LAC Department of Public Health Additional ECHPP Activities

Modeling Activities

The Office of AIDS Programs and Policy (OAPP) as part of the ECHPP process is collaborating with other LAC Department of Public Health partners, and RAND researchers on several modeling activities to determine the optimal use of prevention strategies to achieve the highest impact in addressing the National HIV/AIDS Strategy (NHAS) goals and objectives. OAPP will use the results from the activities described below to help inform the scope and direction of LACs prevention portfolio needed to address the NHAS goals and objectives.

1. Modeling HIV Testing to Reduce Unaware HIV Infections – this activity it to aid OAPP determine how much scale-up of HIV testing will need to occur by 2015 in order to reduce the number of individuals who are unaware of their HIV status and in doing so have an impact on new HIV infections per year in LAC. Status: in progress (see time line).

2. Maximizing the Benefit of Prevention Interventions – this was a tool developed by RAND in 2004 to assist prevention programs in prioritizing prevention strategies. OAPP is updating this tool in order to estimate the cost effectiveness of LAC's HIV prevention strategies, and to identify parameter estimates for Robust Decision Modeling described below (#4).
Status: in progress (see time line). Additional information about the tool is available at:
http://www.rand.org/health/surveys_tools/maximizing_benefit.html

3. Preventable Burden of Disease – adopted from the LAC Department of Public Health Office of Health Assessment to prioritize prevention strategies (originally used for tobacco and diabetes). This tool uses a quantitative and qualitative approach to understanding preventable burden for major intervention strategies to aid in priority setting. Preventable burden is the total (fraction) disability-adjusted years of life (DALYs) that could be gained if the preventive intervention were delivered as recommended. Status: in progress (see time line).

4. Robust Decision Making for HIV– a collaboration with RAND and OAPP to develop robust decision-support tools that can be used to more explicitly recognize the trade-offs among different resource allocation options. This collaboration will be carried out as a three-step process.

First, RAND will collaborate with the Los Angeles OAPP to develop a overarching conceptual framework that: (a) describes the multiple pathways along which people move through prevention-care continuum; and (b) notes the roles that various intervention strategies might play in reducing flows along undesired pathways and increasing flows along desired pathways.

Second, RAND will work with the OAPP to develop an explicit Return-On-Investment (ROI) framework. Drawing on this conceptual framework, the ROI framework will: (a) identify a common outcome that can be used to compare across all interventions (e.g., reduction of new incidences, people in continuous care, or decreases in community viral loads, etc.); and (b) logically map how different interventions along the prevention-care continuum may contribute to the common outcome.

Finally, RAND will develop a set of preliminary computer simulation tools that will allow the OAPP to begin the process of making direct comparisons across competing resource allocation options. We will use the conceptual and ROI frameworks to build a set of robust decisions models that will allow us to simulate and compare various program and investment scenarios to determine which may have maximal impact on reducing HIV transmission, and achieving NHAS goals. Status: in progress (see time line).

Re-assessing the HIV Epidemic in Los Angeles County: A Syndemic Approach

Los Angeles County, Department of Public Health (DPH) has historically prioritized and provided services over its 4,000 square mile jurisdiction through Service Planning Areas (SPAs). However, disease burden geographical differences are not explained by SPA boundaries. Figure 1 shows 2009 HIV/AIDS cases by zip code within each SPA.

Data sharing with DPH HIV Epidemiology, Sexually Transmitted Diseases Programs (STDP), and OAPP provided an opportunity to examine disease burden without regard to arbitrary boundaries. A syndemic planning model was used to focus on connections among cofactors of disease. These connections will then be considered when prioritizing and targeting HIV prevention services for Los Angeles County. This planning model also aligns with other avenues of social change to assure the conditions in which all people can be healthy.

