

Costs of Crime & Public Safety in Cuyahoga County

By James M Trutko

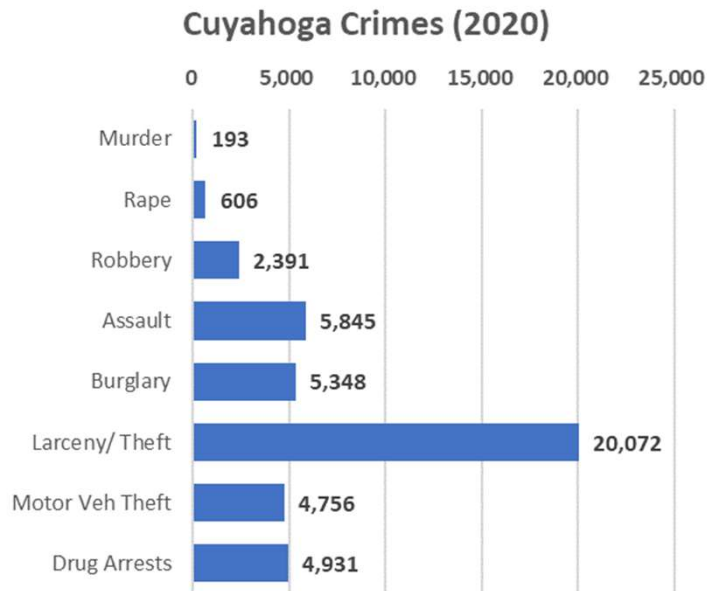
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(Jan 14, 2023)

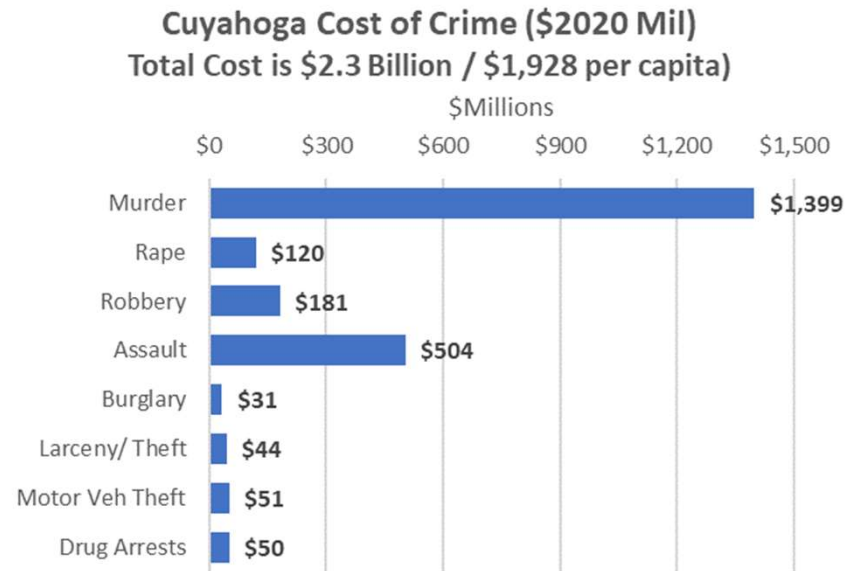
Executive Summary: Crime and Costs

39,211 Major Crimes Costing \$2.3 Billion in Cuyahoga County

1. Estimate the number of major crimes (Murder, Rape, Robbery, Assault, Burglary, Larceny/Theft, Motor Vehicle Theft) in Cuyahoga County.



2. Estimate the cost of crime to victims & society for Cuyahoga County.



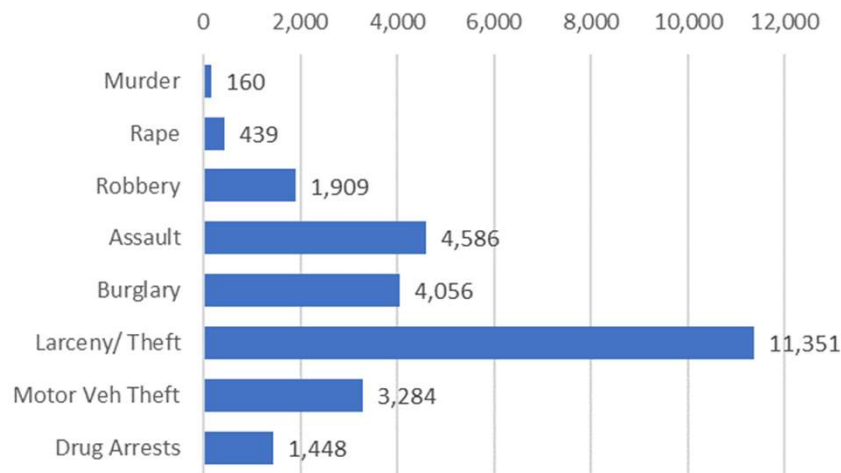
Executive Summary: Crime and Costs

25,785 Major Crimes Costing \$1.87 Billion in Cleveland

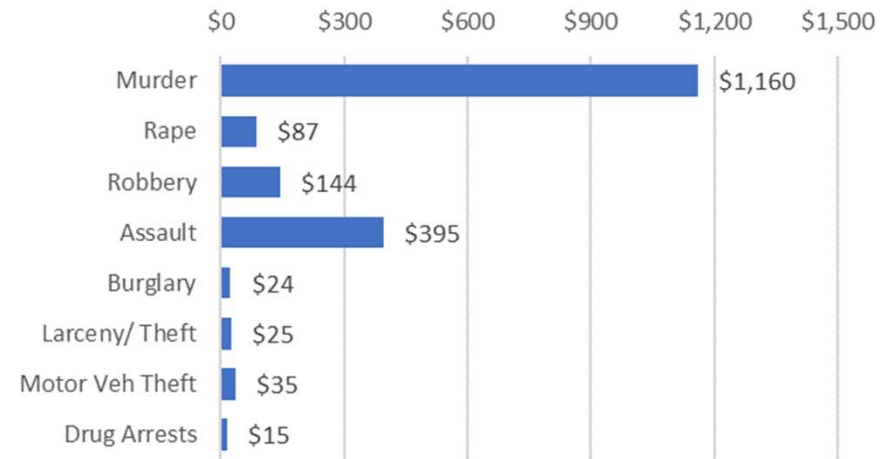
1. Estimate the number of major crimes (Murder, Rape, Robbery, Assault, Burglary, Larceny/Theft, Motor Vehicle Theft) in Cleveland.

2. Estimate the cost of crime to victims & society for Cleveland

Cleveland Crimes (2020) = 25,785



Cleveland Cost of Crime (\$2020 Mil)
Total Cost is \$1.87 Billion / \$4,922 per capita



Executive Summary: Cost Savings for Cuyahoga County

10% More Police Officers Cuts 670 Crimes & Saves \$57.2 Million

3. Estimate the reduction in incidence & cost of crime from adding more police officers. For All Cuyahoga County Cities

- Increase police by 10% -380
- Current cost of crime - \$2.3 Billion
- Projected Crime decrease – 670 crimes
- Cost of crime savings - \$114 Million
- Cost of adding police - \$57 Million
- Net cost of crime savings - \$57.2 Million

| Cost of Crime Change from Adding 10% More Police | |
|---|------------------------|
| All Cuya Cities | |
| Population | 1,235,000 |
| Total Crime | 39,211 |
| ASSUME: 10% Increase in Police | 380 |
| RESULTS | |
| Current Crime Cost | \$2,330,285,000 |
| Chg in Number of Major Crimes | (670) |
| Crime Savings from Police Incr | (\$114,151,000) |
| Cost of Addl Officers | \$57,000,000 |
| NET CRIME COST SAVINGS | (\$57,151,000) |
| Net Savings Per Addl Officer | (\$150,397) |
| Current crime Cost Per Capita | \$1,887 |
| Net Savings Per Capita | (\$46) |
| % Change Number of Crimes | -1.7% |
| % Change Cost of Crime | -4.9% |

Executive Summary: Cost Savings for Cleveland 10% More Police Officers Cuts 472 Crimes & Saves \$69 Million

3. Estimate the reduction in incidence & cost of crime from adding more police officers.

For Cleveland

- Increase police by 10% -181
- Current cost of crime - \$1.87 Billion
- Projected Crime decrease – 472 crimes
- Cost of crime savings - \$93.4 Million
- Cost of adding police - \$24 Million
- Net cost of crime savings - \$69 Million

| Cost of Crime Change from Adding 10% More Police | |
|--|-----------------------|
| | Cleveland |
| Population | 380,000 |
| Total Crime | 25,785 |
| ASSUME: 10% Increase in Police | 181 |
| RESULTS | |
| Current Crime Cost | \$1,870,380,000 |
| Chg in Number of Major Crimes | (472) |
| Crime Savings from Police Incr | (\$93,390,000) |
| Cost of Addl Officers | \$24,362,600 |
| NET CRIME COST SAVINGS | (\$69,027,400) |
| Net Savings Per Addl Officer | (\$381,367) |
| Current crime Cost Per Capita | \$4,922 |
| Net Savings Per Capita | (\$182) |
| % Change Number of Crimes | -1.8% |
| % Change Cost of Crime | -5.0% |

Executive Summary: Looking at Cleveland & City Group Results

Value of Adding More Police May Vary By Community

3. Reduction in Incidence & Cost of Crime from Adding More Police Officers Will Vary Depending on Severity of Crime

- The cost of adding more police is usually advantageous to the community since the cost of crime drops. Adding 10% more police results in a 1.5% to 2.0% drop in the number of crimes and 3.4% to 5.0% drop in the cost of crimes.
- Overall results depend on the cost of police and on the extent to which crime is a major problem in the community. In general, results will be better in communities with higher crime rates, such as 300 crimes per 10,000 population, and a lower average cost per officer.

| Cost of Crime Change from Adding 10% More Police | | | |
|--|-----------------------|---------------------|----------------------|
| | Cleveland | Other Cities | 5 High Crime Cities |
| Population | 380,000 | 855,000 | 113,000 |
| Total Crime | 25,785 | 13,426 | 3,990 |
| ASSUME: 10% Increase in Police | 181 | 200 | 38 |
| RESULTS | | | |
| Current Crime Cost | \$1,870,380,000 | \$459,907,000 | \$149,396,000 |
| Chg in Number of Major Crimes | (472) | (198) | (59) |
| Crime Savings from Police Incr | (\$93,390,000) | (\$20,762,000) | (\$6,743,000) |
| Cost of Addl Officers | \$24,362,600 | \$31,700,000 | \$5,730,400 |
| NET CRIME COST SAVINGS | (\$69,027,400) | \$10,938,000 | (\$1,012,600) |
| Net Savings Per Addl Officer | (\$381,367) | \$54,690 | (\$26,647) |
| Current crime Cost Per Capita | \$4,922 | \$538 | \$1,322 |
| Net Savings Per Capita | (\$182) | \$13 | (\$9) |
| % Change Number of Crimes | -1.8% | -1.5% | -1.5% |
| % Change Cost of Crime | -5.0% | -4.5% | -3.4% |

Executive Summary: General Conclusions & Implications

Cost of Crime Estimates Can Help Cleveland & Cuyahoga County

- **INCIDENCE & COST OF CRIME:** An estimate of major crime & the cost of crime in Cuyahoga County can be developed. A good estimate helps local political/ community leaders & the general public understand the full costs of crime to victims and the burden of crime on the poor.
- **BENEFIT OF MORE POLICE:** A model to quantify the benefits of additional police is possible to develop and is likely to show the financial benefits of adding more police, especially in high-crime areas. Analyzing crime cost and the police trade-off allows a more rational evaluation of measures to prevent & reduce crime and allows systematic comparison to other government policies.
- **IMPROVED LOCAL POLICIES:** It is a fundamental responsibility of local government to provide safety, security and protection of property to all of its citizens. The public should demand better performance, efficiency and transparency from local and county governments regarding crime because crime is subject to substantial local control.

Could Hiring More Police Reduce the Cost of Crime in Cuyahoga County?

- Estimating the Number of Major Crimes
 - Calculating the Overall Cost of Crime
 - Estimating the Reduction of Crime and Savings from Adding Police
 - Appendix

Estimating Number of Major Crimes in Cuyahoga County

Major Crimes include:

Murder, Rape, Robbery, Assault, Burglary, Larceny/Theft, Motor Vehicle Theft.

- Local data is based on Police Reports to Federal & State Officials (FBI/OIBRS).
- Police reports are voluntary, so current data is not available for many municipalities.
- OIBRS Data must be supplemented by direct FIOA requests to local police departments or estimated from past data.
- Many crimes go unreported because victims feel crime is trivial, fear retaliation, or don't want to get perpetrators in trouble.
- Other Illegal Activities (FBI Part 2 Crimes) are important but not focus of this study.
 - Drugs Possession/Sales, Vandalism, Fraud, Child Maltreatment, Impaired Driving, Weapons Carrying, Drunkenness & Disorderly Conduct & Several Other Activities.
 - National estimates are generally based on Natl Survey of Victimization Costs.
 - Local data exists in courts and police departments but is not readily available to the public.
 - Drug possession/sales are included in this study.

