

The Impact of Digital Evidence on Baltimore City Office of the Public Defender Felony Unit Caseloads

An Analysis of How the Increasing Prevalence of Digital Evidence Review
Requires a New State-wide Workload Assessment

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FINAL REPORT

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I. Summary

This collaboration between the Baltimore City Office of the Public Defender (OPD) and the Legal Data and Design Clinic (LDDC) formally began on January 1, 2020. The OPD had requested the assistance of the LDDC to update its caseload standards, last updated in 2005, “to better reflect the work effort required in today’s public defender practice and to respond to a request from the Department of Budget and Management.”¹ Since a full-blown 18-month long workload study in the mode of the 2005 study was beyond the capacity of a student-run legal clinic, OPD and LDDC agreed instead to conduct a pilot study (“the Pilot Study”) that could provide provisional results and a blueprint for further study.

The primary impetus for the Pilot Study was to examine the qualitative and quantitative impact of the proliferation of digital evidence such as body-worn camera footage, security camera footage, and smart phone data on typical OPD felony-unit attorneys. The limited duration and scope of the study required that this report not be framed as a “workload study”, which analyzes how long particular types of cases typically take to resolve and calculates numbers of attorneys needed to cover workload across an entire public defender system. Rather this report is a snapshot “caseload study”, which analyzes how representative attorneys allocate their time during a typical period in order to move their dockets forward. This gives a sense of how the public defender job has changed since 2005 and can serve as a prelude to, and call for, a more comprehensive workload inquiry.

The Pilot Study had originally been slated to commence in 2020 but was postponed in light of the COVID-19 pandemic and the closing of Maryland courts. The LDDC and OPD agreed to resume the Pilot Study in 2022. After a two-week informal “beta” period in January 2022, and another delay due to court closures stemming from the Omicron variant, the Pilot Study formally began on February 21, 2022. Three Baltimore City felony unit attorneys participated in the study for the next eight weeks. The study period ended on April 15, 2022.

This report details the contours of the Pilot study including how data was collected, cleaned, and subjected to quality control. The report then provides comprehensive analysis of its results including on the significant impact digital evidence review has had on OPD attorney caseloads. Among the major findings are:

- During the 8-week Pilot Study, OPD Participating Attorneys spent a total of 10,445 minutes, or 174 hours and 5 minutes, on digital evidence review. This means that OPD Participating Attorneys spent an average of 90 minutes, or 1.5 hours, per day on digital evidence review, which is approximately 19% of their 8-hour workday.
- OPD provided digital discovery for the LDDC to catalog in 71 cases that OPD Participating Attorneys worked on during the study period. OPD Participating Attorneys conducted digital review of evidence in 37 of these cases during the study period. Although they worked on the other 34 cases during the study period, this work did not include digital evidence review.

¹ See 2020 Memorandum of Understanding Between the University of Baltimore School of Law and the Maryland Office of the Public Defender. See also 2022 Memorandum of Understanding Between the University of Baltimore School of Law and the Maryland Office of the Public Defender.

- In the 71 cases that had digital evidence reviewed by the LDDC, there was 3186 videos, 554 PDFs, and 72,629 images. The total duration of the 3186 videos amounted to 29,806 minutes, or 20 days, 16 hours, and 46 minutes. The total number of pages within the 554 PDFs was 68,244. The 72,629 images were the equivalent of approximately 17.71 gigabytes in total.

The LDDC hopes that the findings in this report will assist the OPD in responding to the request from the Department of Budget and Management by providing evidence that the workload standards established in 2005 are long outdated and require an update.

II. Acknowledgements.

The LDDC would like to express our sincere appreciation to Gregg Fischer, Chief of the OPD's Baltimore City Felony Unit, who has been invaluable in his guidance, access, and assistance throughout the entirety of the Pilot Study. The LDDC would like to recognize OPD attorneys Megan Lewis, Karyn Meriwether, and Shomari Taylor, who were kind enough to take on the additional work of participating in the Pilot Study on top of their substantial workload, and who were extremely diligent in documenting their time over the course of 10 weeks. The LDDC would like to also recognize OPD paralegal Cara Ashburn for organizing all the digital discovery we utilized for this study. The LDDC also thanks Emma Farber, our Data Science consultant, who provided incalculable guidance throughout our data analysis. Lastly, we would like to thank former LDDC Teaching Fellow Alexandra Smith and LDDC student attorneys Andrew Cummings, Elizabeth Strunk, and Jose Zelada, for their hard work in creating the Pilot Study Plan in 2020.

III. Background and Method.

A. 2005 Maryland Attorney and Staff Workload Assessment.

Maryland's existing workload standards were last assessed in 2005, in a report entitled "Maryland Attorney and Staff Workload Assessment".² The report was a comprehensive, 18-month evaluation of all Public Defenders throughout the state of Maryland. It was commissioned due to a rapid increase in the total number of cases opened in Public Defender district offices. The report notes that between 1994 and 2002, the total number of public defender cases increased 38%.³

The 2005 report focused on workload, rather than caseload. The 2005 report authors stated that a "workload assessment model allows for objective and standardized assessments of resource needs among districts that vary in population and caseload mix."⁴ To achieve a workload assessment model, the authors weighted cases based on several factors to get "an accurate means

² See Maryland Attorney and Staff Workload Assessment, 2005 ("MD 2005 Report"), <https://cdm16501.contentdm.oclc.org/digital/collection/ctadmin/id/414>.

³ MD 2005 Report at pg. 11.

