Rape in the City of Pittsburgh

1. INTRODUCTION

This brief presents an analysis of rape in the City of Pittsburgh from January 2005 through July 2015. It begins with a study of trends in the annual rate of rape and an examination of the nature of this crime, with special attention to crime characteristics 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 features of rape, including crime type and month of the year.

> ### Rape Defined[1]
>
> Penetration, no matter how slight, of the vagina or anus with any body part or object, or oral penetration by a sex organ of another person, without the consent of the victim. Attempts or assaults to commit rape are also included.
>
> — 2013 Revised Definition, The FBI Uniform Crime Report

[1] The 2013 definition of rape broadens the definition to capture gender neutrality, penetration of any bodily orifice by any object or body part, and offenses in which physical force is not involved. It is anticipated that the incidence of rape may increase under this broadened definition. Further, this new definition was adopted at varying times across jurisdictions (i.e., in 2014, 30 of the cohort cities used the new definition and 14 used the legacy definition). Therefore, comparisons in this report should be considered with caution.

This document offers four broad conclusions about rape in the City of Pittsburgh:

1. Rape rates have fluctuated over the past 10 years, but are generally lower today than they were in 2005.

2. Rape is most prevalent in neighborhoods historically beset by violent crime, including the North Side, Homewood and the Hill District.

3. Victims of rape are disproportionately young, African American and female.

4. Rape clearance rates are higher than those of comparable cities, but vary depending on method of assault, time of year and victim demographics.

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,[2] this brief uses data from the UCR to compare Pittsburgh's 2014 rape rate to similarly sized U.S. cities, referred to as the FBI cohort. Specifically, this brief compares Pittsburgh's rate of rape to that of cities, with populations 250,000 to 499,999, which reported this crime to the UCR in 2014.

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 rape rates of 13 comparable U.S. cities and the City of Pittsburgh.

PGHSNAP, City of Pittsburgh Department of City Planning

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

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 rape rates or clearance rates, therefore, include comparisons to Pittsburgh's 2014 data.

2.3 Incident-level Analysis

This report uses incidents, rather than victims, as the primary unit of analysis. 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

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

In 2014, the National Crime Victimization Survey conducted by the Bureau of Justice Statistics (BJS) estimated that 66 percent of rapes go unreported.[3] The BJS posited that victims of rape or witnesses to a rape might choose not to report a crime if they fear reprisal, have a relationship with the perpetrator, or believe that the police will not solve the case or provide desired assistance. 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 rape or the demographic profile of its victims.

3. ANALYSIS

[4] As described in footnote 1, comparisons in this report should be considered with caution, due to a change in the definition of rape.

3.1 Trends in Rape[4]

In 2014, Pittsburgh Police received 95 reports of rape, at a rate of 30 rapes per 100,000 city residents. This rate is lower than most of the Pittsburgh Today benchmark cities, with the exception of Charlotte and Richmond. **Figure 1** compares Pittsburgh's 2014 rape rate to the rates of these 13 comparison cities.

FIGURE 1: **Rape rates of comparable U.S. cities, 2014**
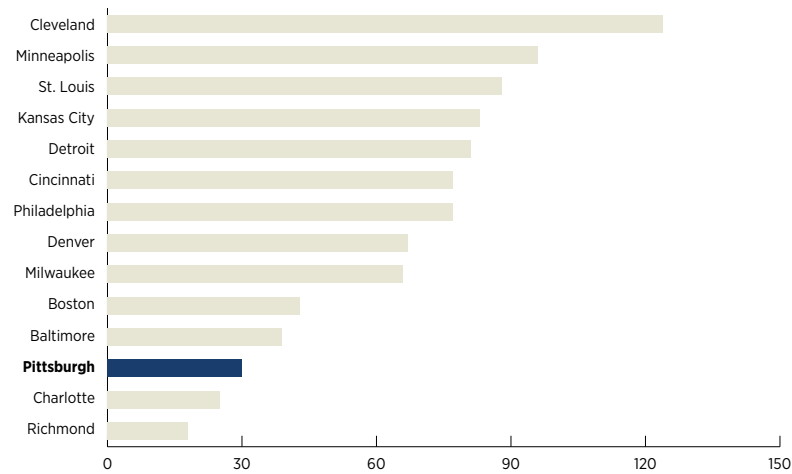
Among the FBI Cohort, Pittsburgh ranked 31st highest in rape rate in 2014.

Pittsburgh's 2014 rate of 30 represents a modest increase over the 2013 rate of 25 rapes per 100,000 residents. Nonetheless, rapes are generally on the decline in Pittsburgh. From 2005 through 2014, Pittsburgh's rape rate fell by 16 percent. **Table 1** details the year-over-year percent change in the rape rate across this 10-year period. **Figure 2** plots the rape rate for the same period, showing gradual decline across the decade with the greatest reductions occurring from 2008 through 2012.

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

	YEAR-OVER-YEAR PERCENT CHANGE
2005	-
2006	-9%
2007	20%
2008	6%
2009	-13%
2010	-40%
2011	6%
2012	-26%
2013	76%
2014	17%
Ten-Year	**-16%**