Reported Major Crimes in Cuyahoga Co. (2020) Estimated at 39,211

Major Crimes: Murder, Rape, Robbery, Assault, Burglary, Larceny/Theft, Motor Vehicle Theft

Cuyahoga Crimes (2020)

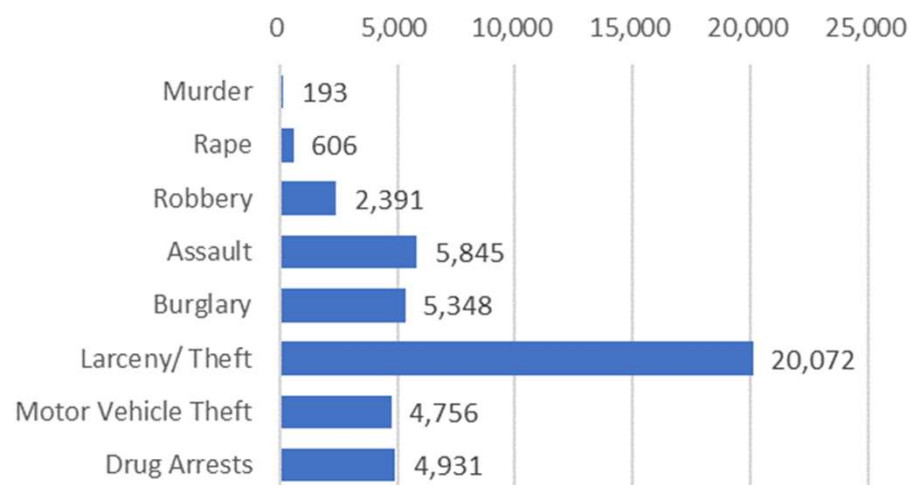
| Crime | Cuyahoga Crimes (2020) |
|-------------------------|------------------------|
| Murder | 193 |
| Rape | 606 |
| Robbery | 2,391 |
| Assault | 5,845 |
| Burglary | 5,348 |
| Larceny/ Theft | 20,072 |
| Motor Vehicle Theft | 4,756 |
| Drug Arrests | 4,931 |
| Total Excl Drugs | 39,211 |

Source: Reported crime estimates from OIBRS.

Source: Est based on 2021 or 5-yrs average OIBRS. Small communities (less than 1000 population) est'd at 5.

Source: Drug estimate from OIBRS. Estimates based on 20 drug arrests/10k pop.

Cuyahoga Crimes (2020) = 39,211



Note: A significant number of major crimes are unreported to police for a variety of reasons. For this reason, the number of actual crimes may be substantially higher and the estimated cost of crime in this report may be conservative.

Major Crime Rates Vary Across Cuyahoga County

- Overall crime rate of Cuyahoga County is 318 / 10K population.
- Rates Vary Across County: High county crime rate is mostly result of Cleveland which has crime rate of 677 / 10K population.
- Major crime rates over 200 crimes / 10,000 population are undesirable.

| Crimes and Crime Rates for Cuyahoga City Groups | | | | | | | | | | | | | | |
|---|-----------|------------------------|-------------|---------------------|--------|------|---------|--------------------|----------------------|----------|---------------|---------------------|----------------------------|----------------------|
| City Group | 2019 Pop | Crime Rate Per 10K Pop | Total Crime | Violent Crime Total | Murder | Rape | Robbery | Aggravated Assault | Property Crime Total | Burglary | Larceny Theft | Motor Vehicle Theft | Drug Arrests (2020-21 Avg) | Drug Arrest Rate/10K |
| Cleveland | 381,009 | 677 | 25,785 | 7094 | 160 | 439 | 1909 | 4586 | 18691 | 4056 | 11351 | 3284 | 1448 | 38 |
| Chagrin Valley | 73,504 | 87 | 637 | 39 | 0 | 3 | 10 | 26 | 598 | 44 | 514 | 40 | 178 | 24 |
| Heights | 130,922 | 180 | 2,353 | 313 | 8 | 34 | 72 | 199 | 2040 | 202 | 1618 | 220 | 405 | 31 |
| Northeast | 75,015 | 310 | 2,329 | 410 | 10 | 28 | 133 | 239 | 1919 | 340 | 1200 | 379 | 136 | 18 |
| Parma/South | 154,112 | 149 | 2,290 | 252 | 1 | 41 | 43 | 167 | 2038 | 219 | 1581 | 238 | 952 | 62 |
| Cuya Valley/South | 48,300 | 73 | 355 | 38 | 0 | 4 | 8 | 26 | 317 | 33 | 255 | 29 | 115 | 24 |
| Southeast | 92,042 | 242 | 2,227 | 574 | 11 | 25 | 112 | 426 | 1653 | 225 | 1119 | 309 | 147 | 16 |
| Southwest | 115,597 | 89 | 1,031 | 90 | 0 | 8 | 15 | 67 | 941 | 79 | 812 | 50 | 346 | 30 |
| West Shore | 164,392 | 116 | 1,909 | 132 | 2 | 20 | 47 | 63 | 1777 | 145 | 1433 | 199 | 484 | 29 |
| Total Cities | 1,234,893 | 315 | 38,916 | 8942 | 192 | 602 | 2349 | 5799 | 29974 | 5343 | 19883 | 4748 | 4211 | 34 |
| Metroparks, RTA, Sheriff | | | 295 | 93 | 1 | 4 | 42 | 46 | 202 | 5 | 189 | 8 | 720 | |
| CUYAHOGA TOTAL | 1,234,893 | 318 | 39,211 | 9035 | 193 | 606 | 2391 | 5845 | 30176 | 5348 | 20072 | 4756 | 4931 | |

Source: Reported crime estimates from OIBRS. Violent crime include murder, rape, robbery, aggravated assault. Property crimes include burglary, larceny/theft, motor vehicle theft.

Source: Unreported community estimates based on 2021 or 5-yrs average OIBRS. Small communities (less than 1000 population) est'd at 5.

Source: Drug estimate from OIBRS. Estimates based on 20 drug arrest per 10K population.

Cuyahoga City Safety Assessment

**50% of population in 40 cities have rates less than 200 / 10k Population & are regarded as “very safe” or “safe”.
5 cities with 38% of the county’s population are “unsafe” with crime rates greater than 300 / 10K population.**

| Crimes, Crime Rates and Safety Assessment for Cuyahoga Cities | | | | | | | | |
|---|-------------------|----------|------------------------|-------------|---------------------|----------------------|----------------------------|----------------------|
| City | Safety Assessment | 2019 Pop | Crime Rate Per 10K Pop | Total Crime | Violent Crime Total | Property Crime Total | Drug Arrests (2020-21 Avg) | Drug Arrest Rate/10K |
| Broadview Heights | Very Safe | 19,102 | 17 | 32 | 12 | 20 | 55 | 29 |
| Moreland Hills | Very Safe | 3,303 | 21 | 7 | 0 | 7 | 7 | 20 |
| Olmsted Falls | Very Safe | 8,828 | 27 | 24 | 2 | 22 | 4 | 5 |
| Olmsted Township | Very Safe | 13,432 | 31 | 41 | 3 | 38 | 3 | 3 |
| Rocky River | Very Safe | 19,986 | 39 | 78 | 13 | 65 | 30 | 15 |
| Gates Mills | Very Safe | 2,217 | 41 | 9 | 0 | 9 | 3 | 14 |
| Highland Hills | Very Safe | 960 | 42 | 4 | 0 | 4 | 7 | 73 |
| Brecksville | Very Safe | 13,604 | 46 | 63 | 2 | 61 | 11 | 8 |
| Hunting Valley | Very Safe | 601 | 50 | 3 | 0 | 3 | 1 | 20 |
| North Randall | Very Safe | 988 | 51 | 5 | 0 | 5 | 2 | 20 |
| Seven Hills | Very Safe | 11,590 | 54 | 63 | 5 | 58 | 17 | 15 |
| Glenwillow | Very Safe | 919 | 54 | 5 | 0 | 5 | 1 | 11 |
| Bentleyville | Very Safe | 846 | 59 | 5 | 0 | 5 | 2 | 24 |
| Woodmere | Very Safe | 853 | 59 | 5 | 0 | 5 | 2 | 20 |
| Orange | Very Safe | 3,290 | 67 | 22 | 2 | 20 | 7 | 20 |
| Middleburg Heights | Very Safe | 15,432 | 67 | 104 | 5 | 99 | 87 | 56 |
| Oakwood | Very Safe | 3,624 | 69 | 25 | 8 | 17 | 7 | 20 |
| Fairview Park | Very Safe | 16,161 | 71 | 115 | 12 | 103 | 27 | 17 |
| Newburgh Heights | Very Safe | 2,049 | 73 | 15 | 0 | 15 | 4 | 20 |
| North Royalton | Very Safe | 30,068 | 74 | 223 | 52 | 171 | 143 | 48 |
| Valley View | Very Safe | 1,997 | 75 | 15 | 0 | 15 | 1 | 5 |
| Solon | Very Safe | 22,779 | 76 | 174 | 11 | 163 | 83 | 36 |
| Pepper Pike | Very Safe | 6,330 | 79 | 50 | 5 | 45 | 19 | 30 |
| Cuyahoga Heights | Very Safe | 607 | 82 | 5 | 0 | 5 | 1 | 20 |
| Mayfield Village | Very Safe | 3,337 | 90 | 30 | 0 | 30 | 7 | 20 |
| Bay Village | Very Safe | 15,194 | 90 | 136 | 6 | 130 | 32 | 21 |
| Berea | Very Safe | 18,609 | 92 | 172 | 24 | 148 | 36 | 19 |

Source: Reported crime estimates from OIBRS. Violent crime include murder, rape, robbery, aggravated assault. Property crimes include burglary, larceny.

Source: Unreported community estimates based on 2021 or 5-yrs average OIBRS. Small communities (less than 1000 population) est'd at 5.

Source: Drug estimate from OIBRS. Estimates based on 20 drug arrest per 10K population.

Note Crime Rate Safety Assessment: Very Safe < 100 Crimes per 10k Pop; Safe = 100-199; Vulnerable = 200-299;

| City | Safety Assessment | 2019 Pop | Crime Rate Per 10K Pop | Total Crime | Violent Crime Total | Property Crime Total | Drug Arrests (2020-21 Avg) | Drug Arrest Rate/10K |
|--------------------------|-------------------|-----------|------------------------|-------------|---------------------|----------------------|----------------------------|----------------------|
| Westlake | Safe | 32,032 | 101 | 323 | 14 | 309 | 64 | 20 |
| Mayfield Heights | Safe | 18,487 | 104 | 192 | 17 | 175 | 26 | 14 |
| Shaker Heights | Safe | 27,027 | 105 | 285 | 26 | 259 | 9 | 3 |
| Chagrin Falls | Safe | 3,941 | 109 | 43 | 0 | 43 | 10 | 25 |
| Walton Hills | Safe | 2,269 | 115 | 26 | 1 | 25 | 11 | 48 |
| Highland Heights | Safe | 8,373 | 122 | 102 | 4 | 98 | 13 | 16 |
| Parma | Safe | 78,103 | 122 | 949 | 165 | 784 | 651 | 83 |
| Strongsville | Safe | 44,660 | 128 | 571 | 9 | 562 | 160 | 36 |
| Lyndhurst | Safe | 13,366 | 129 | 172 | 23 | 149 | 98 | 73 |
| Bedford | Safe | 12,457 | 133 | 166 | 12 | 154 | 18 | 14 |
| North Olmsted | Safe | 31,341 | 138 | 431 | 17 | 414 | 115 | 37 |
| Bratenahl village | Safe | 1,159 | 147 | 17 | 8 | 9 | 9 | 78 |
| University Heights | Safe | 12,797 | 149 | 191 | 30 | 161 | 24 | 19 |
| Parma Heights | Safe | 19,790 | 152 | 300 | 51 | 249 | 125 | 63 |
| Cleveland Heights | Safe | 43,992 | 158 | 695 | 131 | 564 | 180 | 41 |
| Lakewood | Safe | 49,678 | 166 | 826 | 70 | 756 | 216 | 43 |
| Maple Heights | Safe | 22,078 | 176 | 388 | 170 | 218 | 45 | 20 |
| Linndale | Safe | 169 | 178 | 3 | 0 | 3 | 1 | 59 |
| Richmond Heights | Safe | 10,342 | 183 | 189 | 19 | 170 | 63 | 61 |
| Brook Park | Safe | 18,382 | 195 | 359 | 14 | 345 | 3 | 2 |
| Bedford Heights | Vulnerable | 10,460 | 208 | 218 | 47 | 171 | 10 | 10 |
| Independence | Vulnerable | 7,175 | 229 | 164 | 23 | 141 | 29 | 40 |
| Brooklyn Heights | Vulnerable | 1,497 | 234 | 35 | 0 | 35 | 3 | 20 |
| East Cleveland | Vulnerable | 16,964 | 275 | 467 | 116 | 351 | 37 | 22 |
| South Euclid | Vulnerable | 21,297 | 281 | 599 | 80 | 519 | 8 | 4 |
| Garfield Heights | Unsafe | 27,448 | 324 | 890 | 205 | 685 | 31 | 11 |
| Beachwood | Unsafe | 11,590 | 350 | 406 | 23 | 383 | 84 | 72 |
| Euclid | Unsafe | 46,550 | 356 | 1,656 | 267 | 1,389 | 27 | 6 |
| Warrensville Heights | Unsafe | 13,108 | 401 | 526 | 132 | 394 | 26 | 20 |
| Brooklyn | Unsafe | 10,646 | 481 | 512 | 12 | 500 | 68 | 64 |
| Cleveland | Unsafe | 381,009 | 677 | 25,785 | 7,094 | 18,691 | 1448 | 38 |
| TOTAL Cities | x-Total | 1,234,893 | 315 | 38,916 | 8,942 | 29,974 | 4,211 | 34 |
| Metroparks, RTA, Sheriff | | NA | NA | 295 | 93 | 202 | 720 | |

Calculating the Cost of 39,211 Major Crimes

Estimates of the Tangible & Intangible Costs of Crime Include:

- Victim Costs -Medical, Property & Productivity
- Police, Court & Incarceration Costs
- Loss of Perpetrator Income Due to Life of Crime
- Quality of Life Impacts
- Opportunity Costs of Activities Curtailed by Crime

Meta-Analysis Approach: Examine and Apply Well-Known Cost Per Crime Estimates to Cuyahoga County

