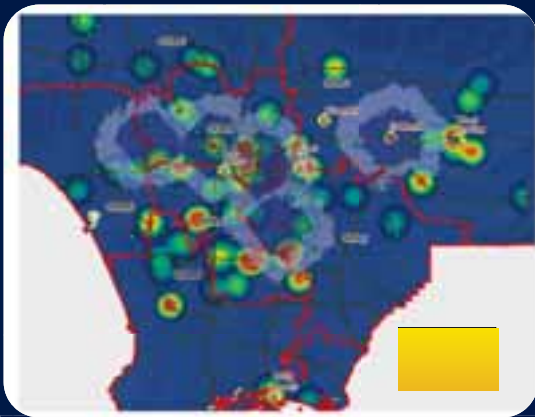


GIS Network Analysis Models to Link Displaced First Offender DUI Clients to Treatment Services*

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¹Substance Abuse Prevention and Control (SAPC)
Los Angeles County Department of Public Health



Los Angeles County

- Los Angeles County (LAC) population is estimated to be more than 10 million (most populous and diverse county in US)
- 4,058 square miles: Population density is 2,420 people per square mile
- **DUI Program Participants Admitted to AOD treatment from 2005–2010 (N = 8,716)**

Non-Hispanic White
(N=2,854,130) **37.5%**



Non-Hispanic Black
(N=853,558) **16.4%**



Hispanic/Latino
(N=4,769,064) **41.0%**



Asian/Pacific Islander
(N=1,409,144) **2.0%**



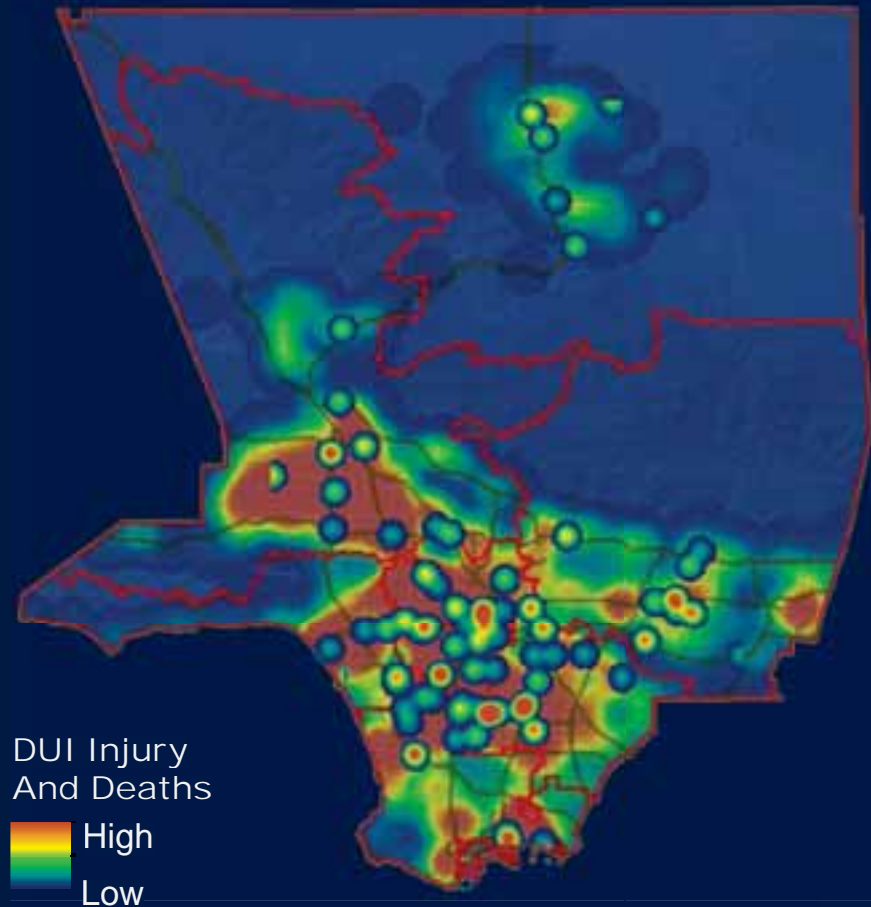
*Not shown American Indian (N=19,455)

Source: July 1, 2012 Population estimates, Urban Research, ISD, released 3/15/2013)



Background

- Substance Abuse Prevention and Control (SAPC) facilitates the delivery of alcohol and other drug (AOD) prevention, treatment and recovery services.
- In a typical year, more than 40,000 Driving Under the Influence (DUI) arrests are made in Los Angeles County (DUI-MIS report, 2011).
- On a monthly average, SAPC receives over 1,100 DUI offender referrals from seven LAC courts.
- 69% had a subsequent DUI conviction (UCLA, LACES report, 2005-2010).
- On June 2013, there were four mandatory closures of first-offenders DUI sites and 360 active clients were displaced.



