



Calculating Unit Costs in Allegheny County:

A Resource for Justice System Decision-Making and Policy Analysis, 2021 Update

September 2021

Crime generates substantial costs to society at the individual, community and national levels. In the United States, over 18 million criminal offenses were committed in 2016,¹ resulting in approximately \$233 billion in government expenditures on police protection, judicial and legal activities, and corrections.² Programs that prevent crime can therefore generate substantial economic benefits by reducing crime-related costs incurred by victims, communities and the criminal justice system.

Programs that work to prevent and deter crime can be valued in relation to the costs they save to the system. These costs can include savings as a result of fewer arrests, decreased number of court appearances, reduced jail-bed days, and fewer days of probation. In addition, examining program benefits this way provides useful information when making decisions about the allocation of scarce resources, i.e., programs that result in greater cost savings may be of greater value than those with a lesser impact. Although cost savings are an important component of program viability, it is only one of a number of criteria to be considered when evaluating a program's value. Other important criteria include process and outcome-related metrics: for example, how well is the program being implemented as designed, and what are the outcomes of individuals who successfully complete the program, among others.

Allegheny County is committed to allocating criminal justice resources in a systematic way, utilizing evaluation and evidence-based programming to better understand the costs and benefits of various programs. To further this goal, between 2012 and 2013, Allegheny County received technical assistance from the Vera Institute of Justice to implement a system of cost-benefit analysis throughout its criminal justice system.³ Through a two-year period of technical assistance, the Vera Institute helped Allegheny County create a systemwide cost database that includes agreed-upon unit costs within the County's criminal justice system and evaluate two programs using this information.^{4,5} The systemwide cost analysis includes the cost of an arrest, the cost per day of incarceration or detention, and the cost per day of supervision, including adult and juvenile caseloads, in Allegheny County during calendar years 2011 and 2012. The results of this initial analysis were published in October 2014. This updated version builds on that work and extends the time frame examined through calendar year 2018.⁶

¹ [U.S. Department of Justice. Federal Bureau of Investigation. Crime in the United States by Volume and Rate per 100,000 Inhabitants, 1999–2018. Uniform Crime Reports. FBI: Washington, D.C. \(2018\).](#)

² [U.S. Department of Justice. Bureau of Justice Statistics. Justice Expenditure and Employment Extracts, 2016 - Preliminary. Bureau of Justice Statistics. Washington, D.C. \(2019\).](#)

³ [Henrichson, Christian. "Cost-Benefit Knowledge Bank for Criminal Justice." Vera Institute of Justice \(December 2014\).](#)

⁴ [Zhou, Chengyuan, et al. "The Costs and Benefits of Day Reporting Centers: A New Model of Adult Probation in Allegheny County." Allegheny County Department of Human Services \(September 2014\).](#)

⁵ [Collins, Kathryn, et al. "School-Based Probation in Allegheny County: Examining the Costs and Benefits." Allegheny County Department of Human Services \(October 2014\).](#)

⁶ There are a number of significant differences between this report and the previous version; the 2014 edition includes unit costs of a prison-bed day for the Pennsylvania Department of Corrections' (DOC) Secure Correctional Institutions, or prisons. This justice system was not included in this updated version as DHS analysts were unable to obtain marginal costs information from the Pennsylvania DOC. This updated version also provides cost estimates for Allegheny County Pretrial Services.

The purpose of this report is to provide the average, short-run and long-run marginal costs for key criminal justice-related activities for use by policymakers, researchers and analysts. By examining these costs over time, policymakers can better understand the drivers of costs within these systems (e.g., changes in population served, changes in operating costs, or both). Researchers, evaluators and program administrators can use this information to compare the benefits and costs of programs when making management, budget and program decisions. Finally, analysts can use these figures to value the costs and benefits of current and future prevention programs in the criminal justice system.

METHODOLOGY AND DATA

Methods of Analysis

Analysts at the Allegheny County Department of Human Services (DHS) worked with the Allegheny County Budget Office and local justice organizations to compile information on justice system costs. Much of this information is publicly available online but has been re-structured here to make it more useful for cost-benefit analysis and decision-making. **Table 1** shows the six justice system activities that were analyzed for this report.

TABLE 1: Justice System Areas Analyzed

JUSTICE SYSTEM ENTITY	COST UNIT	DATA SOURCES
Pittsburgh Bureau of Police	Cost Per Arrest ^a	(1) City of Pittsburgh Annual Budgets; (2) Pittsburgh Bureau of Police Annual Statistical Reports; (3) PBP Calls for Service Data (police time spent on calls)
Allegheny County Pretrial Services	Cost Per Day of Supervision	(1) Allegheny County Comprehensive Annual Financial Reports; (2) Allegheny County Pretrial Services Annual Reports; (3) Allegheny County Adult Probation Annual Reports; (4) Allegheny County Budget Office; (5) Allegheny County Courts
Allegheny County Jail	Cost Per Jail-Bed Day	(1) Jail Maximus Proposed Per-Diem Rates for Federal Prisoners Reports
Allegheny County Adult Probation and Parole	Cost Per Day of Supervision	(1) Allegheny County Adult Probation Annual Reports; (2) Allegheny County Budget Office
Allegheny County Juvenile Probation Office	Cost Per Day of Supervision	(1) Allegheny County Juvenile Probation Annual Reports; (2) Allegheny County Budget Office
Allegheny County Juvenile Probation Out-of-Home Placements	Cost Per Day of Placement ^b	(1) Allegheny County Department of Human Services

^a This report presents the cost of an arrest by the Pittsburgh Bureau of Police. For information on why cost information is presented only for this police department, see Section 1, **Cost of an Arrest**. ^b Excluding placements at Shuman Juvenile Detention Center

Detailed information about each system is included in the main section of this report. Although the compilation of costs differed for each entity, there were common data points of interest across each, including: fixed costs, such as administrative services and personnel costs, including salaries and benefits; variable costs, including supplies, materials and maintenance; and annual caseload information. Note that costs shown reflect figures

in the original source documents and have not been adjusted for inflation.⁷ Readers should be aware that cost buckets are not necessarily comparable across justice system activities; for example, total salaries and benefits for police officers listed in the Cost of an Arrest section does not include pension contributions, whereas total salaries and benefits for pretrial officers in the Cost Per Day of Pretrial Supervision does. As such, readers should exercise caution when comparing costs across justice system activities.

For each of the six activities listed above, three costs are presented: average cost, short-run marginal cost and long-run marginal cost. An overview of each of these three costs is provided below.

Average cost. Average cost is the total operating cost of providing a service, including both fixed and variable costs, divided by the total units provided. For example, in 2018, the total annual cost of operating the Allegheny County Jail was approximately \$92 million dollars.⁸ The average daily population during this time was 2,357 individuals, meaning that over the course of that year, there were 860,305 jail-bed days provided.⁹ By dividing the total operating cost by the total number of jail-bed days provided, an average cost of \$107 per jail-bed day is obtained.¹⁰ This does not mean, however, that each day with one less jail bed occupied would reduce operating expenses by \$107. This is because certain costs remain fixed and do not change directly in relation to fluctuations in the underlying population. Examples of these costs include building maintenance, administrative costs and depreciation, among others.

