



# 2025 EXCELLENCE CONFERENCE



IGNITING INNOVATION

FUELING THE FUTURE OF THE FIRE AND EMERGENCY SERVICE



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# Leveraging Data Warehouses

**John Morrison**  
**Jessica Handoko**



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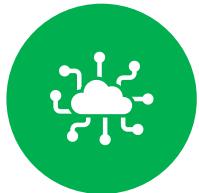
Introductions  
(AKA building cred)



What is a Data  
Warehouse?



Database vs.  
Data Warehouse



Combining  
Data Sources



Visualize,  
Automate, & Predict



Questions  
(AKA grill presenters)



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## Who are we??

### Jessica Handoko

- “Gen Z Jessica”
- COVID class graduate 2020
  - BS in criminal justice & biology
- 5 years of experience
  - 1 year as a police intern
  - 1 year as a DHHS data administrator
  - 3 years as a fire/EMS data analyst
  - Admin Volunteer with GWGVFD (MD)
- Proud dog mom
- Wants to be paid to travel & eat
- Boba enthusiast

### John Morrison

- 29 years as a volunteer firefighter
  - 15 years as Chief
- 21 years on USAR
- 20 years of IT project management
- Lifetime as a 90s rap enthusiast
  - Met DMX IRL
- That one GREEN BUBBLE in the group chat



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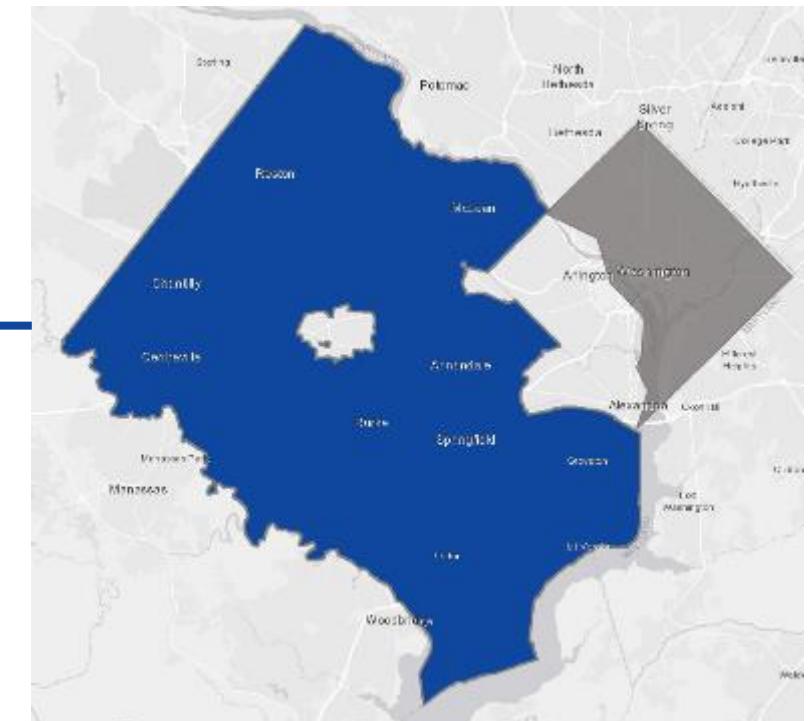
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## Fairfax County, Virginia



1.2 million population  
406 square miles

*Largest jurisdiction in the National Capital Region*





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## Fairfax County Fire & Rescue

### Personnel

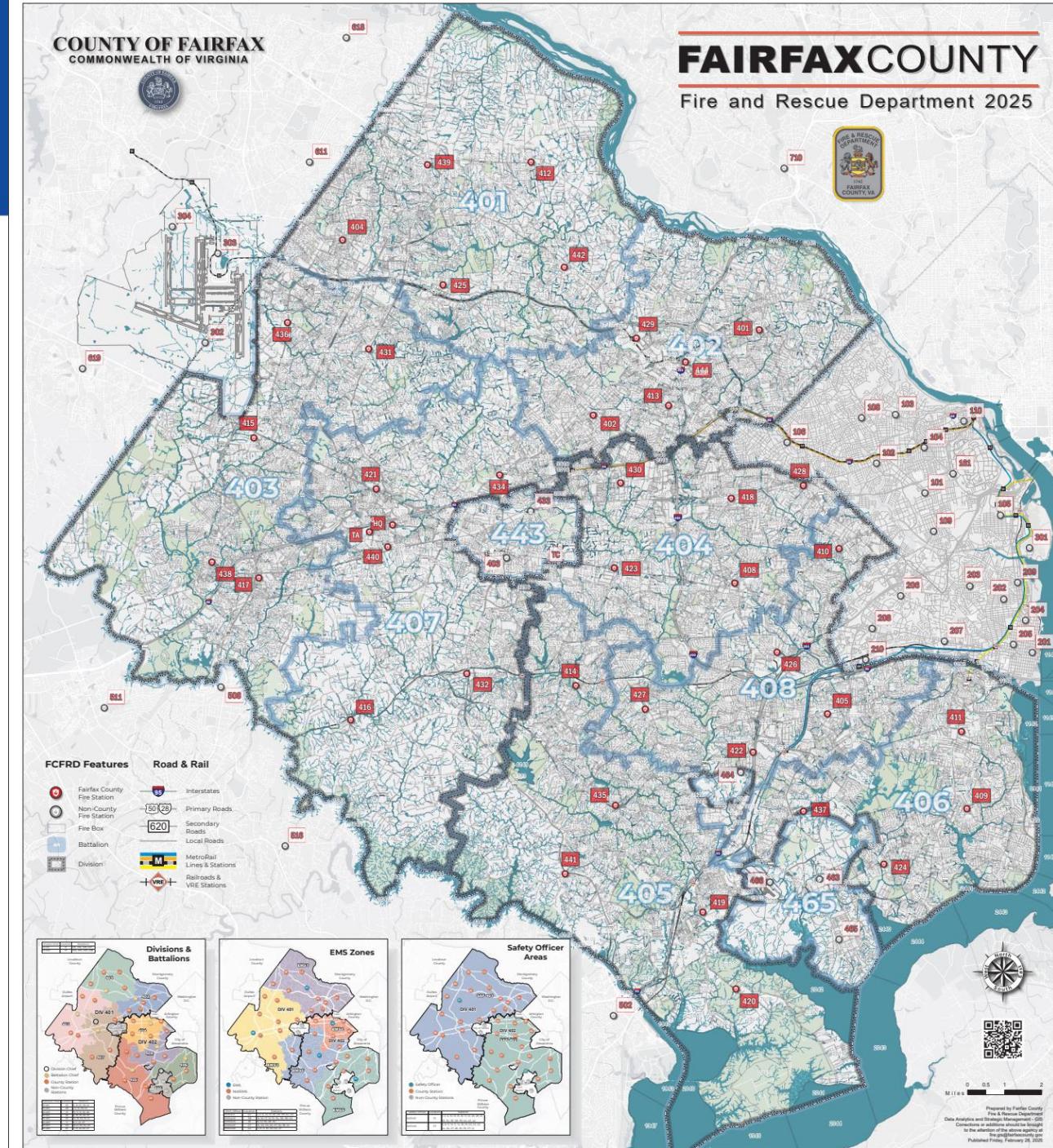
- ~1,400 career uniformed
- ~300 active volunteers
- 200 civilians

