



Predicting First Responder Need

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Introduction

Given the resurgence of the Black Lives Matter movement and the call to defund the police, we chose to examine San Francisco crime to help determine what other types of first responders are necessary, when, and where. This can be helpful for first response departments to determine staffing needs and to help prepare staff for the type of emergencies they may have to respond to.

Dataset

Police Incident Reportings Dataset

- Incident reportings from sfgov.org from 2018-2020
- Includes features such as:
 - 'Incident Time'
 - 'Incident Location'
 - 'Police District'
 - 'Analysis Neighborhood'
 - 'Incident Type'
 - 'Incident Description', etc.
- Total 65,534 rows and 16 features

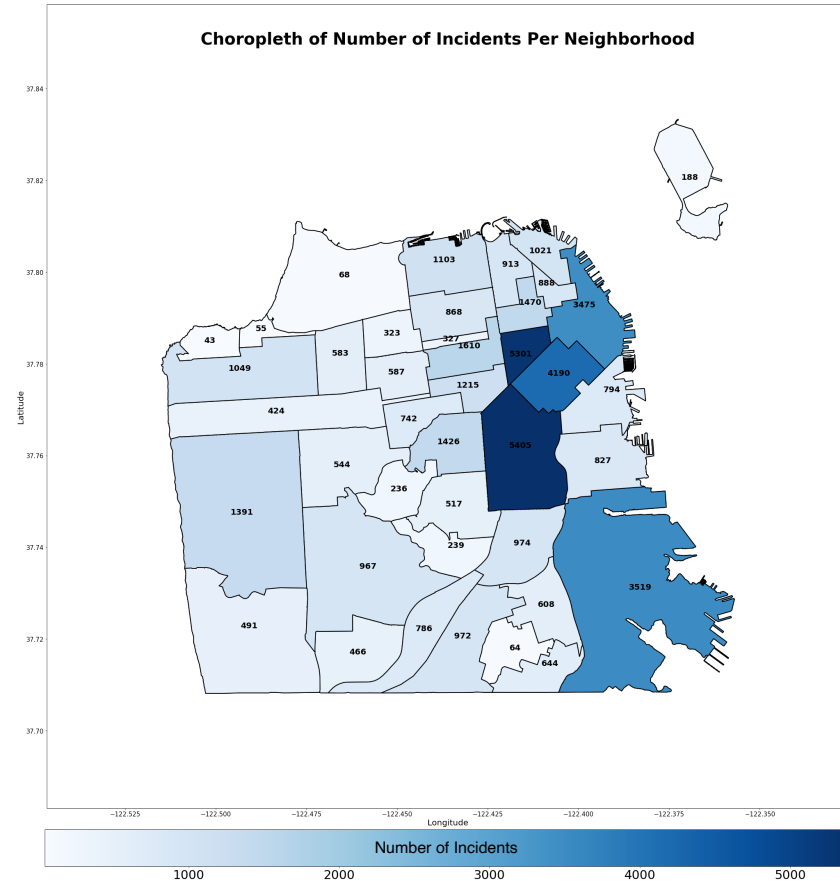
U.S. Census Demographics Dataset

- Manually inputted from reports based on 2010 U.S. Census and 2017 ACS survey
- Included neighborhood statistics for 'Analysis Neighborhood' such as:
 - 'Percent Female'
 - 'Percent with College Degree'
 - 'Median Rent'
 - 'Percent Black/African American'
 - 'Percent White', etc.
- Total 21 features added for each row

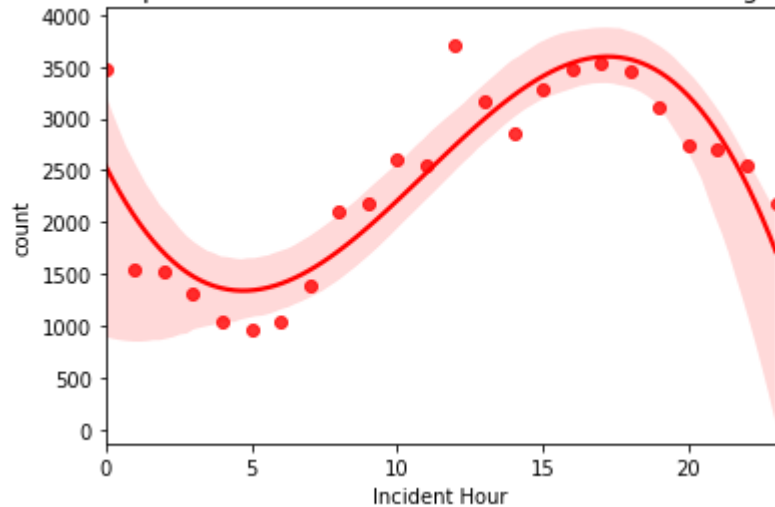
Exploratory Data Analysis

We began our project by looking into both data sources to understand if there were any patterns in type of crime (ie. higher crime on certain days, at certain times, in certain areas, in areas with given population statistics, etc.)

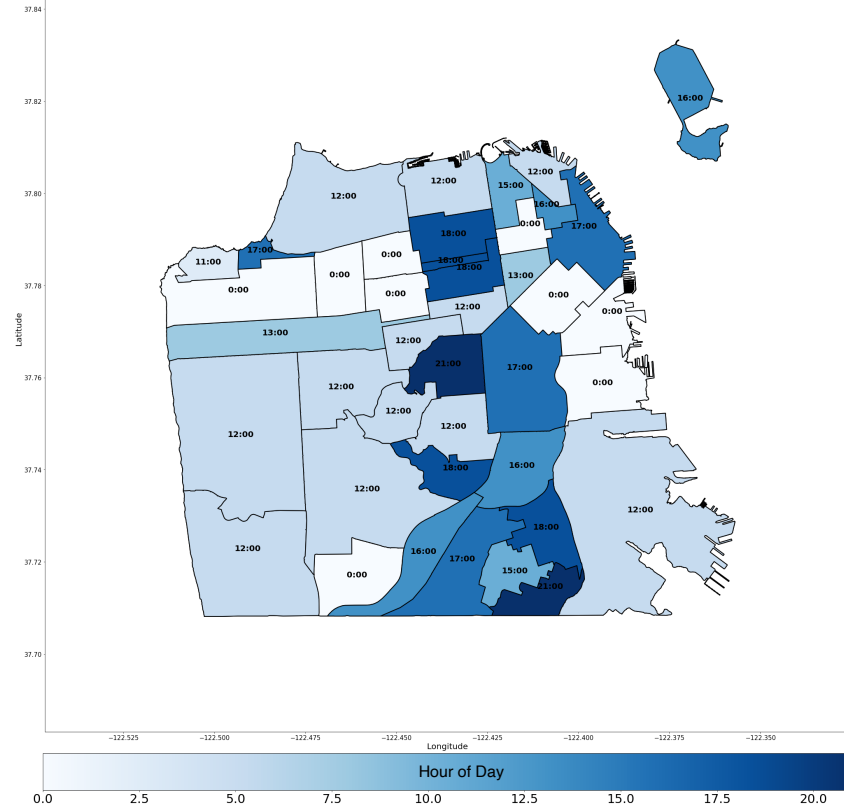
Starting off with 'Analysis Neighborhood', we can see that certain neighborhoods have a lot more crime than others.



