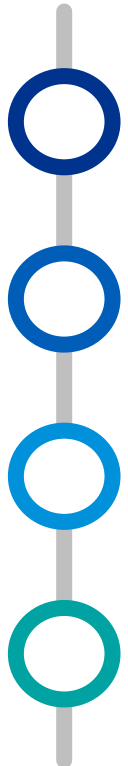**KPMG**

LCG Police Department

Findings and Recommendations

October 2021

Police recommendations focus on cost efficiencies (10% less) as well as productivity improvements (10% more)

- Recommendations focus on *cost efficiencies while enhancing service levels & citizen outcomes*

- Consider implementing *9 cost efficiency improvements* resulting in *$3.9M in annual OPEX savings / cost recovery*

- Consider implementing *14 productivity improvements* which will result in broader departmental and community benefits

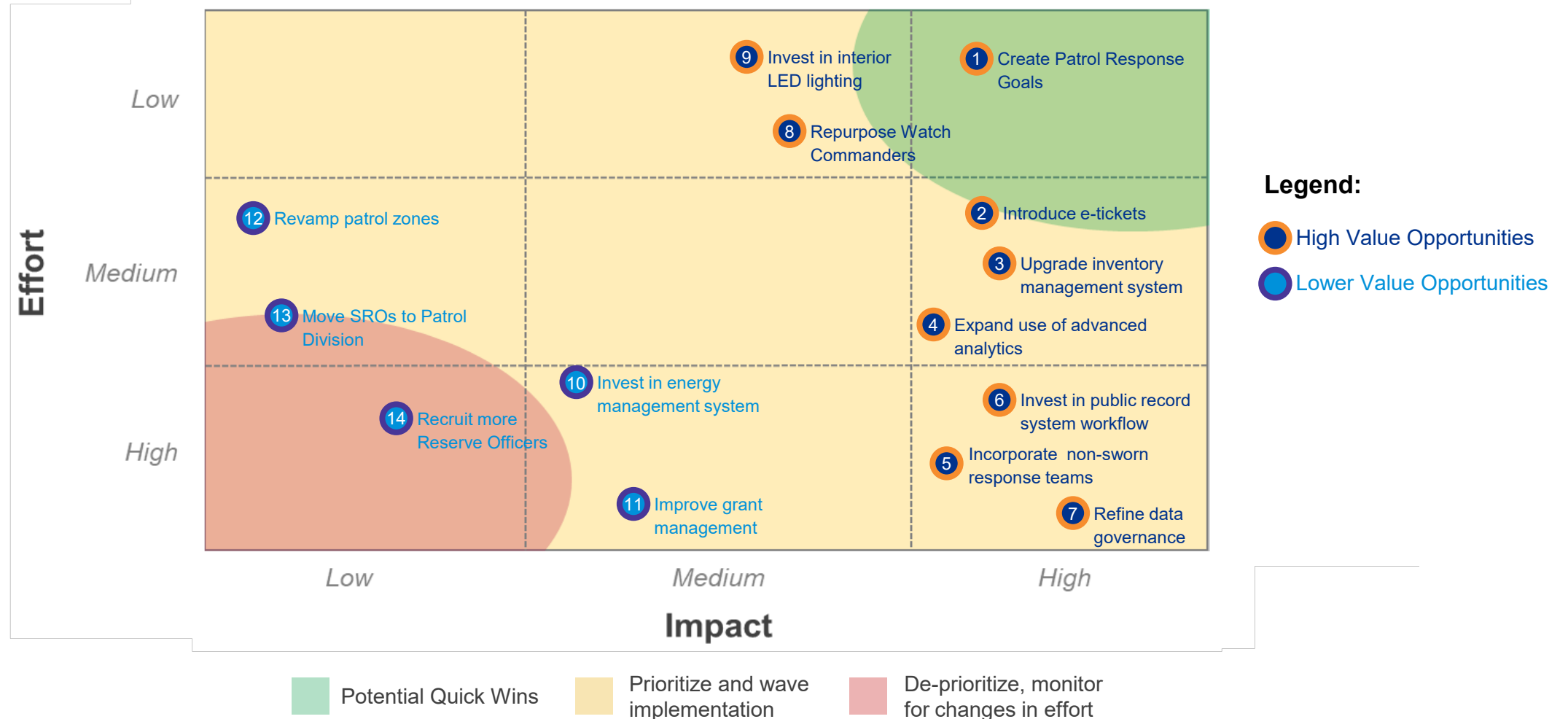- Prioritize implementation plan to ensure *LPD can gain early momentum and sustain improvement over the long term*

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We recommend 9 cost efficiency opportunities totaling $3.9M in annual OPEX savings ("10% less")

#	Recommendation	Total
1	Limit responses to non-police specific incident types and transfer responsibility to appropriate agencies	$1.4M
2	Renegotiate SRO contracts to cover personnel costs	$929k
3	Modify shift schedules from 12 hours to 10 or 8 hours to reduce OT and increase personnel productivity	$554k
4	Optimize fleet through rightsizing, pooling, removal of subsidy program and fueling process modification	$402k
5	Replace sworn personnel with civilians where sworn powers are not required (e.g., Internal Affairs Lt)	$370k
6	Eliminate targeted duplicative position and leverage outsourcing where possible	$146k
7	Introduce e-ticketing and eliminate associated paper processes (linked to Courts Review)	$39k[1]
8	Fill dispatch vacancies to alleviate OT while offering improved dispatch / response times	$32k
9	Transfer 5 Jefferson Street LPD responsibilities to other agencies	$31k
	FY30 Annual OPEX Cost Savings / Cost Recovery	**$3,907k**
	FY21 Adopted Budget	**$39,150k**
	Cost Savings / Cost Recovery %	**10.0%**

Note(s): (1) Estimated capital cost for e-ticketing technology = $200k

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We also recommend 14 productivity improvements, prioritized by impact and effort

Effort
- Low
- Medium
- High

Impact
- Low
- Medium
- High

9 Invest in interior LED lighting
1 Create Patrol Response Goals
8 Repurpose Watch Commanders
12 Revamp patrol zones
2 Introduce e-tickets
3 Upgrade inventory management system
13 Move SROs to Patrol Division
4 Expand use of advanced analytics
10 Invest in energy management system
6 Invest in public record system workflow
14 Recruit more Reserve Officers
5 Incorporate non-sworn response teams
11 Improve grant management
7 Refine data governance

Legend:
- High Value Opportunities
- Lower Value Opportunities

- Potential Quick Wins
- Prioritize and wave implementation
- De-prioritize, monitor for changes in effort

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Productivity Improvement Opportunities (1/2)

#	Title	Description
1	Create Patrol response goals	Assign clear response time goals against priority levels
2	Introduce e-ticketing[1]	Introduce e-tickets to improve personnel productivity (e.g., speed of task), accuracy, performance and reduce costs associated with paper tickets
3	Upgrade inventory management system[1]	Update inventory process for property unit to (1) introduce quality control; (2) reduce excess / obsolete stock; (3) increase employee productivity
4	Expand use of advanced analytics	Operationalize data from Geolitica and other predictive policing tools to (1) inform response and develop crime reduction strategies; (2) promote objective decision making
5	Incorporate non-sworn response teams	Incorporate non sworn personnel into response teams for specific incident types such as mental illness
6	Invest in public record system workflow	Invest in public records system workflow through technology investment that (1) automates intake processes; (2) assigns tasks to departmental personnel; (3) improves public transparency of workflow status; (4) tracks progress
7	Refine data governance	Refine data governance structure and standards to promote improve data quality and department personnel confidence / trust in system data
8	Repurpose Watch Commanders	Modify Watch Commander responsibilities to better align position with capabilities by either changing rank from Lieutenant to Sergeant or replacing with Civilian
9	Invest in interior LED lighting[1]	Invest in interior LED lighting for the Main Station to (1) minimize maintenance activities; (2) lower energy costs (typically 3-5 year payback period) of the building

High Value

Note(s): (1) Opportunity may offer OPEX savings, but requires additional analyses to assess magnitude of potential OPEX savings as well as costs

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Productivity Improvement Opportunities (2/2)

		Title	Description
Lower Value	10	Invest in energy management system (EMS)[1]	Invest in an energy management system to (1) gather data on energy usage; (2) make informed decisions about energy consumption; (3) automate and optimize energy controls; and (4) reduce utility costs
	11	Improve grant management	Develop grant management strategy to ensure (1) LPD is maximizing receipt of local, state and federal grant funds; and (2) prioritizing funding against the highest need areas in the department that are unfunded
	12	Revamp Patrol zones	Revamp patrol zones by developing more granular patrol zones, thereby allowing precincts to conduct more targeted patrolling and assess response times
	13	Move SROs to Patrol	Move SROs to Patrol to better align function with division
	14	Recruit more reserve officers	Increase use of reserve officers to increase manpower at a minimal cost and provide resiliency to operations

Note(s): (1) Opportunity may offer OPEX savings, but requires additional analyses to assess magnitude of potential OPEX savings as well as costs

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Appendices

Appendices

A. Recommendation Details

B. Productivity Improvement Methodology

C. Diversion Incident Mapping

D. Vehicle Assignment Mapping

E. Shift Analysis Methodology

F. LPD Interview List

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Appendix A: Recommendation Details

Police can divert 11% of its service calls and gain additional efficiencies through better alignment of incident and response type

Est. FY20 Police Workload Breakdown

Transfer
2%

Divert
11%

Total Workload Hours 2020
169k

87%

Maintain

Divert	Transfer	Maintain
Incidents that do not require Police responses and can be removed from Police workload. All diversion will need to be coordinated with most appropriate entity. Examples include: Back Pain, Animal Loose, Emergency Door Unlock	Incidents that can be managed either by a non-sworn officer or via telephone/online reporting. Examples include: Mental Health, Theft by Credit Card, Property Lost / Found / Recovered	Incidents that should remain under Police purview with no change to response approach. Examples include: Officer Down, Various Disturbances

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Diverting 11% of workload could result in a 10 FTE reductions which amounts to $1.4M in savings

FTE Reduction Calculation

#	Item	Amount	Notes
1	Hours Diverted	169,087	Workload * diversion percentage; diversion % based on incident types identified and validated by LPD
2	Avg. Annual Patrol Officer Productive Time	1,700	Salary / Pay Code productive time = 1820 hours less annual training (~45) and Community Service (~55), then rounded down
3	Total FTE Reduction / Reassignment[1]	10	#1 divided by #2
4	Avg. Annual Patrol Officer Salary	$55,045	5/31/21 Manning Table, average Patrol salary for ranks below Sgt
5	Fringe Benefits	$85,319	fringe rate of 55% of salary
6	Fully Loaded Personnel Costs	$140,364	#4 plus #5
Total Cost Savings		**$1,403,639**	#3 times #6

