2010

Clean Technology Opportunity in Los Angeles

LOS ANGELES

Pacific Ocean

0 1.5 3   6 Miles

Created By: Sarah Locher
Data Sources: LA County Department of Regional Planning
Census TIGER, and LexisNexis Academic
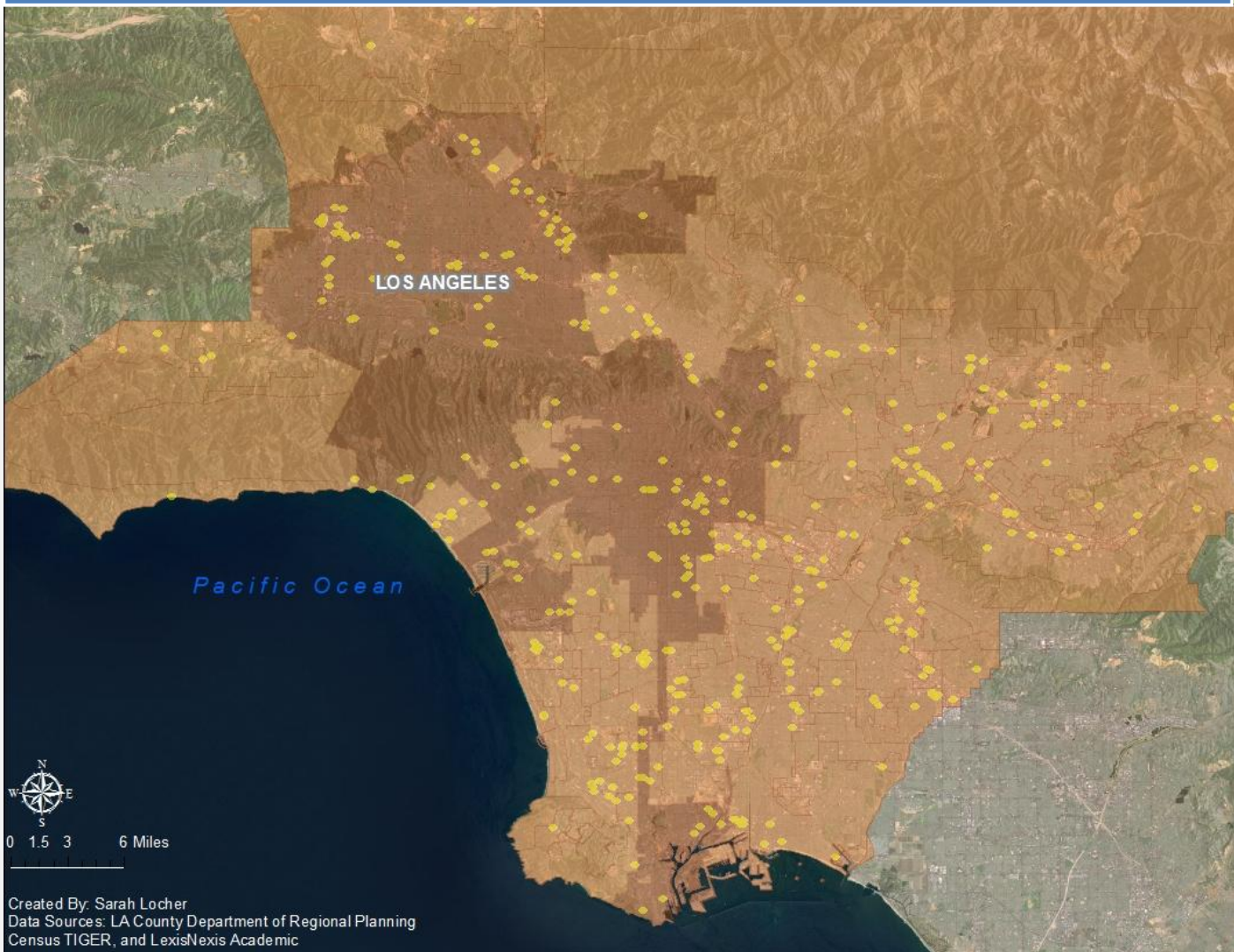
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Introduction

Los Angeles Mayor Antonio Villaraigosa is actively pursuing the development of a cleantech cluster as a top priority. However, Los Angeles must develop specific policies to attract and create incentives for cleantech firms to locate within city limits.

As part of a larger study to provide recommendations for business attraction policies, I referenced six key factors company executives or staff with site selection responsibilities evaluate when making business location decisions: [1]

1. Workforce
2. Land & Facilities
3. Business Environment
4. Financing & Funding

5. Industry Clustering
6. Efficient Transportation Systems
7. Quality of Life

The above business placement factors can serve as a useful framework by which the City of Los Angeles can conduct a comprehensive review of their strengths and weaknesses. A strong understanding of the region's comparative advantages and disadvantages is critical in understanding where Los Angeles has areas for improvement, and where they need to target their economic development programs to make the city more attractive to cleantech firms.

Policy Question

For the purposes of this analysis, I strive to understand the current landscape of cleantech firms within the Los Angeles region. Using visual representations through GIS, I aim to develop a better understanding of the following factors critical to cluster formation and firm attraction:

1. How do emerging firm clusters align with the following factors for site location?
   - Land and facilities
   - Efficient transportation systems
2. Which new cluster areas appear to have the strongest concentration of employees and workers?

A GIS-informed understanding of these current firm location patterns can then be used to address the larger policy question at hand: How can Los Angeles develop cleantech business incentives to foster cluster development from the existing cleantech business climate?

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[1] Business location factors were informed from the following survey: Development Counsellors International. "A View From Corporate America: Winning Strategies in Economic Development Marketing." 28 July 2008: 1. Accessed from http://www.aboutdci.com/dci/media/docs/Winning%20Strategies/DCI's%20Winning%20Strategies%20Report.pdf on 1 February 2010.

