# Fire and EMS Assessment

Edmonds, Washington

FITCH
& ASSOCIATES

# Question #1: Financial Sustainability

Did the City benefit financially from it's decision to contract fire services?

Are these financial savings sustainable?

FITCH
& ASSOCIATES

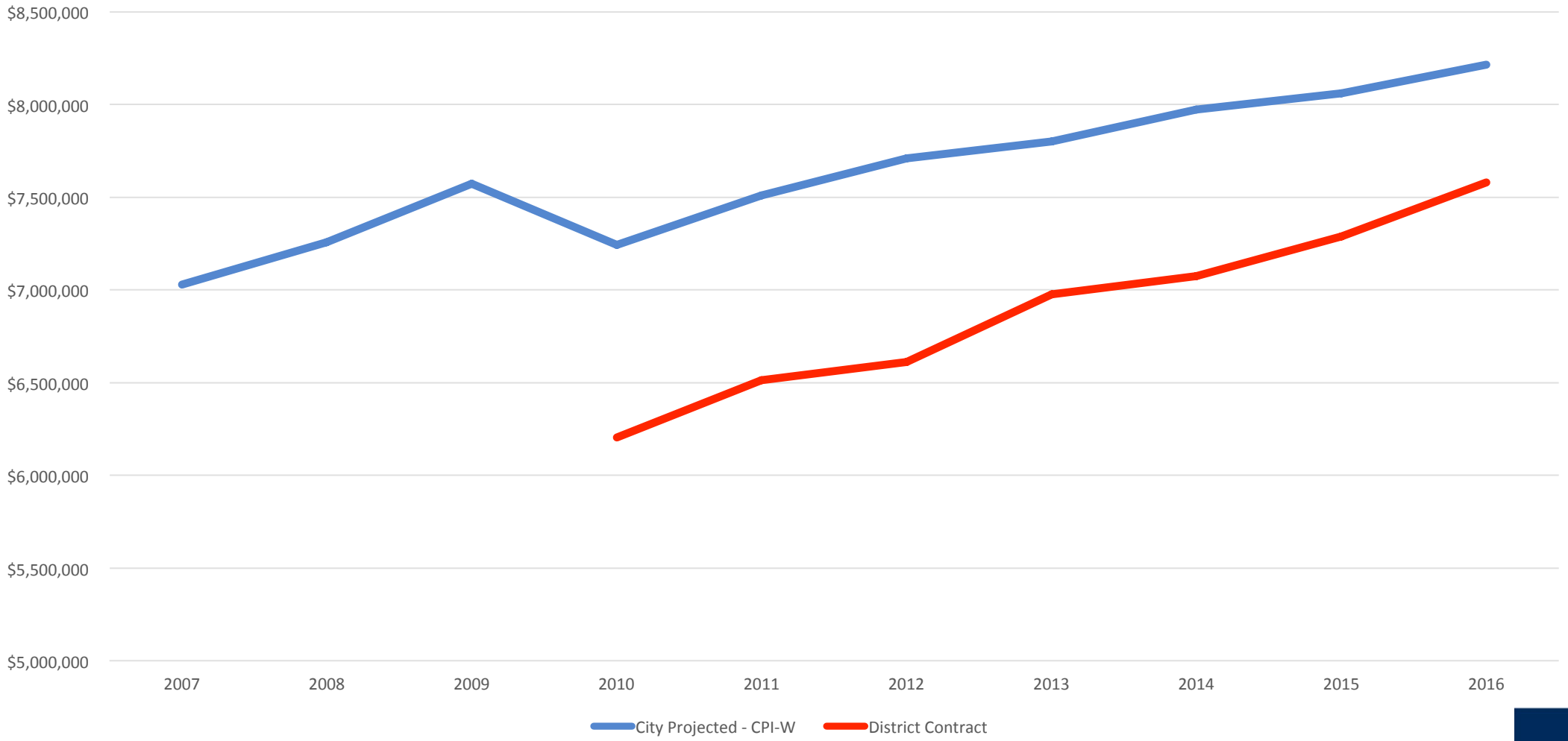
# Overall Findings

- Contracting for fire services has been fiscally beneficial for the City
  - Savings have averaged $895,000 per year (2010 thru 2016)

- Change from a prescriptive (defined station/staffing levels) to performance-based (e.g. response time) could be more fiscally beneficial to City in the long-run
  - Similar to ILAs for Brier & Mountlake
  - Explore alternatives to current resource allocation and performance