⁴ *Id.* at 12.

to assess the time required to effectively handle different types of cases.”⁵ Case weights were defined as the average amount of time, by case type, an attorney or staff member needs to reasonably represent a client. The following chart contains the final case weight calculations, represented by total minutes, for OPD attorneys in three different settings:

Figure 23:

Final Case Weights for Attorneys in District Offices

Based on FY 2003 Caseload

	Rural	Suburban	Urban
Capital (Death Notice Not Filed)	25,740	25,740	25,740
Capital (Death Notice Filed)	87,840	87,840	87,840
Violent Felony	1,438	1,579	1,528
Non-Violent Felony	827	1,043	645
Homicide	7,087	7,087	5,087
Misd. Jury Trial Demands/Appeals	236	178	238
District Court Criminal	149	147	116
District Court Traffic	100	97	83
Child Support	117	171	156
Juvenile	339	385	466
Juvenile Violation of Probation	35	30	30
Violations of Probation Circuit	90	90	90
Modifications/Sentence Reviews Circuit	120	122	51
Violations of Probation District	45	45	45
Modifications/Sentence Reviews District	88	72	45
Preliminary Hearings District	11	15	5
Drug Treatment Court	N/A	N/A	912

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The study then multiplied each case weight by the number of open cases to get the workload total for a single case type. The total workload, in minutes, was then divided by the total minutes an attorney was expected to work in a single year to arrive at the number of attorneys needed so that OPD was able to satisfy its constitutional requirements. Below is how the 2005 report arrived at their conclusion that 112.3 additional attorneys were necessary for OPD attorneys to best satisfy their constitutional requirements:

⁵ The 2005 report stated that the style of analysis performed “account[s] for varying complexity of different types of cases, and provides an accurate means to assess the time required to effectively handle different types of cases...[t]hat is, it measures workload rather than caseload.” *Id.* at 12.

⁶ *Figure 23: Final Case Weights for Attorneys in District Offices, Id.* at 60.

DISTRICTS	Rural	Suburban	Urban	Total
Attorneys				
Total Workload (minutes)	6,471,710	15,566,837	17,565,090	39,603,637
Attorney Year Value (minutes)	82,680	82,680	76,320	
Implied Need (FTE)	78.3	188.3	230.2	496.7
Actual Number of Attorneys (FTE)	69.5	148.0	166.9	384.4
Difference	8.8	40.3	63.3	112.3

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B. Need for an Updated Study.

In the 17 years since adopting the 2005 report findings, the day-to-day realities of public defender practice has again undergone drastic changes. There has been an exponential increase in digital evidence caused by the rapid development and adoption of technology including body-worn cameras and cell phone tracking. The production of other forms of digital records discovery has also swelled. This type of evidence played little role in the 2005 analysis, which render the report outdated.

The 2005 study broke attorney tasks into separate buckets, or functional areas, such as bail review, general preparation, and legal research. Each of these functional areas contained their own tasks that are unique to the functional area. The functional area called “Investigation and Discovery Activities” (herein “discovery review”) was defined as encompassing the following:

4. **Investigation and Discovery Activities**
 - a. Identifying and conferring with experts
(e.g., forensics)
 - b. Preparation and submission of discovery requests
 - c. Review of records and physical evidence
(e.g., discovery)
 - d. Interacting with state’s attorney re: discovery
 - e. Review NCR and competency evaluations
 - f. Consult with social workers and other professionals
 - g. Direct activities of investigative staff
 - h. Crime scene visits

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Discovery review played a relatively minor role in most cases as reported in 2005. The 2005 study broke down the workload of each case type based upon the different functional areas by percent. These percentages were calculated from the total workload in minutes. As an example, attorneys in urban jurisdictions were expected to spend a total of 645 minutes (approximately 11 hours) to resolve a non-violent felony. Attorneys were supposed to spend 4.3% of this time – 28 minutes – to conduct *all discovery review activities*. For a violent felony, urban jurisdictions were estimated to spend approximately 99 minutes (6.5% of a total of 1528 minutes) on *all discovery review activities*. Below are the complete percentages required per task for all case types for attorneys in an urban setting as presented in 2005:

⁷ Figure 11: Attorney and Staff Need, *Id.* at 33.

⁸ Appendix 1: Trial Attorneys in District Offices—Case Types, Functional Areas, Non-Case-Related Tasks, *Id.* at 70.

ATTORNEYS — URBAN	Capital Defense	Violent Felony	Non-Violent Felony	Homicide	Misd. Jury Trial Demands/ Appeals	District Court Criminal	District Court Traffic	Child Support	Juvenile	Drug Treatment Court
Bail Reviews/ Detent. Hearings	0.0%	1.2%	0.5%	1.0%	0.2%	5.1%	0.4%	3.5%	3.6%	0.4%
General Preparation	65.7	31.3	29.0	46.8	26.2	30.9	29.4	22.1	28.3	29.4
Client Contact	20.4	13.5	17.1	8.1	13.2	22.8	21.3	18.5	16.7	8.0
Investigation & Disc. Activities	0.0	6.5	4.3	19.8	3.9	2.2	0.9	1.5	2.6	1.0
Legal Research	0.0	5.6	3.5	5.4	3.8	6.3	8.0	8.3	3.8	2.9
Pretrial Hearings	0.0	4.7	6.0	1.4	0.6	1.0	0.6	11.6	7.9	0.2
Negotiating Plea Alternatives	2.2	4.8	8.2	1.5	8.8	6.4	12.6	4.1	6.3	10.0
Trial/Contested Adjudication	0.0	10.1	2.9	2.4	4.6	6.9	6.6	2.2	3.8	5.6
Sentencing/Disposition	0.0	0.6	1.4	0.6	3.1	1.3	1.5	1.7	2.4	1.9
Post Trial/Post Adjudication	0.0	0.6	0.8	0.0	0.5	0.3	0.5	0.0	4.0	19.2
Violations of Probation	2.2	0.0	0.6	0.0	14.0	3.0	1.1	0.0	0.4	0.4
Modifications/ Sentence Reviews	0.0	0.2	1.1	0.0	2.3	0.3	0.1	4.4	0.3	1.9
Investigator Duties	0.0	1.5	0.6	3.4	0.7	0.9	0.3	0.0	0.8	0.1
Social Work Functions and Mitigation	0.0	0.5	1.7	0.6	1.0	1.5	1.4	1.3	2.6	9.8
Staff Duties	0.7	3.0	3.4	2.4	0.7	2.4	1.2	0.0	1.5	6.3
Waiting Time Court	8.8	13.9	17.6	5.6	15.8	7.7	14.1	20.7	14.3	2.9
Waiting Time Jail	0.0	1.9	1.4	1.0	0.6	1.0	0.0	0.2	0.8	0.0
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

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As the chart above illustrates, the amount of time allocated to discovery review for violent felony cases is 6.5%, or roughly 99 minutes, out of 1528 total minutes. For non-violent felony cases, discovery review is allocated 4.3%, or roughly 28 minutes, out of 645 total minutes. Homicide cases were allocated the most time for discovery review, with 19.8%, or roughly 1007 minutes (approximately 16 hours), out of a total of 5087 total minutes (approximately 85 hours).

