OCTOBER 2015

Motor Vehicle Theft in the City of Pittsburgh

1. INTRODUCTION

This brief presents an analysis of motor vehicle theft in the City of Pittsburgh from January 2005 through July 2015. It begins with a study of trends in the annual rate of motor vehicle theft and an examination of the nature of these crimes, with special attention to crime location, incident time and victim demographics. This brief concludes with an examination of the Pittsburgh Bureau of Police's clearance rate statistics and the relationship between clearance rates and crime characteristics, including location and category of theft.

Motor vehicle Theft Defined

The theft or attempted theft of a motor vehicle. Examples of motor vehicles include sport utility vehicles, automobiles, trucks, buses, motorcycles, motor scooters, all-terrain vehicles and snowmobiles.

— The FBI Uniform Crime Report

This document offers four broad conclusions about motor vehicle theft in the City of Pittsburgh:

1. Pittsburgh's motor vehicle theft rate has declined sharply over the past ten years and remains the lowest among comparable mid-sized cities.
2. Motor vehicle theft is most prevalent in Pittsburgh's East End, North Shore and South Side.
3. Victims of motor vehicle theft are older than average crime victims and are disproportionately African American and male.
4. Motor vehicle theft clearance rates are higher than those of comparable cities, but vary depending on the location of the theft and whether the theft was completed.

2. DATA

2.1. Sources

City of Pittsburgh Bureau of Police Offense Data

The analysis in this report is drawn, largely, from incident data collected by the City of Pittsburgh Bureau of Police and reported under the FBI Uniform Crime Report. These data are available for incidents that occurred from January 2005 through July 2015, and include information about the location, date, time and clearance status of each incident. These data also include victim information, including age, race and gender, for the period January 2009 through July 2015.

Federal Bureau of Investigation, Uniform Crime Report (UCR)

The Federal Bureau of Investigation collects crime data from police agencies nationwide. Because crime rates tend to vary with a city's population size,[1] this brief uses data from the UCR to compare Pittsburgh's 2014 motor vehicle theft rate to similarly sized U.S. cities, referred to as the FBI cohort. Specifically, this brief compares Pittsburgh's rate of motor vehicle theft to that of cities, with populations 250,000 to 499,999, which reported this crime to the UCR in 2014.

[1] Lee Ellis, Kevin M. Beaver, and John Wright, *Handbook of Crime Correlates*, 2009, San Diego, CA: Academic Press.

United States Census Bureau

The analysis in this brief incorporates population estimates from the U.S. Census Bureau's 2014 Population Estimates Program to compute the motor vehicle theft rates of 13 comparable U.S. cities and the City of Pittsburgh.

PGHSNAP, City of Pittsburgh Department of City Planning

The analysis of motor vehicle theft incident rates by neighborhood incorporates data from the City of Pittsburgh's Department of City Planning data tool, PGHSNAP. PGHSNAP offers population and demographic statistics derived from the 2010 U.S. Census.

Pittsburgh Today

This report uses 13 of the 14 Pittsburgh Today benchmark cities to compare Pittsburgh's motor vehicle theft rate to those in comparable cities. Pittsburgh Today is a University of Pittsburgh project that has identified a list of 14 U.S. cities that are similar in size and demographics to the City of Pittsburgh, for use in comparing key indicators. The Pittsburgh Today benchmark cities include: Baltimore, Boston, Charlotte, Cleveland, Cincinnati, Denver, Detroit, Indianapolis, Kansas City, Milwaukee, Minneapolis, Philadelphia, Richmond and St. Louis. Indianapolis is omitted from this analysis, due to inconsistencies in data reported to the FBI.

2.2 Period of Study

Much of the analysis in this report is derived from incident records collected from 2005 through 2014, the most recent years for which complete and reliable City of Pittsburgh data are available. A study of clearance rates, for example, would be skewed by the inclusion of recent 2015 records, since there is a lower likelihood of case resolution. However, this report does include

2015 data in analyses of victim demographics, as the 2015 records offer victim descriptions nearly as complete as those of prior years. Victim data are only available for records collected from January 2009 through July 2015.

In comparing across U.S. cities, this report draws on data from the FBI's Uniform Crime Reporting Program, which has released national statistics through 2014. Comparisons of motor vehicle theft rates or clearance rates, therefore, include comparisons to Pittsburgh's 2014 data.

2.3 Incident-level Analysis

This report uses incidents, rather than victims or perpetrators, as the primary unit of analysis. In the case of motor vehicle theft, for example, it is possible for multiple perpetrators to participate in a single theft. Records of this kind were consolidated for the purposes of this brief, with the exception of victim demographic analysis, which employs victim-level data.

2.4 The Limits of Police Data

In 2014, the National Crime Victimization Survey conducted by the Bureau of Justice Statistics (BJS) estimated that 17 percent of motor vehicle thefts go unreported.[2] Victims of motor vehicle theft might choose not to report a crime if they believe that the police will not be able to solve the case or assist them in locating their stolen vehicle. Since the data used in this report include only those cases reported to the police or observed by an officer, this analysis could be impacted by selection bias. It is important to consider the ways in which differences in reporting may skew our perception of the nature of motor vehicle theft or the demographic profile of its victims.

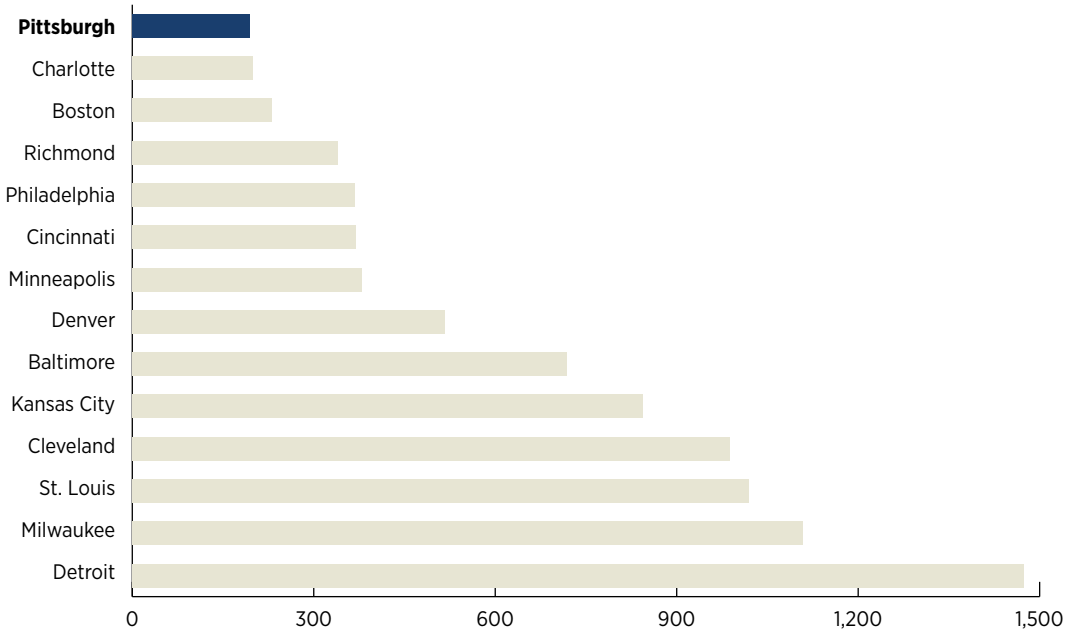
[2] Bureau of Justice Statistics, "Criminal Victimization, 2014," http://www.bjs.gov/content/pub/pdf/cv14.pdf