Note(s): (1) FTE reductions can occur through natural attrition

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$929k can be saved on the SRO contract through full cost recovery

SROs Cost Recovery Contract

ATTACHMENT A

SCHOOL BOARD'S RESPONSIBILITY FOR COSTS

This Attachment A to the Intergovernmental Cooperative Endeavor Agreement is made and entered into on the dates indicated hereinbelow and is effective as of the 1st day of July, 2020, by and between the Lafayette City-Parish Consolidated Government, through the Lafayette Police Department (the "Agency") and the Lafayette Parish School Board ("School Board"), each represented herein by the undersigned, duly authorized to act herein, who declare as follows:

A. Compensation

1. SRO Services

For each SRO requested by the School Board and assigned by the Agency, the School Board shall pay to the Agency a portion of the salary of that officer in the total amount of $44,607.15 annually, or a prorated hourly reimbursement rate of $35/hour, for services rendered by the SRO on and after July 1, 2020. For each first line SRO Supervisor authorized and assigned to the SRO Program by the Agency, the School Board shall pay to the Agency $49,809.15 annually, or a prorated hourly reimbursement rate of $39/hour, for services rendered by the SRO Supervisor on and after July 1, 2020. In the event that an SRO or SRO Supervisor should work less than an entire school year, then the annual amounts listed above shall be proportionately reduced. Beginning with the 2021-2022 school year and all future school years, the annual contribution by the School Board toward the salary of each SRO and SRO Supervisor shall be increased by a fixed rate of 2%.

a. Assignment

The following is a list of full time SRO assignments that are subject to the Cooperative Endeavor Agreement between the Agency and School Board made effective as of July 1, 2020.

School	# of SROs	School	# of SROs
Acadian Middle	2	Alice Boucher Elem	1
Paul Breaux Middle	2	Career Center	1
Comeaux High	2	JW Faulk Elem	1
Edgar Martin Middle	1	JW James Elem	1
Lafayette High	2	L J Alleman Middle	1
Lafayette Middle	2	Middlebrook Elem	1
Northside High	2	Sergeant	1
Lerosen Prep	1		
Sergeant	2		

SRO cost recovery agreement states SROs will be covered at specific rates based on role and their usage will amount to 10 months of the year

However, the reimbursement amount does not cover the fully loaded cost of any officer (wages + fringe) for their prorated time

In FY21, the annual costs of all 23 SROs is estimated to be $1.8M vs. a reimbursement amount of $1.0M

Accounting for reimbursement escalation and inflation (both 2%), annual SRO costs = $2.2M vs. a reimbursement of $1.2M by FY30

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Optimizing LPD's fleet can lead to $402k in annual savings through three key efficiencies

Est. Fleet Optimization Cost Savings ($000s)

Efficiency Descriptions

402	
99 — Fleet Rightsizing / Pooling	(1) Bottom up development of Department fleet demand for non-specialty vehicles based on personnel count and job function types
99 — Vehicle Subsidy Elimination[1]	(2) Dissolve vehicle subsidy program whereby individuals utilize personal vehicles in place of LPD vehicles for job function
204 — Fuel Surcharge[2]	(3) Shift fueling practices away from Public Works (which includes significant surcharge (~50%) to fueling at retail establishments

FY30

Note(s): (1) FY20 actuals for vehicle subsidies; (2) Est. savings = FY20 fuel costs for LPD ($803k) less Public Works gross dollars spend ($599k) for vehicle fuel (inclusive of taxes)

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LPD's fleet demand was developed through bottom up review of personnel and job functions

Through a combination of LPD's manning table and organizational chart, staff were assigned into one of three vehicle usage categories to develop an overall departmental vehicle demand profile

Vehicle Usage Category by Personnel

Division	No Vehicle	Pooled	Dedicated Vehicle	Total
Administration	8	7	11	26
Patrol	1	2	152	155
CID	5	21	69	95
Services	40	13	19	72
Total Personnel	**54**	**43**	**251**	**348**
Vehicle Usage Factor	0%	50%	100%	N/A
Total Base Vehicles	**-**	**22**	**253**	**273**
Spare Capacity (@20%)				55
Total Vehicle Demand				**328**

■ *Personnel that do not need or use a vehicle on a regular basis, if at all*

■ *Personnel that may use a vehicle from time to time but do not need a fully dedicated vehicle*

■ *Personnel that require a dedicated vehicle daily to perform job functions*

> *July 2021 Manning Table and Org Chart do not reconcile; total personal may not equal fully budgeted personnel*

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Fleet rightsizing / pooling suggests that LPD can reduce its fleet by 11% or 41 vehicles

Current Fleet vs. Optimized Fleet
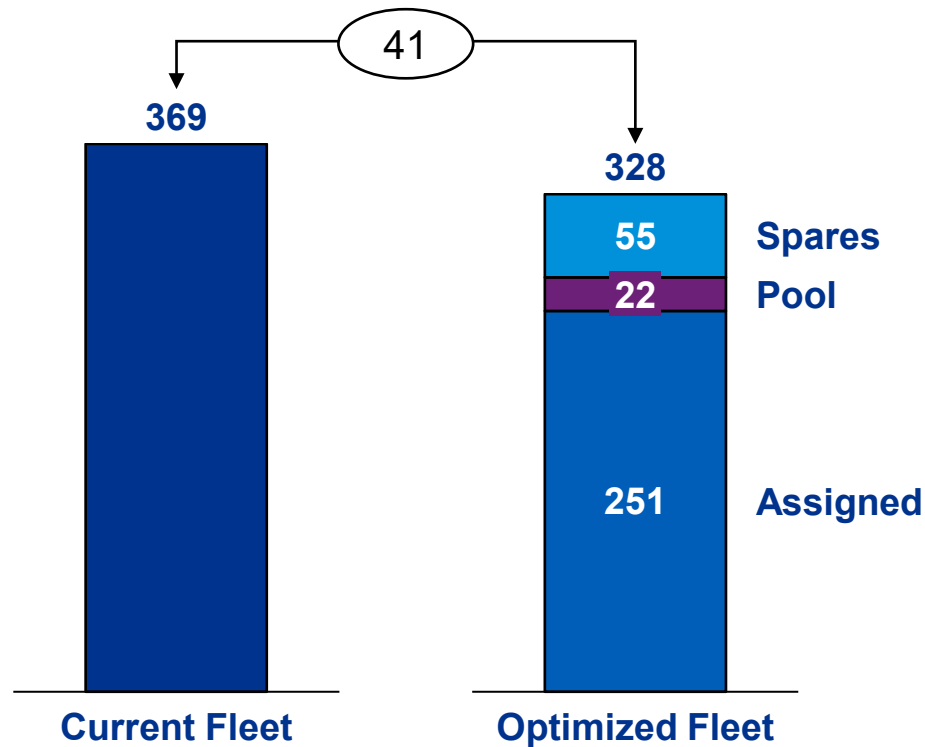
Est. Savings from Fleet Reduction ($000s)

Vehicle reductions lead to an annual savings in maintenance along with sales revenue associated with the salvage value of vehicles

	FY22	FY23	FY23	…	FY30
Maintenance[1]	62	62	62	…	62
Vehicle O&M	1,363	1,363	1,363	…	1,363
Fuel Costs	803	803	803	…	803
Vehicle Maintenance	560	560	560	…	560
Avg. Maintenance per Vehicle	2	2	2	…	2
Vehicle Salvage Value[2]	36	36	36	…	36
Total Annual Savings	**99**	**99**	**99**	**…**	**99**

Notes: (1) Calculated by determining avg. vehicle maintenance costs (O&M less fuel operating expenses) then multiplying this by fleet reduction; (2) Salvage value assessed for ~50 oldest vehicles via Kelly Blue Book and spread evenly between FY22 and FY30
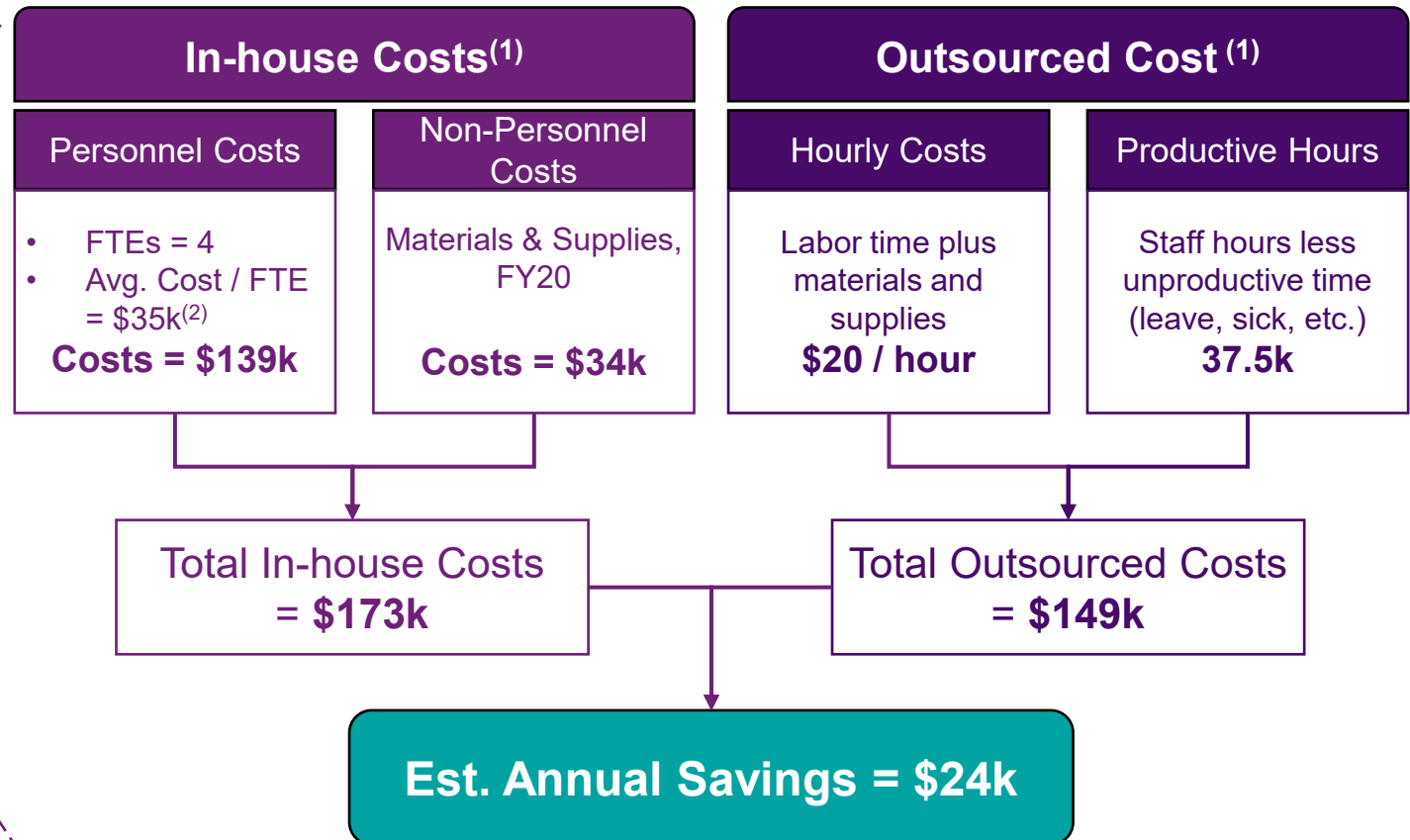
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Transitioning sworn positions to civilian can generate savings of approximately $370k