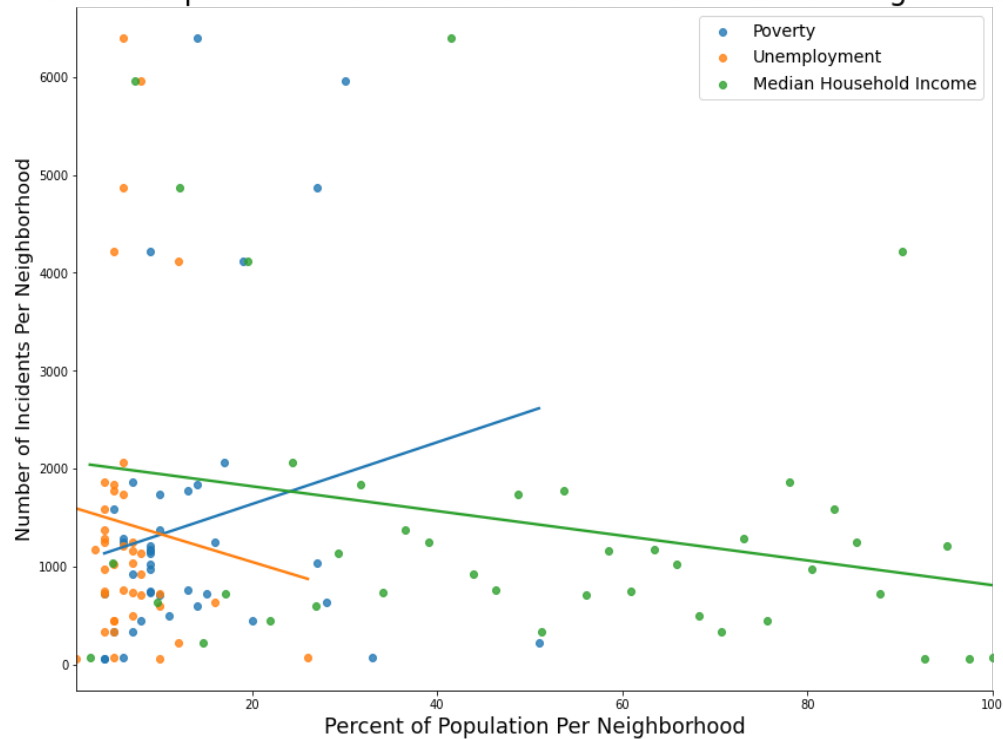
Relationships with Time and Number of Incidents Per Neighborhood



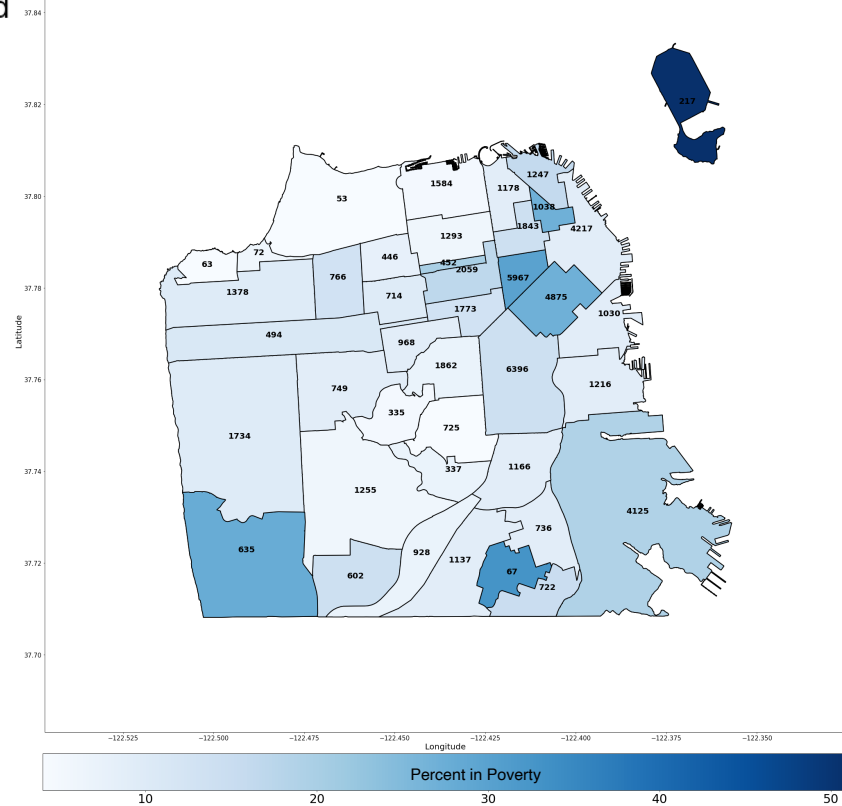
Most Frequent Time/Hour of Day of Reported Incidents Per Neighborhood



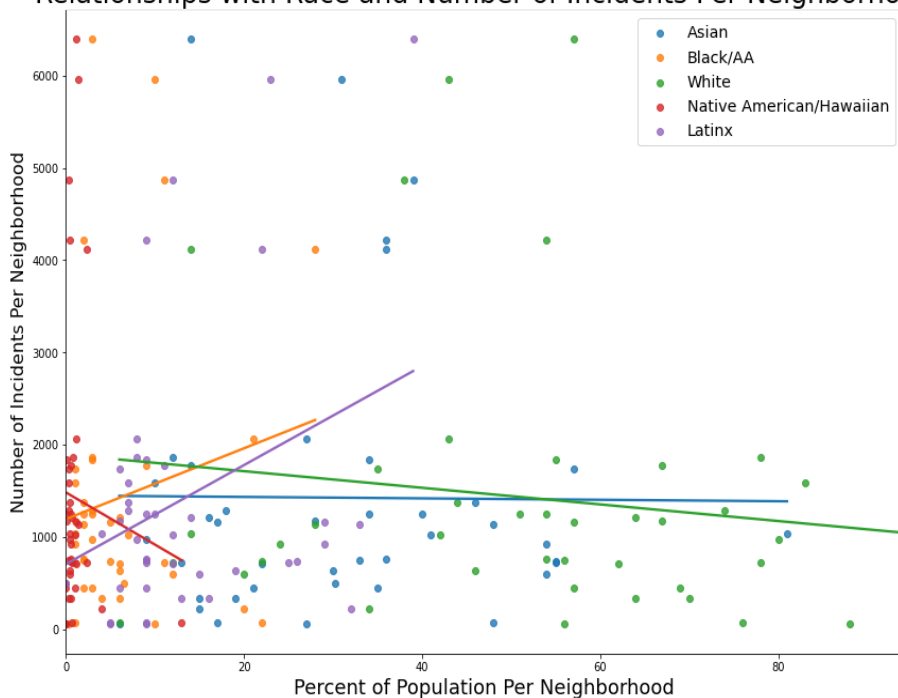
Relationships with Wealth and Number of Incidents Per Neighborhood



