

NETWORK ANALYSIS OF URGENT HEALTH CARE FACILITIES IN L.A. COUNTY

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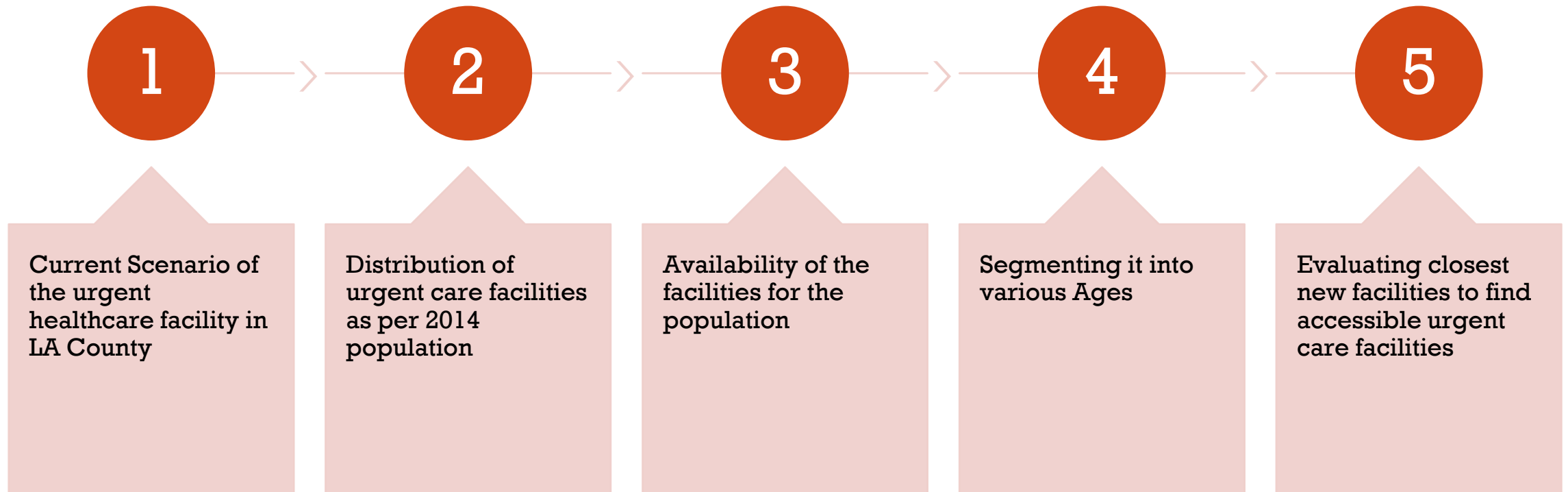


AGENDA

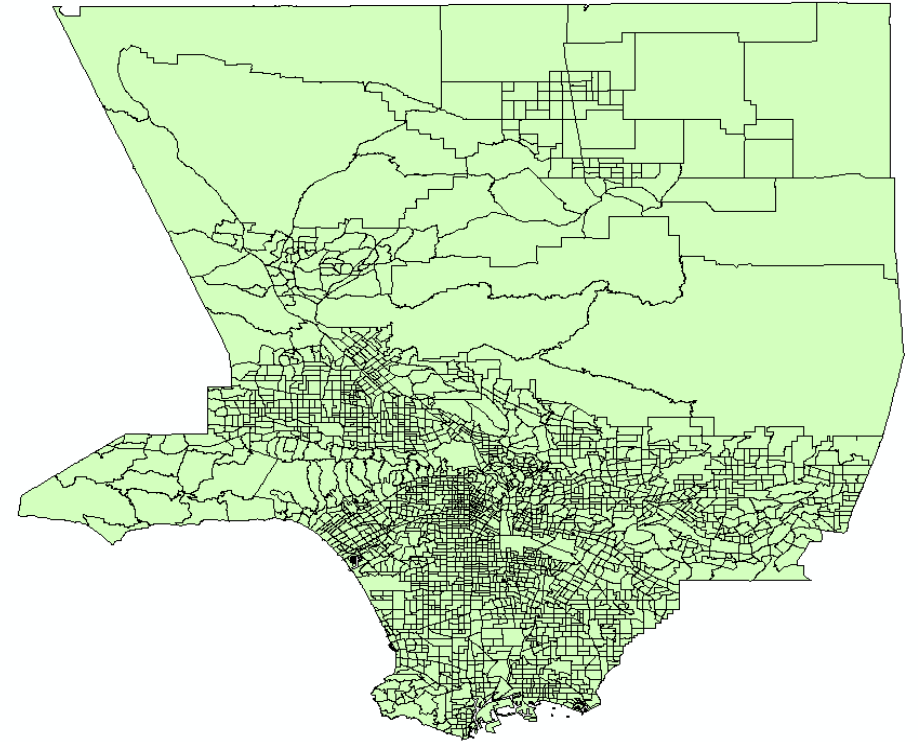
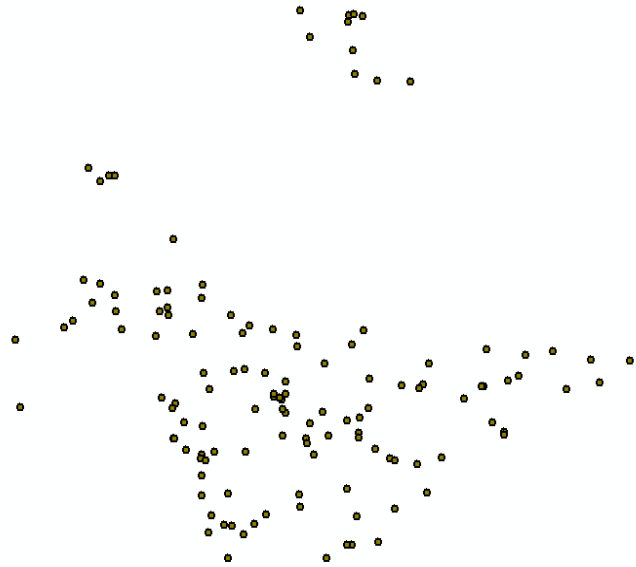
- Introduction.
- Research Problem.
- Current Scenario.
- Distribution of Urgent Health Care Facilities.
- Buffer Analysis.
- Network Analysis.
- Results and Conclusion.