FITCH & ASSOCIATES

# City Operated Fire Department vs. Contract Services
# Fiscal Analysis 2007 thru 2016




FITCH & ASSOCIATES

| Fiscal Year | Net Cost to City | District 1 Budget | Estimated Benefit |
|---|---|---|---|
| 2007 | $7,028,170 | | |
| 2008 | $7,256,018 | | |
| 2009 | $7,571,969 | | |
| 2010 | $7,241,814 | $6,203,322 | $1,038,492 |
| 2011 | $7,509,761 | $6,513,349 | $996,412 |
| 2012 | $7,710,272 | $6,611,109 | $1,099,163 |
| 2013 | $7,799,711 | $6,977,263 | $822,448 |
| 2014 | $7,973,644 | $7,072,555 | $901,089 |
| 2015 | $8,059,760 | $7,289,000 | $770,760 |
| 2016 | $8,213,701 | $7,580,000 | $633,701 |

FITCH
& ASSOCIATES

# Question #1: Financial Sustainability

Did the City benefit financially from it's decision to contract fire services?

**Yes**

Are these financial savings sustainable?

**Yes – especially in the short-term. Further savings in the long-term with recommended operational changes**

FITCH & ASSOCIATES

# Question #2: Operational Assessment

Are there operational changes that can improve services to our residents ?

Are there operational changes that can provide greater efficiencies in our fire / EMS services ?

FITCH
& ASSOCIATES

# Number of Incidents by Call Type - 2014

| Call Category | Number of Calls | | | |
|---|---|---|---|---|
| | Edmonds | District Fire | Other | Total |
| EMS | 2,547 | 6,277 | 39 | 8,863 |
| EMS-ALS | 1,398 | 2,993 | 153 | 4,544 |
| Fire | 450 | 1,268 | 123 | 1,841 |
| Special Ops | 8 | 8 | 12 | 28 |
| Service | 210 | 395 | 2 | 607 |
| **Total** | **4,613** | **10,941** | **329** | **15,883** |
| **Percentage** | **29%** | **69%** | **2%** | **100%** |
| **Calls per day** | **12.6** | **30.0** | **0.9** | **43.5** |

FITCH & ASSOCIATES

# Number of Incidents by Call Type

| Call Category | Number of Calls | Calls per Day | Call Percentage |
|---|---|---|---|
| EMS | 2,547 | 7.0 | 55.2 |
| EMS-ALS | 1,398 | 3.8 | 30.3 |
| Fire | 450 | 1.2 | 9.8 |
| Special Ops | 8 | 0.0 | 0.2 |
| Service | 210 | 0.6 | 4.6 |
| **Total** | **4,613** | **12.6** | **100.0** |

FITCH & ASSOCIATES

# Number of Responses and Total Busy Time

| Call Category | Number of Calls | Number of Responses | Average Responses per Call | Total Busy Hours | Average Busy Minutes per Response |
|---|---|---|---|---|---|
| EMS | 2,547 | 3,181 | 1.2 | 1,503 | 28.3 |
| EMS-ALS | 1,398 | 3,173 | 2.3 | 1,742 | 32.9 |
| Fire | 450 | 733 | 1.6 | 256 | 21.0 |
| Special Ops | 8 | 47 | 5.9 | 16 | 20.2 |
| Service | 210 | 238 | 1.1 | 87 | 22.0 |
| **Total** | **4,613** | **7,372** | **1.6** | **3,605** | **29.3** |