Land and Facilities

FIGURE 1. LOS ANGELES FIRM DISTRIBUTION IN RELATION TO INCENTIVE ZONES
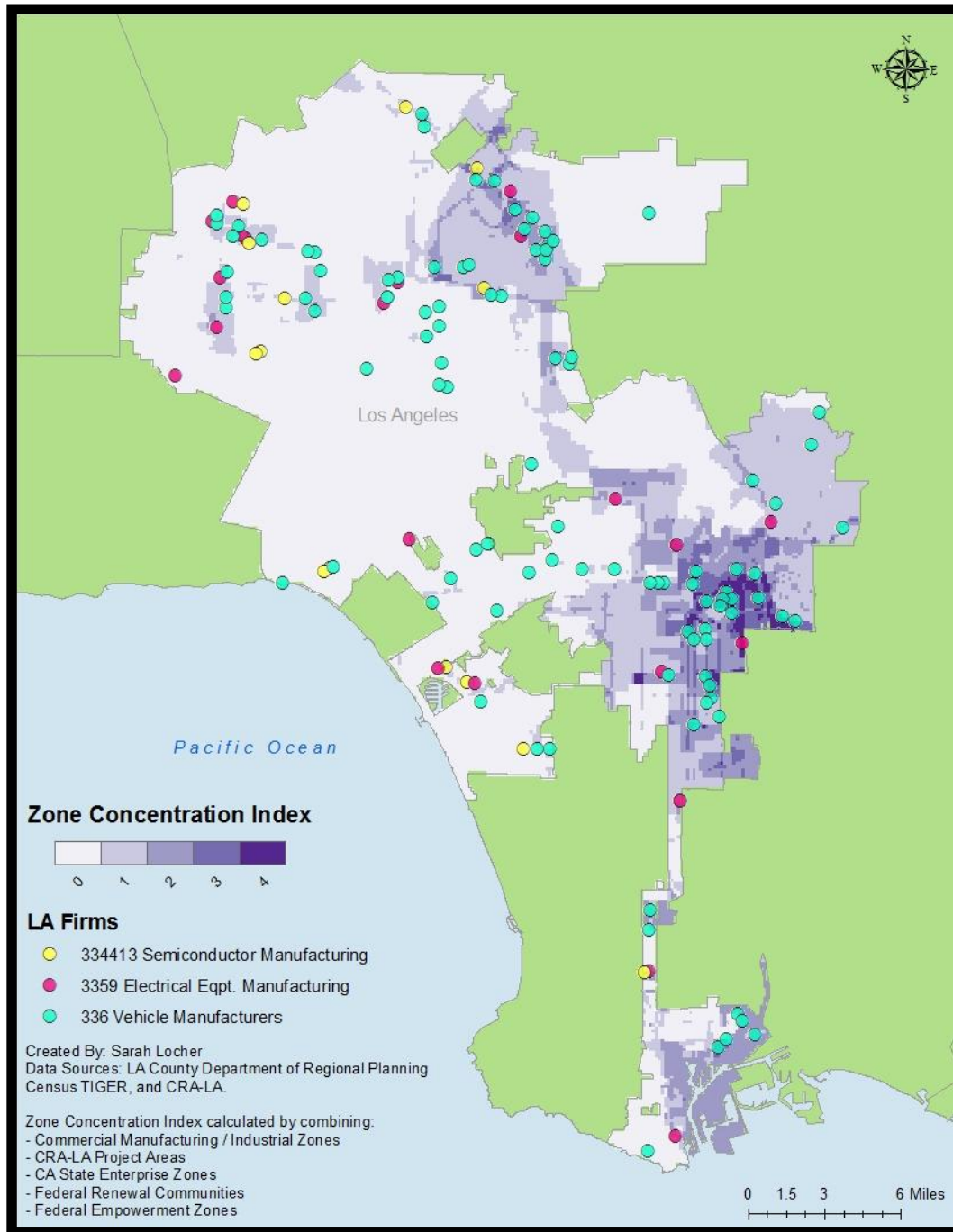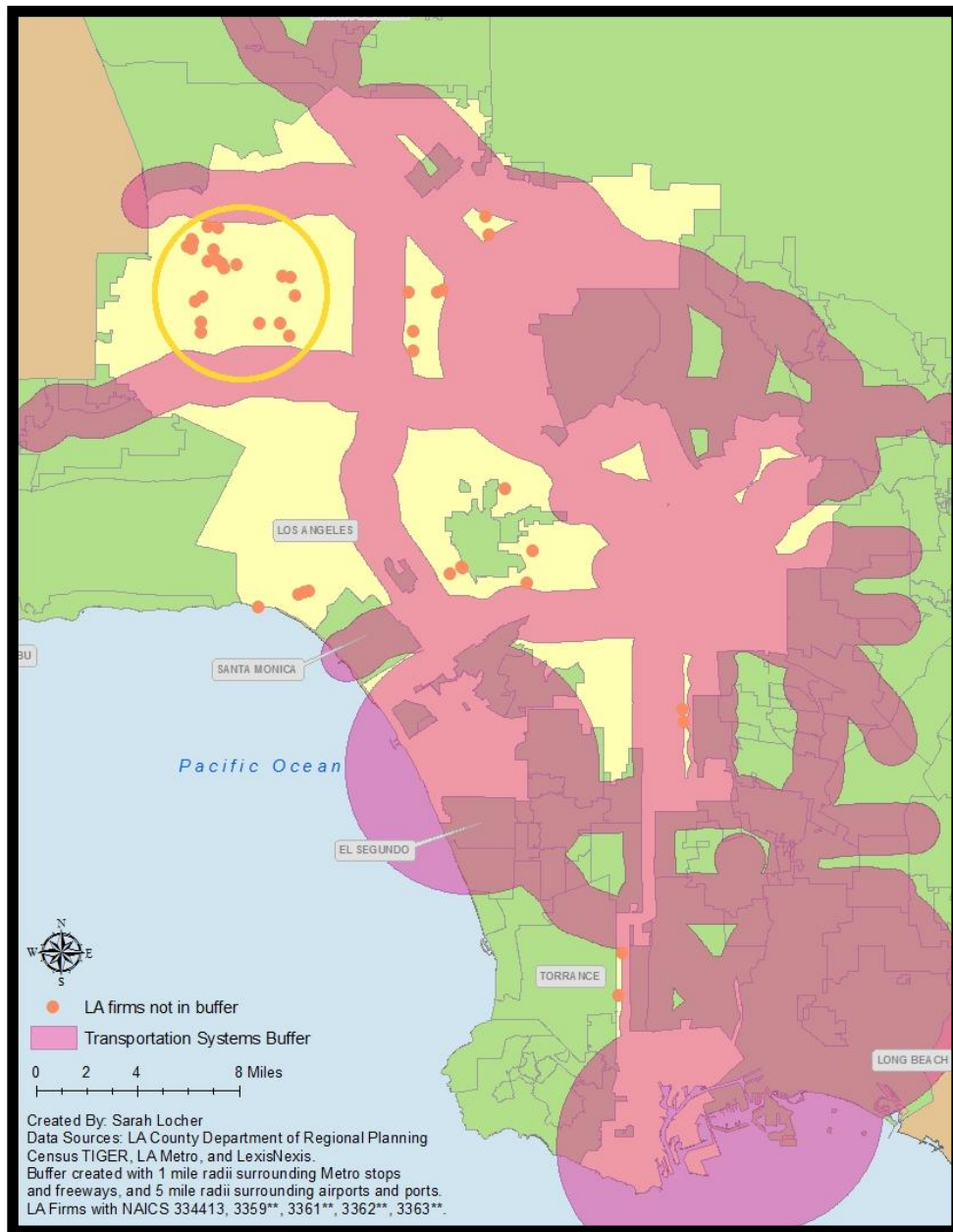

