



Deployment of Fire and EMS Services

Community Response History

Community Demand

- ❖ EMS accounts for 81.4% of the requests for service
- ❖ Fire related incidents account for 13.8% of the incidents. Of which:
 - ❖ Fire Alarms account for 7.9%
 - ❖ Fire Public Assists are 1.9%
 - ❖ Structure Fires are 1.3%
- ❖ Special risks such as hazmat and technical rescue are a combined 1.3% of demand
- ❖ OFD responds to 99.9% of its own incidents.

Program		Number of Calls	Number of Responses
OFD	EMS	46,537	102,244
	Fire	7,887	19,799
	Hazmat	370	1,324
	OIA	73	272
	Public Assistance	457	596
	Technical Rescue	381	841
	Cancelled	1,442	2841
Total		57,147	127,917 ¹

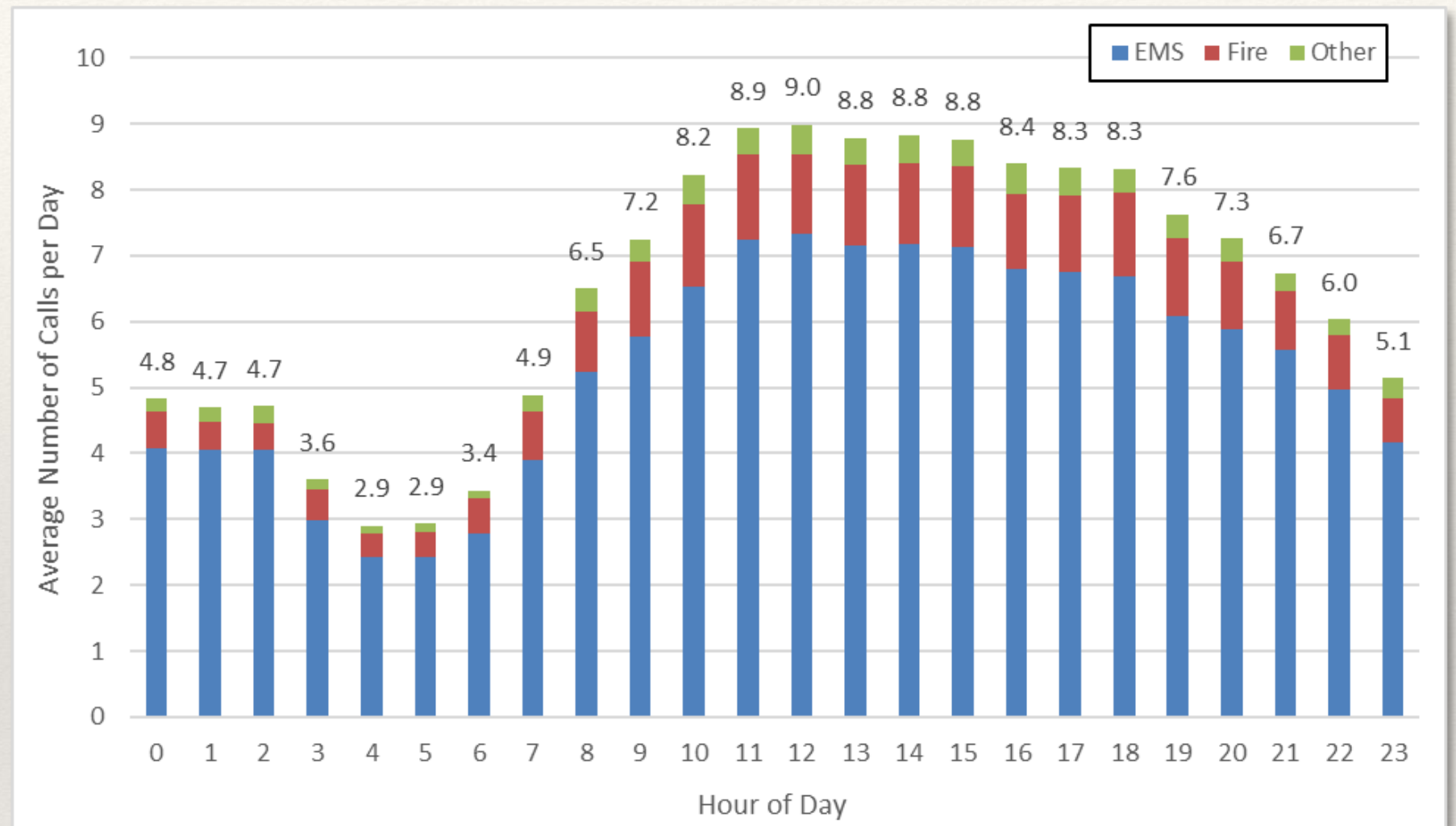
2016 Historical Performance

Program	Dispatch Time	Turnout Time	Travel Time ¹	Response Time	Sample Size ¹
EMS	0.8 (46.0)	1.2 (74.7)	7.2 (432.9)	8.5 (509.3)	40,769
Fire	1.2 (70.7)	1.3 (80.7)	8.5 (510.4)	9.9 (596.1)	4,902
Hazmat	1.6 (96.7)	1.5 (92.5)	8.9 (534.3)	10.7 (641.8)	337
Rescue	1.5 (92.6)	1.5 (90.0)	9.1 (544.4)	10.4 (626.0)	84
Total	0.8 (48.7)	1.3 (75.5)	7.4 (441.3)	8.7 (519.6)	46,092