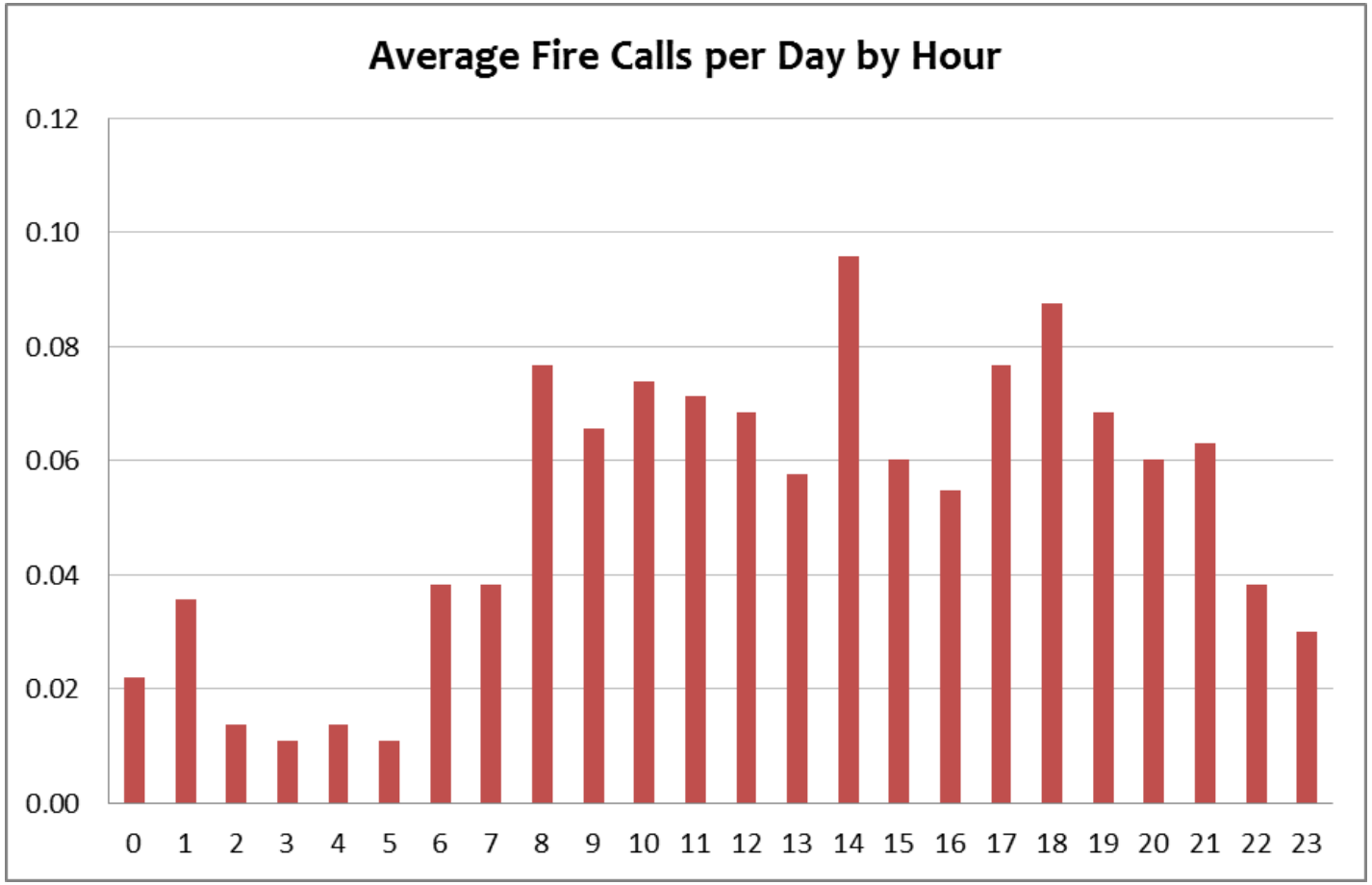
FITCH & ASSOCIATES

# 90th Percentile Performance by Call Type

| Call Category | Turnout Time | Travel Time | Response Time | Sample Size |
|---|---|---|---|---|
| EMS | 2.5 | 5.9 | 7.5 | 2,471 |
| EMS-ALS | 2.4 | 5.1 | 6.9 | 1,376 |
| Fire | 2.9 | 6.6 | 8.5 | 422 |
| Special Ops | 2.3 | 7.4 | 9.4 | 8 |
| **Total** | **2.6** | **5.7** | **7.5** | **4,277** |

FITCH & ASSOCIATES

# Average Fire Related Calls Per Day



# Percentage of Fire Related CAD Incident Types

| Final Type | Final Type Description | Number of Calls | Percentage of Total Fire Service Demands |
|---|---|---|---|
| FS | Fire Single Engine response | 148 | 32.9 |
| FAC | Fire Alarm Commercial | 136 | 30.2 |
| FAR | Fire Alarm Residential | 63 | 14.0 |
| COA | Carbon Monoxide Alarm | 27 | 6.0 |
| MU | Move Up | 20 | 4.4 |
| GLO | Gas Leak Outside | 18 | 4.0 |
| FC | Fire Commercial | 12 | 2.7 |
| FR | Fire Residential | 11 | 2.4 |
| GLI | Gas Leak Inside | 8 | 1.8 |
| FAS | Fire Alarm Sprinkler Water flow | 4 | 0.9 |
| FB | Fire Brush | 2 | 0.4 |
| MVCE | Motor Vehicle Collision with Entrapment | 1 | 0.2 |