Short-run and long-run marginal cost. Although average cost is an important metric when making decisions, policymakers are often more interested in understanding the direct costs incurred in relation to a change in the number of units provided. These costs are called marginal, or variable, costs. Marginal costs include both short-run and long-run costs. In the short run, the marginal cost of each jail-bed day is equal to the cost of clothing, meals and other auxiliary services provided to an individual on that day, but does not include the costs of maintaining or staffing the facility. For example, in 2018, the total cost of supplies, materials and services at the Allegheny County Jail was approximately \$23 million.¹¹ By dividing the total cost of supplies, materials and services by the total number of jail-bed days provided, a short-run marginal cost of \$27 per jail-bed day is obtained.¹² Short-run marginal cost does not include items like employee salaries because, in the short run, those individuals would remain employed with or without that additional individual booked at the jail each day.

In the long run, however, if the inmate population grows or shrinks by a certain amount, additional correctional officers may need to be hired or released, and additional pods opened or closed. These costs, called step-fixed costs, are costs that remain constant only over certain ranges of output. For example, it might require 10 correctional officers to supervise a pod of 100 individuals, but once that population reaches 101 individuals,

⁷ Figures were not adjusted for inflation as the primary purpose of this report is to provide these totals for use in other analytical projects, which might use different benchmark years to adjust for inflation, or which might be focused on cost savings during a particular year, rather than over time.

⁸ \$92,007,460

⁹ 2,357 x 365

¹⁰ \$92,007,460 / 860,305

¹¹ \$22,985,099

¹² \$22,985,099 / \$860,250

another pod would need to be opened, which would necessitate another 10 officers to be hired to adequately staff the pod. Therefore, long-run marginal cost is the sum of short-run marginal costs, plus the step-fixed costs (i.e., salary and benefit totals for correctional officers) that change in the long run as adjustments are made to staffing levels (i.e., the annual ratio of officers to inmates). There is no single way to calculate step-fixed costs as the methodology employed is dependent on what data is available. Using the Allegheny County Jail in 2018 as an example, long-run marginal cost is equal to:

average daily salary and benefits for corrections officers x officer-to-inmate ratio + short-run marginal cost.

This results in a long-run marginal cost of approximately \$81 per jail-bed day.

Top-down vs. bottom-up approach. There are two methods one can take to calculate short-run marginal cost. One is called the “top-down” method, which divides the total costs of supplies, materials and services by the amount of output per cost unit. In the example mentioned above, we used the top-down method to calculate the marginal cost of \$27 per jail-bed day. A top-down approach is often used when the justice system entity delivers only one output (e.g. jail-bed days). However, when the system entity performs multiple functions and its total cost includes costs that do not correlate with the output per cost unit analyzed, a “bottom-up” method is instead chosen to estimate marginal cost. The bottom-up method calculates all costs related to a single unit of output by multiplying the time each employee spent on one unit of output by the hourly rate of that employee. This approach is often used when calculating the cost of an arrest since police officers engage in a wide variety of activities. In this report, we use the top-down method to calculate all short-run marginal costs except for the short-run marginal cost per arrest. More information on the two approaches can be found in the report by the Vera Institute of Justice, “A Guide to Calculating Justice-System Marginal Costs.”¹³

¹³ Henrichson, Christian. Sarah Galgano. [“A Guide to Calculating Justice-System Marginal Costs.”](#) Vera Institute of Justice (May 2013).

COST SUMMARY

This report presents costs associated with six core criminal justice system activities in Allegheny County.

Table 2 lists the average, short-run, and long-run marginal costs for the six activities. Costs for calendar years 2016–2018 are shown below, while costs extending back to calendar year 2011 can be found in the Appendix.

For each activity, the unit of measurement is shown, for example, the cost of a jail-bed day or the cost of a day of pretrial services supervision. Finally, the percent change in that cost relative to the previous calendar year is also shown. Note that the figures below have not been adjusted for inflation.

TABLE 2: Criminal Justice System Unit Costs Summary

	2016		2017		2018	
	TOTAL	% CHANGE	TOTAL	% CHANGE	TOTAL	% CHANGE
Pittsburgh Bureau of Police — Cost Per Arrest						
Average Cost	\$7,528.07	22%	\$7,290.19	-3%	\$10,173.71	40%
Short-Run Marginal Cost	-	-	\$23	-	\$23	1%
Long-Run Marginal Cost	\$1,656.18	22%	\$1,603.84	-3%	\$2,238.22	40%
Allegheny County Pretrial Services — Cost Per Day of Supervision						
Average Cost	\$2.19	0%	\$2.47	13%	\$2.15	-13%
Short-Run Marginal Cost	\$0.83	-8%	\$0.91	9%	\$0.69	-24%
Long-Run Marginal Cost	\$1.27	-8%	\$1.38	9%	\$1.15	-16%
Allegheny County Jail — Cost Per Jail-Bed Day						
Average Cost	\$94.43	14%	\$101.29	7%	\$106.94	6%
Short-Run Marginal Cost	\$18.45	-3%	\$22.69	23%	\$26.72	18%
Long-Run Marginal Cost	\$68.59	7%	\$74.10	8%	\$80.86	9%
Allegheny County Adult Probation and Parole — Cost Per Day of Supervision						
Average Cost	\$1.63	6%	\$1.71	5%	\$1.70	-1%
Short-Run Marginal Cost	\$0.14	-12%	\$0.14	0%	\$0.14	1%
Long-Run Marginal Cost	\$1.07	-1%	\$1.16	8%	\$1.21	4%
Allegheny County Juvenile Probation — Cost Per Day of Supervision						
Average Cost	\$17.57	-3%	\$18.99	8%	\$22.11	16%
Short-Run Marginal Cost	\$1.40	-5%	\$1.61	15%	\$1.82	13%
Long-Run Marginal Cost	\$11.85	-9%	\$13.31	12%	\$15.82	19%
Allegheny County Juvenile Probation Out-of-Home Placements — Cost Per Juvenile Per Day^a						
Short-Run Marginal Cost	\$197.07	10%	\$187.78	-5%	\$206.16	10%

^a Excludes placements at Shuman Juvenile Detention Center. Costs are reported by state fiscal year, which starts on July 1 and ends on June 30. Average and long-run marginal costs are unavailable for juvenile out-of-home placements as DHS only has data on the daily rate paid to each provider and not data on total operating costs that would be required to calculate average and long-run marginal costs.

COST OVERVIEW

As a result of the substantial costs of crime to society and the limited resources available for crime prevention programs, a systematic approach to allocating scarce resources to programs that yield the largest benefit is important. Cost-benefit analysis (CBA) is a tool that weighs the cost of a particular project against its financial benefit and has been increasingly used in the criminal justice context. CBA allows different policy options and programs to be compared when making investment decisions by putting dollar values on the costs and benefits of a program. The information presented in this report can be used by analysts, researchers and policymakers as part of their own CBA around justice system activities in Allegheny County.

It should be noted that CBA does not specifically determine if a project works, but rather provides a quantification of its expected costs and benefits. Readers should also be aware that, in general, costs do not change immediately or proportionally in relation to changes in the underlying cost-generating activity. For example, although the average daily jail population decreased by an average of 5% year-over-year from 2013 through 2016, this did not mean that there was an associated 5% reduction in the number of probation officers and their salaries during this same period, as a variety of factors affect both if and how an organization can adjust operations and staffing in response to changes in the population served.