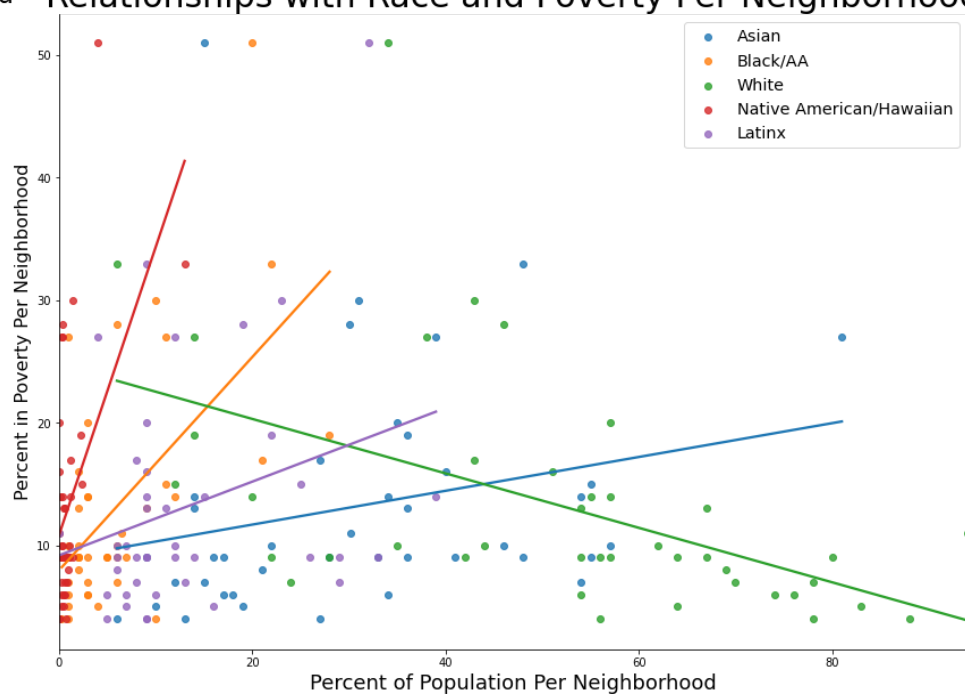
Choropleth of Percent in Poverty with Number Incidents Labeled Per Neighborhood



Relationships with Race and Number of Incidents Per Neighborhood



Relationships with Race and Poverty Per Neighborhood





Introduction to Approaches

Concepts Explored:

- Data Cleaning
- Feature Engineering
- Random Forest
- Neural Network
- Cross Validation



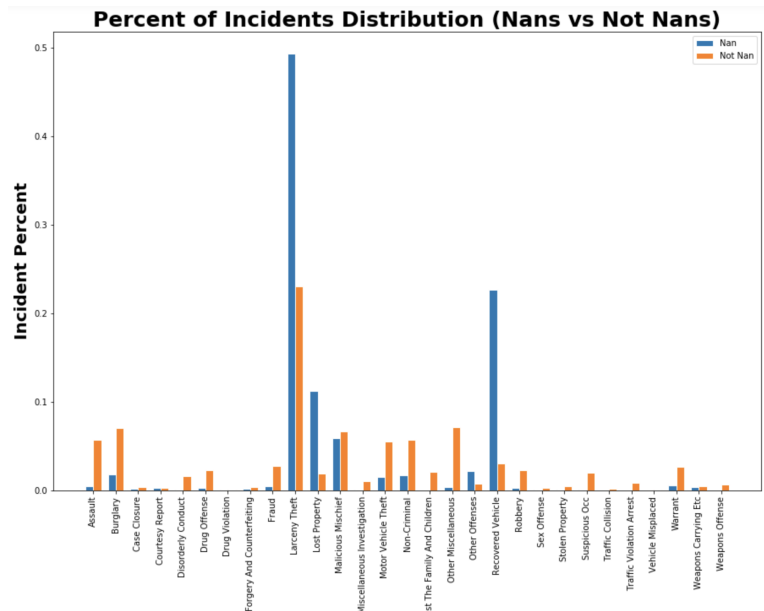
Grouping Response Variable

Since our purpose was to determine which types of first responders were necessary, we grouped our response variables into the following categories:

- Crime without Assault/Endangerment
 - 'Driving, Failure To Heed Red Light And Siren'
 - 'Theft, Shoplifting, Att.'
- Crime with Assault/Endangerment
 - 'Assault, Aggravated, W/ Gun'
 - 'Weapon, Deadly, Carrying with Intent to Commit Assault'
- EMT
 - 'Suicide, Attempted'
 - 'Aided Case'
- Social Workers
 - 'Child Abuse, Exploitation'
 - 'Civil Sidewalks, Violation'
 - 'Mental Health Detention'
- Fire Department
 - 'Arson'
 - 'Fire, Unlawfully Causing'
- Administrative
 - 'Case Closure'
 - 'Search Warrant Service'

Data Cleaning - Dealing with NaNs

- Counted number of occurrences of each type of incident before dropping NaN values
- Filled in average values by police district for neighborhood demographics
- Dropped all other NaNs
- Number of rows after dropping: 58,454





Feature Engineering - Time & Location

- Hour: 3 Approaches
 1. **One-hot encode incident hour directly**
 2. One-hot encode hour groupings by time, i.e. “Late Night”, “Early Morning”
 3. One-hot encode hour groupings by most incident reports, i.e. “First Highest Crime Hours” where this would include all hours that ranked substantially higher in number of incidents
- Day of Week: One-hot encoded, i.e. “Monday”, “Tuesday”, etc.
- Week of Month: One-hot encoded, i.e. “First Week”, “Second Week”, etc.
- Month: 2 Approaches
 1. **One-hot encode incident month directly**
 2. One-hot encode seasons, i.e. “Winter”, “Spring”, etc.
- Year: One-hot encoded, i.e “2018”, “2019”, etc.
- Analysis Neighborhood (districts shown on map earlier): One-hot encoded