Objectives

- Describe the court process of DUI Court referrals.
- Describe the process to integrate GIS technology, in response to the closure of four first offender DUI sites.
- How GIS maps were used to identify nearest alternative treatment sites by location for displaced clients.
- Connecting people to services.



County of Los Angeles Department of Public Health Strategic Plan 2013-2017

Goal 6.7: Effectively assess, utilize, and improve departmental facilities.

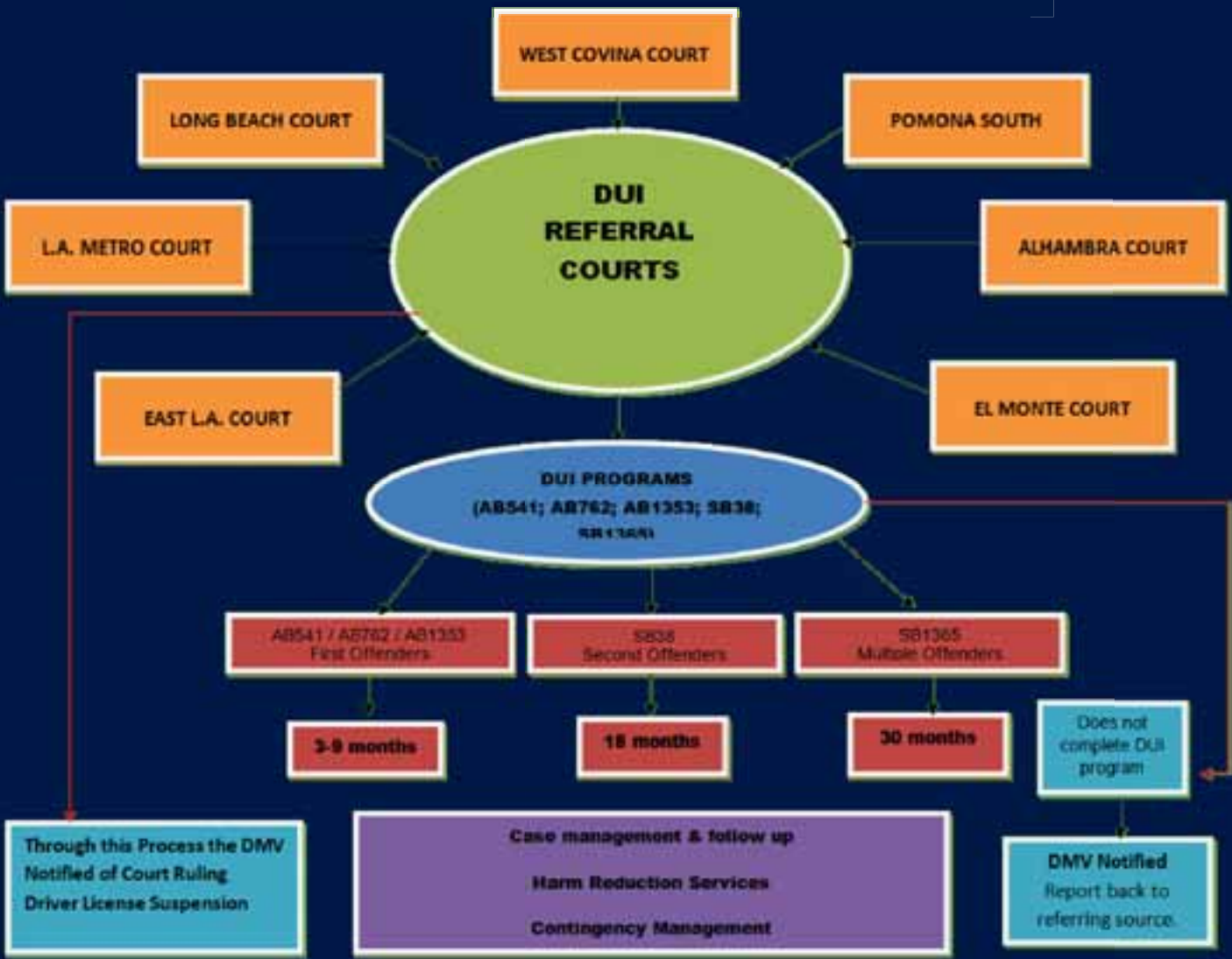
Obj.6.7.b Utilize Geographic Information System (GIS) mapping to compile facility capital improvement needs and assess geographic placement of facilities based on population needs.