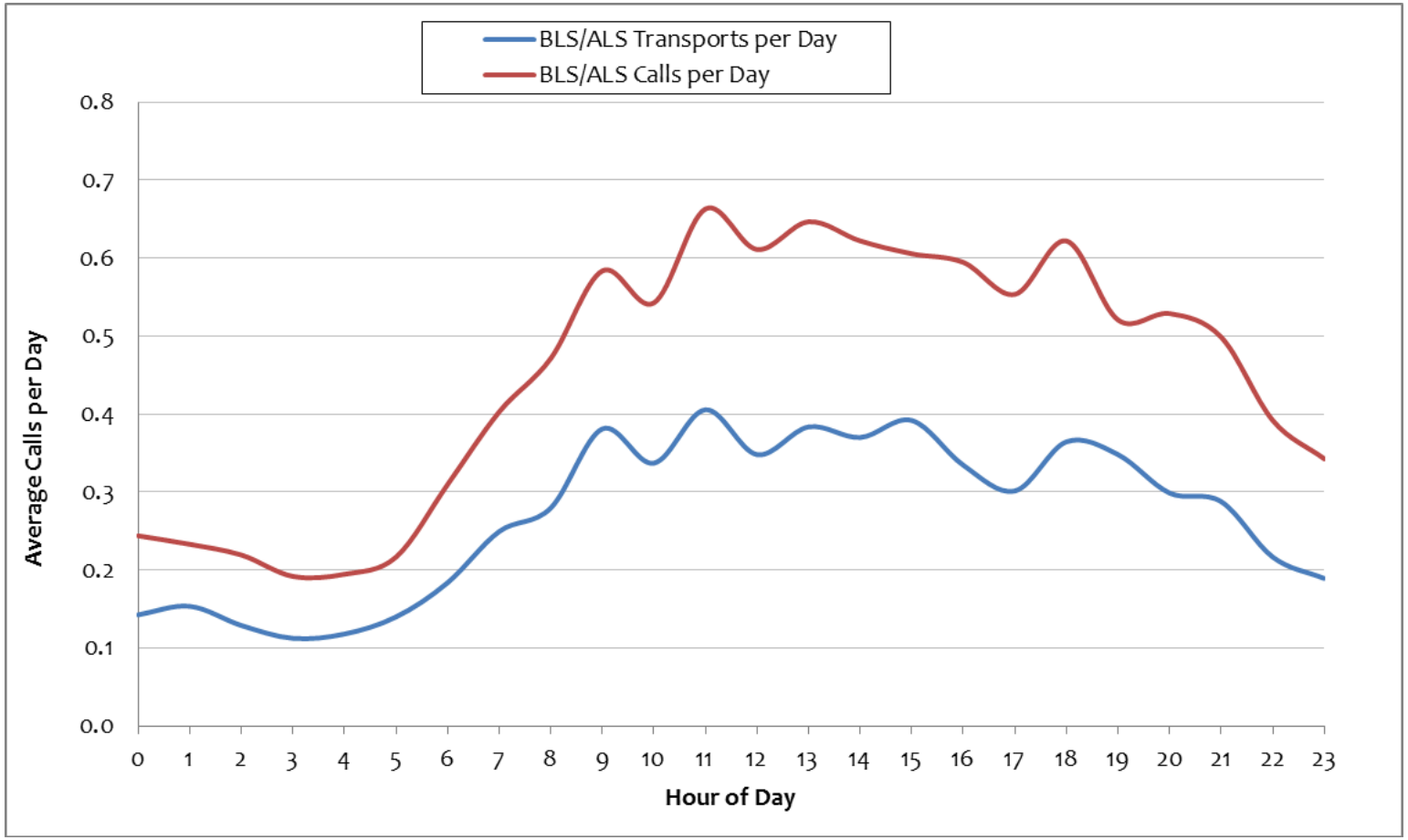
FITCH & ASSOCIATES

# Workload for Fire Related Calls

| Station | Apparatus | Apparatus Type | Avg. Busy Minutes per Response | Annual Busy Hours | Annual Total Responses |
|---|---|---|---|---|---|
| 17 | Aid unit | A17 | 15.8 | 2.6 | 10 |
| | Engine | E17 | 23.2 | 65.6 | 170 |
| | Medic | M17 | 24.5 | 11.4 | 28 |
| | **Station 17 Total** | | **23.0** | **79.7** | **208** |
| 16 | Aid unit | A16 | 10.2 | 0.3 | 2 |
| | Battalion | B16 | 29.8 | 22.4 | 45 |
| | Engine | E16 | 20.9 | 49.5 | 142 |
| | Medical Services Officer | MSO16 | 6.9 | 0.3 | 3 |
| | **Station 16 Total** | | **22.7** | **72.5** | **192** |
| 20 | Aid unit | A20 | 36.3 | 1.8 | 3 |
| | Engine | E20 | 11.6 | 0.2 | 1 |
| | Ladder (quint) | L20 | 21.6 | 63.7 | 177 |
| | Medic | M20 | 11.2 | 0.6 | 3 |
| | **Station 20 Total** | | **21.6** | **66.3** | **184** |