Division	#	Position	Count	Total Dept Cost	Est. Savings (@20%)	Reasoning
Admin	1	PIO Corporal	1	$91k	$18k	Duties generally administrative
	2	Internal Affairs Lt	2	$279k	$56k	Duties generally administrative
	3	Internal Affairs Sgt	2	$245k	$49k	Duties generally administrative
	4	Internal Affairs Sr Corporal	2	$215k	$43k	Duties generally administrative
CID	5	Crime Scene Detective Sgt	1	$108k	$22k	Precedent of civilian role
	6	Crime Scene Detective Sr Corporal	2	$215k	$43k	Precedent of civilian role
	7	Crime Scene Detective Corporal	2	$183k	$37k	Precedent of civilian role
Services	8	Support Services Lt	1	$140k	$28k	Oversees civilian personnel (assumes evidence positions moved from sworn to civilian)
	9	Evidence Sgt	1	$122k	$25k	Precedent of civilian role
	10	Evidence Custodian	1	$110k	$22k	Precedent of civilian role
	11	Tech Services Lt	1	$140k	$28k	Oversees civilian personnel
Total[1]			18	$1,849k	$370k	

Note(s): (1) Totals are rounded

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$146k in annual savings exists through the elimination of the Desk Sgt Role and shifting toward outsourced janitorial services

Cost Savings from Elimination and Outsourcing ($000s)

146

Outsource Janitors — 24

Eliminate Desk Sgt — 122

FY30 Savings

In-house Costs[1]

Personnel Costs	Non-Personnel Costs
• FTEs = 4 • Avg. Cost / FTE = $35k[2] **Costs = $139k**	Materials & Supplies, FY20 **Costs = $34k**

Total In-house Costs = $173k

Outsourced Cost [1]

Hourly Costs	Productive Hours
Labor time plus materials and supplies **$20 / hour**	Staff hours less unproductive time (leave, sick, etc.) **37.5k**

Total Outsourced Costs = $149k

Est. Annual Savings = $24k

Note(s): (1) Figures rounded; (2) Fully loaded costs assuming fringe benefits = 55% of annual wages

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Moving from a 12H shift to either a 10H or 8H shift requires less FTEs and leads to OT efficiencies

LPD Shift Analysis – Estimated Weekly OT

While only a select number of scenarios were analyzed, additional FTE & OT savings may exist through a robust schedule optimization analysis

Current State
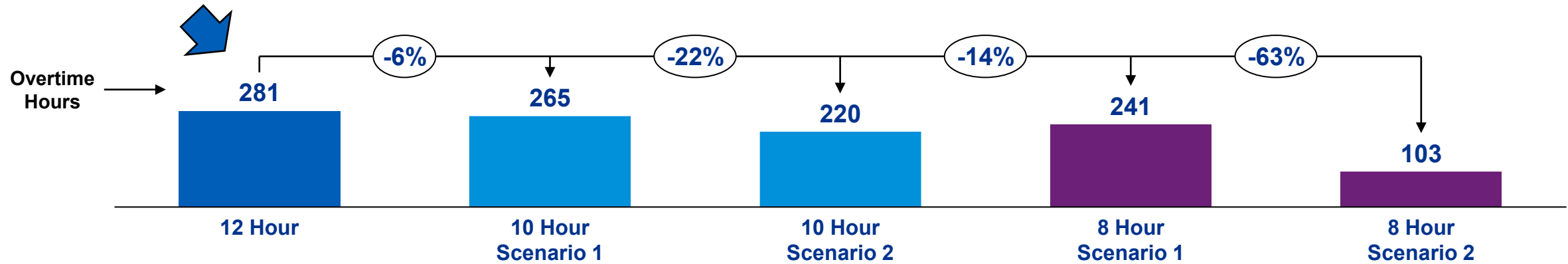
Overtime Hours →

	12 Hour	10 Hour Scenario 1	10 Hour Scenario 2	8 Hour Scenario 1	8 Hour Scenario 2
Overtime Hours	281	265	220	241	103
Change		-6%	-22%	-14%	-63%

	12 Hour		10 Hour Scenario 1		10 Hour Scenario 2		8 Hour Scenario 1		8 Hour Scenario 2	
	Shift Time	**Officer Count**	**Shift Time**	**Officer Count**	**Shift Time**	**Officer Count**	**Shift Time**	**Officer Count**	**Shift Time**	**Officer Count**
Shift 1	5:00 – 17:00	29	0:00-10:00	15	1:00 – 11:00	12	22:00 – 6:00	20	0:00 – 8:00	18
Shift 2	17:00 – 5:00	29	7:00 – 17:00	30	7:00 – 17:00	30	6:00 – 14:00	40	8:00 – 16:00	38
Shift 3	N/A	N/A	14:00 – 0:00	23	15:00 – 23:00	26	14:00 – 22:00	25	16:00 – 0:00	29
Officers / Day	58		68		68		85		85	
Officers Required	122		119		119		119		119	

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Given the level of addressable OT, 10H shift scenarios that were analyzed could result in as much as $133k in savings

LCG Budget Book, FY20 Actuals ($000s)
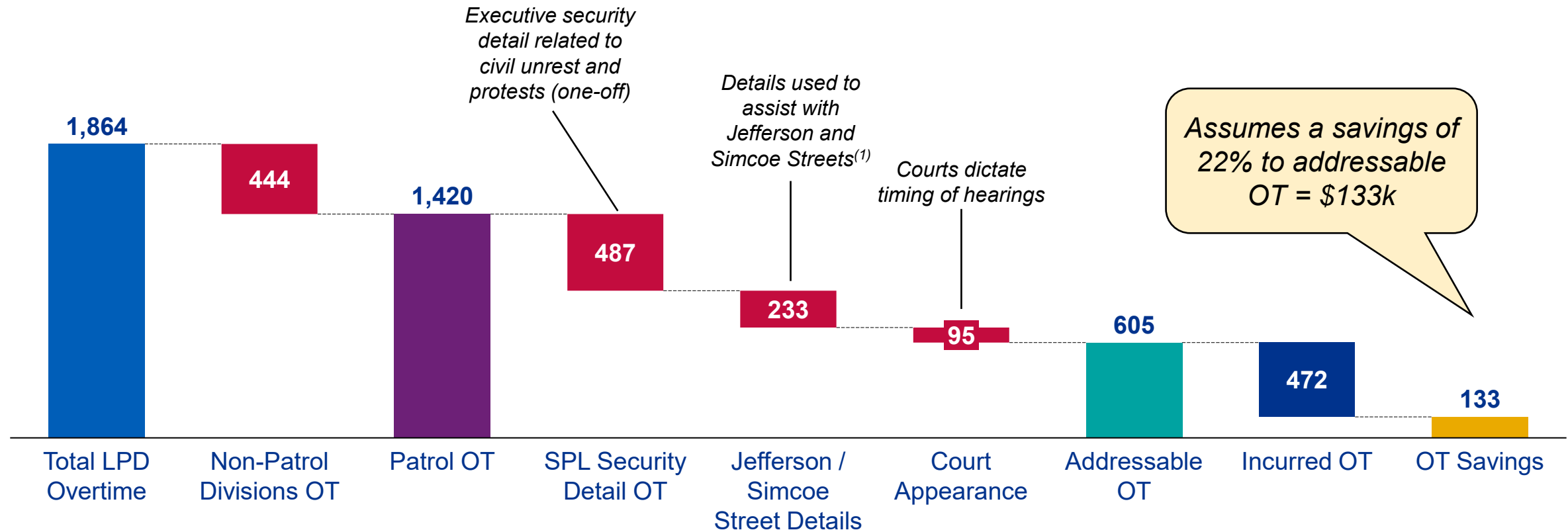
Executive security detail related to civil unrest and protests (one-off)

Details used to assist with Jefferson and Simcoe Streets[1]

Courts dictate timing of hearings

Assumes a savings of 22% to addressable OT = $133k

Total LPD Overtime	Non-Patrol Divisions OT	Patrol OT	SPL Security Detail OT	Jefferson / Simcoe Street Details	Court Appearance	Addressable OT	Incurred OT	OT Savings
1,864	444	1,420	487	233	95	605	472	133

Note(s): (1) Jefferson Street detail appears as Overtime – Criminal Patrol P-5 in budget details for FY20

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The best case 8H shift analyzed leads to an even higher potential savings of $381k