California Code of Regulations

- DUI programs are governed by the California Code of Regulations...“pursuant to its obligations under Title 9, Division 4, Chapter 3, which define the standards set by the Health and Safety Code and monitored for compliance to regulations by the State of California Alcohol and Drug DUI Branch (Sections 11837.2 and 11837.6, Health and Safety Code; and Section 23538, Vehicle Code 23152)...”



DUI Referral Process



Methods

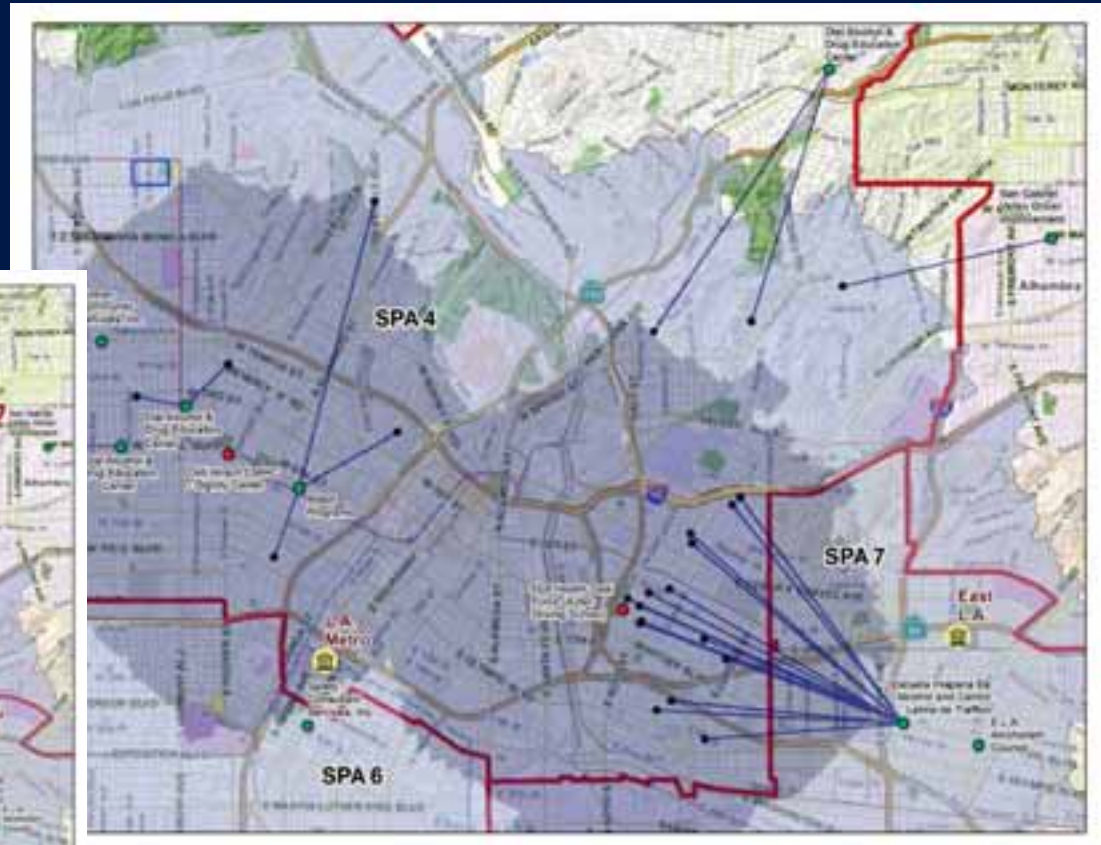
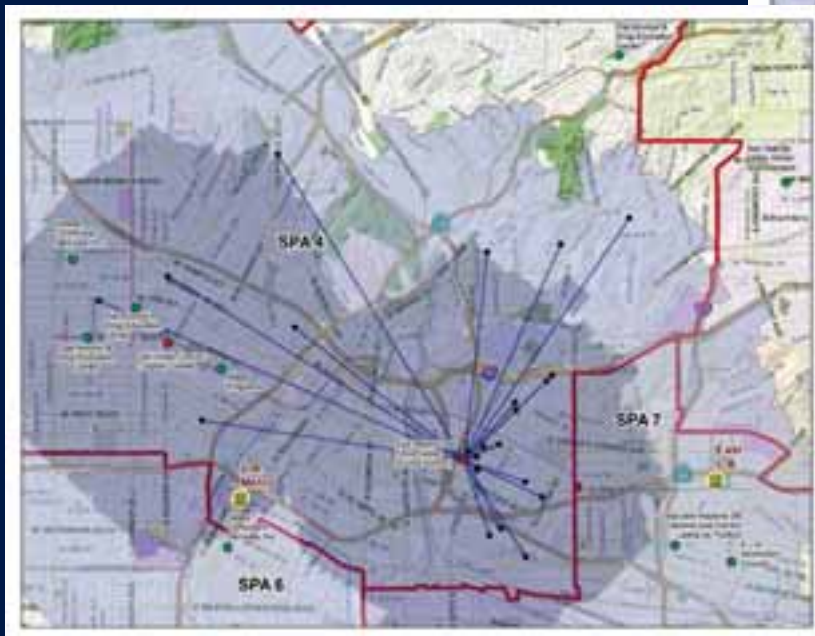
1. ArcMap 10 was used to geocode referral courts and all the active and closed DUI sites onto a basemap of Los Angeles County.
2. Project displaced first offender clients (N=360) that were court ordered to complete a 3 to 9 month DUI treatment program.
3. A total of 66 active alternative DUI treatment facilities were entered into the GIS network analysis model to compete for clients that were displaced from one of the four sites that closed.
4. Network analysis modeling linked displaced clients to the nearest alternative treatment facilities from their homes.