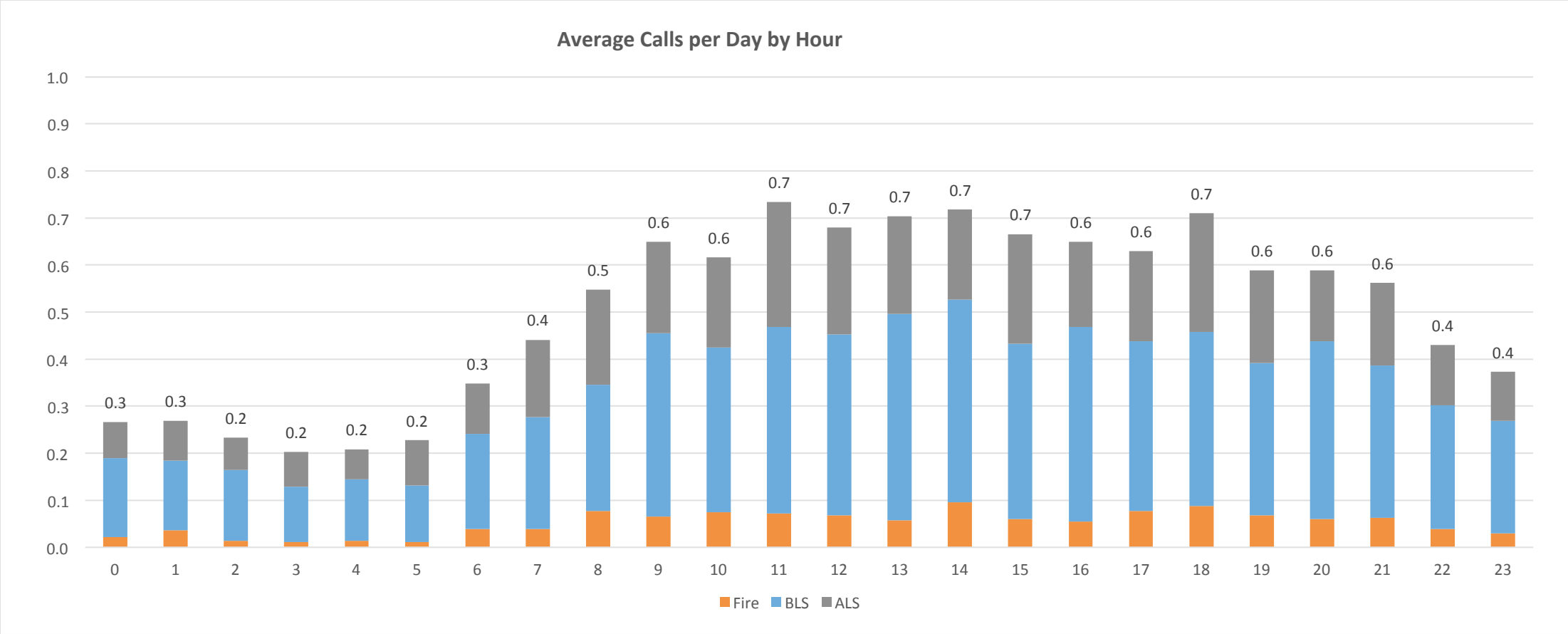
FITCH & ASSOCIATES

# Average EMS Calls/Transports by Hour of Day

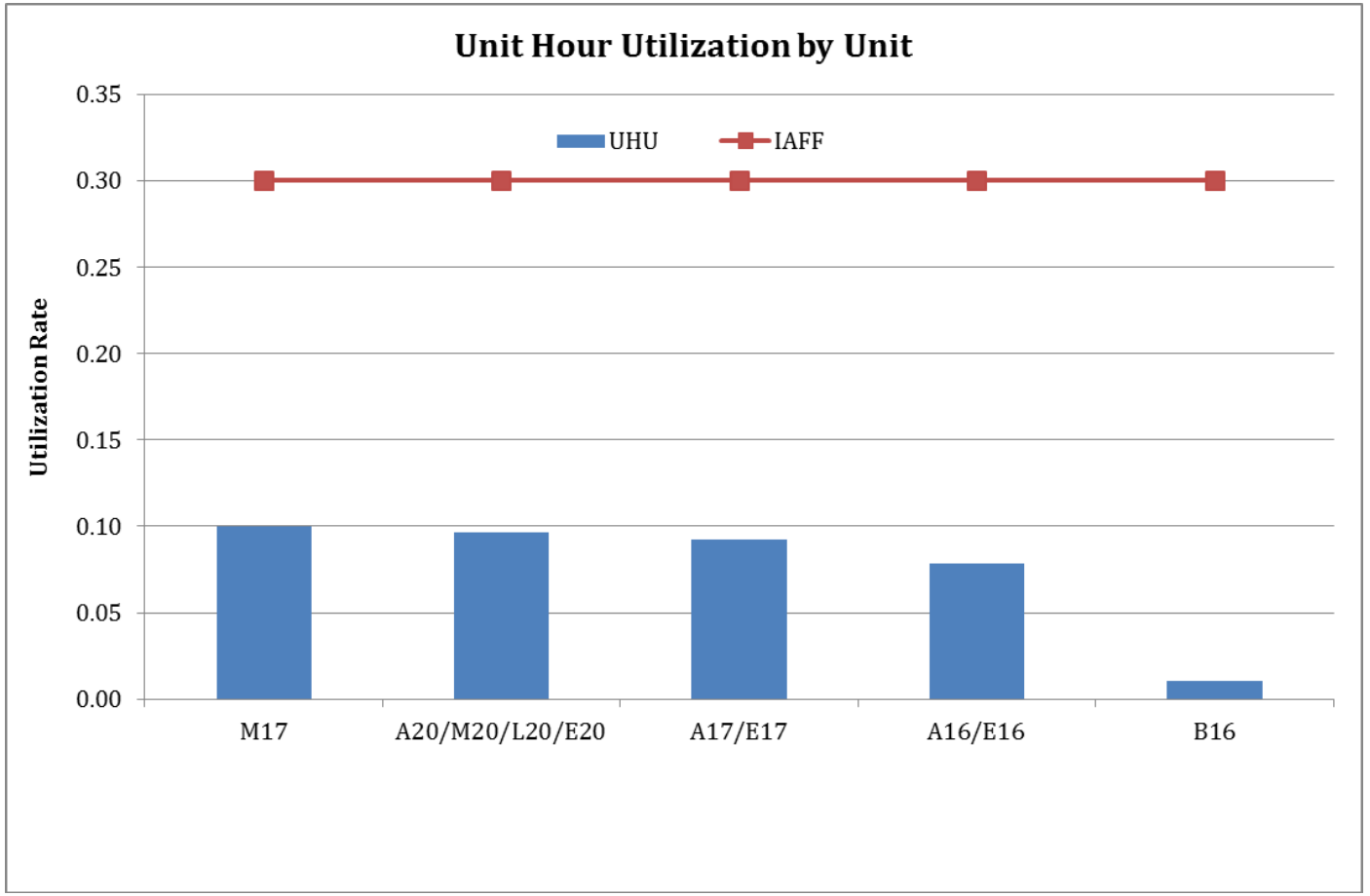



FITCH & ASSOCIATES

# Average Calls per Hour of Day



# Unit Hour Utilizations



# Mutual and Automatic Aid Responses

| Call Category | Stations 16, 17 and 20 into District Fire | | | Other FD1' stations into Edmonds | | | Other Fire Agencies into Edmonds | | |
|---|---|---|---|---|---|---|---|---|---|
| | Number of Calls | Number of Runs | Total Busy Hours | Number of Calls | Number of Runs | Total Busy Hours | Number of Calls | Number of Runs | Total Busy Hours |
| EMS | 226 | 265 | 108 | 248 | 271 | 135 | 126 | 137 | 62 |
| EMS-ALS | 270 | 349 | 130 | 106 | 189 | 181 | 111 | 118 | 52 |
| Fire | 74 | 149 | 38 | 162 | 206 | 117 | 42 | 49 | 9 |
| Special Ops | 7 | 15 | 4 | 7 | 9 | 29 | 4 | 4 | 1 |
| Service | 6 | 6 | 2 | 11 | 11 | 2 | 6 | 6 | 1 |
| **Total** | **583** | **784** | **281** | **534** | **686** | **464** | **289** | **314** | **125** |

FITCH & ASSOCIATES

# Station 20 and Responses to Esperance

| Description | Unit | Overall | | Grids 55, 56, 105 and 106 | |
|---|---|---|---|---|---|
| | | Number of Runs | Total Busy Hours | Number of Runs | Total Busy Hours |
| Aid unit | A20 | 387 | 186.5 | 39 | 19.4 |
| Engine | E20 | 3 | 0.8 | 1 | 0.2 |
| Ladder (quint) | L20 | 367 | 129.6 | 38 | 15.1 |
| Medic | M20 | 999 | 531.3 | 97 | 50.6 |
| **Station 20 Total** | | **1,756** | **848.3** | **175** | **85.3** |
| **Percentage of Total** | | **100%** | **100%** | **10%** | **10%** |