FIGURE 2: **Rape rate in Pittsburgh, 2005 through 2014**
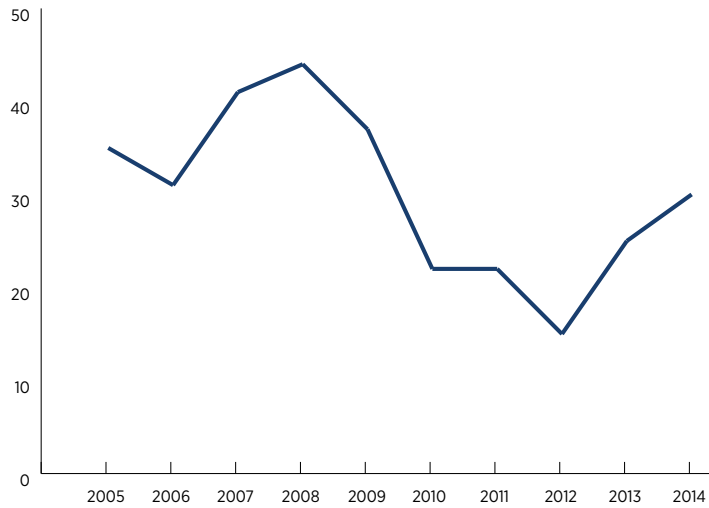
Although 2005 is the earliest year for which we have comprehensive data, it is useful to place this recent decade in the context of the volatile 1980s and 1990s, a period during which cities nationwide experienced unprecedented highs in their rates of violent crime. **Figure 3** plots the City of Pittsburgh's rape 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, appears to be a continuation of the decline that began in the early 1990s, after several years of inflated rates.

FIGURE 3: **Rape rate in Pittsburgh, 1985 through 2014**
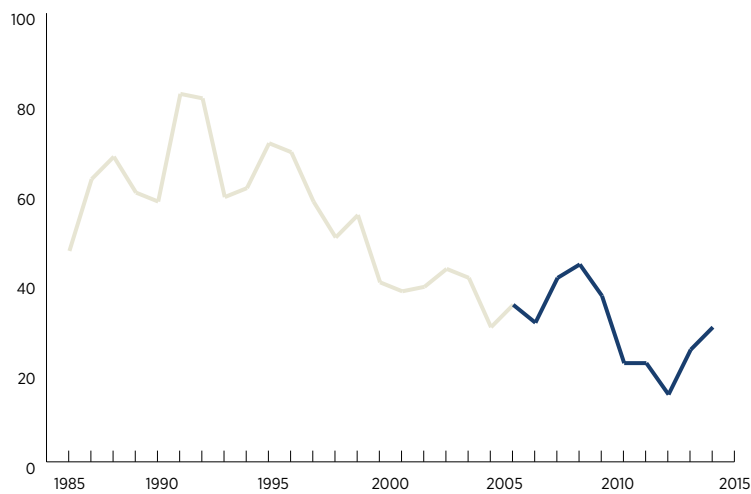
In contrast to the trends observed in the City of Pittsburgh, rape rates have increased in most Pittsburgh Today comparison cities since 2005. **Figure 4** plots the median rape rate of Pittsburgh Today cities across this decade, while **Figure 5** presents the 10-year percent change in the rape rate of each city. Pittsburgh has outpaced nearly every comparison city by reducing rape by 16 percent over the last decade.

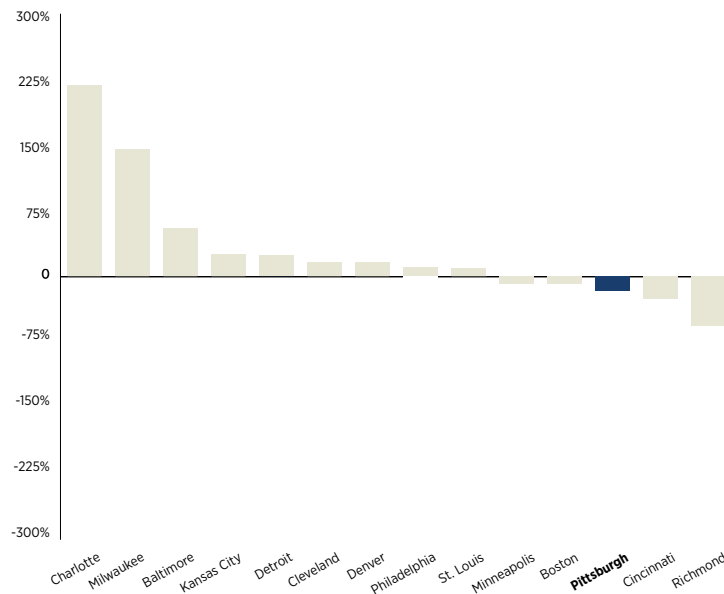FIGURE 4: **Trends in Pittsburgh's rape rate compared to a composite of comparable cities, 2005 through 2014**
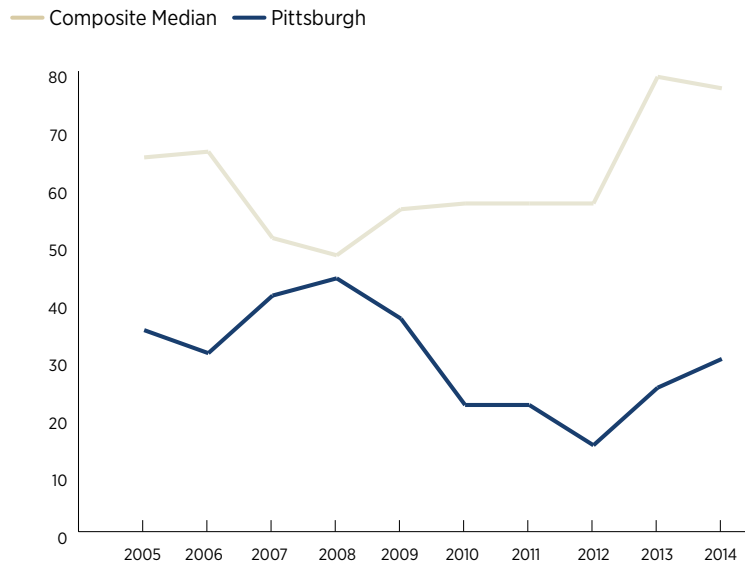
FIGURE 5: **Ten-year percent change in the rape rates of comparable U.S. cities, 2005 through 2014**

3.2 The Nature of Rape

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. **Figure 6** serves as a snapshot of rape throughout the City of Pittsburgh in 2014. It presents a distribution of the Bureau of Police's three main categories of rape: rape by force, sexual assault[5] and assault with intent to rape. In 2014, the majority of reported rapes (87%) were classified a rape by force.