Network Analysis

- Clients displaced from the closure of their treatment facility located in East Los Angeles were linked to the nearest alternative site from their homes.

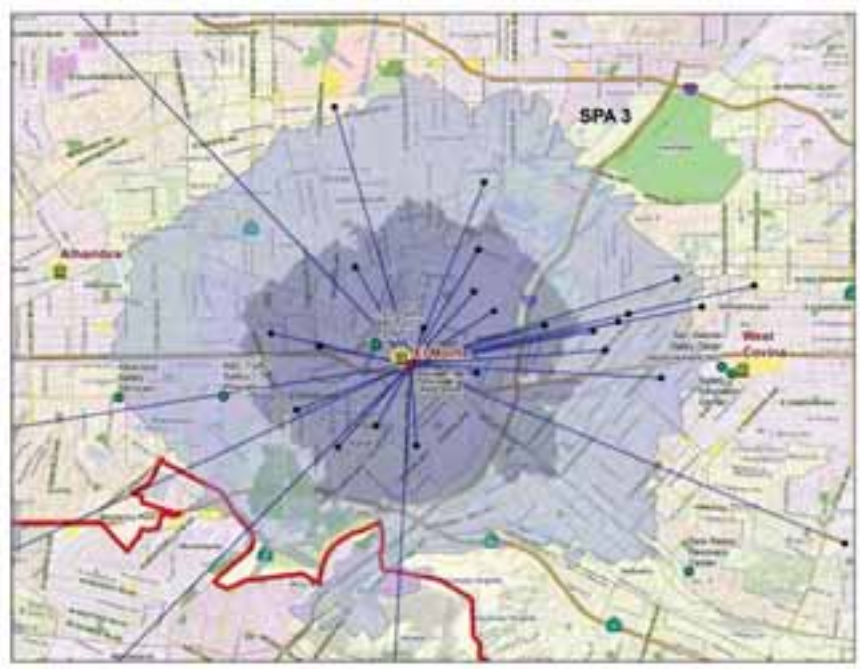
CLOSURE #1 EAST LOS ANGELES



Network Analysis

- Clients displaced from the closure of their treatment facility located in El Monte were linked to the nearest alternative sites from their homes.