### Organization

- 2 divisions
- 8 battalions
- 39 fire stations

### Call Volume Annually

- ~130,000 incidents
- ~250,000 unit responses
- ~70,000 transports



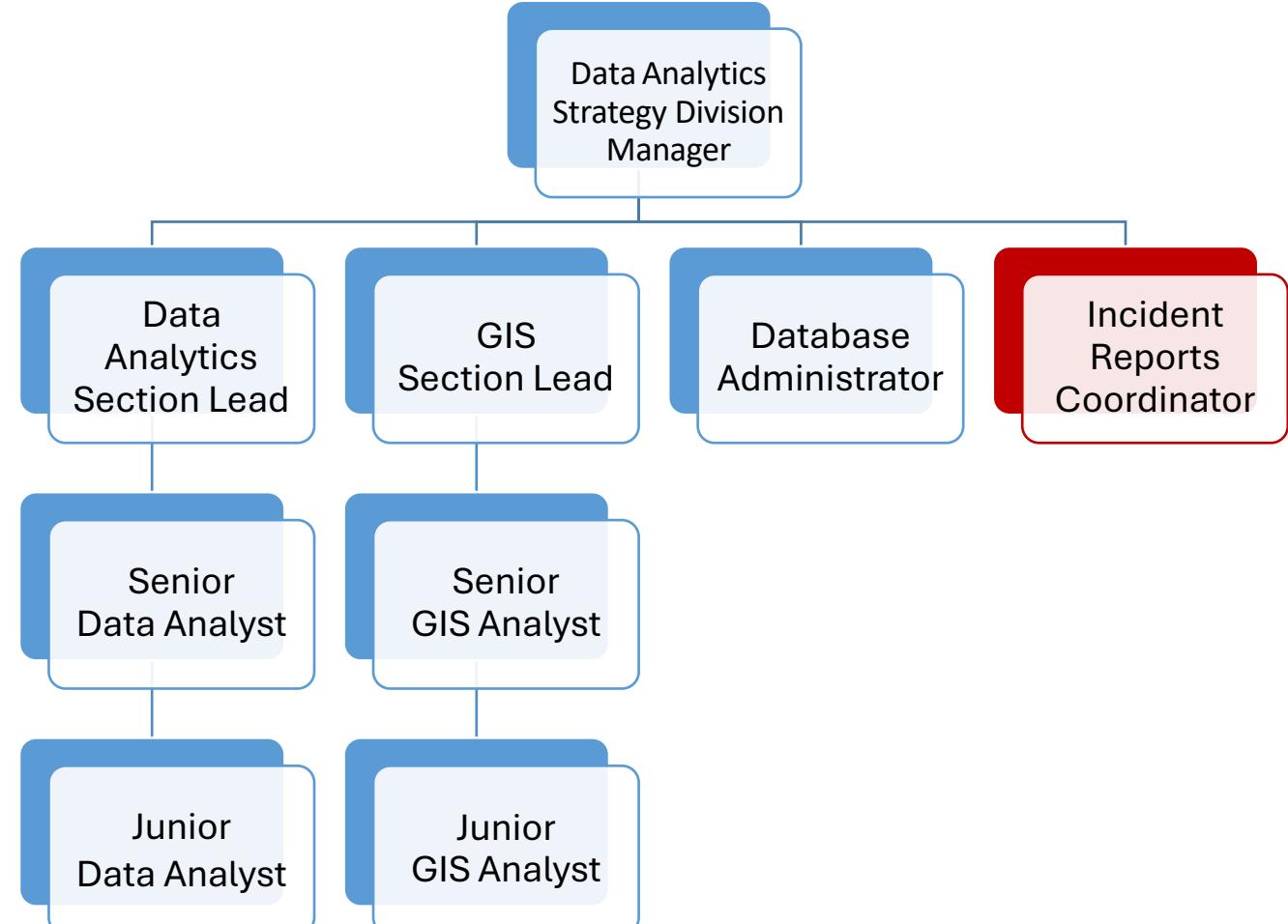


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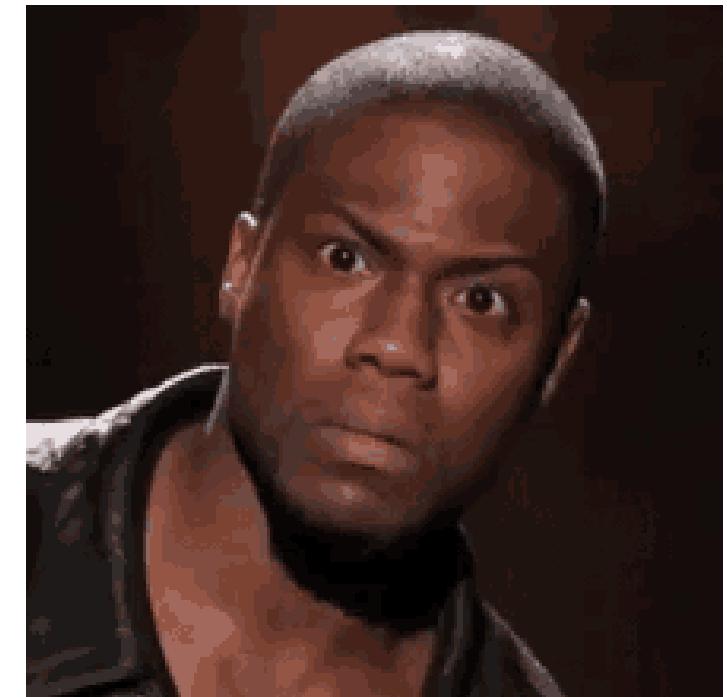


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## Data Warehouse

- What is a Data Warehouse?
- Database vs. Data Warehouse
- Do I need a Data Warehouse?
- How would I use a Data Warehouse?





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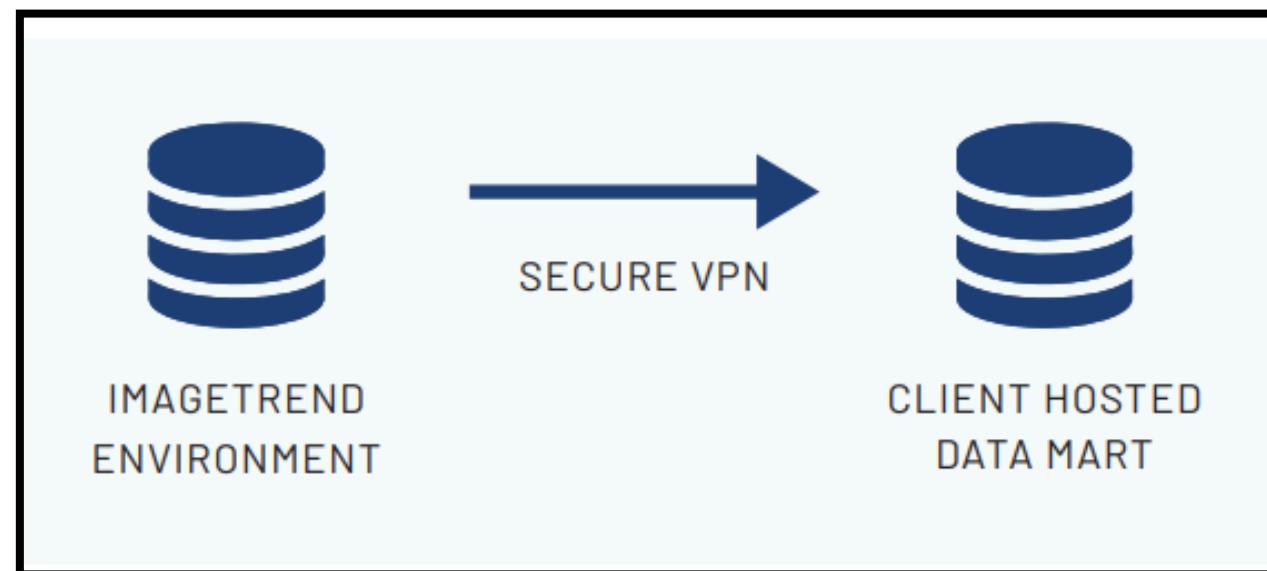


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## Vendor Provided Data Warehouse

- Data resides in agency's managed environment
- Continuously refreshed as new records are created in RMS





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## Data Warehouse



ORACLE



- Database Engine
  - Extraction, Transformation, Loading (ETL) Operations
- Many Vendors
  - Microsoft SQL Server / Azure Synapse
  - Oracle
  - AWS Redshift
  - Apache Hive
  - more
- On Prem v. Cloud



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## What's the difference?

### Database

- CRUD transactions
- Simple transactional queries
- Many users
- Structured for efficiency (no duplication of data)
- Most up to date information
- One system

### Data Warehouse

- Read transactions
- Complex analytical queries
- Small number of users
- Structured for querying (duplication of data is acceptable)
- Up to date as reasonably required
- Data from many systems



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## Do I need a Data Warehouse?

No...

- No data analyst(s) or DBA
  - Agency or municipal level
- No money or interest in acquiring the necessary infrastructure

Maybe...

- Some data analyst support (or an eager data-savvy member)
- Access to a DBA and needed infrastructure

Yes...

- Investment in data from leadership
- Data Analyst(s)
- DBA (ideal)

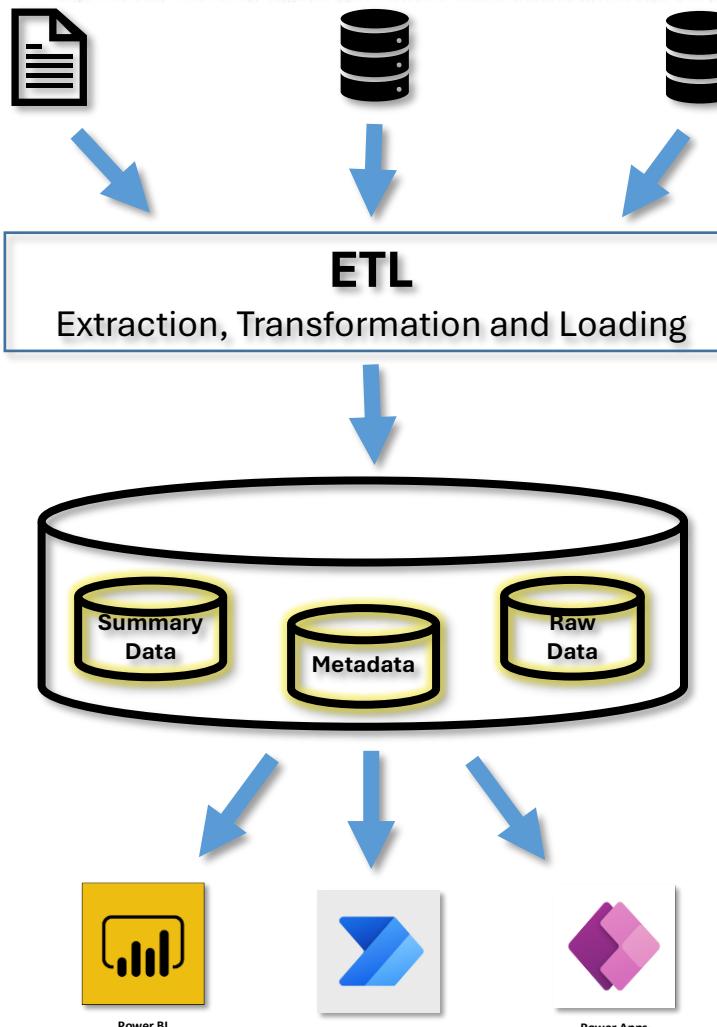


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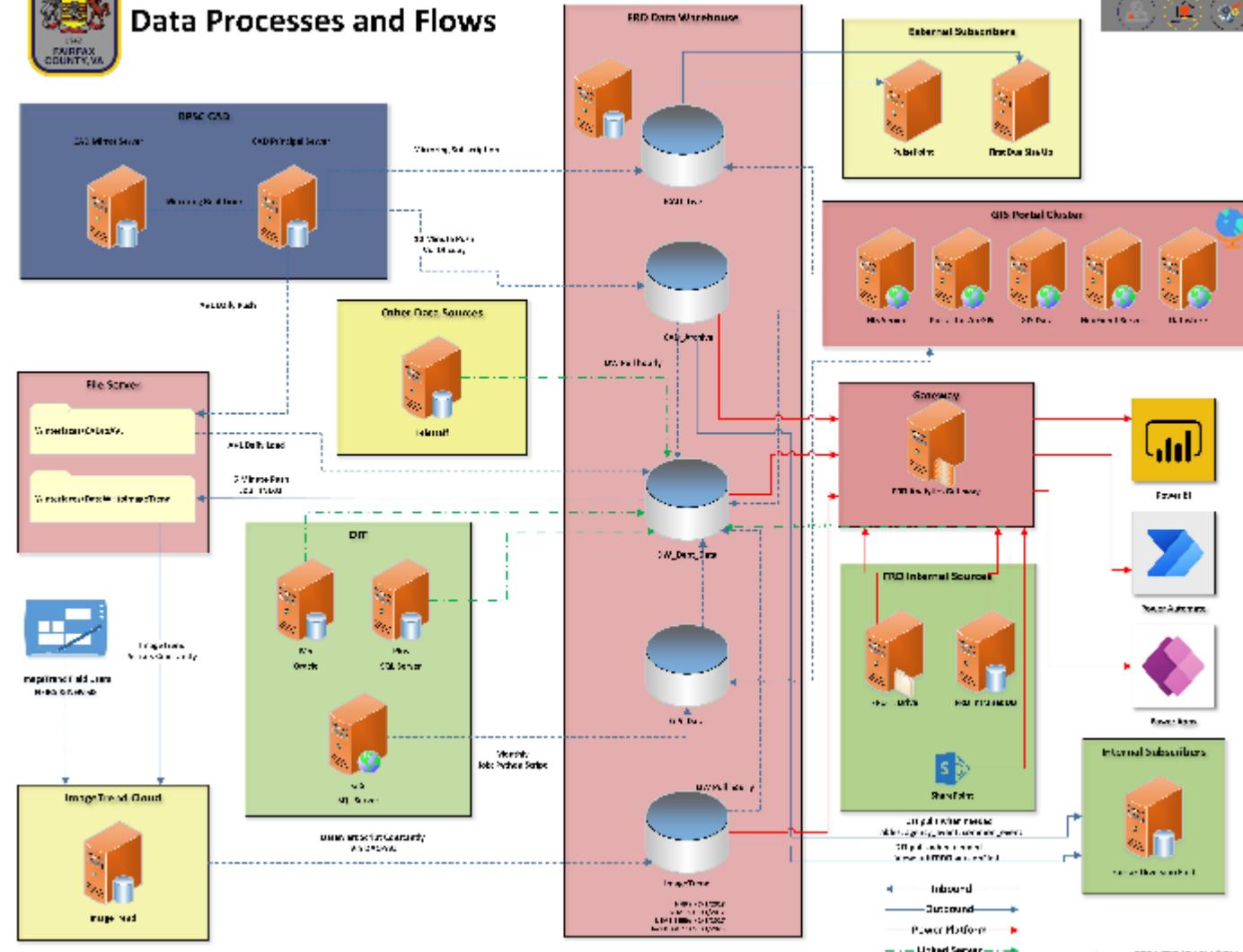


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## Fairfax County Fire & Rescue Department Data Processes and Flows





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## How would I use a Data Warehouse?