Figure 1. Persons Living With HIV/AIDS as of 12/31/2009[1] by Zip Code[2] and SPA, Los Angeles County (N=44,450)
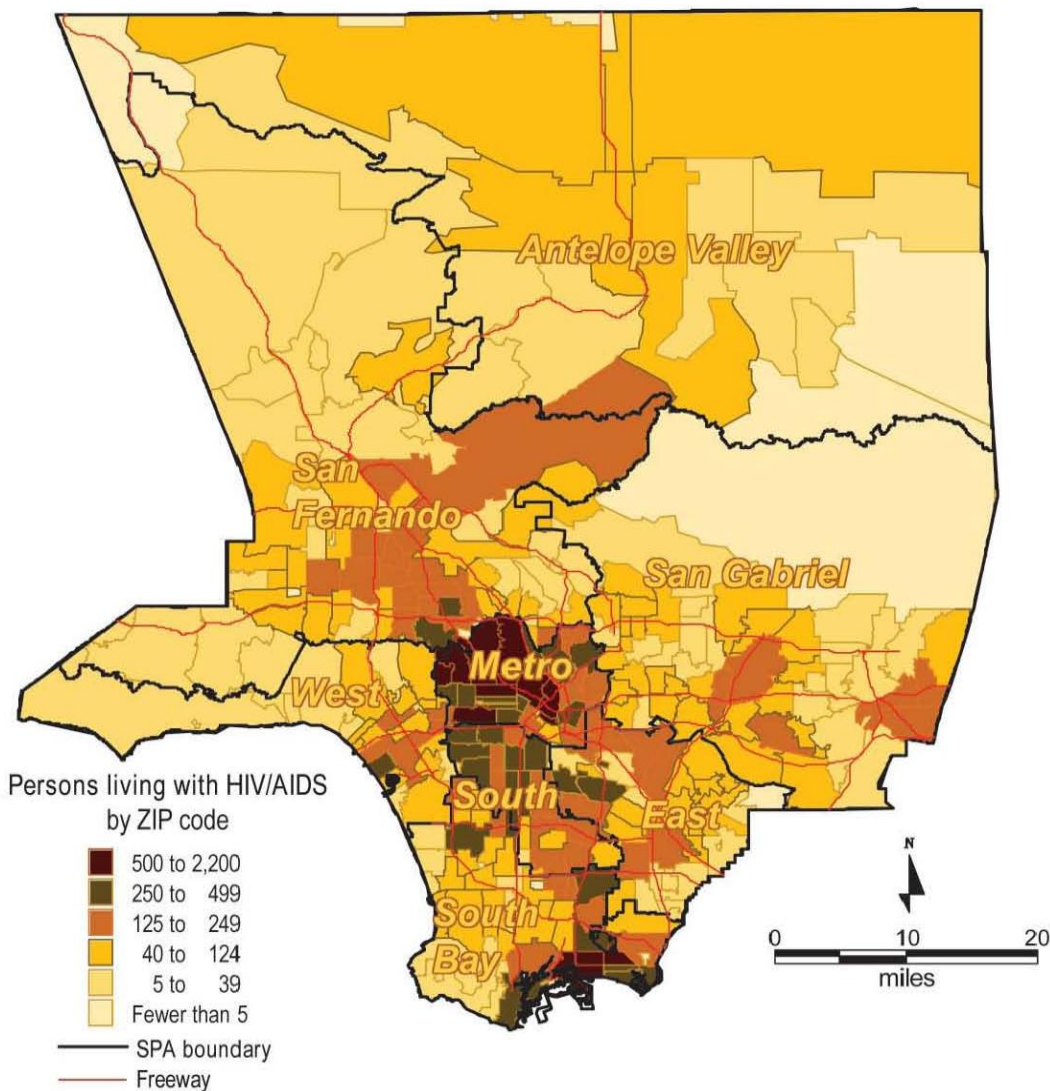
1. Persons with HIV are based on the preliminary data collected from July 2002 to December 2009.
2. Zip code information is based on the residence at time of diagnosis or the care facility location when the residential information is unknown.
*Data Source: HIV Epidemiology Program, HIV/AIDS Semi-Annual Surveillance Summary, January 2010

The syndemic spatial analysis was used to analyze spatial relationships between multiple co-occurring epidemics in HIV, syphilis and gonorrhea. In order to assess spatial distributions of HIV and STD cases the Average Nearest Neighbor (ANN) statistic was used. The ANN calculates actual mean distance between cases and compares that mean to a hypothetical random distribution. Once it was determined that HIV and STD cases are clustered and that the clusters cannot be explained by chance, a single-level

Nearest Neighbor Hierarchical Clustering (Nnh)[1] analysis was performed to describe the variation in spatial data.