One Frequently Cited Study of Cost of Crime Illustrates Approach

| Sample Costs: Miller-Cohen Cost Per Crime Estimates (\$2020) | | | | | | | |
|---|--------------------|------------------|-----------------|-----------------|----------------|-------------------|--------------------|
| | Murder | Rape | Robbery | Assault | Burglary | Larceny/ Theft | Motor Veh Theft |
| Medical Cost per Crime | \$13,525 | \$3,540 | \$2,080 | \$2,220 | \$0 | \$0 | \$0 |
| Mental Health Cost per Crime | \$12,719 | \$6,907 | \$208 | \$428 | \$0 | \$0 | \$0 |
| Productivity Cost per Crime | \$1,942,014 | \$7,623 | \$4,927 | \$2,434 | \$41 | \$33 | \$125 |
| Property Loss Cost per Crime | \$209 | \$187 | \$1,365 | \$84 | \$3,061 | \$1,117 | \$7,667 |
| Public Serv (Police, EMS) Cost per Crime | \$158,060 | \$957 | \$1,403 | \$4,583 | \$618 | \$957 | \$759 |
| Adjudication & Sanctioning per Crime | \$507,712 | \$47,429 | \$14,639 | \$6,555 | \$993 | \$2,729 | \$2,086 |
| Perpetrator Work Loss Cost per Crime | \$188,897 | \$19,550 | \$6,296 | \$2,428 | \$989 | \$240 | \$815 |
| Quality of Life Cost per Crime | \$5,470,188 | \$339,449 | \$15,565 | \$22,460 | \$0 | \$0 | \$0 |
| Total Cost per Crime | \$8,293,323 | \$425,642 | \$46,482 | \$41,189 | \$5,702 | \$5,076 | \$11,452 |
| Source: Miller, Cohen, Swedler, Ali & Hendrie, Incidence & Cost of Personal & Property Crimes in the US, 2017 (Aug 2020). See source for methodology. | | | | | | | |
| Notes: Victim cost estimates for medical costs & lost productivity based hospital admissions, emergency room visits, mental health activity adjusted to lifetime costs. | | | | | | | |
| Notes: Property cost estimate based on NCVS survey data. | | | | | | | |
| Note: Estimate for police, EMS public services from Hunt, Anderson & Sanders, The Price of Justice (2017) with costs updated to 2020 | | | | | | | |
| Note: Estimate for Adjudication & Sanctioning and for Perpetrator Work Loss from Miller, Cohen et al., Incidence & Cost (2020). | | | | | | | |
| Note: Estimate for Quality of Life from Miller, Cohen et al., The Price of Justice (2020) and are based on analysis of jury injury awards. | | | | | | | |
| Note: 2017 to 2020 Adjustment = 1.062 | | | | | | | |

See Appendix & source to see how Cohen and Miller calculated each component.

Approach: Review Crime Estimates of 13 Studies

- Meta-Study Approach: Review popular, frequently-cited studies.
- Methodologies of 13 studies offer different, but well-justified approaches that sometimes result in significant differences in cost of crime estimates.

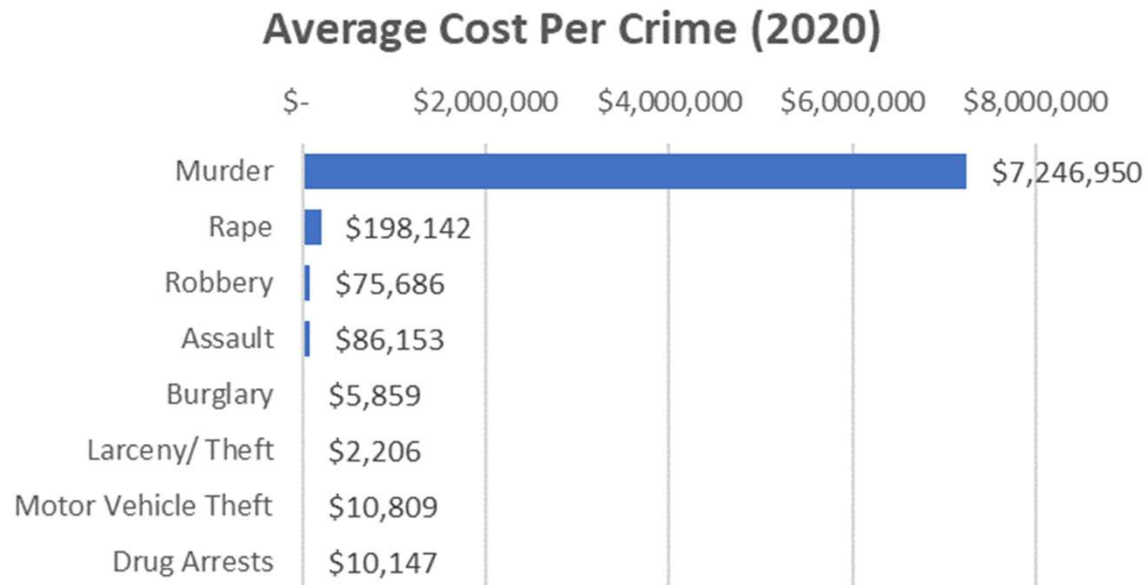
Average Cost of Crime Estimates for Violent & Property Crimes- 13 Studies (\$2020)

| Study | Murder | Rape | Robbery | Aggrav. Assault | Burglary | Larceny/ Theft | Motor Vehicle Theft | Drug Sales/ Possession |
|--|--------------------|------------------|-----------------|-----------------|----------------|----------------|---------------------|------------------------|
| Miller, Cohen, Swedler, Ali & Hendrie (2020) | \$8,293,323 | \$425,642 | \$46,482 | \$41,189 | \$5,702 | \$5,076 | \$11,452 | \$10,147 |
| McCollister, French & Fang (2010) | \$10,770,488 | \$288,690 | \$50,730 | \$128,317 | \$7,748 | \$4,235 | \$12,916 | |
| Chalkin (2017) | \$6,714,389 | \$188,843 | \$49,099 | \$107,010 | \$5,789 | \$2,501 | \$11,254 | |
| Cohen (1988) | | \$117,456 | \$28,978 | \$27,607 | \$3,087 | \$412 | \$7,201 | |
| Cohen Miller & Roseman (1994) | | \$100,075 | \$41,120 | \$31,101 | | | | |
| Miller et al. (1993) | \$4,969,459 | \$96,403 | \$39,610 | \$29,959 | | | | |
| Miller et al. (1996) | \$5,252,281 | \$149,178 | \$22,290 | \$25,720 | \$2,572 | \$634 | \$6,858 | |
| Miller, Cohen, & Wiersma (1996) | | \$150,670 | \$22,513 | \$25,978 | \$2,597 | \$640 | \$6,926 | |
| Cohen et al (2004) | | \$320,309 | \$107,675 | \$188,030 | \$3,379 | \$992 | \$6,554 | |
| Rakumar & French (1997) | | \$89,942 | \$56,291 | \$148,608 | \$5,282 | \$1,786 | \$11,069 | |
| Rand Crime Calculator (2010) | \$10,370,393 | \$261,221 | \$80,665 | \$104,599 | \$15,702 | \$2,565 | \$10,886 | |
| Roman (2009) | | \$189,272 | \$362,779 | \$175,717 | \$6,729 | \$3,216 | \$22,976 | |
| Cooley & Pianto (2016) | \$4,358,319 | | | | | | | |
| Average Cost Per Crime- 13 Studies | \$7,246,950 | \$198,142 | \$75,686 | \$86,153 | \$5,859 | \$2,206 | \$10,809 | \$10,147 |

Sources: Miller et al. (2020), McCollister (2010), Chalkin (2017), Rand (2010), Cooley & Pianto (2016) Estimates adjusted to 2020 Dollars

Conclusion: Base Cost of Crime Estimates on Average of 13 Studies

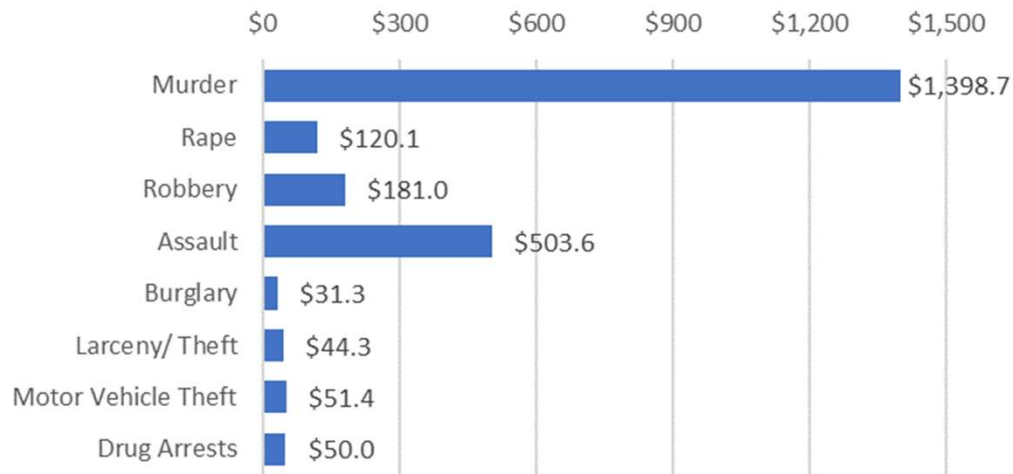
- Despite some differences in methodology and results, averaging multiple cost-of-crime studies provides reasonable consensus-based estimate and minimizes chance of major error in magnitude of estimate.



Result: Cuyahoga Cost of Crime (2020)= \$2.38 Billion / \$1,928 Per Capita

- Total cost to victims and society of Cuyahoga County's 39,211 major crimes was \$2.38 Billion or \$1,928 per capita.

Total Cost By Type of Crime (\$2020 Mil)



Cuyahoga County Crime Cost (2020)

| | Cuyahoga Crimes (2020) | Average Cost Per Crime- 13 Studies | Total Cost of Crime (\$Mil) | Total Cost of Crime Per Capita- Cuyahoga |
|----------------------------|------------------------|------------------------------------|-----------------------------|--|
| Total Excl Drugs | 39,211 | | | |
| Murder | 193 | \$ 7,246,950 | \$ 1,398.7 | \$ 1,133 |
| Rape | 606 | \$ 198,142 | \$ 120.1 | \$ 97 |
| Robbery | 2,391 | \$ 75,686 | \$ 181.0 | \$ 147 |
| Assault | 5,845 | \$ 86,153 | \$ 503.6 | \$ 408 |
| Burglary | 5,348 | \$ 5,859 | \$ 31.3 | \$ 25 |
| Larceny/ Theft | 20,072 | \$ 2,206 | \$ 44.3 | \$ 36 |
| Motor Vehicle Theft | 4,756 | \$ 10,809 | \$ 51.4 | \$ 42 |
| Drug Arrests | 4,931 | \$ 10,147 | \$ 50.0 | \$ 41 |
| Total Cost of Crime | | | \$ 2,380.3 | \$ 1,928 |

Note: Cuyahoga County Population estimated at 1,235,000.

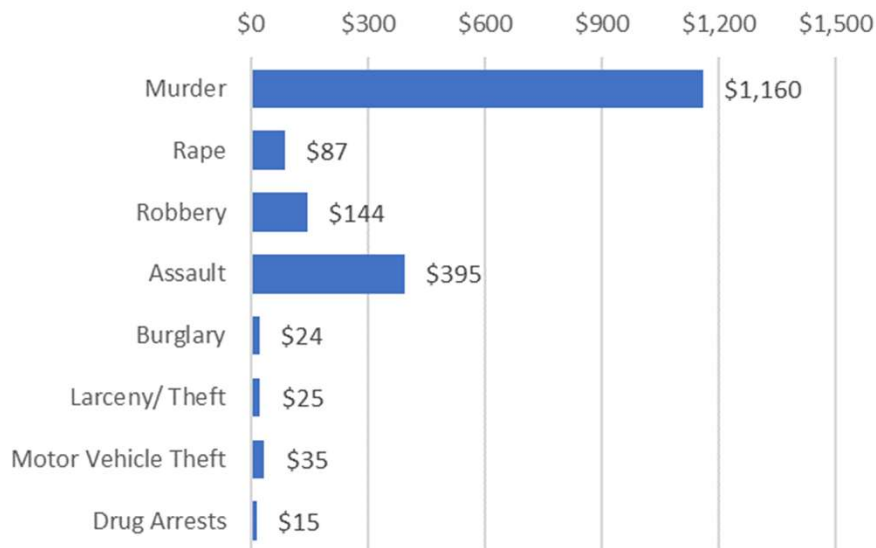
Result: Cleveland Cost of Crime (2020)= \$1.885 Billion / \$4,961 Per Capita

- City of Cleveland had 25,785 major crimes in 2020, or 66% of County's total.
- Total cost to victims and society of Cleveland's 25,785 major crimes was \$1.885 Billion or \$1,928 per capita.

Summary of Cleveland & Cuyahoga County Crime (2020)

| | Total Crime, excl Drugs | Murder | Rape | Robbery | Aggrav. Assault | Burglary | Larceny Theft | Motor Veh Theft | Drug Arrests |
|-----------------|-------------------------|--------|------|---------|-----------------|----------|---------------|-----------------|--------------|
| Cuyahoga County | 39,211 | 193 | 606 | 2,391 | 5,845 | 5,348 | 20,072 | 4,756 | 4,931 |
| Cleveland | 25,785 | 160 | 439 | 1,909 | 4,586 | 4,056 | 11,351 | 3,284 | 1,448 |
| Cleveland % | 66% | 83% | 72% | 80% | 79% | 76% | 57% | 69% | 29% |

Cleveland Cost By Type of Crime (\$2020 Mil)



Cleveland Crime Cost (2020)

| | Cleveland Crimes (2020) | Average Cost Per Crime- 13 Studies | Total Cost of Crime (\$Mil) | Total Cost of Crime Per Capita- Cleveland |
|---------------------|-------------------------|------------------------------------|-----------------------------|---|
| Total Excl Drugs | 25,785 | | | |
| Murder | 160 | \$ 7,246,950 | \$ 1,160 | \$ 3,051 |
| Rape | 439 | \$ 198,142 | \$ 87 | \$ 229 |
| Robbery | 1,909 | \$ 75,686 | \$ 144 | \$ 380 |
| Assault | 4,586 | \$ 86,153 | \$ 395 | \$ 1,040 |
| Burglary | 4,056 | \$ 5,859 | \$ 24 | \$ 63 |
| Larceny/ Theft | 11,351 | \$ 2,206 | \$ 25 | \$ 66 |
| Motor Vehicle Theft | 3,284 | \$ 10,809 | \$ 35 | \$ 93 |
| Drug Arrests | 1,448 | \$ 10,147 | \$ 15 | \$ 39 |
| Total Cost of Crime | | | \$ 1,885 | \$ 4,961 |

Note: Cleveland Population estimated at 380,000.