Key Finding

Firms are clustering within designated zoned areas, though mostly vehicle manufacturers appear to be near the zone concentrations and Cleantech Corridor.

Efficient Transportation Systems

FIGURE 2. LOS ANGELES KEY TRANSPORTATION SYSTEMS

**FIGURE 3. LOS ANGELES KEY TRANSPORTATION SYSTEMS BUFFER**

Methods Used

- **Buffer**: Buffer calculated at 1 mile surrounding Metro stops and freeways, and 5 miles surrounding airports and ports.

Key Findings from 11-14

The potential Chatsworth cluster is most underserved by transportation systems in terms of freeways, Metro, airports, and ports.
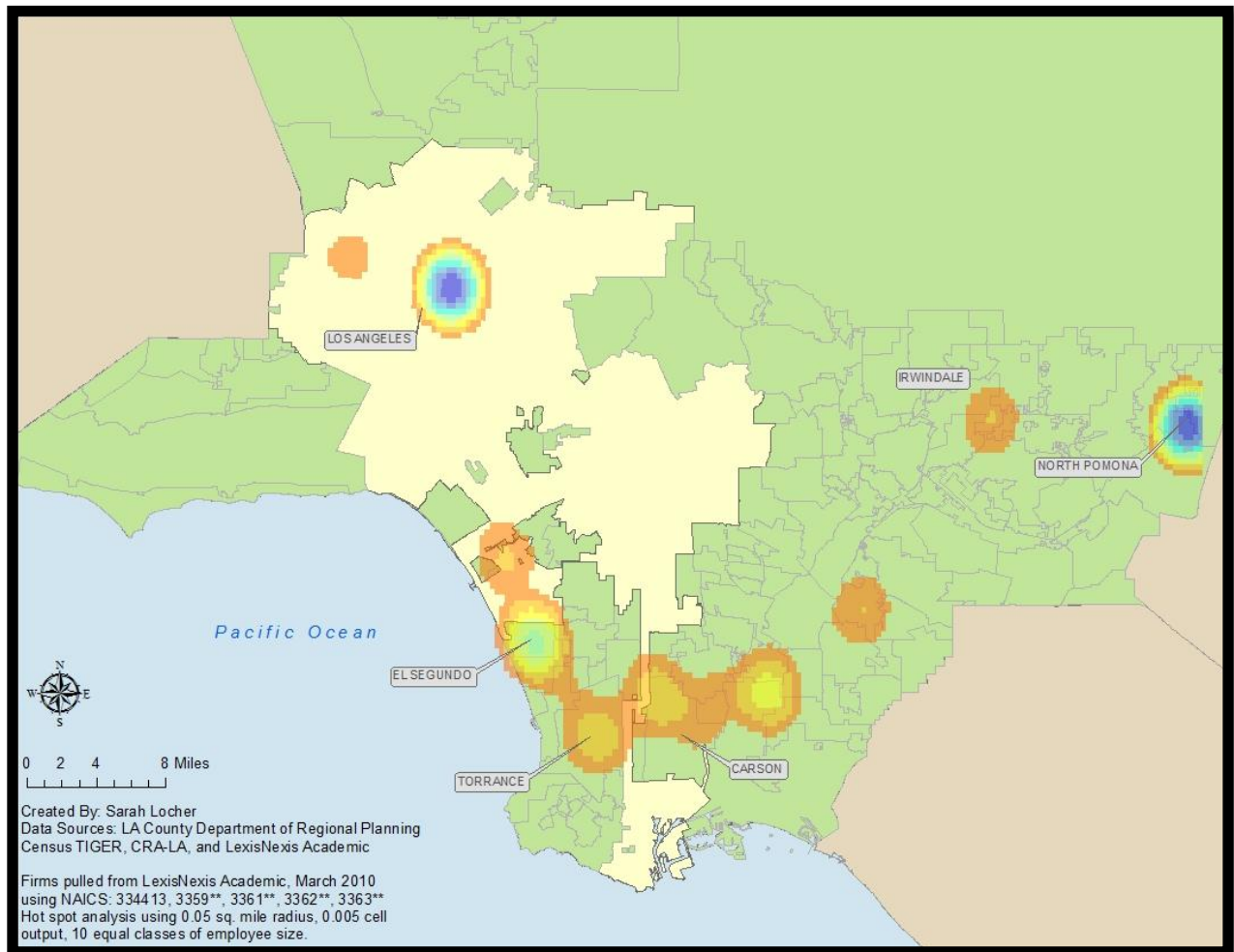
Emerging Clusters