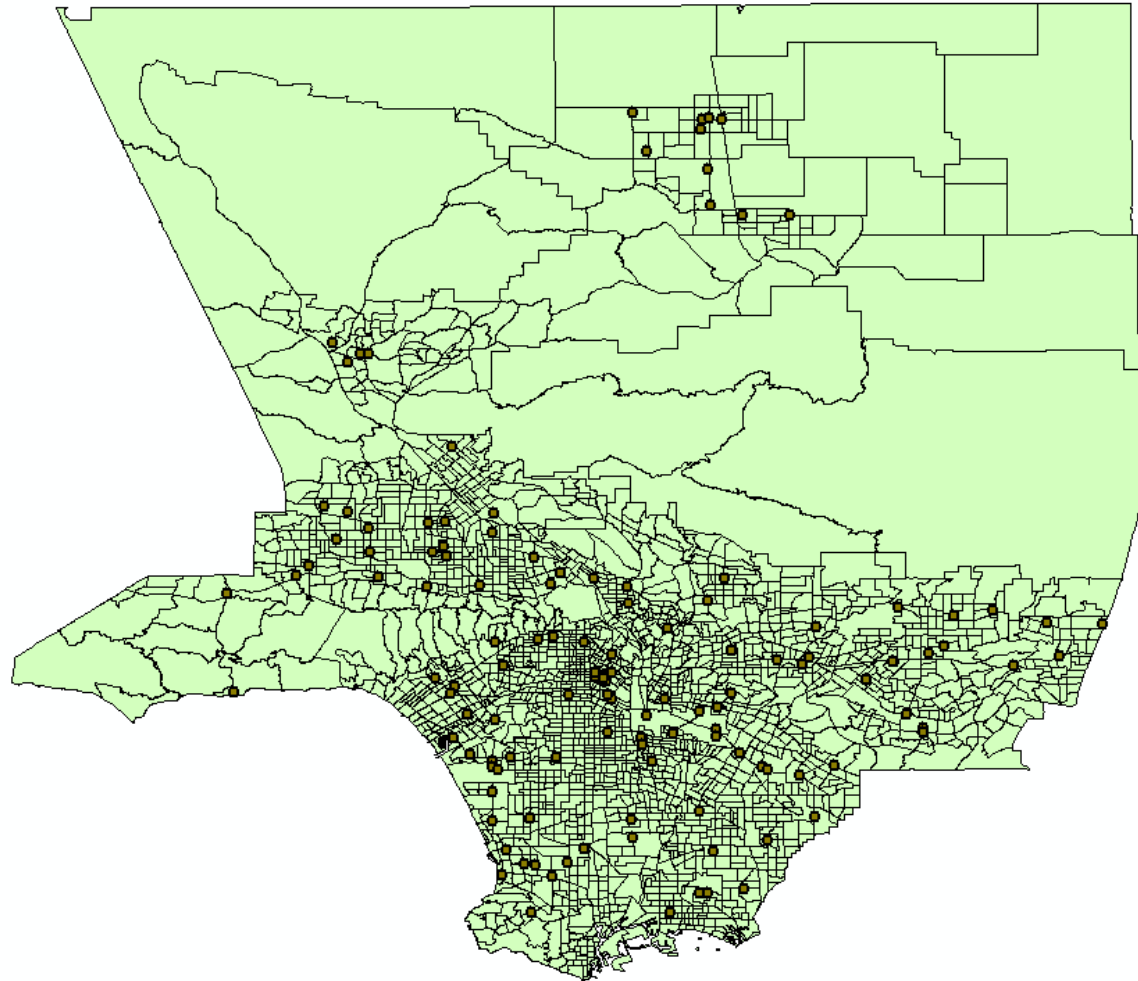
RESEARCH PROBLEM



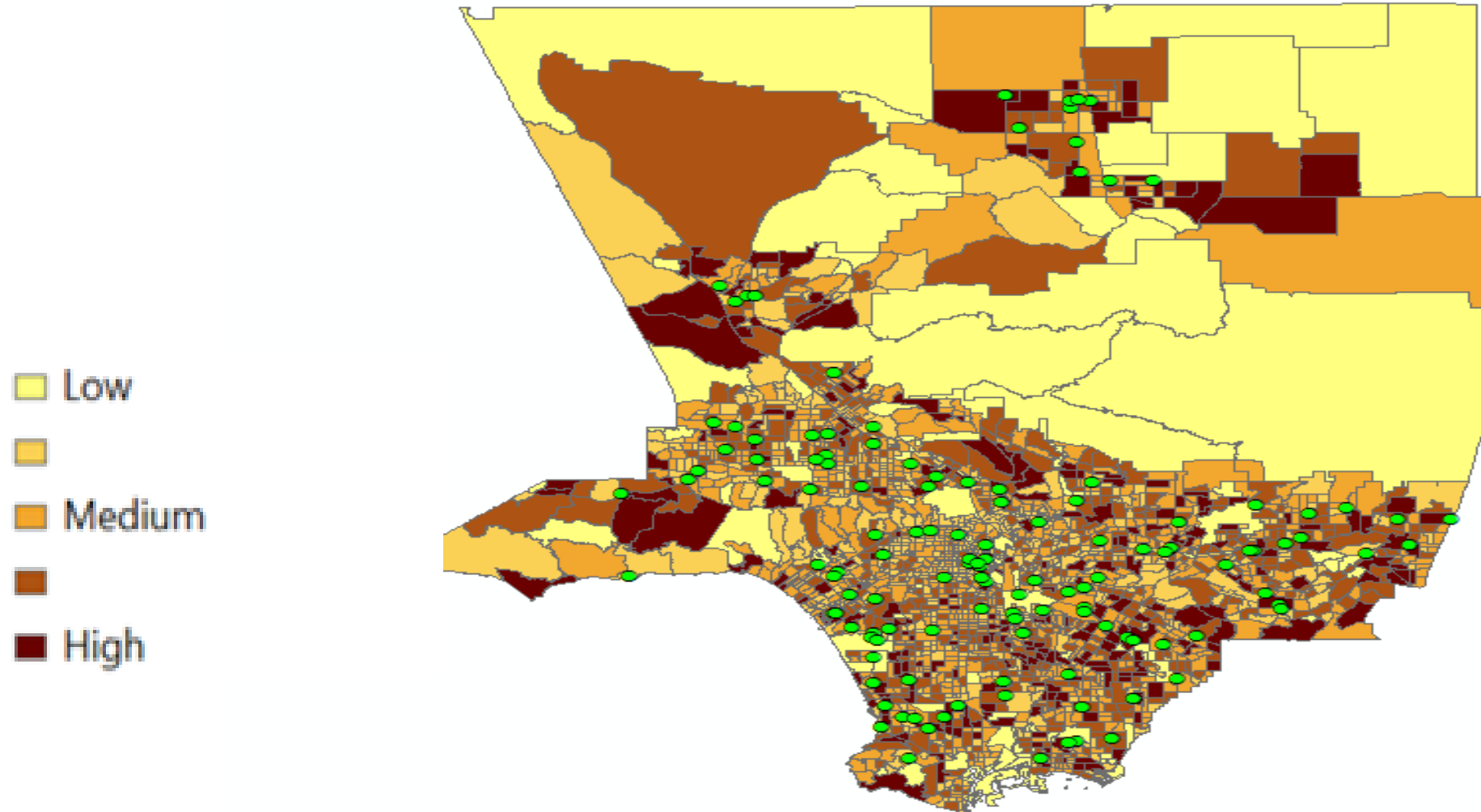
CURRENT SCENARIO OF THE URGENT HEALTHCARE FACILITY IN LA COUNTY



CURRENT SCENARIO OF THE URGENT HEALTHCARE FACILITY IN LA COUNTY

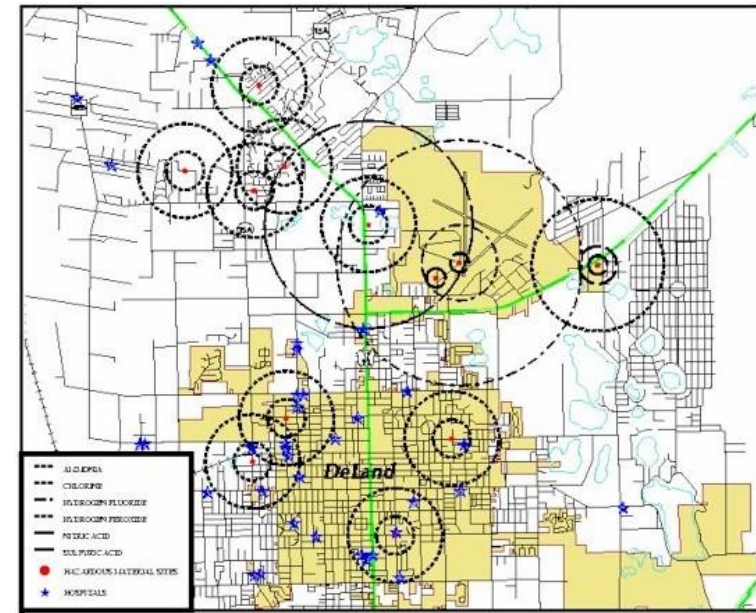


DISTRIBUTION OF URGENT CARE FACILITIES AS PER 2014 POPULATION

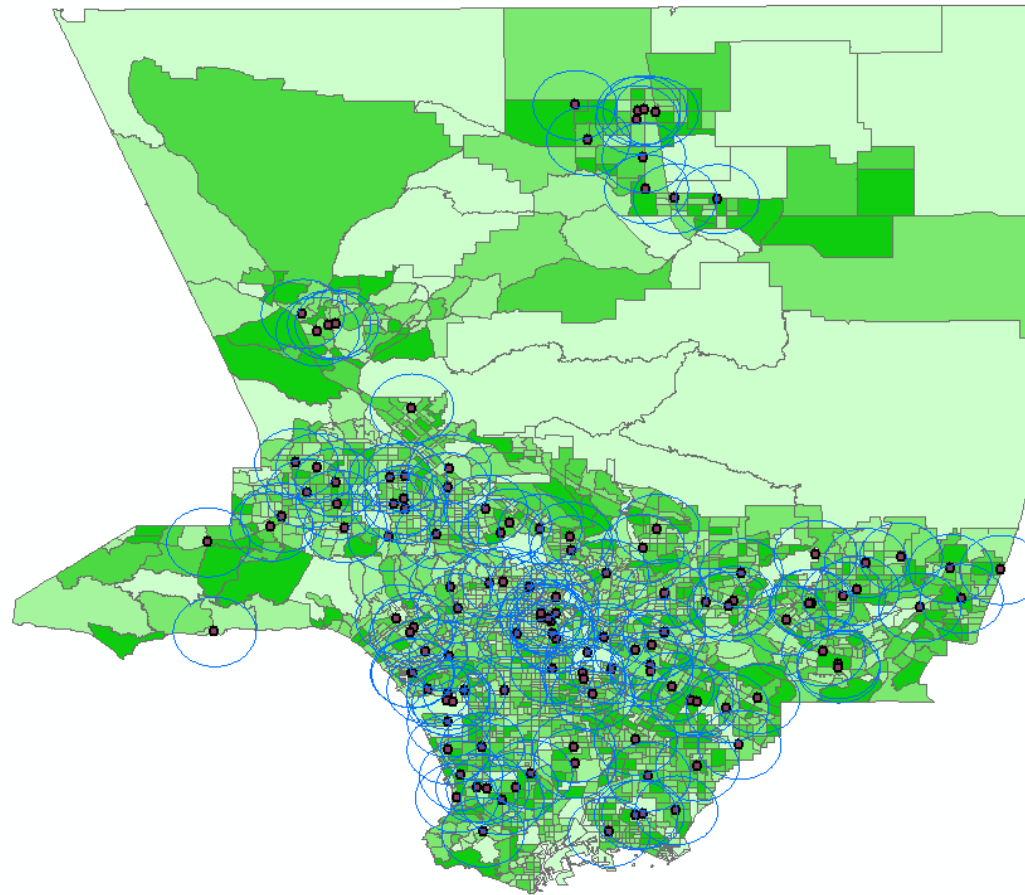