Preliminary Analysis

Using case data with address information that could be geo-coded to the exact location, the following table and figures show the **preliminary** syndemic cluster analysis for newly identified HIV cases, syphilis and gonorrhea infections (2009 data).

Table 1. 2009 HIV, syphilis, and gonorrhea infection geo-coded data used in the syndemic data analysis.

Data Source	N
Newly identified HIV Cases	1,858
Syphilis	2,641
Gonorrhea	7,198

Figure 1 shows 5 distinct clusters identified within the County. These 5 clusters represent 89.3% of all newly identified HIV cases (2009 HIV Surveillance Data) within Los Angeles County. Table 2 shows the disease burden within each cluster. Figures 2 – 6 provide a view of current services available within the clusters.
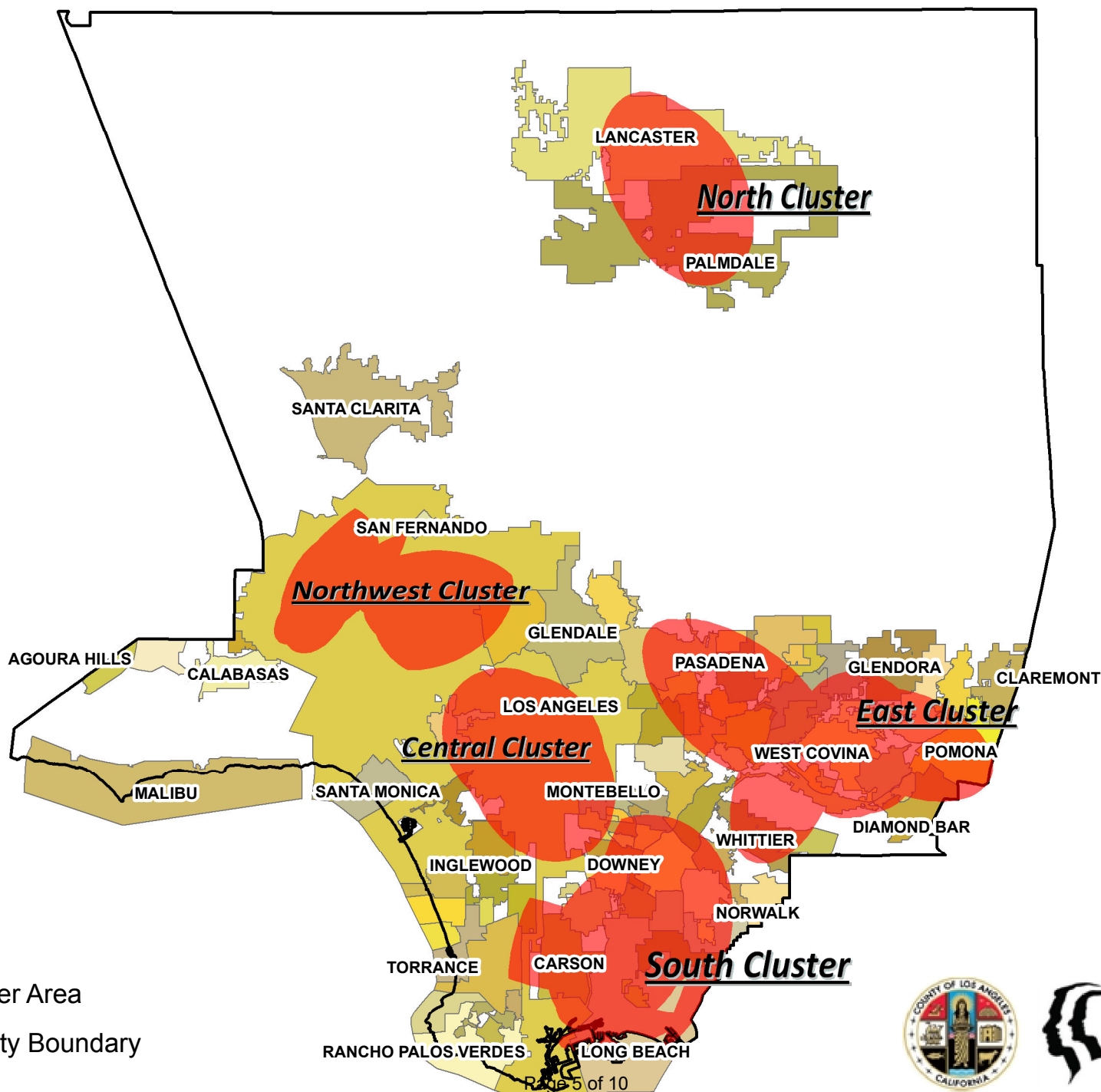
Table 2. Disease burden within the five (5) syndemic clusters (2009)