- Microsoft Power BI
- Tableau
- Microsoft Power Apps
- ArcGIS



Power BI



Microsoft  
PowerApps





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## Data Warehouse Structures

- Dimension Tables
- Fact Tables

EventID	IncidentNumber	UnitID	UnitIDSummarized	UnitIDImageTrend	UnitType	UnitSubType	UnitAgency	UnitBattalion	UnitDivision	UnitStation	isALS	DispatchNumber	DispatchXCoordinate	DispatchYCoordinate	DispatchGeoLocation	UnitDispatchedDT	UnitEnrouteDT	UnitArriveDT	ArrivedFlag	UnitWithPat
350821	E100011423	E408	E408	E408	Engine	NULL	County	404	402	08	0	D00000079540	11855584.00	6988893.00	0xE080000010C00000000DC9C66410000004017A95A41	2010-01-01 14:11:03.000	2010-01-01 14:12:35.000	NULL	0	NULL
350821	E100011423	M426	M426	M426	Medic	NULL	County	408	402	26	1	D00000079541	11861575.95	6979054.43	0xE080000010C00000000C9F6641000000807B9F5A41	2010-01-01 14:11:04.000	2010-01-01 14:11:50.000	NULL	0	NULL
350821	E100011423	SAF401	SAF401	Safety Officer	NULL	County	403	401	31	0	D00000079542	11855079.30	7000989.11	0xE080000010C000000E09C9C664100000040E7B45A41	2010-01-01 14:12:53.000	2010-01-01 14:12:53.000	2010-01-01 14:16:00.000	1	NULL	
350821	E100011423	M429	M429	Medic	NULL	County	402	401	29	1	D00000079544	11845787.23	6997560.08	0xE080000010C000000601398664100000008EB15A41	2010-01-01 14:15:09.000	2010-01-01 14:15:10.000	NULL	0	NULL	
350839	E100011441	E430	E430	E430	Engine	NULL	County	404	402	30	0	D00000079545	11839151.21	7003220.61	0xE080000010C000000E0D59466410000004015B75A41	2010-01-01 14:17:53.000	2010-01-01 14:18:31.000	2010-01-01 14:21:59.000	1	NULL
350847	E100011441	M433	M433	Medic	NULL	City	B43	NULL	33	1	D00000079546	11826492.00	6999161.00	0xE080000010C00000080A78E6641000000401EB35A41	2010-01-01 14:17:53.000	2010-01-01 14:18:40.000	2010-01-01 14:21:55.000	1	NULL	
350890	E100011492	E421	E421	Engine	NULL	County	407	401	21	0	D00000079548	11804456.00	7002345.00	0xE080000010C000000E5836641000000403AB65A41	2010-01-01 14:35:39.000	2010-01-01 14:38:01.000	NULL	0	NULL	
350890	E100011492	TL440	TL440	Truck	Tower	County	407	401	40	0	D00000079549	11803645.37	6992855.26	0xE080000010C000000A07F836641000000C0F5AC5A41	2010-01-01 14:35:39.000	2010-01-01 14:35:56.000	2010-01-01 14:38:29.000	1	NULL	
350890	E100011492	E415	E415	Engine	NULL	County	403	401	15	0	D00000079550	11786736.38	7009240.60	0xE080000010C00000003E7B664100000040F6BC5A41	2010-01-01 14:35:39.000	2010-01-01 14:36:21.000	NULL	0	NULL	
350908	E100011510	E422	E422	Engine	NULL	County	408	402	22	0	D00000079555	11858135.92	6964731.18	0xE080000010C0000001B9E6641000000C07E915A41	2010-01-01 14:42:03.000	2010-01-01 14:42:59.000	2010-01-01 14:46:26.000	1	NULL	
350908	E100011510	M422	M422	Medic	NULL	County	408	402	22	1	D00000079556	11858723.70	6974232.06	0xE080000010C00000080649E6641000000C69A5A41	2010-01-01 14:42:04.000	2010-01-01 14:42:22.000	2010-01-01 14:47:49.000	1	NULL	
350910	E100011512	E435	E435	Engine	NULL	County	405	402	35	0	D00000079559	11838565.22	6957131.57	0xE080000010C000000A08C946641000000138A5A41	2010-01-01 14:44:01.000	2010-01-01 14:45:50.000	2010-01-01 14:51:58.000	1	NULL	
350910	E100011512	T441	T441	Truck	Truck	County	405	402	41	0	D00000079560	11831359.00	6947394.00	0xE080000010C000000E079166410000008090805A41	2010-01-01 14:44:02.000	2010-01-01 14:46:28.000	2010-01-01 14:51:44.000	1	NULL	
350981	E100011513	E410	E410	Engine	NULL	County	408	402	10	0	D00000079557	11870444.64	6993858.72	0xE080000010C000000A01DA46641000000C0FAD5A41	2010-01-01 14:43:15.000	2010-01-01 14:44:34.000	2010-01-01 14:46:00.000	1	NULL	
350981	E100011513	M410	M410	Medic	NULL	County	408	402	10	1	D00000079558	11870443.00	6993829.00	0xE080000010C000000601DA4664100000040E9AD5A41	2010-01-01 14:43:16.000	2010-01-01 14:43:48.000	2010-01-01 14:45:53.000	1	NULL	
350916	E100011519	TL440	TL440	Truck	Tower	County	407	401	40	0	D00000079561	11805973.20	6998794.98	0xE080000010C000000A0A2846641000000C02B25A41	2010-01-01 14:47:56.000	2010-01-01 14:48:19.000	2010-01-01 14:47:57.000	1	NULL	
350923	E100011526	E426	E426	Engine	NULL	County	408	402	26	0	D00000079562	11861672.01	6979006.09	0xE080000010C000000059F66410000008060F9F5A41	2010-01-01 14:50:29.000	2010-01-01 14:53:29.000	2010-01-01 15:11:12.000	1	NULL	
350934	E100011537	R414	R414	Rescue Squad	NULL	County	405	402	14	0	D00000079563	11832897.41	6974641.12	0xE080000010C00000020C8916641000000402C9B5A41	2010-01-01 14:52:41.000	2010-01-01 14:53:37.000	NULL	0	NULL	
350952	E100011555	HM440	HM440	Hazmat	NULL	County	407	401	40	0	D00000079564	11806062.49	6994144.66	0xE080000010C000000C0AD8466410000004038AE5A41	2010-01-01 14:59:45.000	NULL	NULL	0	NULL	
350952	E100011555	M440	M440	Medic	NULL	County	407	401	40	1	D00000079565	11806031.98	7001711.00	0xE080000010C000000AA0E46641000000C09B5A441	2010-01-01 14:59:45.000	2010-01-01 15:05:39.000	1	NULL	NULL	
350952	E100011555	E440	E440	Engine	NULL	County	407	401	40	0	D00000079566	11805624.68	6996629.81	0xE080000010C000000207784664100000080A5B05A41	2010-01-01 15:00:55.000	2010-01-01 15:00:56.000	2010-01-01 15:04:33.000	1	NULL	
350963	E100011566	E410	E410	Engine	NULL	County	408	402	10	0	D00000079567	11870482.50	6993829.39	0xE080000010C0000000224A664100000040E9AD5A41	2010-01-01 15:03:07.000	NULL	2010-01-01 15:07:49.000	1	NULL	
350966	E100011569	E428	E428	Engine	NULL	County	404	402	28	0	D00000079568	11865350.00	7002831.00	0xE080000010C000000COA01A6641000000C0B3B65A41	2010-01-01 15:04:46.000	2010-01-01 15:05:41.000	2010-01-01 15:09:56.000	1	NULL	
350966	E100011569	A410	A410	Ambulance	NULL	County	408	402	10	0	D00000079569	11870474.76	6993836.57	0xE080000010C000000602A4664100000040EBAD5A41	2010-01-01 15:04:47.000	2010-01-01 15:07:42.000	2010-01-01 15:08:50.000	1	NULL	
350967	E100011570	E415	E415	Engine	NULL	County	403	401	15	0	D00000079572	11787670.75	7009429.37	0xE080000010C000000E0B27B66410000004025BD5A41	2010-01-01 15:06:59.000	2010-01-01 15:10:12.000	NULL	0	NULL	
350967	E100011570	M417	M417	Medic	NULL	County	403	401	17	1	D00000079573	11801337.15	7006683.41	0xE080000010C000000205F826641000000C076BA5A41	2010-01-01 15:06:59.000	2010-01-01 15:09:36.000	NULL	0	NULL	
350968	E100011571	T425	T425	Truck	Truck	County	401	401	25	0	D00000079750	11813742.38	7031556.27	0xE080000010C00000002D868641000000C1D25A41	2010-01-01 15:05:28.000	2010-01-01 15:05:55.000	2010-01-01 15:11:24.000	1	NULL	
350968	E100011571	M425	M425	Medic	NULL	County	401	401	25	1	D00000079751	11841550.00	7023876.00	0xE080000010C000000C00196664100000041CB5A41	2010-01-01 15:05:29.000	2010-01-01 15:08:50.000	2010-01-01 15:15:56.000	1	NULL	
350990	E100011595	E435	E435	Enaine	NULL	County	405	402	35	0	D00000079755	11838573.00	6957159.00	0xE080000010C000000A08D946641000000C0198A5A41	2010-01-01 15:13:46.000	2010-01-01 15:14:55.000	2010-01-01 15:19:44.000	1	NULL	