FIGURE 4. LOS ANGELES KERNEL DENSITY OF FIRMS BY REVENUE
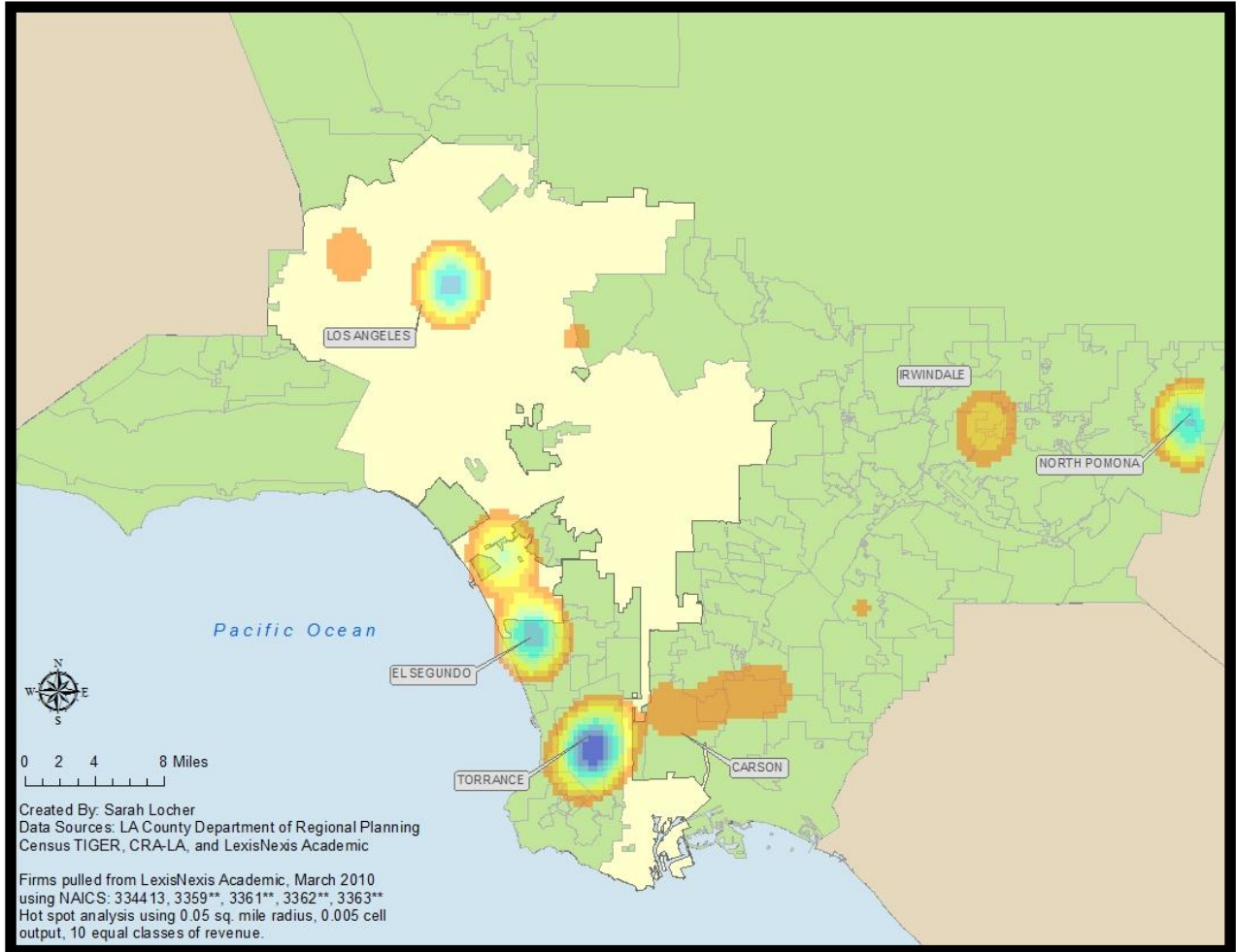
Methods Used

- **Kernel Density:** Hot spot analysis of revenue and employment of firms using a 0.05 square mile radius and 0.005 cell output. Divided into 10 equal breaks.

FIGURE 5. LOS ANGELES KERNEL DENSITY OF FIRMS BY EMPLOYEES

Methods Used

- **Kernel Density:** Hot spot analysis of revenue and employment of firms using a 0.05 square mile radius and 0.005 cell output. Divided by equal intervals of 10.

Key Findings

Firm revenue and employment is most concentrated around Van Nuys, Chatsworth, and Playa Vista. El Segundo, Torrance, Irwindale, and Pomona pose significant competition outside city boundaries.

Summary Findings and Recommendations

Land Zones and Facilities

City zones overlap heavily in Downtown LA, where clustered firms are mostly vehicle manufacturers. However, Los Angeles must foster technological innovation amongst firms if it hopes to secure a first-mover advantage in the cleantech sector. Firms likely to have strong research and development components, like semiconductor manufacturers and battery manufacturers, have not yet located near the Cleantech Corridor. Los Angeles needs to consider pushing Los Angeles based firms towards existing northern Los Angeles clusters instead of downtown, or proactively recruiting firms with innovation potential to relocate near the Cleantech Corridor. In addition, the city may consider adding business assistance centers, cleantech incubators, or industry network associations to the Chatsworth and Van Nuys areas to encourage innovation amongst those particular types of firms.

Efficient Transportation Systems

Los Angeles is advantageously well-served by various means of transportation. However, the Chatsworth-area firms are markedly less connected than other potential cleantech cluster areas. If Los Angeles chooses to focus development within this region, City administrators should work with firm owners to identify transportation needs and increase accessibility in this region.

Emerging Clusters

Emerging clusters appear by job and revenue size in several key nearby cities: El Segundo, Torrance, Long Beach, Carson, Irwindale / West Covina, and Claremont / Pomona. However, Los Angeles city limits include strong showings near Van Nuys and Playa Vista, with the small cluster near Chatsworth apparent as well. Los Angeles needs to consider strategies to incentivize local firms to agglomerate near the Cleantech Corridor by analyzing and targeting these other zones. Further, they may consider the potential of the northern Los Angeles area clusters. They may consider rebranding an existing northern area incentive zone to market specifically towards cleantech, fostering an environment where one is already beginning to develop.

Appendix 1: Methodology

This policy issue poses several methodological constraints. First, there are difficulties identifying current cleantech firms in the region, as the cleantech sector is not clearly defined. Los Angeles has expressed a general interest in pursuing solar and electric vehicle industries, so I focused on these when possible. However, single North American Industry Classification System (NAICS) codes are not easily applicable to these sectors.

To express the area's potential for solar and electric vehicle manufacturing, I focus on two industries key to technological innovation for both solar and electric vehicles: semiconductor manufacturing (NAICS 334413) and electronic equipment and component manufacturing, which includes storage battery manufacturing (NAICS 3359**).[2] I also included vehicle manufacturing codes (NAICS 3361**, 3362**, and 3363**) to capture existing manufacturers with skills easily transferrable or applicable to electric vehicle manufacturing.

Using LexisNexis Academic's company dossier search feature, I pulled data for the above codes to determine clustering. This data includes estimated numbers of employees per firms and revenue, though I am uncertain of the frequency and accuracy with which this data is collected. I removed the Toyota sales office located in Torrance, California as the data included in LexisNexis was clearly representative of the Toyota Motor Corporation's sales, revenue, and NAICS classification as a whole rather than specific to the Torrance sales office. After geocoding firms and removing obvious duplicates or errors, 476 firms mapped at roughly a 90% match rate.