LCG Budget Book, FY20 Actuals ($000s)
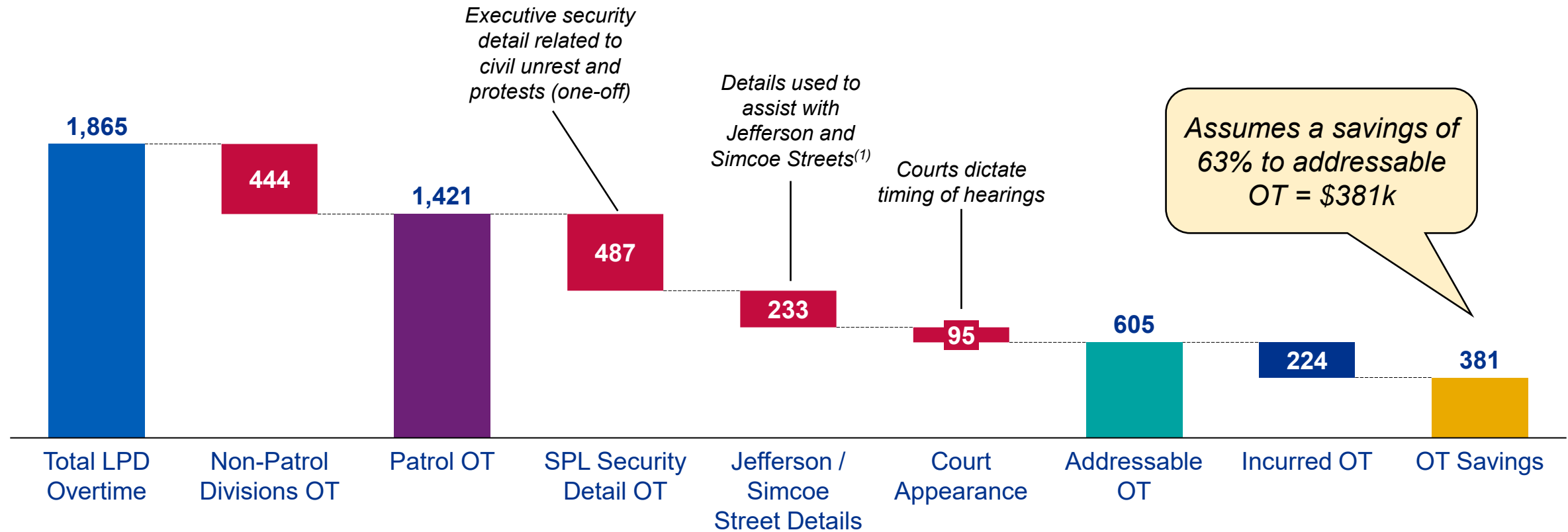
Executive security detail related to civil unrest and protests (one-off)

Details used to assist with Jefferson and Simcoe Streets[1]

Courts dictate timing of hearings

Assumes a savings of 63% to addressable OT = $381k

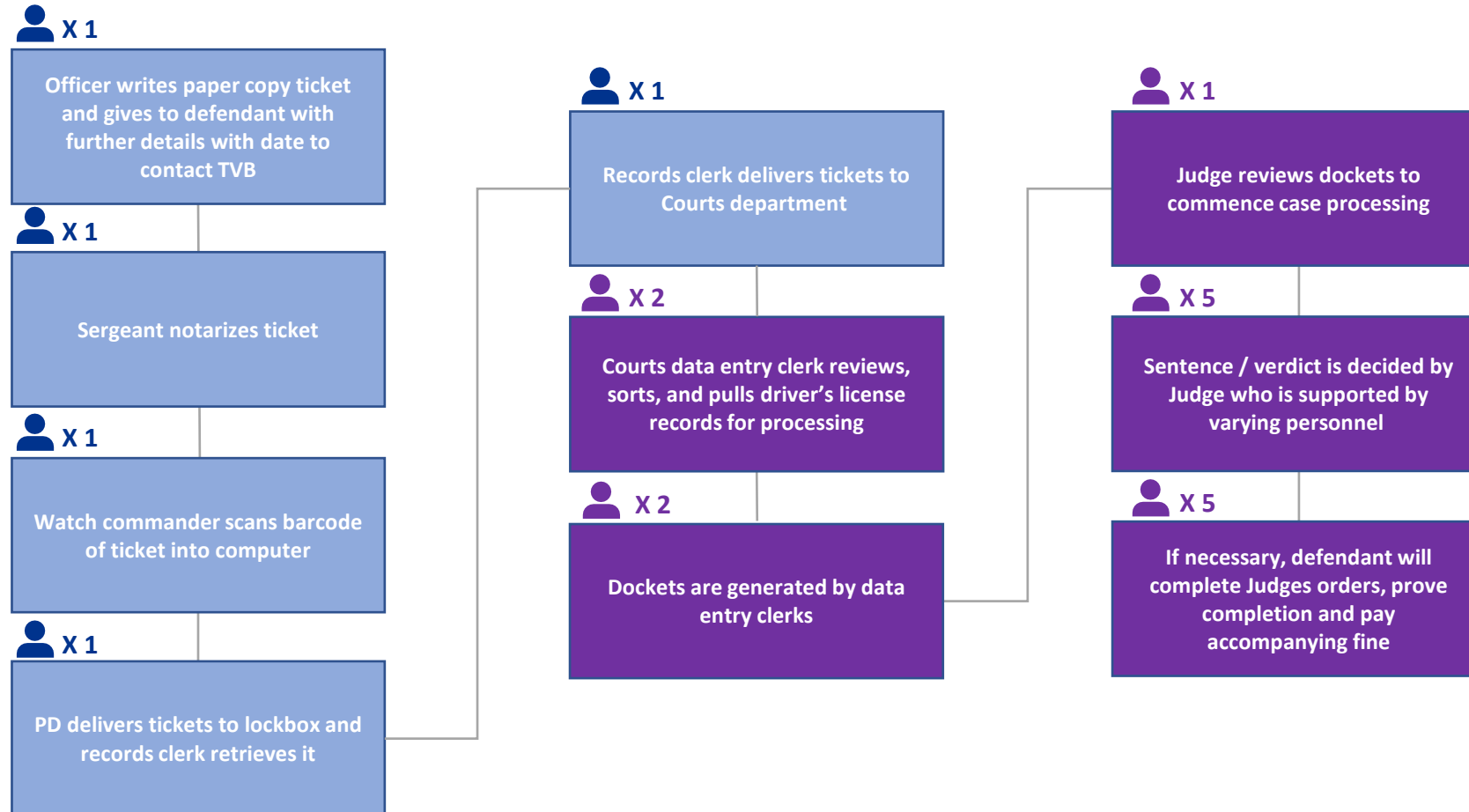|								
1,865	444	1,421	487	233	95	605	224	381
Total LPD Overtime	Non-Patrol Divisions OT	Patrol OT	SPL Security Detail OT	Jefferson / Simcoe Street Details	Court Appearance	Addressable OT	Incurred OT	OT Savings

Note(s): (1) Jefferson Street detail appears as Overtime – Criminal Patrol P-5 in budget details for FY20

A review of the lifecycle of a traffic violation case illustrates process inefficiencies that could benefit from e-ticketing

Current State Traffic Violation Process

X 1
Officer writes paper copy ticket and gives to defendant with further details with date to contact TVB

X 1
Sergeant notarizes ticket

X 1
Watch commander scans barcode of ticket into computer

X 1
PD delivers tickets to lockbox and records clerk retrieves it

X 1
Records clerk delivers tickets to Courts department

X 2
Courts data entry clerk reviews, sorts, and pulls driver's license records for processing

X 2
Dockets are generated by data entry clerks

X 1
Judge reviews dockets to commence case processing

X 5
Sentence / verdict is decided by Judge who is supported by varying personnel

X 5
If necessary, defendant will complete Judges orders, prove completion and pay accompanying fine

Key Takeaways

- *12 manual steps*

- *24 people involved in process*

- *2-3 month cycle time*

Legend	
Police	
Courts	

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Inefficiencies equate to approximate 837 hours and $39k in cost savings

Ticketing Area	Police Personnel Involved	Minutes per Ticket	Numbers of Tickets	Hours of Process	Annualized Cost[1]
Processing (Ticketing)	1	4	8,168	545	$25,431
Processing (Ticket processing)	3	1	8,168	204	$9,536
Rework tickets	1	4	1,070	71	$8,328
Lost tickets	1	10	103	17	$802
Total	**6**	**19**	**17,509**	**837**	**$39,100**

Note(s): (1) Hourly fully loaded Patrol cost = $46.70 / hour

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Hiring one additional Communications Officer can lead to as much as $32k in annual savings through OT reductions
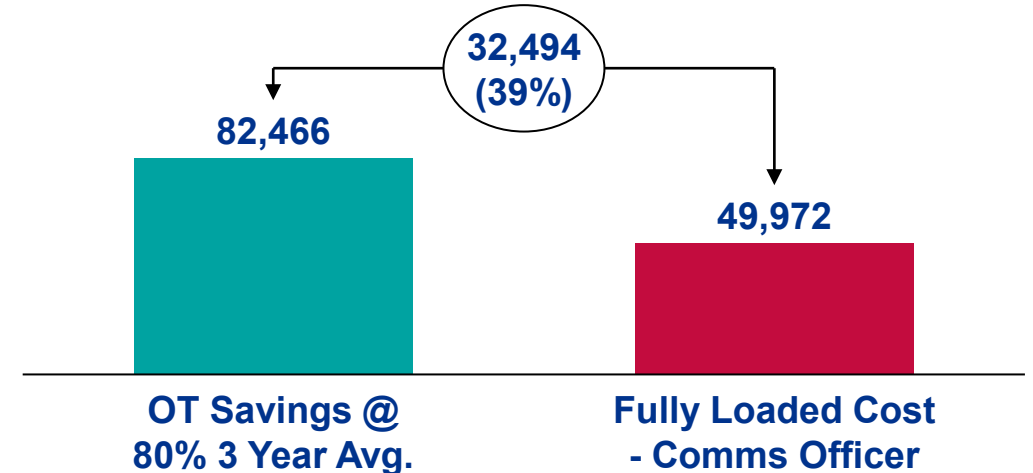
Communications Overtime Costs ($)

OT for dispatchers has averaged +$100k over the last three years
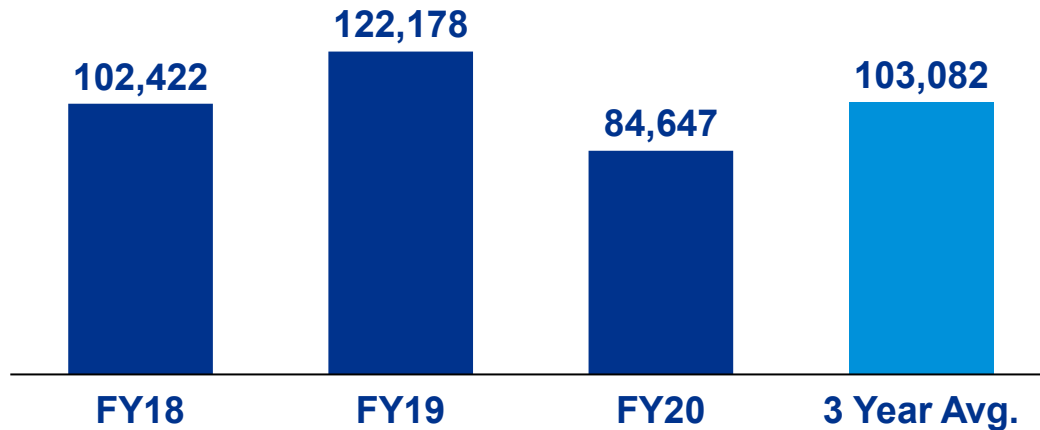
Cost Benefit Analysis ($)