SYSTEMWIDE COST BY ACTIVITY TYPE

1. Cost of an Arrest

Allegheny County has more than 100 separate municipal police departments, including the Pittsburgh Bureau of Police (PBP); as a result, there are challenges in estimating the cost of an arrest in Allegheny County. However, an analysis of data supplied by the Pennsylvania State Police's Bureau of Research and Development shows that approximately one-third of crimes in Allegheny County occur in Pittsburgh (see **Table 3**).¹⁴ As such, PBP data can provide a reasonable estimate for the main cost driver in Allegheny County. Arrest totals for PBP were obtained from the Bureau's Annual Statistical Reports,¹⁵ while cost information, including operating and staffing expenses, was gathered from the City of Pittsburgh's Annual Budgets.¹⁶

¹⁴ These totals include Part I and Part II crimes, as defined in the U.S. Federal Bureau of Investigation's Uniform Crime Reporting (UCR) program. Part I crimes are serious crimes, which are categorized as either violent crimes (homicide, rape, robbery and aggravated assault) or property crimes (burglary, theft, motor vehicle theft and arson). Part II crimes are less serious crimes, which are categorized as one of the following: simple assaults, forgery, fraud, embezzlement, stolen property, vandalism, weapons law violation, prostitution, sex offenses, drug violations, gambling, endangering children, driving under the

influence, liquor law violation, drunkenness, disorderly conduct, vagrancy and other offenses. Full definitions for each of these crime types can be found [here](#).

¹⁵ [City of Pittsburgh. Police Reports](#). Pittsburgh Bureau of Police. Accessed 8/18/2020.

¹⁶ [City of Pittsburgh. Operating Budgets](#). Office of Management and Budget. Accessed 08/18/2020.

TABLE 3: Part I and Part II Crimes in Allegheny County and the City of Pittsburgh

LOCATION	2016		2017		2018	
	TOTAL	% CHANGE	TOTAL	% CHANGE	TOTAL	% CHANGE
Allegheny County (Total)	87,866	1%	84,992	-3%	77,001	-9%
City of Pittsburgh (Total)	29,649	-5%	29,738	0%	27,439	-8%
City of Pittsburgh (% Total)	34%	-2%	35%	1%	36%	1%

Source: Pennsylvania State Police, Bureau of Research and Development

The short-run marginal cost of an arrest is calculated using the bottom-up approach as opposed to the top-down approach. We first converted the cost of salary and benefits into an hourly rate, then multiplied that by the average time one police officer spent on resolving a call for service (CFS). Ideally the calculation should use the average time spent on making an arrest. Unfortunately, those data were not readily available at the time of the analysis, so we had to rely on CFS data as a proxy. It is worth noting that the short-run marginal cost presented below is an underestimate for two reasons. First, CFS duration does not include time spent on collecting intel, applying for a warrant, finding suspects, etc. Second, the assumption here is that an arrest would only require one officer’s time. In reality, many arrests either require backup or involve other available officers who arrive on scene to assist with the call. In future updates we’ll replace CFS time with arrest time and take into account total officer time to more accurately calculate marginal cost.

TABLE 4: Pittsburgh Bureau of Police — Cost Per Arrest

CATEGORY	2016		2017		2018		FORMULAS
	TOTAL	% CHANGE	TOTAL	% CHANGE	TOTAL	% CHANGE	
Total Annual Cost ^a	\$93,423,344	22% ^b	\$98,453,963	5%	\$100,261,932	2%	—
Total Annual Arrests ^c	12,520	0%	13,517	8%	9,992	-26%	—
Average Daily Arrests	34	0%	37	9%	27	-27%	Total Annual Arrests ÷ 365
Total Police Officers ^{a,d}	759	-1%	758	0%	754	-1%	—
Total Salaries and Benefits for Police Officers ^a	\$46,183,012	0%	\$47,262,852	2%	\$48,417,840	2%	—
Average Annual Salary and Benefits for Police Officers	\$60,847	1%	\$62,352	2%	\$64,215	3%	Total Salaries and Benefits for Police Officers ÷ Total Police Officers
Total Cost of Supplies, Materials and Services ^e	\$2,710,239	49%	\$3,943,314	45%	\$3,602,768	-9%	—
Officer Hourly Rate	\$30	1%	\$31	2%	\$32	3%	Average Salary and Benefits for Police Officers ÷ 2,000 Working Hours
Average Time Officer Spent Per CFS (Minutes)	—	—	44	—	43	-2%	—
Unit Costs							
Average Cost	\$7,528	22%	\$7,290	-3%	\$10,174	40%	Average Daily Cost ÷ Average Daily Arrests
Long-Run Marginal Cost ^f	\$1,656	22%	\$1,604	-3%	\$2,238	40%	Average Cost x 22%

^a City of Pittsburgh Annual Budgets, 2011–2018

^b Beginning in 2016, healthcare benefit costs started to be included in the Pittsburgh Bureau of Police operating budget, which explains the 22% increase.

^c Pittsburgh Bureau of Police Annual Statistical Reports, 2011–2018

^d All references to police officers, including counts, salary and benefit totals, include only master and first- through fourth-year police officers.

^e Includes costs for professional and technical services, other services and supplies.

^f 22% multiplier based on WSIPP analysis, which determined that the marginal cost of an arrest is equal to 22% of the average cost of an arrest.

2. Cost per Day of Pretrial Supervision

The mission of Allegheny County Pretrial Services is to “provide accurate and timely information to assist the Court in making informed decisions regarding bond, competency, and treatment; ... to supervise and monitor defendants in a respectful manner, utilizing cost-effective measures for the community and to promote compliance with court orders, court appearances, and to support public safety.”¹⁷ Allegheny County Pretrial Services supervises individuals on phone-in supervision, report-in-person supervision and pretrial electronic monitoring, as well as those participating in Accelerated Rehabilitative Disposition (ARD), and the County’s Alcohol Highway Safety Program. Caseload information for all services except ARD was pulled from Allegheny County Pretrial Services Annual Reports,¹⁸ while ARD totals were collected from Allegheny County Adult Probation and Parole Annual Reports.¹⁹ Cost information, including operating and staffing expenses, was provided by the Allegheny County Budget Office.

TABLE 5: Allegheny County Pretrial Services — Cost Per Day of Supervision

CATEGORY	2016		2017		2018		FORMULAS
	TOTAL	% CHANGE	TOTAL	% CHANGE	TOTAL	% CHANGE	
Total Annual Cost ^a	\$4,581,680	5%	\$4,727,248	3%	\$4,550,758	-4%	—
Total Daily Caseload ^b	5,732	5%	5,251	-8%	5,808	11%	—
Total Probation Officers ^{a,c}	12	0%	11	-8%	11	0%	—
Total Salaries for Probation Officers ^a	\$629,011	-5%	\$648,398	3%	\$689,957	6%	—
Total Benefits for Probation Officers ^a	\$285,780	3%	\$253,765	-11%	\$293,387	16%	—
Total Salaries and Benefits for Probation Officers	\$914,791	-2%	\$902,162	-1%	\$983,344	9%	Total Salaries for Probation Officers + Total Benefits for Probation Officers
Average Annual Salary and Benefits for Probation Officers	\$76,233	-2%	\$82,015	8%	\$89,395	9%	Total Salaries and Benefits for Probation Officers ÷ Total Probation Officers
Average Daily Salary and Benefits for Pretrial Officers	\$209	-2%	\$225	8%	\$245	9%	Average Annual Salary and Benefits for Probation Officers ÷ 365
Average Daily Caseload Per Probation Officer	478	5%	477	0%	528	11%	Total Daily Caseload ÷ Total Probation Officers

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¹⁷ Fifth Judicial District of Pennsylvania. Pretrial Services. [Allegheny County Pretrial Services](#). Accessed 08/18/2020.