BUFFER ANALYSIS

- **Concept:** Buffer in GIS is a zone around map feature measured in units of distance or time.
- **Uses:** Buffer is useful for proximity analysis.



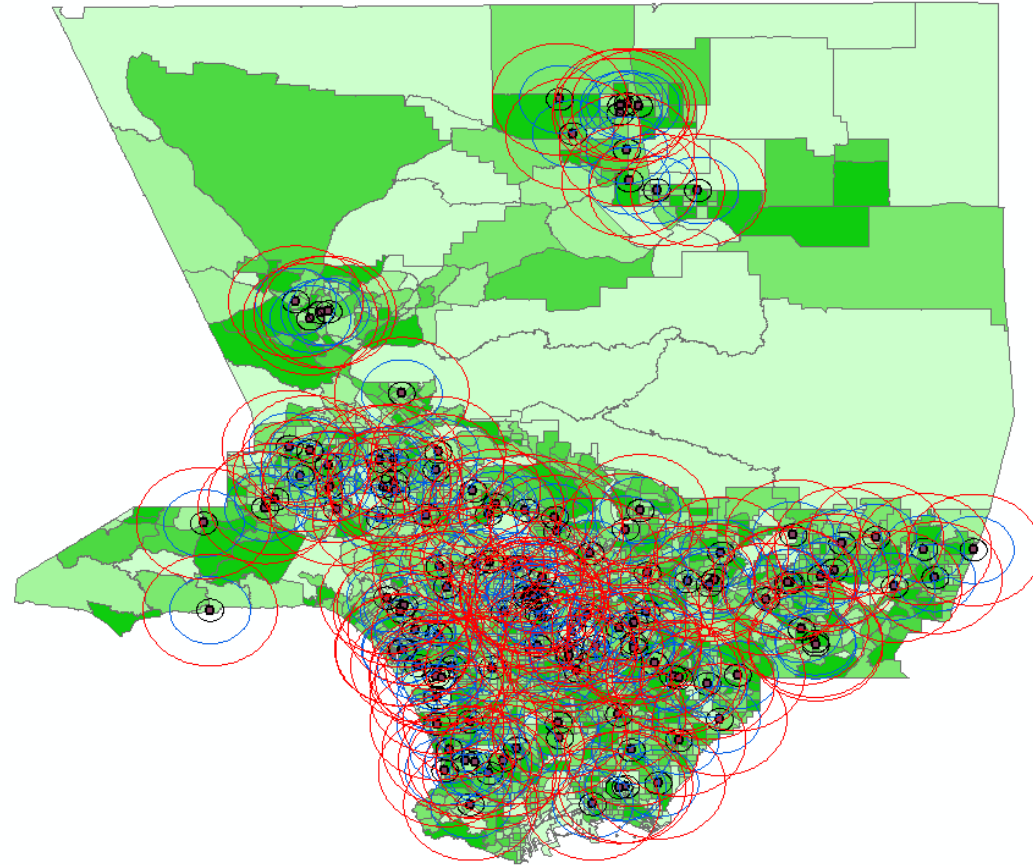
BUFFER ANALYSIS: AVAILABILITY OF THE FACILITIES FOR THE POPULATION



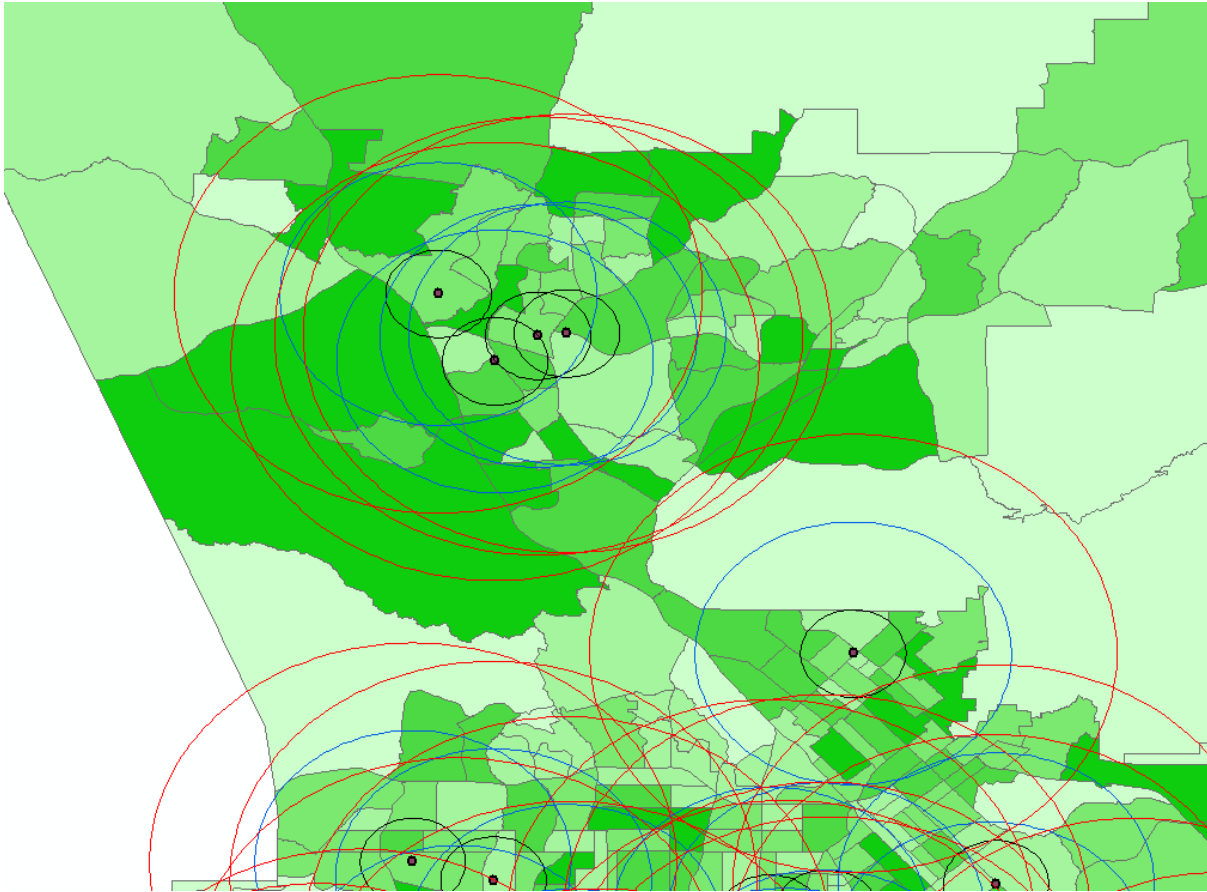
**Buffer covering 3
mile radius from
urgent care
facilities.**



