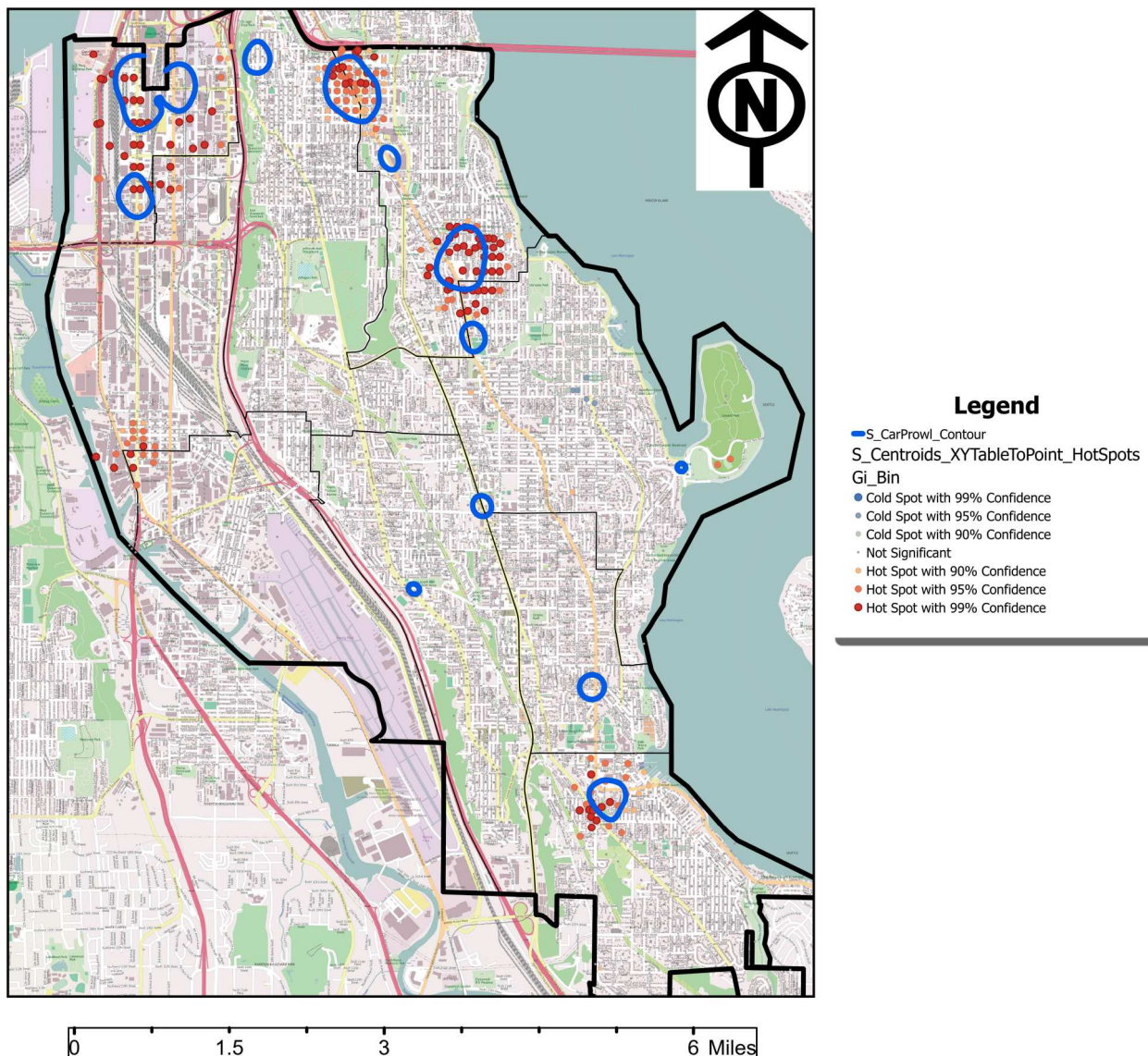


Analyzing Car Prowl Clustering and Hotspots in Seattle's South Precinct



Statistical Justification

Mean Center:

The geographical center of car prowls is located at X: -13614440.396, Y: 6034123.925.

Directional

Distribution Ellipse:

- Oriented north-south, with a semi-major axis of 6100.18 units and a semi-minor axis of 2567.72 units.
- Rotated at 149.49°, covering an area of 49,206,114.73 square units.
- The north-south orientation of the directional ellipse highlights the dominant spatial pattern.

Average

Neighbor:

- Observed Mean Distance: 270.68 meters, significantly smaller than the expected 407.45 meters.
- Nearest Neighbor Ratio: 0.664; statistically significant clustering ($z = -9.13$, $p < 0.001$).

Global Moran's I:

- Moran's Index: 0.0697, indicating a positive spatial autocorrelation.
- z-score: 10.62, far beyond the threshold for statistical significance.
- p-value: < 0.001 , confirming that the clustering pattern is highly unlikely to be random.

Nearest

Getis-Ord Hotspots:

Hotspots and cold spots identified with 90%, 95%, and 99% confidence.

Conclusion

The Global Moran's I statistic strongly supports the presence of spatial autocorrelation in car prowls within Seattle's South Precincts, highlighting a significant clustering pattern. Combined with the directional distribution ellipse, nearest neighbor ratio, and hotspot analysis, these results provide a robust spatial understanding of the incidents, offering key insights for targeted crime prevention efforts.