¹⁸ Fifth Judicial District of Pennsylvania. Annual Reports. [Allegheny County Pretrial Services](#). Accessed 08/18/2020.

¹⁹ Fifth Judicial District of Pennsylvania. Annual Reports. [Allegheny County Adult Probation](#). Accessed 08/18/2020.

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CATEGORY	2016		2017		2018		FORMULAS
	TOTAL	% CHANGE	TOTAL	% CHANGE	TOTAL	% CHANGE	
Total Cost of Supplies, Materials and Services ^a	\$1,743,888	-4%	\$1,741,286	0%	\$1,463,331	-16%	—
Unit Costs							
Average Cost	\$2.19	0%	\$2.47	13%	\$2.15	-13%	Total Annual Cost ÷ (Total Daily Caseload x 365)
Short-Run Marginal Cost	\$0.83	-8%	\$0.91	9%	\$0.69	-24%	Total Cost of Supplies, Materials and Services ÷ (Total Daily Caseload x 365)
Long-Run Marginal Cost	\$1.27	-8%	\$1.38	9%	\$1.15	-16%	(Average Daily Salary and Benefits for Probation Officers ÷ Average Daily Caseload Per Probation Officer) + Short-Run Marginal Cost

^a Cost totals for Pretrial Services were obtained from Allegheny County Comprehensive Annual Financial Reports, 2011–2018, while cost totals for the Alcohol Highway Safety Program were obtained from the Allegheny County Budget Office.

^b Caseload information for 2011–2013 was provided by analysts at the Allegheny County Courts and for 2015–2018 was obtained from Allegheny County Pretrial Services Annual Reports and from Allegheny County Adult Probation Annual Reports for Advanced Rehabilitative Disposition.

^c All references to probation officers, including counts, cost and benefit totals, include only non-supervisory probation officers.

3. Cost per Day of Incarceration in the Allegheny County Jail

The Allegheny County Jail is a locally operated, short-term facility that holds individuals awaiting trial or sentencing; those sentenced to a period of less than two years; and those being detained for other entities, including other counties, states and the federal government. The Allegheny County Jail contracts with Maximus (a company that also partners with state, federal and local governments to provide health and human services programs to a diverse array of communities) to calculate annual costs for detention services within the Jail. These figures are used to calculate reimbursement totals for federal detainees held at the Allegheny County Jail, but can also be applied to the general, non-federal population. Information on total operating costs, personnel salaries and benefits, costs for consultants and contracted services — including medical costs — and other detailed direct operating costs, as well as average daily population estimates, were obtained from Maximus-prepared documents.

TABLE 6: Allegheny County Jail — Cost per Jail-Bed Day

CATEGORY	2016		2017		2018		FORMULAS
	TOTAL	% CHANGE	TOTAL	% CHANGE	TOTAL	% CHANGE	
Total Annual Cost ^a	\$79,314,811	9%	\$87,466,890	10%	\$92,007,460	5%	—
Average Daily Population ^a	2,301	-5%	2,366	3%	2,357	0%	—
Total Corrections Officers ^{a,b}	456	4%	429	-6%	441	3%	—
Officer-to-Inmate Ratio	0.20	9%	0.18	-8%	0.19	3%	Total Corrections Officers ÷ Average Daily Population
Total Salaries for Corrections Officers ^a	\$30,416,776	3%	\$32,445,477	7%	\$33,962,526	5%	—
Fringe Benefit Rate ^a	38%	14%	37%	-4%	37%	1%	—
Total Salaries and Benefits for Corrections Officers ^a	\$42,109,353	7%	\$44,393,131	5%	\$46,583,643	5%	Total Salaries for Corrections Officers ÷ (1 + Fringe Benefit Rate)
Average Annual Salary and Benefits for Corrections Officers	\$92,345	3%	\$103,480	12%	\$105,632	2%	Total Salaries and Benefits for Corrections Officers ÷ Total Corrections Officers
Total Cost of Supplies, Materials and Services ^a	\$15,499,681	-8%	\$19,591,521	26%	\$22,985,099	17%	—
Unit Costs							
Average Cost	\$94.43	14%	\$101.29	7%	\$106.94	6%	Total Annual Cost ÷ (Average Daily Population ÷ 365)
Short-Run Marginal Cost	\$18.45	-3%	\$22.69	23%	\$26.72	18%	Total Cost of Supplies, Materials and Services ÷ (Average Daily Population ÷ 365)
Long-Run Marginal Cost	\$68.59	7%	\$74.10	8%	\$80.86	9%	(Average Annual Salary and Benefits for Corrections Officers ÷ 365) x Officer-to-Inmate Ratio + Short-Run Marginal Cost

^a Jail Maximus Proposed Per-Diem Rates for Federal Prisoners, 2011–2018

^b All references to corrections officers, including counts, salary and benefit totals, relate to only non-supervisory corrections officers and include both full-time and part-time staff.

4. Cost per Day of Adult Probation and Parole

Allegheny County Adult Probation and Parole supervises individuals released on bail; those currently on probation or parole, including probation without verdict; and individuals sentenced to intermediate punishment. Annual caseload information for each unit was gathered from the Allegheny County Adult Probation and Parole Annual Reports.²⁰ Note that caseload totals do not include Accelerated Rehabilitative Disposition, or ARD. Although ARD is funded by Allegheny County Adult Probation and Parole, it is administered by Allegheny County Pretrial Services. Cost information, including operating and personnel costs, was obtained directly from the Allegheny County Budget Office.

TABLE 7: Allegheny County Adult Probation and Parole – Cost per Day of Supervision

CATEGORY	2016		2017		2018		FORMULAS
	TOTAL	% CHANGE	TOTAL	% CHANGE	TOTAL	% CHANGE	
Total Annual Cost ^a	\$13,422,545	7%	\$13,669,467	2%	\$13,909,996	2%	—
Total Daily Caseload ^b	22,597	1%	21,852	-3%	22,386	2%	—
Total Probation Officers ^{a,c}	118	1%	119	1%	116	-3%	—
Total Salaries for Probation Officers ^a	\$5,422,677	1%	\$5,921,484	9%	\$6,127,738	3%	—
Total Benefits for Probation Officers ^a	\$2,276,912	7%	\$2,240,069	-2%	\$2,597,055	16%	—
Total Salaries and Benefits for Probation Officers ^a	\$7,699,589	2%	\$8,161,553	6%	\$8,724,793	7%	Total Salaries for Probation Officers + Total Benefits for Probation Officers
Average Annual Salary and Benefits for Probation Officers	\$65,251	2%	\$68,584	5%	\$75,214	10%	Total Salaries and Benefits for Probation Officers ÷ Total Probation Officers
Average Daily Salary and Benefits for Probation Officers	\$179	2%	\$188	5%	\$206	10%	Average Annual Salaries and Benefits for Probation Officers ÷ 365
Average Daily Caseload per Probation Officer ^d	192	1%	184	-4%	193	5%	Total Daily Caseload ÷ Total Probation Officers
Total Cost of Supplies, Materials and Services ^a	\$1,165,007	-11%	\$1,125,488	-3%	\$1,168,911	4%	—