BUFFER ANALYSIS-RADIUS (1, 3 and 5 mile)



BUFFER ANALYSIS-Zoomed Image



- Difficult to predict people from a particular area.



NETWORK ANALYSIS FOR SEGMENTATION

- Network analysis uses various network datasets to obtain a network model with innumerable routes.



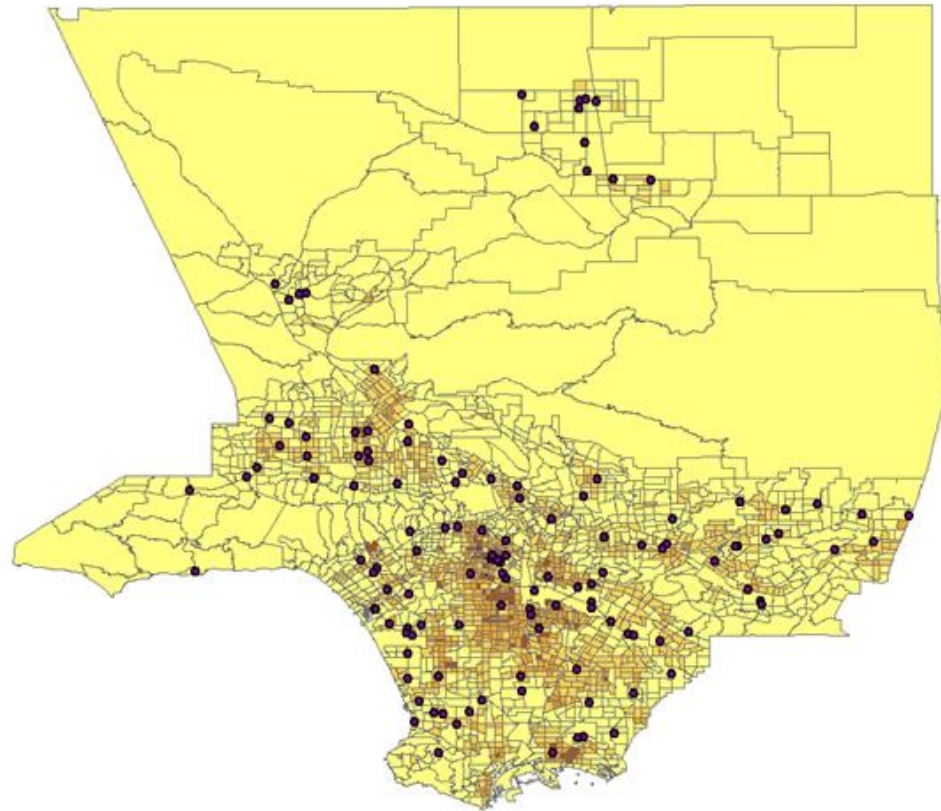
SEGMENTATION ACCORDING TO AGE

- Children Segmentation - 0 to 20 Age
- Middle Age Segmentation - 20 to 50 Age
- Old Age Segmentation - 50 to 90 Age