[5] Rape by force requires some evidence of force, either actual or threatened, whereas sexual assault requires only that the complainant did not consent to the sexual conduct.

FIGURE 6: **Percentage of rapes, by category, 2014**

Assault with Intent to Rape
5%

Sexual Assault
7%

87% **Rape by Force**
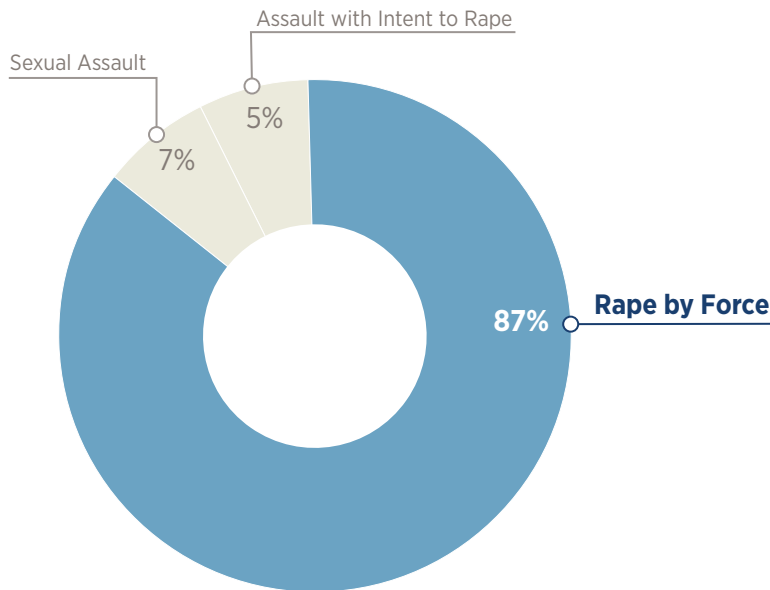
3.3 Where Rape Occurs

A study of citywide rape rates can mask the variations in crime risk that exist across individual communities. Despite modest declines in this citywide rate, select neighborhoods and zones in the City of Pittsburgh continue to experience persistent high rates of rape. **Figure 7** provides an illustration of these disparities by comparing the rates of rape in each City of Pittsburgh neighborhood in 2014.

This map draws attention to several residential areas of the city with particularly high rates of rape, including Homewood, the Hill District and the North Side. When examining neighborhood-level rates, we also observe high levels of rape in areas that typically accommodate non-residents, such as the Central Business District, the North Shore and the Strip District. Generally, however, adjusting for residential population allows for comparison across neighborhoods and provides a more accurate assessment of the risk posed by rape 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.
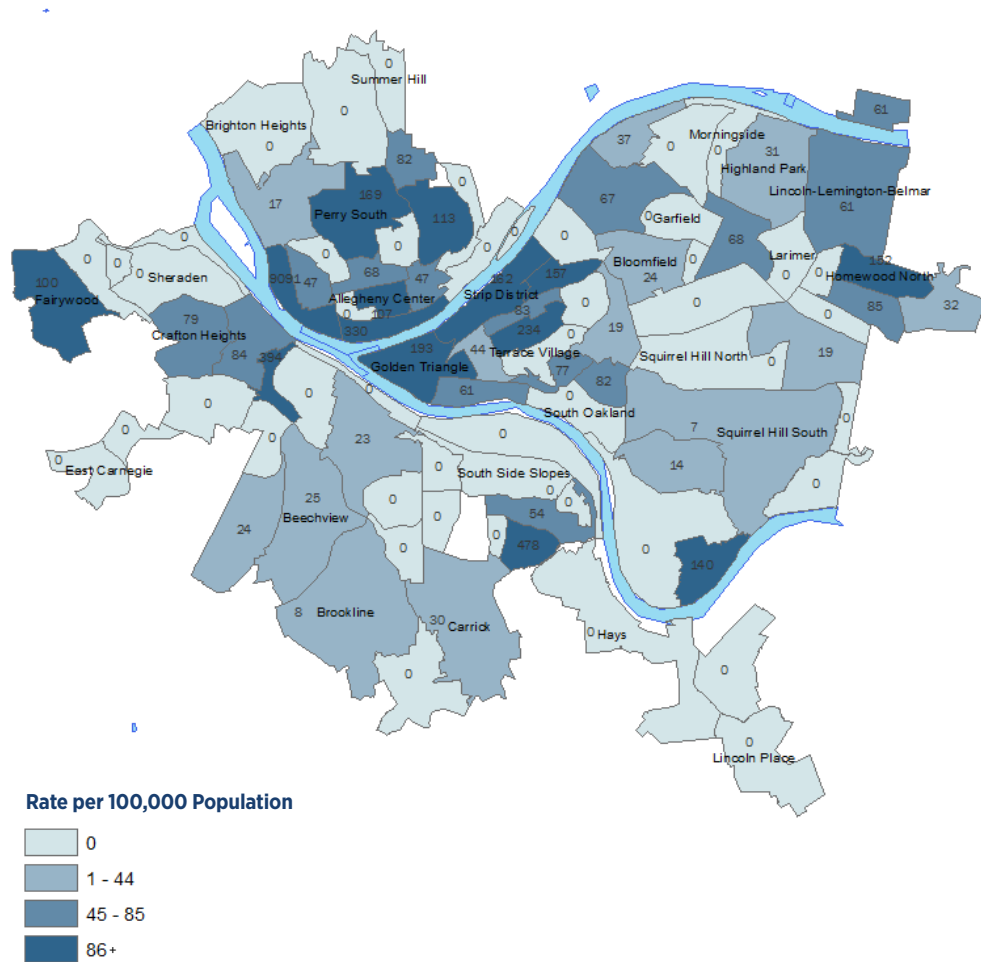
Figure 7: Rape rate, by neighborhood, 2014