Feature Engineering - Demographics

- **Gender**
 - Percent Female
- **Household**
 - Single Family Homes Percent
 - Apartment Buildings Percent
- **Wealth**
 - Median Rent
 - Median Home Value
 - Median Household Income
 - Percent in Poverty
 - Unemployment Rate
- **Race**
 - Percent Asian
 - Percent Black/AA
 - Percent White
 - Percent Native American/Hawaiian
 - Percent Latinx
- **Education**
 - High School Degree or less
 - College Degree
 - Graduate Degree/PhD
- **Language**
 - English Speaking (only)
 - Spanish Speaking (only)
 - Asian Language Speaking
- **Background**
 - Foreign Born
- **Age**
 - Median Age

**all features are numerical and were normalized using MinMaxScaler*



Random Forest Classifier & Evaluation

- Used Sci-kit Learn's Random Forest Classifier
- Implemented GridSearch to help find best parameters:
 - `n_estimators = 500`
 - `max_depth = 25`
 - `min_samples_split = 2`
 - `min_samples_leaf = 1`
 - `oob_score = True`
 - `n_jobs = -1`
- Reasons for classifier choice:
 - Can predict multinomial output
 - Interpretable results (aka feature importances)
 - Higher accuracy than MLP neural network

	Accuracy
Entire Dataset	63.0%
Cross Validation	58.6%



Takeaways

- Predicting the type of first-responder needed is not a simple task
 - There are many factors that lead to the types of incidents reported in SF
 - Quite a bit of these incidents are more-or-less random
 - This leads to our relatively low cross validation score
- Still, this model is a good base to build a higher accuracy prediction tool, which can be extremely useful in identifying which type of first responders should be sent.
 - Note that a cross validation accuracy of 58.6% is far better than the baseline of 16.6% (since there are 6 categories)
- Our exploratory data analysis is also key in understanding how to allocate funds/personnel in each neighborhood
 - Ex. Some neighborhoods should perhaps have more social workers assigned than police

Results & Conclusions

- Based on the time, location, and demographics of a location one can predict the general category of a crime and respond correctly with the best person(s) to mediate the situation (i.e. trained professionals arriving to a scene that are suited for the incident type such as a Social Worker)
- This will help local politicians/policy makers make better informed decisions regarding allocation of resources for responses to crime incidents.



Example Use Case

Incident Date	2018/03/11
Incident Time	10:44
Incident Year	2018
Incident Day of Week	Sunday
Supervisor District	8.0
Analysis Neighborhood	Castro/Upper Market

Model Prediction: 'Crime Without Endangerment'

Based on the inputted values given our model would predict this incident to fall under the category of 'Crime Without Endangerment'. Instead of dispatching a police officer another type of trained professional such as a Social Worker can be utilized to assist this situation potentially.



Suggestions for Improvement

- Adjusting the proportion needed in classifying certain categories could decrease accuracy, but increase effectiveness
 - Ex. Cases that are borderline Assault/Endangerment and might need police aid but would have been predicted as a different category, could be adjusted to predict Assault/Endangerment just to be safe
- Adjust groupings for types of first responders
 - More or less specificity or adjusted bins could aid in prediction accuracy, but blur the meaning of the results and decrease usefulness
- Add additional features
 - Ex. Holistic knowledge of history of crime in certain areas
 - Ex. Data regarding the type of businesses/land most common in each neighborhood
- Filter the data for only certain types of cases (see next slide)

Filtering the Data for Better Prediction

Sample categories left after

filtering:

'Homicide'	'Family Offense'
'Miscellaneous Investigation'	'Civil Sidewalks'
'Assault'	'Liquor Laws'
'Drug Offense'	'Other Offenses'
'Malicious Mischief'	'Prostitution', 'Suspicious'
'Sex Offense'	'Suicide'
'Non-Criminal'	'Rape'
'Drug Violation'	'Human Trafficking (A), Commercial Sex Acts'
'Weapons Carrying Etc'	'Human Trafficking, Commercial Sex Acts'
'Suspicious Occ'	'Weapons Offence'
'Weapons Offense'	'Juvenile Offenses'
'Disorderly Conduct'	'Other Miscellaneous'
'Offences Against The Family And Children'	'Robbery'
'Other'	

Pros of Filtering:

Filtering data increased the cross validation score of predictions. We could successfully predict certain categories of the data that may be useful for specific purposes.

Filtering the data limits the model's applicability to most real world datasets. If the model tried to predict an incident that wasn't within the filtered incident categories there could be detrimental damage. Once the data has been narrowed down it sacrifices the potential usage of dispatching the correct responder to a specific incident.

Cons of Filtering:

Filtering the data/using a smaller model is adverse to real world applications for actual prediction purposes. The accuracy would decrease because the algorithm can only predict certain categories.



Further Analysis

- After developing a more thorough model, we can try to answer: How many first responders are necessary in each department during different times of the day and on different days of the week?
- After implementing new first responders, we can explore the effectiveness of having different first responders show up instead of having police officers arrive for every type of case.
- We could also begin determining preventative measures if the crime location and time is known/predictable and then later study the effectiveness of such measures.



Questions?

Appendix



SF Police Data

<https://data.sfgov.org/Public-Safety/Map-of-Police-Department-Incident-Reports-2018-to-/jq29-s5wp>



ACS/Census Data for SF Neighborhoods

[https://default.sfplanning.org/publications_reports/SF_NGBD_SocioEconomic_Profiles/
2012-2016_ACS_Profile_Neighborhoods_Final.pdf](https://default.sfplanning.org/publications_reports/SF_NGBD_SocioEconomic_Profiles/2012-2016_ACS_Profile_Neighborhoods_Final.pdf)