NETWORK ANALYSIS

Children Segmentation



☒ ChildrenSegmentation

Children / Sq_Mile

☐ Low



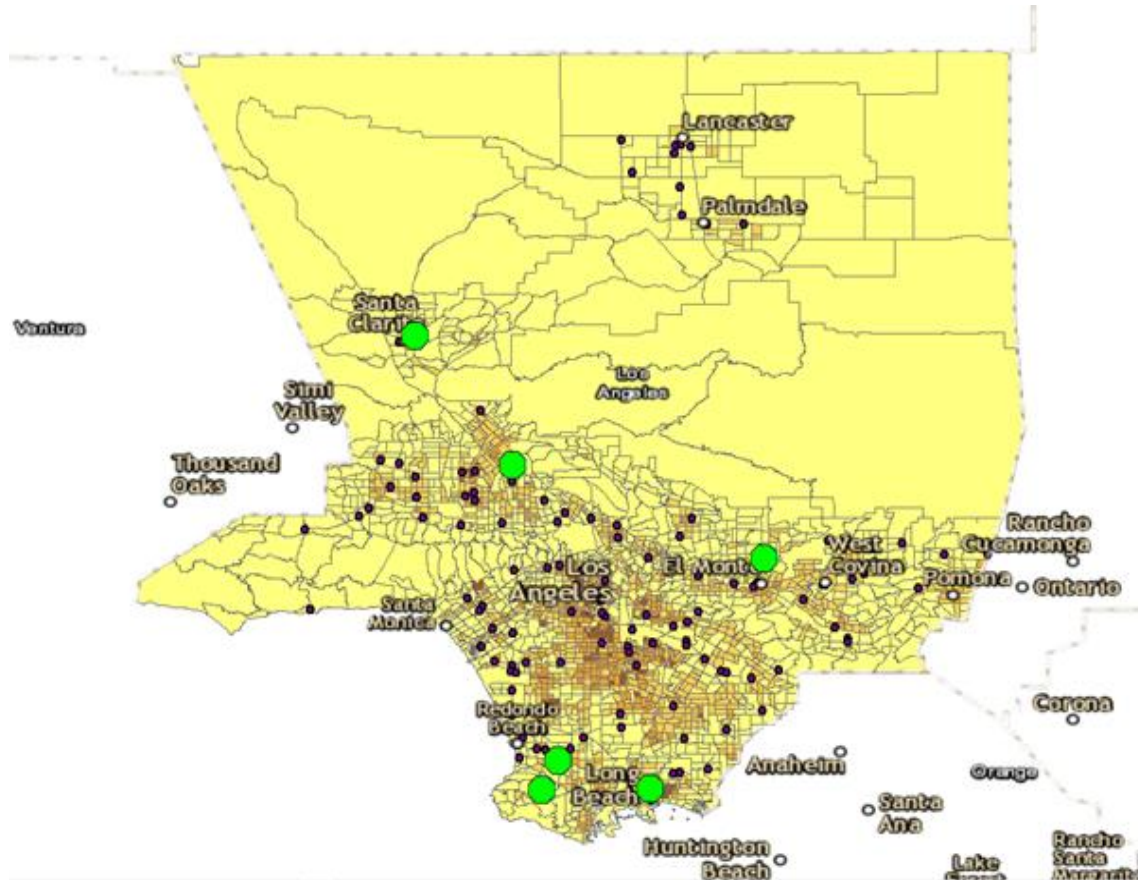
Medium



High



ADEQUACY OF FACILITIES

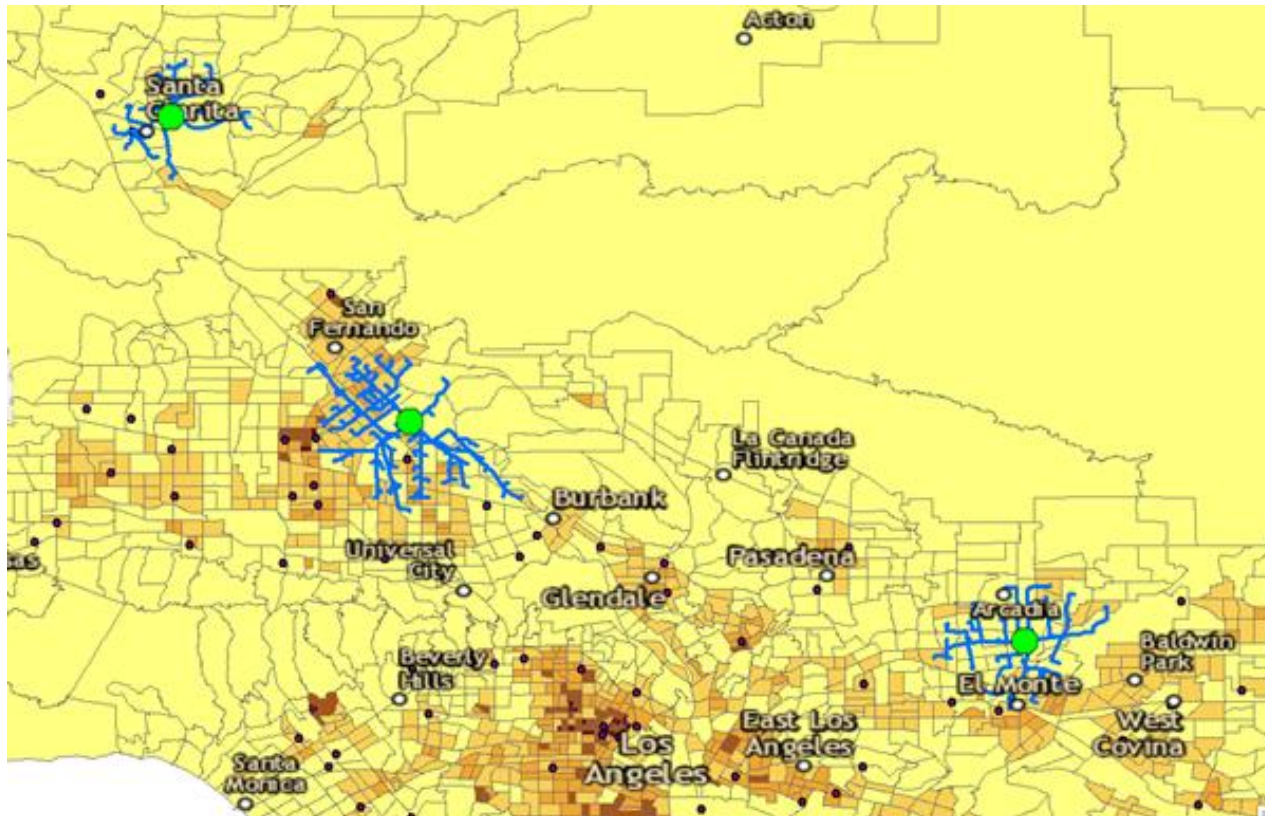


6 urgent care facilities
considered in rural and
urban setting



NETWORK ANALYSIS

Closest Facility Analysis (Rural)

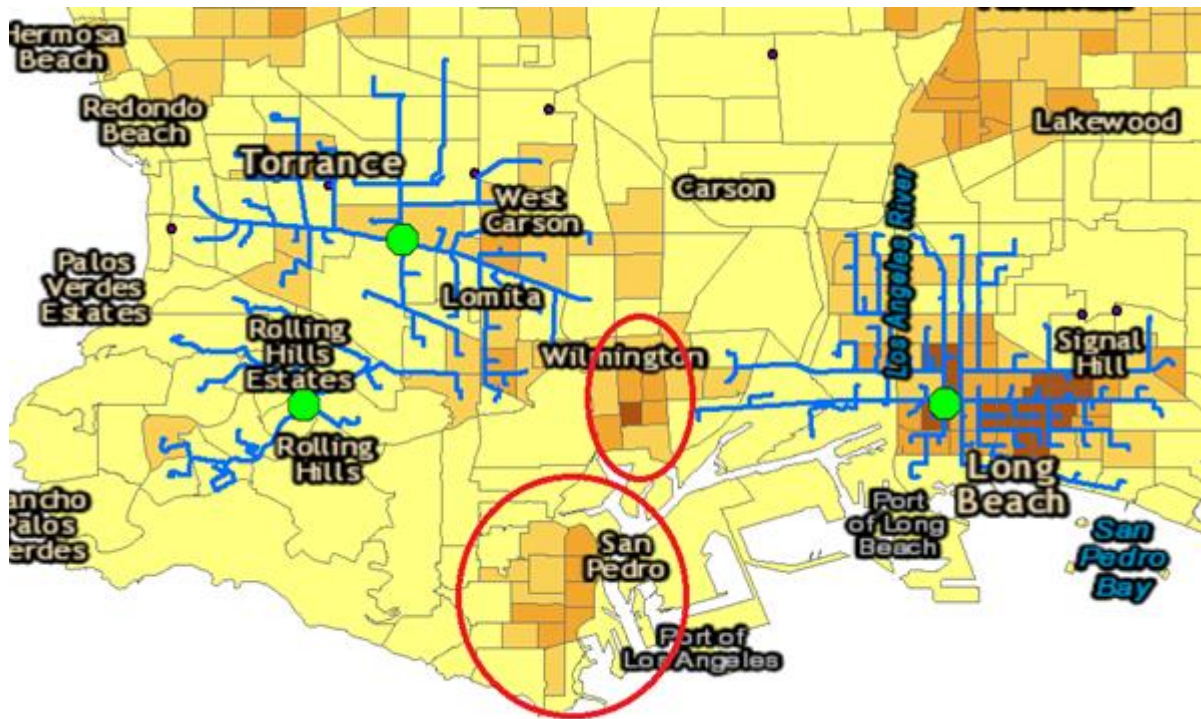


No new facilities
required in Santa
Clarita, San Fernando
and El Monte



NETWORK ANALYSIS

New Closest Facility (Urban)