Rate per 100,000 Population

	0
	1 - 44
	45 - 85
	86+

Table 2 lists the 10 City of Pittsburgh neighborhoods with the greatest number of rapes in 2014 and their corresponding rape rates. In this table, as in the map of rape rates, we observe high levels of rape in neighborhoods within the East End, North Side and Hill District.

TABLE 2: **Neighborhoods with the greatest number of rapes, 2014**

NEIGHBORHOOD	RAPES	RAPE RATE
Central Business District	7	193
Perry South	7	169
Homewood North	5	152
Central Oakland	5	82
East Liberty	4	68
Bluff	4	61
Middle Hill	4	234
Lincoln Lemington Belmar	3	61
Carrick	3	30
Crafton Heights	3	79

Due to variation in neighborhood crime rates, there are accompanying disparities in the number of rapes within multi-neighborhood police zones. **Table 3** lists the number of rapes, the share of total rapes and the rape rate of each City of Pittsburgh police zone. In 2014, the greatest number of rapes occurred in Zones 1, 2 and 5, which, together, contained 66 percent of all rapes. Zone 2, which includes Downtown Pittsburgh and the Hill District, had particularly high levels of rape, recording 24 rapes at a rate of 75 rapes per 100,000 residents of the zone.

TABLE 3: **Rapes and rape rates within each City of Pittsburgh Police Zone, 2014**

|	RAPES	PERCENT OF TOTAL	RATE PER 100,000
Zone 1	19	20%	46
Zone 2	24	26%	75
Zone 3	7	8%	15
Zone 4	13	14%	15
Zone 5	19	20%	38
Zone 6	11	12%	24

3.4 When Rape Occurs

The risk to residents of rape also varies depending on the month of the year, day of the week and time of day. **Figure 8** shows the share of rapes that occurred in each month from 2005 through 2014, and contrasts that distribution with all crimes in the City of Pittsburgh. In the last 10 years, police have documented high rates of rape in the warmest months, particularly in June through September. Although the monthly rape distribution generally mirrors that of all crimes, rapes tend to cluster more densely in the summer months, with relatively higher numbers in July and September.

FIGURE 8: **Percent of rapes occurring each month of the year, 2005 through 2014**
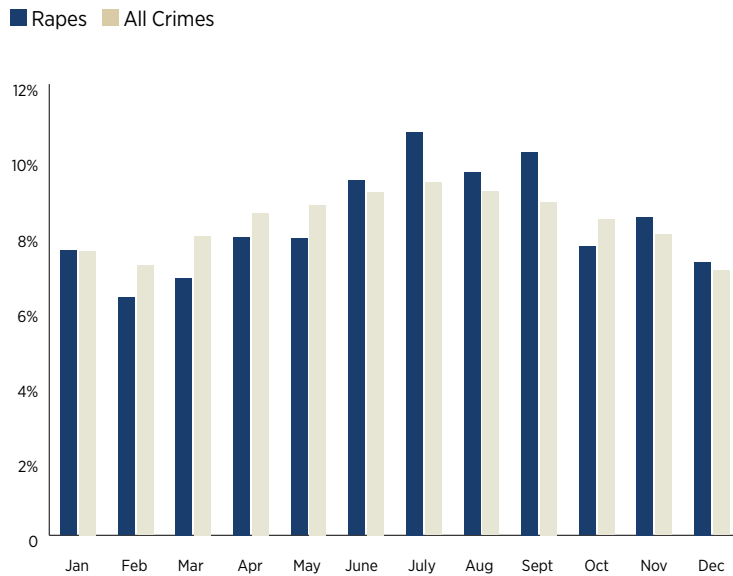

Rates of rape can also vary across a single week. **Figure 9** shows the share of rapes that occurred on each day of the week from 2005 through 2015. This distribution is compared to the percentage of all crimes that took place each day throughout this 10-year period. Although crime, in general, tends to be lower on the weekends, rapes occur more frequently on Saturday.

FIGURE 9: **Percent of rapes occurring each day of the week, 2005 through 2015**
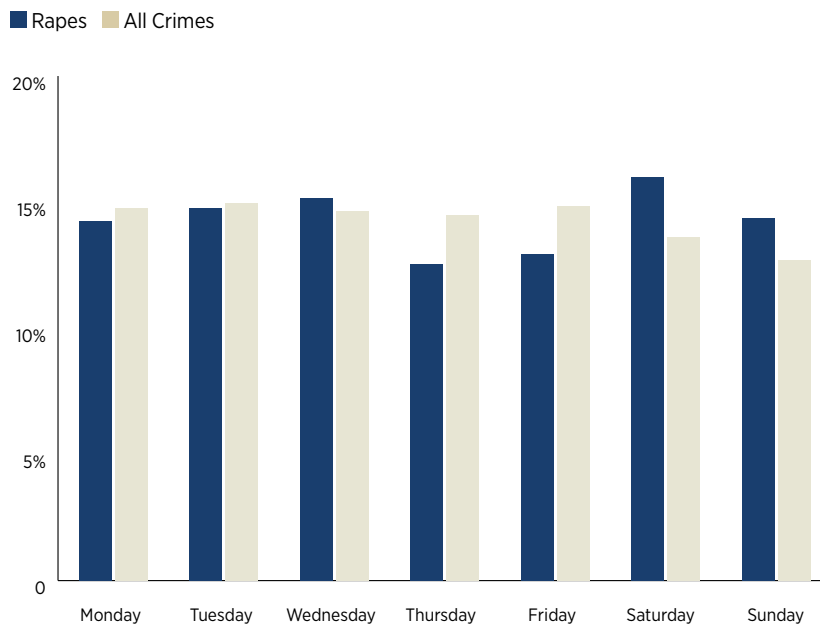
Rapes also fluctuate over the course of a day. **Figure 10** shows the distribution of rape across 12 two-hour time increments, as observed from 2005 through 2015. The data indicate that rapes occur most frequently in the late afternoon and at night. Rapes are uncommon in the early morning, particularly between 4:00 am and 8:00 am.