How Much Would Hiring More Police Reduce the Incidence and Cost of Crime in Cuyahoga County and Cleveland?

Key Issues: Extent to which additional police can reduce major crime
Versus the cost of adding police

Sample: Rand Cost of Crime Calculator

Compare:
Cost of Crime Reduction
With
Cost of Hiring More Police

| Size of Department | Change in Number of Police Personnel | | | | |
|--------------------|--------------------------------------|----|--|--|--|
| 2,000 | | 20 | | | |

| Crime Type | Cost Per Crime | Crimes Per Year | Crime Costs (Millions) | Change In Number of Crimes | Changes In Crime Cost (Millions) |
|--|----------------|-----------------|------------------------|---|----------------------------------|
| Murder | \$4,358,319 | 160 | \$697.33 | -1.48 | -\$6.46 |
| Rape | \$400,793 | 439 | \$175.95 | 0 | \$0 |
| Robbery | \$43,768 | 1,909 | \$83.55 | -11.3 | -\$0.49 |
| Aggravated Assault | \$38,784 | 4,586 | \$177.06 | -13.39 | -\$0.52 |
| Burglary | \$5,369 | 4,056 | \$21.78 | -16.39 | -\$0.09 |
| Larceny | \$5,369 | 11,351 | \$60.94 | 0 | \$0 |
| Motor Vehicle Theft | \$4,780 | 3,284 | \$15.70 | -14.45 | -\$0.07 |
| Aggregate Crime Cost | | | \$1,233.11 | Change in Crime Costs | -\$7.63 |
| Dollar Year Adjustment | | | | | 1.00 |
| Crime Costs in Dollars (Millions) | | | \$1,233.11 | Change in Crime Costs (Millions) | -\$7.63 |
| | | | | Value of One Officer | \$381,765 |

Approach: Use Best Economic Studies of Sensitivity of Crime Incidence to Increases in Police Manpower in Multiple Cities

Recent meta-study by Chalfin And McCrary provides good data from hundreds of cities on “elasticity” (sensitivity) of crime to 1% increase in police

Change in Crime Per 1% Increase in Police

| | Rand (2010) | Chalkin & McCrary (2018) |
|-----------------|-------------|--------------------------|
| Murder | -0.927% | -0.666% |
| Rape | -0.170% | -0.255% |
| Robbery | -0.592% | -0.559% |
| Aggrav Assault | -0.292% | -0.099% |
| Burlary | -0.404% | -0.225% |
| Larceny | -0.103% | -0.083% |
| Motor Veh Theft | -0.440% | -0.343% |

Source: RAND Center on Quality Policing, Paul Heaton, Hidden in Plain Site, Cost of Crime Calculator (2010)

Source: Chalkin and McCrary, Are US Cities Underpoliced (2018)

TABLE 5.—COMPARISON OF ESTIMATES OF THE POLICE ELASTICITY OF CRIME

| Source | Years | Cross-Sectional Units | Research Design | Violent Crime | Murder | Robbery | Property Crime | Burglary | Motor Vehicle Theft |
|---------------------------|-----------|-----------------------|--------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|---------------------|
| Marvell and Moody (1996) | 1973–1992 | 56 cities | OLS: lags as control variables | | -0.24 (0.09) | -0.22 (0.06) | | -0.15 (0.04) | -0.30 (0.07) |
| Levitt (1997) | 1970–1992 | 59 cities | IV: mayoral elections | -0.79 (0.61) | -3.03 (2.03) | -1.29 (1.00) | 0.00 (0.34) | -0.55 (0.67) | -0.44 (0.98) |
| McCrary (2002) | 1970–1992 | 59 cities | IV: mayoral elections | -0.66 (0.65) | -2.69 (2.07) | -0.98 (1.09) | 0.11 (0.43) | -0.47 (0.77) | -0.77 (1.08) |
| Levitt (2002) | 1975–1995 | 122 cities | IV: number of firefighters | -0.44 (0.23) | -0.91 (0.33) | -0.45 (0.26) | -0.50 (0.24) | -0.20 (0.26) | -1.70 (0.57) |
| Corman and Mocan (2005) | 1974–1999 | NYC | OLS: monthly time series | | -0.50 (1.04) | -0.39 (0.45) | | -0.28 (0.23) | -0.58 (0.25) |
| Klick and Tabarrok (2005) | 2002–2003 | DC | DiD: high terrorism alert days | 0.00 (na) | | | | -0.30 (0.18) | -0.84 (0.25) |
| Evans and Owens (2007) | 1990–2001 | 2,074 cities | IV: COPS grants | -0.99 (0.33) | -0.84 (0.47) | -1.34 (0.52) | -0.26 (0.16) | -0.59 (0.18) | -0.85 (0.35) |
| Lin (2009) | 1970–2000 | 51 states | IV: state sales tax | -1.13 (0.74) | -2.73 (1.31) | -1.86 (1.12) | -2.18 (0.93) | -1.59 (0.80) | -4.14 (1.82) |
| Our preferred estimates | 1960–2010 | 242 cities | Measurement error correction | -0.34 (0.10) | -0.67 (0.24) | -0.56 (0.12) | -0.17 (0.06) | -0.23 (0.09) | -0.34 (0.10) |

Table reports implied elasticities and standard errors from recent articles employing a novel identification strategy to estimate the effect of police on crime. Under research design, studies are classified as using least squares (OLS), instrumental variables (IV), or differences-in-differences (DiD) to identify the effect of police on crime. In place of the original elasticities reported in Levitt (1997), we have included elasticity estimates from McCrary (2002), which correct for a coding error in the original paper; McCrary (2002) estimates refer to the estimates using a different measure of mayoral elections. Our preferred estimates, which account for the presence of measurement errors, are shown below.

Source: Chalfin & McCrary, “Are U.S. Cities Underpoliced: Theory & Evidence”, Review of Economics and Statistics, March 2018.

Approach: Combine Data in Model to Estimate Cost Changes

| MODEL ASSUMPTIONS | | | | | | |
|--|-------------|-----------|--------------|--------------------|---------------------------------|------------------|
| | Cuyahoga Co | Cleveland | Other Cities | Avg Cost Per Crime | Crime Chg Per 1% Incr in Police | Cuyahoga Co Govt |
| Murder | 193 | 160 | 33 | \$ 7,246,950 | -0.666% | 193 |
| Rape | 606 | 439 | 167 | \$ 198,142 | -0.255% | 606 |
| Robbery | 2,391 | 1,909 | 482 | \$ 75,686 | -0.559% | 2,391 |
| Aggravated Assault | 5,845 | 4,586 | 1,259 | \$ 86,153 | -0.099% | 5,845 |
| Burglary | 5,348 | 4,056 | 1,292 | \$ 5,859 | -0.225% | 5,348 |
| Larceny Theft | 20,072 | 11,351 | 8,721 | \$ 2,206 | -0.083% | 20,072 |
| Motor Vehicle Theft | 4,756 | 3,284 | 1,472 | \$ 10,809 | -0.343% | 4,756 |
| Drug Arrests (2020-21 Avg) | 4,931 | 1,448 | 3,483 | \$ 10,147 | NA | 4,931 |
| Total Crime, excl Drugs | 39,211 | 25,785 | 13,426 | | | 39,211 |
| Population | 1,235,000 | 380,000 | 855,000 | | | 1,235,000 |
| Size of Police Dept | 3,817 | 1,817 | 2,000 | | | 1,615 |
| 1% Chg in Police | 38 | 18 | 20 | | | 16 |
| Avg Cost Per Officer | \$150,000 | \$134,600 | \$160,000 | | | \$104,800 |
| Note: Model design based on Rand Cost of Crime model. | | | | | | |
| Source: Crime estimates for large communities from OIBRS or Police Reports. Estimates based on 5-yrs average. Small communities est'd at 5. | | | | | | |
| Source: Drug estimate from OIBRS, 2020-21 avg.. Estimates for some communities based on 20 drug arrest per 10K population. | | | | | | |
| Sources for crime cost: Miller et al. (2020), McCollister (2010), Chalkin (2017), Rand (2010), Cooley & Pianto (2016) Estimates adjusted to 2020 Dollars | | | | | | |
| Source for crime elasticity: Chalkin and McCrary, Are US Cities Underpoliced (2018) | | | | | | |
| Source for Cle police size and avg cost: 2021 Cle Fin Audit | | | | | | |
| Source for other cities police and cost: FBI Table 78, Ohio Law Enforcement, audits, websites. Budget from Hinkel reports, audits | | | | | | |
| Source for county executive safety forces size & budget: 2020-2021 Cuyahoga Co. Budget- Safety | | | | | | |

10% Increase of Police Results: For All Cuyahoga Cities, Net Crime Cost Would Decrease By \$57 Million (Including Cost of Additional Police)

Cleveland & All Other Cuyahoga Cities

| | |
|-------------------------------------|-----------------------|
| ASSUME: Increase in Police | 380 |
| % Increase | 10.0% |
| Size of Selected Cities Police Dept | 3817 |
| 1% Chg in Police | 38 |
| Police Cost / Officer | \$ 150,000 |
| Population | 1,235,000 |
| RESULTS | |
| Current Crime Cost | \$2,330,285,000 |
| Chg in Number of Major Crimes | (670) |
| Crime Savings from Police Incr | (\$114,151,000) |
| Cost of Addl Officers | \$57,000,000 |
| NET CRIME COST SAVINGS | (\$57,151,000) |
| Net Savings Per Addl Officer | (\$150,397) |
| Current crime Cost Per Capita | \$1,887 |
| Net Savings Per Capita | (\$46) |

Details

- Projected number of police would increase by 380 (10%) with a projected cost of \$57 Million.
- Number of major crimes would decrease by 670.
- Total cost of crime would decrease from \$2.33 Billion by \$114 Million.
- **Net Crime Cost Savings of \$57 Million.**
- Estimate is conservative because it is only reported crime in seven major categories. It doesn't include effect of more police on unreported crime and on other illegal activities.

| | Crimes/Yr | Avg Cost Per Crime | Crime Cost (\$Mil) | Crime Chg/1% Incr | Chg No of Crimes | Chg in Crime Cost (\$Mil) |
|------------------------------|-----------|--------------------|--------------------|-------------------|------------------|---------------------------|
| Murder | 193 | \$ 7,246,950 | \$1,398.7 | -0.666% | (12.85) | \$ (93.15) |
| Rape | 606 | \$ 198,142 | \$120.1 | -0.255% | (15.45) | \$ (3.06) |
| Robbery | 2,391 | \$ 75,686 | \$181.0 | -0.559% | (133.66) | \$ (10.12) |
| Aggrav Assault | 5,845 | \$ 86,153 | \$503.6 | -0.099% | (57.87) | \$ (4.99) |
| Burglary | 5,348 | \$ 5,859 | \$31.3 | -0.225% | (120.33) | \$ (0.71) |
| Larceny | 20,072 | \$ 2,206 | \$44.3 | -0.083% | (166.60) | \$ (0.37) |
| Motor Veh Theft | 4,756 | \$ 10,809 | \$51.4 | -0.343% | (163.13) | \$ (1.76) |
| Total | 39,211 | | \$2,330.3 | | (669.89) | \$ (114.15) |
| Drug Arrests | 4,931 | \$ 10,147 | \$50.0 | NA | | |
| % Change Number & Cost Crime | | | | | -1.7% | -4.9% |

10% Increase of Police Results: Net Crime Cost for Cleveland Would Decrease By \$69 Million (Including Cost of Additional Police)

| Cleveland | |
|---------------------------------------|------------------------|
| ASSUME: Increase in Police | 181 |
| % Increase | 10.0% |
| Size of Cle Police Dept | 1817 |
| 1% Chg in Police | 18 |
| Cle Police 2021 Audit / Officer | \$ 134,600 |
| Cleveland Population | 380,000 |
| RESULTS | |
| Current Crime Cost | \$1,870,380,000 |
| Chg in Number of Major Crimes | (472) |
| Crime Savings from Police Incr | (\$93,390,000) |
| Cost of Addl Officers | \$24,362,600 |
| NET CRIME REDUCTION SAVINGS | (\$69,027,400) |
| Net Savings Per Addl Officer | (\$381,367) |
| Current crime Cost Per Capita | \$4,922 |
| Net Savings Per Capita | \$ (182) |

Details

- Projected number of police would increase by 181 (10%) with a projected cost of \$24.4 Million.
- Number of major crimes would decrease by 472.
- Total cost of crime would decrease from \$1.87 Billion by \$93.4 Million.
- **Net Crime Cost Savings of \$69 Million.**
- Estimate is conservative because it is only reported crime in seven major categories. It doesn't include effect of more police on unreported crime and on other illegal activities.

| | Crimes/Yr | Avg Cost Per Crime | Crime Cost (\$Mil) | Crime Chg/1% | Chg No of Crimes | Chg in Crime Cost (\$Mil) |
|---|---------------|--------------------|--------------------|--------------|------------------|---------------------------|
| Murder | 160 | \$ 7,246,950 | \$1,159.5 | -0.666% | (10.66) | \$ (77.22) |
| Rape | 439 | \$ 198,142 | \$87.0 | -0.255% | (11.20) | \$ (2.22) |
| Robbery | 1,909 | \$ 75,686 | \$144.5 | -0.559% | (106.71) | \$ (8.08) |
| Aggrav Assault | 4,586 | \$ 86,153 | \$395.1 | -0.099% | (45.40) | \$ (3.91) |
| Burglary | 4,056 | \$ 5,859 | \$23.8 | -0.225% | (91.26) | \$ (0.54) |
| Larceny | 11,351 | \$ 2,206 | \$25.0 | -0.083% | (94.21) | \$ (0.21) |
| Motor Veh Theft | 3,284 | \$ 10,809 | \$35.5 | -0.343% | (112.64) | \$ (1.22) |
| Total | 25,785 | | \$1,870.4 | | (472.08) | \$ (93.39) |
| Drug Arrests | 1448 | \$ 10,147 | \$14.7 | NA | | |
| % Change Number & Cost Crime | | | | | -1.8% | -5.0% |