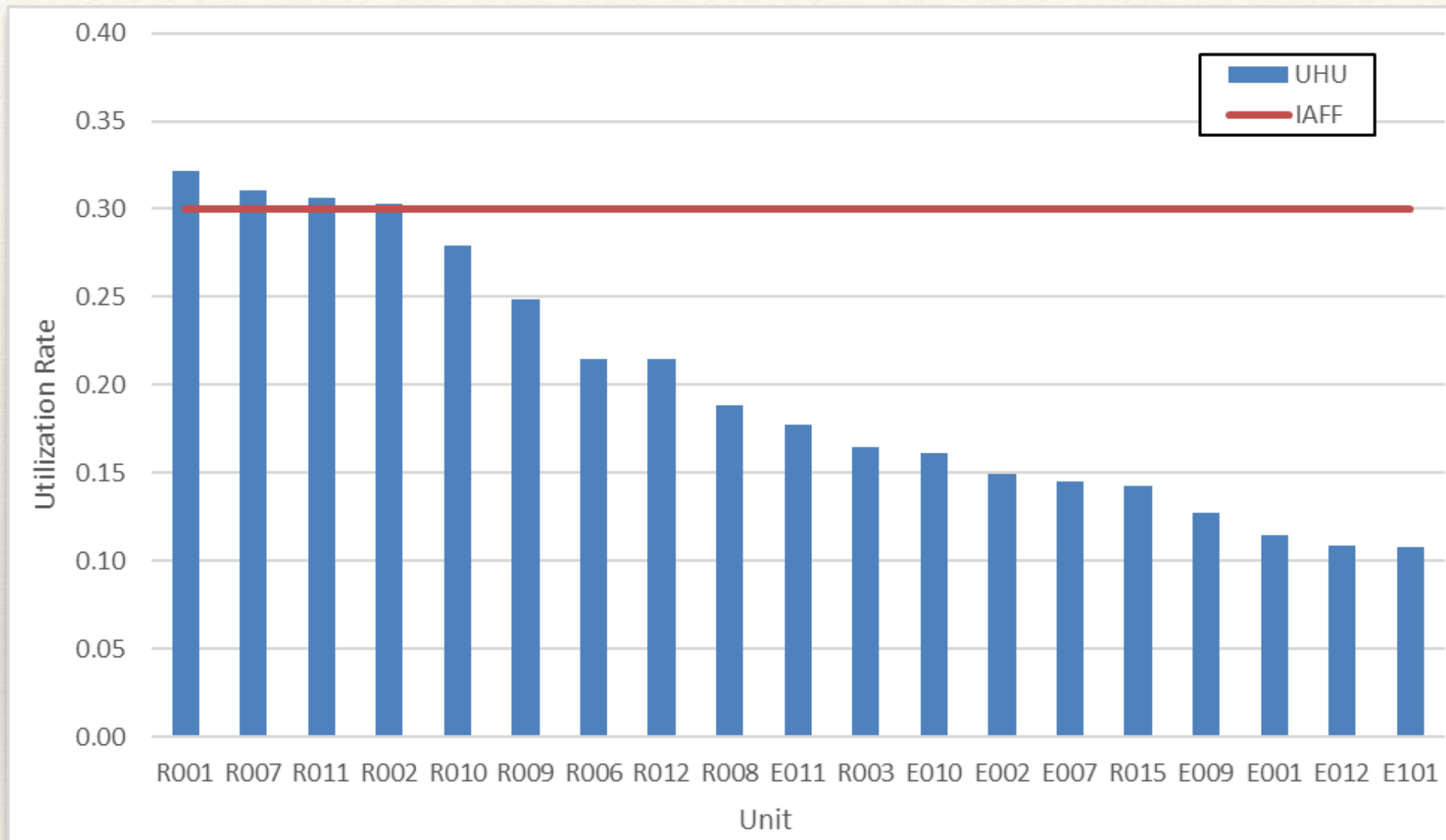
- ❖ Considering “Travel Time” at the 90th percentile
- ❖ EMS is at 7.2 minutes
- ❖ Fire is at 8.5 minutes
- ❖ Orlando system is at 7.4 minutes overall

Demand Challenges - Workload

- ❖ Workload - EMS demand is primary driver
- ❖ Citywide, 7.2 calls/hr. at peak
- ❖ Fire not big contributor
- ❖ Citywide, 1.3 calls/hr. at peak
- ❖ Department is currently over resourcing responses



Demand Challenges - Workload



- ❖ EMS Workload – All but five units are below the industry standard threshold for best practice.
- ❖ FITCH recommends .25 UHU should be utilized as a planning threshold.
- ❖ The remaining 18 units not shown above had a UHU less than 0.10, or 2.4 hours per day
- ❖ Consider deployment alternatives that equalize workload distribution

Demand Challenges - Transport

Call Category	Non-Transport		Transfer to Rural Metro		OFD Transport		Total Number of Calls	Transport Rate
	Average Call	Number of Calls	Average Call	Number of Calls	Average Call	Number of Calls		
	Duration (Minutes)		Duration (Minutes)		Duration (Minutes)			
Cardiac and Stroke	20.6	1,417	20.3	964	64.5	3,862	6,243	77.3%
Difficulty Breathing	19.0	1,177	21.2	667	62.5	2,485	4,329	72.8%
Fall and Injury	17.0	3,947	20.6	1,371	62.0	2,817	8,135	51.5%
Illness and Other	15.5	4,777	18.8	3,418	60.5	6,271	14,466	67.0%
Interfacility Transfer	--	0	--	1	58.0	3	4	100.0%
MVC	15.8	3,971	32.5	356	63.5	1,347	5,674	30.0%
Overdose and Psychiatric	17.8	366	25.3	141	64.1	527	1,034	64.6%
Seizure and Unconsciousness	15.4	2,309	22.6	797	62.1	3,163	6,269	63.2%
Unreconcilable ¹	13.7	231	15.6	37	56.2	115	383	39.7%
Total	16.5	18,195	20.6	7,752	62.2	20,590	46,537	60.9%