To address the business location factors defined above, I used land use information provided by the CRA/LA, and additional layers of major regional transportation systems. I further depicted the relative strength of regional clusters using Kernel density. However, given the drastic range of revenue and employee data between extremely large firms and small, the Kernel density measures are limited to only displaying the most prominent areas of strength.

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[2] Supply-chain breakdowns of solar and electric vehicle sectors by NAICS informed from the following sources:

George Sterzinger and Jerry Stevens. "Renewable Energy Demand: A Case Study of California." Renewable Energy Policy Project, Oct. 2006.

IbisWorld. "Battery Manufacturing in the US: 335591." Industry Report. Dec. 23, 2009.

IbisWorld. "Global Semiconductor and Electronic Components Manufacturing: C2524-GL." Industry Report. Nov. 4, 2009.

Appendix 2

COVER MAP. OVERVIEW OF ANALYSIS AREA AND ALL FIRMS
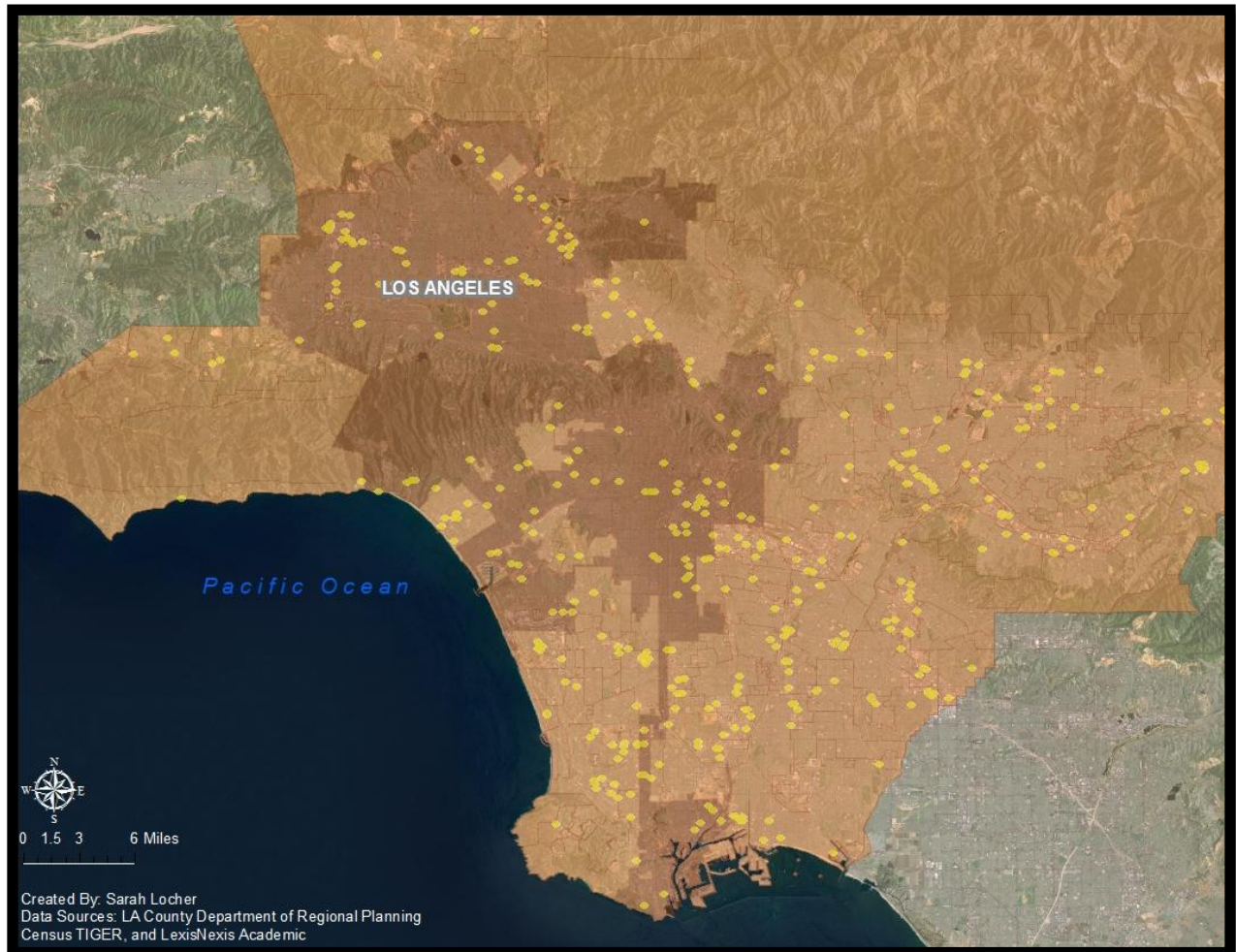
Data Sources

- Background image from ArgcGIS World Resource Center
- County boundary from ESRI / Census TIGER
- Los Angeles city boundary from the LA County Department of Regional Planning
- Yellow dots symbolize individual firms. Firm data is from LexisNexis Academic company dossiers for firms with NAICS codes beginning in 334413, 3359**, 336*** (specifically a combination of vehical manufacturing codes 3361**, 3362**, and 3363**) within Los Angeles County