Groupings - Crime Without Endangerment

Theft, From Locked Vehicle, <8950', Theft, Other Property, \$50-\$200', Embezzlement from Dependent or Elder Adult by Caretaker', Theft, Shoplifting, \$200-\$950', Theft, From Building, Att.', Theft, From Person, >8950' (other than Pickpocket)', Theft, From Person, \$200-\$950' (other than Pickpocket)', Theft, From Locked Vehicle, \$200-\$950', Burglary Vehicle (Arrest made)', Theft, Pickpocket, \$50-\$200', Theft, From Unlocked Vehicle, >8950', Theft, From Locked Vehicle, <550', Theft, Shoplifting, \$50-\$200', License Plate, Stolen', Theft, Other Property >8950', Theft, From Building, \$200-\$950', Theft, From Locked Vehicle, Att.', Theft, From Locked Vehicle, \$50-\$200', Theft, Shoplifting, <550', Theft, Lost Property, Petty', Theft, From Building, \$50-\$200', Theft, From Unlocked Vehicle, \$200-\$950', Theft, Bicycle, Att.', Theft, Pickpocket, <550', Theft of Checks or Credit Cards', Theft, From Building, <8950', Theft, From Person, <550' (other than Pickpocket)', Theft, From Building, <550', Theft, Shoplifting, >8950', Burglary, Vehicle, Att. (Arrest made)', Theft, Pickpocket, \$200-\$950', Theft, Other Property, \$200-\$950', Theft, From Unlocked Vehicle, \$50-\$200', Theft, Bicycle, \$200-\$950', Theft of Computers or Cell Phones', Theft, Petty, with Prior Conviction', Theft, Bicycle, >8950', Theft, Bicycle, \$50-\$200', Theft from Merchant or Library', Theft, From Person, \$50-\$200' (other than Pickpocket)', Theft, Shoplifting, Att.', Theft, Other Property, <550', Theft, Lost Property, Grand', Theft, Pickpocket, >8950', Theft, Vehicle Strip, <8950', Theft of Other Property, Att.', Theft, Vehicle Strip, \$200-\$950', Theft of Animals (general)', Theft, From Unlocked Vehicle, <550', Theft, From Unlocked Vehicle, Att.', License Plate or Tab, Theft of', Theft, Coin Operated Machine, >8950', Theft, Drunk Roll, <8950', Theft, Vehicle Strip, <550', Theft, Drunk Roll, \$200-\$950', Theft, Coin Operated Machine, \$200-\$950', Theft of Utility Services', Theft, Purse Snatch, <550', Theft, Motorcycle Strip, \$200-\$950', Theft, Vehicle Strip, Attempted', Theft, Vehicle Strip, \$50-\$200', Theft, Purse Snatch, \$200-\$950', Theft, From Person, Att. (other than Pickpocket)', Looting during State of Emergency', Theft, Bicycle, <550, no serial number', Theft, Purse Snatch, >8950', Theft of Telecommunication Services, incl. Cord Phone', Theft, Drunk Roll, \$50-\$200', Theft, Coin Operated Machine, \$50-\$200', Theft, Purse Snatch, \$50-\$200', Theft, Boat', Theft, Motorcycle Strip, >8950', Burglary, Residence, Forcible Entry', Burglary, Apartment House, Forcible Entry', Burglary, Hot Prowl, Forcible Entry', Burglary, Other Bldg., Forcible Entry', Burglary, Apartment House, Unlawful Entry', Burglary, Other Bldg., Unlawful Entry', Burglary, Apartment House, Att. Forcible Entry', Burglary, Residence, Unlawful Entry', Burglary, Store, Unlawful Entry', Burglary, Non-residential, Forcible Entry', Burglary, Hot Prowl, Unlawful Entry', Burglary, Non-residential, Unlawful Entry', Burglary, Warehouse, Forcible Entry', Burglary, Safe, Store', Burglary, Store, Forcible Entry', Burglary, Residence, Att. Forcible Entry', Burglary, Residence Under Constr. Forcible Entry', Burglary, Other Bldg. Under Constr., Forcible Entry', Burglary, Warehouse, Unlawful Entry', Burglary, Other Bldg. Under Constr., Unlawful Entry', Burglary, Hotel Room, Unlawful Entry', Burglary, Flat, Unlawful Entry', Burglary, Store, Att. Forcible Entry', Burglary, Other Bldg., Att. Forcible Entry', Burglary, Non-residential, Att. Forcible', Burglary, Residence Under Constr., Unlawful Entry', Burglary, Hot Prowl, Att. Forcible Entry', Burglary, Flat Under Constr., Att. Forcible', Burglary, Flat Under Constr., Forcible Entry', Burglary, Apt Under Constr., Unlawful Entry', Burglary, Apt Under Constr., Forcible Entry', Burglary, Other Bldg. Under Constr., Att. Forcible', Burglary, Warehouse, Att. Forcible Entry', Burglary, Hotel Room, Forcible Entry', Burglary, Flat Under Constr., Forcible Entry', Burglary, Safe, Residence', Burglary, Safe, Warehouse', Burglary, Apt Under Constr., Att. Forcible', Burglary, Warehouse Under Constr., Unlawful Entry', Burglary, Flat Under Constr., Unlawful Entry', Burglary, Residence Under Constr. Att. Forcible', Burglary, Flat, Att. Forcible Entry', Burglary, Safe, Other', Burglary, Hotel Under Constr., Unlawful Entry', Stolen Property, Possession with Knowledge, Receiving', Stolen Computer, Possession', Money, Property or Labor, Fraudulently Obtaining', Stolen Cellular Phone, non-cloned, Possession', Stolen Access Card, Possession', Stolen Electronics, Possession', Stolen Checks, Possession', Lost Property', Embezzlement (general)', Embezzlement, Grand Theft By Employee', Embezzlement, Petty Theft By Employee', Embezzlement, Petty Theft', Embezzlement, Petty Theft, Leased Property', Vehicle, Embezzled', Vehicle, Rental, Failure to Return', Embezzlement, Grand Theft Leased Property', Embezzlement, Grand Theft By Broker/Agent', Counterfeit Money or Coins', Checks, Fake, Making, Uttering or Possessing', Forgery, Checks, Forgery', Access Card or Signature, Forgery of', Checks, Blank or Forged, Fraudulent Possession', Forgery and Counterfeiting (general)', Counterfeit/Forgery, Pseudo Drivers Lic Or Id Card', Counterfeit Coins Or Notes, Possessing or Receiving', Vehicle Registration, False Evidence of', Counterfeiting, Coins Or Notes', Checks or Legal Instruments, Uttering Forged', Identification Card or Drivers License, Falsely or Display', VIN, Alter Or Remove', Access Card, incl. Credit, Phone, ATM, Fraudulent Use of', False Personation', False Personation to Receive Money or Property', Fraudulent Game or Trick, Obtaining Money or Property', Fraudulent Use Of Automated Teller Card', Access Card Information, Theft of', Checks, Making or Uttering with Insufficient Funds', Checks, Money Orders, Completed, Fraudulent Possession', Credit Application, Fraudulent', False Personation and Cheat Crimes (general)', Theft, Trick And Device, Felony',