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## Flattening / Denormalizing Data

Optimizing Data for Querying / Reporting

CallConfirmedDT	AlarmDT	FirstDispatchedDT	FirstEnrouteDT	FirstArrivedDT	NFIRSTTypeCode	CalcCall2Alarm	CalcAlarm2FirstDispatch	CalcCall2FirstDispatch	CalcCall2FirstArrive	CalcAlarm2FirstArrive	CalcFirstDispatch2FirstArrive
2023-01-04 05:14:53.000	2023-01-04 05:16:02.000	2023-01-04 05:16:20.000	2023-01-04 05:18:14.000	2023-01-04 05:20:29.000	111	69	18	87	336	267	249
2023-04-20 20:11:13.000	2023-04-20 20:12:22.000	2023-04-20 20:12:45.000	2023-04-20 20:13:22.000	NULL	150	69	23	92	NULL	NULL	NULL
2023-04-20 20:16:19.000	2023-04-20 20:18:29.000	2023-04-20 20:18:53.000	2023-04-20 20:19:51.000	2023-04-20 20:22:33.000	561	130	24	154	374	244	220
2023-04-21 01:09:24.000	2023-04-21 01:10:37.000	2023-04-21 01:11:02.000	2023-04-21 01:12:20.000	2023-04-21 01:17:53.000	322	73	25	98	509	436	411
2023-04-22 13:51:09.000	2023-04-22 13:51:09.000	2023-04-22 13:51:50.000	2023-04-22 13:56:17.000	2023-04-22 13:51:50.000	324	0	41	41	41	41	0
2023-05-05 12:08:21.000	2023-05-05 12:11:59.000	2023-05-05 12:12:32.000	2023-05-05 12:13:40.000	2023-05-05 12:16:19.000	113	218	33	251	478	260	227
2023-05-05 21:34:07.000	2023-05-05 21:34:25.000	2023-05-05 21:34:44.000	2023-05-05 21:35:14.000	2023-05-05 21:39:05.000	100	18	19	37	298	280	261
2023-05-20 19:50:18.000	2023-05-20 19:51:20.000	2023-05-20 19:51:48.000	2023-05-20 19:52:16.000	2023-05-20 19:58:01.000	745	62	28	90	463	401	373
2023-05-21 07:03:10.000	2023-05-21 07:03:10.000	2023-05-21 07:04:51.000	2023-05-21 07:05:03.000	2023-05-21 07:09:54.000	600	0	101	101	404	404	303
2023-06-03 20:47:21.000	2023-06-03 20:48:14.000	2023-06-03 20:48:43.000	2023-06-03 20:49:17.000	2023-06-03 20:52:09.000	154	53	29	82	288	235	206
2023-06-03 21:23:56.000	2023-06-03 21:27:19.000	2023-06-03 21:27:53.000	2023-06-03 21:27:59.000	2023-06-03 21:31:12.000	440	203	34	237	436	233	199
2023-06-06 20:24:52.000	2023-06-06 20:25:53.000	2023-06-06 20:26:11.000	2023-06-06 20:26:38.000	2023-06-06 20:31:05.000	111	61	18	79	373	312	294
2023-07-02 19:15:51.000	2023-07-02 19:19:15.000	2023-07-02 19:19:41.000	2023-07-02 19:20:55.000	2023-07-02 19:28:39.000	631	204	26	230	768	564	538
2023-07-03 22:46:22.000	2023-07-03 22:47:56.000	2023-07-03 22:48:18.000	2023-07-03 22:48:37.000	2023-07-03 22:50:49.000	117	94	22	116	267	173	151
2023-07-03 23:27:19.000	2023-07-03 23:27:19.000	2023-07-03 23:27:37.000	2023-07-03 23:27:42.000	2023-07-03 23:34:22.000	111	0	18	18	423	423	405
2023-07-18 14:11:54.000	2023-07-18 14:14:10.000	2023-07-18 14:14:40.000	2023-07-18 14:14:51.000	2023-07-18 14:19:06.000	411	136	30	166	432	296	266
2023-08-01 21:19:56.000	2023-08-01 21:21:03.000	2023-08-01 21:21:57.000	2023-08-01 21:22:20.000	2023-08-01 21:25:57.000	651	67	54	121	361	294	240
2023-01-14 02:21:32.000	2023-01-14 02:25:21.000	2023-01-14 02:26:10.000	2023-01-14 02:27:04.000	2023-01-14 02:33:03.000	131	229	49	278	691	462	413
2023-01-25 10:25:37.000	2023-01-25 10:27:07.000	2023-01-25 10:27:51.000	2023-01-25 10:28:04.000	2023-01-25 10:34:32.000	442	90	44	134	535	445	401
2023-01-30 00:01:24.000	2023-01-30 00:01:24.000	2023-01-30 00:01:56.000	2023-01-30 00:03:44.000	2023-01-30 00:11:46.000	160	0	32	32	622	622	590
2023-01-30 00:21:14.000	2023-01-30 00:22:00.000	2023-01-30 00:22:20.000	2023-01-30 00:24:06.000	2023-01-30 00:30:14.000	731	46	20	66	540	494	474



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## How easy is it to answer your questions?

Find the geolocation of the first arriving ladder truck when it was dispatched for every incident....

That started as a fire alarm....

And became a structure fire....

When the incident was dispatched before 7pm....

In the Hunter Mill Supervisor District....

On a Monday within the last 10 years....

Where it was a county holiday....

And the turnout time was less than 90 seconds?

```
select UnitID, DispatchGeoLocation
from Fact_CADRMS_Incidents

inner join Fact_CADRMS_Incidents_Units on
    Fact_CADRMS_Incidents.IncidentNumber =
    Fact_CADRMS_Incidents_Units.IncidentNumber
inner join Dim_Date on Fact_CADRMS_Incidents.DimDateFK =
    Dim_Date.DimDatePK

where UnitType = 'Truck'
and UnitArrivalOrderType = 1
and DispatchedIncidentType in ('ACOM', 'ARES', 'ALRMFD')
and FinalIncidentType like 'F%'
and DatePart(HOUR,unitdispatcheddt) < 19
and GeoSupervisorDistrict = 'HUNTER MILL'
and DayNumberOfWeek = 2
and RelativeYear >= -10
and IsHoliday = 1
and CalcUnitDispatch2Enroute < 90
```



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## We have the data now what????

- Visualize
- Automate
- Predict





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## Visualize Data

- Transparency & Trust
- Tell A Story
- “If you’re going to be asked twice, do it once”





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## Synergies in Combining Data Sources

- NEMSIS
- NFIRS / NERIS
- Fire Investigations
- Personnel
- Inspections
- Checklists
- Audit Logs
- GIS
- Staffing
- Vehicle Maintenance
- HR / Payroll
- CAD
- Weather
- Census
- Property / Parcel data



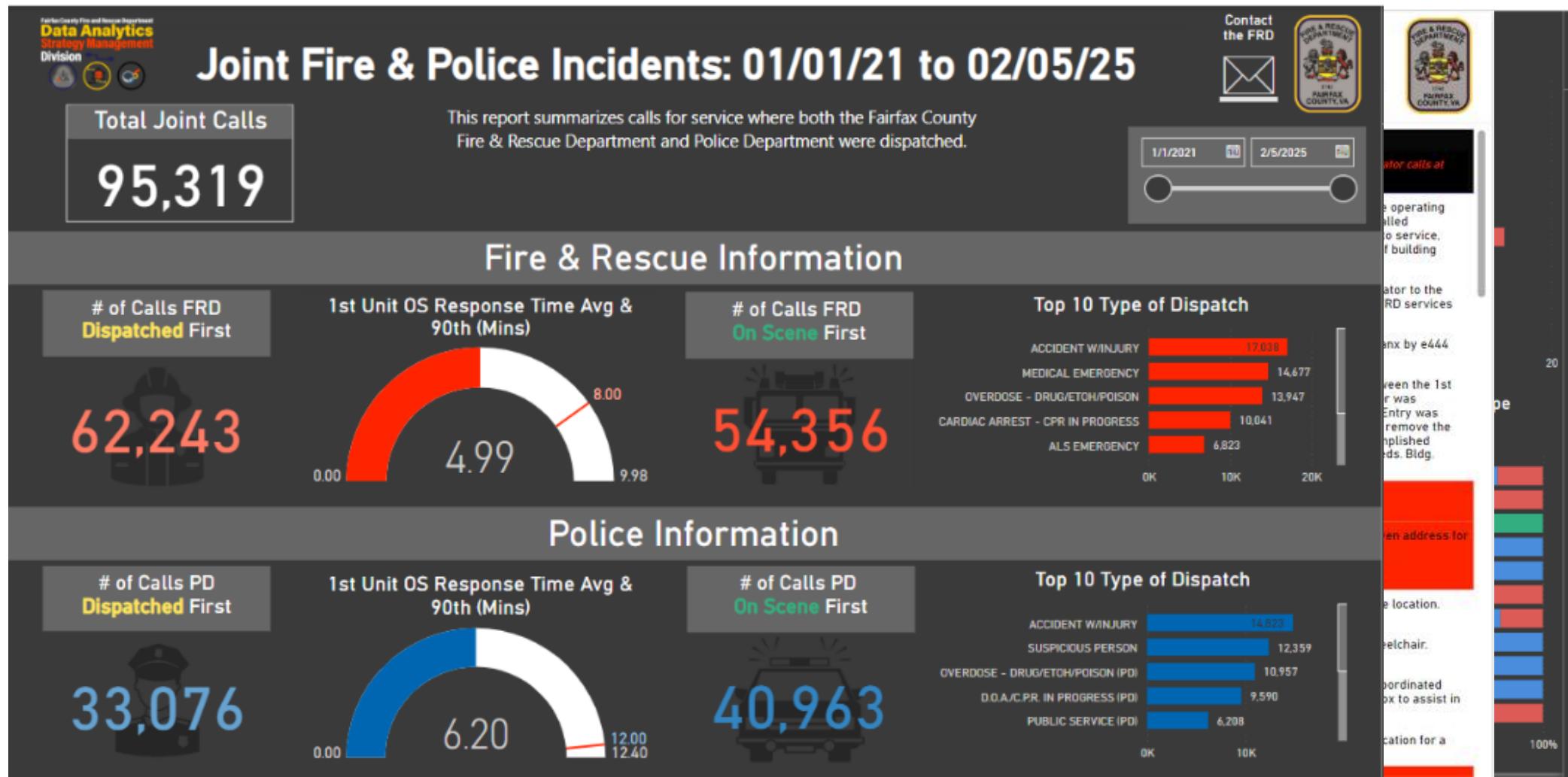
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- Apparatus Status Fleet
- Elevator Report
- Joint Fire & Police Incidents





# 2025 EXCELLENCE CONFERENCE



IGNITING INNOVATION

FUELING THE FUTURE OF THE FIRE AND EMERGENCY SERVICE

- DIRTS – Daily Incident Report Tracking System
- ePCR CQI
- Personnel Dispatch History
- Suppression QA

## Combine Data Sources (Internal)

### BOX ALARM DASHBOARD

Unit Type: All

# Dispatched: 23    # Arrived: 22    # Command Officers: 3

Radio Channel(s): 4D, 4E

Ladders Utilized: 0/0

Water on Fire (Mins): 6.67

Lap Time (Mins): 0.75

Incident Timeline:

- First Suppression Unit Dispatched: 11/11/24 15:07
- First Suppression Unit Arrived: 11/11/24 15:11
- First Command Officer Arrived: 11/11/24 15:13
- Lap Completed: 11/11/24 15:12
- Water on Fire: 11/11/24 15:18
- Last Suppression Unit Available: 11/11/2024 5:39:5...