10% Increase of Police Results: Due to a Lower Crime Rate, Net Crime Cost for Other Cities Would Increase By \$11 Million (Including Cost of Additional Police)

Details

- Projected number of police would increase by 200 (10%) with a projected cost of \$31.7 Million.
- Number of major crimes would decrease by 198.
- Total cost of crime would decrease from \$460 Million by \$20.8 Million.
- **Net Crime Cost Increase of \$11 Million because Crime Savings are less than Cost of Additional Officers.**
- Results show model is sensitive to overall crime rate & cost of additional officers. Low crime communities may not benefit as much from increases.
- Estimate may understate savings because it is only reported crime in seven major categories. It doesn't include effect of more police on unreported crime and on other illegal activities.

| Cuyahoga Other Cities | |
|----------------------------------|---------------------|
| ASSUME: Increase in Police | 200 |
| % Increase | 10.0% |
| Size of Other Cities Police Dept | 2000 |
| 1% Chg in Police | 20 |
| Police Cost / Officer | \$ 158,500 |
| County Population | 855,000 |
| RESULTS | |
| Current Crime Cost | \$459,907,000 |
| Chg in Number of Major Crimes | (198) |
| Crime Savings from Police Incr | (\$20,762,000) |
| Cost of Addl Officers | \$31,700,000 |
| NET CRIME COST INCR | \$10,938,000 |
| Net Incr Per Addl Officer | \$54,690 |
| Current crime Cost Per Capita | \$538 |
| Net Savings Per Capita | \$ 13 |

| | Crimes/Yr | Avg Cost Per Crime | Crime Cost (\$Mil) | Crime Chg/1% | Chg No of Crimes | Chg in Crime Cost (\$Mil) |
|------------------------------|-----------|--------------------|--------------------|--------------|------------------|---------------------------|
| Murder | 33 | \$ 7,246,950 | \$239.1 | -0.666% | (2.20) | \$ (15.93) |
| Rape | 167 | \$ 198,142 | \$33.1 | -0.255% | (4.26) | \$ (0.84) |
| Robbery | 482 | \$ 75,686 | \$36.5 | -0.559% | (26.94) | \$ (2.04) |
| Aggrav Assault | 1,259 | \$ 86,153 | \$108.5 | -0.099% | (12.46) | \$ (1.07) |
| Burglary | 1,292 | \$ 5,859 | \$7.6 | -0.225% | (29.07) | \$ (0.17) |
| Larceny | 8,721 | \$ 2,206 | \$19.2 | -0.083% | (72.38) | \$ (0.16) |
| Motor Veh Theft | 1,472 | \$ 10,809 | \$15.9 | -0.343% | (50.49) | \$ (0.55) |
| Total | 13,426 | | \$459.9 | | (197.81) | \$ (20.76) |
| Drug Arrests | 3,483 | \$ 10,809 | \$37.6 | NA | | |
| % Change Number & Cost Crime | | | | | -1.5% | -4.5% |

10% Increase of Police Results: Net Crime Cost in 5 High-Crime Cities (Population 113,000) Would Decrease By \$1 Million Including Cost of Additional Police

5 High Crime Cities (Crime Rate>300/10k Pop)

| | |
|-------------------------------------|----------------------|
| ASSUME: Increase in Police | 38 |
| % Increase | 10.0% |
| Size of Selected Cities Police Dept | 381 |
| 1% Chg in Police | 3.8 |
| Police Cost / Officer | \$ 150,800 |
| Population | 113,000 |
| RESULTS | |
| Current Crime Cost | \$149,396,000 |
| Chg in Number of Major Crimes | (59) |
| Crime Savings from Police Incr | (\$6,743,000) |
| Cost of Addl Officers | \$5,730,400 |
| NET CRIME COST SAVINGS | (\$1,012,600) |
| Net Savings Per Addl Officer | (\$26,647) |
| Current crime Cost Per Capita | \$1,322 |
| Net Savings Per Capita | (\$9) |

Details: Tests Model Sensitivity to High-Crime Areas

- Projected number of police would increase by 38 (10%) with a projected cost of \$5.7 Million.
- Number of major crimes would decrease by 59.
- Total cost of crime would decrease from \$149 Million by \$6.7 Million.
- **Net Crime Cost Savings of \$1 Million.**
- Estimate is conservative because it is only reported crime in seven major categories. It doesn't include effect of more police on unreported crime and on other illegal activities.

| | Crimes/Yr | Avg Cost Per Crime | Crime Cost (\$Mil) | Crime Chg/1% Incr | Chg No of Crimes | Chg in Crime Cost (\$Mil) |
|------------------------------|-----------|--------------------|--------------------|-------------------|------------------|---------------------------|
| Murder | 11 | \$ 7,246,950 | \$79.7 | -0.666% | (0.73) | \$ (5.31) |
| Rape | 40 | \$ 198,142 | \$7.9 | -0.255% | (1.02) | \$ (0.20) |
| Robbery | 139 | \$ 75,686 | \$10.5 | -0.559% | (7.77) | \$ (0.59) |
| Aggrav Assault | 449 | \$ 86,153 | \$38.7 | -0.099% | (4.45) | \$ (0.38) |
| Burglary | 390 | \$ 5,859 | \$2.3 | -0.225% | (8.78) | \$ (0.05) |
| Larceny | 2,527 | \$ 2,206 | \$5.6 | -0.083% | (20.97) | \$ (0.05) |
| Motor Veh Theft | 434 | \$ 10,809 | \$4.7 | -0.343% | (14.89) | \$ (0.16) |
| Total | 3,990 | | \$149.4 | | (58.60) | \$ (6.74) |
| Drug Arrests | 236 | 10147 | \$2.4 | NA | | |
| % Change Number & Cost Crime | | | | | -1.5% | -4.5% |

Note: Five cities (with crime rates >200 per 10k pop) were Euclid, Garfield Hts, Warrensville Hts, Beachwood & Brooklyn

Summary of Model Results

- Adding 10% more police results in a 1.5% to 2.0% drop in the number of crimes and in a 3.4% to 5.0% drop in the cost of crimes.
- Overall results depend on the cost of police and on the extent to which crime is a major problem in the community. In general, results will be better in communities with higher crime rate, such as 300 crimes per 10,000 population, and a lower average cost per officer.

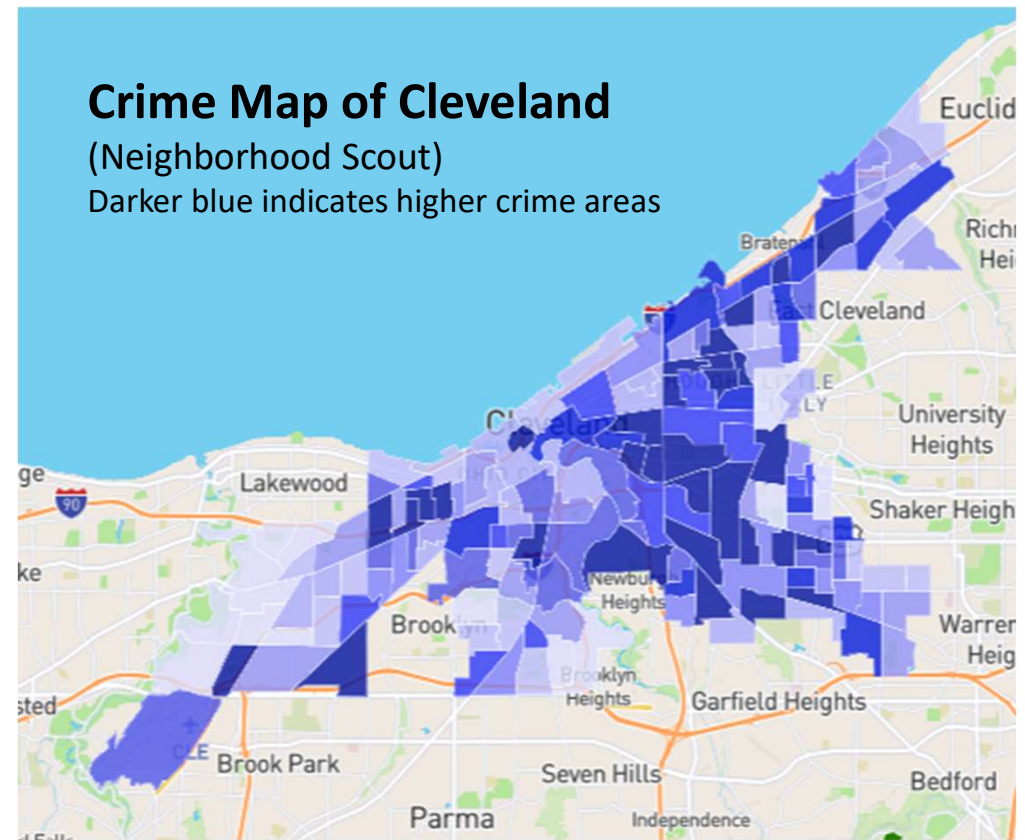
| Summary of Model Results: Cost of Crime Change from Adding 10% More Police | | | | |
|---|-----------------|-----------------|----------------|---------------------|
| | All Cuya Cities | Cleveland | Other Cities | 5 High Crime Cities |
| Population | 1,235,000 | 380,000 | 855,000 | 113,000 |
| Total Crime | 39,211 | 25,785 | 13,426 | 3,990 |
| ASSUME: 10% Increase in Police | 380 | 181 | 200 | 38 |
| RESULTS | | | | |
| Current Crime Cost | \$2,330,285,000 | \$1,870,380,000 | \$459,907,000 | \$149,396,000 |
| Chg in Number of Major Crimes | (670) | (472) | (198) | (59) |
| Crime Savings from Police Incr | (\$114,151,000) | (\$93,390,000) | (\$20,762,000) | (\$6,743,000) |
| Cost of Addl Officers | \$57,000,000 | \$24,362,600 | \$31,700,000 | \$5,730,400 |
| NET CRIME COST SAVINGS | (\$57,151,000) | (\$69,027,400) | \$10,938,000 | (\$1,012,600) |
| Net Savings Per Addl Officer | (\$150,397) | (\$381,367) | \$54,690 | (\$26,647) |
| Current crime Cost Per Capita | \$1,887 | \$4,922 | \$538 | \$1,322 |
| Net Savings Per Capita | (\$46) | (\$182) | \$13 | (\$9) |
| % Change Number of Crimes | -1.7% | -1.8% | -1.5% | -1.5% |
| % Change Cost of Crime | -4.9% | -5.0% | -4.5% | -3.4% |

Other Social Costs of Crime are Significant Non-Quantifiable Burdens

Opportunity Costs of Crime are foregone social benefits that are the result of crime but are difficult to quantify.

High Crime Areas have several negative economic consequences:

- Crime causes people to avoid the area or take extra security measures, which discourages business formation & job creation.
- Crime discourages housing investment because they are regarded as undesirable places to live.
- Crime has a major impact on the living conditions & economic opportunities for the poor.
- Crime requires high levels of government safety & social services which are less effective in high crime areas.
- Crime require major interventions to reduce crime. These efforts are often controversial, politically difficult and socially divisive.



Conclusions & Implications

- Although it is not an easy task because of the shortage of current crime & police data, an estimate of major crime & the cost of crime in Cuyahoga County can be developed.
 - Estimates of the incidence and full cost of crime are important because local political & community leaders & the general public fail to understand full costs of crime. The lack of understanding results in undervaluing sacrifices by crime victims and in poor assessment of trade-off between crime prevention & control policies and other government policies.
 - High crime rates have a major impact of the poor because they are more likely to live in high-crime areas. This results in high government safety costs & compromises the effectiveness of programs to reduce poverty.
- A model to quantify the benefit of additional police can be developed and is likely to show the financial benefits of adding more police, especially in high-crime areas.
 - Analyzing crime cost allows a more rational evaluation of measures to prevent & reduce crime and allows systematic comparison to other government policies.
- It is a fundamental responsibility of local government to provide safety, security and protection of property to all of its citizens. The public should demand better performance, efficiency and transparency from local and county governments regarding crime.
 - Crime is subject to substantial local control because local and county governments already spend a significant portion of their budgets on crime prevention & control.

Appendices with Technical Detail

- Appendix 1: Calculating the Number of Crimes in Cuyahoga County
- Appendix 2: Cost of Crime Estimates and Sources of Crime Cost Data
- Appendix 3: Documenting the Public Sector's Cost of Handling Crime
- Appendix 4: Strategies for Crime Reduction

Appendices with Technical Detail

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Appendix 1: How were the Number of Crimes in Cuyahoga County Calculated?

