

Catalyst Environmental Solutions

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SEPTEMBER 19, 2017

Californians for Energy Independence
c/o California Independent Petroleum Association
1001 K Street, 6th Floor
Sacramento, CA 95814

Subject: Evaluation of the Effects of Buffer Zone Setbacks on City of Los Angeles Oil and Gas Production

On behalf of the California Independent Petroleum Association (CIPA), Catalyst Environmental Solutions presents the findings of our analysis evaluating the potential effects of setback requirements on oil and gas production in the City of Los Angeles. In April 2017, the Los Angeles City Council President, Herb Wesson introduced a motion calling for a study analyzing the feasibility of a buffer zone or setback for wells located next to “sensitive land uses”, loosely defined in the motion as “homes, schools, hospitals, parks and public places”. Community activists have suggested a 2,500-foot buffer around all production wells in the city. We prepared this letter to summarize the potential effects of four specific setback scenarios on the production of oil in the City of Los Angeles. The four scenarios evaluated are: 1) 2,500 foot buffer, 2) 1,500 foot buffer, 3) 1,000 foot buffer, and 4) 500 foot buffer from “sensitive land uses”. Based on the results of our analysis, described in detail below, implementation of a 2,500-foot setback would result in a full shutdown of all oil and gas production wells in the City of Los Angeles. While the other three scenarios would reduce the number of affected wells slightly, even a 500-foot setback would result in the shutdown of 89% of the city’s oil and gas production wells.

Active Production Wells

Catalyst obtained the locations for all wells documented within the City from GIS shapefiles developed and maintained by the California Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR). This total list includes wells classified as either active, buried, idle, new, or plugged. Of these, active wells (totaling 846) were isolated and filtered down to exclusively oil and gas production wells for the remainder of this analysis. Based on this filtering method, Catalyst determined that there are a total of 632 active oil and gas production wells located within the city limits. See Table 1 for additional information.

Table 1. City of Los Angeles’ active well classifications and quantities.

Active Well Classification	Number of Wells in City of Los Angeles
Oil and Gas Production	632
Water Flood	161
Gas Storage	24
Observation	21
Water Disposal	5
Dry Gas	1
Oil and Gas / Cyclic Steam	2
Total	846

Selecting Sensitive Land Uses

Catalyst used City of Los Angeles Land Use data to identify sensitive land uses as described in the City Council motion. As displayed in Table 2, we included in our analysis all land use categories that correspond to residential or community uses.

Table 2. City of Los Angeles’ Land Use Classifications

Included in Sensitive Land Use		Excluded from Sensitive Land Use	
Community Commercial	Minimum Residential	Airport Airside	Intermodal Container
Community Commercial - Mixed High Residential	Limited Commercial – Mixed Medium Residential	Airport Landslide	Light Industrial
High Medium Residential	Public Facilities	Airport Northside	Light Manufacturing
High Residential	Public I Open Space	Commercial Fishing	Limited Industrial
Highway Oriented Commercial – High Med Residential	Public/Quasi-public Open Space	Commercial Manufacturing	Limited Manufacturing
Low I Residential	Recreation and Commercial	General Commercial	Neighborhood Commercial
Low II Residential	Open Space	Hazard Industrial Commercial	Neighborhood Office Commercial
Low Medium I Residential	Other Public Open Space	Heavy Industrial	Non-Hazard Industrial and Commercial
Low Medium II Residential	Very High Residential	Heavy Manufacturing	Parking Buffer
Low Medium Residential	Very Low I Residential	Highway Oriented and Limited Commercial	Regional Center Commercial
Low Residential	Very Low II residential	Highway Oriented Commercial	Region Commercial
Medium Residential	Very Low Residential	Hybrid Industrial	Regional Mixed Commercial

Determining Affected Wells

Using GIS software, we overlaid the active oil and gas production wells with the sensitive land uses and applied the four setback scenarios to identify which wells would be affected under each scenario. Figures 1 through 4 graphically present the results of this analysis. As shown in these figures and in Table 3 below, under the 2,500-foot setback scenario, all 605 production wells in the City of Los Angeles would be affected. However, even minimizing the potential setback to 500-feet would only exclude 68 production wells (89% of all wells would be

affected). Therefore, reducing the size of the potential setback scenario would not avoid adverse effects to production in the city.