90th Per of Unit Dispatch to Arrival (Mins): 22.10 (Actual: 2.18, Target: 32.67)

90th Per of Unit Dispatch to Available (Mins): 141.87 (Actual: 14.32, Target: 152.18)

Hose Lines Utilized:

Diameter	Location	Purpose	Comments
1 3/4" Crosslay (250')	Window - Side A	Attack	
1 3/4" Crosslay (250')	Window - Side C	Attack	
1 3/4" Rear Deploy (400')	Window - Side B	Attack	

Incident Number: [REDACTED] Call Confirmed: 11/11/2024 3:05:41 PM

Weather Condition: Mostly Cloudy    Temperature: 71.96

Incident Photos:

- Type: Other
- Image: [Photo of interior fire scene]
- Image: [Photo of exterior fire scene]

Right-click on the image and open in a new tab to view it in full size



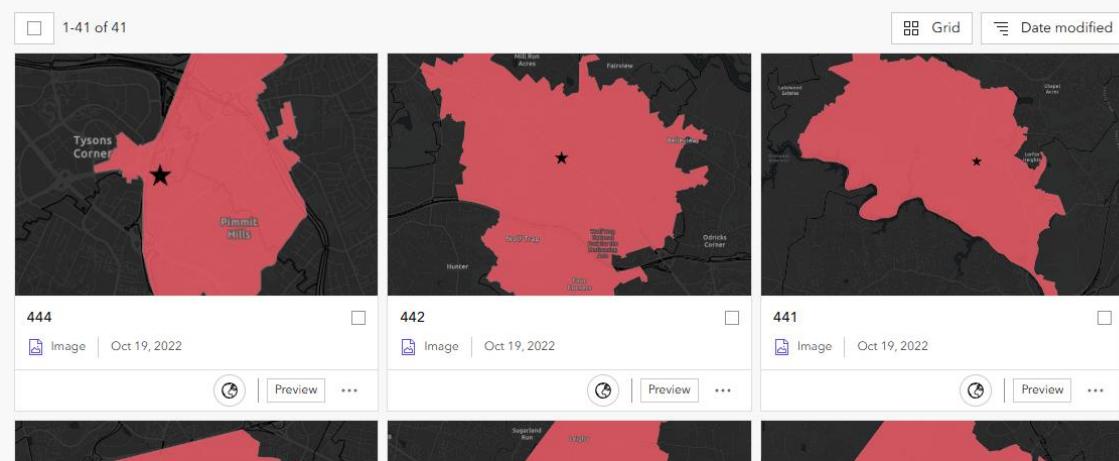
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## Community Risk Assessment



A	B	C	Demand Zone	Major Transportation	E	F	G	H	I	J
1	station	image_url		Major Medical Facilities		County Schools	Primary Target Hazard Fire	Primary Target Hazard Non-Fire		
401	<a href="https://fairfaxcountyfrd.maps.arcgis.com/sharing/rest/cor/401">https://fairfaxcountyfrd.maps.arcgis.com/sharing/rest/cor/401</a> - McLean			George Washington Memorial Parkway Interstate 495 (Capital Beltway) Interstate 66 VA Route 123 (Chain Bridge Road/Dolley Madison Boulevard) VA Route 193 (Georgetown Pike) VA Route 267 (Dulles Toll Road)	None	Chesterbrook Elementary School Churchill Road Elementary School James Fenimore Cooper Middle School Franklin Sherman Elementary School Haycock Elementary School Kent Gardens Elementary School McLean High School James Madison High School Wolfrap Elementary School Vienna Elementary School Cunningham Park Elementary School Marshall Road Elementary School Louise Archer Elementary School Flint Hill Elementary School	Numerous residential and commercial high-rise buildings Several high-security government intelligence campuses Large single-family homes with limited access -small access bridges -limited water or rural water supply James Fenimore Cooper Middle School under renovation	Numerous vehicle accidents on major roadways Back-to-back medical calls in dense areas Great Falls Park and Scotts Run terrain and limited access Multiple locations of interest (VIP residences)		
402	<a href="https://fairfaxcountyfrd.maps.arcgis.com/sharing/rest/cor/402">https://fairfaxcountyfrd.maps.arcgis.com/sharing/rest/cor/402</a> - Vienna			Interstate 66 US Route 29 VA Route 7 (Leesburg Pike) VA Route 123 (Maple Avenue) VA Route 243 (Nutley Street) VA Route 267 (Dulles Toll Road)	None		Verizon switching station Vienna Inn Older balloon frame homes with rural water supply		Washington and Old Dominion Trail system (W&OD) Lage senior population including Vehicle accidents on major roadways, high-speed collisions Historic Church Street Waters Field town activities involve large gathering of people	
404	<a href="https://fairfaxcountyfrd.maps.arcgis.com/sharing/rest/cor/404">https://fairfaxcountyfrd.maps.arcgis.com/sharing/rest/cor/404</a> - Herndon			Fairfax County Parkway VA Route 28 VA Route 267 (Dulles Toll Road) Washington and Old Dominion Trail Interstate 95	Reston Hospital Center	Herndon High School Herndon Middle School Hutchinson Elementary School Franconia Elementary School	Mixed-use commercial complexes Numerous garden-style apartment complexes Numerous vacant structures 230,000 square foot mall with a fitness facility and 9-screen theater Senior/assisted living facilities		Worldgate Center Numerous vehicle accidents on major roadways Pedestrian crashes Back-to-back medical calls in dense areas	

Data >

Search

- > rpt.CRA\_2022\_RiskScore
- > rpt.CRA\_2022\_TurnOut
- > rpt.CRA\_2022\_UHU
- > rpt.CRA\_2023\_FireLossCivilianCasualty
- > rpt.CRA\_2023\_FirstDue
- > rpt.CRA\_2023\_Incidents
- > rpt.CRA\_2023\_Responses
- > rpt.CRA\_2023\_RiskScore
- > rpt.CRA\_2023\_TurnOut
- > rpt.CRA\_2023\_UHU

- > rpt.NFPA\_AnnualSurvey\_CY2020
- > rpt.NFPA\_AnnualSurvey\_CY2021
- > rpt.NFPA\_AnnualSurvey\_CY2022
- > rpt.NFPA\_AnnualSurvey\_CY2023
- > rpt.NFPA\_AnnualSurvey\_CY2024

- > CRA\_2023\_FirstDue
- > CRA\_2023\_Incidents
- > CRA\_2023\_Responses
- > CRA\_2023\_RiskScore
- > CRA\_2023\_TurnOut
- > CRA\_2023\_UHU
- > Dispatch Complaints
- > Patient\_PrimaryImpression
- > Station Images



# 2025 EXCELLENCE CONFERENCE



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FUELING THE FUTURE OF THE FIRE AND EMERGENCY SERVICE

## Community Risk Assessment

[First Due](#)

NEI [401 - McLean](#)

[Major Transportation](#)

[Major Medical Facilities](#)

[County Schools](#)

Demand Zone Description: 401 - McLean

← →

Incidents: 18,053 | Dispatches: 28,174 | Treated & Transported: 6,681

Top 10 Medical Complaints:

Fall	Breathing Problem
1,504	918
Traffic/Transportation	Sick Person
978	782
Unconscious/Fainting	592

Units from fire station 401: 18,053 unique incidents | 28,174 units were dispatched arriving 23,638 times

Dispatches by Year:

Year	Engine	Rescue Squad	Transport	Total
2023	2,306	2,000	2,899	7,195
2022	2,213	2,000	2,515	6,728
2021	2,117	604	2,688	5,309
2020	2,078	787	2,021	4,886
2019	2,190	1,180	2,021	5,391

90th Percentile Turnaround Times:

ServiceLine	Avg Turnaround Time
EMS Emergency	00:01:50
Fire	00:02:05
Hazmat	00:01:10
Rescue	00:00:55

POPULATION WITHOUT INSURANCE BY AGE GROUP:

- 0-18: 9.86%
- 19-34: 46.47%
- 35-64: 30.25%
- 65+: 13.32%

Primary Target Hazard: Fire

Numerous residential and commercial high-rise buildings  
Several high-security government intelligence campuses  
Large single-family homes with limited access  
-small access bridges  
-limited water or rural water supply  
James Fenimore Cooper Middle School under renovation

Primary Target Hazard: Non-fire

Numerous vehicle accidents on major roadways  
Back-to-back medical calls in dense areas  
Great Falls Park and Scotts Run terrain and limited access  
Multiple locations of interest (VIP residences)



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## Community Risk Assessment

Fairfax County Fire and Rescue  
Department, Virginia - 2018-2022





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## Automate

“I can’t give you more staff,  
but I can give your staff back their time”





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## Power Automate

- Low-Code cloud automation platform
- If/Then/Else logic
- Unites the Microsoft ecosystem
- 1,000+ different connectors
  - ie. ArcGIS Survey 123
- Prebuilt templates for rapid deployment



