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REPORT

Crime Data Analysis in Los Angeles



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Introduction

This report presents key findings derived from an analysis of Los Angeles crime data spanning from 2019 through 2023, sourced from the Los Angeles Open Data initiative. The goal was to move beyond raw statistics and identify actionable patterns related to geography, time, and victim demographics. My analysis reveals that public safety challenges are heavily concentrated in specific geographic areas, notably the 77th Street and Southwest divisions. Furthermore, the data underscores a concerning trend of increasing overall incidents, culminating in a significant volume spike in the most recent year, 2023. Demographically, young adults and middle-aged individuals (especially the 25–44 age bracket) represent the most frequent victims, with a consistent observation of male victims being slightly more represented across most age groups.

Overview

The dataset analyzed contains 185,715 records of reported crimes in Los Angeles. It includes details such as:

- Date and time of occurrence and report
- Geographic area (21 divisions)
- Type of crime
- Victim demographics (age, sex, descent)
- Weapon used (if applicable)
- Crime status and location

The cleaned and processed dataset serves as a foundation for identifying crime trends and risk factors within the city.

Data Cleaning and Preparation

Key preprocessing steps included:

- Filled missing *Vict Sex* and *Vict Descent* with their mode.
- Replaced missing *Weapon Desc* values with "UNKNOWN WEAPON/OTHER WEAPON".
- Standardized inconsistent values such as “-” to “X” (Unknown).

- Converted date and time columns to proper datetime formats.
- Extracted temporal features: Year, Month, Day of Week, and Hour

Outcome:

- Clean dataset with no missing or inconsistent values.
- All features ready for exploratory and visual analysis.

Temporal Analysis (When Crimes Occur)

Yearly Trends

Crimes were recorded from 2020 to 2023. There's a steady increase in reported crimes after 2020, suggesting recovery from pandemic-related restrictions or improved reporting mechanisms.

Post-2020, Los Angeles saw a gradual rise in crimes, aligning with patterns in many major cities globally after lockdowns.

Monthly Trends

Continuous monthly analysis revealed periodic fluctuations but no sharp seasonal spikes. Slightly higher frequencies observed around mid-year months (May–August).

Criminal activity tends to be more active during warmer months, potentially due to increased outdoor movement and social activities.

Hourly Patterns

Peak crime hours are late afternoon to late night (12:00–22:00), and low crime activity between 03:00–06:00 AM.

This pattern indicates most crimes happen during active community hours—useful for optimizing police patrol schedules.

Spatial Analysis (Where Crimes Occur)

Top 10 Areas with Most Crimes are Central, Southwest, and 77th Street divisions recorded the highest number of incidents. Areas like Foothill, Hollenbeck, and Harbor had relatively lower crime counts.

High-density commercial or residential areas experience more crimes, possibly due to higher population flow and socio-economic disparity.

Recommendation:

Deploy predictive policing tools and CCTV network reinforcement in top 5 high-crime areas, and encourage community watch initiatives in identified hotspots.

Crime Type Analysis (What Crimes Occur)

Top 10 Most Common Crimes

- Theft of Identity (12.2%)
- Battery – Simple Assault (10.6%)
- Burglary from Vehicle (7.4%)
- Aggravated Assault (7.1%)
- Intimate Partner Assault (6.4%)

The dominance of identity theft and vehicle-related thefts suggests an upward trend in cyber and opportunistic crimes.

Recommendation:

- Strengthen cyber awareness programs for citizens
- Increase vehicle patrols in parking zones and residential streets.
- Promote multi-factor authentication and digital safety education initiatives.

Victim Demographics

Gender

- Males: 50.1%
- Females: 48.4%

- Unknown: 1.5%

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Gender distribution is almost equal, indicating that crime exposure in Los Angeles affects all genders similarly.

Descent

Hispanic/Latin/Mexican (39.9%), White (24.2%), and Black (18.8%) make up the majority of victims. It's reflective of the city's ethnic composition.

Minority communities experience a slightly higher exposure to certain crimes, aligning with socioeconomic and urban density patterns.

Recommendation:

- Invest in community policing and trust-building programs in Hispanic and Black-majority neighborhoods.
- Cultural engagement can enhance reporting and prevention effectiveness.

Age

Victims are mostly aged 19–45 years (Young Adult to Adult groups). Very few crimes target children or seniors.

The working-age population faces the highest exposure, likely due to commuting and active lifestyles.

Recommendation:

- Develop crime awareness workshops for young adults.
- Enhance workplace safety and public transportation security.

Crime Status

82.8% of cases remain under Investigation Continued (Invest Cont). Only 7.2% resulted in Adult Arrest.

A large backlog of ongoing investigations suggests delays or under-resourcing in law enforcement processes.

Recommendation:

- Implement AI-assisted case triage to prioritize solvable cases.
- Allocate investigative task forces to high-frequency crime categories.
- Improve data integration between police, courts, and community systems.

Cross-Feature Analysis

Crimes by Area and Year

Central and Southwest areas consistently remain the most affected. Crime rates fluctuated slightly year-to-year but remained concentrated geographically.

Age Group vs. Sex

Male victims dominate in the 19–45 range. Female victims slightly higher in intimate partner and assault-related crimes. Demographic-based patterns can assist in designing targeted prevention programs and public awareness campaigns.

Summary of Key Insights

Category	Key Finding	Actionable Recommendation
Temporal	Crimes peak at night and summer months	Deploy patrols and surveillance during peak times
Geographic	Central, Southwest, 77th Street divisions are hotspots	Strengthen local policing and community monitoring
Type	Identity theft and assault dominate	Launch cyber and public safety campaigns
Demographic	Most victims are young adults (19–45)	Increase youth-focused crime prevention initiatives
Status	83% of crimes remain “under investigation”	Use data analytics to streamline investigation workflow

Final Recommendations

Strategic:

- Integrate AI-based predictive models to forecast future crime hotspots.
- Deploy IoT-enabled CCTV and environmental sensors in high-crime zones.
- Link police, courts, and social services databases for faster case resolution.

Community:

- Educate citizens on identity protection, self-defense, and safe commuting.
- Promote partnerships between residents and local law enforcement.
- Provide counseling and legal support, particularly for vulnerable demographics.

Technical:

- Implement live crime-tracking dashboards for authorities.
- Detect unusual activities (gunshots, break-ins) using smart IoT devices.
- Continuously update crime datasets to refine predictive accuracy.

Conclusion

This analysis provides valuable insights into crime distribution patterns across time, demographics, and geography in Los Angeles.

By integrating data analytics, IoT, and AI-powered tools, authorities can proactively reduce crime rates, optimize resources, and ensure community safety.