Table 3. Results of Each Setback Scenario Analysis

Setback from Sensitive Land Use (Feet)	Number of Potentially Affected Wells (Shutdown)	Percentage of the Total Active Oil & Gas Production Wells in City of LA
500	564	89%
1000	590	93%
1500	621	98%
2500	632	100%

Impacts to Production

The API number of each well in the City was obtained from the GIS shapefile data gathered from DOGGR. Using total 2016 production values, obtained from DOGGR GIS staff in April 2017, and confirmed via the production records available on the DOGGR website, we calculated the potential loss of production that could occur under each of the four scenarios. The results of this analysis are displayed in Table 4. As shown in the table, in 2016, 2.7 million barrels of oil and 4.5 MCF of gas were produced in the City of Los Angeles, all of which would be lost under the 2,500-foot setback scenario, and nearly all lost under the 500-foot setback scenario.

Table 4. City of Los Angeles oil and gas production loss under each setback scenario analyzed.

Setback (Feet)	Production Loss from Setbacks	
	Oil (bbl)	Gas (MCF)
500	2,514,462	4,415,960
1000	2,640,349	4,509,947
1500	2,697,553	4,516,967
2500	2,735,105	4,524,706

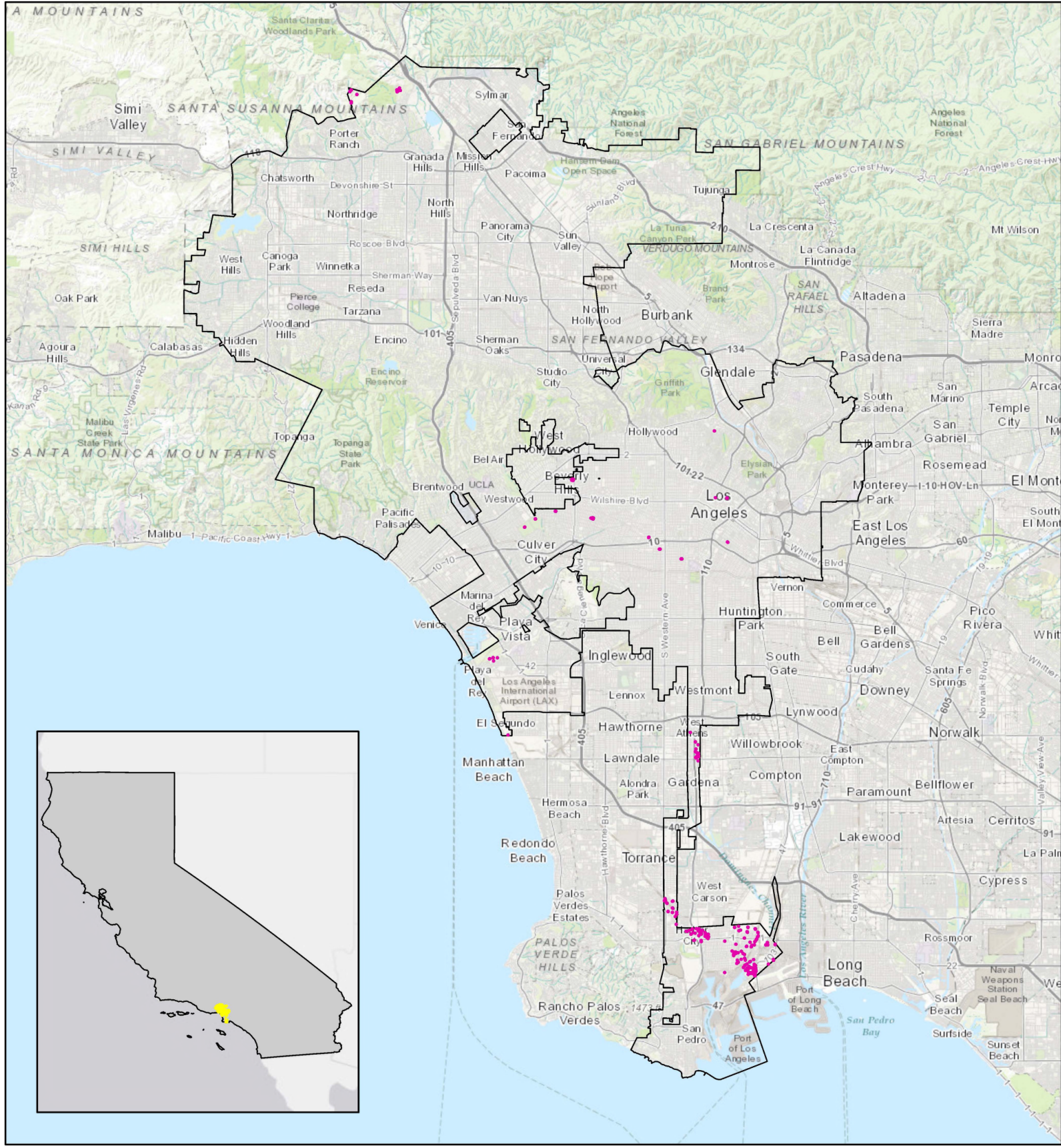
Catalyst appreciates the opportunity to assist Californians for Energy Independence and CIPA with this analysis. If you have any questions, or require any additional information, please feel free to contact me at mschwartz@ce.solutions or 818-387-5875.