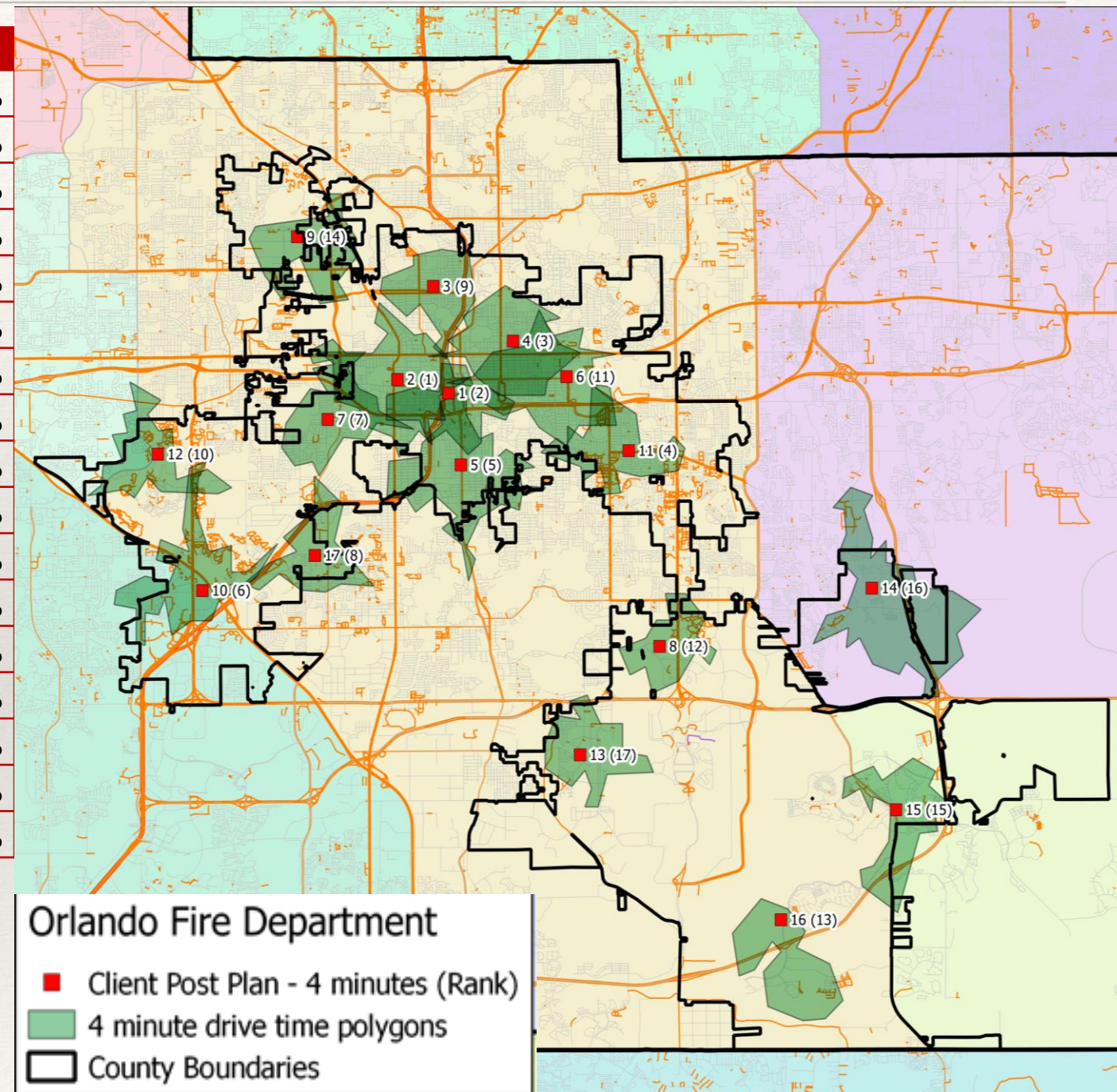
- ❖ Approximately 61% of EMS calls resulted in patient transport – 28,342 Total
- ❖ Rural Metro (RM) provided 27% of transports
 - ❖ Present workload allotment is not fiscally sustainable for RM