3. ANALYSIS

3.1 Trends in Motor Vehicle Theft

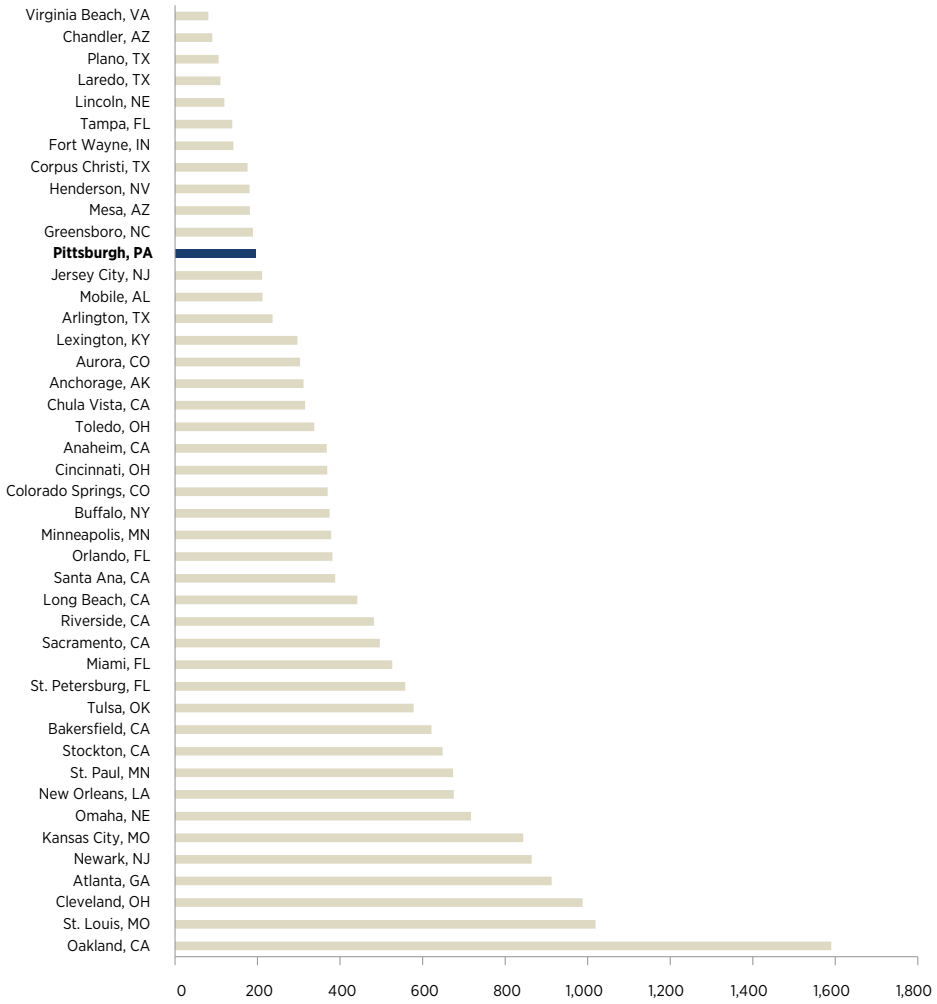
In 2014, Pittsburgh Police responded to approximately 600 incidents of motor vehicle theft, at a rate of 194 thefts per 100,000 city residents. This rate is the lowest among the cities included in the Pittsburgh Today benchmark group. **Figure 1** compares Pittsburgh's 2014 motor vehicle theft rate to the rates of these 13 comparison cities. Within this group, motor vehicle theft rates range from approximately 200 in Pittsburgh, Charlotte and Boston, to over 1,000 in Detroit, Milwaukee and St. Louis.

FIGURE 1: **Motor vehicle theft rates of comparable U.S. cities, 2014**



Among 44 cities in the FBI cohort, Pittsburgh's 2014 motor vehicle theft rate ranked 12th-lowest, as **Figure 2** shows. Its motor vehicle theft rate (194 per 100,000 residents) was less than half that of the average of cohort cities (461 per 100,000 residents) and also considerably less than that of any of the four geographically-closest cohort cities (Cleveland, Buffalo, Cincinnati and Toledo).

FIGURE 2: Motor vehicle theft rates of similarly sized U.S. cities, 2014

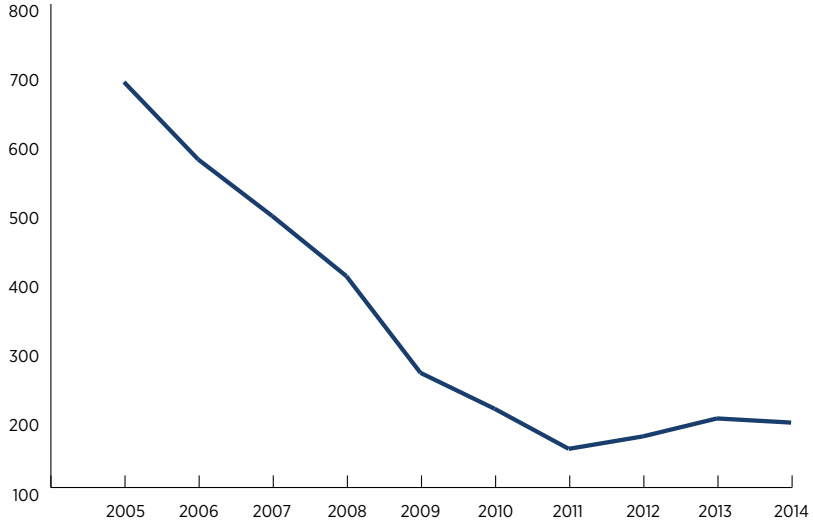


Pittsburgh's 2014 motor vehicle theft rate is among the lowest this decade. Although rates increased in 2012 and 2013, the thefts have generally declined over the past ten years. From 2005 through 2014, Pittsburgh's motor vehicle theft rate fell by 72 percent. **Table 1** details the year-over-year percent change in motor vehicle theft across this 10-year period. **Figure 3** plots the motor vehicle theft rate for the same period, depicting these declining rates throughout most of the decade.