Injuring Phone, Cable TV, or Other Line', Driving, No License Issued', Lodging Without Permission', Unusual Occurrence', Driving, Reckless', Evading a Police Officer Recklessly', Driving, Speeding', Defrauding Providers of Food, Fuel, Services, or Accommodations', Threat or Force to Resist Executive Officer', Burglary Tools, Possession Of w/injur', Evading a Police Vehicle or Bicycle', Perce Violation, Adult', Narcotics Paraphernalia, Possession of', Methamphetamine Offense', Cocaine, Possession For Sale', Marijuana, Transporting', Cocaine, Base/rock, Possession For Sale', Methamphetamine, Possession For Sale', Heroin, Possession For Sale', Cocaine, Sale', Marijuana, Possession For Sale', Cocaine, Base/rock, Sale', Marijuana, Cultivating/Planting', Methamphetamine, Transportation', Cocaine Offense', Controlled Substance Offense', Heroin Offense', Controlled Substance, Possession For Sale', Controlled Substance, Sale', Loitering Where Narcotics are Sold/Used', Cocaine, Base/rock Offense', Hallucinogenic, Possession For Sale', Marijuana, Sales', Controlled Substance, Under the Influence of', Heroin, Sales', Controlled Substance, Transportation', Marijuana Offense', Opiates, Sale', Methamphetamine, Sale', Hallucinogenics Offense', Money Offense Related to Narcotics Trafficking', Opium Derivative, Possession For Sale', Opiates, Possession For Sale', Opiates Offense', Controlled Substance Violation, Loitering for', Methadone Offense', Methadone, Possession For Sale', Hallucinogenic, Sale', Prescription, Forge Or Alter (11368 H&S)', Amphetamine, Transportation', Amphetamine, Possession For Sale', Liquor Law Violation (general)', Alcohol, Unlawful Transportation Of', Alcohol, Possession Of By Minor', Alcohol, Sale Of To Minor', Hallucinogenic, Possession For Sale', Drugs, Under Influence in a Public Place', Dissuading/Threatening Of A Witness', Public Nuisance, Maintaining Alter Notification', Driving While Under The Influence Of Alcohol', Loitering Without Lawful Business With Owner or Occupant', State Code Felony (general)', Resisting Peace Officer, causing Their Serious Injury or Death', False Imprisonment', Fireworks, Possession of any within SF, incl. 'Safe & Sane', Fireworks, Exploding', Maintaining A Public Nuisance', State Code Misdemeanor (general)', Firefighter, Interfering with', Police Broadcast, Interception to Commit Crime', Public Transit Crimes - Interactions', Extortion or Blackmail', Impersonating A Police Officer', Rail Transit, Entering, Remaining, or Hindering Operation of', False Report of Emergency', Vehicle, Open Container Of Alcohol In', Extortion, Attempted', Interfering W/ Police Officer', Prisoners, Rescuing From Lawful Custody', Vehicle, Throwing Substance At', Impersonating Public Utility Member', False Report of Felony or Misdemeanor', Chop Shop, Own or Operate', Threatening School or Public Employee', Abortion, Unlawful', Driving, Failure To Heed Red Light And Sign', Weapon, Taking or Attempting to Take from Peace Officer', Legal Instruments, Uttering False Checks, etc. (misd.)', Contraband, Taking Into A Reformatory', Lotteries (general)', Vehicle, Stolen, Auto', Vehicle, Stolen, Motorcycle', Vehicle, Stolen, Truck', Vehicle, Stolen, Other Vehicle', Vehicle, Stolen, Attempted', Vehicle, Stolen, Bus', Vehicle, Stolen, Mobile Home or House Trailer', Auto, Grand Theft of', Traffic Collision, Hit & Run, Injury', Traffic Collision', Traffic Collision, Hit & Run, Property Damage', Traffic Violation Arrest', Vehicle, Tampering', Vehicle, Impounded', Vehicle, Misplaced', Restraining Order Notification/Service of Restraining Order', Stay Away Order Violation, DVU related', Violation of Restraining Order', Violation of Emergency Protective Order', Violation of Stay Away Order', Stalking', Tobacco Products, Selling or Furnishing to Minor', ATM-related Crime (secondary code only)', Dog, Barking', Resisting, Delaying, or Obstructing Peace Officer Duties', Burglary, Safe, Store', Fireworks, Possession of any within SF, incl. 'Safe & Sane', Burglary, Safe, Warehouse', Burglary, Safe, Residence', Privacy, Invasion of (general)', Computer System, Accessing, Copying, or Damaging', Theft, False Pretenses, Felony', Access Card Counterfeiting Machinery, Possession of', Checks, Theft/Non-sufficient Funds, Felony', Identification, Government, Possess, Make or Sell False', Access Card Information, Publication of', Theft, Trick & Device, Misd.', Cellular or Cordless Phone Communications, Intercepting', Telephone or Telegraph Message, Sending False', Food Stamps, Misuse of', Access Card, Possession of Lost or Stolen, with Intent to Use, Transfer, or Sell', False Claims, Presenting to Government', Privacy, Invasion of (general)', Theft, False Pretenses, Misd.', Fabrication of Medical Records', Audiovisual (Video or Sound) Recordings, Unauthorised', Theft, Trick And Device, Att.', Eavesdropping Devices, Sale or Use', Financial Statements, False', Insured Property, Destruction to Defraud Insurer', Park Code Violation (general)', Trash, Placing On The Street', Alcohol, Consuming In Public View', Municipal Code Violation (general)', Municipal Police Code Violation (general)', Defrauding Gas Station/Taxi Driver', Throwing Object at Common Carrier, Passenger or Freight', Obstructions On Streets, Sidewalks', Loitering and Peeking into Inhabited Structure', License Plate, Lost', License Plate, Found', Peddling Without A License', Fire Code Violation (general)', Permit Violation, Police (general)', Permit Violation, Entertainment', Federal Law Violation (general)', Hotel Violations', Public Transit Acts Against', Burglary Tools, Possession Of', Conspiracy', Investigative Detention', Resisting, Delaying, or Obstructing Peace Officer Duties', Dissuading Witness, Victim', Identification To Peace Officer, False', Driving, License Suspended or Revoked', Trespassing', Driving While Under The Influence Of Drugs', Probation Violation',