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²⁰ See footnote 15

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CATEGORY	2016		2017		2018		FORMULAS
	TOTAL	% CHANGE	TOTAL	% CHANGE	TOTAL	% CHANGE	
Unit Costs							
Average Cost	\$1.63	6%	\$1.71	5%	\$1.70	-1%	Total Annual Cost ÷ (Total Daily Caseload x 365)
Short-Run Marginal Cost	\$0.14	-12%	\$0.14	0%	\$0.14	1%	Total Cost of Supplies, Materials and Services ÷ (Total Daily Caseload x 365)
Long-Run Marginal Cost	\$1.07	-1%	\$1.16	8%	\$1.21	4%	(Average Daily Salary and Benefits for Probation Officers ÷ Average Daily Caseload per Probation Officer) + Short Run Marginal Cost

^a Cost totals obtained from the Allegheny County Budget Office and include the following cost centers: Adult Probation, Day Reporting Centers I and II, Electronic Monitoring, and Intermediate Punishment.

^b Caseload information obtained from Allegheny County Adult Probation Annual Reports, 2016–2018. Note that these caseloads do not include Accelerated Rehabilitative Disposition, or ARD, which is administered by Allegheny County Pretrial Services.

^c All references to probation officers, including counts, cost and benefit totals, include only those probation officers who are involved in the day-to-day supervision of the adult probation population, and do not include probation officers whose primary job functions are administrative or managerial.

^d A probation officer’s daily caseload is highly dependent on the type of population supervised. For example, those supervising a higher-risk population have smaller caseloads than those supervising a lower-risk population, who have larger caseloads. The average daily caseload figure presented above is a true average and does not account for these differences.

5. Cost per Day of Juvenile Probation

Allegheny County Juvenile Probation supervises juveniles who are adjudicated delinquent, or are placed under a consent decree and assigned a probation officer. Supervision can take place in a community-based office or a school-based setting. The job of Juvenile Probation Officers is to “monitor curfews, make unannounced visits, ensure school attendance, and involve youth in constructive activities after school and during the evening hours.”²¹ Caseload information for both community and school-based probation was pulled from the Allegheny County Juvenile Probation Office’s Annual Reports,²² while cost information was obtained from the Allegheny County Budget Office.

²¹ Fifth Judicial District of Pennsylvania. Probation Officers. [County of Allegheny Juvenile Probation](#). Accessed 08/18/2020.

²² Fifth Judicial District of Pennsylvania. Annual Reports. [County of Allegheny Juvenile Probation](#). Accessed 08/18/2020.

TABLE 8: Allegheny County Juvenile Probation Office — Cost per Juvenile per Day

	2016		2017		2018		FORMULAS
	TOTAL	% CHANGE	TOTAL	% CHANGE	TOTAL	% CHANGE	
Total Annual Cost ^a	\$12,822,473	1%	\$13,248,815	3%	\$13,559,604	2%	—
Average Daily Caseload per Probation Officer for Community-Based Probation ^b	21	5%	22	5%	17	-23%	—
Average Daily Caseload per Probation Officer for School-Based Probation ^b	19	12%	17	-11%	18	6%	—
Average Daily Caseload per Probation Officer	20	8%	20	-3%	18	-10%	(Average Daily Caseload for Community-Based Probation + Average Daily Caseload for School-Based Probation) ÷ 2
Total Probation Officers ^{a,c}	100	-4%	98	-2%	96	-2%	—
Average Daily Caseload	2,000	1%	1,960	-2%	1,728	-12%	Average Daily Caseload per Probation Officer x Total Probation Officers
Worker-to-Juvenile Ratio	0.05	-8%	0.05	3%	0.06	11%	Total Probation Officers ÷ Average Daily Caseload
Total Salaries for Probation Officers ^a	\$5,628,085	-8%	\$6,175,494	10%	\$6,342,863	3%	—
Total Benefits for Probation Officers ^a	\$1,996,998	-2%	\$1,985,625	-1%	\$2,237,992	13%	—
Total Salaries and Benefits for Probation Officers	\$7,625,083	-6%	\$8,161,119	7%	\$8,580,855	5%	Total Salaries for Probation Officers + Total Benefits for Probation Officers
Average Salary and Benefits for Probation Officers	\$76,251	-3%	\$83,277	9%	\$89,384	7%	Total Salaries and Benefits for Probation Officers ÷ Total Probation Officers
Total Costs of Supplies, Materials and Services ^a	\$1,023,482	-1%	\$1,125,482	10%	\$1,117,672	-1%	—

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	2016		2017		2018		FORMULAS
	TOTAL	% CHANGE	TOTAL	% CHANGE	TOTAL	% CHANGE	
Unit Costs							
Average Cost	\$17.57	-3%	\$18.99	8%	\$22.11	16%	Total Annual Cost ÷ (Average Daily Caseload x 365)
Short-Run Marginal Cost	\$1.40	-5%	\$1.61	15%	\$1.82	13%	Total Cost of Supplies, Materials and Services ÷ (Average Daily Caseload x 365)
Long-Run Marginal Cost	\$11.85	-9%	\$13.31	12%	\$15.82	19%	(Average Salary and Benefits for Probation Officers ÷ 365) x Worker-to-Juvenile Ratio + Short-Run Marginal Cost

^a Cost information was provided by the Allegheny County Budget Office and includes both the Juvenile Probation and the School-Based Probation Offices.

^b Caseload information was obtained from Allegheny County Juvenile Probation Annual Reports, 2011-2018.

^c All references to probation officers, including counts, cost and benefit totals, include only non-supervisory probation officers.

7. Juvenile Probation Office Out-of-Home Placements

Some Juvenile Probation Office-Involved youth are served in out-of-home placements by a network of local probation organizations that are reimbursed through a daily rate depending on the services that they offer. An out-of-home placement is the least restrictive placement available to meet the treatment, supervision, rehabilitation and well-being needs of dually adjudicated youth²⁶ while simultaneously providing for the protection of the public. Since providers are reimbursed using a set daily rate per youth served, an average of these rates across all active providers during the time frame of interest is presented. Note that unlike other sections of this report, the figures below are presented at the fiscal-year level.

²⁶ A dually adjudicated youth refers to a youth who has been adjudicated both delinquent and dependent.

TABLE 9: Allegheny County Juvenile Probation Out-of-Home Placements — Cost per Juvenile per Day

	2016		2017		2018	
	TOTAL	% CHANGE	TOTAL	% CHANGE	TOTAL	% CHANGE
Short-Run Marginal Cost ^{a,b,c}	\$197.07	10%	\$187.78	-5%	\$206.16	10%

^a Excluding placements at Shuman Juvenile Detention Center.

^b Costs are reported by state fiscal year, which starts on July 1 and ends on June 30.

^c Cost information obtained from Allegheny County Department of Human Services.