Sincerely,

Megan Schwartz

Megan Schwartz

DIRECTOR OF REGULATORY COMPLIANCE AND PERMITTING
 CATALYST ENVIRONMENTAL SOLUTIONS



Legend

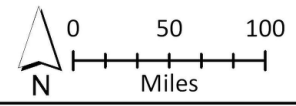
Active Oil & Gas Production Wells

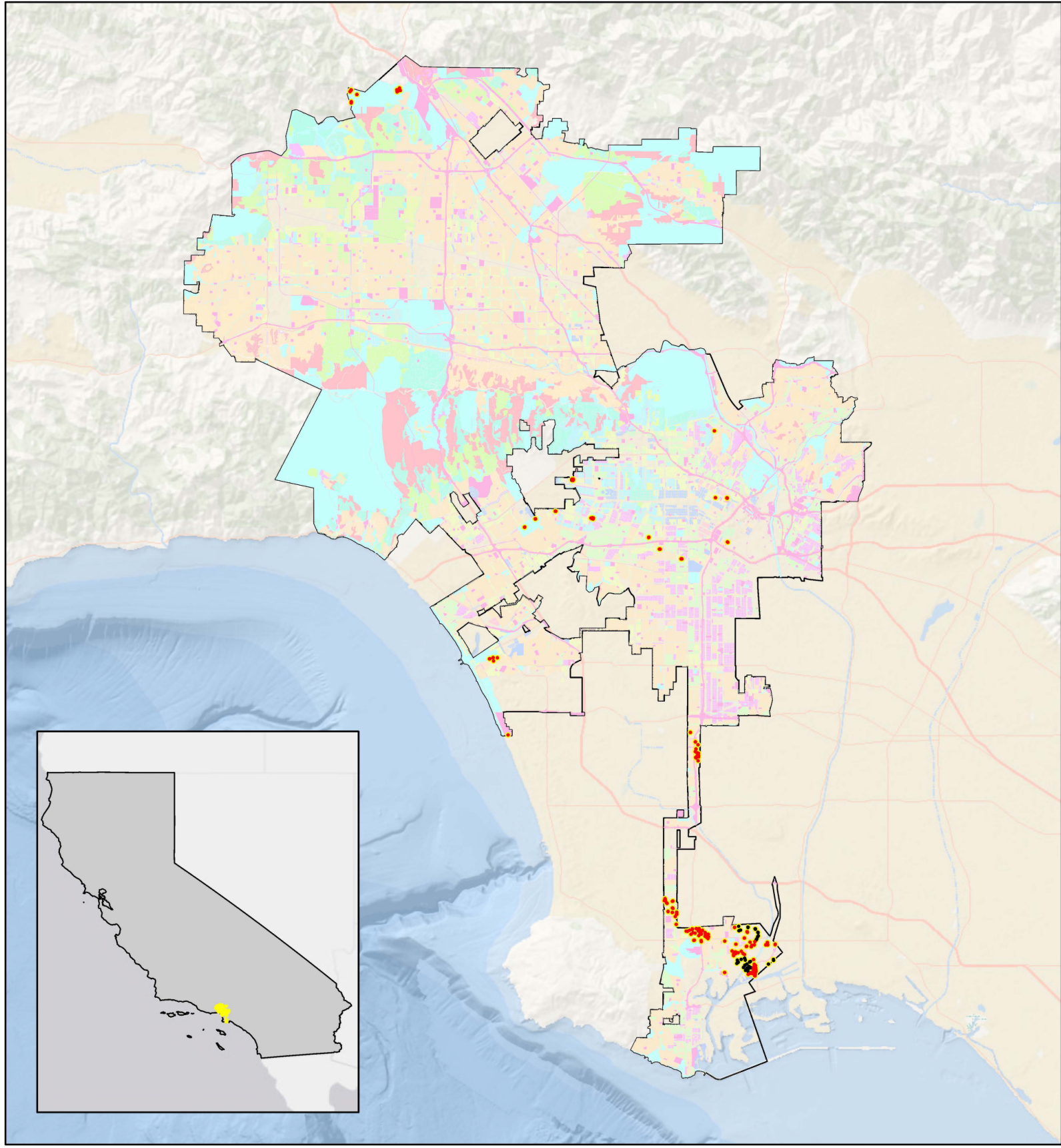
- Production Wells
- Los Angeles City Boundary