*Assumes OT can be reduced by 80% with the hiring of 1 additional FTE*

FY18	FY19	FY20	3 Year Avg.
102,422	122,178	84,647	103,082

32,494 (39%)

- OT Savings @ 80% 3 Year Avg.: **82,466**
- Fully Loaded Cost - Comms Officer: **49,972**

Note(s): (1) Minimum Communications Officer salary = $32k; fringe benefits = 55%

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Jefferson St. staffing consists of 29 personnel that work approximately 145 hours weekly

Personnel Assignments by Day

- ■ Sergeants
- ■ Sr. Corporals
- ■ Corporal
- ■ Officer
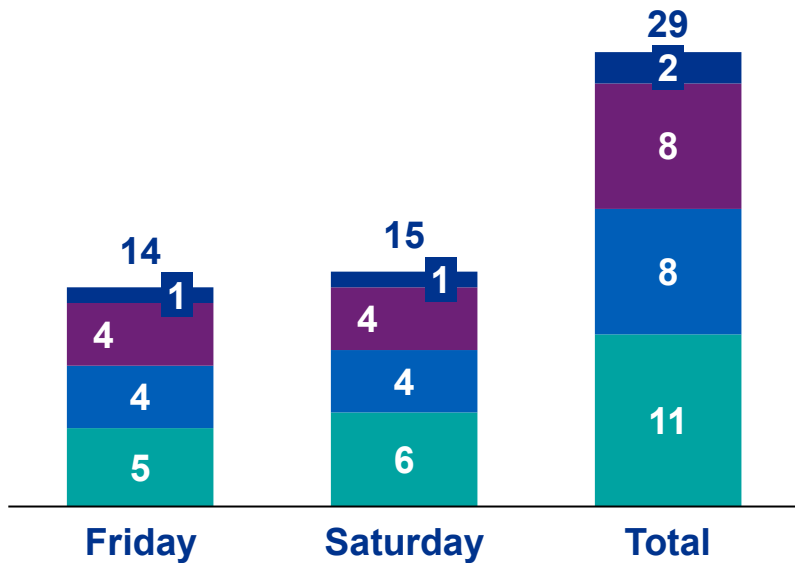
Jefferson Detail Overview
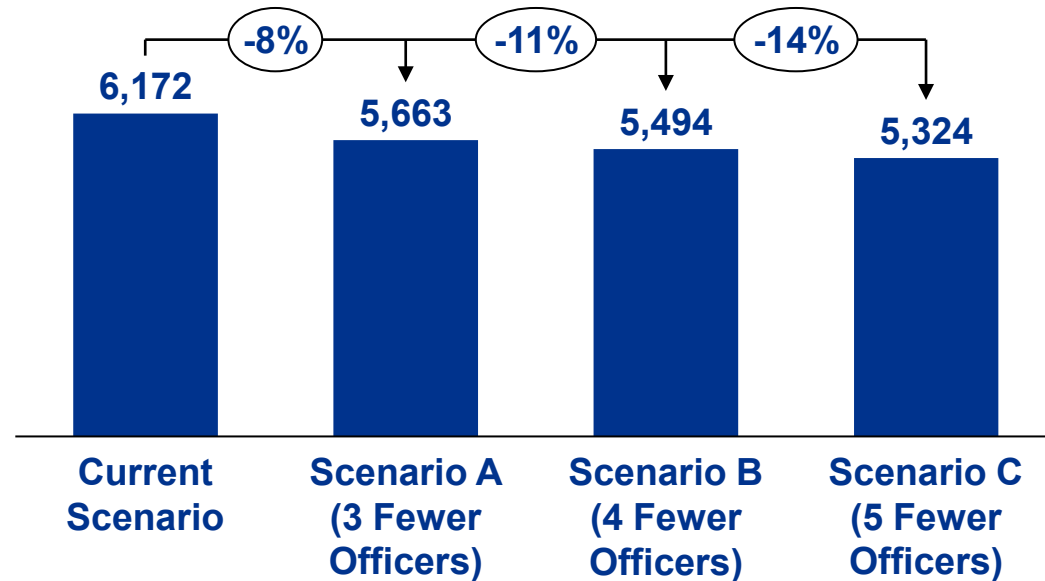
Overview of detail personnel, hours and costs

Rank	Personnel	Total Hours Worked[1]	OT Rate[2]	Est. Weekly OT Cost
Sergeant	2	10	$56.92	$569
Senior Corporal	8	40	$50.70	$2,028
Corporal	8	40	$42.75	$1,710
Officer	11	55	$33.91	$1,865
Total	**29**	**145**		**$6,172**

Note(s): (1) Assumes 5 hour shifts per person; (2) Equals 1.5x hourly wages from 7/30/21 manning table

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Transferring 3-5 LPD officers responsibilities to other law enforcement agencies reduces OT by 14% and $31k in savings

Est. Weekly OT Costs by Scenario
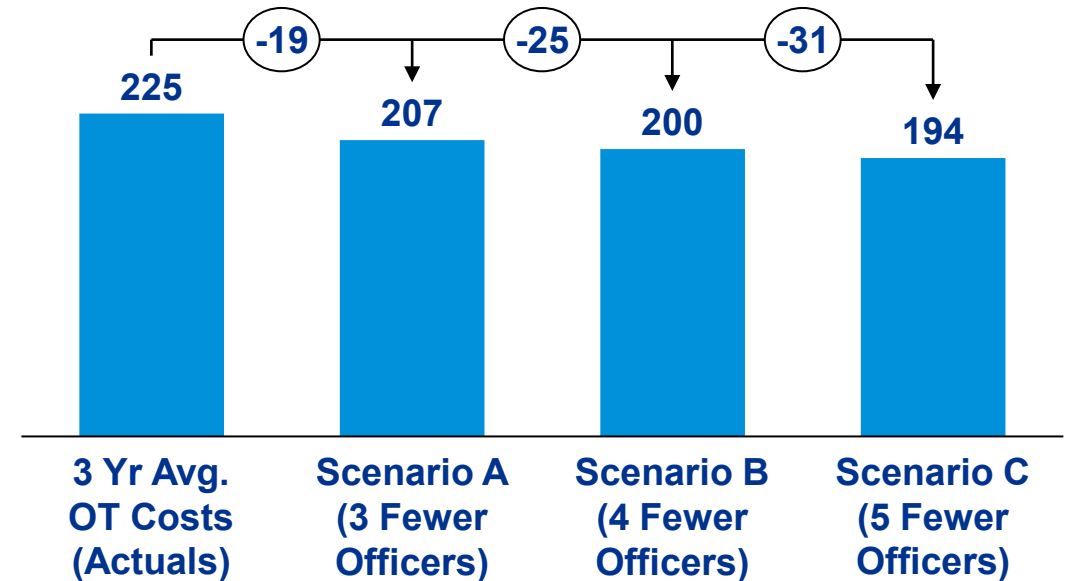
Est. Annual OT Costs[1] by Scenarios ($000s)

Reducing officers per detail will lead to weekly cost savings

Applying proportional weekly savings to the 3 year avg. results in between $19k-$31k in annual savings

Left chart:
- Current Scenario: 6,172
- Scenario A (3 Fewer Officers): 5,663 (-8%)
- Scenario B (4 Fewer Officers): 5,494 (-11%)
- Scenario C (5 Fewer Officers): 5,324 (-14%)

Right chart:
- 3 Yr Avg. OT Costs (Actuals): 225
- Scenario A (3 Fewer Officers): 207 (-19)
- Scenario B (4 Fewer Officers): 200 (-25)
- Scenario C (5 Fewer Officers): 194 (-31)

Note(s): (1) Jefferson detail OT costs, FY18 = $269k, FY19 = $257k, FY20 = $150k

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Appendix B:
Productivity
Improvement
Methodology

When considering "10% more", we classified each opportunity by level of effort and impact to prioritize opportunities

			Impact	
Effort	**Low**	*Low Impact / Low Effort*	*Medium Impact / Low Effort*	*High Impact / Low Effort*
	Medium	*Low Impact / Medium Effort*	*Medium Impact / Medium Effort*	*High Impact / Medium Effort*
	High	*Low Impact / High Effort*	*Medium Impact / High Effort*	*High Impact / High Effort*
		Low	Medium	High

Impact

🟩 Potential Quick Wins 🟨 Prioritize and wave implementation 🟥 De-prioritize, monitor for changes in effort

CATEGORIZATION DEFINITIONS		
Impact		
High		Significant organizational benefits; material improvement in service delivery or employee experience
Medium		Some organizational benefits which would improve service delivery or employee experience
Low		May improve service delivery or employee experience
Effort		
High		Requires more than ~100 hours to implement change
		Significant cross team collaboration and input required
Medium		Requires ~50 hours to implement change
		Some cross team collaboration and input required
Low		Requires ~25 hours or less to implement change
		Minimal cross team collaboration and input required

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Appendix C:
Diversion Incident
Mapping

Incident Type Mapping – Transfer

#	Incident Type Code	Incident Description	Reasoning (If Provided)
1	10	VEHICLE REQUEST TO LOCATE	DPR Response Only
2	100	HIT AND RUN	Non-sworn officer (assumes no leads available)
3	16	PROPERTY LOST/FOUND/RECOVE	Non-sworn officer
4	25	MENTAL COMPLAINT	Non-sworn officer; RIGHT Care alternative
5	2S	PATROL-SCHOOL SERVICE	Non-sworn officer
6	62	BURGLARY SIMPLE	Non-sworn officer or telephone/online reporting
7	62C	BURGLARY SIMPLE VEHICLE	Non-sworn officer or telephone/online reporting
8	65P	PURSE SNATCH	Non-sworn officer or telephone/online reporting
9	67A	THEFT FROM EXTERIOR	Non-sworn officer or telephone/online reporting
10	67B	THEFT BICYCLE	Non-sworn officer or telephone/online reporting
11	67C	THEFT BY CREDIT CARD	Non-sworn officer or telephone/online reporting
12	67F	THEFT OF FUEL	Non-sworn officer or telephone/online reporting

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Incident Type Mapping – Divert (1/4)