The reason the 2005 report must be updated is that the expected percentages do not factor in any form of digital evidence review. As noted by our colleagues in the LDDC 2020 Report, the Baltimore Police Department, “accumulated over 133,000 discrete videos with over 23,400 hours of recording” within six months of beginning its body worn camera program in 2016.¹⁰ The six months of videos included 15,300 car stops and 15,900 arrests, which lead to roughly 4,900 cases being turned over to the Office of the State’s Attorney for prosecution.¹¹ The increasing prevalence of the need to review body-worn camera footage is also combined with other aspects of digital evidence that is unaccounted for, such as closed-circuit television, email, internet history, electronic financial transactions, text messages, social media metadata, and cell phone metadata.

C. Caseload and Workload Defined.

For the purposes of the Pilot Study, we have adopted The Louisiana Project definition of caseload and workload.¹² *Caseload* means the cases on which an attorney, or any group of

⁹ Appendix 7: Percent of Attorney Time in District Offices by Case Type and Function, MD 2005 Report at 81 (highlight added for effect).

¹⁰ See Workload Assessment and Caseload Study Plan: Final Project Report for the Maryland Office of the Public Defender at 17 (May 15, 2020) (“LDDC 2020 Report”). See also: <https://www.baltimorepolice.org/transparency/resources-and-reports/body-worn-cameras-basics>.

¹¹ *Id.*

¹² *Id.* at 5.

attorneys, are working on at any period of time.¹³ *Workload* means the responsibilities of an attorney for all cases on which an attorney works on during the course of a year, as well as the attorney's other responsibilities not pertaining specifically to the attorney's cases.¹⁴

D. Study Chronology and Design.

The Pilot Study initially began in 2020. Due to COVID-19, the LDDC was unable to begin the Pilot Study. Instead, the LDDC released an interim report entitled "Workload Assessment and Caseload Study Plan", which served as the blueprint for how the Pilot Study should proceed once COVID-19 restrictions had lifted.¹⁵

In January 2022, the LDDC and OPD met to discuss how the study should proceed now that the COVID-19 restrictions were lifted. It was decided that prior to beginning the official time study, there would be a two-week beta period. During this time, the attorneys taking part in the study would practice recording their time. The beta period allowed the OPD and the LDDC to discuss any issues discovered during the beta period and resolve them prior to the commencement of the Pilot Study. However, just as the beta period was closing, the Omicron variant of COVID-19 swept through the state of Maryland. This caused the courts to close again, which delayed the start of the official study.

In February, the courts announced that jury trials would resume on March 7. The LDDC and OPD met again and agreed that the start date of the study would be February 21, 2022. This start date would provide the LDDC eight weeks' worth of data, which the LDDC and OPD agreed would represent a long enough period to illustrate an attorney's typical weekly caseload in the Baltimore City Felony Unit.

During the study, the LDDC went to the OPD offices on three separate occasions to collect hard drives containing electronic discovery in cases the three OPD attorneys were currently working on. This electronic discovery was systematically indexed and measured to determine representative volume of digital evidence Baltimore City felony attorneys must review in an average case.

The Pilot Study was designed to analyze two aspects of the average OPD Felony Unit attorney over the course of 8 weeks: (1) the time attorneys spend on various tasks throughout their day ("Timekeeping"); and (2) the amount of digital evidence attorneys must review for a given case ("Digital Evidence Review" or "DER"). The Timekeeping portion's purpose was to gain a quantitative understanding of the OPD Participant Attorneys' time spent on tasks.¹⁶ The OPD Participant Attorneys used a spreadsheet to document their time spent on tasks for an eight-week

¹³ Postlethwaite & Netterville, *The Louisiana Project a Study of the Louisiana Public Defender System and Attorney Workloads*, A.B.A. (2017), note 5, at Appendix A, https://www.americanbar.org/content/dam/aba/administrative/legal_aid_indigent_defendants/ls_sclaid_louisiana_project_report.pdf.

¹⁴ *Id.*

¹⁵ See generally LDDC 2020 Report.

¹⁶ LDDC 2020 Report at 11.

period.¹⁷ The DER portion's purpose was to gain a quantitative understanding of the digital evidence data associated with cases that OPD Participant Attorneys must evaluate for constitutional, evidentiary, procedural, & tactical concerns.¹⁸ The LDDC received discovery in hard drives and documented the digital evidence media type, duration, number of pages, number of images and number of documents associated with OPD Participant Attorneys work over an eight-week period.¹⁹

E. Constraints of Spring 2022 Study.

This Pilot Study has several constraints and limitations. The data was obtained from a sample of three attorneys. A larger sample size would assist in providing a better understanding of the day-to-day work of OPD attorneys in 2022. In addition, the study relied on attorneys entering their time accurately. This could lead to undercounting or conservative estimates in the amount of time that attorneys truly spend performing daily tasks.

Another limitation that the Pilot Study faced was the lingering presence of COVID-19. The Omicron variant caused the courts to close, which limited the length of time the participating attorneys could be observed. Jury trials did not resume until March 7, 2022, which means that the first two weeks of the study may not be entirely representative of typical weeks. Lastly, many cases began before the study period commenced and ended after the study period was completed. The fact that felony cases typically take longer than 8 weeks to resolve necessarily means that a longitudinal workload analysis could not be conducted.