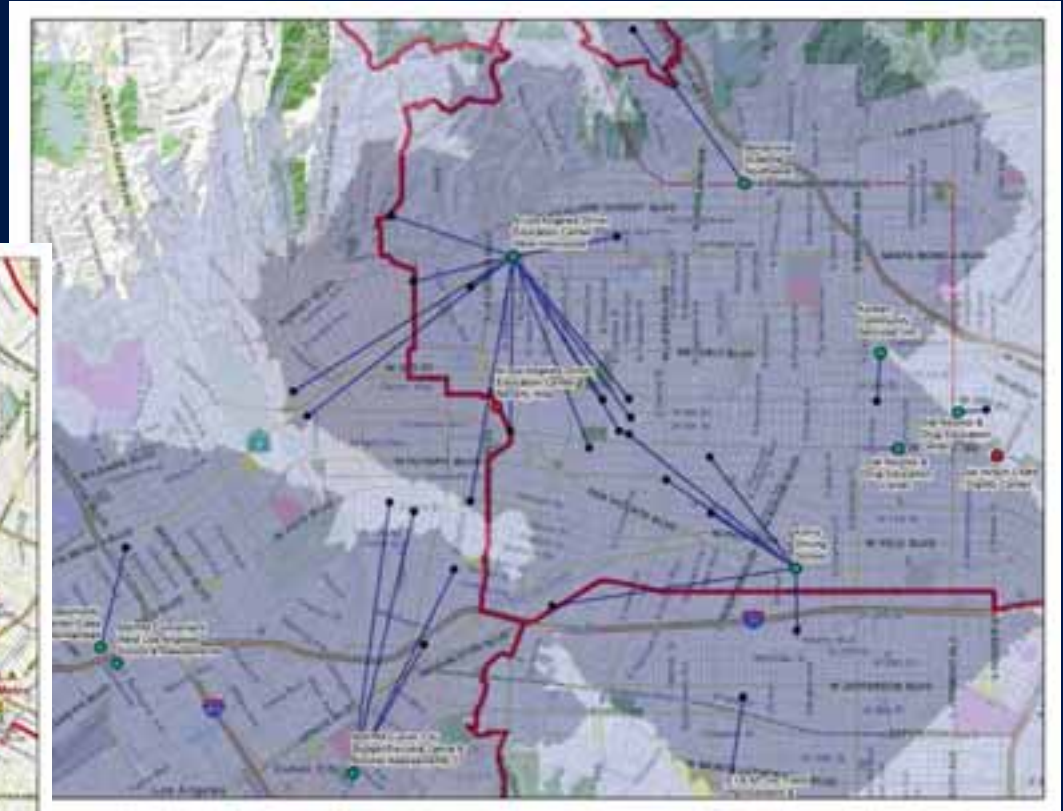
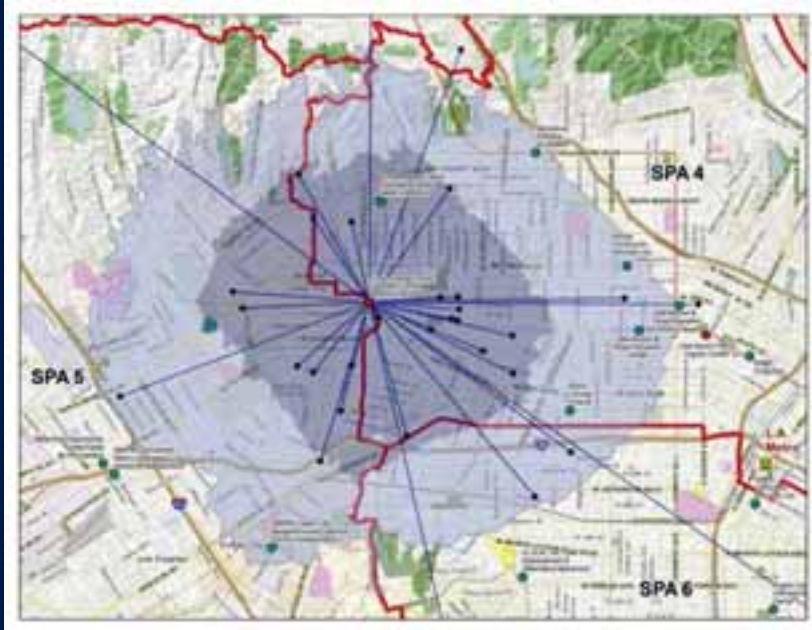
CLOSURE #2 EL MONTE



Network Analysis

- DUI Clients displaced from the closure of their treatment facility located in West L.A. were linked to the nearest alternative sites from their homes.