Desired Performance and Station Locations

4-Minute Travel Time

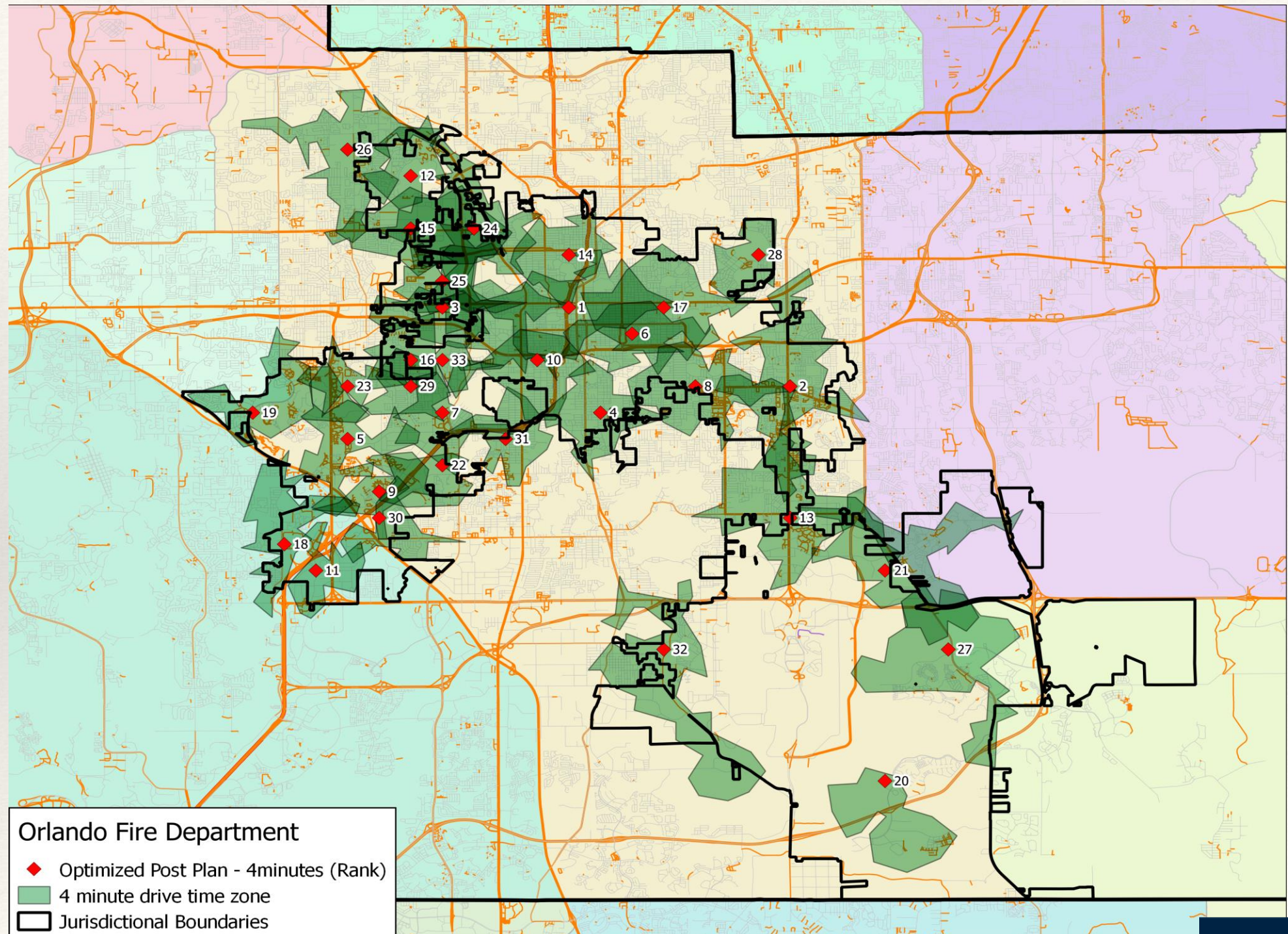
Rank	Station Number	Station Capture	Total Capture	Percent Capture
1	2	9,887	9,887	17.32%
2	1	5,425	15,312	26.83%
3	4	2,871	18,183	31.86%
4	11	2,686	20,869	36.57%
5	5	2,641	23,510	41.19%
6	10	2,395	25,905	45.39%
7	7	1,709	27,614	48.38%
8	17	1,126	28,740	50.36%
9	3	1,096	29,836	52.28%
10	12	835	30,671	53.74%
11	6	823	31,494	55.18%
12	8	755	32,249	56.50%
13	16	735	32,984	57.79%
14	9	643	33,627	58.92%
15	15	371	33,998	59.57%
16	14	346	34,344	60.18%
17	13	265	34,609	60.64%

- ❖ Current configuration can only meet approximately 61% of the incidents within 4-minutes travel time or less