These constraints should be kept in mind when assessing our final timekeeping conclusions. The LDDC, as an independent entity, had no effective way to automate the timekeeping process of OPD participant attorneys. The length of time the study was conducted will need to be longer than eight-weeks to better assess the true workloads of attorneys. Conducting the study over a longer period will allow for the analysis of a case's accurate life cycle and provide a more concrete framework for assessing new workload standards. A future study should be modeled similarly to the 2005 report, which was conducted over a period of 18 months. This would allow a future study to avoid many of the constraints facing the Pilot Study.

F. Timekeeping.

i. Definitions for Timekeeping.

Like the 2005 report, the LDDC worked with the OPD to define several functional areas and the related tasks that attorneys in the Baltimore City Felony Unit use daily. This led to the creation of three distinct functional areas: Case Specific, Case Related, and General Work Related or General. The Case Specific functional area was broken down further into 6 sub-categories or tasks, like the 2005 report. Of important note, the Pilot Study separated traditional discovery review into two distinct categories: Discovery/Investigation and Digital Evidence Review. This

¹⁷ *Id.*

¹⁸ *Id.*

¹⁹ *Id.*

was done to better identify the impact of digital evidence review. Below is the chart used by the OPD Participant Attorneys as during the eight-week Timekeeping portion of the Pilot Study.

Task Type	Tasks Defined
Case Specific	Time spent working on a single, specific case, and requires that the case be linked to the time entry by the timekeeper
1- Client Comms	All communications with the client and client's associates, except jail visits
2- Jail Visit	In-Person (visiting clients in jail, including traveling to/from and waiting in jails)
	Remote (telephonically and virtually meeting with clients in jail)
3- Discovery/Investigation	Collecting records (ordering and obtaining records, transcripts, discovery materials, and other case related documents)
	Interviews/field investigation (investigation activities, including visiting the scene, physical evidence; interviewing witnesses; serving subpoenas; taking photos/videos; etc.)
	Engaging experts (locating; retaining; corresponding; consulting with; and reviewing reports of experts for the defense)
4- Digital Evidence Review	Organizing / downloading / uploading / storing digital evidence
	Reviewing BWC footage, police/private security camera footage, smartphone video, images, phone data, and other digital evidence
5- Case Prep	Legal research and writing: researching and drafting of pleadings, briefs, etc.
	Negotiations: Discussions with a prosecutor in an effort to resolve a case
	Court Preparation: Preparing for trial or a hearing (includes defense team meetings, as well as time spent prepping for direct exams, cross exams, and other elements of trial and court hearings, including pre-trial motions, voir dire, and jury instructions)
	Case Preparation: reviewing, analyzing, and organizing case-related materials/evidence; dictating and editing case-related memos; defense team meetings (unless related to a court appearance, which falls under court preparation); documenting case file
	Sentencing: developing or collecting evidence to be used at sentencing
	Post-Trial Preparation (other than sentencing): researching and preparing post-trial pleadings, including Motions for New Trial, Notices of Appeal, Applications for Leave to Appeal, Motions for Modification of Sentence, Applications for Review of Sentence by Three Judge Panel, and post-conviction matters
6- Court Time	In-Person (located in court for trial or hearings of any kind)
	Remote (telephonically and virtually attending court events)
Case Related	Time spent working on more than one case and not attributable to any individual case or cases by the timekeeper
General Work Related	Productive time unrelated to case work, such as: updating E-Defender; writing notes to file; responding to e-mail; phone calls; training; attending meetings

ii. Existing Workload Standards.

The Pilot Study used the same standards provided in the 2005 report when analyzing the Timekeeping portion of the study. The 2005 report established an 8-hour workday as the standard when conducting their workload analysis.²⁰ As such, this standard was also the standard used by the Pilot Study.

To define the total number of days the attorneys were expected to work, the standard method of calculation is to multiply the total number of weeks by the number of workdays in a week (8 weeks x 5 days) to arrive at 40 days per attorney. However, the study included one holiday (President's Day) which the attorneys were not expected to work. In addition, two participant attorneys were each not expected to work an additional day. Thus, the total number of expected workdays for this study was 115 days (39 + 38 + 38).

Lastly, the Pilot Study will compare the findings in this report against the adjusted, case-related workday for attorneys in urban districts. Initially, the authors of the 2005 report estimated that attorneys spent an average of 6.5 hours per day on case-related matters and 1.5 hours on non-case-related matters.²¹ The OPD Advisory Committee then adjusted the estimated case-related workday for attorneys in urban districts to 6 hours per day for case-related matters and 2 hours per day for non-case-related matters.²² The Pilot Study will utilize the adjusted figures from the OPD Advisory Committee because the OPD Participating Attorneys in Baltimore City, an urban district.

iii. Attorney Participation Selection.

The OPD participant attorneys were selected by Gregg Fischer, Chief of the OPD's Baltimore City Felony Unit.

iv. Data collection.

The Pilot Study utilized a Google Sheet for the OPD Participant Attorneys to enter their time. Each week, a new sheet was generated to assist with organization and to minimize potential errors of erasing previously entered data. For each individual entry, the OPD Participant Attorneys were asked to enter the date, their name, the case number of the case being worked on, and the corresponding client name. The OPD Participant Attorneys then selected the applicable corresponding task from a drop-down menu that contained all the defined tasks listed in the "Definitions for Timekeeping" chart above. The OPD Participant Attorneys would then enter the amount of time they performed the chosen task in minutes. The Pilot Study utilized minutes to mirror the 2005 report. Below is an example of what a Google Sheet would look like as the OPD Participant Attorneys entered their time:

²⁰ The 2005 report acknowledged that within a standard workday, the time would be "divided into case-related and non-case-related blocks. This distinction makes clear that not every minute of the day can be devoted to handling cases." MD 2005 Report at 32.

²¹ *Id.* at 65.

²² *Id.* at 66.