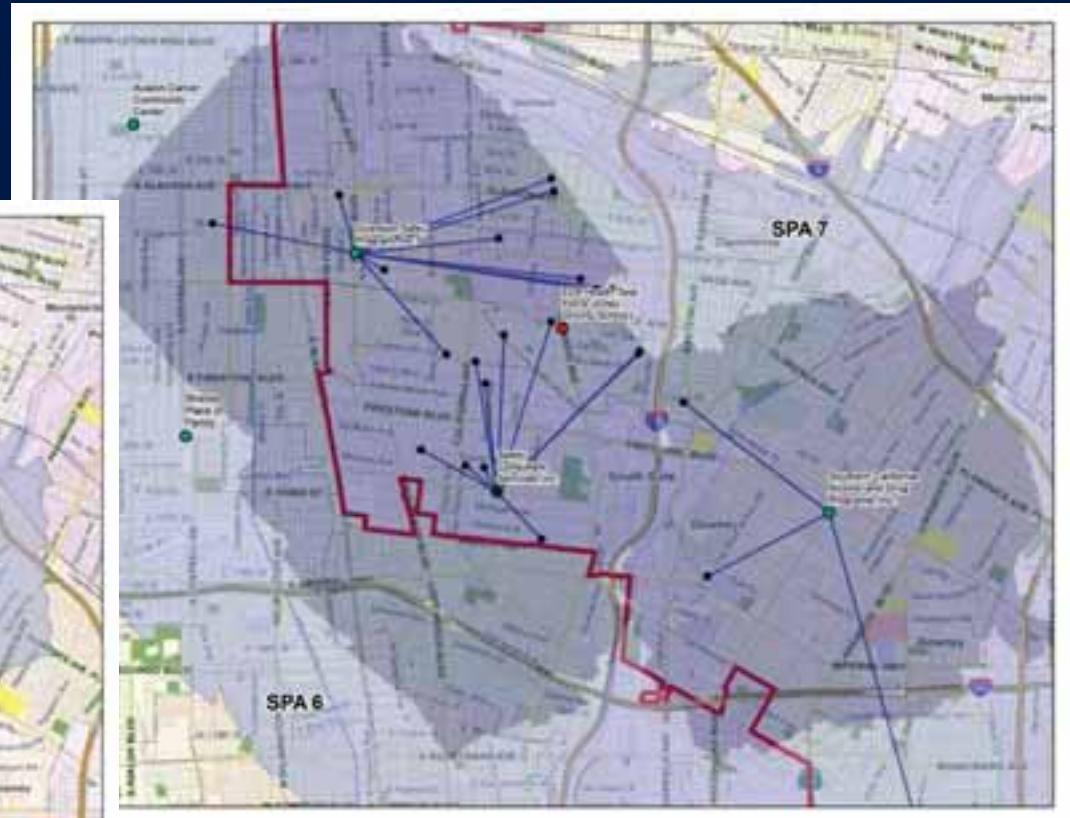
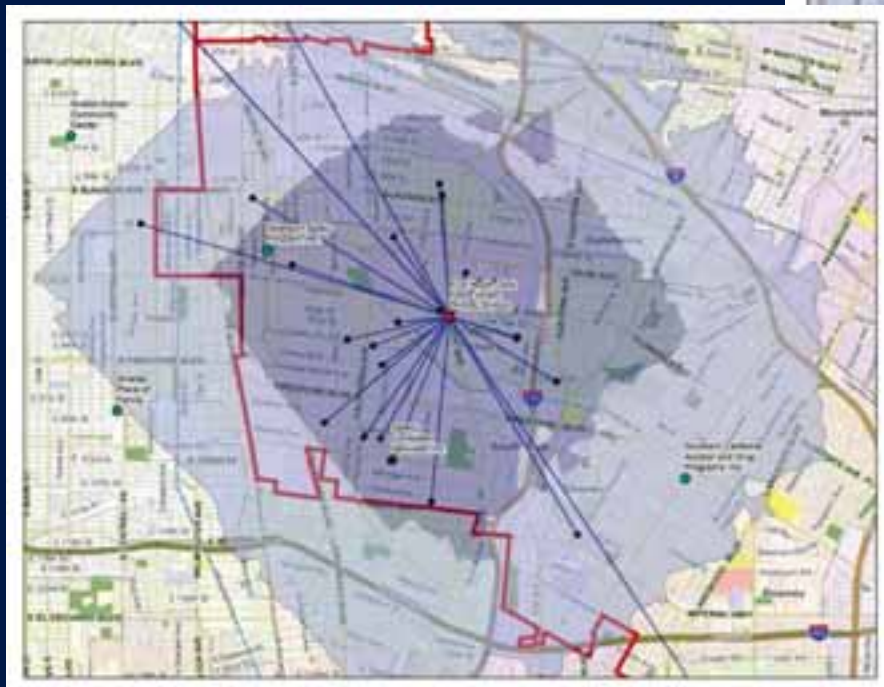
CLOSURE #3 BEVERLY HILLS