CONCLUSION

This report provided unit costs associated with various justice system activities in Allegheny County. The report builds on previous work produced by the Allegheny County Department of Human Services, which looked at these same costs during calendar years 2011 and 2012. This report extends the time frame of analysis to the end of calendar year 2018. The purpose of this report is to provide the average, short-run and long-run marginal costs for key criminal justice-related activities to be used by policymakers, researchers, and analysts. By examining these costs over time, policymakers can better understand the drivers of costs within these systems (e.g., changes in population served, changes in operating costs or both). Researchers, evaluators and program administrators can then use this information to compare the benefits and costs of programs when making management, budget and program decisions. Finally, analysts can use these costs to value the benefits of criminal justice prevention programs that are currently enacted and that are being proposed to better understand what programs are working and what programs need to be re-evaluated.

The long-term goal is to expand this report to encompass other important areas of the justice system, including the courts, alternative housing and Allegheny County Jail Collaborative programs, among others. Another area of interest is how these costs vary as a function of the underlying crime. For example, it stands to reason that the marginal cost of an arrest would change if the alleged crime was a homicide, as opposed to a retail theft, as the former requires more resources than the latter. Finally, expanding this analysis outside of the criminal justice system and to other services administered by Allegheny County would be useful in terms of understanding the costs and benefits associated with program areas as diverse as child welfare, behavioral health services and housing support services, to name a few.

ANALYSIS

Dominic Contreras, Chengyuan Zhou, Kathryn Collins and Erin Dalton

APPENDIX: CRIMINAL JUSTICE SYSTEM COSTS, 2011–2018

TABLE 10: Criminal Justice System Unit Costs Summary

	2011	2012	2013	2014	2015	2016	2017	2018
Pittsburgh Bureau of Police — Cost per Arrest								
Average Cost	\$4,426	\$4,007	\$3,920	\$4,719	\$6,190	\$7,528.07	\$7,290.19	\$10,173.71
Long-Run Marginal Cost	\$973.62	\$881.51	\$862.44	\$1,038.25	\$1,361.75	\$1,656.18	\$1,603.84	\$2,238.22
Allegheny County Pretrial Services — Cost Per Day of Supervision								
Average Cost	\$1.47	\$1.92	\$1.77	\$1.85	\$2.19	\$2.19	\$2.47	\$2.15
Short-Run Marginal Cost	\$0.61	\$0.80	\$0.78	\$0.78	\$0.91	\$0.83	\$0.91	\$0.69
Long-Run Marginal Cost	\$0.89	\$1.13	\$1.12	\$1.19	\$1.38	\$1.27	\$1.38	\$1.15
Allegheny County Jail — Cost per Jail-Bed Day								
Average Cost	\$69.45	\$74.70	\$66.71	\$73.73	\$82.97	\$94.43	\$101.29	\$106.94
Short-Run Marginal Cost	\$20.92	\$20.19	\$16.71	\$19.39	\$19.06	\$18.45	\$22.69	\$26.72
Long-Run Marginal Cost	\$58.27	\$62.12	\$55.34	\$60.33	\$63.94	\$68.59	\$74.10	\$80.86
Allegheny County Adult Probation and Parole — Cost per Day of Supervision								
Average Cost	\$1.64	\$1.54	\$1.61	\$1.50	\$1.54	\$1.63	\$1.71	\$1.70
Short-Run Marginal Cost	\$0.19	\$0.15	\$0.16	\$0.16	\$0.16	\$0.14	\$0.14	\$0.14
Long-Run Marginal Cost	\$1.03	\$1.05	\$1.01	\$1.02	\$1.08	\$1.07	\$1.16	\$1.21
Allegheny County Juvenile Probation — Cost per Day of Supervision								
Average Cost	\$10.80	\$14.42	\$15.33	\$18.40	\$18.16	\$17.57	\$18.99	\$22.11
Short-Run Marginal Cost	\$1.79	\$1.99	\$2.33	\$2.13	\$1.48	\$1.40	\$1.61	\$1.82
Long-Run Marginal Cost	\$8.28	\$9.94	\$11.12	\$13.29	\$13.08	\$11.85	\$13.31	\$15.82
Allegheny County Juvenile Probation Out-of-Home Placements — Cost per Day^{a,b}								
Short-Run Marginal Cost	\$176.28	\$175.59	\$174.66	\$185.10	\$179.31	\$197.07	\$187.78	\$206.16

^a Excluding placements at Shuman Juvenile Detention Center

^b Costs are reported by state fiscal year, which starts on July 1 and ends on June 30.

TABLE 11: Part I and Part II Crimes in Allegheny County and the City of Pittsburgh

LOCATION	2011	2012	2013	2014	2015	2016	2017	2018
Allegheny County (Total)	93,588	95,151	89,929	90,084	86,727	87,866	84,992	77,001
City of Pittsburgh (Total)	34,026	35,070	33,465	33,568	31,195	29,649	29,738	27,439
City of Pittsburgh (% Total)	36%	37%	37%	37%	36%	34%	35%	36%

Source: Pennsylvania State Police, Bureau of Research and Development

TABLE 12: Pittsburgh Bureau of Police — Cost per Arrest

CATEGORY	2011	2012	2013	2014	2015	2016	2017	2018	FORMULAS
Total Annual Cost ^a	\$67,843,678	\$70,199,937	\$71,543,006	\$72,346,870	\$76,815,050	\$93,423,344	\$98,453,963	\$100,261,932 (2%)	—
Average Daily Cost	\$185,873	\$192,329	\$196,008	\$198,211	\$210,452	\$255,954	\$269,737	\$274,690 (2%)	Total Annual Cost ÷ 365
Total Annual Arrests ^b	15,382	17,772	18,541	15,672	12,481	12,520	13,517	9,992 (-26%)	—
Average Daily Arrests	42	48	50	42	34	34	37	27 (-27%)	Total Annual Arrests ÷ 365
Total Police Officers ^{a,c}	768	768	768	768	768	759	758	754 (-1%)	—
Total Salaries and Benefits for Police Officers ^a	\$43,079,318	\$45,171,207	\$45,959,462	\$46,370,714	\$46,368,492	\$46,183,012	\$47,262,852	\$48,417,840 (2%)	—
Average Salary and Benefits for Police Officers	\$56,093	\$58,817	\$59,843	\$60,379	\$60,376	\$60,847	\$62,352	\$64,215 (3%)	Total Salaries and Benefits for Police Officers ÷ Total Police Officers
Unit Costs									
Average Cost	\$4,426	\$4,007	\$3,920	\$4,719	\$6,190	\$7,528	\$7,290	\$10,174 (40%)	Average Daily Cost ÷ Average Daily Arrests
Long-Run Marginal Cost ^d	\$974	\$882	\$862	\$1,038	\$1,362	\$1,656	\$1,604	\$2,238 (40%)	Average Cost x 22%

^a City of Pittsburgh Annual Budgets, 2011–2018

^b Pittsburgh Bureau of Police Annual Statistical Reports, 2011–2018

^c All references to police officers, including counts, salary and benefit totals, include only master and first- through fourth-year police officers.

^d 22% multiplier based on WSIPP analysis, which determined that the marginal cost of an arrest is equal to 22% of the average cost of an arrest.