Date	Attorney Name	Case Number	Client Name	Task	Minutes Spent on Task
2/21/22	Participant Attorney 1	#####		Case Specific - Case Prep - Case File Prep	25
2/21/22	Participant Attorney 2	#####		Case Specific - Digital Evidence Review - Reviewing	225
2/21/22	Participant Attorney 1	#####		Case Specific - Case Prep - Legal Research and Writing	25
2/21/22	Participant Attorney 3	#####		General	10

G. Accessing Maryland Judiciary Case Search with CaseHarvester.

The LDDC utilized an open-source database called CaseHarvester to assist in our data cleaning process and was vital to the success of the Pilot Study.²³ CaseHarvester allowed the LDDC to pull large amounts of data from Maryland Judiciary Case Search (“Case Search”) at a single time using a simple Structured Query Language (SQL) query. The ability to quickly and efficiently access Case Search information helped tremendously with our data cleaning process by allowing the LDDC to search for case information by a variety of ways, such as the case number entered, the client’s name, or by attorney name. The primary use of CaseHarvester was to pull the top charge for each case entered during the Pilot Study. The top charge was then used to create two distinct categories of case weights, which allowed for the grouping of cases to identify caseload and workload trends.²⁴

H. Pilot Study Case Weights.

In order to compare the findings of an 8-week study with an 18-month workload study, the LDDC created two methods of weighting cases: case type and felony level. Each of the methods contained three buckets and, for both methods, the top charge was used to determine which bucket the case would fall into.

The case weight mirrored the case types utilized in the 2005 report, which can be found on page 6 of this report, as well as Appendix 1 of the 2005 report.²⁵ Below is a summary of the three categorizations:

²³ The code and documentation for CaseHarvester is found on an open-source GitHub repository. See <https://github.com/dismantl/CaseHarvester>.

²⁴ The data cleaning process required the LDDC to make executive decisions regarding single time entries that contained multiple case numbers. In a situation where that would occur, the LDDC chose to use the case number which had the most serious top charge. For example, if there were two cases in a single entry, case 1 may be assault second degree and case 2 may be attempted murder. The LDDC would then use case 2 since the charge was more serious. This was done so that each entry was associated with a single case number.

²⁵ MD 2005 Report at 70.

Case Type	Criteria
Homicide (not attempts)	First degree murder, Second degree murder, Manslaughter including vehicular
Violent Felony	Attempted Murder, All Sex Crimes and Rape, Carjacking, Kidnapping, Use of Handgun including Felon in Possession Charges, Armed Robbery/Simple Robbery, Child Abuse, Assault, Explosives, Child Abuse/Vulnerable, Vulnerable Adult Abuse, Arson, Accessory to Murder, Conspiracy to Murder, Stalking,
Non-Violent Felony	Theft (all types), Burglary, All CDS (Drugs), Fraud, etc., Escape, Failure to Register/Sex Offender, Bad Checks, Uttering, Identity Theft, Unlawful Taking of a Motor Vehicle, Perjury, Bribery, Harboring Fugitive

The felony level case weight was the product of the LDDC collaboration with Mr. Fischer. The rationale for creating this case weight method was to weight cases based upon their complexity, rather than grouping similar charges together. As such, there are several differences between the two different methods, which is reflected in the data. The three classifications of felony levels are as follows:

Felony Level	Criteria
High	Any charge carrying a life sentence or requiring a high degree of attorney experience and expertise
Medium	Other crimes of violence that do not meet criteria for high-level
Low	Non-violent crimes or crimes carrying relatively low potential penalties

I. Digital Evidence Review.

The digital evidence was provided to the LDDC in four separate portable hard drives. The discovery contained on the hard drives was organized by attorney, then by case. Initial efforts to catalog the evidence by hand proved to be futile due to the sheer volume of discovery. The LDDC adapted to this issue by creating an automated process to catalog the discovery. This automated process was able to identify file information for each individual case such as the file name, file type, file size, the duration of video length, the number of PDF pages, and the number of images.

Once the discovery was cataloged, the LDDC then performed a check to ensure that the digital evidence review analysis only focused on two criteria: (1) only cases that were entered in the Timekeeping portion; and (2) only cases that that were entered in the Timekeeping portion and had used a corresponding digital evidence review task. This was done by first using the case numbers as a key to merge the Timekeeping entries with the digital evidence catalog. From there, this new dataset was filtered based upon whether the case had a task entry of Digital Evidence Review.

IV. Spring 2022 Study Results

A. Timekeeping Analysis.

Over the 8-week Pilot Study, the OPD Participating Attorneys made 780 individual entries recording 56,075 minutes. This total amount of time is 934 hours and 35 minutes – the equivalent of 38 days, 22 hours, and 35 minutes, worth of data. The OPD Participating Attorneys averaged approximately 6.78 entries per day for a daily average of 8 hours, 7 minutes, and 36 seconds. This average daily time is higher than the 8-hour workday established by the 2005 report.

	Entries	Unique Cases	Total Workdays	Total Minutes	Avg. Daily Entries	Avg. Daily Time
TOTAL	780	187	115	56075	6.78	8:07.36