Optimized 4-Minute Travel Time

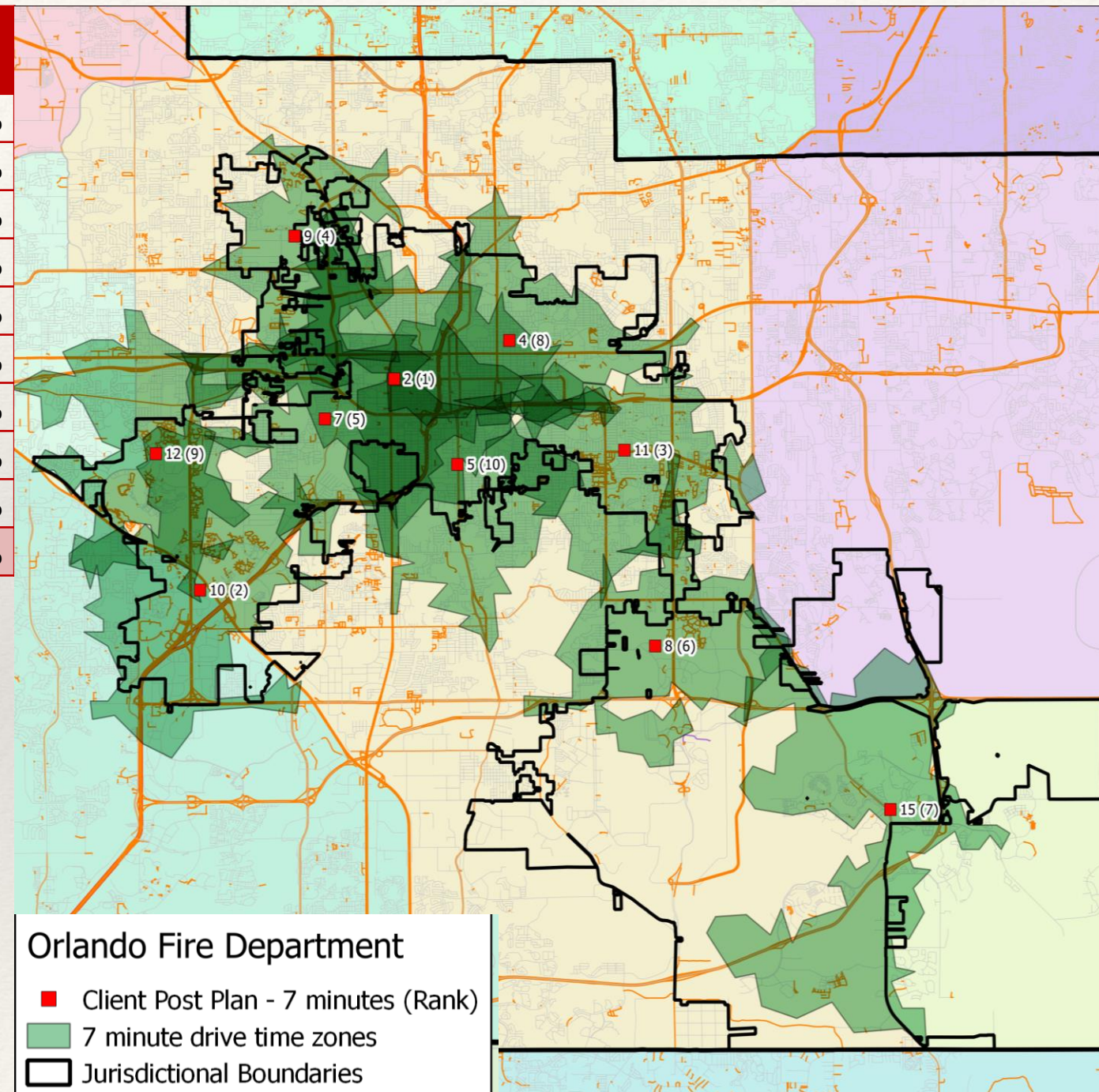
- ❖ Requires 33 stations
- ❖ Would nearly double the OFD budget
- ❖ Optimized 17 station plan could achieve 75%
- ❖ FITCH has not encountered an agency able to meet 4-minutes at 90%



7-Minute Travel Time

Rank	Station Number	Station Capture	Total Capture	Percent Capture
1	2	24,316	24,316	42.61%
2	10	8,486	32,802	57.47%
3	11	7,061	39,863	69.85%
4	9	2,851	42,714	74.84%
5	7	2,465	45,179	79.16%
6	8	1,954	47,133	82.58%
7	15	1,645	48,778	85.47%
8	4	1,558	50,336	88.20%
9	12	883	51,219	89.74%
10	5	690	51,909	90.95%

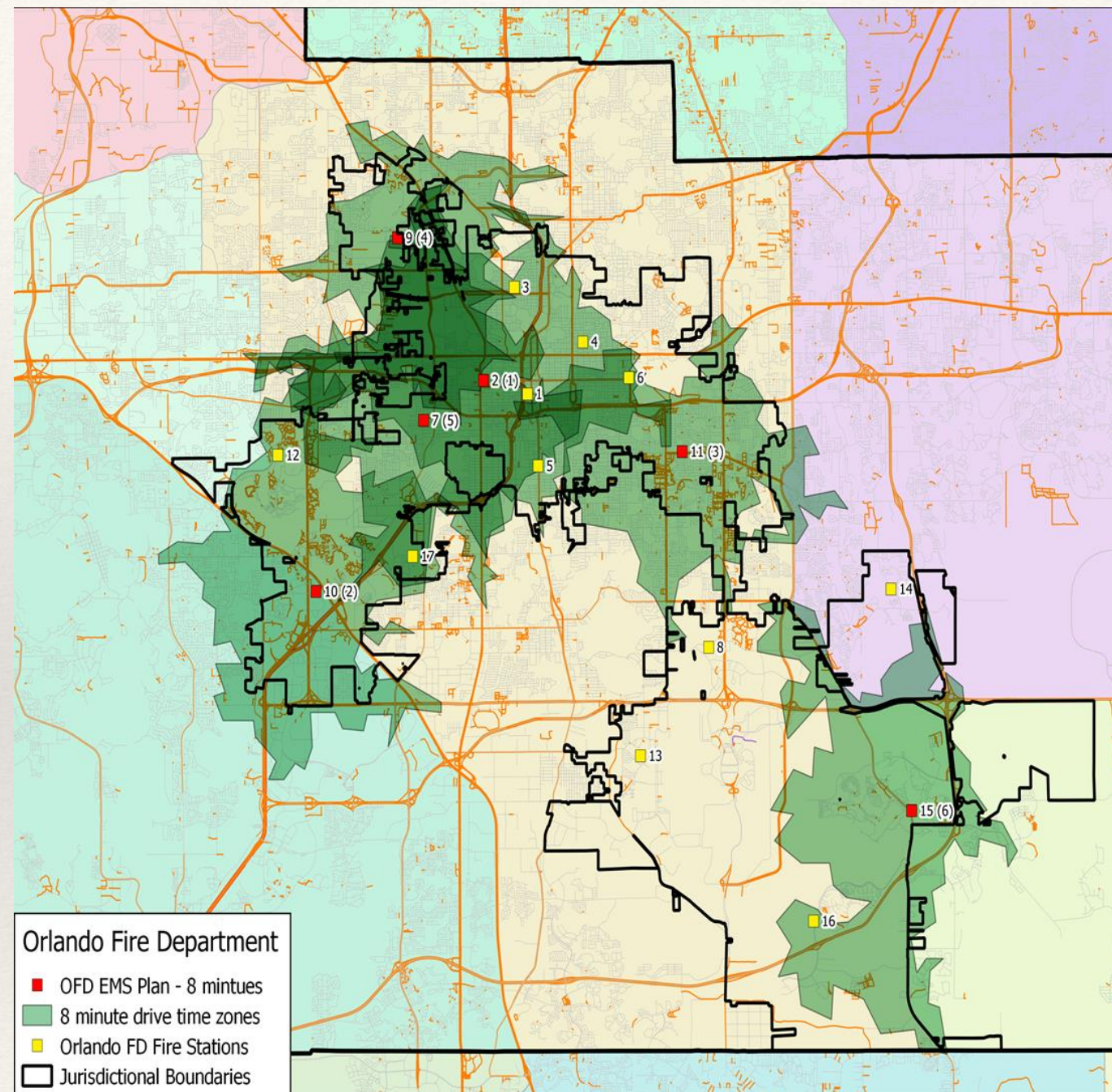
- ❖ Current overall system performance is 7.4-minutes and EMS is 7.2-minutes
- ❖ A 10 station configuration could achieve 7-minutes to nearly 91% of all incidents.
- ❖ Maintain current system performance for all life-threatening EMS responses and all non-ems incidents