TABLE 1: **Year-over-year percent change in the rate of motor vehicle theft in Pittsburgh, 2005 through 2014**

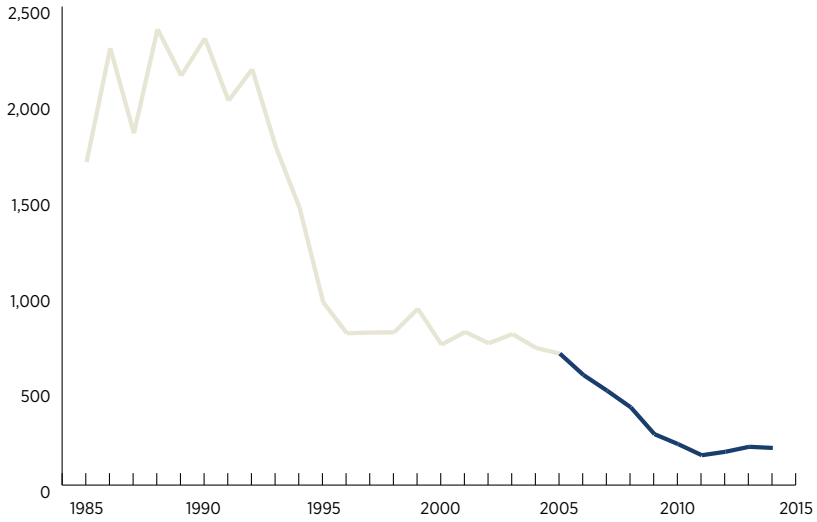
	YEAR-OVER-YEAR PERCENT CHANGE
2005	-
2006	-16%
2007	-17%
2008	-20%
2009	-30%
2010	-19%
2011	-17%
2012	7%
2013	7%
2014	-3%
Ten-Year	**-72%**

FIGURE 3: **Motor vehicle theft rate in Pittsburgh, 2005 through 2014**



Although 2005 is the earliest year for which we have comprehensive data, it is useful to place this recent decade in the context of the volatile 1980s and 1990s, a period during which cities nationwide experienced unprecedented rates of crime. **Figure 4** plots the City of Pittsburgh's motor vehicle theft rate from 1985 through 2014, using data supplied by the Pittsburgh Bureau of Police to the FBI's Uniform Crime Reporting program. The most recent decade, highlighted in blue, follows a period of steep decline. Recently, as the motor vehicle theft rate reaches record lows, this pace of improvement has begun to slow.

FIGURE 4: **Motor vehicle theft rate in Pittsburgh, 1985 through 2014**



Similar to the trends observed in Pittsburgh, motor vehicle theft rates have declined in nearly every comparable city since 2005. **Figure 5** plots the median motor vehicle theft rate of Pittsburgh Today cities across this decade, while **Figure 6** presents the 10-year percent change in the motor vehicle theft rate of each city.

Changes in the Pittsburgh motor vehicle theft rate appear to mirror changes occurring in motor vehicle theft rates nationwide, which suggest that some share of Pittsburgh's decline may be attributable to national forces that affect property crime. Researchers have identified several factors that have directly contributed to reductions in property crimes nationwide, including the increased use of CompStat by police departments, growth in income and a decline in the use of alcohol.[3]

[3] Oliver Roeder, Lauren-Brooke Eisen, and Julia Bowling, "What Caused the Crime Decline?" February 12, 2015, https://www.brennancenter.org/sites/default/files/publications/What_Caused_The_Crime_Decline.pdf

FIGURE 5: **Trends in Pittsburgh's motor vehicle theft rate compared to a composite of comparable cities, 2005 through 2014**

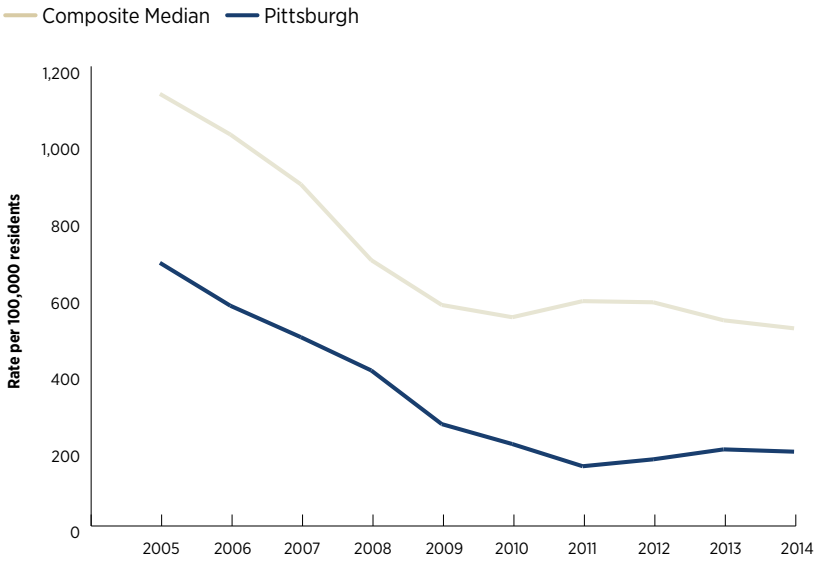
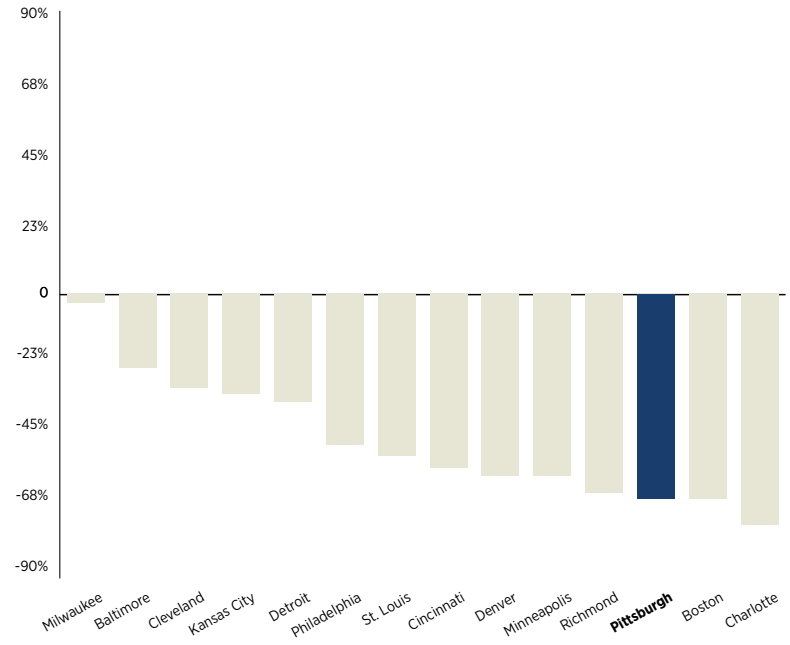


FIGURE 6: **Ten-year percent change in the motor vehicle theft rates of comparable U.S. cities, 2005 through 2014**



3.2 The Nature of Motor Vehicle Theft

To effectively measure and track crime throughout the city, the Pittsburgh Bureau of Police collects data on the circumstances and methods of each reported crime. Officers who respond to a report of motor vehicle theft make note of the kind of vehicle involved and whether the theft was completed. **Figures 7** and **8** serve as snapshots of motor vehicle theft throughout the City of Pittsburgh in 2014. As shown in **Figure 7**, most crimes reported as motor vehicle theft involve a stolen vehicle, while eight percent are recorded as attempts. **Figure 8** shows the distributions of motor vehicle thefts by vehicle type. In 2014, nearly all motor vehicle thefts involve the theft or attempted theft of an automobile (91%), while an additional five percent of motor vehicle thefts involved a truck or bus.