FIGURE 10: **Rapes by time of day, 2005 through 2015**
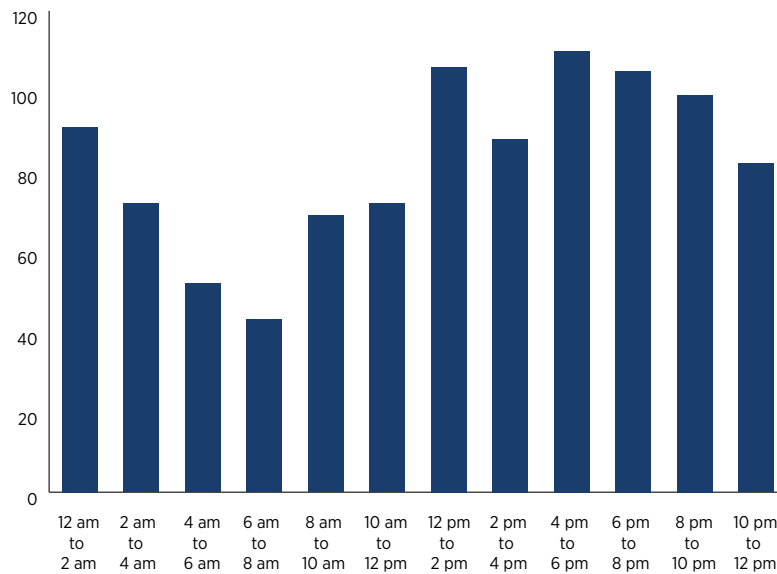
3.5 The Victims of Rape

The demographics of victims of rape differ from those of the general population of Pittsburgh. These victims are more likely to be young, female and African American. **Figure 11** compares the percentage of male and female victims across several crime types for the period from 2009 through 2015. The discrepancy between rates of male and female victimization is more pronounced for rape than for any other crime. Among rape victims, 94 percent are female. For female residents of Pittsburgh, the risk of victimization is 54 per 100,000 females, compared to just eight per 100,000 for male residents.

FIGURE 11: **Comparison of male and female victims of rape, by percentage, 2009 through 2015**
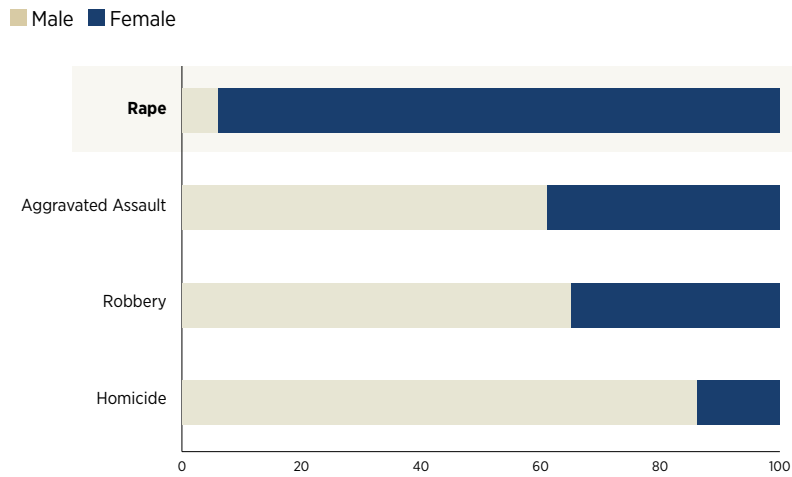
Male ▪ Female

Figure 12 presents the percentage of white and African American victims of rape and compares these percentages to other crimes reported from 2009 through 2015. Although a roughly equal number of white and African American residents are victims of rape, African Americans are over-represented among rape victims. African American residents are more likely than white residents to be victims of rape and their victimization rate is twice as high as the rate for white residents.

FIGURE 12: **Ratio of white to African American victims of rape, 2009 through 2015**

White ▪ African American ▪ Other
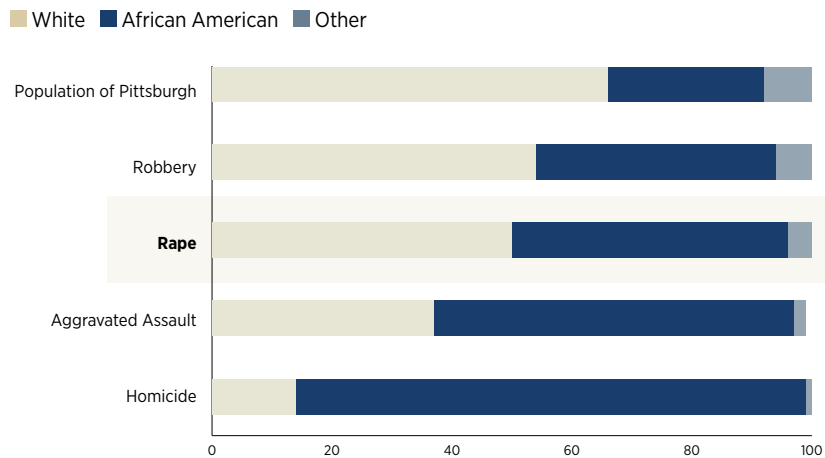
Rates of rape victimization are also highest for young adults living in Pittsburgh. Although the median age of City of Pittsburgh residents is approximately 33 years, the median age of a victim of rape is just 23.[6] **Table 4** compares the median ages of each Part 1 crime for the period from 2009 through 2015. These data indicate that victims of rape tend to be younger than victims of other Part 1 crimes, particularly victims of property crime. **Figure 13** demonstrates this difference