TABLE 13: Allegheny County Pretrial Services — Cost per Day of Supervision

CATEGORY	2011	2012	2013	2014	2015	2016	2017	2018	FORMULAS
Total Annual Cost ^a	\$4,214,966	\$4,698,806	\$4,658,257	\$4,138,429	\$4,358,686	\$4,581,680	\$4,727,248	\$4,550,758	—
Total Daily Caseload ^b	7,834	6,709	7,197	6,120	5,446	5,732	5,251	5,808	—
Total Pretrial Officers ^{a,c}	11	11	13	13	12	12	11	11	—
Total Salaries for Pretrial Officers ^a	\$578,206	\$595,376	\$667,020	\$655,490	\$659,570	\$629,011	\$648,398	\$689,957	—
Total Benefits for Pretrial Officers ^a	\$195,746	\$213,740	\$247,006	\$263,711	\$276,493	\$285,780	\$253,765	\$293,387	—
Total Salaries and Benefits for Pretrial Officers	\$773,952	\$809,116	\$914,026	\$919,201	\$936,063	\$914,791	\$902,162	\$983,344	Total Salaries for Pretrial Officers + Total Benefits for Pretrial Officers
Average Annual Salaries and Benefits for Pretrial Officers	\$70,359	\$73,556	\$70,310	\$70,708	\$78,005	\$76,233	\$82,015	\$89,395	Total Salaries and Benefits for Pretrial Officers ÷ Total Pretrial Officers
Average Daily Salary and Benefits for Pretrial Officers	\$193	\$202	\$193	\$194	\$214	\$209	\$225	\$245	Average Annual Salaries and Benefits for Pretrial Officers ÷ 365
Average Daily Caseload per Pretrial Officer ^d	712	610	554	471	454	478	477	528	Total Daily Caseload ÷ Total Pretrial Officers
Total Cost of Supplies, Materials and Services ^a	\$1,757,779	\$1,964,957	\$2,041,027	\$1,746,380	\$1,810,783	\$1,743,888	\$1,741,286	\$1,463,331	—
Unit Costs									
Average Cost	\$1.47	\$1.92	\$1.77	\$1.85	\$2.19	\$2.19	\$2.47	\$2.15	Total Annual Cost ÷ (Total Daily Caseload x 365)
Short-Run Marginal Cost	\$0.61	\$0.80	\$0.78	\$0.78	\$0.91	\$0.83	\$0.91	\$0.69	Total Cost of Supplies, Materials and Services ÷ (Total Daily Caseload x 365)
Long-Run Marginal Cost	\$0.89	\$1.13	\$1.12	\$1.19	\$1.38	\$1.27	\$1.38	\$1.15	(Average Daily Salary and Benefits for Pretrial Officers ÷ Average Daily Caseload Per Pretrial Officer) + Short-Run Marginal Cost

^a Cost totals for Pretrial Services were obtained from Allegheny County Comprehensive Annual Financial Reports, 2011–2018, while cost totals for the Alcohol Highway Safety Program were obtained from the Allegheny County Budget Office.

^b Caseload information for 2011–2013 was provided by analysts at the Allegheny County Courts and for 2015–2018 was obtained from Allegheny County Pretrial Services Annual Reports and from Allegheny County Adult Probation Annual Reports for Advanced Rehabilitative Disposition.

^c All references to pretrial officers, including counts, cost and benefit totals, include only those pretrial officers who are involved in the day-to-day supervision of the pretrial population, and do not include officers whose primary job functions are administrative or managerial.

^d A pretrial officer's daily caseload is highly dependent on the type of population supervised. For example, those supervising a higher-risk population have smaller caseloads than those supervising a lower-risk population, who have larger caseloads. The average daily caseload figure presented above is a true average and does not account for these differences.

TABLE 14. Allegheny County Jail — Cost per Jail-Bed Day

CATEGORY	2010	2011	2012	2013	2014	2015	2016	2017	2018	FORMULAS
Total Annual Cost ^a	\$64,233,005	\$65,611,252	\$69,501,807	\$65,403,355	\$68,280,233	\$72,993,604	\$79,314,811	\$87,466,890	\$92,007,460	—
Average Daily Population ^a	2,732	2,588	2,549	2,686	2,537	2,410	2,301	2,366	2,357	—
Total Corrections Officers ^{a,b}	487	513	487	486	442	440	456	429	441	—
Officer-to-Inmate Ratio	0.18	0.20	0.19	0.18	0.17	0.18	0.20	0.18	0.19	Total Corrections Officers ÷ Average Daily Population
Total Salaries of Corrections Officers ^a	\$24,654,398	\$25,368,196	\$28,191,725	\$27,455,791	\$28,053,245	\$29,496,080	\$30,416,776	\$32,445,477	\$33,962,526	—
Fringe Benefit Rate ^a	36%	39%	38%	38%	35%	34%	38%	37%	37%	—
Total Salaries and Benefits for Corrections Officers ^a	\$33,530,465	\$35,280,064	\$39,016,293	\$37,865,561	\$37,919,316	\$39,482,768	\$42,109,353	\$44,393,131	\$46,583,643	Total Salaries for Corrections Officers Q (1 + Fringe Benefit Rate)
Total Cost of Supplies, Materials and Services ^a	\$19,727,133	\$19,768,489	\$18,781,377	\$16,386,959	\$17,957,359	\$16,770,394	\$15,499,681	\$19,591,521	\$22,985,099	—
Average Annual Salaries and Benefits for Corrections Officers	\$68,851	\$68,772	\$80,116	\$77,913	\$85,790	\$89,734	\$92,345	\$103,480	\$105,632	Total Salaries and Benefits for Corrections Officers ÷ Total Corrections Officers
Average Daily Salary and Benefits for Corrections Officers	\$189	\$188	\$219	\$213	\$235	\$246	\$253	\$284	\$289	Average Annual Salaries and Benefits for Corrections Officers ÷ 365

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CATEGORY	2010	2011	2012	2013	2014	2015	2016	2017	2018	FORMULAS
Unit Costs										
Average Cost	\$64.41	\$69.45	\$74.70	\$66.71	\$73.73	\$82.97	\$94.43	\$101.29	\$106.94	Total Annual Cost ÷ (Average Daily Population ÷ 365)
Short-Run Marginal Cost	\$19.78	\$20.92	\$20.19	\$16.71	\$19.39	\$19.06	\$18.45	\$22.69	\$26.72	Total Cost of Supplies, Materials, and Services ÷ (Average Daily Population ÷ 365)
Long-Run Marginal Cost	\$53.41	\$58.27	\$62.12	\$55.34	\$60.33	\$63.94	\$68.59	\$74.10	\$80.86	Average Daily Salary and Benefits for Corrections Officers ÷ Officer-to-Inmate Ratio + Short-Run Marginal Cost

^a Jail Maximus Proposed Per-Diem Rates for Federal Prisoners, 2011–2018

^b All references to corrections officers, including counts, salary and benefit totals, only include non-supervisory corrections officers.