FIGURE 7: **Percentage of motor vehicle thefts, by theft type, 2014**

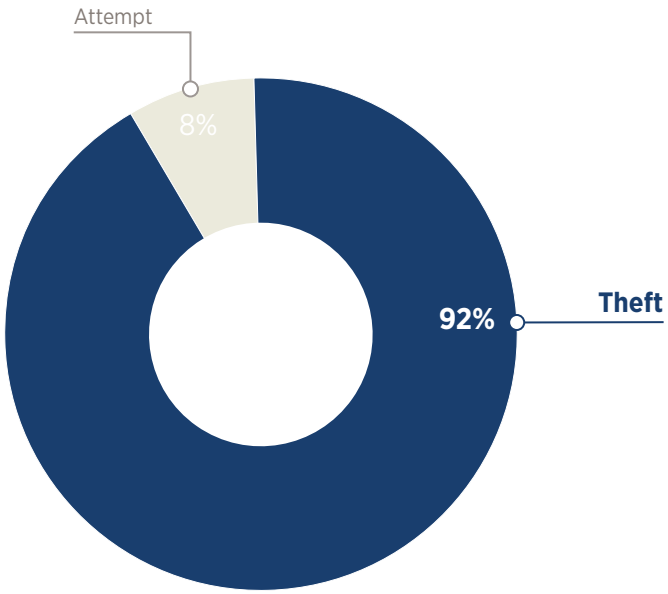
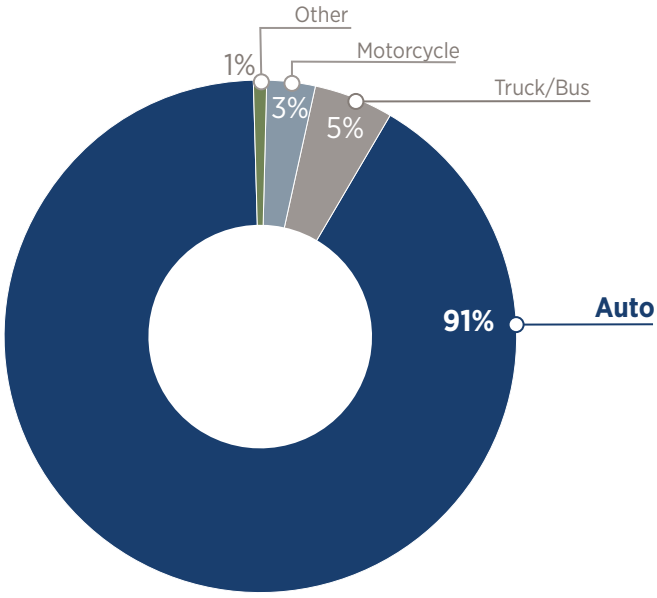


FIGURE 8: **Share of motor vehicle thefts, by vehicle type, 2014**



3.3 Where Motor Vehicle Theft Occurs

A study of citywide motor vehicle theft rates can mask the variations in crime risk that exist across individual communities. Despite improvement citywide, select neighborhoods and zones continue to experience persistently high rates of motor vehicle theft. **Figure 9** provides an illustration of these disparities by comparing the motor vehicle theft rates of each City of Pittsburgh neighborhood in 2014.

This map draws attention to several residential areas of the city with particularly high rates of motor vehicle theft, including Lincoln-Lemington-Belmar, Homewood and East Liberty. When examining neighborhood-level rates, we also observe high levels of motor vehicle theft in areas that typically accommodate non-residents, such as the Central Business District, South Side Flats and the Strip District. Generally, however, adjusting for residential population allows for comparison across neighborhoods and provides a more accurate assessment of the risk of motor vehicle theft to members of each community.

It is important to note, however, that rates may be deceiving when the population size is small. This caution particularly applies to some of the higher-rate neighborhoods on the map.

In most cases (e.g., Chateau), these are neighborhoods where large numbers of non-residents visit for entertainment purposes.

FIGURE 9: **Motor vehicle theft rate, by neighborhood, 2014**

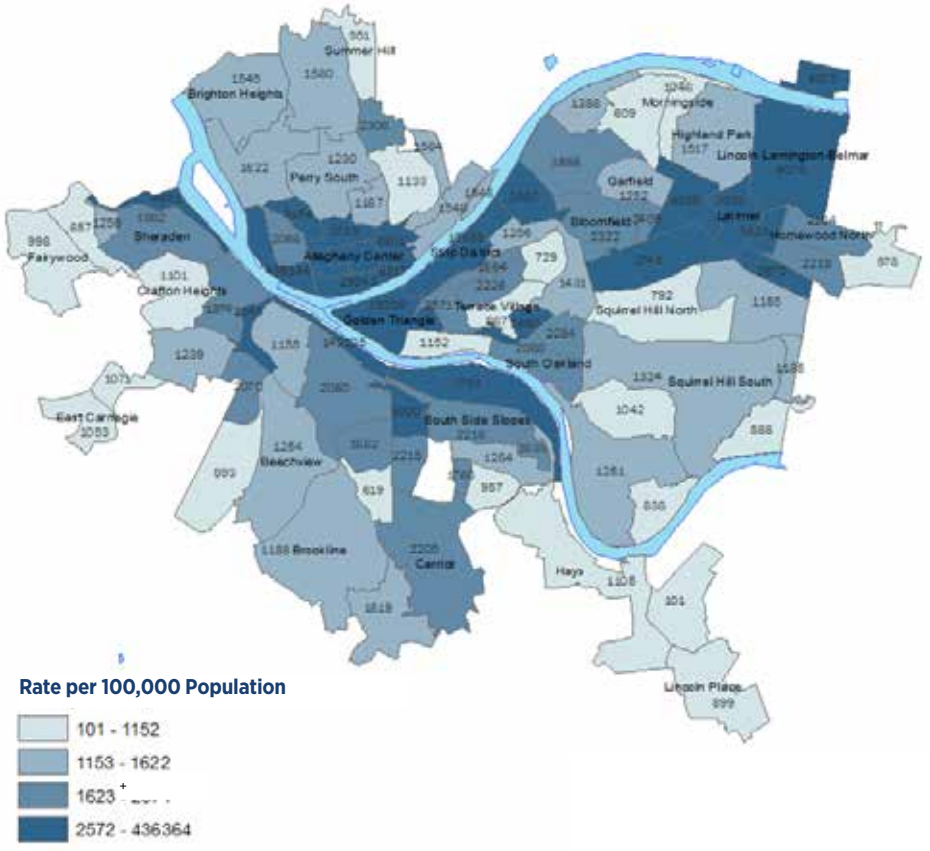


Table 2 lists the 10 City of Pittsburgh neighborhoods with the greatest number of motor vehicle thefts in 2014 and their corresponding rates. In this table, as in the map of motor vehicle theft rates, we observe high levels of theft in neighborhoods within the East End and near the South Side.

TABLE 2: **Neighborhoods with the greatest number of motor vehicle thefts, 2014**

NEIGHBORHOOD	MV THEFT	MV THEFT RATE
South Side Flats	31	470
Lincoln Lemington Belmar	25	512
Carrick	24	237
Shadyside	23	165
East Liberty	22	375
Homewood North	19	579
Sheraden	17	321
Homewood South	16	683
Mount Washington	16	182
Brookline	15	114

Due to variation in neighborhood crime rates, there are accompanying disparities in the number of motor vehicle thefts within multi-neighborhood police zones. **Table 3** lists the number of motor vehicle thefts, the share of total motor vehicle thefts, and the motor vehicle theft rate of each City of Pittsburgh police zone. In 2014, the greatest number of thefts occurred in Zones 1, 3 and 5, which, together, contained 67 percent of all motor vehicle theft. Zone 5, which includes part of Pittsburgh's East End, had particularly high levels of motor vehicle theft, recording 157 thefts in one year at a rate of 312 thefts per 100,000 residents.