6 US Census Bureau, "ACS Demographic and Housing Estimates," 2013, http://factfinder.census.gov/bkmk/table/1.0/en/ACS/13_5YR/DP05/1600000US4261000

by plotting the ages of rape victims in comparison to the ages of victims of all Part 1 crimes. The figure shows that rape victims experience the highest rates of victimization during their teenage years, which is earlier than the peak victimization for all other 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 13: **Age distribution of rape victims, 2009 through 2015**
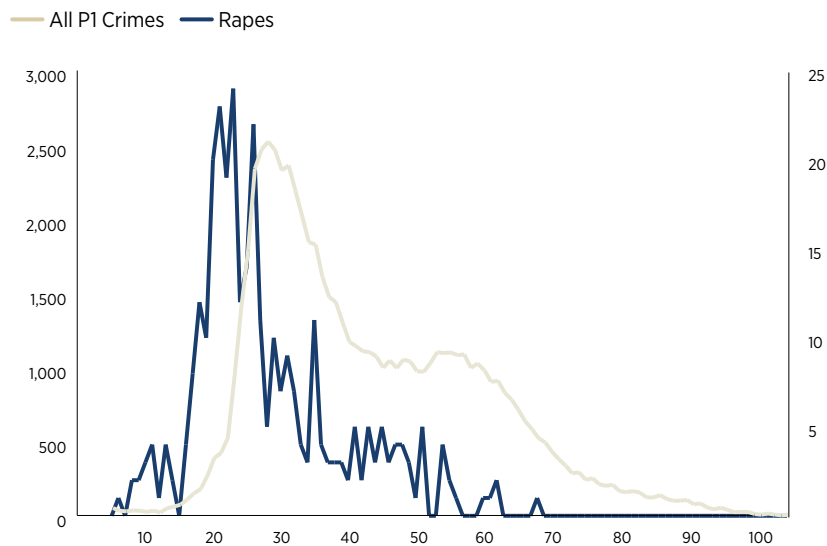
3.6 Clearance Rates for Rape

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, rape tends to have the highest clearance rate of all eight Part 1 crimes. **Figure 14** lists 2014 clearance rates by crime.

FIGURE 14: Clearance rate by crime type, 2014
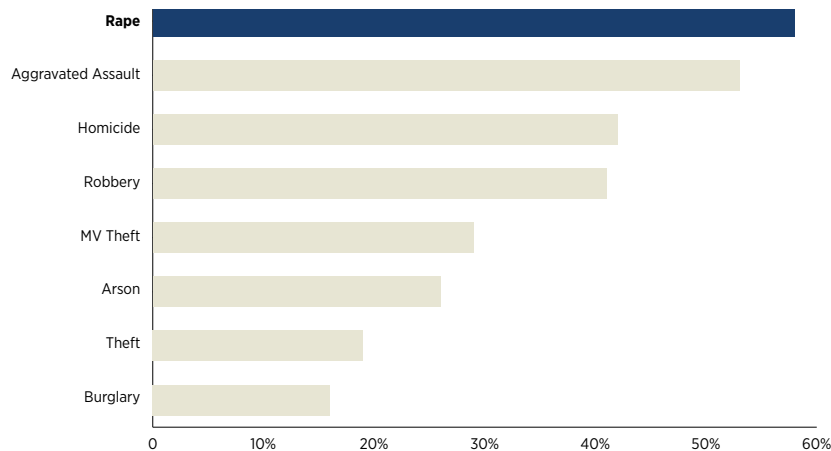
In 2014, Pittsburgh's clearance rate for rape was 58 percent, meaning that over half of all rapes reported to the police culminated in the identification of a suspect. **Figure 15** presents the distribution of all 2014 rapes by clearance status: adult arrest, juvenile arrest, cleared by exception, or pending. A large share of 2014 rapes were cleared by exception (36%). For certain crimes, such as rape, exceptionally cleared cases are common because victims may be reluctant to participate in the prosecution of a perpetrator.