Network Analysis

- DUI Clients displaced from the closure of their treatment facility located in Cudahy were linked to the nearest alternative sites from their homes.

CLOSURE #4 CUDAHY



Outcome Evaluation

- The results of this study were also used as a pilot for program improvement purposes, and helped facilitate SAPC integration of GIS technology.
- This study produced unique processes that helped contextualize the needs and issues facing this population, and will be used to inform the development of improved service delivery systems and infrastructures.



HIPAA/HITECH

- No PHI identifiers were collected.
- The DUI maps comply with 45CFR & 164.502 (a) (covered entity to use and disclose PHI to carry out essential health care functions), and 45CFR & 164.501 (quality improvement activities necessary to support core functions of treatment).
- This study was also required by the public policy law to comply with 45 CFR & 164.512 (b)-(d-f) public health oversight activities - judicial & administrative proceedings, and 45 CFR & 164.512 (i-j) research - avert serious threat to health and safety.

Impact of GIS

- The absence of DUI diversion services threatens to burden communities and hinders the recovery of individuals referred by the courts.
- Automating data processes on displaced clients using GIS Network Analysis methods optimizes the planning, prevention, and implementation of DUI intervention services under different geographic demands, and supports continued efforts to reduce DUI incidences in the community.
- **Limitation - some clients may prefer alternative DUI sites away from their communities, and prefer those closer to their work or school.**



GIS Behind the Scenes: Think Tanks

Utilization of GIS technologies can be used to benefit the decision making process, and policy development throughout the County, resulting in the improvement of the health, safety, and quality of life of its citizens.



Next Steps: Market Share Analysis

- Select locations to guide RFP for potential DUI treatment facilities.
- Determine the proportion of demand allocated for each facility.
- Determine the number of facilities needed to reach the specified target market share.