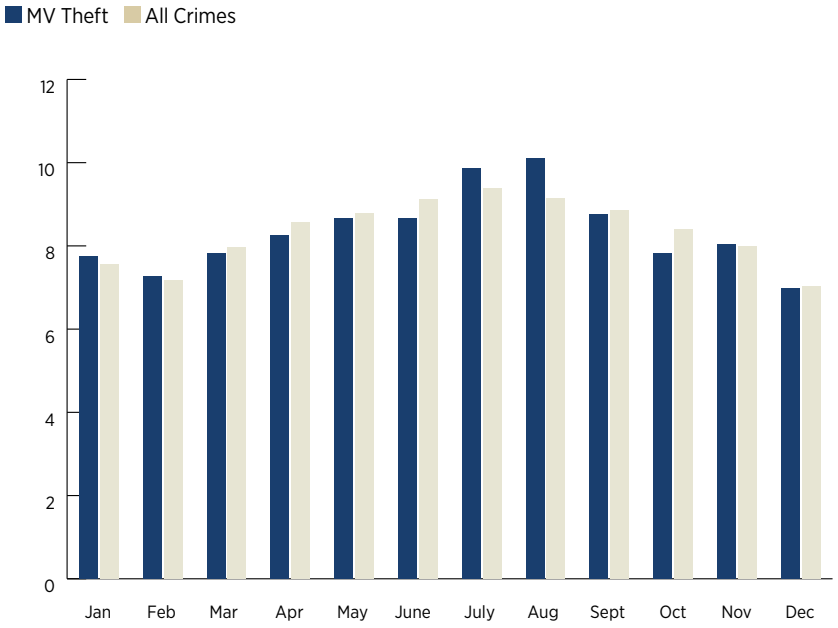
TABLE 3: **Motor vehicle thefts and motor vehicle theft rates within each City of Pittsburgh Police Zone, 2014**

	MV THEFT	PERCENT OF TOTAL	RATE PER 100,000
Zone 1	101	18%	247
Zone 2	64	11%	200
Zone 3	124	22%	259
Zone 4	77	13%	86
Zone 5	157	27%	312
Zone 6	53	9%	117

3.4 When Motor Vehicle Theft Occurs

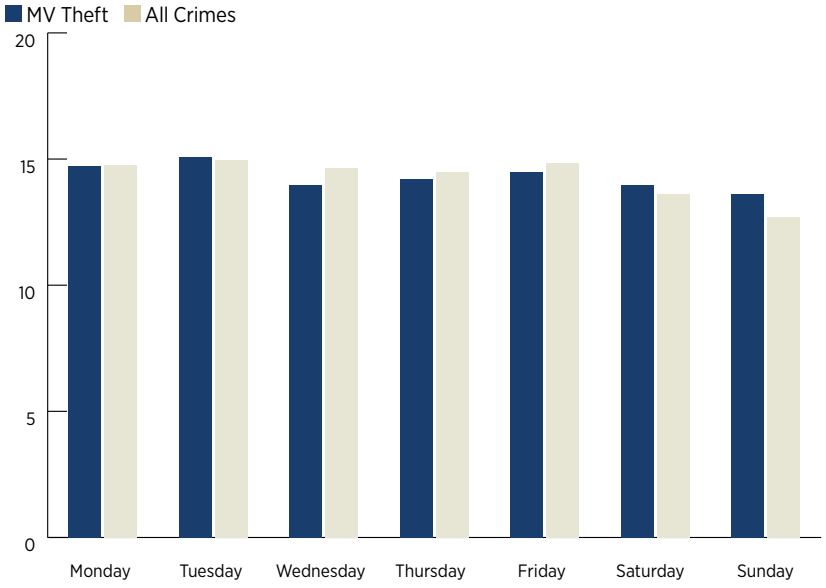
The risk to residents of motor vehicle theft also varies depending on the month of the year, day of the week and time of day. **Figure 11** compares the share of motor vehicle thefts that occur in each month of the year to the monthly distribution of all crimes in the City of Pittsburgh. In the last ten years, police have documented high rates of motor vehicle theft in the warmest months, particularly July and August. Likewise, motor vehicle thefts were reported less frequently in December, January and February. Although the monthly motor vehicle theft distribution generally mirrors that of all crimes, motor vehicle thefts tend to cluster more densely in the summer months.

FIGURE 11: **Percent of motor vehicle thefts occurring each month of the year, 2005 through 2014**



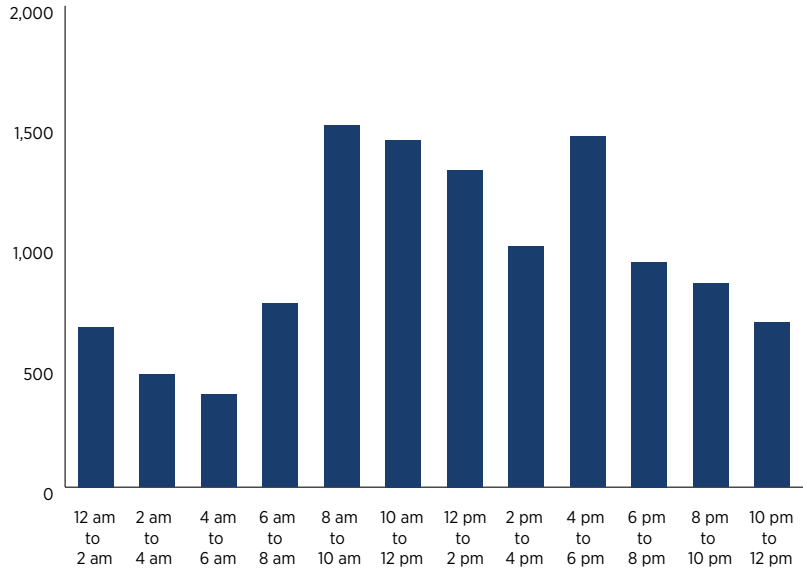
Rates of motor vehicle theft can also vary across a single week. **Figure 12** shows the share of motor vehicle theft that occurred on each day of the week from 2005 through 2015. This distribution is compared to the percentage of all crimes that took place each day throughout this 10-year period. Although crime, in general, tends to be lower during the weekends, motor vehicle thefts occur nearly as frequently on Saturday and Sunday as they do during the week.

FIGURE 12: **Percent of motor vehicle thefts occurring each day of the week, 2005 through 2015**



Motor vehicle thefts also fluctuate over the course of a day. **Figure 13** shows the distribution of motor vehicle thefts across 12 two-hour time increments, as observed from 2005 through 2015. The data suggest that motor vehicle thefts occur most frequently during the day, and particularly between 8:00am and 6:00pm. It seems likely that vehicles theft is most common during the times of day when many residents are away from their homes and parked near a workplace or school.