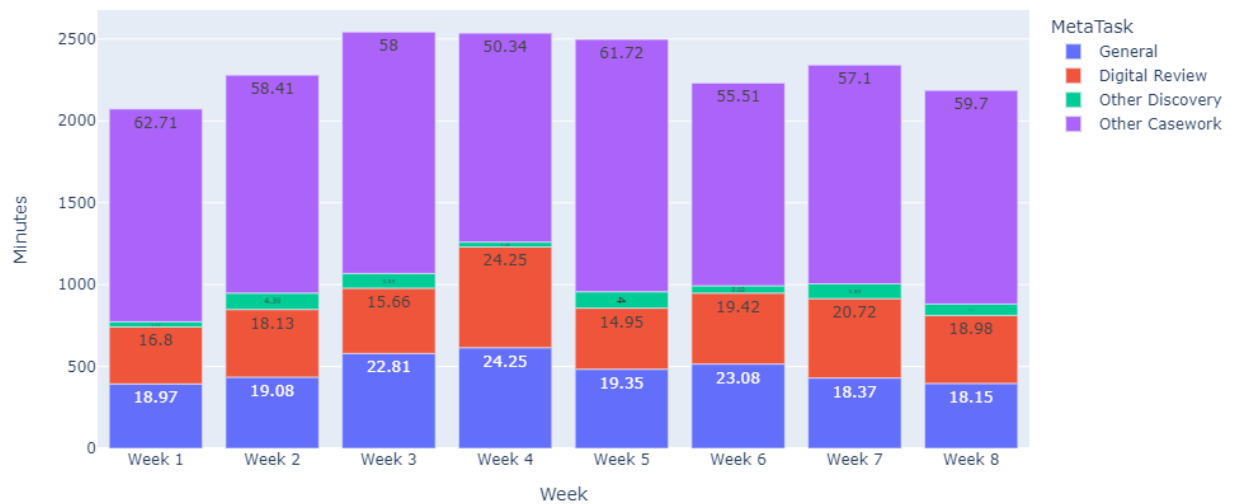
The LDDC also grouped the tasks the OPD Participating Attorneys used into four distinct groups or “meta tasks.” This was done to better analyze the current impact of digital discovery. The four meta tasks were: general, digital evidence review, other discovery, and other casework. The meta task of “other discovery” includes the tasks of collecting records, interviewing experts, and field investigation. The meta task of “other coursework” includes all other tasks that do not involve digital evidence review, or other discovery. The following chart is a breakdown of the meta tasks used over the course of the Pilot Study:

	Total Minutes	Percentage of Total Time
Other Discovery	1670	2.98
Digital Review	10445	18.63
General	11545	20.59
Other Casework	32415	57.81
Sum	56075	100.0

As the chart above shows, digital evidence reviews (Digital Review) accounted for 18.63 percent of the attorneys time across all cases, regardless of felony level, and case type. This means that the OPD Participating Attorneys performed an average of 1 hour and 30 minutes worth of digital evidence review per workday (10,445 minutes divided by 115 workdays). When contrasting with the amount of other discovery, a picture begins to emerge of how much digital evidence review the OPD Participating Attorneys performed.

The amount of time OPD Participating Attorneys spent on the three other meta tasks per day is as follows: 15 mins spent on other discovery; 1h 40 mins spent on general; and 4h 42 mins on other casework. What this breakdown illustrates is that the 2005 workload estimates are being exceeded. Urban attorneys were estimated to spend just 1 hour a day on general tasks, yet the OPD Participating Attorneys exceeded that estimate by 40 mins.

Average Time Spent on MetaTasks Each Week per Attorney



Note: numbers on the above graph represent percentage of each week's total time

Lastly, the LDDC analyzed how much time the OPD Participating Attorneys spent on each felony level or case type during the Pilot Study. The analysis revealed that for felony level, most of the time was spent on high level cases. When looking at case type, violent felonies had substantially more time spent than the other two categories. This difference is likely a result of the differences between the two case weights used. High felony level included other charges in addition to homicide charges. Below is the amount of time spent on the 186 cases worked on during the study, broken down by each felony level and case type.²⁶

	Minutes	Percentage of Time
HIGH	16810	29.98
MEDIUM	12125	21.62
LOW	15595	27.81
SUM	44530	79.41

	Minutes	Percentage of Time
HOMICIDE	9980	17.8
VIOLENT FELONY	20945	37.35
NON-VIOLENT FELONY	13605	24.26
SUM	44530	79.41

²⁶ Note: the sum for the "Percentage of Time" column for both tables does not go up to 100%. This is because the figures in these tables excluded all general task work, which accounts for the missing 20.59%. Please see figure on page 13 for a complete breakdown of the meta tasks.

B. Digital Evidence Analysis.

To begin the digital evidence analysis, the LDDC cataloged discovery from 71 cases contained on hard drives. These 71 cases were worked on by OPD Participating Attorneys during the Pilot Study and had at least one corresponding time entry. Below is a table summarizing the volume of digital discovery cataloged from these cases as well as the average volume per case:

	Total	Average Per Case
Num. Videos	3186	44.87
Video Duration	20 days, 16:46:30	6:59:48.59
Num. PDFs	554	7.8
PDF Pages	68244	961.18
Num. Images	72629	1022.94
Image Size (Mb)	17717.44	249.54

The most staggering piece of information from the Pilot Study is that only 71 cases contained 20 days, 16 hours, 46 minutes, and 30 seconds worth of video. In total, this amounts to approximately 29,806 minutes worth of footage that attorneys must watch to do their due diligence. Given that the attorneys spend an average of 90 minutes a day on digital evidence, it would take approximately 331 days to watch every minute of footage. In addition, there were 68,244 PDF pages and 72,629 images to review as well. These numbers become more impactful given that the OPD Participating Attorneys had an average caseload of 62.33 during the Pilot Study. An additional breakdown of the totals by felony level and case type follows below.

	Cases	Videos	Video Duration	PDFs	PDF Pages	Images	Image Size (Mb)
HIGH	19.0	2701.0	10 days, 19:55:19	262.0	61773.0	72215.0	13446.16
MEDIUM	23.0	227.0	5 days, 2:19:16	154.0	3244.0	358.0	4103.82
LOW	29.0	258.0	4 days, 18:31:55	138.0	3227.0	56.0	167.46
Total	71.0	3186.0	20 days, 16:46:30	554.0	68244.0	72629.0	17717.44

	Cases	Videos	Video Duration	PDFs	PDF Pages	Images	Image Size (Mb)
HOMICIDE	11.0	2534.0	7 days, 11:45:26	183.0	60875.0	71992.0	11552.94
VIOLENT FELONY	36.0	441.0	9 days, 11:59:56	262.0	4417.0	614.0	6107.47
NON-VIOLENT FEL	24.0	211.0	3 days, 17:01:08	109.0	2952.0	23.0	57.03
Total	71.0	3186.0	20 days, 16:46:30	554.0	68244.0	72629.0	17717.44