TABLE 15: Allegheny County Adult Probation and Parole – Cost per Day of Supervision

CATEGORY	2011	2012	2013	2014	2015	2016	2017	2018	FORMULAS
Total Annual Cost ^a	\$12,664,973	\$12,028,949	\$12,762,687	\$12,576,626	\$12,524,865	\$13,422,545	\$13,669,467	\$13,909,996	—
Total Daily Caseload ^b	21,187	21,332	21,772	22,913	22,289	22,597	21,852	22,386	—
Total Probation Officers ^{a,c}	111	114	109	110	117	118	119	116	—
Total Salaries for Probation Officers ^a	\$4,858,629	\$5,143,874	\$4,980,776	\$5,179,001	\$5,390,013	\$5,422,677	\$5,921,484	\$6,127,738	—
Total Benefits for Probation Officers ^a	\$1,644,840	\$1,846,651	\$1,823,455	\$1,961,735	\$2,127,596	\$2,276,912	\$2,240,069	\$2,597,055	—
Total Salaries and Benefits for Probation Officers ^a	\$6,503,469	\$6,990,525	\$6,804,230	\$7,140,735	\$7,517,609	\$7,699,589	\$8,161,553	\$8,724,793	Total Salaries for Probation Officers + Total Benefits for Probation Officers
Average Annual Salaries and Benefits for Probation Officers	\$58,590	\$61,320	\$62,424	\$64,916	\$64,253	\$65,251	\$68,584	\$75,214	Total Salaries and Benefits for Probation Officers ÷ Total Probation Officers

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CATEGORY	2011	2012	2013	2014	2015	2016	2017	2018	FORMULAS
Average Daily Salary and Benefits for Probation Officers	\$161	\$168	\$171	\$178	\$176	\$179	\$188	\$206	Average Annual Salaries and Benefits for Probation Officers ÷ 365
Average Daily Caseload Per Probation Officer ^d	191	187	200	208	191	192	184	193	Total Daily Caseload ÷ Total Probation Officers
Total Cost of Supplies, Materials and Services ^a	\$1,448,121	\$1,203,425	\$1,255,583	\$1,371,331	\$1,307,844	\$1,165,007	\$1,125,488	\$1,168,911	—
Unit Costs									
Average Cost	\$1.64	\$1.54	\$1.61	\$1.50	\$1.54	\$1.63	\$1.71	\$1.70	Total Annual Cost ÷ (Total Daily Caseload x 365)
Short-Run Marginal Cost	\$0.19	\$0.15	\$0.16	\$0.16	\$0.16	\$0.14	\$0.14	\$0.14	Total Cost of Supplies, Materials and Services ÷ (Total Daily Caseload x 365)
Long-Run Marginal Cost	\$1.03	\$1.05	\$1.01	\$1.02	\$1.08	\$1.07	\$1.16	\$1.21	(Average Daily Salary and Benefits for Probation Officers ÷ Average Daily Caseload Per Probation Officer) + Short Run Marginal Cost

^a Cost totals obtained directly from the Allegheny County Budget Office and include the following cost centers: Adult Probation, Day Reporting Centers I and II, Electronic Monitoring and Intermediate Punishment

^b Caseload information obtained from Allegheny County Adult Probation Annual Reports, 2016–2018. Note that these caseloads do not include Accelerated Rehabilitative Disposition, or ARD, which is administered by Allegheny County Pretrial Services.

^c All references to probation officers, including counts, cost and benefit totals, include only those probation officers who are involved in the day-to-day supervision of the adult probation population, and does not include probation officers whose primary job functions are administrative or managerial.

^d A probation officer's daily caseload is highly dependent on the type of population supervised. For example, those supervising a higher-risk population have smaller caseloads than those supervising a lower-risk population, who have larger caseloads. The average daily caseload figure presented above is a true average and does not account for these differences.

TABLE 16: Allegheny County Juvenile Probation Office — Cost per Juvenile per Day

CATEGORY	2011	2012	2013	2014	2015	2016	2017	2018	FORMULAS
Total Annual Cost ^a	\$10,410,534	\$12,881,262	\$13,346,442	\$12,758,109	\$12,750,483	\$12,822,473	\$13,248,815	\$13,559,604	—
Average Daily Caseload for Community-Based Probation ^b	33	27	24	20	20	21	22	17	—
Average Daily Caseload for School-Based Probation ^b	22	21	21	18	17	19	17	18	—
Average Daily Caseload	28	24	23	19	19	20	20	18	(Average Daily Caseload for Community-Based Probation + Average Daily Caseload for School-Based Probation) ÷ 2
Total Probation Officers ^{a,c}	96	102	106	100	104	100	98	96	—
Worker-to-Juvenile Ratio	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.06	1 ÷ Average Daily Caseload
Total Salaries for Probation Officers ^a	\$4,673,249	\$5,271,454	\$5,761,382	\$5,796,219	\$6,112,110	\$5,628,085	\$6,175,494	\$6,342,863	—
Total Benefits for Probation Officers ^a	\$1,582,082	\$1,835,885	\$1,894,355	\$1,948,520	\$2,033,374	\$1,996,998	\$1,985,625	\$2,237,992	—
Total Salaries and Benefits for Probation Officers	\$6,255,331	\$7,107,338	\$7,655,737	\$7,744,739	\$8,145,484	\$7,625,083	\$8,161,119	\$8,580,855	Total Salaries for Probation Officers + Total Benefits for Probation Officers
Average Salary and Benefits for Probation Officers	\$65,160	\$69,680	\$72,224	\$77,447	\$78,322	\$76,251	\$83,277	\$89,384	Total Salaries and Benefits for Probation Officers ÷ Total Probation Officers
Total Costs of Supplies, Materials and Services ^a	\$1,723,668	\$1,773,818	\$2,025,999	\$1,473,701	\$1,038,618	\$1,023,482	\$1,125,482	\$1,117,672	—

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CATEGORY	2011	2012	2013	2014	2015	2016	2017	2018	FORMULAS
Unit Costs									
Average Cost	\$10.80	\$14.42	\$15.33	\$18.40	\$18.16	\$17.57	\$18.99	\$22.11	(Total Annual Cost ÷ 365) ÷ (Average Daily Caseload x Total Probation Officers)
Short-Run Marginal Cost	\$1.79	\$1.99	\$2.33	\$2.13	\$1.48	\$1.40	\$1.61	\$1.82	(Total Cost of Supplies, Material, and Services ÷ 365) ÷ (Average Daily Caseload x Total Probation Officers)
Long-Run Marginal Cost	\$8.28	\$9.94	\$11.12	\$13.29	\$13.08	\$11.85	\$13.31	\$15.82	(Average Salary and Benefits for Probation Officers ÷ 365) x Worker-to-Juvenile Ratio + Marginal Cost Per Probationer

^a Cost information was provided by the Allegheny County Budget Office and includes both the Juvenile Probation and the School-Based Probation Offices.

^b Caseload information was obtained from Allegheny County Juvenile Probation Annual Reports, 2011-2018.

^c All references to probation officers, including counts, cost and benefit totals, include only non-supervisory probation officers.

TABLE 17: Allegheny County Juvenile Probation Out of Home Placements — Cost per Juvenile per Day

	2011	2012	2013	2014	2015	2016	2017	2018
Short-Run Marginal Cost ^{a,b,c}	\$176.28	\$175.59	\$174.66	\$185.10	\$179.31	\$197.07	\$187.78	\$206.16

^a Excluding placements at Shuman Juvenile Detention Center

^b Costs are reported by state fiscal year, which starts on July 1 and ends on June 30.

^c Cost information obtained from Allegheny County DHS