Groupings - Crime With Endangerment

'Miscellaneous Investigation', 'Assault, Aggravated, W/ Knife', 'Assault, Aggravated, W/ Other Weapon', 'Battery', 'Assault, Aggravated, W/ Gun', 'Assault, Aggravated, W/ Force', 'Battery, former Spouse or Dating Relationship', 'False Imprisonment', 'Assault, Mayhem, W/ Force', 'Battery with Serious Injuries', 'Assault, Non-Aggravated', 'Battery, Sexual', 'Shooting into Inhabited Dwelling or Occupied Vehicle', 'Battery, Of A Police Officer', 'Assault, Att. Homicide, W/ Other Weapon', 'Assault, W/ Caustic Chemical to Injure or Disfigure', 'Assault, Aggravated, On Police Officer, W/ Force', 'Firearm, Discharging in Grossly Negligent Manner', 'Assault, Att. Homicide, W/ Knife', 'Assault, Att. Homicide, W/ Force', 'Assault, Non-Aggravated, Att.', 'Assault, Att. Homicide, W/ Gun', 'Firearm, Discharging at Unoccupied Bldg, Vehicle or Aircraft', 'Assault, Att. Mayhem, W/ Gun', 'Assault, Att. Mayhem, W/ Force', 'Assault, Aggravated, On Police Off., W/ Other Weapon', 'Firearm, Discharging at Occupied Bldg, Vehicle, or Aircraft', 'Firearm, Discharging At An Inhabited Dwelling', 'Assault, Aggravated, On Police Officer, W/ Knife', 'Assault, Mayhem, W/ Knife', 'Firearm, Negligent Discharge', 'Robbery, W/ Force', 'Robbery, W/ Knife', 'Robbery, Att., W/ Force', 'Robbery, Street or Public Place, W/ Force', 'Robbery, Att., Street or Public Place, W/ Knife', 'Shoplifting, Force against Agent', 'Robbery, Att., Chain Store, W/ Force', 'Robbery, Chain Store, W/ Knife', 'Robbery, W/ Other Weapon', 'Robbery, Att., Street or Public Place, W/ Force', 'Robbery, Street or Public Place, W/ Gun', 'Robbery, Chain Store, W/ Force', 'Robbery, Comm. Establ. W/ A Knife', 'Robbery, W/ Gun', 'Carjacking with a Gun', 'Robbery, Att., W/ Gun', 'Robbery, ATM, Gun, Att.', 'Robbery, Residence, W/ Gun', 'Robbery, Comm. Establ., W/ Force', 'Robbery, Att., Comm. Establ., W/ Force', 'Robbery, Att., Comm. Establ. With Other Weapon', 'Robbery, Chain Store, W/ Gun', 'Robbery, Service Station, W/ Gun', 'Robbery, Street or Public Place, W/ Knife', 'Robbery, Street or Public Place, W/ Other Weapon', 'Robbery, Att., W/ Other Weapon', 'Robbery, Att., Chain Store, W/ Other Weapon', 'Robbery, Att., Street or Public Place, W/ Gun', 'Robbery, Residence, W/ Knife', 'Carjacking with Bodily Force', 'Robbery, Comm. Establ. W/ Weapon', 'Robbery, Chain Store, W/ Other Weapon', 'Robbery, Att., Residence, W/ Knife', 'Robbery, ATM, Gun', 'Robbery, Att., Bank, W/ Force', 'Robbery, Vehicle for Hire, Att., W/ Other Weapon', 'Robbery, Residence, W/ Force', 'Robbery, ATM, Force, Att.', 'Carjacking with a Knife', 'Robbery, ATM, Knife', 'Carjacking with a Dangerous Weapon', 'Robbery, Att., Street or Public Place, W/ Other Weapon', 'Robbery, ATM, Force', 'Robbery, Att., W/ Knife', 'Robbery, Att., Bank, W/ Other Weapon', 'Robbery, Comm. Establ., W/ Gun', 'Robbery, ATM, Other Weapon', 'Robbery, Service Station W/ Other Weapon', 'Robbery, Residence, W/ Other Weapon', 'Robbery, Bank, W/ Force', 'Robbery, Bank, W/ Other Weapon', 'Robbery, Att., Residence, W/ Gun', 'Robbery, ATM, Knife, Att.', 'Firearm, Armed While Possessing Controlled Substance', 'Firearm, Loaded, in Vehicle, Possession or Use', 'Firearm, Possession of Loaded', 'Firearm, Possession By Prohibited Person', 'Firearm, Tampering With Marks', 'Weapon, Prohibited, Possession, Sale, Mfg., Import', 'Weapon, Assault, Possession, Manufacture, or Sale', 'Ammunition, Poss. By Prohibited Person', 'Weapon, Assault, Registration or Transfer Violation', 'Switchblade Knife, Possession', 'Weapon, Deadly, Carrying with Intent to Commit Assault', 'Firearm, Carrying Loaded with Intent to Commit Felony', 'Weapon, Possess or Bring Other on School Grounds', 'Weapon, Tear Gas, Possession by Prohibited Persons', 'Fire Bomb, Possession or Use', 'Firearm, Possession of While Wearing Mask', 'Weapon, Concealed, Loitering While Carrying', 'Weapon, Carrying Concealed', 'Weapon, Deadly, Possession W/ Intent To Assault', 'Weapon, Deadly, Imitation or Laser Scope, Exhibiting', 'Firearm, Discharging Within City Limits', 'Phone Calls, Harassing', 'Vandalism with Noxious Chemical', 'Animal, Cruelty to',