Power Automate



# 2025 EXCELLENCE CONFERENCE

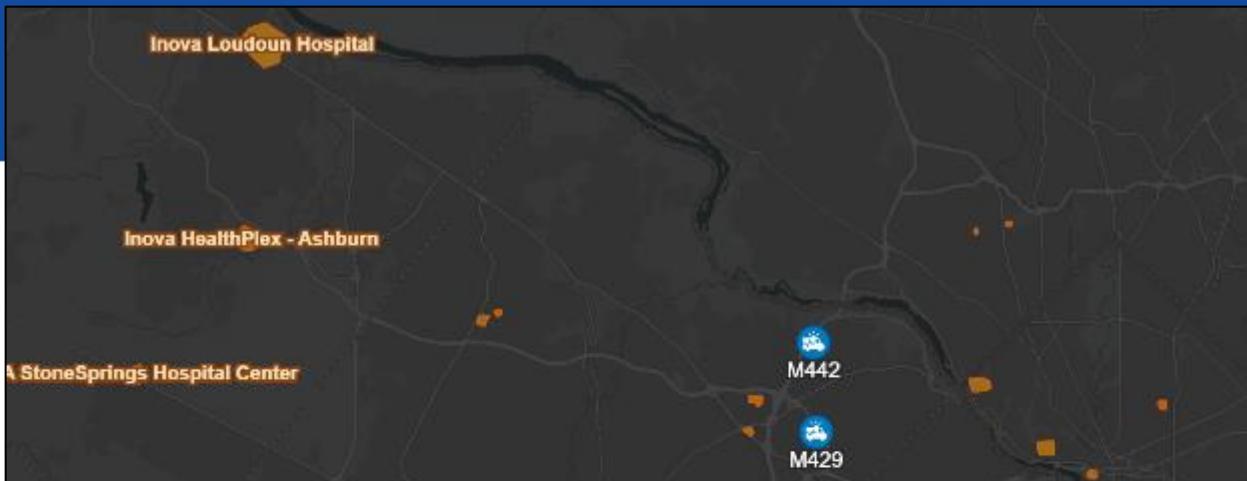


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FUELING THE FUTURE OF THE FIRE AND EMERGENCY SERVICE

## Transport Discrepancies

- 34 Transport Destinations
- Incorrect Documentation (~5/day out of ~200 transports)



```

<UnitNotifiedByDispatch><UnitEnroute>2023-06-31T10:06:03</UnitEnroute><UnitArrivedOnScene>
<UnitArrivedOnScene><InitialResponderArrivedOnScene></InitialResponderArrivedOnScene><UnitLeftScene>2023-06-31T10:34:59</UnitLeftScene><UnitArrivedAtDestination>2023-06-31T10:39:00</UnitArrivedAtDestination><UnitCompletedOnScene>2023-06-31T10:39:00</UnitCompletedOnScene>
  
```

### Transport Discrepancies Report



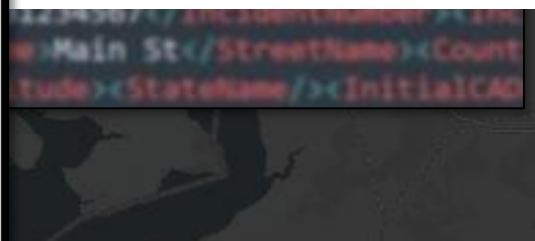
i You replied to this message on 7/19/2024 6:06 PM.  
If there are problems with how this message is displayed, click here to view it in a web browser.



The following discrepancies were found for

### Incident Listing

Incident Number	Unit	Call Date	GeoVerified Facility	ePCR Facility	Inc01 Facility	Incident Address	Patient ID
E24	A437		Inova HealthPlex - Franconia/Springfield	Inova Healthplex - Lorton	Inova HealthPlex - Franconia/Springfield		
E24	A428		Kaiser Permanente - Tysons Corner - Advanced Urgent Care	Tysons Emergency	Tysons Emergency		





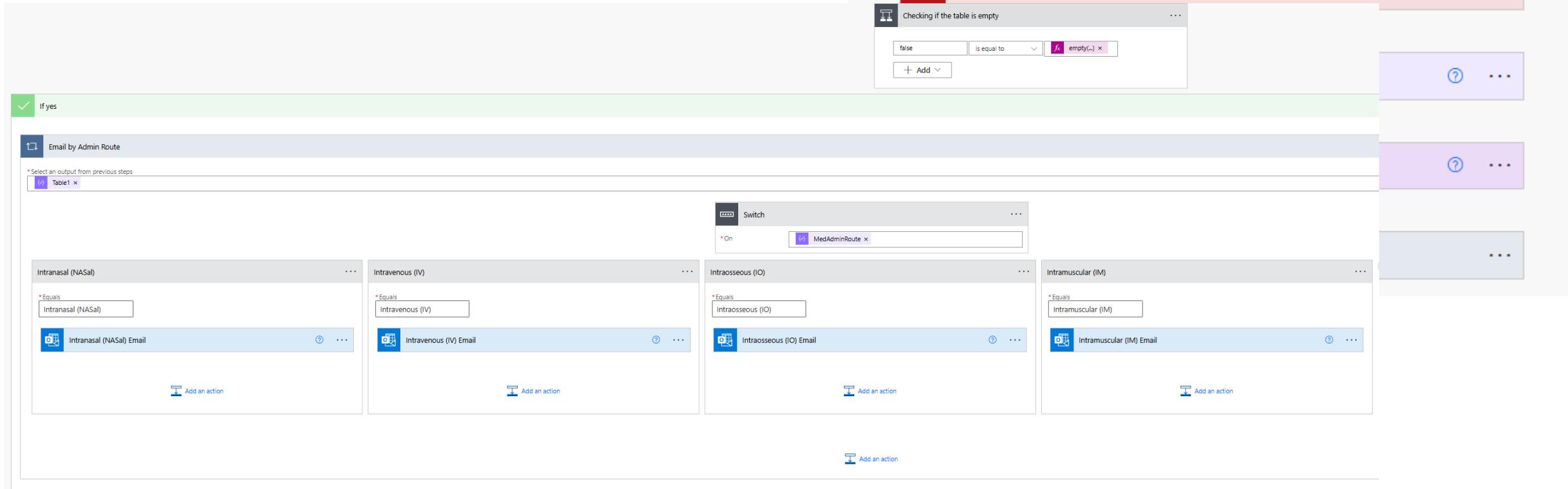
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# Narcan (Documentation)





# 2025 EXCELLENCE CONFERENCE



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E231240857: Please Confirm Narcan Administration Dosage

fire.DoNotReply

To: [REDACTED]  
Cc: [REDACTED]

Fri 5/5/2023 7:31 AM

Good morning.

The ePCR summarized below reflects an Narcan medication administration route of **Intranasal (NASal)** and a dosage of **8 Milligrams (mg)**.

**Follow the instructions below:**

1. If the Narcan was administered using a **pre-packaged Narcan Nasal Spray**, the dose administered is **4mg**.
2. If the Narcan was administered using a **MAD tip on a syringe or Bristojet**, the maximum dose that can be administered is **2mg**.

Contact your EMS Captain to unlock the report so you can correct the dosage in the ePCR.

\*If Narcan was given more than once, **DO NOT** combine medication dosages  
Document each dose/administration separately & match in the narrative!\*

Refer to [Narcan Powertool Did You Know](#)

---

*Incident Details*

**Incident Number:** E231240857  
**Incident Date/Time:** 2023-05-04T08:59:57  
**Primary Caregiver:** [REDACTED]  
**Medication Administered by:** [REDACTED]

*Patient Details*

**Patient Name:** [REDACTED]  
**Procedures:** E [REDACTED]  
**Medications:** N  
**Narrative:** [REDACTED]



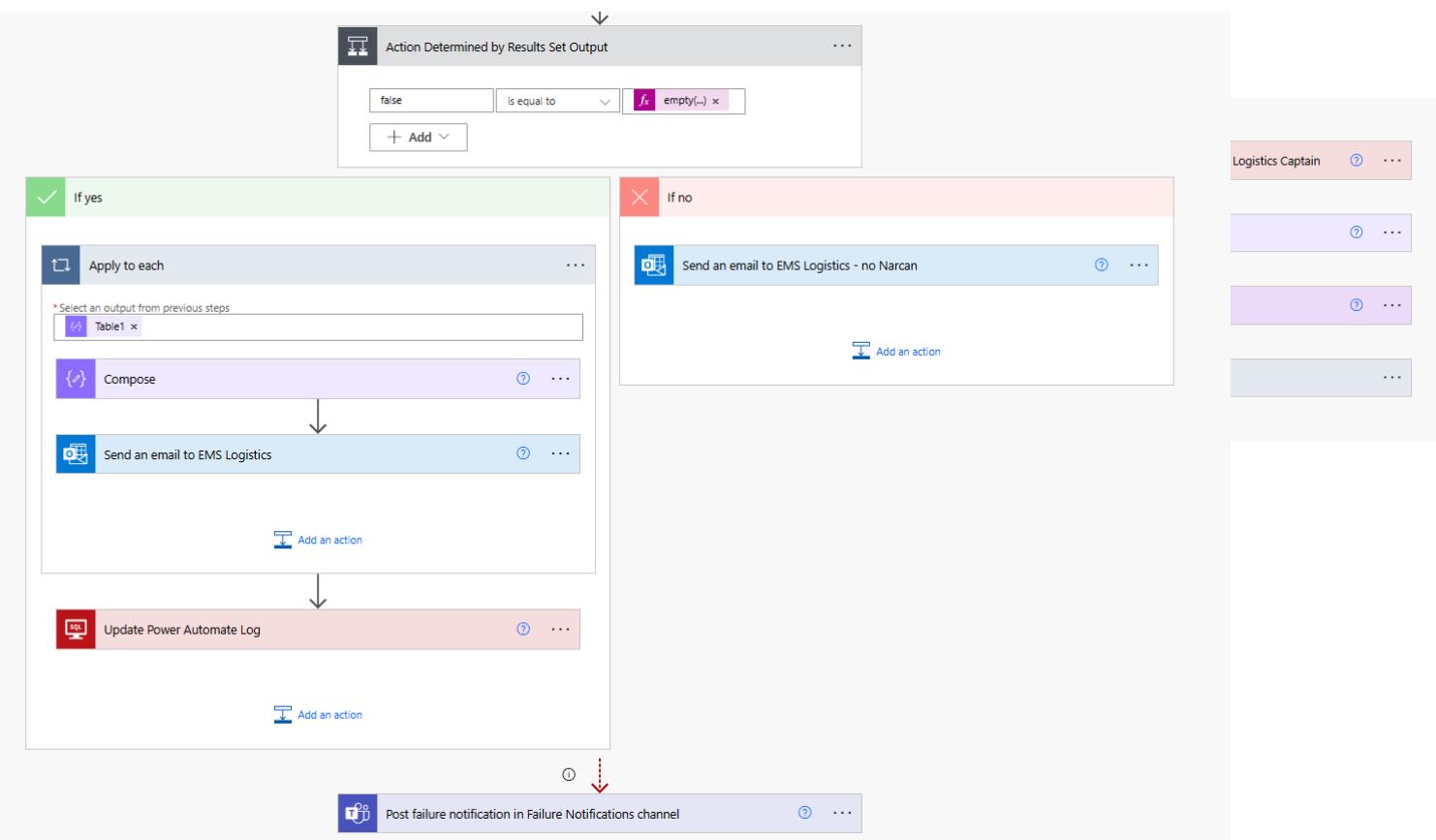
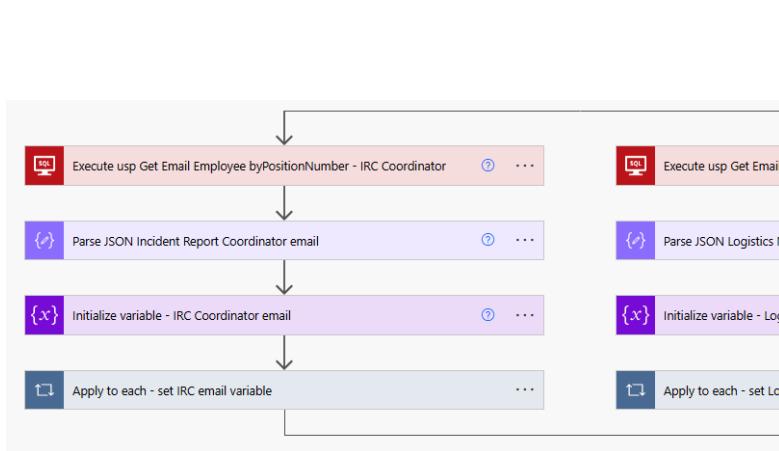
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## Narcan (Refill/Notification)





# 2025 EXCELLENCE CONFERENCE



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## Naloxone (Narcan) for Incident



fire.DoNotReply

To

Cc

i This message was sent with High importance.