#	Incident Type Code	Incident Description	Reasoning (If Provided)
1	102	ANIMALS CRUELTY TO	Animal Control
2	102S	ROADSIDE SALE OF ANIMALS	Animal Control
3	13	ANIMAL LOOSE	Animal control
4	13C	ANIMAL CHECK TRAP	Animal control
5	13CW	ANIMAL WILDLIFE IN A TRAP	Animal control
6	13I	ANIMAL INJURED	Animal control
7	13IP	ANIMAL IN POSSESSION	Animal control
8	13L	LOOSE LIVESTOCK	Animal control
9	13P	ANIMAL TRAP PICKUP	Animal control
10	13S	ANIMAL TRAP SETUP	Animal control
11	13V	ANIMAL VICIOUS	Animal control
12	24L	TRAFFIC SIGNAL MALFUNCTION	Signal Maintenance
13	2A	PATROL, LOOSE ANIMAL	Animal control
14	36	INJURY-NONCRIMNAL NONTRAFF	Medical and/or Fire
15	36-1	ABDOMINAL PAIN	Medical and/or Fire
16	36-10	CHEST PAIN	Medical and/or Fire
17	36-11	CHOKING	Medical and/or Fire
18	36-13	DIABETIC PROBLEMS	Medical and/or Fire
19	36-16	EYE PROBLEMS/INJURIES	Medical and/or Fire
20	36-17	FALLS/BACK INJURIES(TRAUMA)	Medical and/or Fire

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Incident Type Mapping – Divert (2/4)

#	Incident Type Code	Incident Description	Reasoning (If Provided)
21	36-18	HEADACHE	Medical and/or Fire
22	36-19	HEART PROBLEMS	Medical and/or Fire
23	36-20	HEAT/COLD EXPOSURE	Medical and/or Fire
24	36-21	HEMORRHAGE/LACERATIONS	Medical and/or Fire
25	36-22	INDUSTRIAL/MACHINERY ACC	Medical and/or Fire
26	36-23	OVERDOSE/INGESTION/POISONING	Medical and/or Fire
27	36-24	PREGNANCY/CHILDBIRTH	Medical and/or Fire
28	36-26	SICK PERSON(SPECIFIC DIAG)	Medical and/or Fire
29	36-28	STROKE/CVA	Medical and/or Fire
30	36-29	INTERNAL INJURIES	Medical and/or Fire
31	36-3	ANIMAL BITES/ATTACKS	Animal Control
32	36-30	TRAUMATIC INCIDENTS-SPECIFIC	Medical and/or Fire
33	36-31	UNCONSCIOUS/FAINTING	Medical and/or Fire
34	36-32	UNKNOWN PROBLEM	Medical and/or Fire
35	36-34	CONTAGIOUS DISEASE	Medical and/or Fire
36	36-36	SHOCK	Medical and/or Fire
37	36-37	LACERATION	Medical and/or Fire
38	36-5	BACK PAIN (NON-TRAUMATIC)	Medical and/or Fire
39	36-51	BURN	Medical and/or Fire
40	36-6	BREATHING PROBLEMS	Medical and/or Fire

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Incident Type Mapping – Divert (3/4)

#	Incident Type Code	Incident Description	Reasoning (If Provided)
41	52	ARSON SIMPLE	Fire
42	52A	FIRE ALARM UNKNOWN	Fire
43	52AC	FIRE ALARM COMMERCIAL	Fire
44	52AP	AIRPORT FIRE	Fire
45	52AR	FIRE ALARM RESIDENTIAL	Fire
46	52C	COMMERCIAL FIRE	Fire
47	52D	DUMPSTER FIRE	Fire
48	52E	EXPLOSION	Fire
49	52F	FIRE UNKNOWN TYPE	Fire
50	52G	GRASS FIRE	Fire
51	52IN	FIRE INVESTIGATION	Fire
52	52R	RESIDENCE FIRE	Fire
53	52S	STANDBY HAZARDOUS SITUATION	Fire
54	52T	TRASH FIRE	Fire
55	52V	VEHICLE FIRE	Fire
56	61JV	JUNK VEHICLE	Environmental Quality
57	62A	BURGLAR ALARM	Alarm
58	62V	VEHICLE ALARM	Alarm
59	ALERT1	AIRCRAFT W/MINOR DIFFICULT	LPSO has Security Contract
60	ALERT2	AIRCRAFT W/MAJOR DIFFICULT	LPSO has Security Contract

Assumes alarm providers become first point and can distinguish false alarms from true emergencies requiring an LPD response

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Incident Type Mapping – Divert (4/4)

#	Incident Type Code	Incident Description	Reasoning (If Provided)
61	EDU	EMERGENCY DOOR UNLOCK	Pop a Lock and LPSO (LPD does not have any unlocking tools)

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Appendix D:
Vehicle Assignment
Mapping

No Vehicle, Total Personnel = 54 (1/2)

Division	Position	Number of Personnel
Administration	Chief's Secretary Civilian Employee	1
	Accreditation Manager Civilian Employee	1
	Video Clerk Supervisor Civilian	1
	Video Clerk Civilian	1
	Grant Coordinator Civilian Employee	1
	Mark 43 Temp Civilian Employee	1
	Budget Analyst Civilian Employee	1
	Personnel Clerk II Civilian Employee	1
	Subtotal	**8**
Patrol	Secretary/Records Clerk Civilian Employee	1
	Subtotal	**1**
Criminal Investigations	Narcotics/P1 Secretary Civilian Employee	1
	Property/Financial Secretary Civilian Employee	1
	Property/Pawn Shop Secretary Civilian Employee	1
	Persons Secretary Civilian Employee	1
	Youth Services Secretary Civilian Employee	1
	Subtotal	**5**

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No Vehicle, Total Personnel = 54 (2/2)

Division	Position	Number of Personnel
Services	Receptionist	2
	Technical Services Lieutenant	1
	Records Supervisor Civilian	1
	Communications Supervisors Civilian	4
	Central Records Civilians	9
	Dispatchers Civilians	16
	Alarms/Permits Clerk Civilian	1
	Accident Records Civilians	5
	Training Secretary Civilian Employee	1
	Subtotal	**40**

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Pooled Vehicles, Total Personnel = 43 (1/2)

Division	Position	Number of Personnel
Administration	Compliance/Review Lieutenant	1
	Public Integrity Lieutenant	1
	Technology Management	3
	PIO Sergeant	1
	PIO Corporal	1
	Subtotal	**7**
Patrol	Watch Commander	2
	Subtotal	**2**
Criminal Investigations	TNT Street	5
	TNT Street Interdiction	1
	Property/Financials Detectives	5
	Property/ Pawn Shop Detectives	5
	Youth Services Detectives	5
	Subtotal	**21**

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Pooled Vehicles, Total Personnel = 43 (2/2)

Division	Position	Number of Personnel
Services	Range Sergeant	1
	Range Officer	1
	DRO	2
	Custodians Civilians	4
	Training Sergeant	1
	Training Officers	2
	Evidence Sergeant	1
	Evidence Custodian Officer	1
	Subtotal	**13**

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Appendix E: Shift Analysis Methodology

Shift Analysis Methodology (1/3)

Shift analysis used: (1) CAD data to determine workload; (2) Patrol officer paycode data to determine productive / available time per officer and (3) Shift analysis to develop total productive time based on shift start times, length and officer count vs. workload
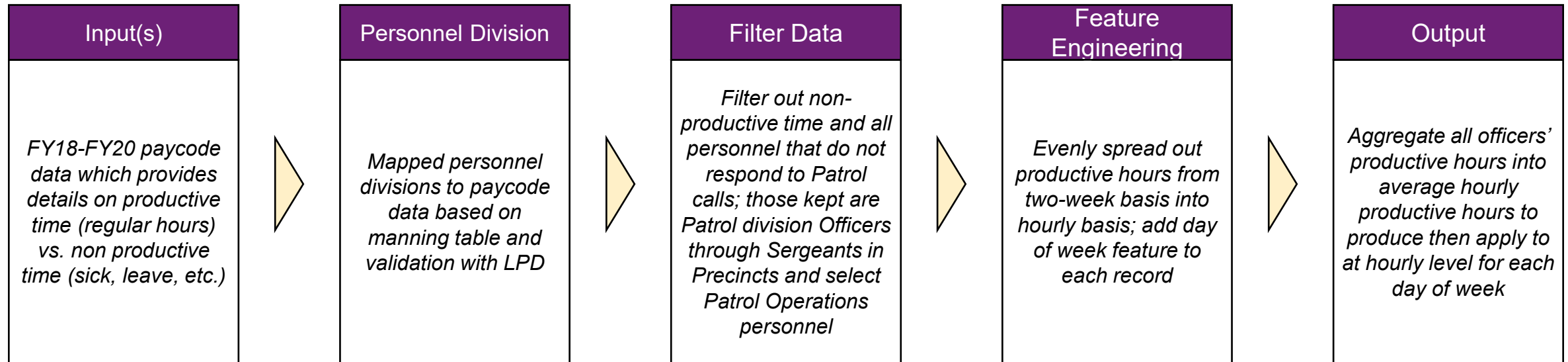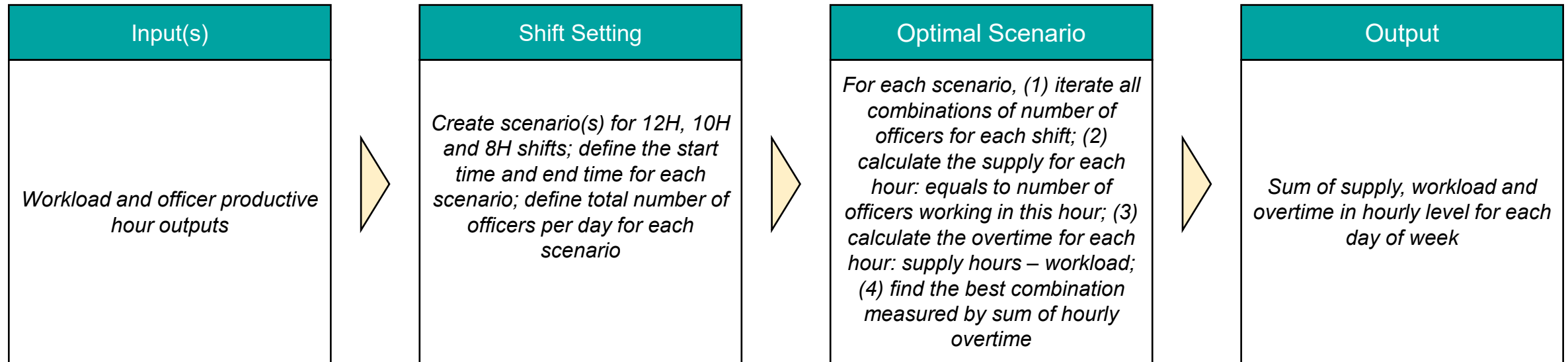
Workload Analysis