8-Minute Travel Time

Rank	Station Number	Station Capture	Total Capture	Percent Capture
1	2	27,753	27,753	48.63%
2	10	10,387	38,140	66.83%
3	11	7,341	45,481	79.69%
4	9	2,196	47,677	83.54%
5	15	2,039	49,716	87.11%
6	7	1,875	51,591	90.39%

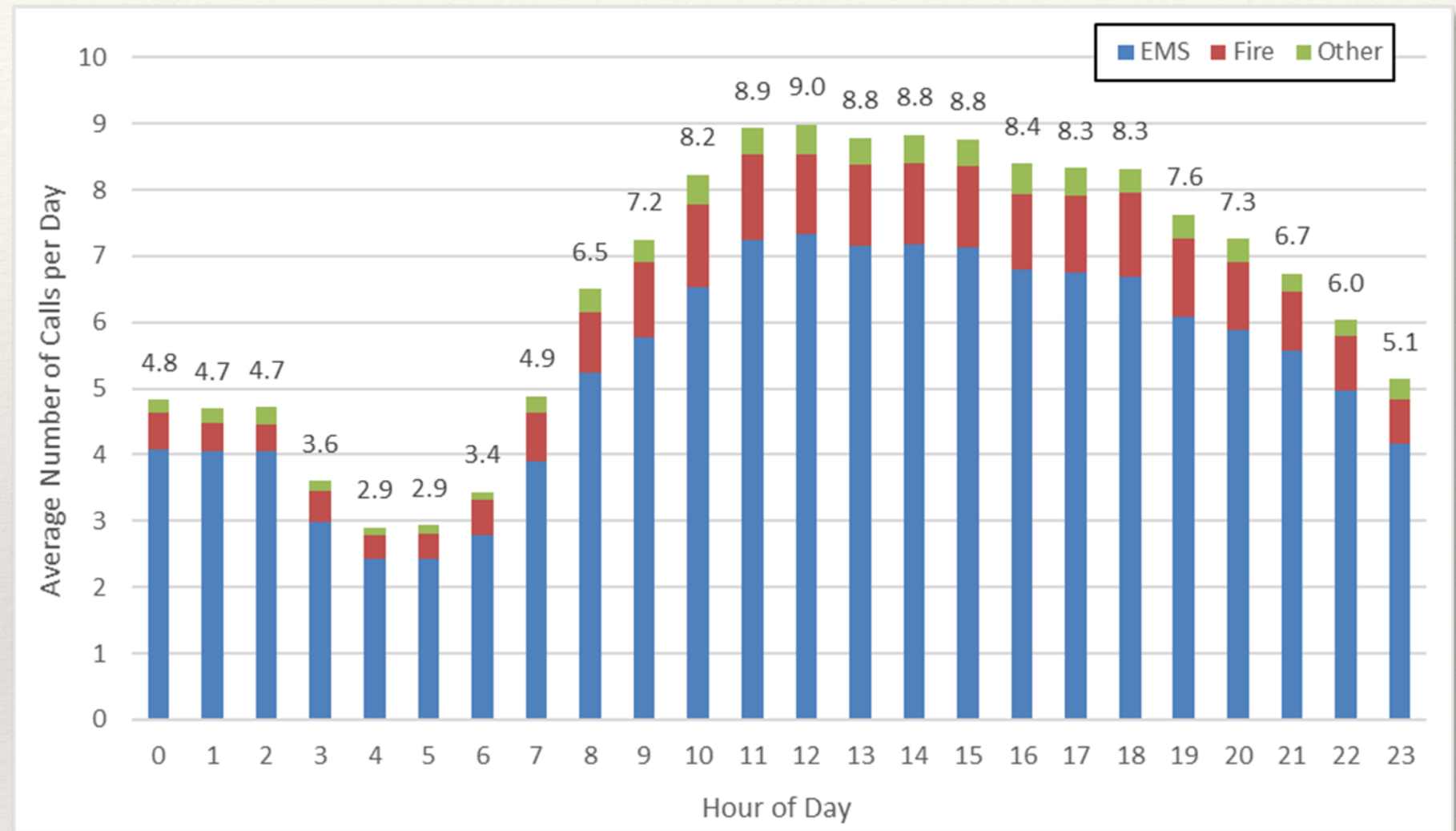
- ❖ Current travel for fire related incidents is 8.5-minutes at 90%
- ❖ Model achieves 8-minutes to nearly 98% of all incidents
 - ❖ Achieves 90% with six stations
- ❖ NFPA 1710 recommends 8-minute travel for ALS
- ❖ With ALS First Response at 7.2-minutes overall, the 8-minute model appropriately facilitates the deployment of transport units