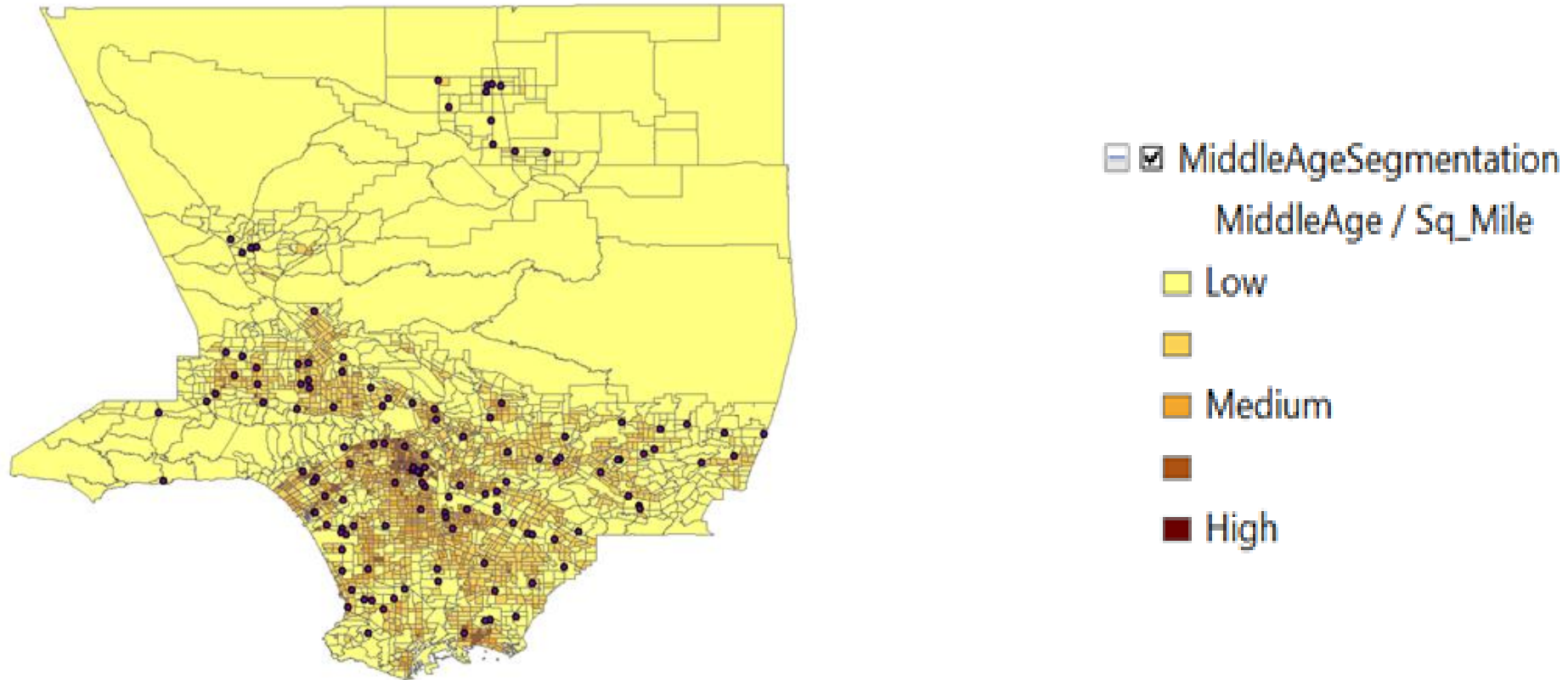


Wilmington and San Pedro
require Urgent Care
Facilities



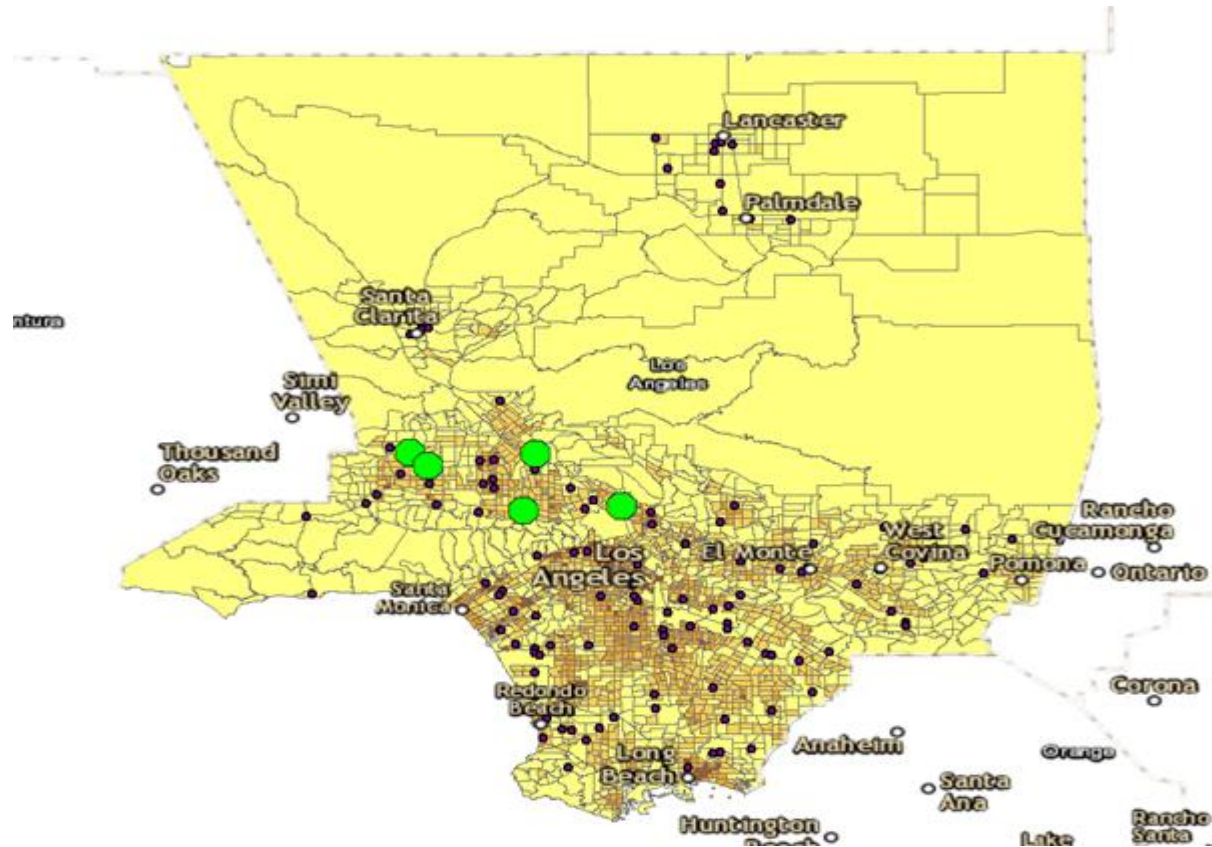
NETWORK ANALYSIS

Middle Age Segmentation



NETWORK ANALYSIS

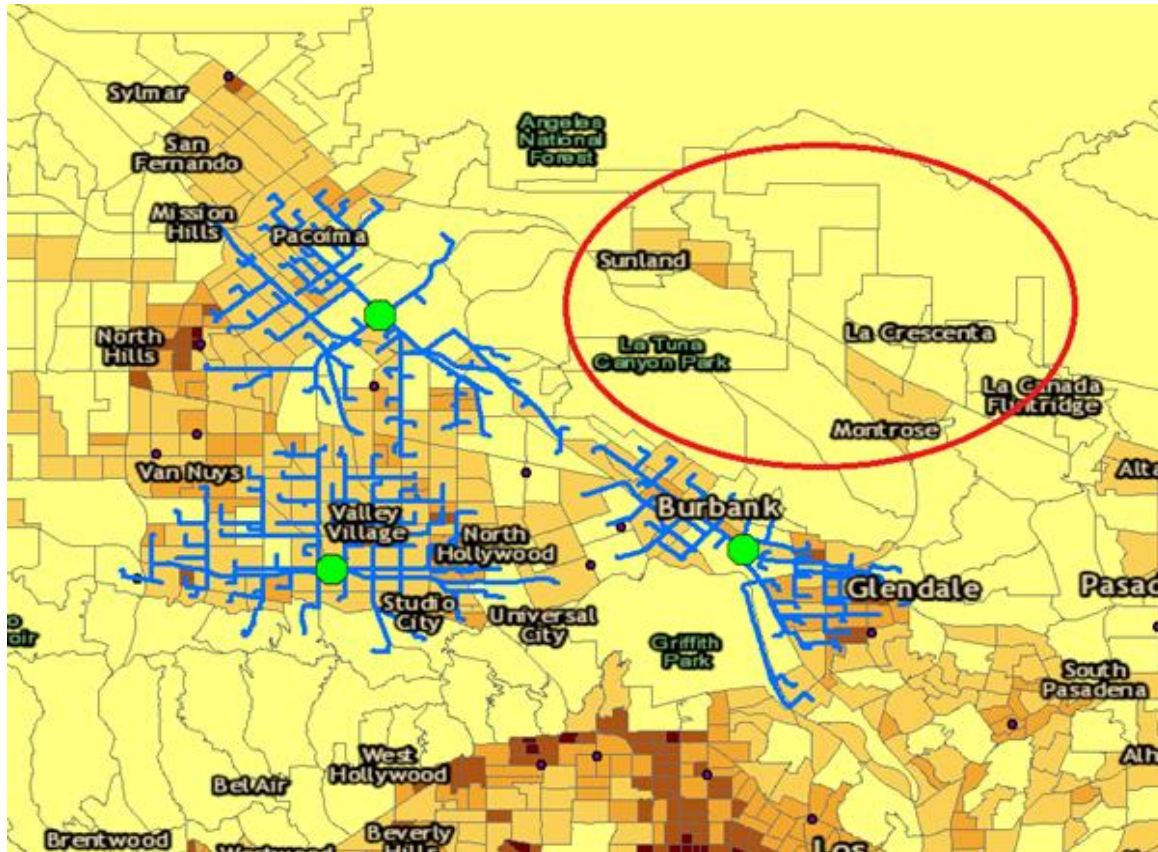