Input(s)		Feature Engineering		Data Cleansing		Incident Type		Output
Raw CAD data input contains start and end time for all Patrol incidents between 1/1/18 and 6/30/21		*Develop incident durations (assign time to incident close) as well as day of week and fiscal year*		*Identify outlier incidents (>5 hours or >6 officers respond); replace with average for that incident type*		*Develop incident type counts, avg. duration and total workloads*		*Plot total incident duration at hourly level for each day of week*

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Shift Analysis Methodology (2/3)

Shift analysis used: (1) CAD data to determine workload; (2) Patrol officer paycode data to determine productive / available time per officer and (3) Shift analysis to develop total productive time based on shift start times, length and officer count vs. workload

Officer Productive Hour

Input(s)	Personnel Division	Filter Data	Feature Engineering	Output
FY18-FY20 paycode data which provides details on productive time (regular hours) vs. non productive time (sick, leave, etc.)	*Mapped personnel divisions to paycode data based on manning table and validation with LPD*	*Filter out non-productive time and all personnel that do not respond to Patrol calls; those kept are Patrol division Officers through Sergeants in Precincts and select Patrol Operations personnel*	*Evenly spread out productive hours from two-week basis into hourly basis; add day of week feature to each record*	*Aggregate all officers' productive hours into average hourly productive hours to produce then apply to at hourly level for each day of week*

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Shift Analysis Methodology (3/3)

Shift analysis used: (1) CAD data to determine workload; (2) Patrol officer paycode data to determine productive / available time per officer and (3) Shift analysis to develop total productive time based on shift start times, length and officer count vs. workload

Shift Analysis

| Input(s)		Shift Setting		Optimal Scenario		Output
Workload and officer productive hour outputs	➤	*Create scenario(s) for 12H, 10H and 8H shifts; define the start time and end time for each scenario; define total number of officers per day for each scenario*	➤	*For each scenario, (1) iterate all combinations of number of officers for each shift; (2) calculate the supply for each hour: equals to number of officers working in this hour; (3) calculate the overtime for each hour: supply hours – workload; (4) find the best combination measured by sum of hourly overtime*	➤	*Sum of supply, workload and overtime in hourly level for each day of week*

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12 Hour Shift – (Select Days)

Scenario Details

	Shift 1	Shift 2	Shift 3	Total
Start Time	5:00:00	17:00:00	N/A	
End Time	17:00:00	5:00:00	N/A	
Officers / Shift	29	29	N/A	58
Officers Required				122
Total OT				281

Weekday (Monday)
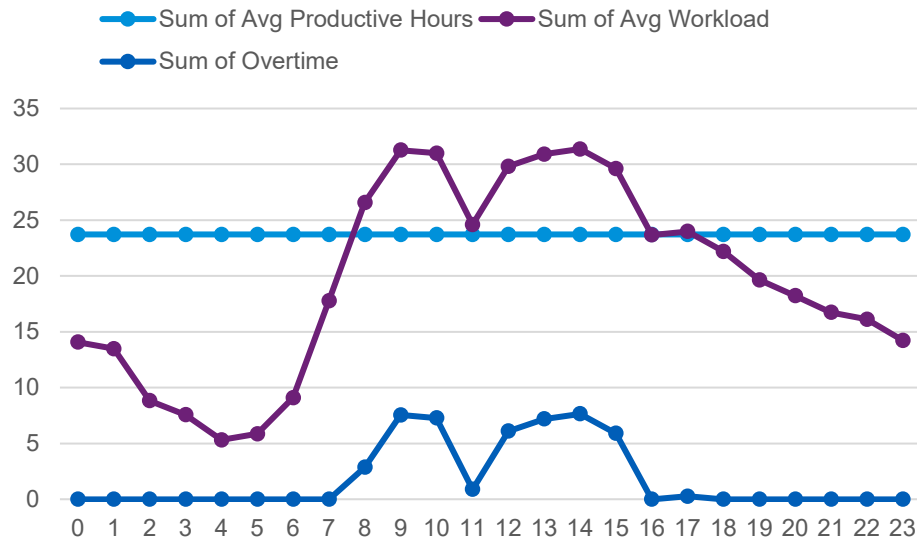
Weekend (Saturday)
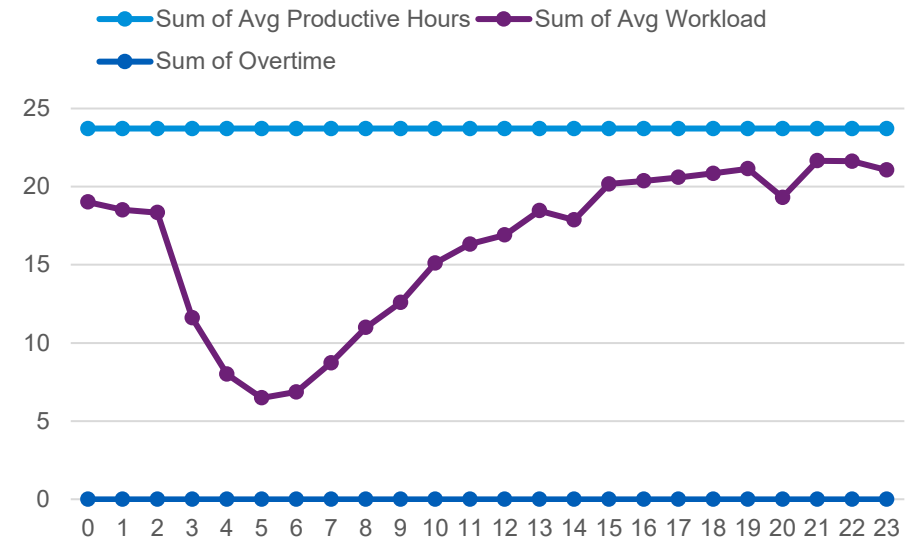
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10 Hour Shift – Scenario 1 (Select Days)

Scenario Details

	Shift 1	Shift 2	Shift 3	Total
Start Time	0:00:00	7:00:00	14:00:00	
End Time	10:00:00	17:00:00	0:00:00	
Officers / Shift	15	30	23	68
Officers Required				119
Total OT				265

Weekday (Monday)
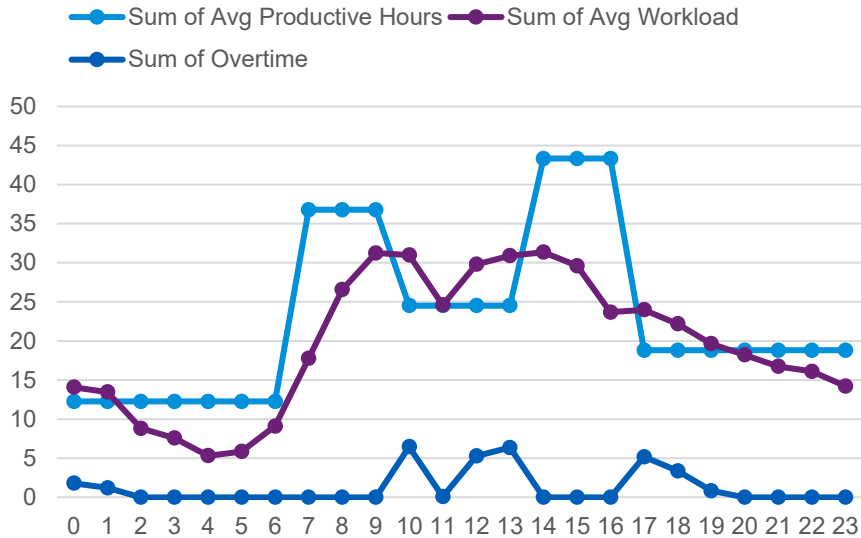
Weekend (Saturday)
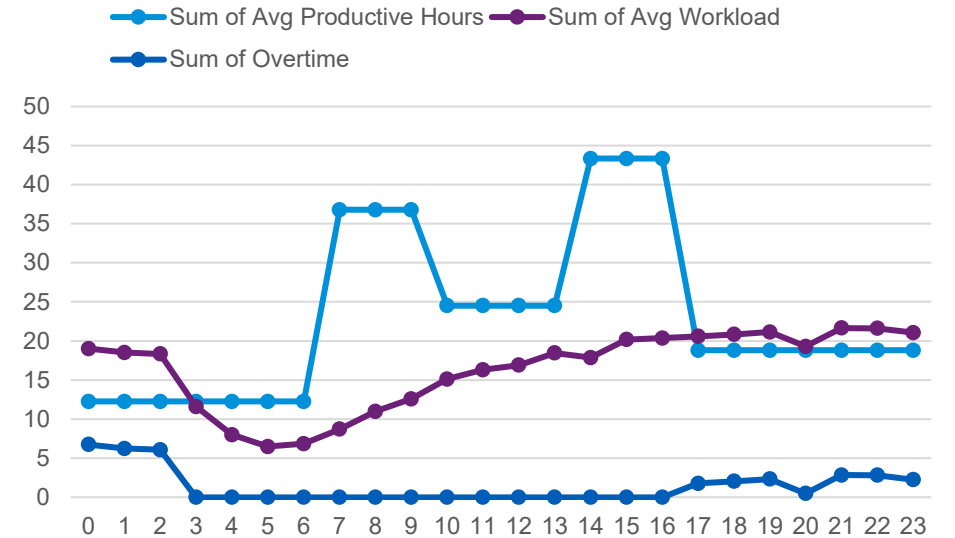
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10 Hour Shift – Scenario 2 (Select Days)

Scenario Details

	Shift 1	Shift 2	Shift 3	Total
Start Time	1:00:00	7:00:00	15:00:00	
End Time	11:00:00	17:00:00	1:00:00	
Officers / Shift	12	30	26	68
Officers Required				119
Total OT				220