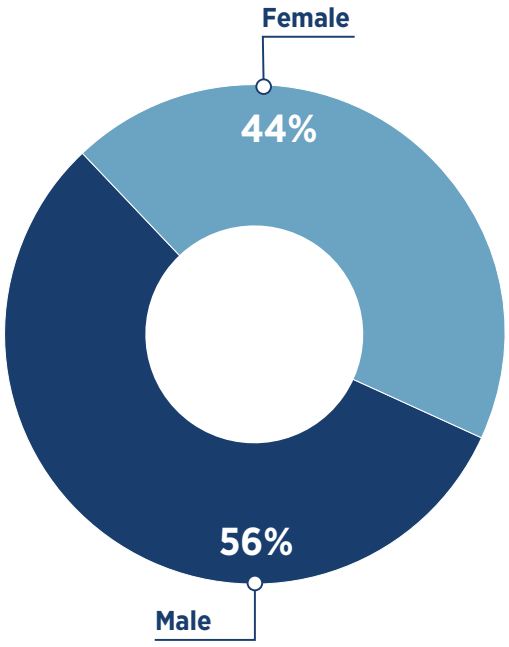
FIGURE 13: **Motor vehicle theft by time of day, 2005 through 2015**



3.5 The Victims of Motor Vehicle Theft

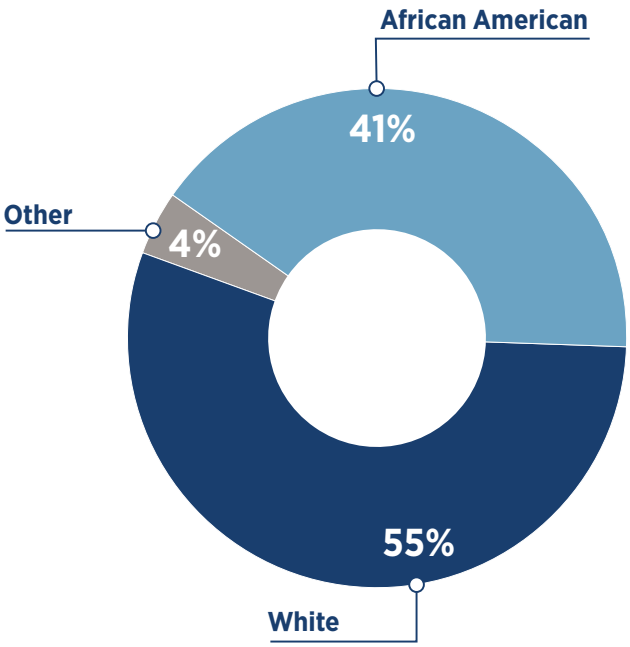
The demographics of victims of motor vehicle theft differ from those of the general population of Pittsburgh. These victims are more likely to be male and African American. **Figure 14** compares the percentages of male and female victims across several crime types for the period from 2009 through 2015. Male residents make up 56 percent of all motor vehicle theft victims and are more likely than females to be victims of motor vehicle theft. In 2014, male residents were victimized by motor vehicle theft at a rate of 185 per 100,000 compared to 147 per 100,000 for female residents.

FIGURE 14: **Percentage of male and female victims of motor vehicle theft, 2009 through 2015**



African American residents of Pittsburgh are more likely than white residents to be victims of motor vehicle theft. **Figure 15** presents the percentages of white victims and African American victims of motor vehicle theft incidents from 2009 through 2015. While African American residents represent just 26 percent of the City of Pittsburgh population, they are victims in 41 percent of motor vehicle cases. In 2014, the motor vehicle theft victimization rate for African American residents was more than twice that of white residents.

FIGURE 15: **Percentages of white and African American victims of motor vehicle theft, 2009 through 2015**

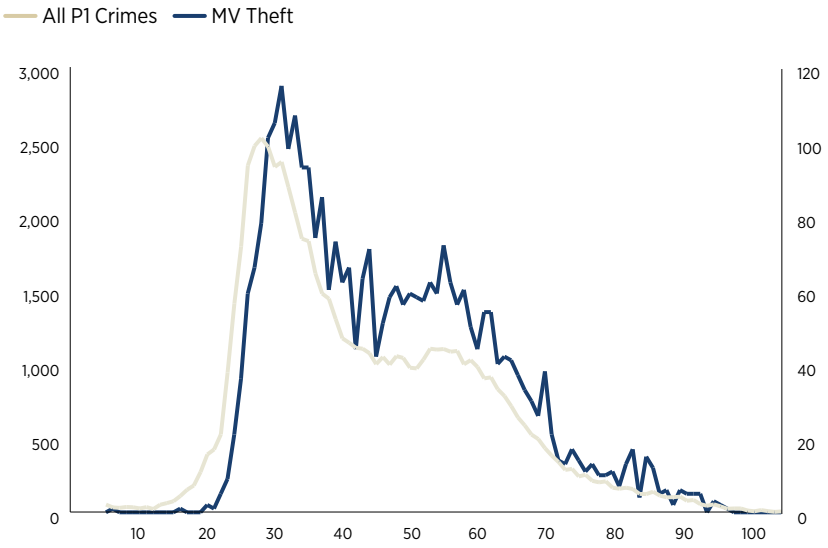


Rates of motor vehicle theft victimization are also highest for young adults living in Pittsburgh. Although the median age of motor vehicle theft victims is 39, rates of victimization tend to be high among young adults in their early 20s. **Table 4** compares the median ages of each Part 1 crime for the period 2009 through 2015. These data indicate that victims of property crimes tend to be older than victims of violent crimes. **Figure 16** plots the ages of motor vehicle theft victims in comparison to the ages of victims of all Part 1 crimes.

TABLE 4: **Median age of Part 1 crime victims, 2009 through 2015**

	MEDIAN AGE OF VICTIM
Aggravated Assault	29
Homicide	28
Rape	23
Robbery	28
Part 1 Violent Crimes	28
MV Theft	**39**
Arson	40
Burglary	39
Theft	35
Part 1 Property Crimes	36
All Part 1 Crimes	**34**

FIGURE 16: **Age distribution of motor vehicle theft victims, 2009 through 2015**



3.6 Clearance Rates for Motor Vehicle Theft

Police departments across the country rely on clearance rates as a measure of success. A clearance rate represents the proportion of reported crimes that are investigated and closed. A case is classified as cleared when a perpetrator is arrested and charged or when exceptional circumstances prevent the police and the courts from arresting or prosecuting a known perpetrator. While rising clearance rates can signal increased success in solving crimes, they can also be indicative of falling rates of incident reporting among hard-to-solve crimes, such as theft, or increases in rates of crimes with nearly automatic clearances, such as drug violations, disorderly conduct or weapon violations.

Key Terms

Cleared by Exceptional Means: The case is closed due to exceptional circumstances that prevent arrest and prosecution. These circumstances can include the death of a suspect, difficulty securing victim cooperation, or challenges with extradition.