FIGURE 15: Clearance status of rape, 2014

Arrest — Adult
20%
42% **Pending**
**Except. Cleared** 36%
Arrest — Juvenile 2%
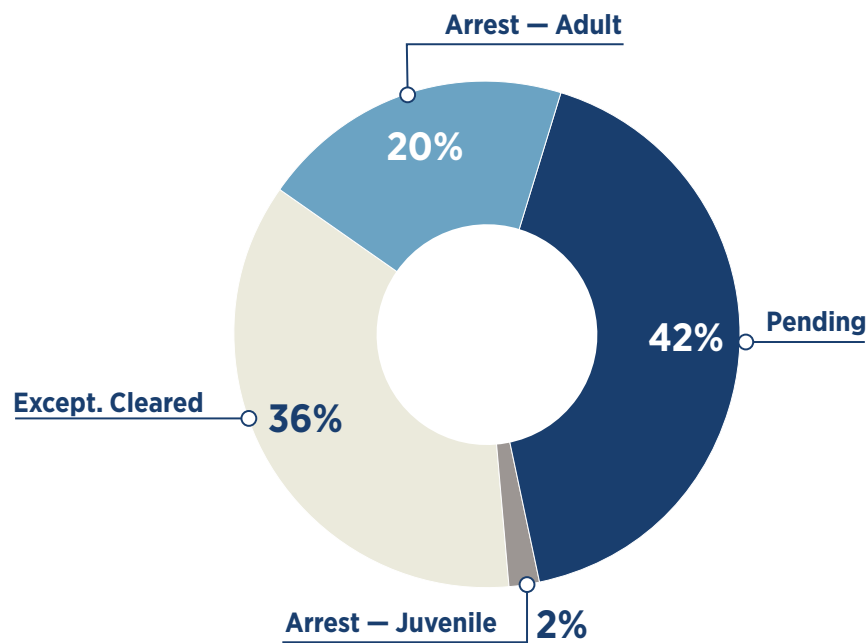
As illustrated in **Figure 16**, the distribution of pending and cleared rape cases has fluctuated year-to-year since 2005. The Bureau's clearance rate for rape has ranged from a maximum of 78 percent in 2012 to a minimum of 52 percent in 2010.

FIGURE 16: Trends in the clearance status of rape, 2005 through 2014

■ Arrest — Adult   ■ Arrest — Juvenile   ■ Except. Cleared   ■ Pending
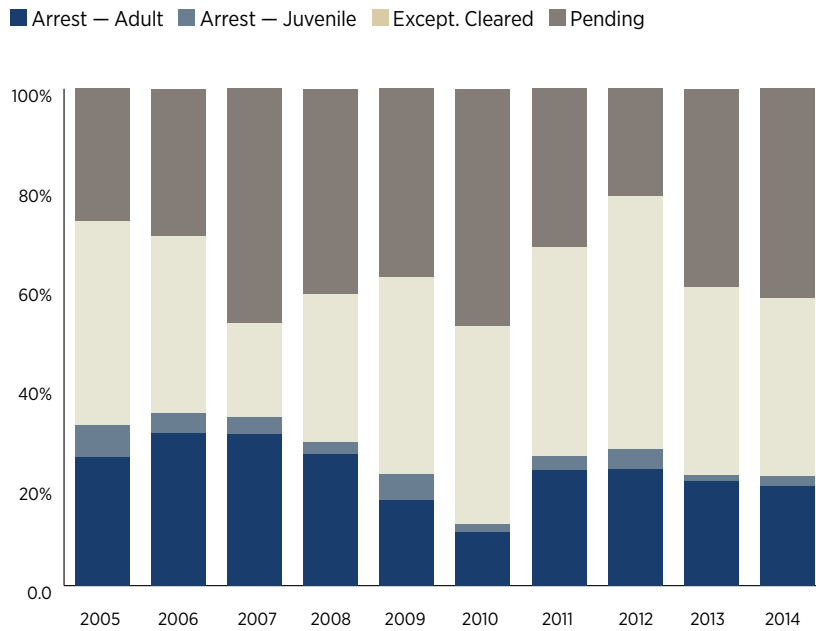

To evaluate Pittsburgh's clearance rate for rape, it is useful to compare Pittsburgh to similar benchmark cities. Because the FBI does not report clearance rates on the city level, this brief will use the FBI's Group I: Population 250,000 to 499,999 subset category for comparison purposes. The FBI generates data for this category by combining crime statistics for all cities with populations of 250,000 to 499,999. As shown in **Figure 17**, Pittsburgh's clearance rate for rape in 2014 was 21 percentage points higher than the rate of these similarly sized cities.

FIGURE 17: **Rape clearance rate in Pittsburgh compared to all cities with population 250,000 to 499,999, 2014**

City of Pittsburgh

Cities with Population 250,000 – 499,999

42% Pending

58% Cleared

63% Pending

37% Cleared
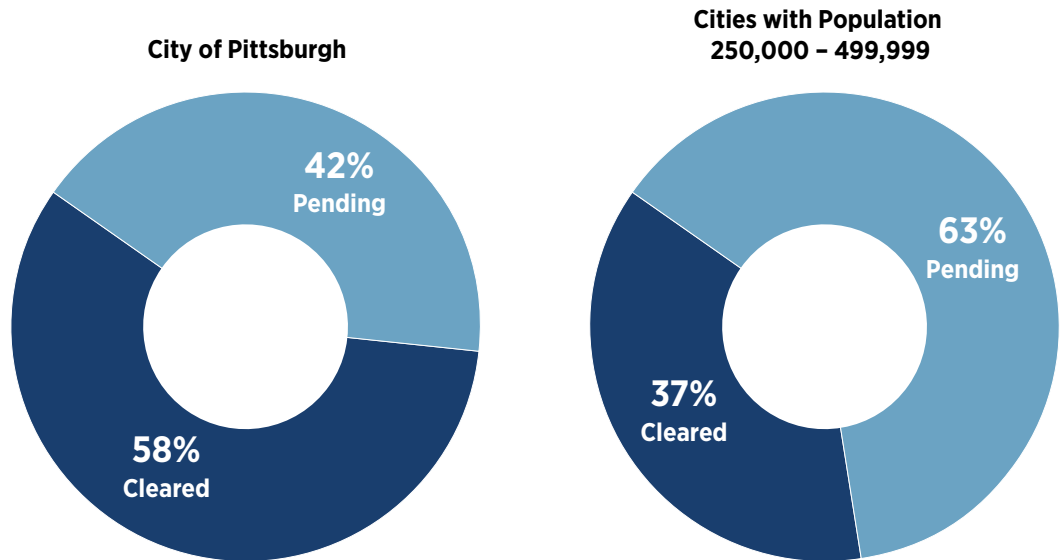
However, Pittsburgh's clearance rate does not apply uniformly to all instances of rape; it can vary depending on the characteristics of a rape or the demographics of a victim. **Figure 18** compares the clearance rates of each category of rape for all rapes from 2005 through 2014. As shown, clearance rates for rape are lowest when the rape is classified as a sexual assault (52%) and highest for assault with intent to rape (71%).