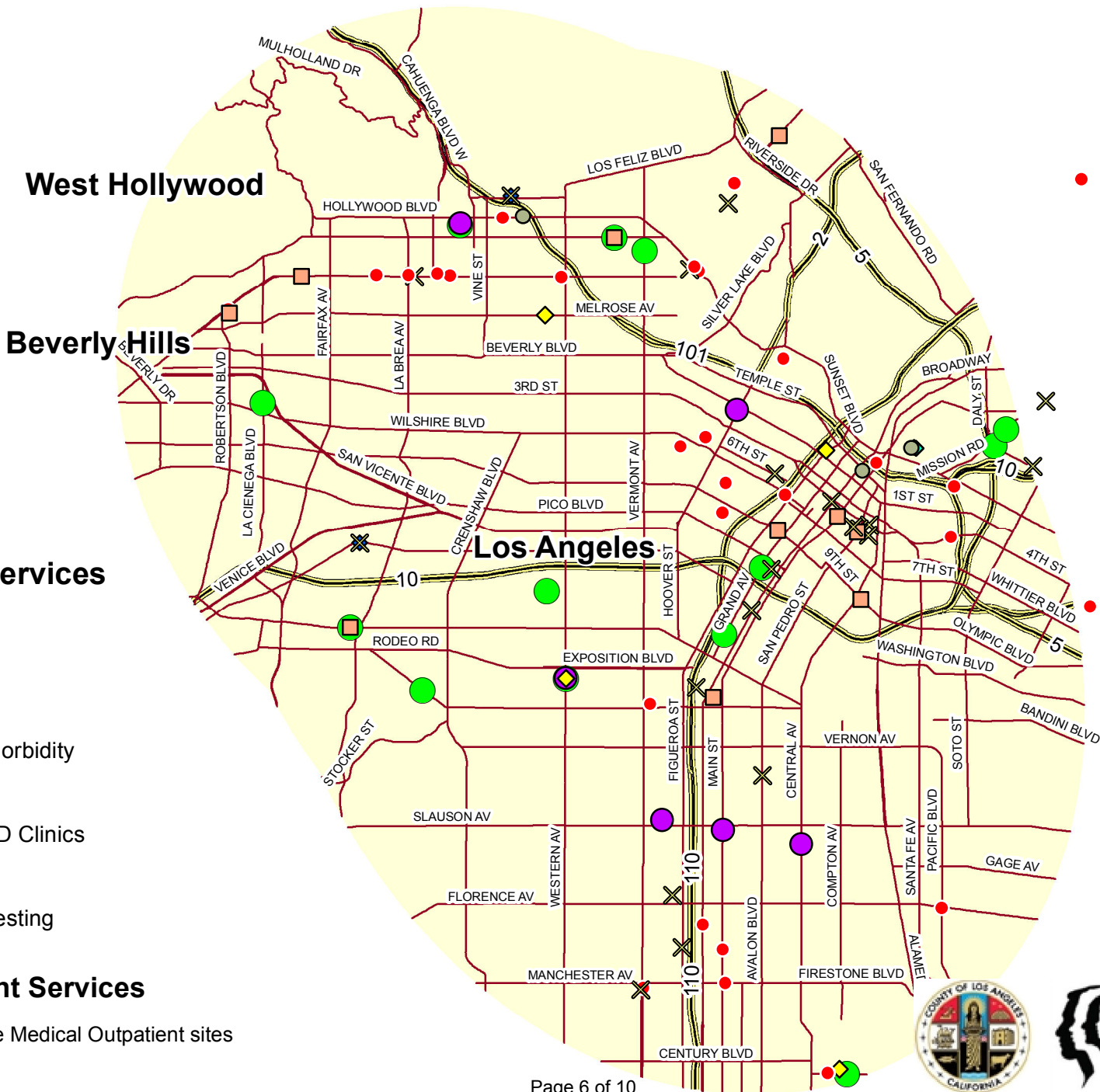| Disease Burden	Cluster Location									
	Central		South		Northwest		East		North	
	N	%	N	%	N	%	N	%	N	%
Newly Identified HIV Cases	861	46.3%	318	18.4%	159	9.2%	114	6.6%	22	1.3%
Syphilis + HIV	642	58.5%	94	9.0%	90	8.6%	61	5.8%	<5	-%
Syphilis no HIV	712	44.6%	222	13.9%	191	12.0%	118	7.4%	14	1.0%
Gonorrhea	3,330	42.1%	1,613	20.4%	637	8.0%	439	5.5%	237	3.0%