Appendix 3: Land and Facilities Maps - Detail
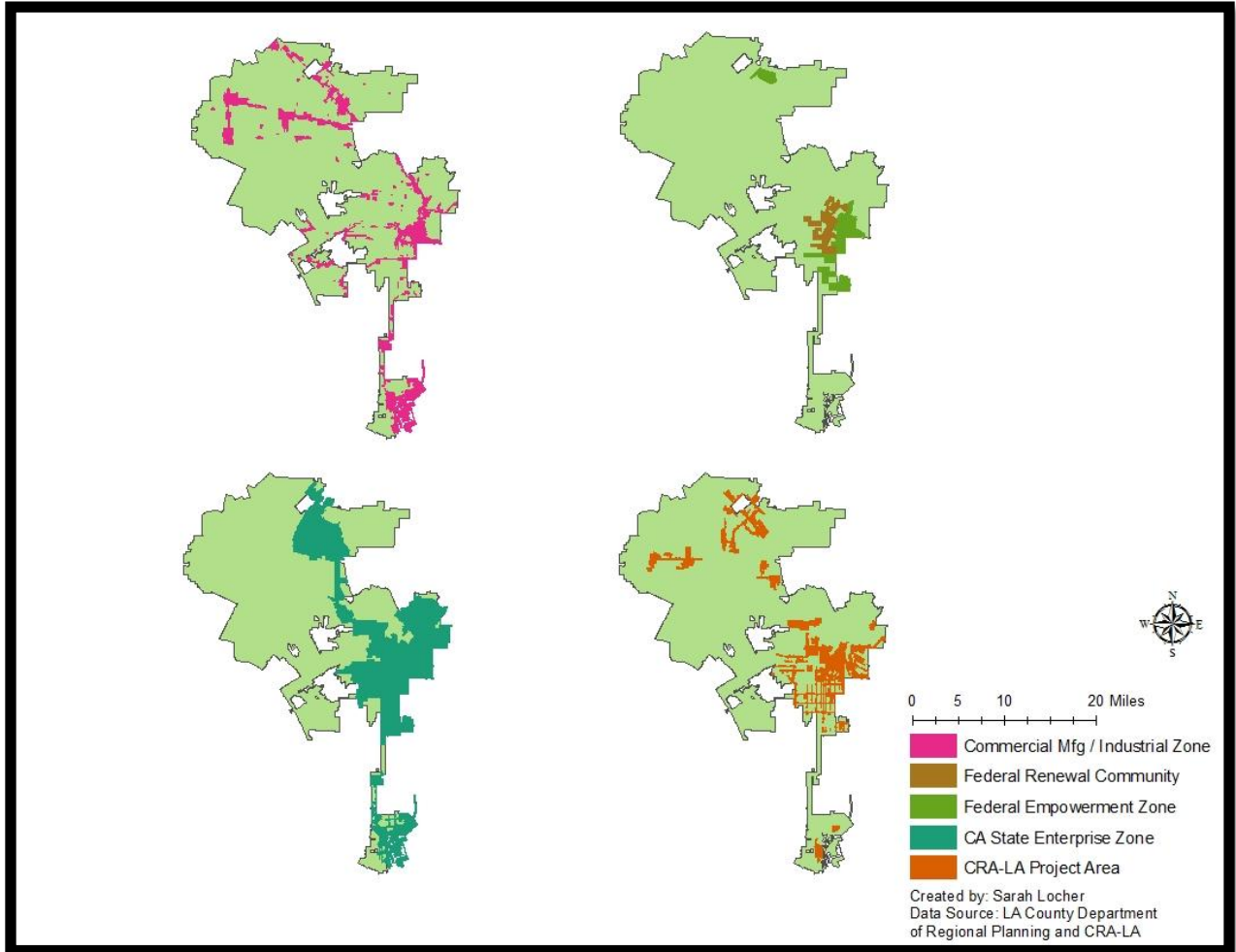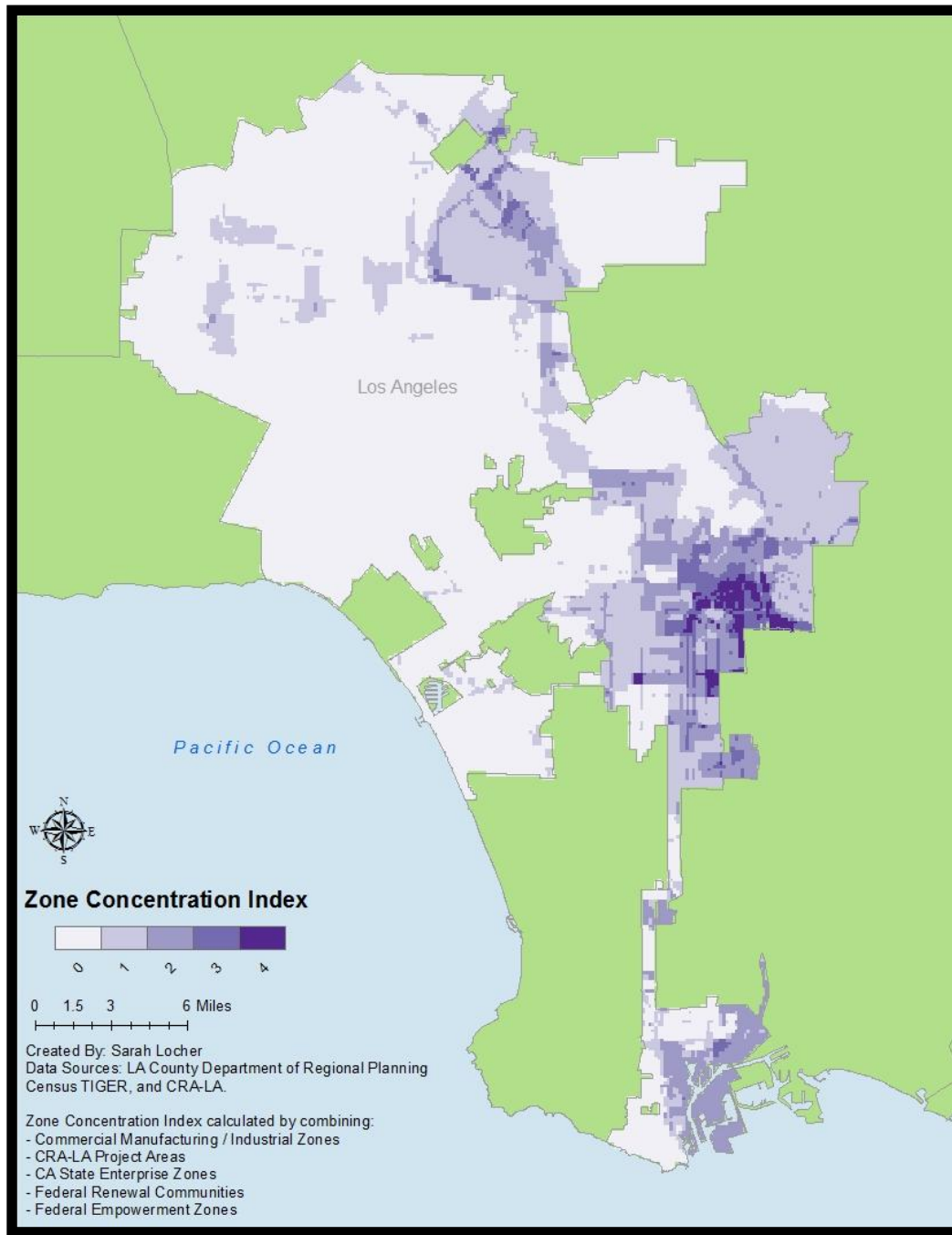
FIGURE 6. LOS ANGELES MANUFACTURING AND ZONING AREAS

Commercial Mfg / Industrial Zone
Federal Renewal Community
Federal Empowerment Zone
CA State Enterprise Zone
CRA-LA Project Area

Created by: Sarah Locher
Data Source: LA County Department
of Regional Planning and CRA-LA

FIGURE 7. ZONE CONCENTRATIONS WITHIN THE CITY OF LOS ANGELES

Key Finding

Incentive zones and industrial/manufacturing space are heavily concentrated in the downtown Los Angeles region.