FITCH & ASSOCIATES

# Alternatives for Consideration

FITCH
& ASSOCIATES

# Within Rank Staffing Multiplier Adjustments

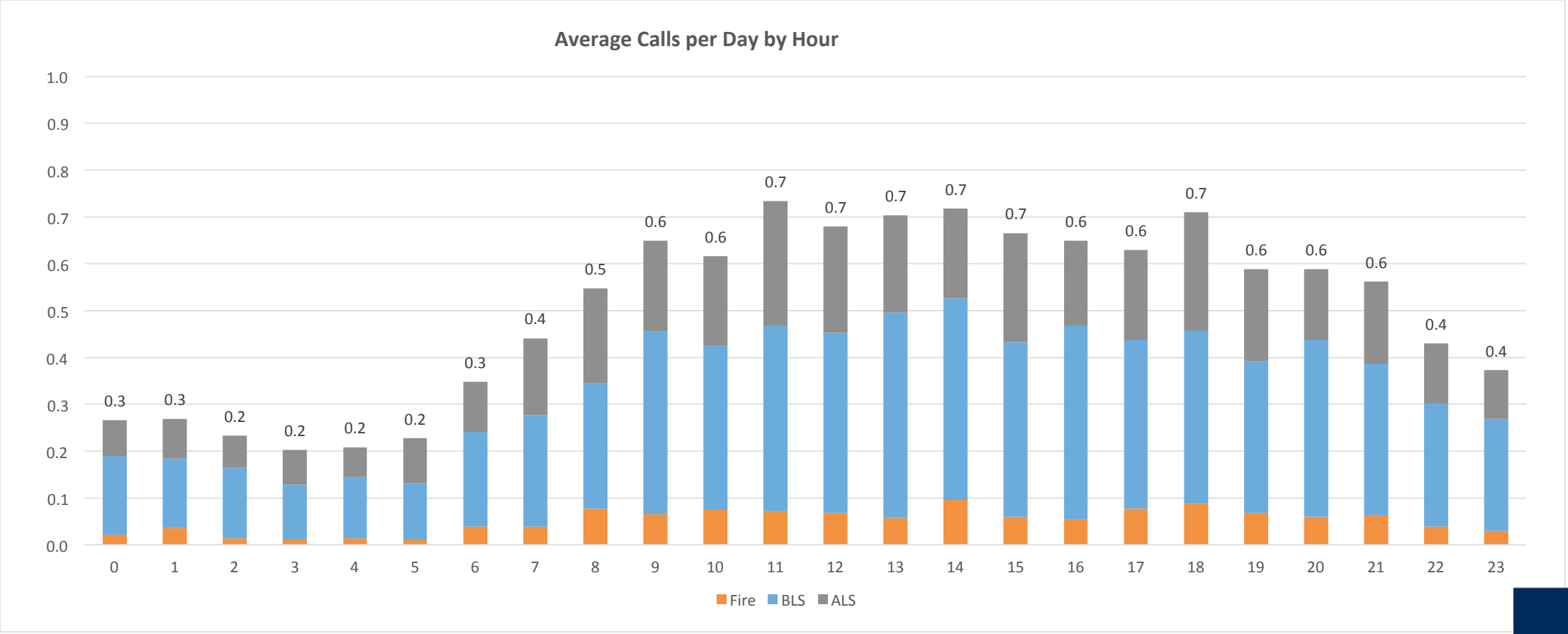
| | Current Multiplier | Recommended Multiplier |
|---|---|---|
| Captain | 4.583 | 4 |
| Firefighter / Paramedic | 6.0 | 5.164 |
| Firefighter | 4.1 | 4.582 |
| **Aggregate Multiplier** | **4.582** | **4.582** |

# Alternative 1

- Maintain current staffing relief multiplier utilized by FD 1 at 4.582
- Upgrade Service to all ALS engines/trucks
- Migrate 24 hour Medic unit to 12 hour to cover peak demand
- Utilize Cross-staffed Aid/Medic units overnight
- Adjust within rank relief multipliers to put greater emphasis on FF/PM positions but maintain current aggregate staffing multiplier of 4.582
- Estimated annual savings of $681,572.
  - $530,195 with the 77.79% Edmonds Rate