CITY OF LA PRODUCTION WELLS

Figure 1

California Independent Petroleum Association
 Oil & Gas Production Well Setback Analysis
 Date: September 19, 2017





Legend

Active Oil & Gas Production Wells

- Production wells affected by setback
- Production wells unaffected by setback
- 500 Ft. Setback

Sensitive Land Use

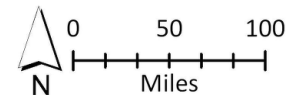
- Community Commercial
- Community Commercial - Mixed High Residential
- High Medium Residential
- High Residential

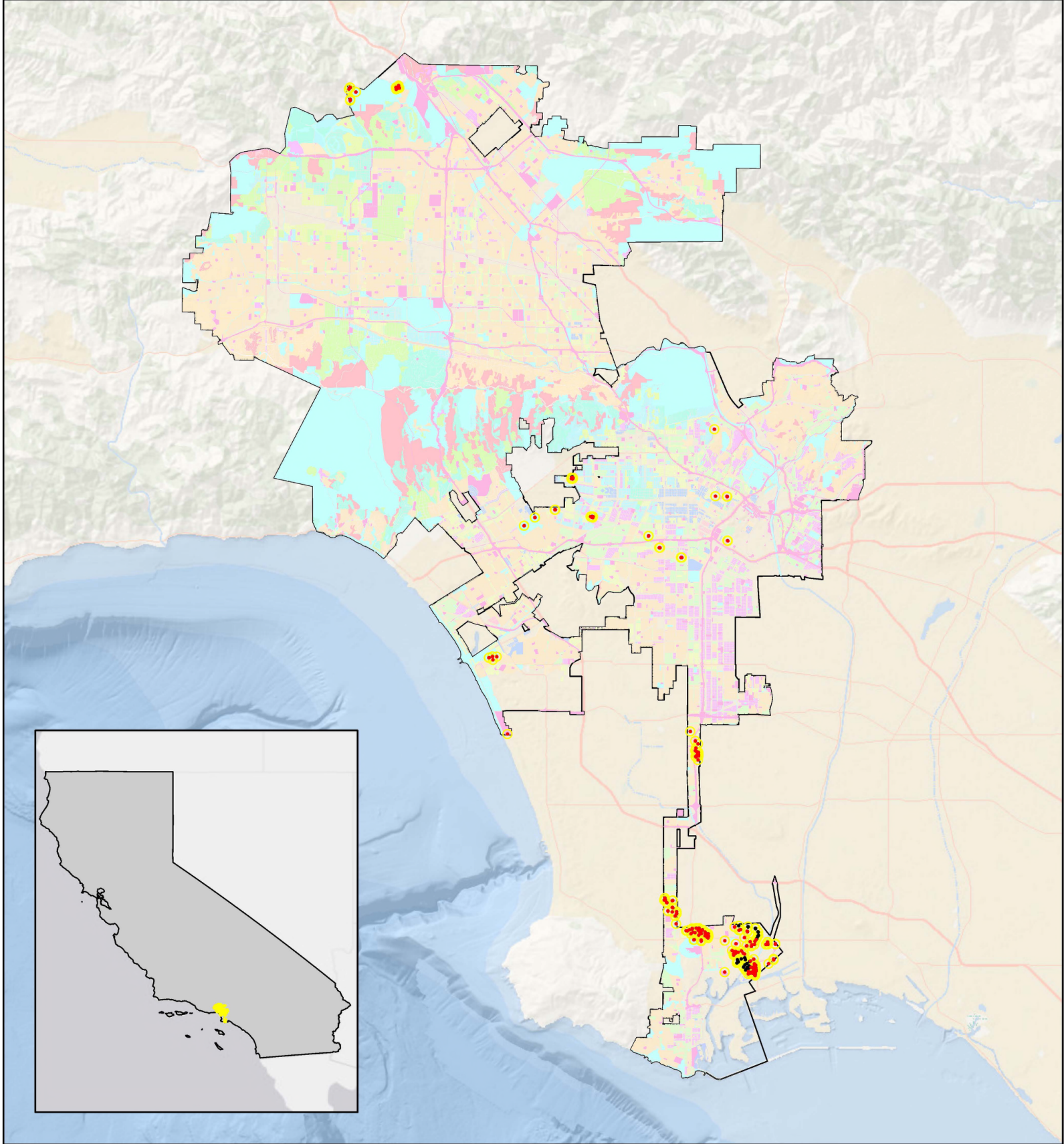
- Highway Oriented Commercial - High Med Residential
- Limited Commercial - Mixed Medium Residential
- Low I Residential
- Low II Residential
- Low Medium I Residential
- Low Medium II Residential
- Low Residential
- Medium Residential
- Minimum Residential
- Open Space
- Other Public Open Space
- Public Facilities
- Public I Open Space
- Public/Quasi-Public Open Space
- Recreation and Commercial
- Very High Residential
- Very Low I Residential
- Very Low II Residential
- Very Low Residential
- Los Angeles City Boundary