FIGURE 8. THE CRA/LA DESIGNATED CLEANTECH CORRIDOR WITH RESPECT TO ZONE CONCENTRATION
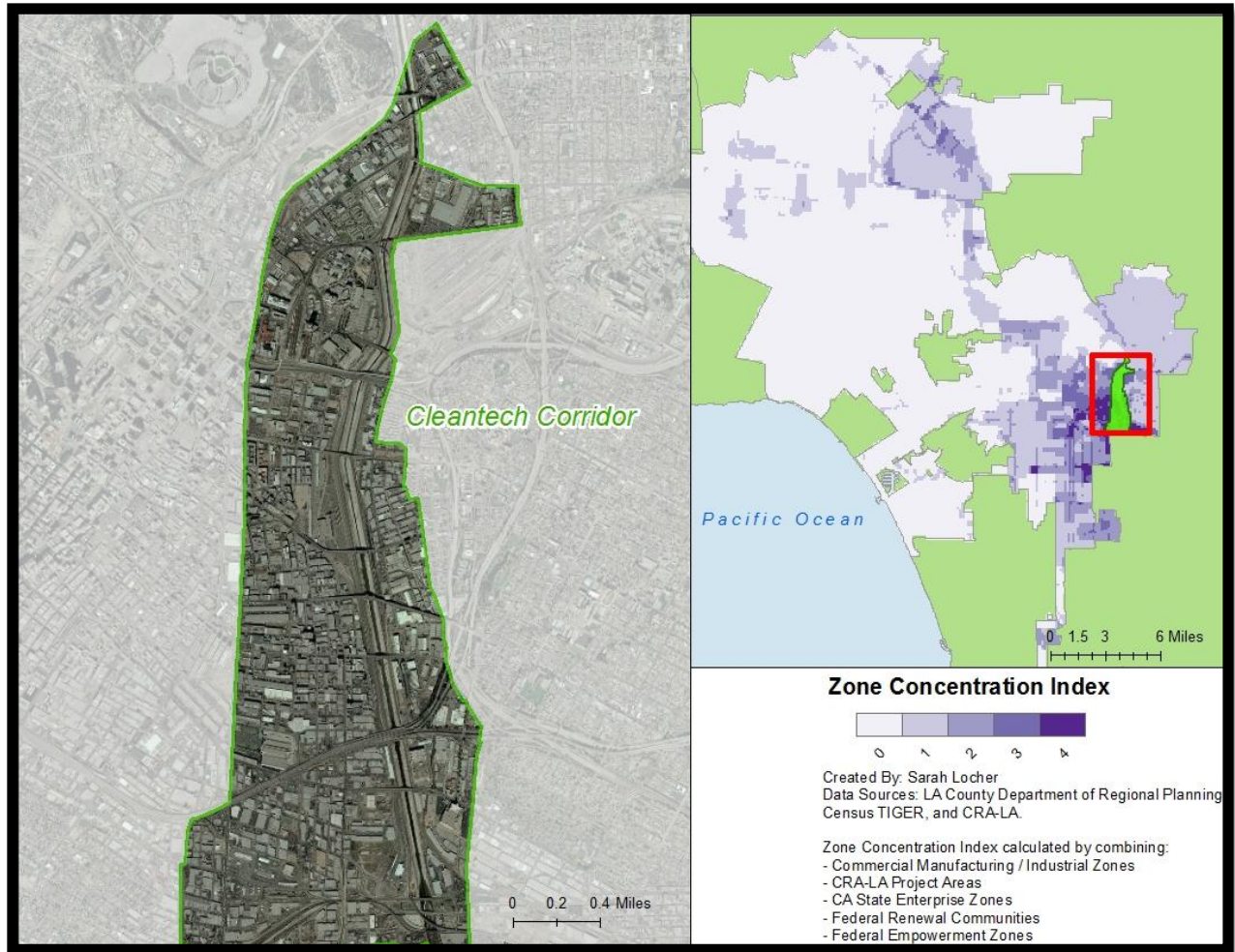
Key Finding

The Cleantech Corridor, designated by the City of Los Angeles and the CRA-LA, coincides with the largest concentration of existing zones.