Weekday (Monday)
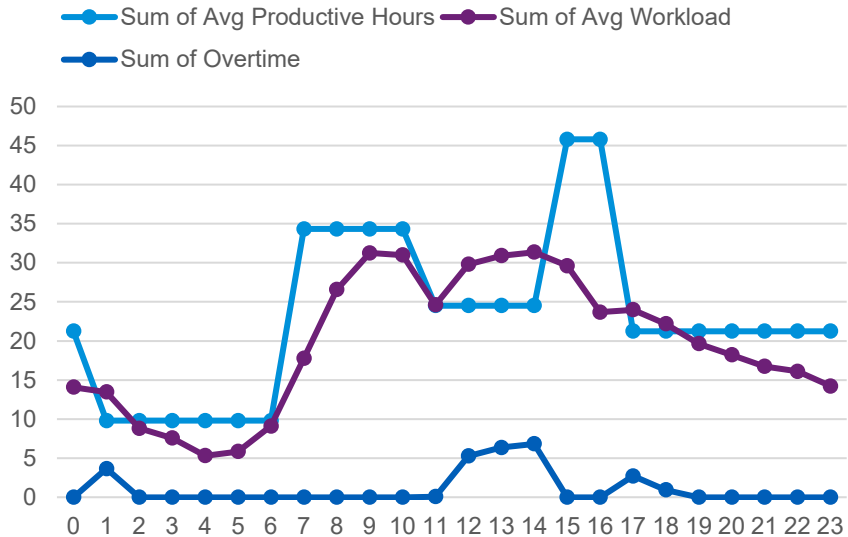
Weekend (Saturday)
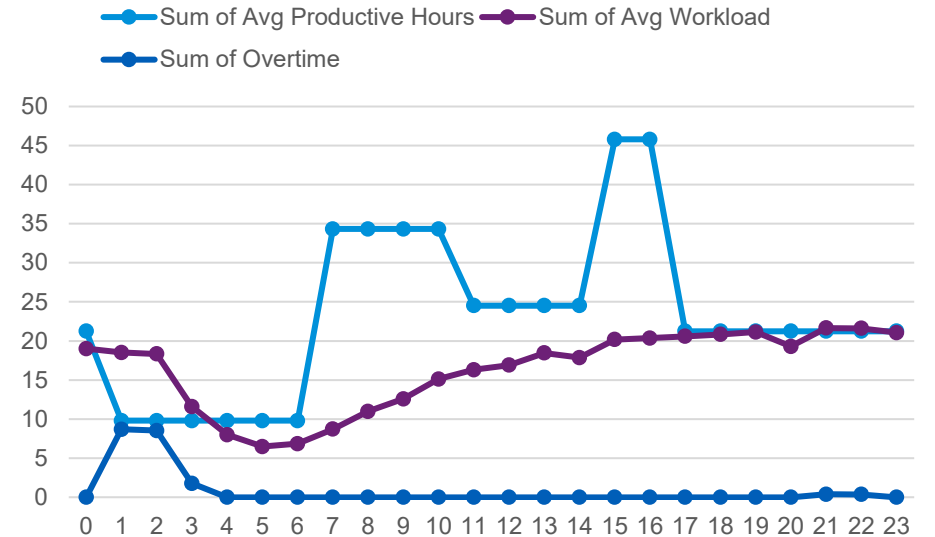
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8 Hour Shift – Scenario 1 (Select Days)

Scenario Details

	Shift 1	Shift 2	Shift 3	Total
Start Time	22:00:00	6:00:00	14:00:00	
End Time	6:00:00	14:00:00	22:00:00	
Officers / Shift	20	40	25	85
Officers Required				119
Total OT				241

Weekday (Monday)
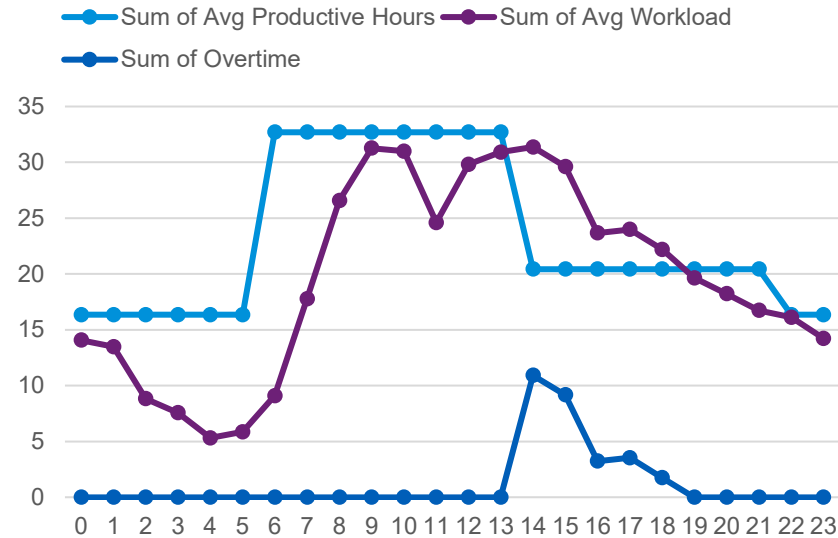
Weekend (Saturday)
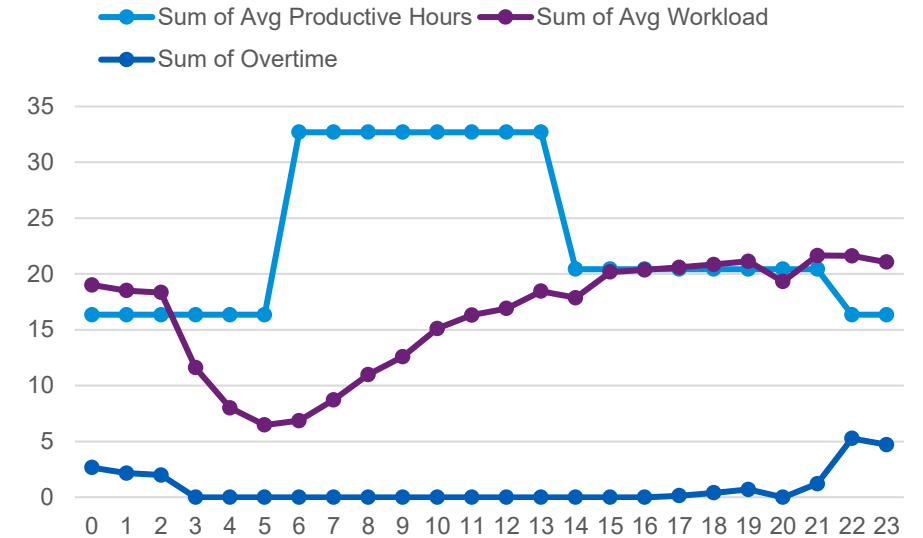
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8 Hour Shift – Scenario 2 (Select Days)

Scenario Details

	Shift 1	Shift 2	Shift 3	Total
Start Time	0:00:00	8:00:00	16:00:00	
End Time	8:00:00	16:00:00	0:00:00	
Officers / Shift	18	38	29	85
Officers Required				119
Total OT				103

Weekday (Monday)

Weekend (Saturday)

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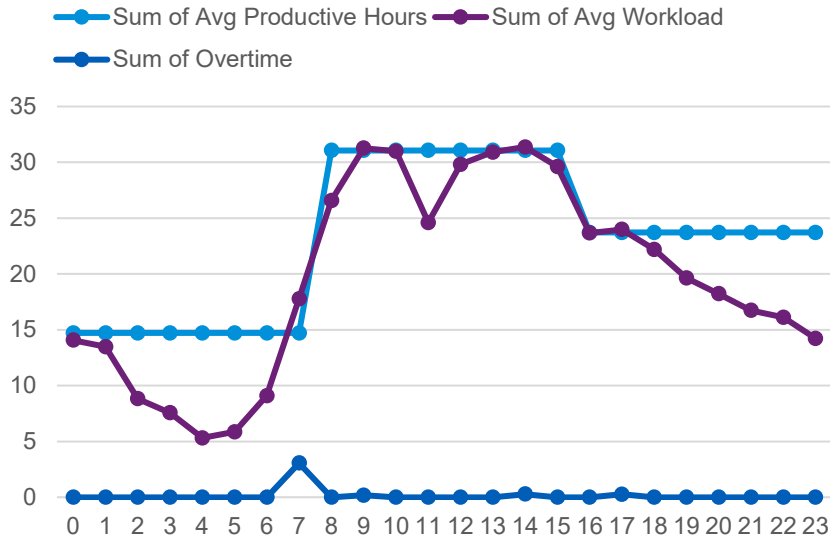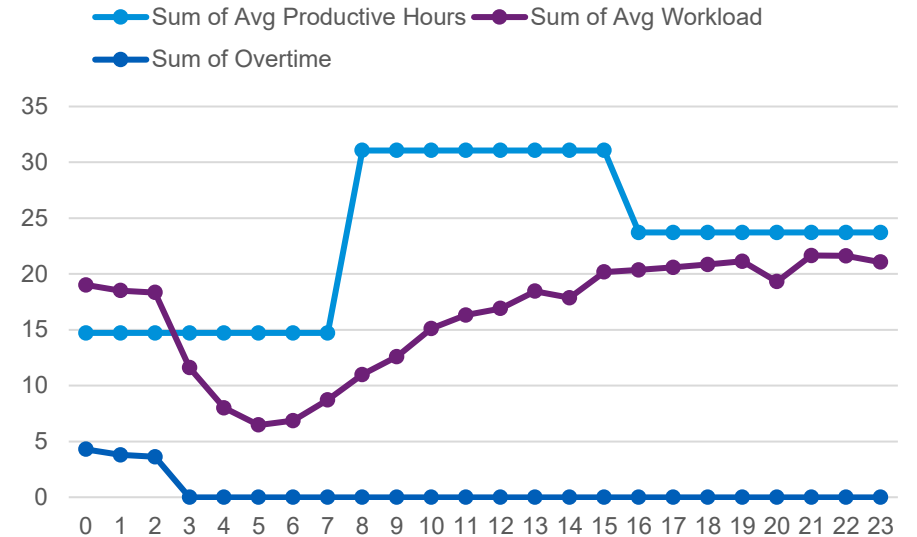
Appendix F:
LPD Interview List

We conducted ~20 interviews with leadership and department staff across two waves

Wave 1 Interviews

Brad Ridge (6/18/21)
Precinct 5 Captain

Terrance Olivier (6/21/21)
Asst. to the Chief

Blair Dore (6/22/21)
Patrol Major

Monte Potier (6/22/21)
Services Major

Dewitt Sheridan (6/29/21)
CID Major

Thomas Glover (6/29/21)
Chief

Wave 2 Interviews	

Craig Mouton (6/23/21)
Emergency Operations Captain

Dwayne Bertrand (6/29/21)
Precinct 3 Captain

Brooks Reviere (6/23/21)
Support Services Lt

Royce Starring (6/30/21)
Precinct 1 Captain

Michael Brown (6/24/21)
Patrol Support Captain

Judith Estorge (6/30/21)
Precinct 4 Captain

Chad Langley (6/24/21)
TNT Captain

Forrest Blanton (7/1/21)
Patrol Sergeant

Lance Leblanc (6/25/21)
CID Captain

Brad Robin (7/2/21)
Planning and Research Sgt

Robert McFarland (6/28/21)
Technical Services Lt

Doug Hanson (8/12/21)
Maintenance Supervisor

Jimmie Richard (6/29/21)
Precinct 2 Captain

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