Reply



Reply All



Forward



Fri 2/28/2025 4:46 AM

Good morning,

The ePCR summarized below reflects the administration of **(2) Nasal Naloxone (Narcan)**.

To obtain a replacement, contact your EMS officer.

### *Incident Details*

**Incident Number:** [REDACTED]

**Incident Date:** 2025-02-27T02:32:04

**Units OnScene:** [REDACTED]

**Transport Unit:** [REDACTED]

**Primary On-scene Provider:** [REDACTED]

### *Medication Details*

Medication ID: 540358 | Administered Route: Intranasal (NASal) | Dosage: 2 Milligrams (mg) | Medication Response: Unchanged | Provider: [REDACTED]

Medication ID: 540359 | Administered Route: Intranasal (NASal) | Dosage: 4 Milligrams (mg) | Medication Response: Unchanged | Provider: [REDACTED]

Thanks!

CONFIDENTIALITY NOTICE: This e-mail, including any attachments, may contain confidential information which is intended only for the use of the individual(s) or entitled named. If you receive this e-mail message in error, please immediately notify the sender by e-mail and delete it. Dissemination, forwarding, printing or copying of this e-mail without prior consent of the sender is strictly prohibited.



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## Patient Outcomes - Last 30 Days

This report displays encounter and outcome details for patients treated and transported who were not transported to an NOVA facility or if the patient's diagnosis has not been entered.

Click the envelope icon to launch an email requesting additional follow-up information where Outlook is the default mail application. The Microsoft Office 365 cloud environment

To reduce duplicate requests, all providers arriving on-scene will be CCed. If more than one provider for which follow-up is requested. If you do not see the patient on which you completed the subject and body of the email.

Incident Number	PSAP Date	Age	Gender	Units On Scene	Transport Unit	Transport Destination	Primary Diagnosis
E24051346		51	Female	E404, M404, T425,	M404	Inova Fair Oaks Hospital	GI/GU - Abdominal Pain/Problem
E24051346		58	Male	E421, M421,	M421	Inova Fair Oaks Hospital	Abuse/Oversupply/Alcohol (ETI)
E24051346		28	Male	A423, BC404, E408, E418, E423, E426, E430, EMS404, M418, M426, R418, SAF402, TT430,	M426	Inova Fairfax Hospital	Injury - Shortness of breath
E24051346		56	Female	A444, EMS401, R444,	A444	Inova Fairfax Hospital	Respiratory Breathing Difficulties
E24051346		45	Female	A409, E424, M424,	A409	Inova Mount Vernon Hospital	CV - Hypotension
E24051346		90	Female	E427, M414,	M414	Inova Fairfax Hospital	Injury - Loss of consciousness
E24051346		86	Female	E409, M411,	M411	Inova Mount Vernon Hospital	Neuro - Altered Level of Consciousness
E24051346		82	Male	A427, ALS401,	A427	Inova Fairfax Hospital	Respiratory Breathing Difficulties

Patient Follow-up for Incident E24051346 - Message (HTML)

File Message Insert Draw Options Format Text Review Help Foxit PDF

Paste **Aptos** **12** **A** **A** **Basic Text** Address Book Names **Follow Up** **High Importance** **Assign Policy** **Low Importance** **Link** **Signature** **Include** **Dictate** **All Apps** **Sensitivity** **Tags** **Voice** **Editor** **Immersive Reader** **New Scheduling Poll** **Find Time**

From: Stephen.Hartman@fairfaxcounty.gov  
To: fire.EMSPatientFollowUp@fairfaxcounty.gov  
Cc: Alexander.Maxwell.Pri...  
Bcc: fire.DoNotReply@fairfaxcounty.gov  
Subject: Patient Follow-up for Incident E24051346

\*\*A provider on this incident has requested outcome information on the patient. You are receiving this email because you were rostered in CAD on a unit that was on scene at this incident\*\*

IF YOU FEEL YOU HAVE RECEIVED THIS EMAIL IN ERROR, PLEASE NOTIFY fire.EMSPatientFollowUp@fairfaxcounty.gov.

Please provide follow-up on the patient below:

Incident Number: E24051346

Units On-scene: E404, M404, T425,

Transport Unit: M404

Transport Destination: Inova Fair Oaks Hospital

Incident Date/Time: 7/23/2024 1:15:12 PM

CQI review here: <https://fairfax.imagetrendelite.com/Elite/Organizationfairfax/Agency00253/EmsIncidentReport/Print/Layout12/Incident2826306?formId=47>



# 2025 EXCELLENCE CONFERENCE



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## LAST TOUR REPORT

Turnout Times, Exposure Reporting and DIRTs Compliance for 401-A

Battalion - Shift

All

Incidents with Incomplete Reports

10

### 3 Month Fire Exposure Reporting Compliance

49.3%

### 90th Percentile Turnout Time in Seconds

Unit	Incidents	90th Day EMS	90th Day Fire	90th Night EMS	90th Night Fire
A412	3	65			
E404	23	46	11	97	67
E412	4	29	43		
E425	29	54	59	94	65
E439	11	64	33	6	33
E442	6	42	31		
M404	22	54		103	
M412	5	33			
M412B	2	8			
M425	20	58		119	45
M439	12	49		82	107
M442	4	51	95	106	
R439	3			83	84
TT425	16	66	2	0	34

### Turnout times:

Longer than 100 seconds are highlighted in light red.  
Longer than 120 seconds are highlighted in dark red.

### 90th percentile:

90th percentile takes the value below the highest 10%  
(e.g.: times of 10, 20, 30, 40, 100 would be reported as 40).

Fire exposure reporting compliance for your battalion and shift can be found here:

:

<https://app.powerbigov.us/groups/e93ab1b6-f655-4873-937f-c4a8f6d0d422/repo>

:

This report is provided to you by the Data Analytics Strategy Management Division.

:

Access the report directly by [clicking here](#).

:

Thank you and have a safe shift.

Incident #	Unit ID	Incident Type	PSAP Date/Time	Apparatus Tab Complete?	Report Finished?	Report Locked?	Validity Score	ePCR Posted?	Incident Type	Unit Personnel
E211010642	E425	MEDICAL	4/11/2021 9:42:54 AM	YES	NO	NO	99	YES	321 - EMS call, excluding vehicle accident with injury	
E211010642	EMS401	MEDICAL	4/11/2021 9:42:54 AM	YES	NO	NO	99	YES	321 - EMS call, excluding vehicle accident with injury	
E211010642	M425	MEDICAL	4/11/2021 9:42:54 AM	YES	NO	NO	99	YES	321 - EMS call, excluding vehicle accident with injury	
E211010672	E425	ALS	4/11/2021 10:02:07 AM	NO	NO	NO	86	YES	321 - EMS call, excluding vehicle accident with injury	
E211010782	M412	ALS	4/11/2021 11:06:50 AM	NO	NO	NO	98	YES	321 - EMS call, excluding vehicle accident with injury	
E211011728	E425	ALS	4/11/2021 6:43:55 PM	NO	NO	NO	98	YES	321 - EMS call, excluding vehicle accident with injury	
E211011728	M425	ALS	4/11/2021 6:43:55 PM	YES	NO	NO	98	YES	321 - EMS call, excluding vehicle accident with injury	
E211011961	BC401	STILALRM	4/11/2021 8:18:44 PM	YES	NO	NO	95	N/A	653 - Smoke from barbecue, tar kettle	
E211011961	E425	STILALRM	4/11/2021 8:18:44 PM	YES	NO	NO	95	N/A	653 - Smoke from barbecue, tar kettle	
E211011961	E439	STILALRM	4/11/2021 8:18:44 PM	YES	NO	NO	95	N/A	653 - Smoke from barbecue, tar kettle	
E211011961	TT425	STILALRM	4/11/2021 8:18:44 PM	YES	NO	NO	95	N/A	653 - Smoke from barbecue, tar kettle	
E211031426	M404	ALS	4/13/2021 1:20:09 PM	YES	NO	NO	97	YES	321 - EMS call, excluding vehicle accident with injury	



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## Your Data

### Your Calls by Unit Action

*As documented as a primary or secondary unit action for this call.*

#### Unit Action

86 - Investigate

32 - Provide basic life support (BLS)

73 - Provide manpower

93 - Cancelled en route

33 - Provide advanced life support (ALS)

34 - Transport person

51 - Ventilate

42 - HazMat detection, monitoring, sampling, & analysis

- [Calls By CAD Incident Type](#)
- [Calls By NFIRS Incident Type](#)
- [Calls By Unit Actions](#)
- [EMS Medications Administered](#)
- [EMS Procedures Performed](#)

### Your EMS Medications Administered

*As documented in any ePCR.*

EMS Medication	Total Agency Administrations	Your Administrations	% of Agency Total
Normal saline	3,581	8	0.223%
Oxygen	3,715	6	0.162%
Fentanyl Citrate (Sublimaze)	1,669	4	0.240%
Ondansetron (Zofran)	1,749	4	0.229%
Naloxone (Narcan)	426	2	0.469%
Ipratropium Bromide (Atrovent)	685	2	0.292%
Acetylsalicylic Acid (Aspirin, ASA)	1,144	2	0.175%
Albuterol (Ventolin)	930	1	0.108%