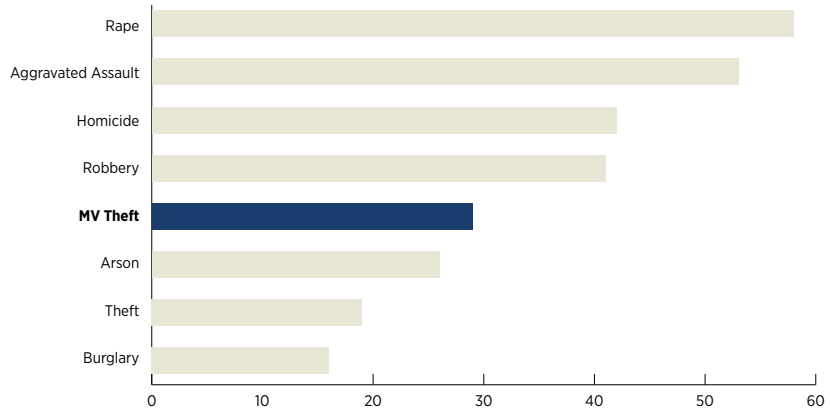
Cleared by Arrest: Police have arrested a juvenile or adult in connection with the incident, charged them with the crime and turned the case over to a court.

Pending: The case remains open.

Clearance Rate: The number of cases cleared by arrest or by exceptional means as a percentage of the total number of reported incidents.

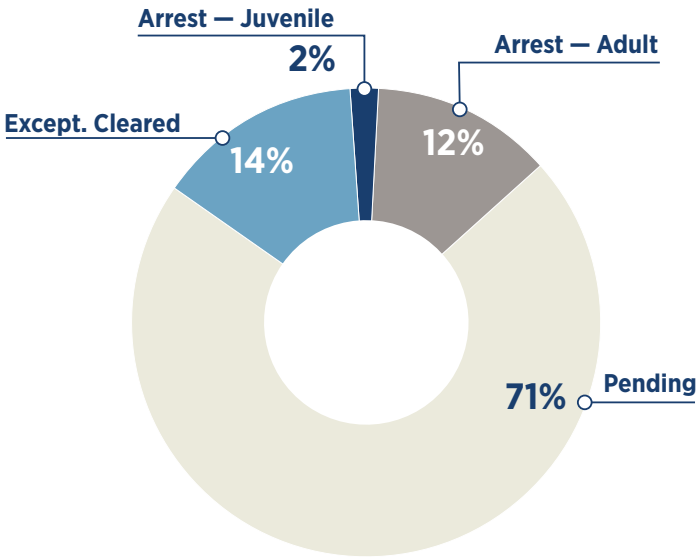
Due to characteristic differences across Part 1 crimes, it is useful to calculate and track clearance rates within a single crime category. In the City of Pittsburgh, motor vehicle theft tends to have a higher clearance rate than other property crimes, but a lower rate than the four Part 1 violent crimes: rape, aggravated assault, homicide and robbery. **Figure 17** illustrates this variation in clearance rate by crime category.

FIGURE 17: **Clearance rate by crime type, 2014**



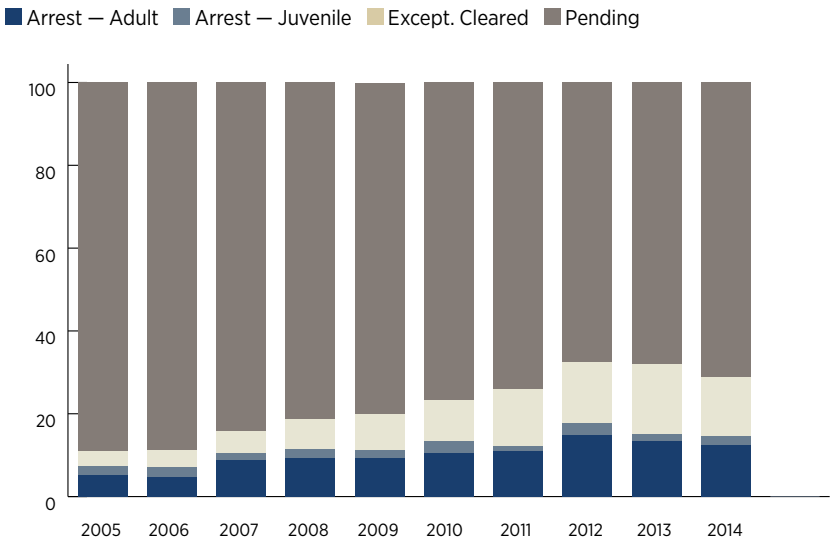
In 2014, Pittsburgh's clearance rate for motor vehicle theft was 29 percent, meaning that roughly one in three motor vehicle thefts reported to the police culminated in the identification of a suspect. **Figure 18** presents the distribution of all 2014 motor vehicle theft by clearance status: adult arrest, juvenile arrest, cleared by exception, or pending. Among the incidents of motor vehicle theft classified as cleared, nearly half were exceptionally cleared.

FIGURE 18: **Clearance status of motor vehicle theft, 2014**



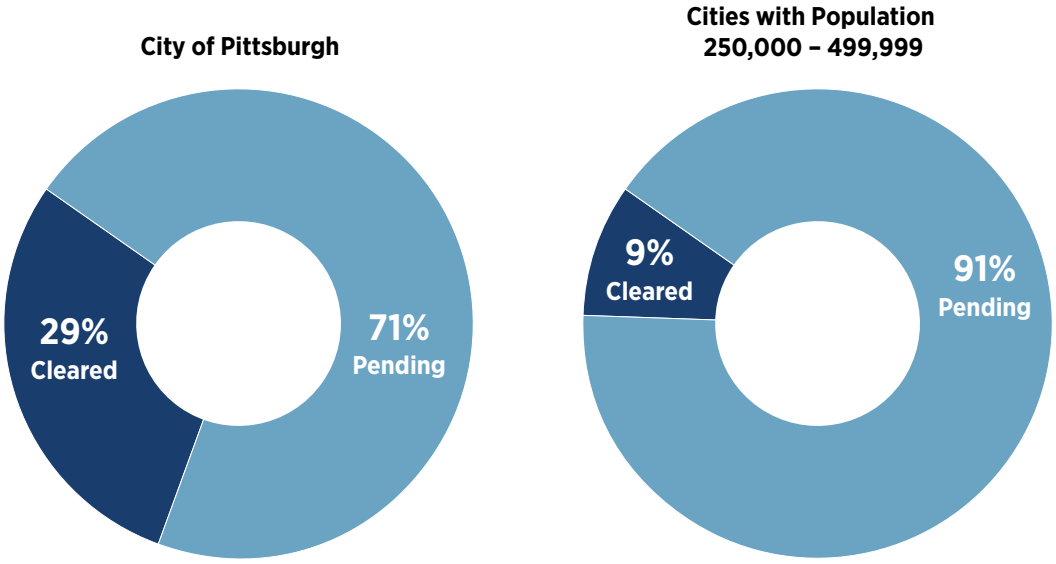
As illustrated in **Figure 19**, the percentage of motor vehicle theft cases that are cleared by police has increased over the past ten years, coinciding with large reductions in the motor vehicle theft rate. In 2005, the clearance rate was just 11 percent, with a smaller share of exceptionally cleared cases than adult arrests. This clearance rate has increased in nearly every year since 2005, but has been driven, in part, by growth in the share of crimes designated exceptionally cleared.