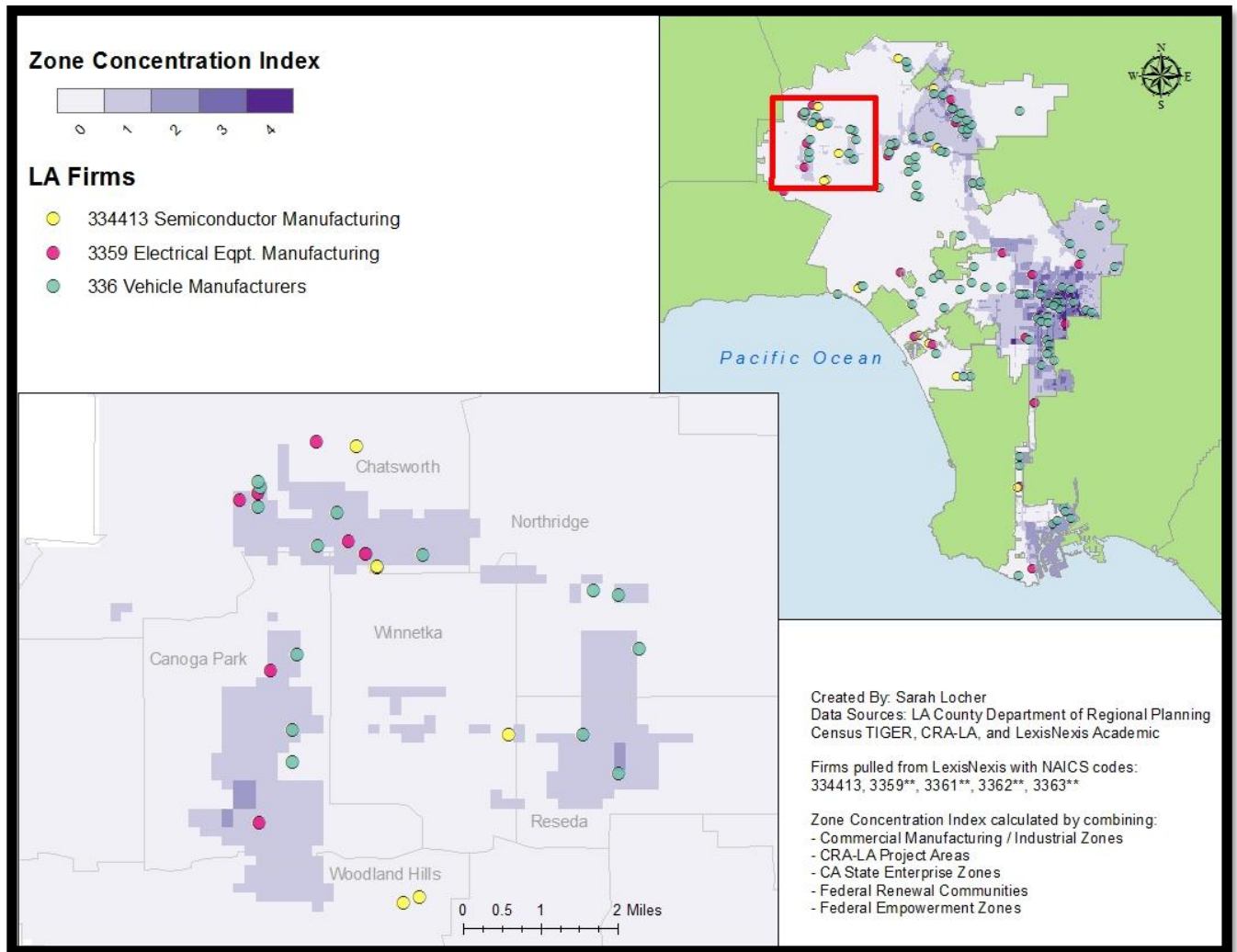**FIGURE 9. CLEANTECH-RELATED CLUSTER IN CHATSWORTH – CANOGA PARK**

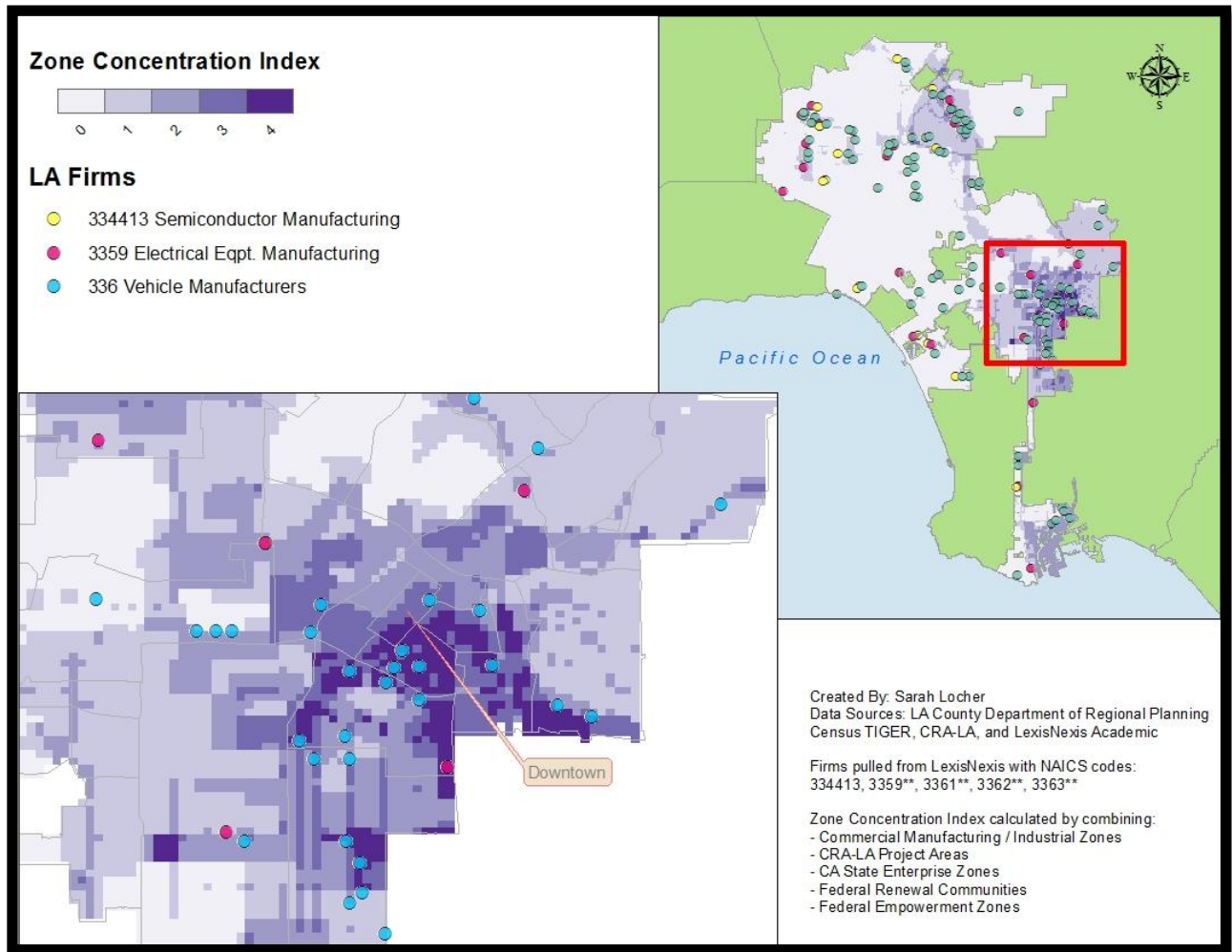**FIGURE 10. CLEANTECH-RELATED CLUSTER IN DOWNTOWN**

FIGURE 11. CLEANTECH-RELATED CLUSTER IN VAN NUYS – SUN VALLEY