### Your EMS Procedures Performed

*As documented in any ePCR.*

EMS Procedure	Total Agency Procedures	Your Procedures	% of Agency Total
Electrocardiographic monitoring	68,093	97	0.142%
IV Start - Extremity Vein (arm or leg)	13,313	49	0.368%
CV - ECG - 12 Lead Obtained	24,357	44	0.181%
IO Start - Intraosseous Access	629	3	0.477%
IV Start - EJ (External Jugular Vein)	101	1	0.990%
Resp - Assist Ventilation - BVM Via Tube	131	1	0.763%
Intubation - Oral	142	1	0.704%
Airway - Suction / Clear	201	1	0.498%
CPR - Manual	282	1	0.355%
Resp - Assist Ventilation - BVM Via Mask	504	1	0.198%
MS - Splinting - General	593	1	0.169%



# 2025 EXCELLENCE CONFERENCE



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## Predict

“Data doesn’t just tell us what happened;  
it helps us prevent what could happen next”



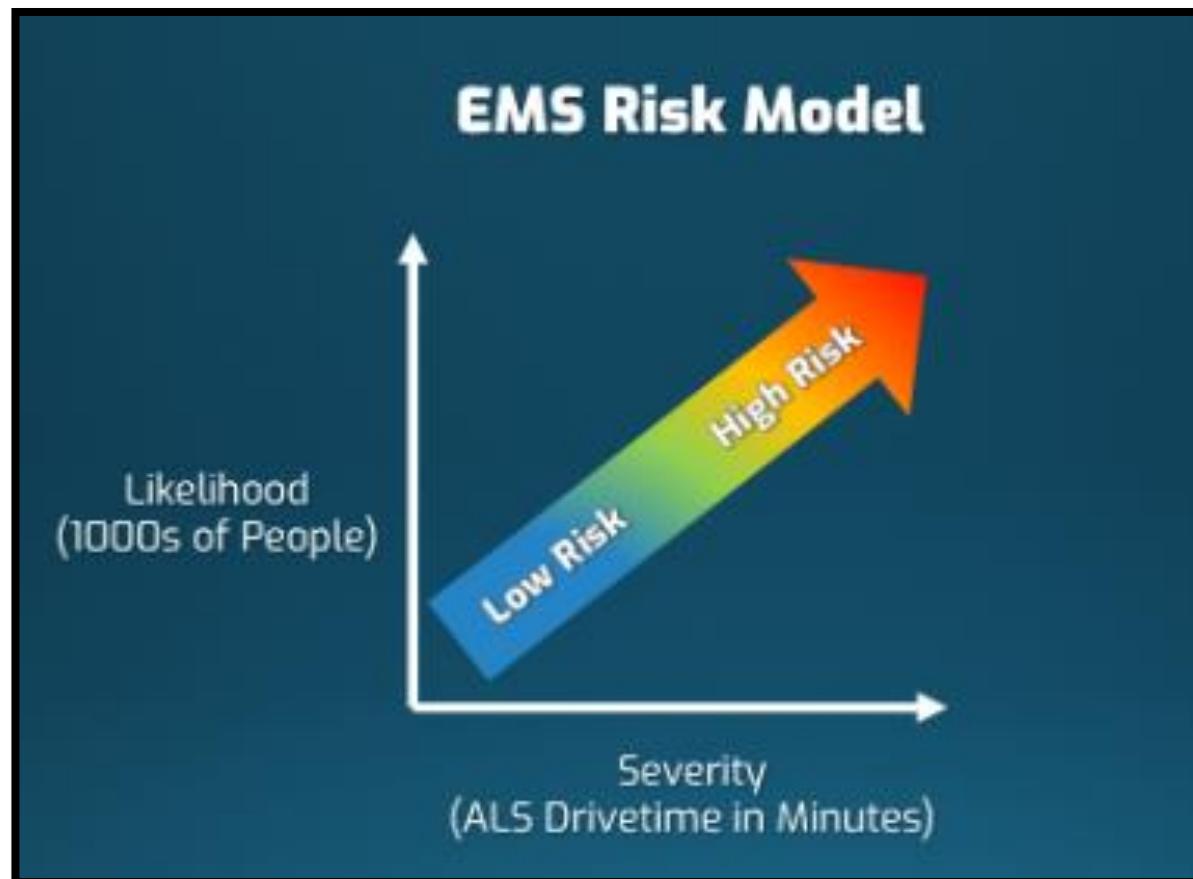


# 2025 EXCELLENCE CONFERENCE



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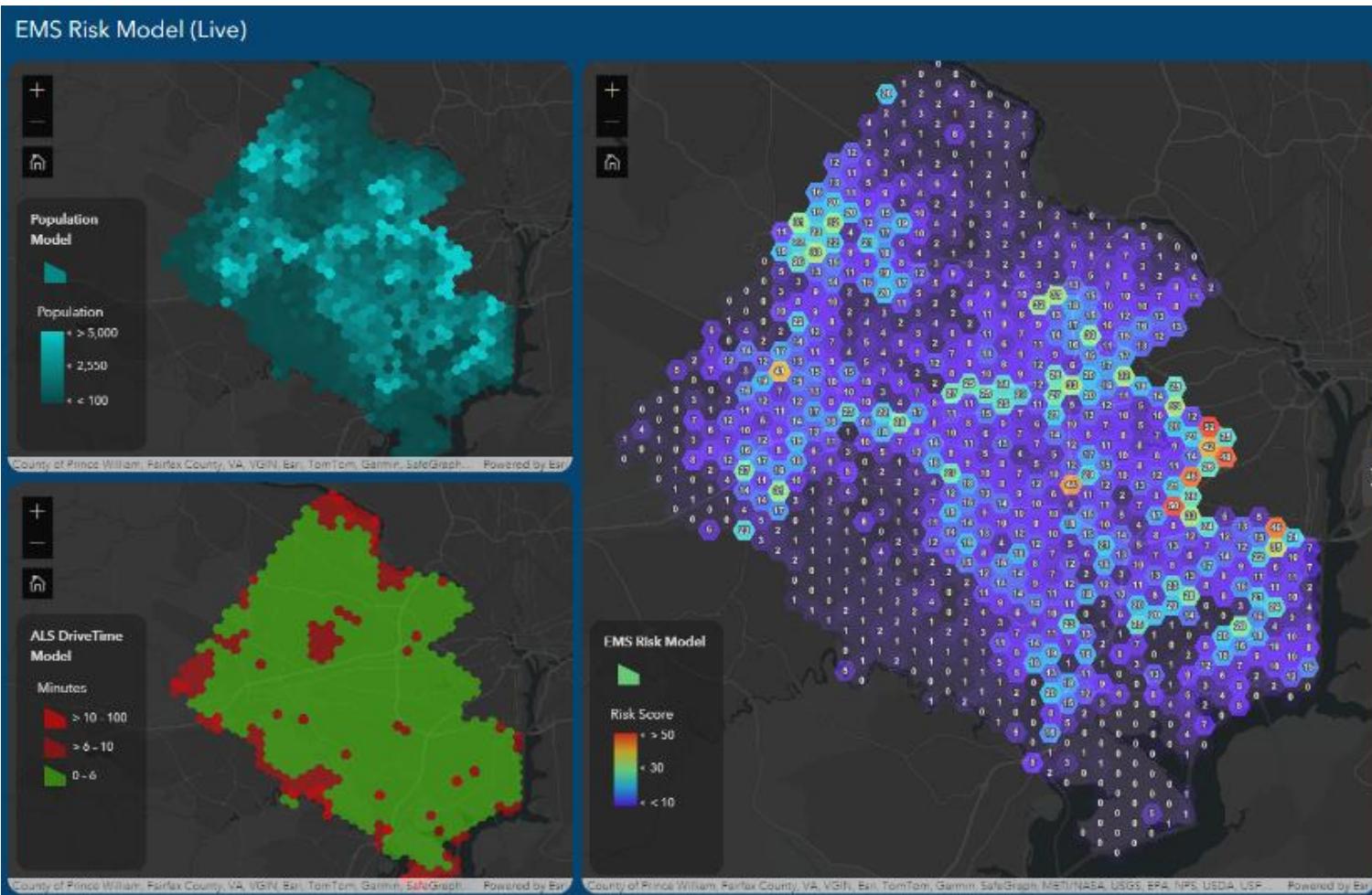


# 2025 EXCELLENCE CONFERENCE



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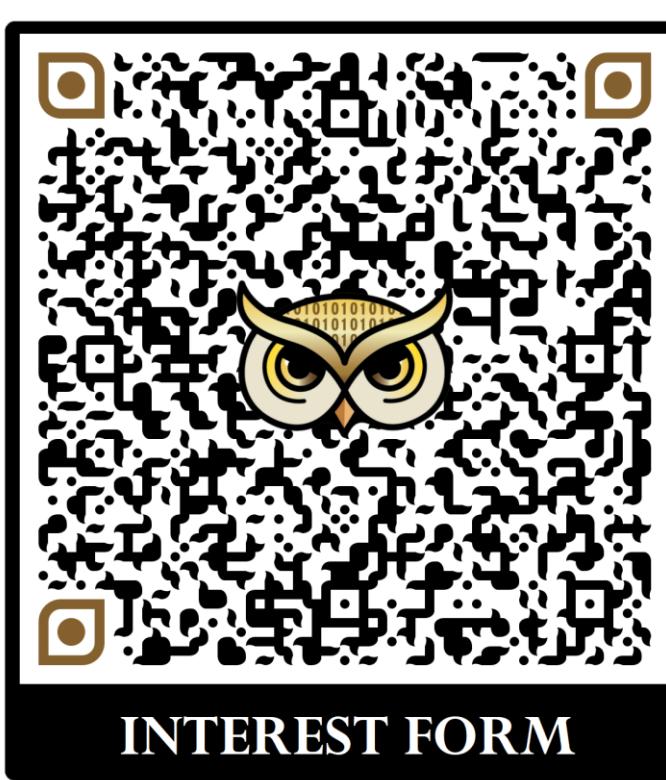




# 2025 EXCELLENCE CONFERENCE



**AFESA**  
ASSOCIATION OF FIRE AND EMERGENCY SERVICES ANALYSTS



Interest Form



LinkedIn



# 2025 EXCELLENCE CONFERENCE



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FUELING THE FUTURE OF THE FIRE AND EMERGENCY SERVICE

## Questions, Concerns, Grievances



Jessica Handoko

Amadea.Handoko@fairfaxcounty.gov



John Morrison

John.Morrison@fairfaxcounty.gov



## PACE Credit

Leveraging Multiple Data Sources  
to Maximize Potential