- Cuyahoga Co. Crime Estimates By City: 39,211 Violent & Property Crimes (FBI Part 1) in 2020 (Based on Police Reports & Estimates)
- Comparing Cuyahoga County Cities: Safety Based on Estimated Crime Rates

Cuyahoga Co. had an estimated 39,211 Violent & Property Crimes in 2020 (Based on Police Reports & Estimates)

| City Group | Crime Rate Per 10K Pop | Total Crime | Violent Crime Total | Murder | Rape | Robbery | Aggrav Assault | Property Crime Total | Burglary | Larceny Theft | Motor Vehicle Theft | Drug Arrests |
|--------------------------|------------------------|---------------|---------------------|------------|------------|--------------|----------------|----------------------|--------------|---------------|---------------------|--------------|
| Cleveland | 677 | 25,785 | 7,094 | 160 | 439 | 1,909 | 4,586 | 18,691 | 4,056 | 11,351 | 3,284 | 1,448 |
| Chagrin Valley | 87 | 637 | 39 | 0 | 3 | 10 | 26 | 598 | 44 | 514 | 40 | 178 |
| Heights | 180 | 2,353 | 313 | 8 | 34 | 72 | 199 | 2,040 | 202 | 1,618 | 220 | 405 |
| Northeast | 310 | 2,329 | 410 | 10 | 28 | 133 | 239 | 1,919 | 340 | 1,200 | 379 | 136 |
| Parma/South | 149 | 2,290 | 252 | 1 | 41 | 43 | 167 | 2,038 | 219 | 1,581 | 238 | 952 |
| Cuya Valley/South | 73 | 355 | 38 | 0 | 4 | 8 | 26 | 317 | 33 | 255 | 29 | 115 |
| Southeast | 242 | 2,227 | 574 | 11 | 25 | 112 | 426 | 1,653 | 225 | 1,119 | 309 | 147 |
| Southwest | 89 | 1,031 | 90 | 0 | 8 | 15 | 67 | 941 | 79 | 812 | 50 | 346 |
| West Shore | 116 | 1,909 | 132 | 2 | 20 | 47 | 63 | 1,777 | 145 | 1,433 | 199 | 484 |
| Total Cities | 315 | 38,916 | 8,942 | 192 | 602 | 2,349 | 5,799 | 29,974 | 5,343 | 19,883 | 4,748 | 4,211 |
| Metroparks, RTA, Sheriff | | 295 | 93 | 1 | 4 | 42 | 46 | 202 | 5 | 189 | 8 | 720 |
| CUYAHOGA TOTAL | 318 | 39,211 | 9,035 | 193 | 606 | 2,391 | 5,845 | 30,176 | 5,348 | 20,072 | 4,756 | 4,931 |

Source: Crime estimates for large communities from OIBRS or Police Reports. Estimates based on 5-yr average. Small communities est'd at 5.

Source: Drug estimate from OIBRS. Estimates for some communities based on 20 drug arrest per 10K population.

Crime, Crime Rates >100 Per 10k Pop & Drug Estimates By City

| City | Crime Rate Per 10K Pop | Total Crime | Violent Crime Total | Murder | Rape | Robbery | Aggrav Assault | Property Crime Total | Burglary | Larceny Theft | Motor Vehicle Theft | Source or Est Basis | Drug Arrests | Source of Drug Est |
|----------------------|------------------------|-------------|---------------------|--------|------|---------|----------------|----------------------|----------|---------------|---------------------|---------------------|--------------|--------------------|
| Cleveland | 677 | 25,785 | 7,094 | 160 | 439 | 1,909 | 4,586 | 18,691 | 4,056 | 11,351 | 3,284 | OIBRS | 1448 | OIBRS |
| Brooklyn | 481 | 512 | 12 | 0 | 0 | 5 | 7 | 500 | 33 | 435 | 32 | OIBRS | 68 | OIBRS |
| Warrensville Heights | 401 | 526 | 132 | 2 | 4 | 21 | 105 | 394 | 33 | 209 | 152 | Police | 26 | 20per10K |
| Euclid | 356 | 1,656 | 267 | 5 | 20 | 62 | 180 | 1,389 | 206 | 956 | 227 | OIBRS | 27 | OIBRS |
| Beachwood | 350 | 406 | 23 | 0 | 3 | 7 | 13 | 383 | 15 | 348 | 20 | OIBRS | 84 | OIBRS |
| Garfield Heights | 324 | 890 | 205 | 4 | 13 | 44 | 144 | 685 | 103 | 579 | 3 | OIBRS | 31 | OIBRS |
| South Euclid | 281 | 599 | 80 | 0 | 7 | 21 | 52 | 519 | 38 | 445 | 36 | OIBRS | 8 | OIBRS |
| East Cleveland | 275 | 467 | 116 | 4 | 5 | 66 | 41 | 351 | 117 | 112 | 122 | Est-5yr Avg | 37 | OIBRS |
| Brooklyn Heights | 234 | 35 | 0 | 0 | 0 | 0 | 0 | 35 | 8 | 23 | 4 | Est-5yr Avg | 3 | 20per10K |
| Independence | 229 | 164 | 23 | 0 | 4 | 8 | 11 | 141 | 6 | 123 | 12 | OIBRS | 29 | OIBRS |
| Bedford Heights | 208 | 218 | 47 | 3 | 1 | 7 | 36 | 171 | 17 | 116 | 38 | Police | 10 | OIBRS |
| Brook Park | 195 | 359 | 14 | 0 | 5 | 5 | 4 | 345 | 20 | 285 | 40 | Police | 3 | OIBRS |
| Richmond Heights | 183 | 189 | 19 | 1 | 3 | 5 | 10 | 170 | 16 | 124 | 30 | Police | 63 | OIBRS |
| Linddale | 178 | 3 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 2 | 0 | Est Tot=5 | 1 | OIBRS |
| Maple Heights | 176 | 388 | 170 | 1 | 6 | 34 | 129 | 218 | 57 | 93 | 68 | OIBRS | 45 | OIBRS |
| Lakewood | 166 | 826 | 70 | 1 | 10 | 30 | 29 | 756 | 62 | 602 | 92 | OIBRS | 216 | OIBRS |
| Cleveland Heights | 158 | 695 | 131 | 6 | 10 | 21 | 94 | 564 | 64 | 420 | 80 | OIBRS | 180 | OIBRS |
| Parma Heights | 152 | 300 | 51 | 0 | 5 | 2 | 44 | 249 | 30 | 194 | 25 | Police | 125 | OIBRS |
| University Heights | 149 | 191 | 30 | 0 | 5 | 13 | 12 | 161 | 15 | 120 | 26 | Police | 24 | OIBRS |
| Bratenahl village | 147 | 17 | 8 | 0 | 0 | 0 | 8 | 9 | 1 | 8 | 0 | OIBRS | 9 | OIBRS |
| North Olmsted | 138 | 431 | 17 | 1 | 4 | 6 | 6 | 414 | 33 | 341 | 40 | OIBRS | 115 | OIBRS |
| Bedford | 133 | 166 | 12 | 1 | 0 | 5 | 6 | 154 | 11 | 105 | 38 | Police | 18 | OIBRS |
| Lyndhurst | 129 | 172 | 23 | 1 | 3 | 6 | 13 | 149 | 13 | 114 | 22 | OIBRS | 98 | OIBRS |
| Strongsville | 128 | 571 | 9 | 0 | 1 | 4 | 4 | 562 | 27 | 511 | 24 | Police | 160 | OIBRS |
| Highland Heights | 122 | 102 | 4 | 0 | 0 | 2 | 2 | 98 | 5 | 88 | 5 | OIBRS | 13 | OIBRS |
| Parma | 122 | 949 | 165 | 0 | 29 | 28 | 108 | 784 | 117 | 562 | 105 | OIBRS | 651 | OIBRS |
| Walton Hills | 115 | 26 | 1 | 0 | 0 | 0 | 1 | 25 | 6 | 17 | 2 | Est-5yr Avg | 11 | OIBRS |
| Chagrin Falls | 109 | 43 | 0 | 0 | 0 | 0 | 0 | 43 | 3 | 31 | 9 | OIBRS | 10 | OIBRS |
| Shaker Heights | 105 | 285 | 26 | 1 | 6 | 4 | 15 | 259 | 56 | 167 | 36 | Police | 9 | OIBRS |
| Mayfield Heights | 104 | 192 | 17 | 0 | 1 | 7 | 9 | 175 | 5 | 163 | 7 | OIBRS | 26 | OIBRS |
| Westlake | 101 | 323 | 14 | 0 | 4 | 5 | 5 | 309 | 28 | 237 | 44 | Police | 64 | 20per10K |

Crime, Crime Rates <100 Per 10k Pop & Drug Estimates By City

| City | Crime Rate Per 10K Pop | Total Crime | Violent Crime Total | Murder | Rape | Robbery | Aggrav Assault | Property Crime Total | Burglary | Larceny Theft | Motor Vehicle Theft | Source or Est Basis | Drug Arrests | Source of Drug Est |
|---------------------|------------------------|---------------|---------------------|------------|------------|--------------|----------------|----------------------|--------------|---------------|---------------------|---------------------|--------------|--------------------|
| Berea | 92 | 172 | 24 | 0 | 2 | 9 | 13 | 148 | 17 | 125 | 6 | OIBRS | 36 | OIBRS |
| Mayfield Village | 90 | 30 | 0 | 0 | 0 | 0 | 0 | 30 | 0 | 29 | 1 | Police | 7 | 20per10K |
| Bay Village | 90 | 136 | 6 | 0 | 1 | 0 | 5 | 130 | 8 | 106 | 16 | OIBRS | 32 | OIBRS |
| Cuyahoga Heights | 82 | 5 | 0 | 0 | 0 | 0 | 0 | 5 | 1 | 4 | 0 | Est Tot=5 | 1 | 20per10K |
| Pepper Pike | 79 | 50 | 5 | 0 | 0 | 0 | 5 | 45 | 6 | 33 | 6 | OIBRS | 19 | OIBRS |
| Solon | 76 | 174 | 11 | 0 | 2 | 1 | 8 | 163 | 15 | 138 | 10 | OIBRS | 83 | OIBRS |
| Valley View | 75 | 15 | 0 | 0 | 0 | 0 | 0 | 15 | 4 | 10 | 1 | Est-2021 OIBRS | 1 | OIBRS |
| North Royalton | 74 | 223 | 52 | 0 | 4 | 2 | 46 | 171 | 24 | 133 | 14 | OIBRS | 143 | OIBRS |
| Newburgh Heights | 73 | 15 | 0 | 0 | 0 | 0 | 0 | 15 | 4 | 10 | 1 | Est-Oakwood | 4 | 20per10K |
| Fairview Park | 71 | 115 | 12 | 0 | 0 | 4 | 8 | 103 | 8 | 92 | 3 | OIBRS | 27 | OIBRS |
| Oakwood | 69 | 25 | 8 | 0 | 1 | 1 | 6 | 17 | 2 | 6 | 9 | Police | 7 | 20per10K |
| Orange | 67 | 22 | 2 | 0 | 0 | 0 | 2 | 20 | 3 | 15 | 2 | Police | 7 | 20per10K |
| Middleburg Heights | 67 | 104 | 5 | 1 | 1 | 2 | 1 | 99 | 6 | 73 | 20 | Police | 87 | OIBRS |
| Bentleyville | 59 | 5 | 0 | 0 | 0 | 0 | 0 | 5 | 1 | 4 | 0 | Est Tot=5 | 2 | OIBRS |
| Woodmere | 59 | 5 | 0 | 0 | 0 | 0 | 0 | 5 | 1 | 4 | 0 | Est Tot=5 | 2 | 20per10K |
| Seven Hills | 54 | 63 | 5 | 0 | 1 | 1 | 3 | 58 | 12 | 30 | 16 | OIBRS | 17 | OIBRS |
| Glenwillow | 54 | 5 | 0 | 0 | 0 | 0 | 0 | 5 | 1 | 4 | 0 | Est Tot=5 | 1 | OIBRS |
| North Randall | 51 | 5 | 0 | 0 | 0 | 0 | 0 | 5 | 1 | 4 | 0 | Est Tot=5 | 2 | 20per10K |
| Hunting Valley | 50 | 3 | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 1 | 0 | OIBRS | 1 | 20per10K |
| Brecksville | 46 | 63 | 2 | 0 | 0 | 0 | 2 | 61 | 2 | 54 | 5 | OIBRS | 11 | OIBRS |
| Highland Hills | 42 | 4 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 3 | 1 | Est-5yr Avg | 7 | OIBRS |
| Gates Mills | 41 | 9 | 0 | 0 | 0 | 0 | 0 | 9 | 4 | 5 | 0 | Est-2021 OIBRS | 3 | OIBRS |
| Rocky River | 39 | 78 | 13 | 0 | 1 | 2 | 10 | 65 | 6 | 55 | 4 | Police | 30 | OIBRS |
| Olmsted Township | 31 | 41 | 3 | 0 | 0 | 0 | 3 | 38 | 6 | 29 | 3 | OIBRS | 3 | OIBRS |
| Olmsted Falls | 27 | 24 | 2 | 0 | 1 | 0 | 1 | 22 | 5 | 14 | 3 | OIBRS | 4 | OIBRS |
| Moreland Hills | 21 | 7 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 7 | 0 | Police | 7 | 20per10K |
| Broadview Heights | 17 | 32 | 12 | 0 | 0 | 0 | 12 | 20 | 2 | 14 | 4 | OIBRS | 55 | OIBRS |
| TOTAL Cities | 315 | 38,916 | 8,942 | 192 | 602 | 2,349 | 5,799 | 29,974 | 5,343 | 19,883 | 4,748 | TOTAL | 4,211 | TOTAL |

Source: Crime estimates for large communities from OIBRS or Police Reports. Estimates based on 5-yr OIBRS average. Six small communities est'd at 5.

Source: Drug estimate from OIBRS. Estimates for some communities based on 20 drug arrest per 10K population.

Appendix 2: Estimating the Cost of Major Crimes

Crime has tangible & intangible costs:

- Victim Costs -Medical, Mental Health, Property & Productivity
- Police, Court & Incarceration Costs
- Loss of Perpetrator Income Due to Life of Crime
- Quality of Life Impacts
- Opportunity Costs of Activities Curtailed by Crime

Miller & Cohen Good Example of Methodology Applied to Estimate Total Cost of Crime in Cuyahoga County

Sample Sources: Crime Cost Data

Appendix Table 2
Source of Data for Crime Costs

| Cost Category | Source | Notes |
|-------------------------------------|---|---|
| Medical | 2010-18 NCVS; 2014 Healthcare Cost and Utilization Program (HCUP)) | Distribution of injuries taken from NCVS; costs estimated by applying methodology in Zonfrillo et al. (2018) to HCUP data |
| Mental Health | Cohen and Miller (1998) | Based on 1993 survey of mental health care providers; limited types of crimes |
| Productivity | 2014 HCUP | Costs estimated by applying methodology in Zonfrillo et al. (2018) and Miller et al. (1996) to HCUP data |
| Property loss | Miller, Cohen & Weirsema (1996); Harrell (2019); Fraud from NIJ survey (Titus et al., 1994); see text for Vandalism | Identity theft from NCVS (Harrell, 2019); Fraud from NIJ survey (Titus et al., 1994); Vandalism from several studies discussed in text. |
| Public Services | | |
| Police | Hunt et al. (2019) | Estimate of police cost per reported crime. |
| Emergency Services | Miller et al. (1993) | Estimate of emergency transport services for victims of rape, robbery, assault, arson and murder |
| Victim assistance | Miller, Cohen and Wiersema (1996) | Based on ratio of non-NCVS to NCVS reported cases |
| Adjudication and Sanctioning | | |
| Courts | Hunt et al. (2017) | Estimate of courts, judges, juries, and indigent defense per reported crime |
| Corrections | McCollister et al. (2010) | Based on methodology from Miller et al. (1996) |
| Perpetrator work loss | McCollister et al. (2010) | Based on methodology from Miller et al. (1996) |
| Quality of Life | Miller et al. (2017) | Miller et al. (2017) for rape, assault, robbery |

Sources: US crimes: Miller, Cohen, Swedler, Ali & Hendrie, Incidence & Cost of Personal & Property Crimes in the US, 2017 (Aug 2020).