Data Source: 2009 HIV Surveillance Data and 2009 STD Surveillance Data

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[1] Smith, Goodchild, Longley, 2011

Cluster Areas, Los Angeles County, 2011

North Cluster

LANCASTER

PALMDALE

SANTA CLARITA

SAN FERNANDO

Northwest Cluster

GLENDALE

AGOURA HILLS

CALABASAS

PASADENA

GLENDORA

CLAREMONT

LOS ANGELES

East Cluster

Central Cluster

WEST COVINA

POMONA

MALIBU

SANTA MONICA

MONTEBELLO

DIAMOND BAR

WHITTIER

INGLEWOOD

DOWNEY

NORWALK

CARSON

South Cluster

TORRANCE

Legend

Cluster Area

County Boundary

RANCHO PALOS VERDES

LONG BEACH

COUNTY OF LOS ANGELES
Public Health
Office of AIDS Programs & Policy

Central Cluster Area and HIV Services, Los Angeles County, 2011

West Hollywood

Beverly Hills

Los Angeles

HIV Testing Services

- ⚪ Court
- 🔷 DREX
- 🔴 MTU
- ✕ Multiple Morbidity
- 🟧 Storefront
- 🔶 Public STD Clinics
- 🔷 Jail
- 🟣 Routine Testing

HIV Treatment Services

- 🟢 Ryan White Medical Outpatient sites

COUNTY OF LOS ANGELES
Public Health
Office of AIDS Programs & Policy

South Cluster Area and HIV Services, Los Angeles County, 2011

HIV Testing Services

- ⚪ Court
- 🔷 DREX
- 🔴 MTU
- ✖ Multiple Morbidity
- 🟧 Storefront
- 🔶 Public STD Clinics
- 🔷 Jail
- 🟣 Routine Testing

HIV Treatment Services

- 🟢 Ryan White Medical Outpatient sites

COUNTY OF LOS ANGELES
Public Health
Office of AIDS Programs & Policy

Northwest Cluster Area and HIV Services, Los Angeles County, 2011

HIV Testing Services

- ⊙ Court
- ◆ DREX
- ● MTU
- ✕ Multiple Morbidity
- ▧ Storefront
- ◇ Public STD Clinics
- ◇ Jail
- ● Routine Testing

