Patrol Workload Analysis for the Edmonton Police Service

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EDMONTON POLICE SERVICE

Agenda

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Introduction

Why Conduct a Workload Analysis?

- Increasing public safety demands while operating within tight budgets – “do more with less”.
- There is a need for optimization and improving efficiency in police staffing.
- Conducting a workload analysis is the first step in identifying staffing gaps and aligning resources with the organization’s needs, based on community demands.

Right People, Right Place, Right Time: Why Police Staffing Studies Matter Now More Than Ever - National Policing Institute

Methods

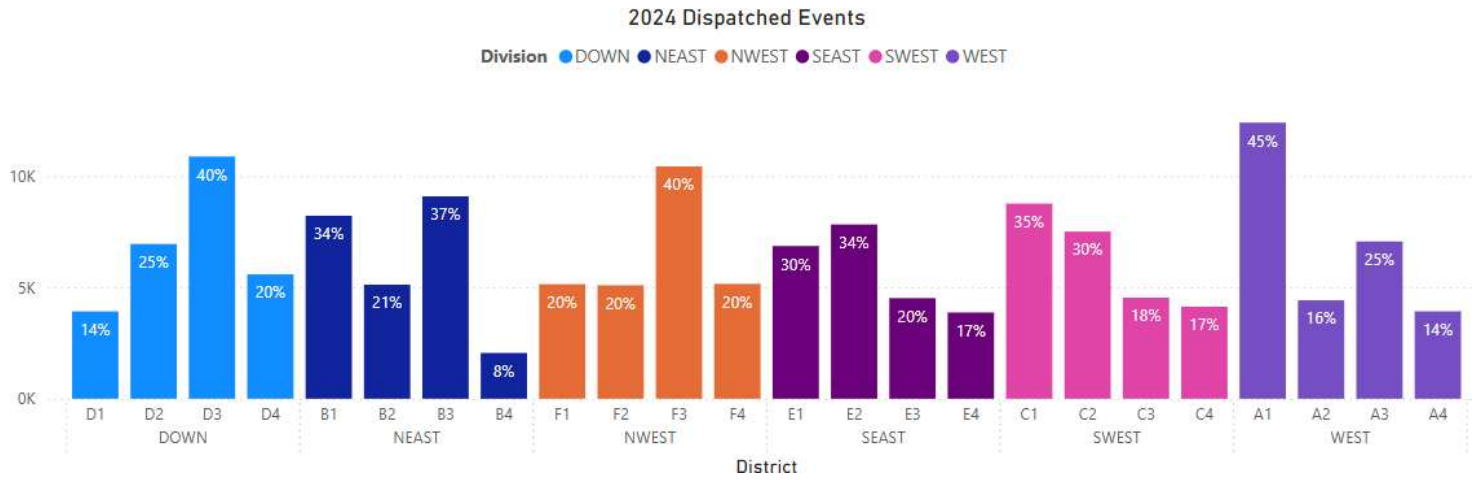
How was the Data Pulled?

- Timeline: 2018 – Oct 2024, for pre-Covid, Covid, post-Covid comparison
- Data: Calls for Service Data
- Units: Response Units at EPS. Beats Units not included.
- Call Volume – indicator of workload
  - Distribution Across Districts
  - Spatial Temporal Analysis
  - Cross District Dispatching

Analysis

District Distributions

- There is an inequality between districts, and some districts contain as much as 45% of the Calls for Service for a division.
- 1-2 districts in each division have a larger proportion of calls.
- The day of the week and time of day influences the magnitude of differences between the districts.



Spatial Temporal Analysis

- The number of events across the districts in a division is dependent on the time of day and day of week
- As a result of this analysis, EPS is piloting a new deployment tool in one of our divisions.