Middle Age Segmentation



5 urgent care facilities
considered



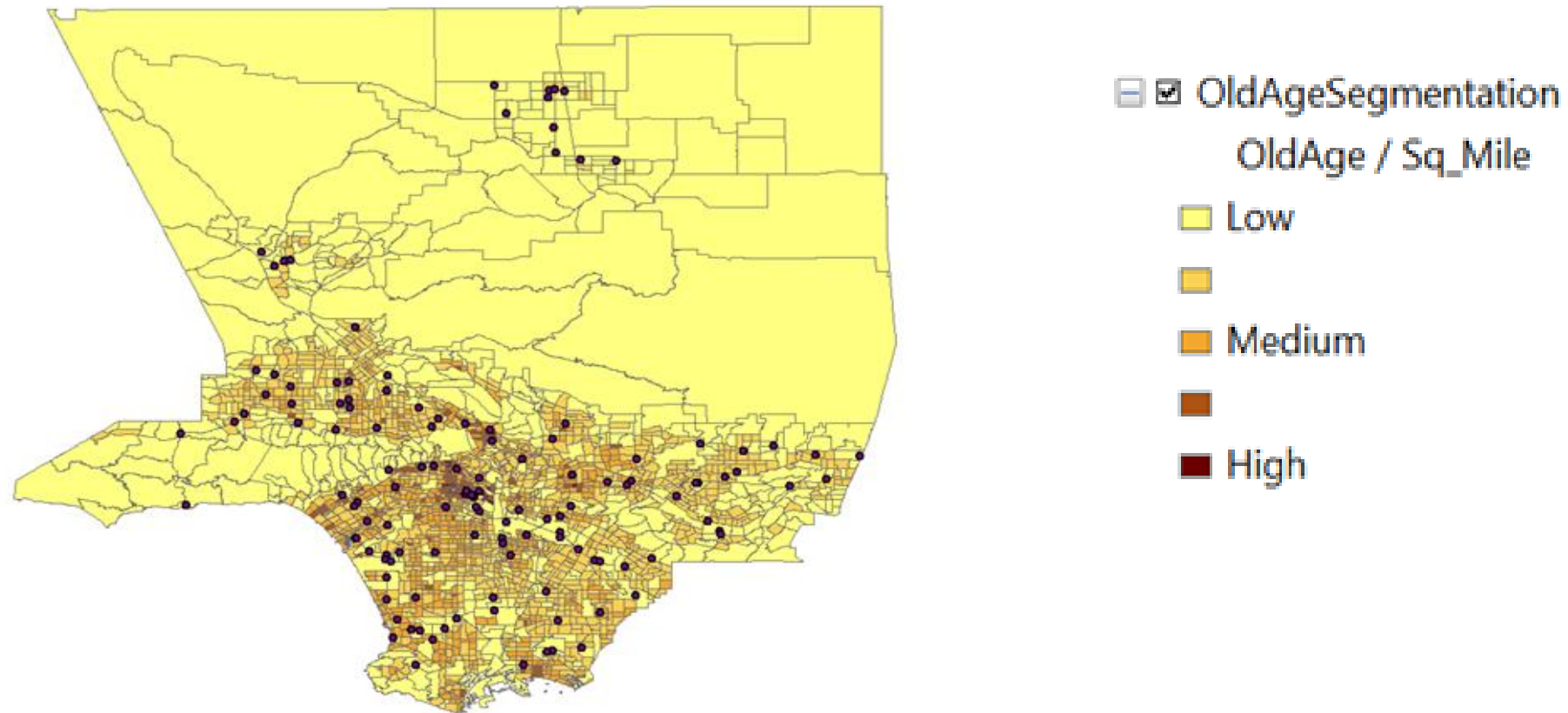
NETWORK ANALYSIS :



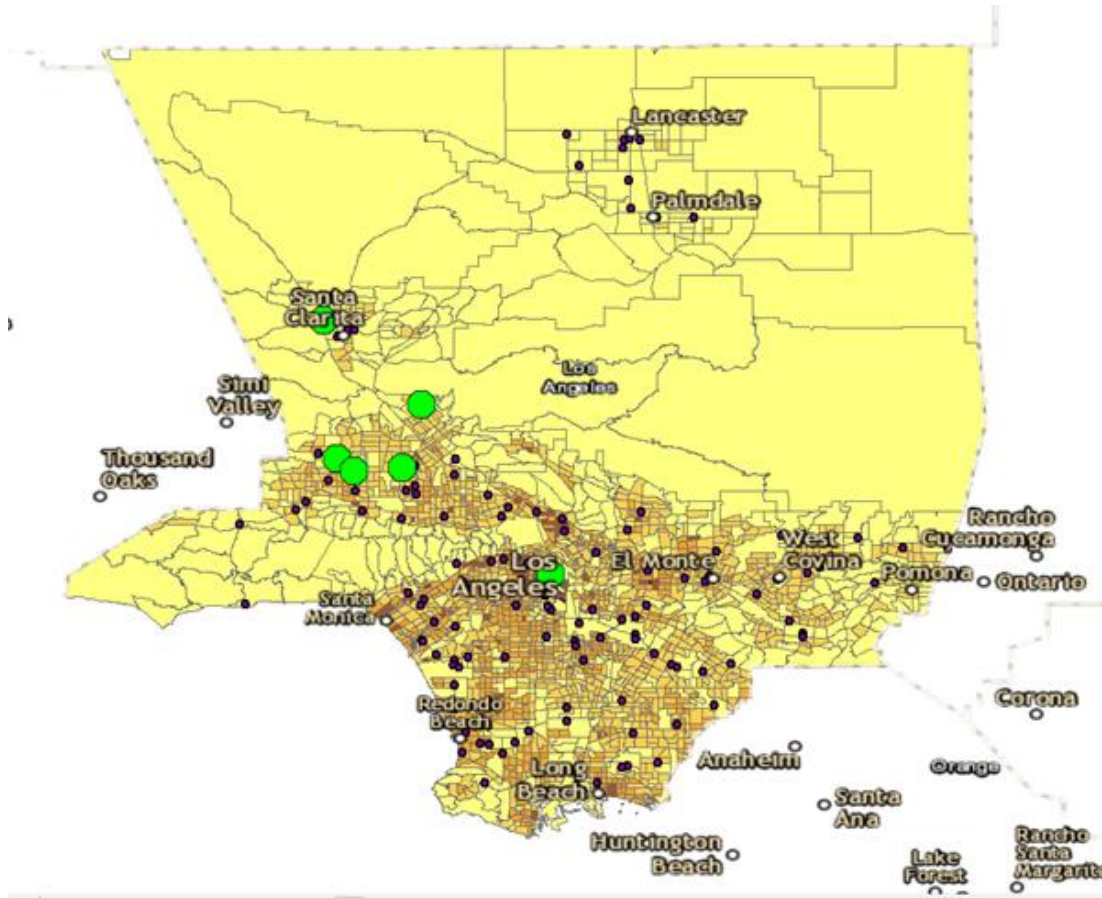
Required urgent care facilities in Sunland and Montrose.