FIGURE 19: **Trends in the clearance status of motor vehicle theft, 2005 through 2014**



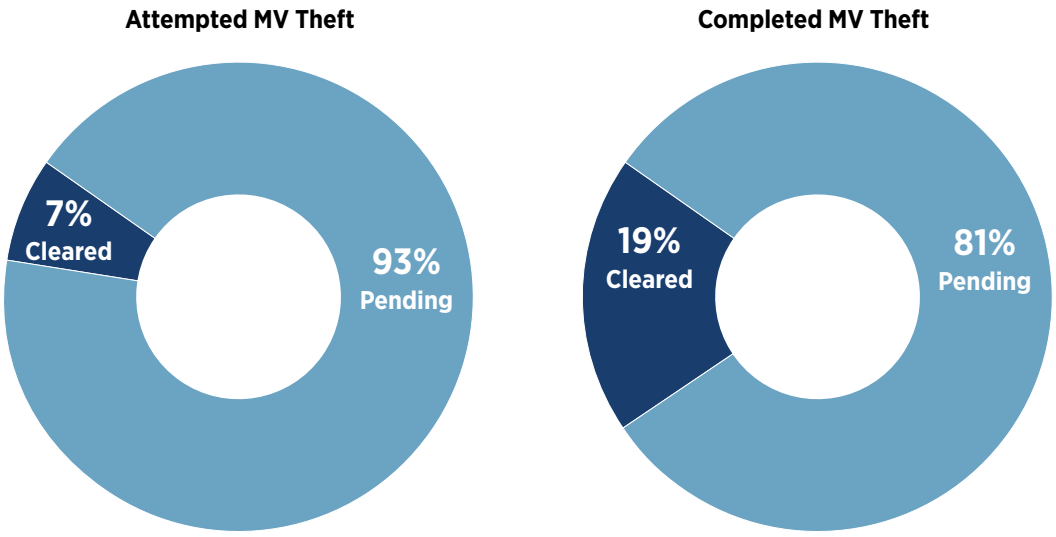
To evaluate Pittsburgh's clearance rate for motor vehicle theft, it is useful to compare Pittsburgh to similar benchmark cities. Because the FBI does not report clearance rates on the city level, this brief will use the FBI's Group I: Population 250,000 to 499,999 subset category for comparison purposes. The FBI generates data for this category by combining crime statistics for all cities with populations of 250,000 to 499,999. As shown in **Figure 20**, Pittsburgh's clearance rate for motor vehicle theft in 2014 was 20 percentage points higher than the rate of these similarly sized cities.

FIGURE 20: **Motor vehicle theft clearance rate in Pittsburgh compared to all cities with population 250,000 to 499,999, 2014**



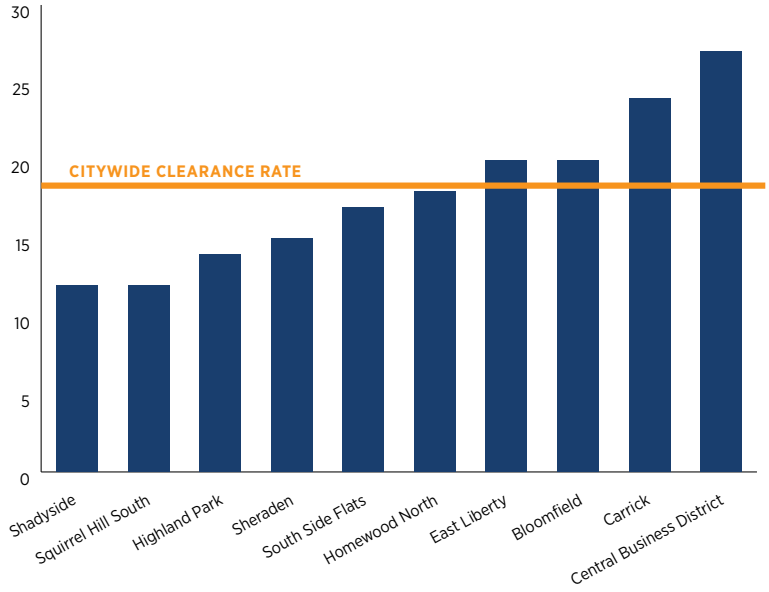
However, Pittsburgh's 29 percent clearance rate does not apply uniformly to all instances of motor vehicle theft; these rates can vary depending on the characteristics of a theft or the theft location. **Figure 21** compares the clearance rates for attempted motor vehicle thefts compared to completed thefts from 2005 through 2014. Attempted thefts have a historic clearance rate of seven percent, while completed thefts result in a clearance 19 percent of the time.

FIGURE 21: **Motor vehicle theft clearance rate by category of theft, 2005 through 2014**



The clearance rate for motor vehicle thefts can also vary depending on the location of the crime within the City of Pittsburgh. **Figure 22** presents the motor vehicle theft clearance rates of the 10 Pittsburgh neighborhoods with the greatest number of total motor vehicle thefts from 2005 through 2014. These neighborhoods serve as an example of the variation that can exist across Pittsburgh communities. While the Central Business District has had a higher than average clearance rate, Shadyside, Squirrel Hill and Highland Park have particularly low rates, all under 15 percent.

FIGURE 22: **Motor vehicle theft clearance rates of neighborhoods with the greatest number of MV thefts, 2005 through 2014**



There are modest differences as well in the clearance rate for motor vehicle theft depending on victim demographics. **Figure 23** compares the motor vehicle theft clearance rates for female victims to the clearance rates for male victims from 2009 through 2014. While the differences are small, a slightly larger share of cases with female victims (27%) resulted in a clearance, compared to motor vehicle thefts involving male victims (24%). **Figure 24** compares the motor vehicle theft clearance rates for African American victims to the rates of white victims. Although there are clear disparities in clearance rate by race for other Part 1 crimes, motor vehicle thefts are cleared at nearly the same rate for white and African American victims.

FIGURE 23: Clearance rate by the gender of the victim, all crimes, 2009 through 2014

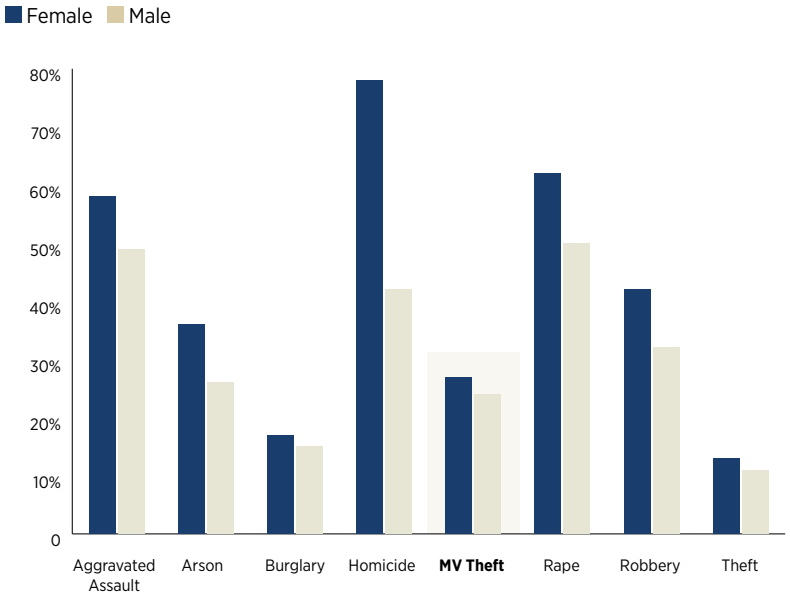


FIGURE 24: Clearance rate by the race of the victim, all crimes, 2009 through 2014