Northwest

		Hour Block																							
	Day Of Week	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
F1	Monday	45	14	16	19	15	8	16	26	29	31	35	34	34	40	38	41	44	37	39	34	36	29	30	29
	Tuesday	22	22	10	10	13	9	19	17	33	29	34	46	36	42	42	40	39	31	38	33	37	41	43	33
	Wednesday	33	14	17	18	16	12	12	22	22	33	31	33	35	39	38	38	29	42	41	32	35	29	32	28
	Thursday	18	10	16	17	16	11	15	19	29	30	26	26	18	40	41	48	49	40	36	36	44	28	34	21
	Friday	30	21	20	17	19	11	9	24	32	35	27	35	36	30	28	47	49	45	45	39	32	34	37	39
	Saturday	30	23	18	26	11	19	17	15	18	19	29	32	32	33	41	28	23	26	47	31	38	29	41	40
	Sunday	34	26	22	26	23	11	7	11	23	20	25	27	29	30	32	31	43	38	33	48	35	27	27	35
F2	Monday	20	22	15	21	7	11	17	20	23	31	31	38	40	45	32	34	41	37	38	29	32	32	34	27
	Tuesday	21	15	19	3	11	9	16	11	19	32	29	42	43	39	41	48	46	46	43	34	36	23	23	30
	Wednesday	24	12	10	10	6	14	19	15	26	25	29	43	33	41	46	45	44	41	39	43	39	42	38	27
	Thursday	26	16	17	11	10	9	10	21	22	34	35	33	37	33	47	48	38	36	38	43	43	42	37	35
	Friday	19	12	13	6	13	9	8	19	21	22	46	25	39	32	38	52	45	37	42	28	47	45	41	23
	Saturday	23	24	20	26	16	9	11	17	19	19	34	28	40	37	45	37	39	26	31	25	27	34	39	27
	Sunday	35	27	26	19	18	13	13	9	20	17	24	44	30	36	34	37	43	35	37	27	33	33	31	32
F3	Monday	55	60	46	36	42	32	31	51	44	58	57	82	84	89	87	92	85	100	64	91	99	81	75	68
	Tuesday	65	50	37	34	18	32	42	56	62	67	62	76	82	78	88	82	82	84	94	85	75	76	74	67
	Wednesday	54	33	51	48	27	36	38	38	54	73	59	72	83	99	83	94	86	80	93	87	93	66	80	52
	Thursday	59	44	48	38	44	30	40	44	46	60	50	67	78	83	72	91	92	91	76	88	62	98	76	63
	Friday	51	51	47	51	36	35	38	45	57	62	59	67	81	76	82	82	100	81	81	95	78	78	63	77
	Saturday	61	52	56	45	46	35	35	29	48	61	62	66	73	73	63	88	75	90	87	95	90	73	73	76
	Sunday	59	70	47	35	39	35	29	40	34	41	51	60	89	74	71	68	62	72	89	76	84	56	74	65
F4	Monday	21	8	24	20	7	1	8	18	28	28	36	36	29	45	47	48	40	34	32	40	39	35	26	29
	Tuesday	19	24	15	9	10	4	9	15	24	35	33	27	45	37	33	55	42	51	48	41	49	34	38	29
	Wednesday	17	17	8	12	12	6	9	19	29	29	28	24	38	48	40	49	51	43	41	35	42	41	31	28
	Thursday	17	19	21	9	7	3	10	18	23	26	38	36	41	40	36	42	40	39	43	50	47	32	38	28
	Friday	30	20	15	17	10	9	10	14	29	39	28	36	43	32	34	51	49	52	53	39	40	43	53	37
	Saturday	28	22	21	10	12	12	8	5	20	30	14	26	27	29	35	28	40	33	30	43	42	42	41	51
	Sunday	36	29	23	27	15	13	11	5	19	13	26	30	32	37	48	40	34	36	33	40	35	48	33	31