NETWORK ANALYSIS: Old Age Segmentation



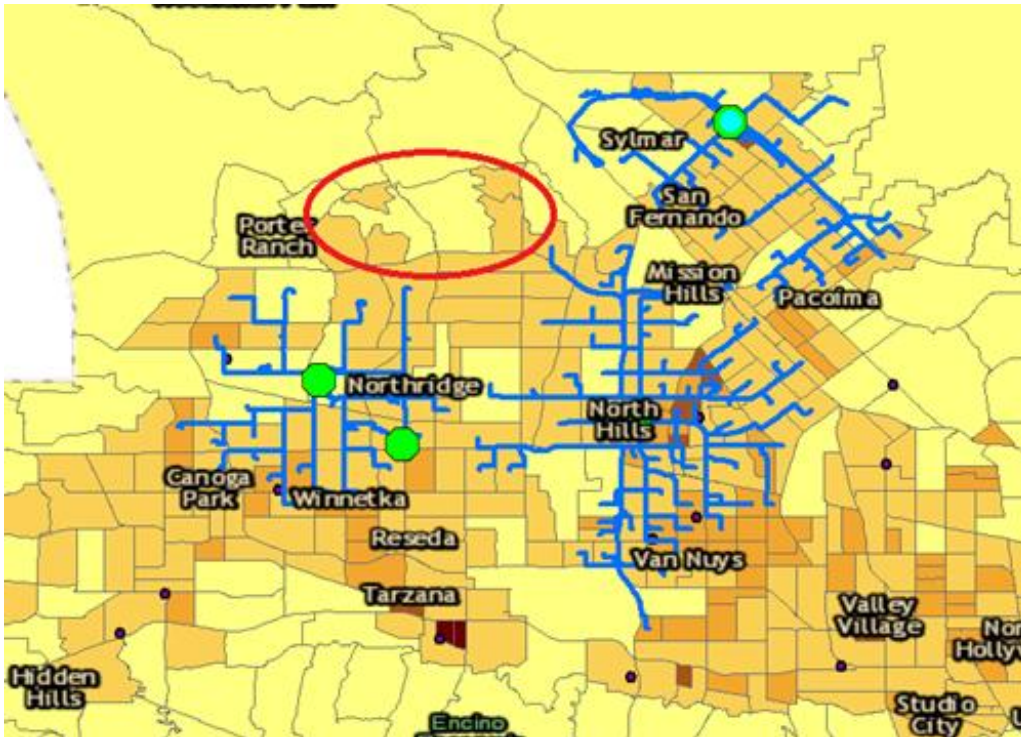
NETWORK ANALYSIS: Old Age Segmentation



6 urgent care facilities
considered



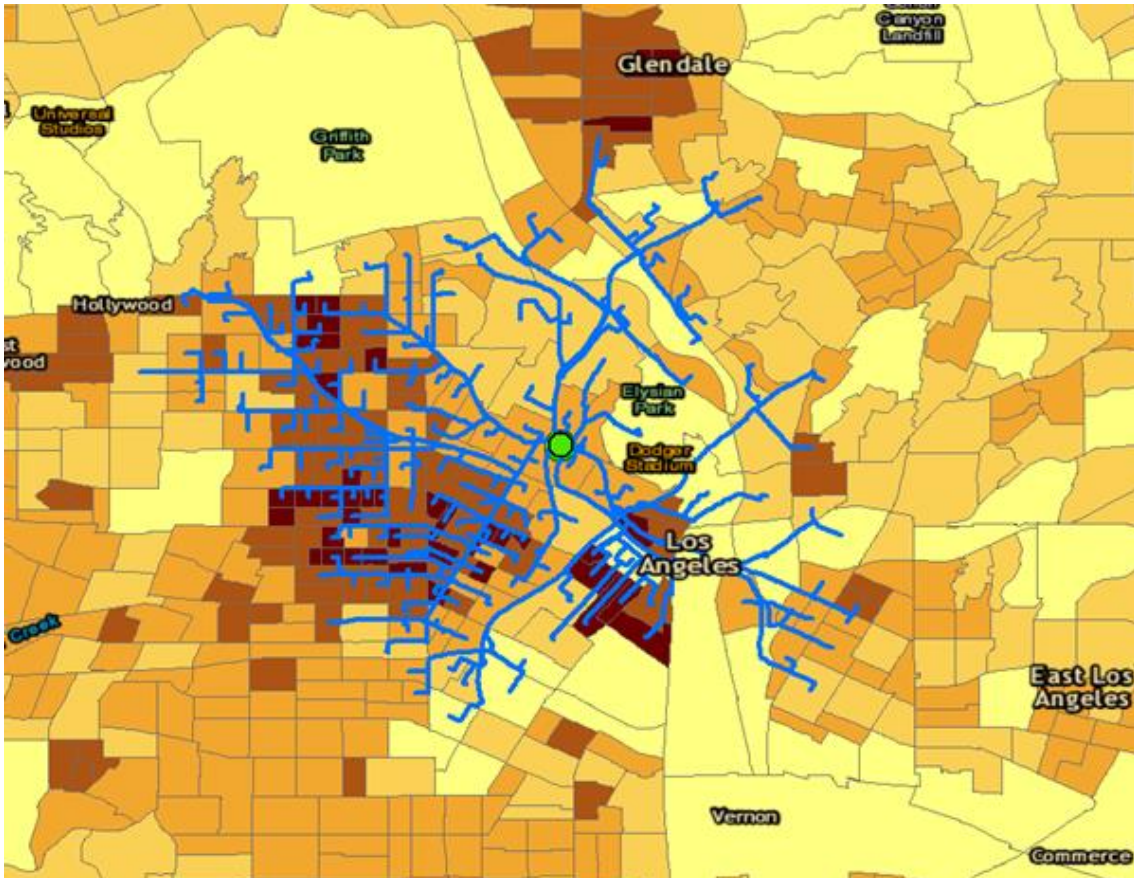
OLD AGE SEGMENTATION



- Urgent Care required in Porter Ranch area as it's not in reach for 10mins buffer.



OLD AGE: SEGMENTATION



- Closest Distance analysis in LA City, No additional facility required



DATA SETS USED

- Urgent Healthcare Facility of LA County from Open ArcGIS
- Population data set of LA County from ESRI
- Streets data set for Network analysis



CHALLENGES AND LEARNINGS

- **Challenge:** Creation of centroids for the ESRI demographics dataset.
- **Solution:** Feature to point analysis
- **Challenge:** Creation of buffers with 1, 3 and 5 mile radius with urgent care facilities at the centre.
- **Solution:** Buffer analysis



CHALLENGES AND LEARNINGS

- **Challenge:** Segmentation of population from 0 to 95+ range to desired segments
- **Solution :** Queries were built using field geometry
- **Challenge:** Network analysis to plot the routes from census tracts to urgent care facilities.
- **Solution :** New closest facility feature



RESULTS & CONCLUSIONS

- Urgent health care facility is required for:
- **85,580** children in Wilmington and San Pedro area.
- **31,200** middle aged population in Sunland and Montrose areas.
- **12,250** old aged population in Porter ranch area.