FIGURE 18: **Rape clearance rate by category of rape, 2005 through 2014**
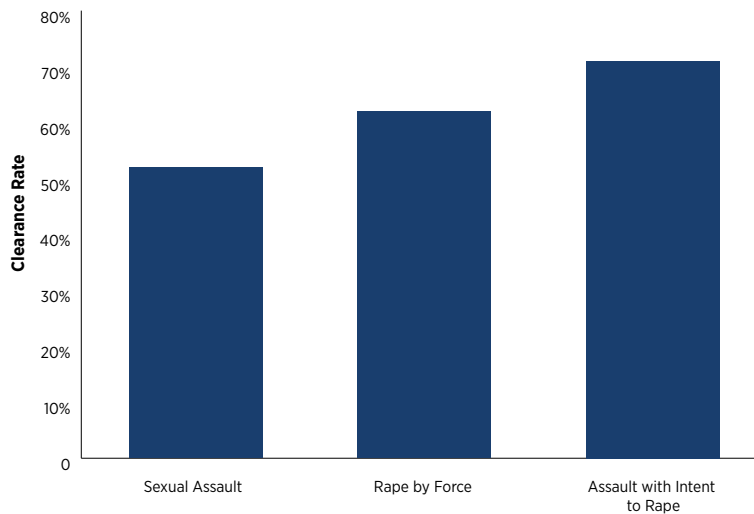
The clearance rate for rape can also vary depending on the month in which the rape occurred. As shown in **Figure 19**, clearance rates for rape are particularly low at the end of the year, particularly in December when the rate falls to 34 percent. Rape clearance rates are highest in January and February, when over 70 percent of cases result in a clearance.

FIGURE 19: **Rape clearance rate by month, 2005 through 2014**
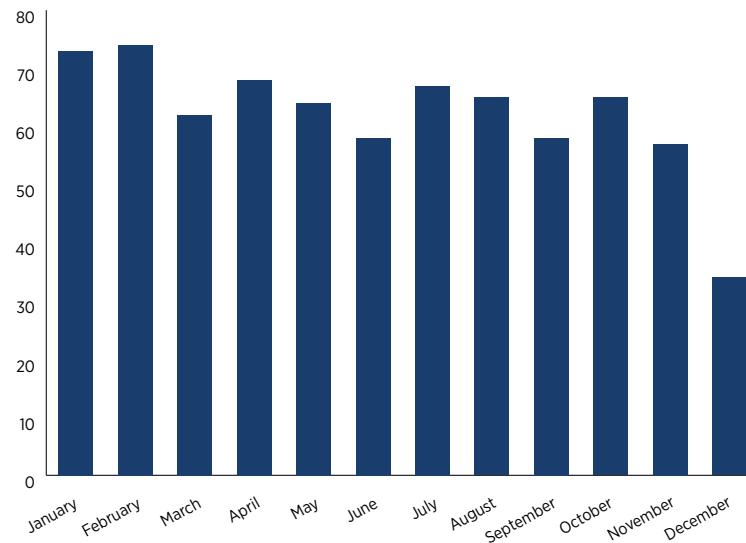
There are also differences in the clearance rate for rape depending on the demographics of the victim. **Figure 20** compares the rape clearance rates for female victims to the clearance rates for male victims from 2009 through 2014. While only 50 percent of cases involving a male victim were ultimately cleared by the police, 62 percent of cases with a female victim resulted in a clearance. Likewise, the clearance rate for rapes perpetrated against white victims was 58 percent while the clearance rate for African American victims was 63 percent. This difference is illustrated in **Figure 21.**

FIGURE 20: **Clearance rates by the gender of the victim, 2009 through 2014**
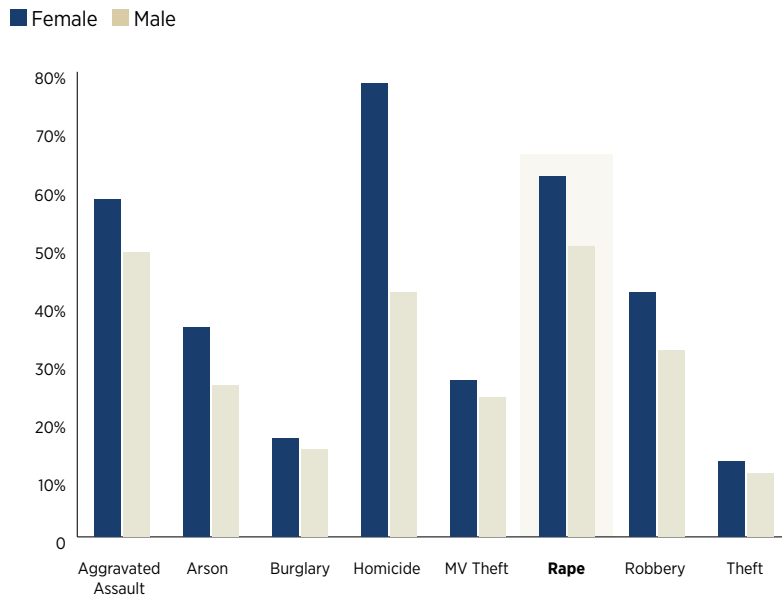

FIGURE 21: **Clearance Rate by the race of the victim, 2009 through 2014**