To compare these totals to the existing workload guidelines, the discovery totals were broken down further. Out of the 71 total cases, only 37 cases contained a correlating digital evidence review task – meaning that OPD attorneys spent time during the study period specifically conducting digital review on that 37 cases. These totals are as follows:

	Cases	Videos	Video Duration	PDFs	PDF Pages	Images	Image Size (Mb)
HIGH	14.0	2612.0	8 days, 18:08:46	188.0	57764.0	72030.0	11781.94
MEDIUM	12.0	161.0	3 days, 15:28:25	104.0	1820.0	84.0	672.7
LOW	11.0	92.0	1 day, 18:41:09	36.0	1400.0	6.0	41.55
Total	37.0	2865.0	14 days, 4:18:20	328.0	60984.0	72120.0	12496.19

	Cases	Videos	Video Duration	PDFs	PDF Pages	Images	Image Size (Mb)
HOMICIDE	9.0	2526.0	7 days, 6:44:47	164.0	57259.0	71870.0	10171.26
VIOLENT FELONY	18.0	247.0	5 days, 2:52:24	130.0	2343.0	244.0	2283.38
NON-VIOLENT FEL	10.0	92.0	1 day, 18:41:09	34.0	1382.0	6.0	41.55
Total	37.0	2865.0	14 days, 4:18:20	328.0	60984.0	72120.0	12496.19

Based on the above charts, the cases in which OPD Participating Attorneys performed digital evidence review still had 14 days, 4 hours, 18 minutes, and 20 seconds, or approximately 20,418 minutes, worth of footage to review. To illustrate just how big of an impact digital discovery is, the total time necessary to review all the footage in just 37 cases is almost double the amount of digital evidence review performed over 8 weeks (10,445 minutes). The total time needed to review all the footage easily doubles the total amount of digital evidence review performed when factoring in the 60,984 pages of PDFs and 72,120 images that also need to be reviewed.

To better illustrate the impact of digital evidence, the LDDC computed the average amount of discovery per case from the 37 cases which had a corresponding digital evidence review task during the Pilot Study. These calculations revealed that high level felony cases could expect to contain approximately 15 hours of video footage *per case*; for homicide case types, that number increased to 19 hours and 24 minutes *per case*. Below are the complete tables for both case weight methods, showing the average amount of discovery *per case*.

	Videos	Video Seconds	Video Duration	PDFs	PDF Pages	Images	Image Size (Mb)
HIGH	186.57	54037.57	15:00:37	13.43	4126.0	5145.0	841.57
MEDIUM	13.42	26242.08	7:17:22	8.67	151.67	7.0	56.06
LOW	8.36	13969.91	3:52:49	3.27	127.27	0.55	3.78

	Videos	Video Seconds	Video Duration	PDFs	PDF Pages	Images	Image Size (Mb)
HOMICIDE	280.67	69898.56	19:24:58	18.22	6362.11	7985.56	1130.14
VIOLENT FELONY	13.72	24574.67	6:49:34	7.22	130.17	13.56	126.85
NON-VIOLENT FEL	9.2	15366.9	4:16:06	3.4	138.2	0.6	4.15

To avoid any influence from potential outlier cases, the LDDC also computed the median amount of discovery per case from the same group of 37 cases. The median reflects the midpoint of the data, meaning that half of the amounts are below the median number, and half are above it. The median video duration for high felony cases was 11 hours and 2 minutes *per case*; the median video duration for homicide case types was 14 hours and 18 minutes *per case*. Below are the complete tables for both case weight methods displaying the median amount of discovery *per case*.

	Videos	Video Seconds	Video Duration	PDFs	PDF Pages	Images	Image Size (Mb)
HIGH	16.5	39741.5	11:02:21	8.0	199.0	78.5	489.43
MEDIUM	6.0	11036.5	3:03:56	4.0	34.5	0.0	0.0
LOW	8.0	15279.0	4:14:39	2.0	80.0	0.0	0.0

	Videos	Video Seconds	Video Duration	PDFs	PDF Pages	Images	Image Size (Mb)
HOMICIDE	17.0	51530.0	14:18:50	9.0	431.0	89.0	600.53
VIOLENT FELONY	6.5	11049.5	3:04:09	3.5	69.0	0.0	0.0
NON-VIOLENT FEL	8.5	15457.0	4:17:37	2.0	80.5	0.0	0.0

V. Conclusions.

The 8-week Pilot Study has shown the current impact of digital evidence. Even with a sample of eight weeks, this Pilot Study illustrates the impact that digital evidence has on randomly selected attorneys at the Baltimore City Felony Unit. The Pilot Study has conclusively shown that OPD Felony Attorneys must deal with an overwhelming volume of digital evidence and there are not enough hours in the day for attorneys to review it all and complete all the other work necessary to do their job.

To illustrate this another way, consider that in 2005, the prior workload report estimated that felony attorneys in urban jurisdictions were estimated to have spent 4.3% of their time for each nonviolent felony case reviewing discovery. For violent felony case types and homicide case types, that percentage was 6.5% and 19.8%, respectively. When we look at those numbers today, we see that attorneys in this study spent 21.1% of their time reviewing discovery for non-violent felony cases. In violent felony cases, that percentage was 24.13%, and in homicide case types, OPD Participating Attorneys spent 25.25% of their time on digital evidence review. Overall, OPD Participating Attorneys spent 23.46% of all case related work on digital evidence review.

For OPD attorneys to fulfill the constitutional obligation to provide adequate representation, the 2005 workload standards must be updated to keep pace with ever increasing digital evidence.