500 FT. SETBACK

Figure 2

California Independent Petroleum Association
 Oil & Gas Production Well Setback Analysis
 Date: September 19, 2017





Legend

- Active Oil & Gas Production Wells**
- Production wells affected by setback
 - Production wells unaffected by setback

1,000 Ft. Setback

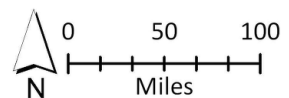
Sensitive Land Use

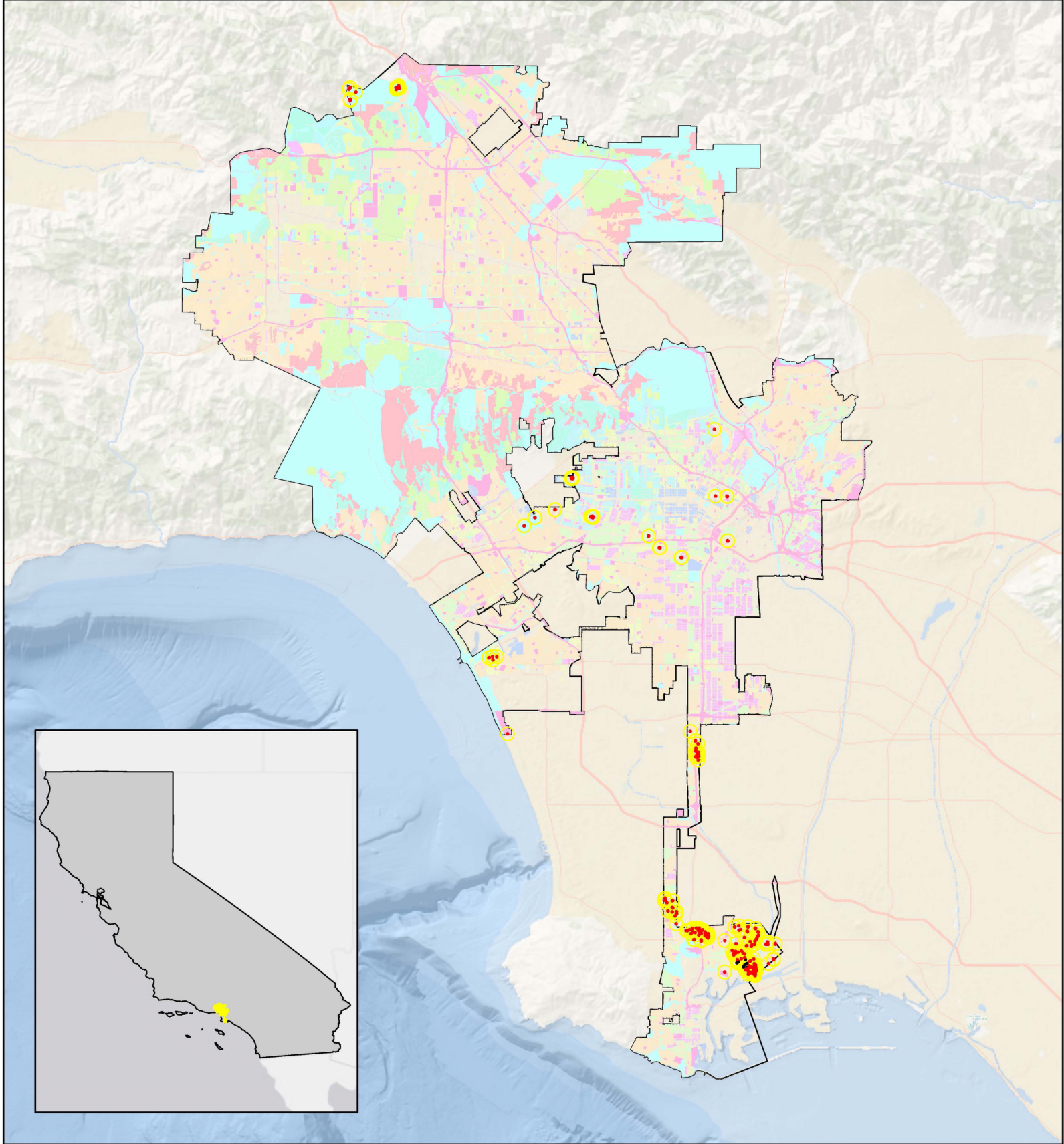
- | | | |
|---|--|--------------------------------|
| Community Commercial | Highway Oriented Commercial - High Med Residential | Other Public Open Space |
| Community Commercial - Mixed High Residential | Limited Commercial - Mixed Medium Residential | Public Facilities |
| High Medium Residential | Low I Residential | Public I Open Space |
| High Residential | Low II Residential | Public/Quasi-Public Open Space |
| | Low Medium I Residential | Recreation and Commercial |
| | Low Medium II Residential | Very High Residential |
| | Low Residential | Very Low I Residential |
| | Medium Residential | Very Low II Residential |
| | Minimum Residential | Very Low Residential |
| | Open Space | Los Angeles City Boundary |

1,000 FT. SETBACK

Figure 3

California Independent Petroleum Association
 Oil & Gas Production Well Setback Analysis
 Date: September 19, 2017





Legend

Active Oil & Gas Production Wells

- Production wells affected by setback
- Production wells unaffected by setback
- 1,500 Ft. Setback