HIV Treatment Services

- ● Ryan White Medical Outpatient sites

County of Los Angeles
Public Health
Office of AIDS Programs & Policy

East Cluster Area and HIV Services, Los Angeles County, 2011

HIV Testing Services

- ⬤ Court
- ◆ DREX
- ● MTU
- ✖ Multiple Morbidity
- ▨ Storefront
- ◇ Public STD Clinics
- ◆ Jail
- ⬤ Routine Testing
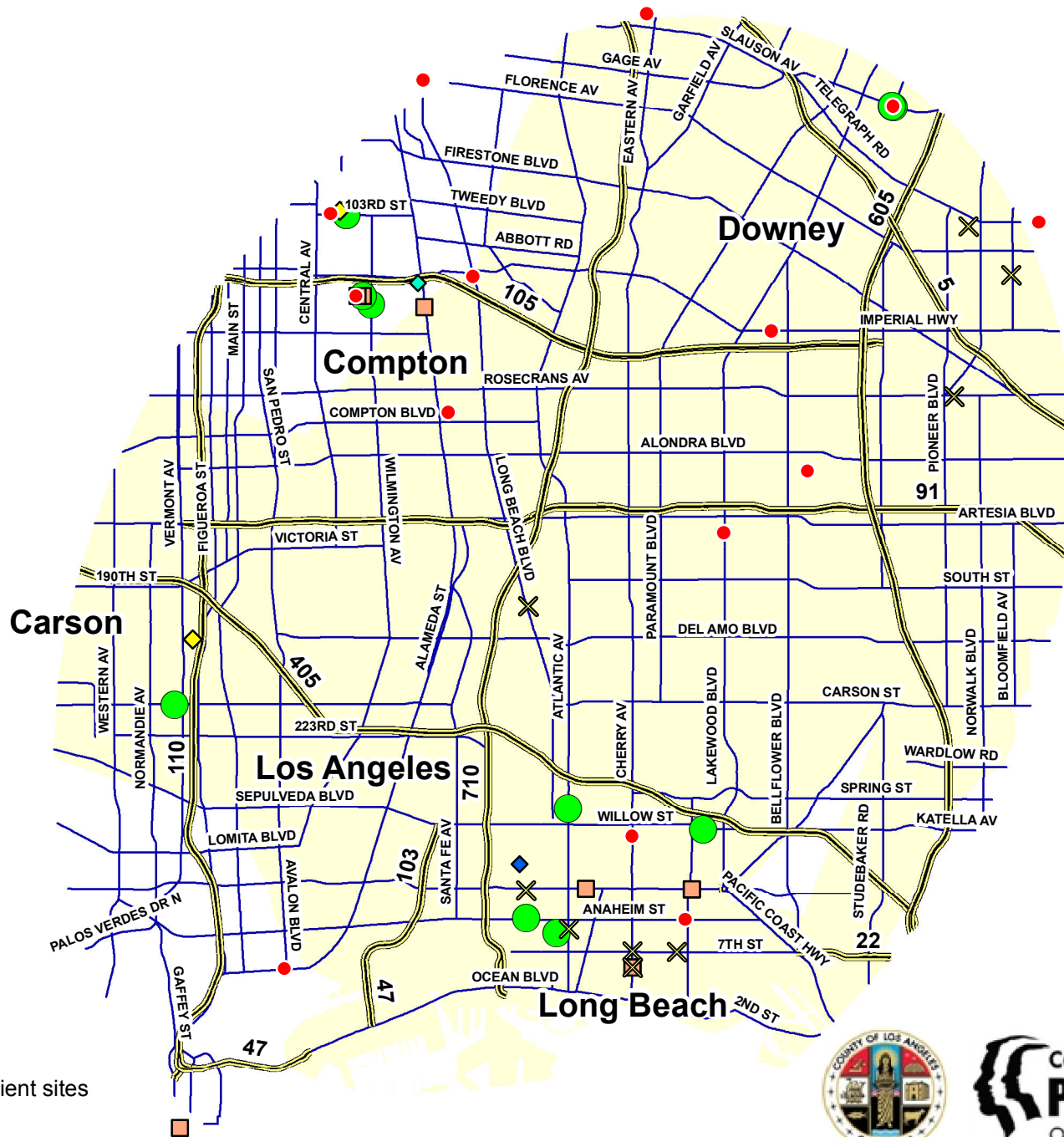
HIV Treatment Services

- 🟢 Ryan White Medical Outpatient sites

COUNTY OF LOS ANGELES
Public Health
Office of AIDS Programs & Policy

North Cluster Area and HIV Services, Los Angeles County, 2011

AVENUE G

30TH ST W

DIVISION ST

20TH ST E

AVENUE I

LANCASTER BLVD

10TH ST W

AVENUE J

20TH ST W

Lancaster

AVENUE K

AVENUE M

SIERRA HWY

50TH ST E

AVENUE P

ELIZABETH LAKE RD

Palmdale

14

138

PALMDALE BLVD

AVENUE S

PEARBLOSSOM HWY

HIV Testing Services

- ● Court
- ◆ DREX
- ● MTU
- ✖ Multiple Morbidity
- ◼ Storefront
- ◆ Public STD Clinics
- ◆ Jail
- ● Routine Testing