Staffing Considerations

Staff Schedules

- ❖ The community demand is at its peak between 10 am and 6 pm
- ❖ City may consider peak demand staffing strategies to address workload and growth
- ❖ Must ensure base 24/hour services continue to be met



Optimized Personnel Staffing

- ❖ Staffing optimization was determined by mathematical formula based upon the required number of seats, the hours to be covered, and the annualized use of scheduled and unscheduled leave.
- ❖ The resulting “Relief Multiplier” indicates the minimum personnel needed to staff each seat in the deployment model.
- ❖ 24/48 schedule (24/7) on an average 48hr work week requires 4.18 FTEs per seat.
- ❖ 3/4 schedule (peak) on an average 42hr work week requires 2.4 FTEs per seat.

Potential Savings in Staffing Model

Minimum Staffing	Personnel Needed	Current Budgeted Positions	Personnel Capacity	Value
119	497	510	12.58	\$ 1,687,883.76
122	510	510	0.0	\$ -
130	543	510	-33.4	\$ (4,481,344.80)
140	585	510	-75.2	\$ (10,089,734.40)

- ❖ Insufficient budgeted positions to sustain Daily minimum of 130.
 - ❖ **This significantly contributes to excessive OT liabilities.**
- ❖ Adjusting minimum staffing to 122 aligns the department with current budgeted strength and has the potential to create approximately \$2 million in overtime savings.
- ❖ Adjusting minimum staffing to 119 once the workload is redistributed has the potential to create a total savings of approximately \$3.7 million.

Leveraging MPDS

- ❖ OFD is fully functional with the Medical Priority Dispatch System (MPDS) in its communications center, but has not translated the process to its dispatching and deployment strategies
- ❖ In 2016, OFD averaged 1.9 unit response per EMS incident. All calls are dispatched as emergency responses with two OFD units responding, regardless of the nature or determinant.
 - ❖ This represents an unnecessary level of redundancy which assumes unwarranted risk.
 - ❖ Over prioritization of EMS calls reduces reliability and fire suppression readiness.

Leveraging MPDS

❖ Recommend:

- ❖ ALS Engine or Truck only to A/B/C/O that transport <50%. ALS First Response layer still performs at 7.2-minutes and allows for on-scene evaluation.
- ❖ Rescue or Peak Units only to A/B/C/O that transport >50%.
- ❖ ALS Engine or Truck AND Rescue or Peak Unit to all D/E calls due to clinical acuity.

New Call Distribution	Calls	Total WL Distribution	Responses	FY16	Difference
Engine/Truck & Rescue	15,264	Total Engine/Truck Work	24,786	49,643	24,857
Rescue Only	21,751	Total Rescue Work	39,804	37,300	-2,504
Engine/Truck Only	9,522	Total EMS Responses	64,590	86,943	22,353
Total EMS Calls	46,537	Avg. Responses per Call	1.4	1.9	.5

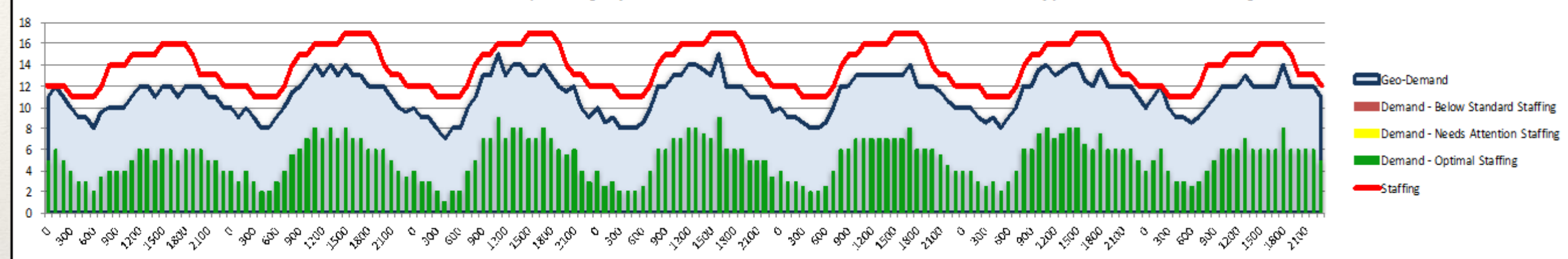
Recommended Model for Consideration

Elements of Recommended Model

- ❖ The recommended model design is based upon “travel time” and “work load” or demand.
 - ❖ Distribution, or geographic deployment, is based upon desired travel time performance.
 - ❖ Concentration, or workload deployment, is based upon the demand.
- ❖ The plan first identified the appropriate geographic locations for resources and then placed the number of resources required at each location to answer the demand.
- ❖ Major Objectives in Plan Design:
 - ❖ Maintain current performance, ISO, and CFAI Accreditation benchmarks.
 - ❖ Address UHU with a more equitable distribution of the workload.
 - ❖ Stabilize the Transport model with a sustainable approach that is independent of a third-party provider.
 - ❖ Provide fiscal sustainability and efficiency.