'Vandalism or Graffiti Tools, Possession', 'Malicious Mischief, Tire Slashing', 'Damage To Mail Box', 'Malicious Mischief, Street Cars/Buses', 'Fire Alarm, False', 'Parking Meters, Damage to', 'Malicious Mischief, Breaking Windows With BB Gun', 'Minor Beyond Parental Control', 'Fire Protection Equipment, Tampering with', 'Malicious Mischief, Building Under Constr.', 'Malicious Mischief, Annoying/Fictitious Phone Calls', 'Curfew Violation', 'Graffiti on Government Vehicles or Public Transportation', 'Terrorist Threats', 'Gang Related (secondary only)', 'Disturbing The Peace, Commotion', 'Phone Calls, Threatening', 'Disturbing The Peace', 'Disturbing The Peace, Fighting', 'Incident On School Grounds', 'Drugs, Under Influence in a Public Place', 'Alcohol, Under Influence Of In Public Place', 'School Property, Disturbance on', 'Public Nuisance, Committing', 'Phone Calls, Threatening or Annoying', 'Lodging in Park', 'School or Playground, Loitering About', 'Firearm Possession in School Zone', 'Disturbing The Peace, Swearing', 'Loitering, Obstructing', 'Assault on School Employee', 'Trespass within 30 days of Credible Threat', 'School Campus, Remaining Without Consent', 'Unlawful Assembly', 'Disturbing Religious Meetings', 'Engaging In Lewd Act', 'Riot', 'School, Public, Trespass', 'Lynching by Riot', 'Refusing To Disperse Upon Lawful Command', 'Suspicious Occurrence', 'Child, Suspicious Act Towards', 'Suspicious Occurrence, possible Shots Fired', 'Suspicious Act Towards Female', 'Suspicious Vehicle', 'Suspicious Person', 'Shooting, Accidental', 'Air Gun, Possession', 'Theft, Grand, of Firearm', 'Spouse, Cohabitee, Parent of Child in Common, Inflict Injury', 'Elder Adult or Dependent Abuse (not Embezzlement or Theft)', 'Domestic Violence (secondary only)', 'Hate Crime (secondary only)', 'Tarasoff Report', 'EPO or Restraining Order Violation, DVU related', 'Probation Violation, DVU related', 'Terrorizing by Arson or Explosive Device', 'Firearm, Turned In by Public', 'Dog, Bite or Attack', 'Dog, Stray or Vicious', 'Hazardous Materials, Dump any Substance into Water', 'Hazardous Materials, Dumping in Unauthorized Location', 'Suspicious Package', 'Missing Adult', 'Discharging Offensive or Injurious Substance in Public Area', 'Throwing Injurious Substance on Highway', 'Firearm with Altered Identification', 'Fireworks, Throw at Person or Discharge in Crowd', 'Driving While Under The Influence Of Alcohol, w/Injury', 'Bomb Threat or False Report of Bomb', 'Evading a Police Officer, Injury or Death', 'Driving While Under The Influence Of Drugs, w/Injury', 'Kidnapping (Adult victim)', 'Flammable or Explosive Device, Possession', 'Kidnapping during Robbery', 'Kidnapping during Carjacking', 'Kidnapping, Attempted (Adult victim)', 'Robbery, ATM, Gun, Att.', 'Robbery, ATM, Gun, Att.', 'Robbery, ATM, Knife, Att.', 'Hazardous Materials, Dump any Substance into Water', 'Robbery, ATM, Other Weapon', 'Robbery, ATM, Force.', 'Robbery, ATM, Force, Att.', 'Robbery, ATM, Knife', 'Human Trafficking (A)-Commercial Sex Acts', 'Pimping', 'Rape, Assault To, W/ Force', 'Rape, Forcible, W/ Force', 'Rape, Spousal', 'Oral Copulation, Unlawful (Adult Victim)', 'Rape, Assault To, W/ Gun', 'Rape, Forcible, W/ Sharp Object', 'Penetration, Forced, with Object', 'Unlawful Sexual Intercourse with Minor', 'Rape, Att., W/ Other Weapon', 'Rape, Att., W/ Force', 'Solicits For Act Of Prostitution', 'Pandering', 'Loitering for Purpose of Prostitution', 'Soliciting to Visit House Of Prostitution', 'Solicits Lewd Act', 'House of Prostitution, Keeping or Residing in', 'Soliciting or Engaging In Lewd Conduct', 'Caustic Chemical, Possession', 'Weapon, Carrying Concealed with Felony or Narcotics Conviction', 'Explosive Device, Located', 'Destructive Device, Possession', 'Destructive Device, Exploding', 'Malicious Mischief, Vandalism to Property', 'Malicious Mischief, Vandalism to Vehicle', 'Malicious Mischief, Breaking Windows', 'Malicious Mischief, Adult Suspect', 'Malicious Mischief, Graffiti, Real or Personal Property', 'Vandalism or Graffiti on or within 100 ft of Highway'



Groupings - EMT and Fire Department

EMT

'Aided Case', 'Aided case, Naloxone Deployment', 'Aided Case -Property for Destruction', 'Aided Case, Injured or Sick Person', 'Aided Case, Sick Person', 'Death Report, Cause Unknown', 'Death Report, Natural Causes', 'Death, Non-manslaughter Vehicle Accident', 'Death, Accidental', 'Homicide, W/ Gun', 'Homicide, W/ Other Weapon', 'Manslaughter, Vehicular', 'Homicide', 'Suicide By Ingestion, Att.', 'Suicide By Strangulation/Hanging', 'Suicide', 'Suicide By Laceration/Stabbing, Att.', 'Suicide By Asphyxiation, Att.', 'Suicide By Laceration/Stabbing', 'Suicide By Jumping, Att.', 'Suicide, Attempted', 'Suicide By Firearms', 'Suicide By Strangulation/Hanging, Att.', 'Suicide By Firearms, Att.'

Fire Department

'Arson of Vehicle', 'Arson', 'Arson, Attempted', 'Arson, Inhabited Dwelling', 'Fire, Unlawfully Causing', 'Arson, Portable Toilet', 'Arson, Commercial Building', 'Arson, Vacant Building', 'Arson, Police Vehicle', 'Fire Report'



Groupings - Social Workers and Administrative

Social Workers

'Child, Inflicting Physical Pain, Mental Suffering, or Death', 'Obscene Matter, Distribution to Minors', 'Child Abuse, Pornography', 'Sex Offender, Failure To Register for Sexual Assault of Adult', 'Indecent Exposure (Adult victim)', 'Children, Annoy Or Molest', 'Child Abuse, Exploitation', 'Bathroom Hole, Looking through', 'Child Abuse, Sexual', 'Soliciting Minor to Commit Felony', 'Child, Inflicting Injury Resulting in Traumatic Condition', 'Child, Failure To Provide', 'Child, Willful Desertion of', 'Child Concealment, Depriving Lawful Custodian', 'Minor, Contributing To Delinquency of', 'Children, Abandonment & Neglect of (general)', 'Child, Willful Cruelty To', 'Civil Sidewalks, Warning', 'Civil Sidewalks, Citation', 'Civil Sidewalks, Booking', 'Civil Sidewalks, Violation', 'Mental Health Detention'

Administrative

'Warrant Arrest, Local SF Warrant', 'Warrant Arrest, Enroute To Probation', 'Warrant Arrest, Enroute To Outside Jurisdiction', 'Warrant Arrest, Enroute To Dept. Of Corrections', 'Warrant Arrest, Enroute To Adult Authority', 'Probation Search', 'Post Release Community Supervision', 'Warrant Arrest, Enroute To Parole', 'Warrant Arrest, Enroute To US Marshall', 'Parole Search', 'Search Warrant Service', 'Stay Away or Court Order, Non-DV Related', 'Case Closure', 'Courtesy Report', 'Found Property', 'Found Property', 'Property for Identification', 'Located Property', 'Found Person', 'License Plate, Recovered', 'Vehicle, Recovered, Stolen outside SF', 'Vehicle, Stolen & Recovered', 'Vehicle, Recovered, Motorcycle', 'Vehicle, Recovered, Auto', 'Vehicle, Recovered, Truck', 'Vehicle, Recovered, Other Vehicle', 'Vehicle, Recovered, Mobile Home or House Trailer', 'Vehicle, Recovered, Bus'