Market Share Analysis

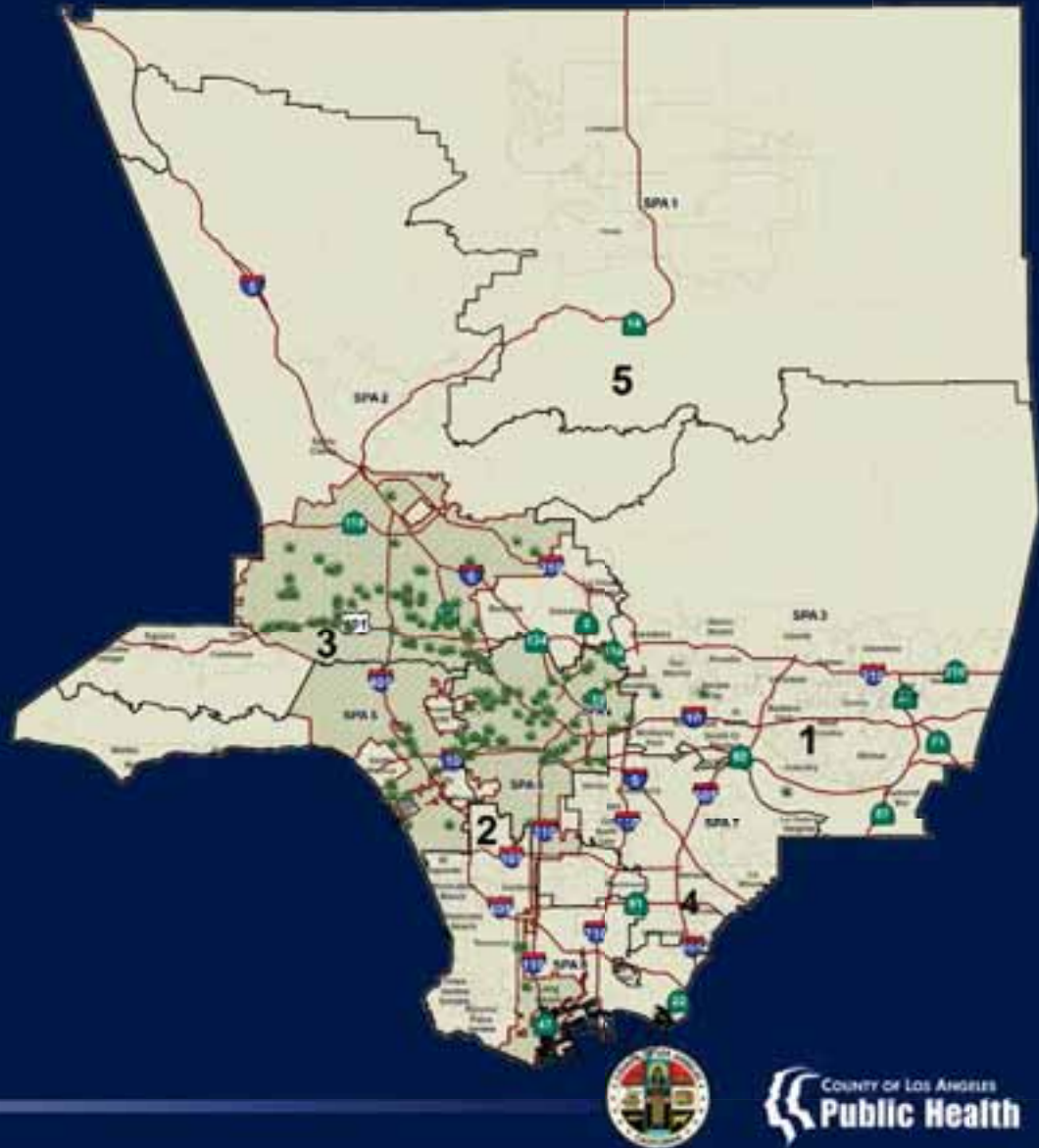
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- 5. (5.6)
- 6. (8.9)
- 7. (8.8)
- 8. (6.5)



Emerging Problems: DUI-DWI

- Driving while intoxicated (i.e., “drugged driving”)
- The legalization of medical marijuana
- Driving under the influence of prescription drugs



Online Maps

1. Approved First Offender (AB541) DUI Programs

<http://www.arcgis.com/apps/OnePane/basicviewer/index.html?appid=85832aee6178493583515a04d2df37a8>

2. Approved Third or Subsequent Offender (SB1365) DUI Programs

<http://www.arcgis.com/apps/OnePane/basicviewer/index.html?appid=30c1e3f872d8497191de17fdf0812d6d>

3. Approved Multiple Offender (SB38) DUI Programs

<http://www.arcgis.com/home/item.html?id=97e947ede281405a8d5d898c0c6e82ae>



Driving Under the Influence



Source: Los Angeles Times – California Local

<http://www.latimes.com/local/lanow/la-me-ln-wrong-way-crash-60-freeway-photos-20140210,0,3316928.photogallery?index=la-1768796-me-0209-crash-55-gf-jpg-20140209>



Acknowledgements

SAPC Director/Managers

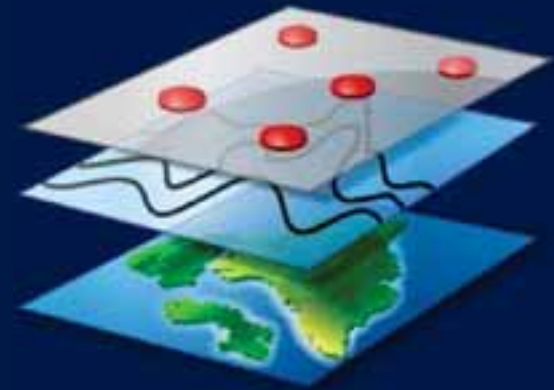
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Thinking Spatially