Recommended Model

8 Minute Drive Time (6 Geographic Units & 11 Units 24/7 with 6 Peak-of-Day) - Demand vs Staffing



Peak of Day Units

24 Hour Units

	Peak of Day Unit Hours	Estimated Responses	Estimated Response UHU	Estimated Transports	Estimated Transport UHU	24/7 Unit Hours	Estimated Responses	Estimated Response UHU	Estimated Transports	Estimated Transport UHU
Sunday	72	47	0.50	29	0.41	264	71	0.21	43	0.17
Monday	72	47	0.50	29	0.41	264	83	0.24	51	0.20
Tuesday	72	47	0.50	29	0.41	264	81	0.23	49	0.19
Wednesday	72	47	0.50	29	0.41	264	81	0.23	49	0.19
Thursday	72	47	0.50	29	0.41	264	81	0.23	49	0.19
Friday	72	47	0.50	29	0.41	264	86	0.25	52	0.21
Saturday	72	47	0.50	29	0.41	264	80	0.23	49	0.19
Week	504	329	0.50	201	0.41	1848	563	0.23	343	0.19
Year	26208	17108	0.50	10436	0.41	96096	29276	0.23	17858	0.19

Recommended Model

- ❖ Maintains ALS First Response performance at 7.2 minutes or better to 90% of all life-threatening incidents
- ❖ Achieves nearly 92% at 8-minutes for all ambulance responses
 - ❖ Meets NFPA 1710 for ALS in 8-minute or less.
- ❖ Has designed surge capacity to handle typical demand surges.
- ❖ Stabilizes and Equalizes workload
- ❖ UHU for 24/48 Rescues has capacity to absorb growth at .23 overall
- ❖ Immediate general fund savings with potential unit reduction once workload is redistributed.
 - ❖ Savings can facilitate capital costs for Peak Unit deployment.
- ❖ This plan is an efficient and functional deployment. This is the primary recommendation for deployment of full transport services.

Fiscal Impact of Recommendation

Table: Plan analyses by personnel cost only

Model	24/7 Rescue	PLU Rescue	Transport Personnel Costs - All Units	Revenues	Balance
Current	11	1	\$ 13,538,058.00	\$ 5,815,698.08	\$ (7,722,359.92)
Hyb 8 min-11/6	11	6	\$ 15,218,414.00	\$ 7,969,392.80	\$ (7,249,021.20)

- ❖ Assuming all EMS transport workload has the potential to increase revenues by approximately \$1.6 to \$2.2 million.

Fiscal Impacts of Recommendation

Table: EMS Fund Analyses of Alternatives – Overtime General Fund Savings (All Costs Excluding Capital)

Expenses -Probable	FY16-Current	8min-11/6
Total Expenses	\$ 5,090,287.18	\$ 9,066,454.61
Total Cash Revenues (Fees)	\$ 5,815,698.08	\$ 7,969,392.80
Balance	\$ 725,410.90	\$ (1,097,061.81)
General Fund Savings from Overtime	\$ -	\$ 2,000,000.00
New Net	\$ 725,410.90	\$ 902,938.19
Difference From FY16-Current		\$ 177,527.29
Expenses - Conservative	FY16-Current	8min-11/6
Total Expenses	\$ 5,090,287.18	\$ 9,066,454.61
Total Cash Revenues (Fees)	\$ 5,815,698.08	\$ 7,406,386.51
Balance	\$ 725,410.90	\$ (1,660,068.10)
General Fund Savings from Overtime	\$ -	\$ 2,000,000.00
New Net	\$ 725,410.90	\$ 339,931.90
Difference From FY16-Current		\$ (385,479.00)

Fiscal Impacts – Operational Support

- ❖ OFD staff has developed an Operational Support needs assessment to address the increased work associated with an expanded transport program. The FITCH team has validated the assessment and supports its implementation in concert with the alternatives provided herein.
- ❖ Includes six new FTE's: Two sworn; Four civilian
- ❖ The \$635,550 cost has been included in the EMS fund analysis provided.

Fiscal Impacts - Capital

Table: New Capital Costs per Model

Model	New Ambulances	Vehicle Costs	Equipment Costs	Total
Hyb 8 min-11/6	6	\$ 900,000.00	\$ 330,000.00	\$ 1,230,000.00

- ❖ \$150,000 cost estimate per unit is based upon pricing within the current Florida Sheriffs Association Cooperative Purchasing Program contract.
- ❖ Equipment cost estimate is based upon OFD staff analyses. OFD is best positioned to make this determination
- ❖ Adjusting minimum staffing to 119 or 122 will produce sufficient savings to cover entire capital costs of full transport program deployment.

Fire Chief – Benefits of Hybrid Model

- ❖ 11 sworn 24/48 Rescues and 6 civilian 12hr PLUs
- ❖ Maintains Current ISO and Commission on Fire Accreditation International (CFAI) Accreditations
- ❖ Balances Workload – Increases Time for Training and rest periods. (Unit Hour Utilization)
- ❖ Fiscally Sustainable and Easily Expandable Model
- ❖ Creates a Conduit For Increasing Diversity In Civil Service Ranks.
- ❖ Stabilizes Transport Model By Bringing Entire Emergency Medical Transport Under The Control Of The City.
- ❖ No Firefighters will be laid off. (Note: 12 storm FF added in 2018 FY for Lake Nona Tower 15)

Questions?

FITCH

& ASSOCIATES