Table 4. Costs to Victims and Victims' Families/Friends

| COST | DEFINITION/ EXAMPLES | SAMPLE DATA SOURCES |
|---|---|--|
| Property loss | Losses of property not reimbursed by insurance or victim compensation | NCVS, UCR, victim service provider data |
| Physical healthcare (immediate and long term) | Emergency treatment, other medical care expenses not covered by insurance or reimbursed by victim compensation | Medical records, hospital data, insurance records re. non-covered expenses, NCVS |
| Mental healthcare | Psychological or psychiatric care or treatment, counseling expenses not covered by insurance or reimbursed by victim compensation. Includes effects of specialized mental healthcare not being available, thus exacerbating later costs; and care for primary, secondary, and tertiary victims, intergenerational costs | Medical records, victim service provider records, insurance records re. noncovered expenses, NCVS, hospital data, SAMHSA |
| Security expenditures | Alarm system, door/window locks, etc. | Consumer Reports, trade association data, NCVS |
| Repeat victimization avoidance behaviors | Moving, relocating, altering transportation mode/patterns (commutes, types of work, level of societal engagement, etc.) | Dept. of Transportation, real estate sales, rental statistics, Victim Comp/Assistance data, service provider data, NCVS |
| Lost wages | Workdays off during recovery, from lost childcare due to victimization, or to attend court proceedings, etc. | Department of Labor, NCVS |
| Lost school days | Immediate days lost, impact of lost school time on future academic trajectory and future earnings potential. Includes college/university (lost days, drop out, or decision not to pursue) | School/Truancy records, post-graduation placement records, NCVS |
| Household services, childcare, and elder care | Household services, childcare, and eldercare service costs, esp. for primary caretaker victims who can no longer provide the services they provided prior to victimization | National Partnership for Women and Families, Victim comp in states that cover child care, NCVS |
| Pain and suffering | Physical/mental pain and suffering, lost quality of life, increased suicide risk | QALY, ⁵ DALY, ⁶ jury award data. |
| Lost quality of life | Long term loss of affect/enjoyment of life | QALY; DALY, jury award data. |

Source: Lugo & Przybylski, Estimating the Financial Costs of Crime Victimization (2019), Funded by Office of Justice Programs' National Criminal Justice Reference Service

Appendix 2: Cost Per Crime Estimates (2020 Dollars)

| Miller-Cohen Cost Per Crime Estimates (\$2020) | | | | | | | | | |
|---|------------------------|------------------------------|-----------------------------|------------------------------|--|--------------------------------------|--------------------------------------|--------------------------------|----------------------|
| Type of Crime | Medical Cost per Crime | Mental Health Cost per Crime | Productivity Cost per Crime | Property Loss Cost per Crime | Public Serv (Police, EMS) Cost per Crime | Adjudication & Sanctioning per Crime | Perpetrator Work Loss Cost per Crime | Quality of Life Cost per Crime | Total Cost per Crime |
| Murder | \$13,525 | \$12,719 | \$1,942,014 | \$209 | \$158,060 | \$507,712 | \$188,897 | \$5,470,188 | \$8,293,323 |
| Rape | \$3,540 | \$6,907 | \$7,623 | \$187 | \$957 | \$47,429 | \$19,550 | \$339,449 | \$425,642 |
| Robbery | \$2,080 | \$208 | \$4,927 | \$1,365 | \$1,403 | \$14,639 | \$6,296 | \$15,565 | \$46,482 |
| Assault | \$2,220 | \$428 | \$2,434 | \$84 | \$4,583 | \$6,555 | \$2,428 | \$22,460 | \$41,189 |
| Burglary | \$0 | \$0 | \$41 | \$3,061 | \$618 | \$993 | \$989 | \$0 | \$5,702 |
| Larceny/Theft | \$0 | \$0 | \$33 | \$1,117 | \$957 | \$2,729 | \$240 | \$0 | \$5,076 |
| Motor Vehicle Theft | \$0 | \$0 | \$125 | \$7,667 | \$759 | \$2,086 | \$815 | \$0 | \$11,452 |
| Sources: Most cost estimates from Miller, Cohen, Swedler, Ali & Hendrie, <i>Incidence & Cost of Personal & Property Crimes in the US, 2017</i> (Aug 2020). See source for methodology | | | | | | | | | |
| Notes: Victim cost estimates for medical costs & lost productivity are based on data from hospital admissions, emergency room visits, mental health activity adjusted to lifetime | | | | | | | | | |
| Notes: Property cost estimate based on NCVS survey data. | | | | | | | | | |
| Note: Estimate for police, EMS public services based on Hunt, Anderson & Sanders, <i>The Price of Justice</i> (2017) with costs updated to 2020 | | | | | | | | | |
| Note: Estimate for Adjudication & Sanctioning and for Perpetrator Work Loss from Miller, Cohen et al., <i>Incidence & Cost</i> (2020). | | | | | | | | | |
| Note: Estimate for Quality of Life from Miller, Cohen et al., <i>The Price of Justice</i> (2020) and are based on analysis of jury injury awards. | | | | | | | | | |
| Note: 2017 to 2020 Adjustment | | 1.062 | | | | | | | |

Victim Cost of Crime is \$518.4 Million (\$420 Per Capita)

Victim Costs include medical, mental health, personal productivity & property losses

Sample Application: Miller-Cohen- Victim Cost Per Crime (\$2020)

| Type of Crime | Cuyahoga Crime | Medical Cost per Crime | Mental Health Cost per Crime | Productivity Cost per Crime | Property Loss Cost per Crime | Victim Cost per Crime | Cuyahoga Victim Crime Cost | Victim Cost Per Capita |
|---------------------|----------------|------------------------|------------------------------|-----------------------------|------------------------------|-----------------------|----------------------------|------------------------|
| Murder | 193 | \$13,525 | \$12,719 | \$1,942,014 | \$209 | \$1,968,467 | \$379,914,100 | \$308 |
| Rape | 606 | \$3,540 | \$6,907 | \$7,623 | \$187 | \$18,257 | \$11,063,700 | \$9 |
| Robbery | 2,391 | \$2,080 | \$208 | \$4,927 | \$1,365 | \$8,580 | \$20,514,800 | \$17 |
| Assault | 5,845 | \$2,220 | \$428 | \$2,434 | \$84 | \$5,166 | \$30,195,300 | \$24 |
| Burglary | 5,348 | \$0 | \$0 | \$41 | \$3,061 | \$3,102 | \$16,589,500 | \$13 |
| Larceny/Theft | 20,072 | \$0 | \$0 | \$33 | \$1,117 | \$1,150 | \$23,082,800 | \$19 |
| Motor Vehicle Theft | 4,756 | \$0 | \$0 | \$125 | \$7,667 | \$7,792 | \$37,058,800 | \$30 |
| Total | 39,211 | | | | | | \$518,419,000 | \$420 |

Societal/QOL Cost of Crime is \$2.4 Billion (\$1,941 Per Capita)

- Tangible societal costs include **public services** to investigate, adjudicate & punish crime.
- **Perpetrator work losses** are societal costs (foregone benefits) that result from criminals choosing to engage in illegal activity rather than legal & productive work.
- **QOL costs** recognize the fact that costs to victims go beyond the tangible costs they bear. They may be based on jury awards that compensate victims for pain and suffering or governmental measures to prevent death or injury from accidental or criminal activity.

Sample Application: Miller-Cohen- Societal & QOL Cost Per Crime (\$2020)

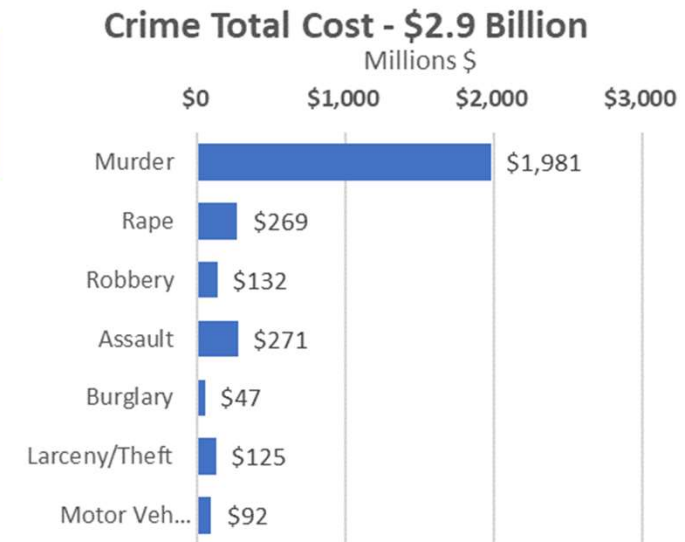
| Type of Crime | Cuyahoga Crime | Public Serv (Police, EMS) Cost per Crime | Adjudication & Sanctioning per Crime | Perpetrator Work Loss Cost per Crime | Quality of Life Cost per Crime | Societal & QOL Cost per Crime | Cuyahoga Societal/QOL Crime Cost | Societal/ QOL Cost Per Capita |
|---------------------|----------------|--|--------------------------------------|--------------------------------------|--------------------------------|-------------------------------|----------------------------------|-------------------------------|
| Murder | 193 | \$158,060 | \$507,712 | \$188,897 | \$5,470,188 | \$8,293,323 | \$1,600,611,300 | \$1,296 |
| Rape | 606 | \$957 | \$47,429 | \$19,550 | \$339,449 | \$425,642 | \$257,939,100 | \$209 |
| Robbery | 2,391 | \$1,403 | \$14,639 | \$6,296 | \$15,565 | \$46,482 | \$111,138,500 | \$90 |
| Assault | 5,845 | \$4,583 | \$6,555 | \$2,428 | \$22,460 | \$41,189 | \$240,749,700 | \$195 |
| Burglary | 5,348 | \$618 | \$993 | \$989 | \$0 | \$5,702 | \$30,494,300 | \$25 |
| Larceny/Theft | 20,072 | \$957 | \$2,729 | \$240 | \$0 | \$5,076 | \$101,885,500 | \$82 |
| Motor Vehicle Theft | 4,756 | \$759 | \$2,086 | \$815 | \$0 | \$11,452 | \$54,465,700 | \$44 |
| Total | 39,211 | | | | | | \$2,397,284,100 | \$1,941 |

Total Cost of Cuyahoga Crime is \$2.9 Billion (\$2,361 Per Capita)

Estimate is based on Miller-Cohen Methodology & Crime Cost Estimates.

Sample Application: Miller-Cohen- Total Cost Per Crime (\$2020)

| Type of Crime | Cuyahoga Crime | Cuyahoga Victim Crime Cost | Cuyahoga Societal/QOL Crime Cost | Cuyahoga Crime Total Cost | Total Per Capita Cost |
|-----------------|----------------|----------------------------|----------------------------------|---------------------------|-----------------------|
| Murder | 193 | \$379,914,100 | \$1,600,611,300 | \$1,980,525,400 | \$1,604 |
| Rape | 606 | \$11,063,700 | \$257,939,100 | \$269,002,800 | \$218 |
| Robbery | 2,391 | \$20,514,800 | \$111,138,500 | \$131,653,300 | \$107 |
| Assault | 5,845 | \$30,195,300 | \$240,749,700 | \$270,945,000 | \$219 |
| Burglary | 5,348 | \$16,589,500 | \$30,494,300 | \$47,083,800 | \$38 |
| Larceny/Theft | 20,072 | \$23,082,800 | \$101,885,500 | \$124,968,300 | \$101 |
| Motor Veh Theft | 4,756 | \$37,058,800 | \$54,465,700 | \$91,524,500 | \$74 |
| Total | 39,211 | \$518,419,000 | \$2,397,284,100 | \$2,915,703,100 | \$2,361 |



Appendix 3: Public Sector's Cost of Handling Crime: Spending on Police and EMS, The Courts and Incarceration

Several Public Data Sources Confirm that Public Safety is a Major Function of City and County Governments

- From BLS, Quarterly Survey of Employment & Wages: Local Crime Spending: Crime Prevention & Control Represent About 60% of Local & Cuyahoga Co. Government Employment & Wages
- From City Audited Reports: City Governments in Cuyahoga Co. Spent \$641 Million (\$530 Per Capita) on Security
- From the Cuyahoga County Budget: Cuyahoga Co. Government departments (\$340 Per Capita) Spent \$419 Million on Safety-Related Departments

Local Crime Spending: Crime Prevention & Control Represent About 60% of Local & Cuyahoga Co. Government Employment & Wages

- Public safety is major local government cost.
- Over 11,000 employees were employed in 161 justice, public order & safety establishments in Cuyahoga County in 2020.
- Total Wages were \$763 million in 2020. (\$618 per capita)
- Justice, public order & safety employment represents 59% of all public administration employment and 64% of all wages.
- Not all time spent by justice, public order & safety employees is spent on crime control.

| Cuyahoga Co. Justice, Public Order & Safety Activities | | | | |
|--|----------------|---------------|-----------------|---------------|
| Establishments, Employment & Wages (\$Mil) (2020) | | | | |
| Year | Establishments | Employment | Wages (\$Mil) | Per Capita |
| Police protection | 41 | 5,326 | \$ 379.0 | \$ 307 |
| Fire protection | 38 | 2,458 | \$ 203.6 | \$ 165 |
| Courts | 26 | 2,339 | \$ 112.8 | \$ 91 |
| Legal counsel & prosecution | 33 | 738 | \$ 44.9 | \$ 36 |
| Correctional institutions | 11 | 292 | \$ 14.7 | \$ 12 |
| Other justice & safety activities | 12 | 130 | \$ 8.2 | \$ 7 |
| Justice, public order & safety activities Total | 161 | 11,283 | \$ 763.1 | \$ 618 |
| All Public Administration | 396 | 19,083 | \$ 1,189.2 | \$ 964 |
| %Empl Justice, public order & safety activities | 41% | 59% | 64% | |
| Source: BLS, Quarterly Census of Employment & Wages | | | | |

Local Crime Spending: Audit Data Shows City Governments in Cuyahoga Co. Spent \$641 Million (\$530 Per Capita) on Security

Median city government spent 50% of total general fund revenue on security.