Patrol Cross District Dispatching *

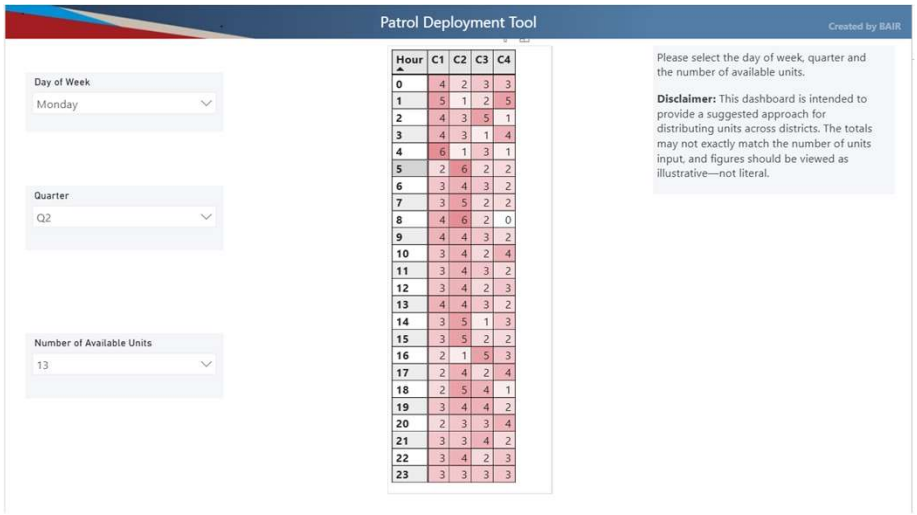
- We have seen stable rates of Cross District Dispatching in the past 5 years.
- City-wide cross district dispatching is ~70%. Units cross district boundaries to respond to a majority of calls.
- 90% of these events are exceeding 100m of the district boundary, meaning they are not ‘toeing the line’, they are responding to calls well within other districts.

Unit Division	DOWN				NEAST				NWEST				SEAST				SWEST				WEST			
Year	D1	D2	D3	D4	B1	B2	B3	B4	F1	F2	F3	F4	E1	E2	E3	E4	C1	C2	C3	C4	A1	A2	A3	A4
2020	73%	71%	72%	71%	69%	60%	71%	60%	70%	70%	66%	67%	56%	78%	64%	60%	51%	61%	53%	71%	72%	62%	76%	67%
2021	71%	72%	73%	71%	71%	64%	71%	63%	73%	71%	64%	67%	57%	77%	68%	61%	52%	65%	57%	70%	71%	64%	76%	69%
2022	69%	71%	73%	72%	71%	63%	70%	63%	71%	68%	63%	66%	58%	73%	66%	59%	53%	63%	59%	63%	69%	63%	70%	66%
2023	71%	71%	75%	73%	69%	66%	71%	64%	70%	67%	66%	70%	51%	64%	59%	51%	57%	62%	61%	56%	68%	66%	68%	64%
2024	71%	73%	75%	76%	71%	68%	72%	70%	71%	71%	68%	72%	56%	65%	63%	57%	57%	66%	64%	63%	70%	68%	71%	69%

*Excludes Static Dayshift

How is EPS Addressing Inequality in Call Distribution?

- Internal Deployment Dashboard: Makes recommendations for how many units to deploy per district, based on call volume by hour blocks



Hour	C1	C2	C3	C4
0	4	2	3	3
1	5	1	2	5
2	4	3	5	1
3	4	3	1	4
4	6	1	3	1
5	2	6	2	2
6	3	4	3	2
7	3	5	2	2
8	4	6	2	0
9	4	4	3	2
10	3	4	2	4
11	3	4	3	2
12	3	4	2	3
13	4	4	3	2
14	3	5	1	3
15	3	5	2	2
16	2	1	5	3
17	2	4	2	4
18	2	5	4	1
19	3	4	4	2
20	2	3	3	4
21	3	3	4	2
22	3	4	2	3
23	3	3	3	3

What are some desired outcomes of the pilot?

- The dashboard is used by supervisors responsible for deploying response units.
- An increase in member-generated calls for service, replacing public generated calls for service.
- Improved response times to public generated calls for service.
- Iterate – validate, fine-tune, expand to all divisions.

Summary

Summary

- Within each Division, there is an inequality in the distribution of calls for service between districts, with 1-2 districts in each division demanding a larger proportion of calls.
- Within each Division, Calls for Service demands vary depending on Day of Week, and Hour Block.
- ~70% of units city-wide cross district boundaries to respond to calls, and travel a significant distance across boundaries.
- EPS designed the Patrol Deployment Tool to address these issues.

THANK YOU

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