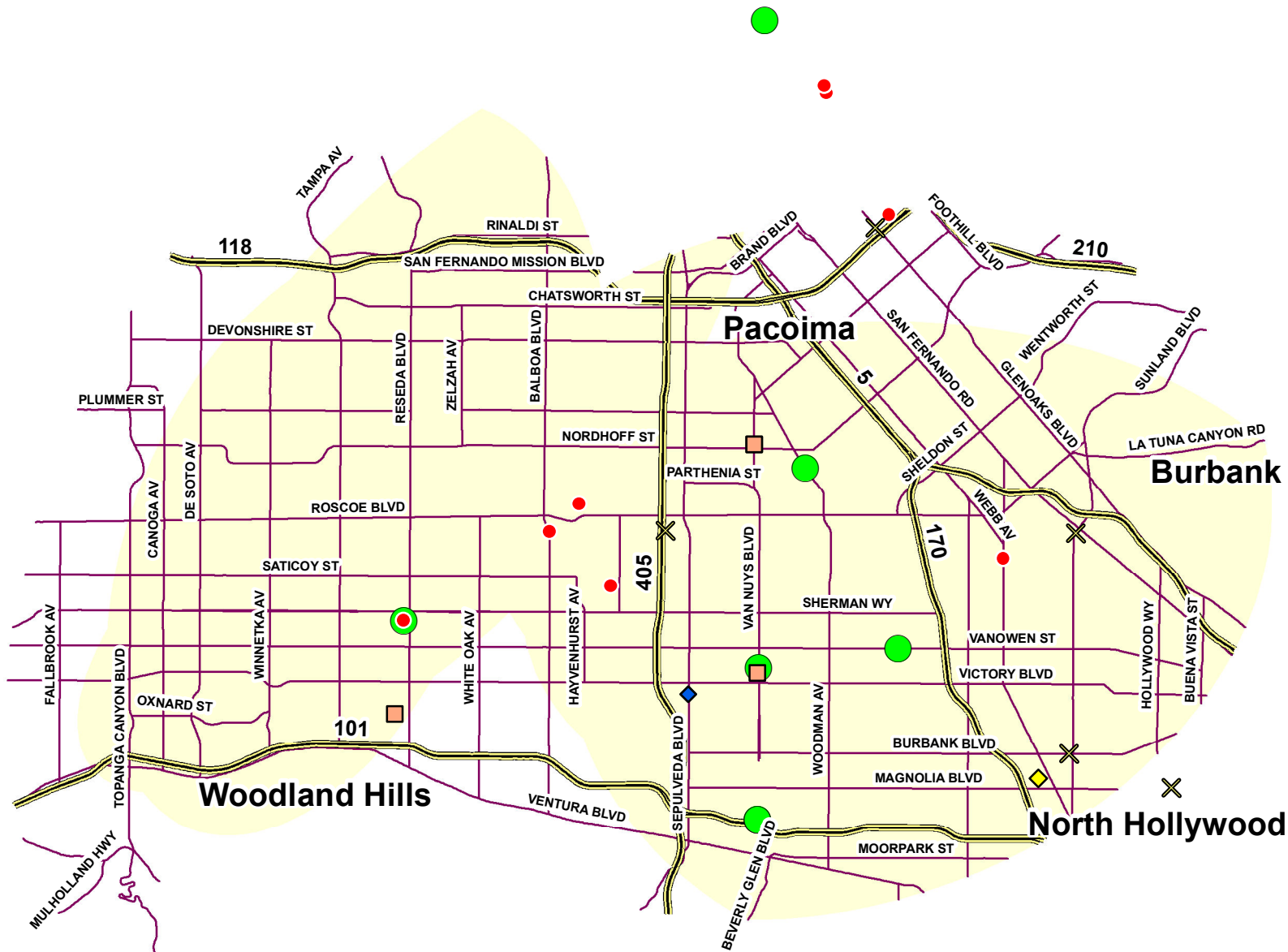## HIV Treatment Services

- ● Ryan White Medical Outpatient sites

Source: HTS 2010, Casewatch, 2010

FINAL 4/22/11

COUNTY OF LOS ANGELES
Public Health
Office of AIDS Programs & Policy