Cuyahoga City Government Expenditures on Security (2020)

| Entity Name | Pop | Genl Fund Security Exp Persons & Prop | Per Capita Security | % Security of Tot Exp | Entity Name | Pop | Genl Fund Security Exp Persons & Prop | Per Capita Security | % Security of Tot Exp |
|---|---------|---------------------------------------|---------------------|-----------------------|---------------------------|------------------|---------------------------------------|---------------------|-----------------------|
| City of Cleveland | 396,815 | \$306,881,000 | \$773 | 60% | City of Brooklyn | 11,169 | \$6,711,000 | \$601 | 48% |
| City of Euclid | 48,920 | \$22,342,000 | \$457 | 60% | City of Parma Hts | 20,045 | \$6,509,000 | \$325 | 58% |
| City of Parma | 79,091 | \$20,173,000 | \$255 | 47% | City of North Royalton | 30,252 | \$5,292,000 | \$175 | 43% |
| City of Beachwood | 11,953 | \$19,406,000 | \$1,624 | 48% | City of Berea | 18,788 | \$5,283,000 | \$281 | 35% |
| City of Lakewood | 52,131 | \$18,462,000 | \$354 | 44% | City of Fairview Park | 16,826 | \$4,984,000 | \$296 | 53% |
| City of Solon | 22,911 | \$16,159,000 | \$705 | 42% | City of Bay Village | 15,040 | \$4,930,000 | \$328 | 44% |
| City of Shaker Hts | 28,448 | \$15,611,000 | \$549 | 41% | City of Brecksville | 14,518 | \$4,850,000 | \$334 | 21% |
| City of Strongsville | 44,750 | \$15,568,000 | \$348 | 62% | City of Maple Hts | 22,078 | \$4,725,000 | \$214 | 57% |
| City of Cleveland Hts | 46,121 | \$15,111,000 | \$328 | 37% | City of Broadview Hts | 19,195 | \$4,484,000 | \$234 | 32% |
| City of Mayfield Hts | 19,155 | \$12,901,000 | \$674 | 62% | Village of Oakwood | 3,668 | \$4,318,000 | \$1,177 | 51% |
| City of North Olmsted | 32,718 | \$12,835,000 | \$392 | 60% | City of Richmond Hts | 10,546 | \$3,492,000 | \$331 | 46% |
| City of Westlake | 32,729 | \$10,123,000 | \$309 | 37% | Village of Brooklyn Hts | 1,550 | \$3,160,000 | \$2,039 | 54% |
| City of Warrensville Hts | 13,542 | \$9,691,000 | \$716 | 20% | City of East Cleveland | 16,964 | \$3,072,000 | \$181 | 35% |
| City of Brook Park | 18,617 | \$8,795,000 | \$472 | 49% | Village of Chagrin Falls | 4,113 | \$2,588,000 | \$629 | 46% |
| City of Middleburg Hts | 15,946 | \$8,781,000 | \$551 | 46% | City of Pepper Pike | 6,269 | \$2,393,000 | \$382 | 39% |
| City of University Hts | 13,539 | \$8,698,000 | \$642 | 66% | City of Seven Hills | 11,795 | \$2,106,000 | \$179 | 31% |
| City of Independence | 7,175 | \$8,304,000 | \$1,157 | 37% | City of Bedford | 12,289 | \$2,001,000 | \$163 | 19% |
| City of Rocky River | 19,986 | \$8,244,000 | \$412 | 58% | City of Olmsted Falls | 8,883 | \$1,630,000 | \$183 | 39% |
| City of South Euclid | 21,572 | \$8,024,000 | \$372 | 49% | City of Bedford Hts | 10,565 | \$809,000 | \$77 | 12% |
| Village of Mayfield | 3,372 | \$7,351,000 | \$2,180 | 50% | Village of Moreland Hills | 3,306 | \$0 | \$0 | 0% |
| City of Lyndhurst | 13,366 | \$7,177,000 | \$537 | 52% | Cuyahoga Totals | | \$641,078,000 | \$530 | 50% |
| City of Highland Hts | 8,390 | \$7,104,000 | \$847 | 57% | Per Capita | 1,209,106 | \$530 | | |
| Source: Ohio Auditor, 2020 Hinkel Reports | | | | | | | | | |

Local Crime Spending: Budget Data Shows Cuyahoga Co. Government (\$340 Per Capita) Spent \$419 Million on Safety-Related Departments

- Major expenditures were by sheriff & county executive agencies (\$169 million), courts (\$212 million) & health & human services (\$212 million).
- About 30% of county budget was devoted to safety-related issues.
- About 40% of total full-time employees were connected to safety-related departments.

| County Exec Agencies- Safety | 2021 Adopted Budget |
|--|------------------------|
| Sheriff's Department | 146,014,000 |
| Public Safety and Justice Services | 10,208,000 |
| Clerk of Courts | 9,047,000 |
| Law Department | 3,984,000 |
| Safety - County Executive Agencies | \$169,253,000 |
| Courts & Public Defender- Safety | 2021 Adopted Budget |
| Juvenile Court | 62,286,000 |
| Court of Common Pleas | 59,790,000 |
| Office of the Prosecutor | 45,289,000 |
| Domestic Relations Court | 10,622,000 |
| Probate Court | 7,676,000 |
| Community Based Correctional Facility | 5,310,000 |
| Municipal Courts | 3,741,000 |
| Court of Appeals | 967,000 |
| Domestic Violence | 489,000 |
| Office of the Public Defender | 15,970,000 |
| Safety- Elected Officials | \$212,140,000 |
| Health & Human Serv Levy- Safety | 2021 Adopted |
| TASC HHS - Alternatives to Crime | 543,000 |
| Cuyahoga Support Enforcement | 10,634,000 |
| Family Justice Center | 237,000 |
| Reentry | 2,463,000 |
| Detention Center - Special Revenue | 21,719,000 |
| Witness Victim HHS | 2,064,000 |
| Sheriff - Mental Health Services HHS | 0 |
| SAFETY HEALTH & HUMAN SERV LEVY SUB | \$37,660,000 |
| TOTAL COUNTY GOVT SAFETY-RELATED EXPENDITURES | \$419,053,000 |
| PER CAPITA COUNTY GOVT SAFETY-RELATED EXP | \$340 |
| TOTAL OPERATING EXPENDITURES | \$1,401,986,000 |
| % of TOTAL EXPENDITURES | 30% |

Source: Cuyahoga County 2020-21 Budget

| Department | 2020 Current Budget |
|---|---------------------|
| County Sheriff | 1,135 |
| Cuyahoga Support Enforcement | 285 |
| Clerk of Courts | 104 |
| Public Safety & Justice Services | 67 |
| County Law Department | 19 |
| HHS Office of Reentry | 5 |
| Total County Exec- Safety Agencies | 1,615 |
| Courts & Public Defender | |
| Juvenile Court | 519 |
| Court of Common Pleas | 516 |
| County Prosecutor | 401 |
| Domestic Relations Court | 88 |
| Probate Court | 78 |
| Municipal Judicial Courts | 65 |
| Public Defender | 136 |
| Total Courts & Public Defender | 1,803 |
| SAFETY STAFFING-FTEs | 3,418 |
| TOTAL STAFFING-FTEs | 7,242 |
| % OF TOTAL FTEs | 47% |

Source: Cuyahoga County 2020-21 Budget

Appendix 4: Effective Strategies to Reduce Crime Exist

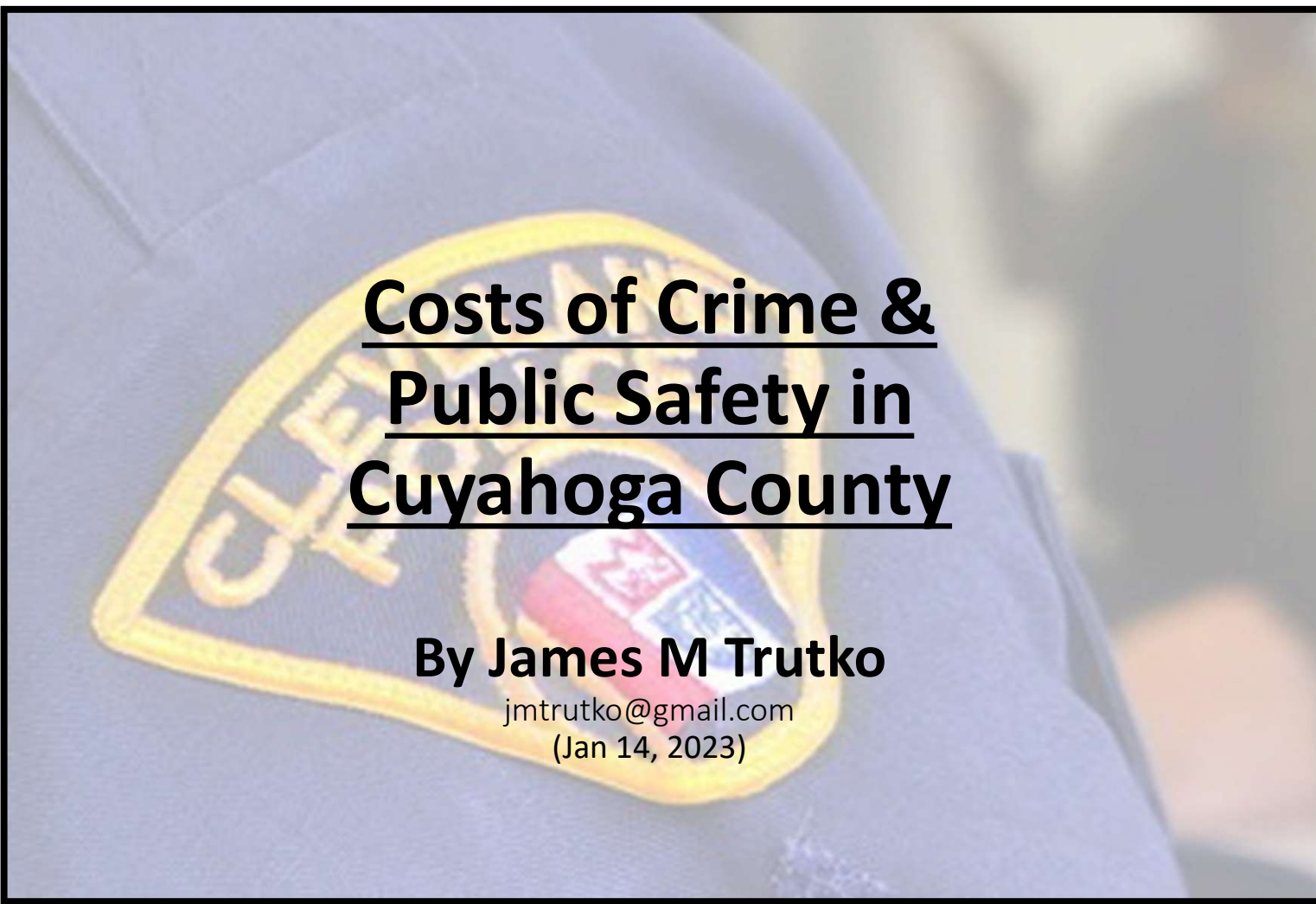
Potential Effectiveness, Implementation & Costs Need Professional Evaluation

POLICE-BASED STRATEGIES

- **“Hot spots” policing** focuses resources on small geographic locations where crime is concentrated by proactively increasing police patrols (by car or by foot), or through police crackdowns.
- **Stop-question-frisk (SQF) programs** rely upon the legal authority granted by court decisions to engage in frequent stops in which suspects are questioned about their activities, frisked, and often searched.
- **Broken windows policing** intends to disrupt the forces of disorder by informal enforcement tactics (warnings, rousting disorderly people) to formal or more intrusive ones (arrests, citations).
- **Third-party policing** involves police persuading or property owners, business owners, public housing agencies, and other organizations to take some responsibility for preventing crime or reducing crime problems.
- **Use of Closed circuit television (CCTV)** work to increase an offender’s perceived risk of being identified or apprehended for criminal activity.
- **Predictive policing** uses sophisticated computer algorithms to predict changing patterns of future crime, and to identify the exact locations where specific types of crimes are likely to occur next.

COMMUNITY-ORIENTED STRATEGIES

- **Focused deterrence strategies** attempt to deter crime among repeat offenders by understanding underlying crime-producing dynamics and implementing a blended strategy of law enforcement, community mobilization, and social service actions in response.
- **Community-oriented policing** involves citizens in identifying and addressing public safety concerns, decentralizes decision making to develop responses to those concerns, and works to solve them.
- **Procedural justice policing** seeks to impress upon citizens and the wider community that the police exercise their authority in legitimate ways, with the expectation that if citizens accord legitimacy to police activity, they are more inclined to collaborate with police and abide by laws.
- **Problem-oriented policing** seeks to identify and analyze the underlying causes of crime problems and to respond using a wide variety of methods and tactics, from improving lighting and repairing fences to cleaning up parks and improving recreational opportunities for youth.
- **Place Network Investigations** involves coordinating with other agencies to identify and disrupt networks of criminogenic places that disproportionately contribute to violent crime in because they are used by individuals and criminal networks to facilitate crime.



**Costs of Crime &
Public Safety in
Cuyahoga County**

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(Jan 14, 2023)