Appendix I – Underlying Data and Code

The data and computer code supporting the analysis in this report were provided electronically to Gregg Fisher at OPD. With permission from OPD, this data and code can be accessed to check, confirm, and extend all findings presented. The names and brief description of the relevant files are below:

File Name	Description
<i>opd_complete_time_study.csv</i>	This contains the original time study data taken from time entry Google Sheet used by OPD attorneys and joined with Case Harvester information: 780 rows (representing each time entry made) and 8 columns. Columns are <i>Date</i> , <i>Attorney</i> , <i>CaseNo</i> , <i>Client</i> , <i>Task</i> , <i>Minutes</i> , <i>TopCharge</i> , and <i>FelonyLevel</i> .
<i>merged_top_charges_digital_ev.csv</i>	This contains the summary digital evidence information scraped from OPD hard drives merged with Case Harvester information: 186 rows (number of cases in time study) and 12 columns. Columns are <i>CaseNo</i> , <i>Attorney</i> , <i>TopCharge</i> , <i>Client</i> , <i>FelonyLevel</i> , <i>NumVids</i> , <i>Vid_Secs</i> , <i>Vid_Dur</i> , <i>Num_PDF</i> , <i>PDF_Pages</i> , <i>Num_Images</i> , <i>Image_Size_Mg</i>
<i>OPD_Report_Data_Analysis_Deliver.ipynb</i>	This is the Jupyter Notebook that contains all the Python code used to analyze the two files above and produce all the findings and visualizations in this report. The code is heavily commented.
<i>master_digital_casenos.csv</i>	This contains a unique entry for every item of scraped digital evidence – it is the data underlying the <i>merged_top_charges_digital_ev.csv</i> file above: 76,381 rows (number of items of evidence) and 11 columns. Columns are <i>Dir</i> , <i>Client</i> , <i>Path</i> , <i>Name</i> , <i>Size_bytes</i> , <i>Type</i> , <i>Attorney</i> , <i>Vid_Sec</i> , <i>Vid_Dur</i> , <i>Pages</i> , <i>Image</i> , <i>CaseNo</i>

Appendix 2 – List of Crimes and Felony Levels/Case Types

OPD attorneys handled 186 different cases with 44 unique top charges during this time period. The table below lists the classifications for each of the 44 top charges as well as the number of cases with that as the top charge appearing in the docket during the time study.

Top Charge	Level	Type	Num
ASSAULT-FIRST DEGREE	MEDIUM	VIOLENT FELONY	32
FIREARM/DRUG TRAF CRIME	LOW	NON-VIOLENT FELONY	26
CDS: POSS W/I DIST: NARC	LOW	NON-VIOLENT FELONY	20
FIREARM POSS W/FEL CONVICT	LOW	VIOLENT FELONY	12
MURDER - FIRST DEGREE	HIGH	HOMICIDE	12
ATT 1ST DEG. MURDER	HIGH	VIOLENT FELONY	11
ARMED ROBBERY	MEDIUM	VIOLENT FELONY	9
ROBBERY	MEDIUM	VIOLENT FELONY	6
CDS DIST-NARC	LOW	NON-VIOLENT FELONY	5
BURGLARY-SECOND DEGREE	MEDIUM	NON-VIOLENT FELONY	4
BURGLARY-THIRD DEGREE	LOW	NON-VIOLENT FELONY	4
ASSAULT-SEC DEGREE	LOW	VIOLENT FELONY	3
RAPE SECOND DEGREE	HIGH	VIOLENT FELONY	3
ARMED CARJACKING	MEDIUM	VIOLENT FELONY	2
CDS POSSESS - LG AMT	LOW	NON-VIOLENT FELONY	2
CDS-POSS OF FIREARMS	LOW	NON-VIOLENT FELONY	2
CDS: POSS W/INT MANF/DISTR/DISP	LOW	NON-VIOLENT FELONY	2
MURDER-FIRST DEGREE	HIGH	HOMICIDE	2
RIFLE/SHOT-POSS W/FEL CONV	LOW	VIOLENT FELONY	2
SEX ABUSE MINOR	HIGH	VIOLENT FELONY	2
SEX ABUSE MINOR: HOUSE/FAM	HIGH	VIOLENT FELONY	2
ANIMAL CRUEL: DOG FIGHTING	LOW	NON-VIOLENT FELONY	1
ARSON - FIRST DEGREE	MEDIUM	VIOLENT FELONY	1
CARJACKING	MEDIUM	VIOLENT FELONY	1
CHILD ABUSE 1ST DEG:SEVERE PHYS INJ	HIGH	VIOLENT FELONY	1
CHILD ABUSE-CHILD UNDER 18	MEDIUM	VIOLENT FELONY	1
CON-CDS DIST-NARC	LOW	NON-VIOLENT FELONY	1
DEADLY WEAPON-INT INJURE	LOW	VIOLENT FELONY	1
FAIL REG OFFENDER	LOW	NON-VIOLENT FELONY	1
FALSE STATEMENT	LOW	NON-VIOLENT FELONY	1
HANDGUN ON PERSON: CARRY/WEAR	LOW	VIOLENT FELONY	1
HOME INVASION	MEDIUM	NON-VIOLENT FELONY	1
ILLEGAL POSS AMMO	LOW	NON-VIOLENT FELONY	1
INDECENT EXPOSURE	LOW	NON-VIOLENT FELONY	1
KIDNAPPING - ATT	MEDIUM	VIOLENT FELONY	1
LOADED HANDGUN ON PERSON	LOW	NON-VIOLENT FELONY	1
MANSLAUGHTER AUTO/BOAT ETC	HIGH	HOMICIDE	1
MURDER-2ND DEGREE	HIGH	HOMICIDE	1
MURDER-SECOND DEGREE	HIGH	HOMICIDE	1
POSSESS CHILD PORNOGRAPHY	LOW	VIOLENT FELONY	1
REG FIREARM:ILLEGAL POSSESSION	LOW	VIOLENT FELONY	1
SEX OFFENCE-3RD DEGREE	HIGH	VIOLENT FELONY	1
THEFT: \$1,500 TO UNDER \$25,000	LOW	NON-VIOLENT FELONY	1
VUL ADULT ABUSE PHYSICAL INJURY	MEDIUM	VIOLENT FELONY	1