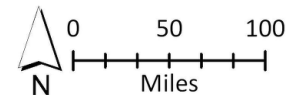
Sensitive Land Use

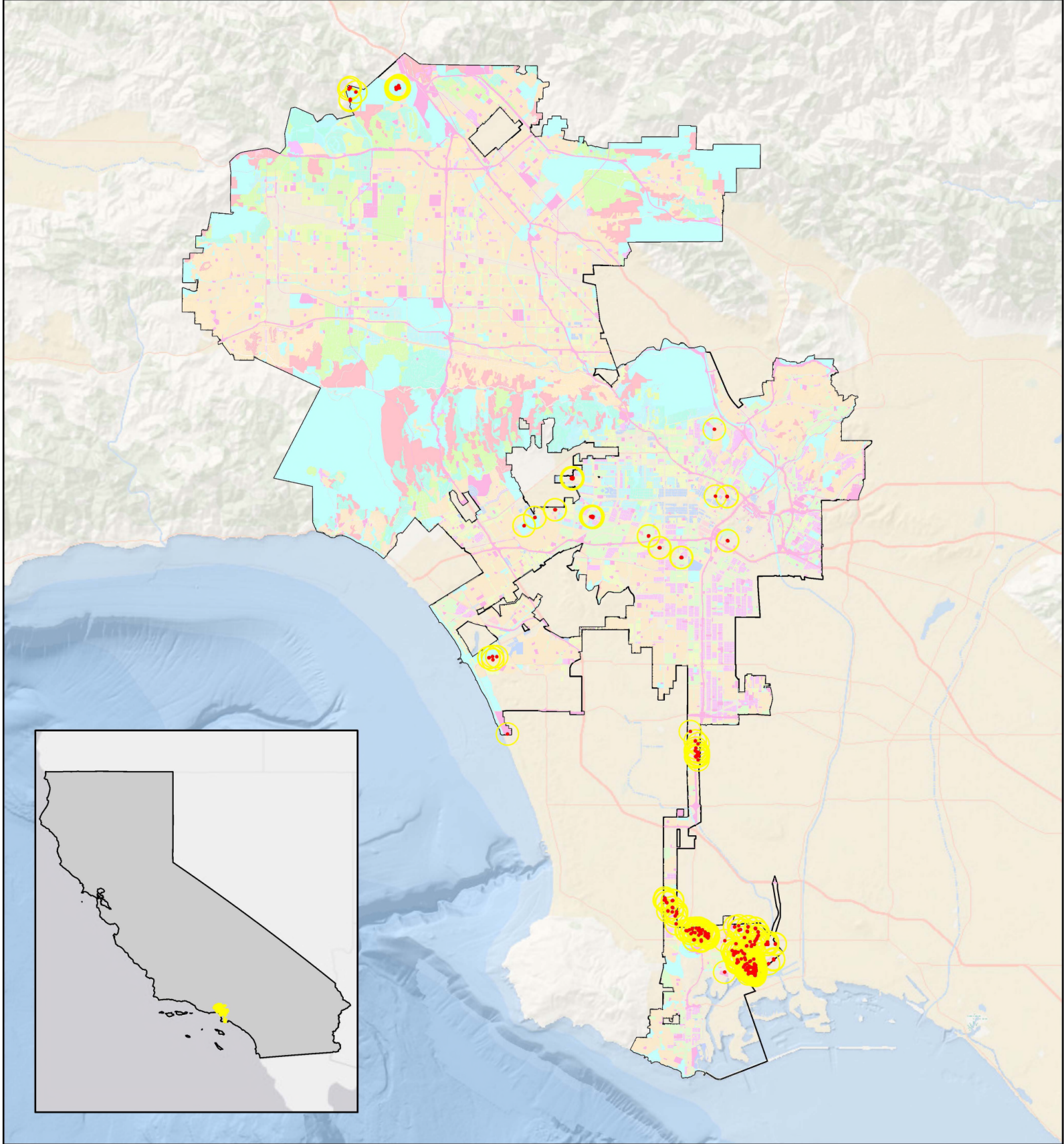
- | | | |
|---|--|--------------------------------|
| Community Commercial | Highway Oriented Commercial - High Med Residential | Other Public Open Space |
| Community Commercial - Mixed High Residential | Limited Commercial - Mixed Medium Residential | Public Facilities |
| High Medium Residential | Low I Residential | Public I Open Space |
| High Residential | Low II Residential | Public/Quasi-Public Open Space |
| | Low Medium I Residential | Recreation and Commercial |
| | Low Medium II Residential | Very High Residential |
| | Low Residential | Very Low I Residential |
| | Medium Residential | Very Low II Residential |
| | Minimum Residential | Very Low Residential |
| | Open Space | □ Los Angeles City Boundary |

1,500 FT. SETBACK

Figure 4

California Independent Petroleum Association
 Oil & Gas Production Well Setback Analysis
 Date: September 19, 2017





Legend

Active Oil & Gas Production Wells

- Production wells affected by setback
- 2,500 Ft. Setback

Sensitive Land Use

- Community Commercial
- Community Commercial - Mixed High Residential
- High Medium Residential
- High Residential
- Highway Oriented Commercial - High Med Residential

- Limited Commercial - Mixed Medium Residential
- Low I Residential
- Low II Residential
- Low Medium I Residential
- Low Medium II Residential
- Low Residential
- Medium Residential
- Minimum Residential
- Open Space

- Other Public Open Space
- Public Facilities
- Public I Open Space
- Public/Quasi-Public Open Space
- Recreation and Commercial
- Very High Residential
- Very Low I Residential
- Very Low II Residential
- Very Low Residential
- Los Angeles City Boundary

2,500 FT. SETBACK

Figure 5

California Independent Petroleum Association
 Oil & Gas Production Well Setback Analysis
 Date: September 19, 2017