FITCH & ASSOCIATES

# Average Calls per Hour of Day



# Alternative 2

- Maintain current staffing relief multiplier utilized by FD 1 at 4.582
- Upgrade Service to all ALS engines/trucks
- Commensurate deployment strategies with remainder of FD 1
  - Cross-staff medic units
- Adjust within rank relief multipliers to put greater emphasis on FF/PM positions but maintain current aggregate staffing multiplier of 4.582
- Estimated annual savings of $1,334,218.
  - $1,037,888 at 77.79% Edmonds Rate

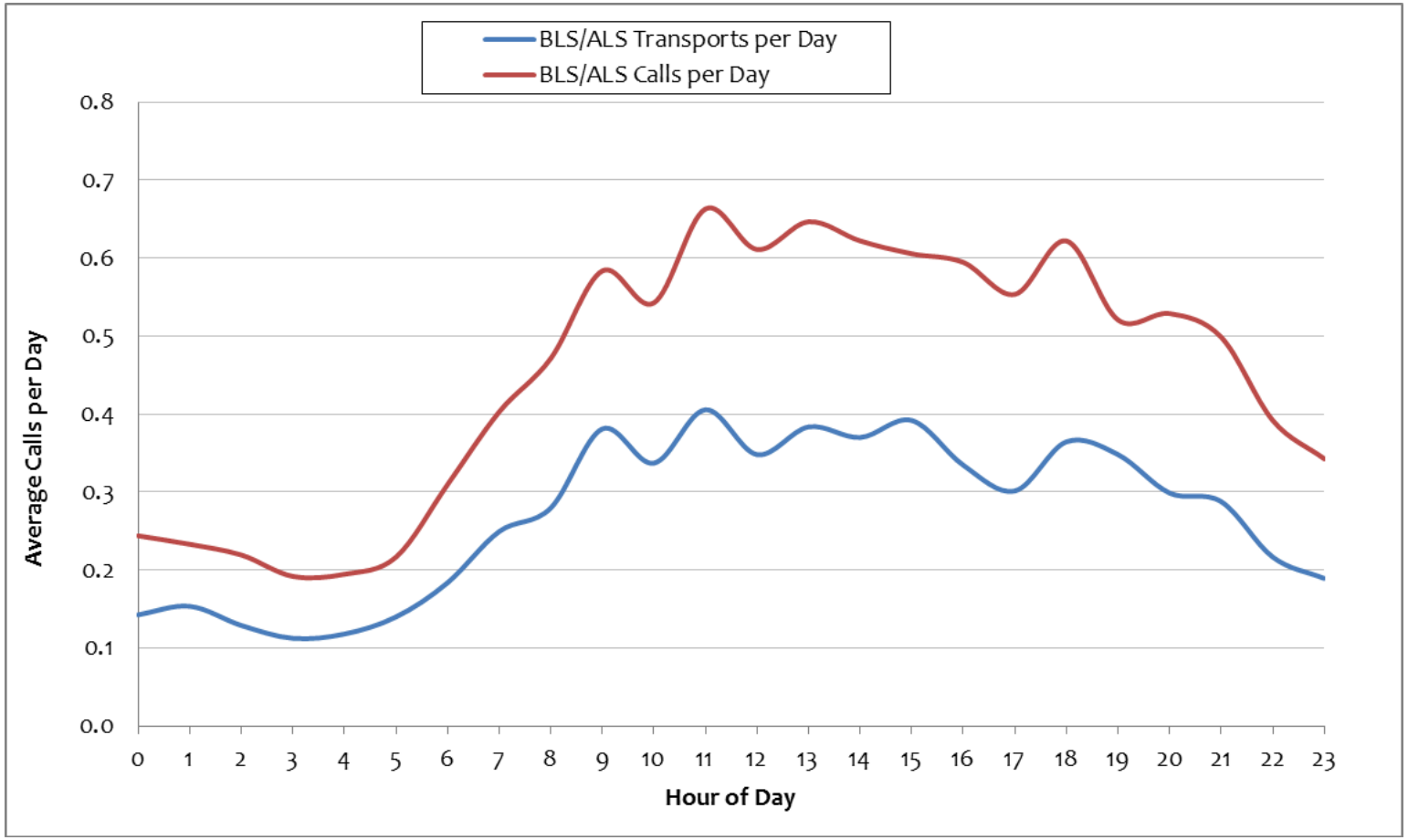
FITCH & ASSOCIATES

# Patient Transportation Rates

| Call Category | Non-Transport Duration | Non-Transport Number of Calls | Transport Duration | Transport Number of Calls | Transport Rate |
|---|---|---|---|---|---|
| EMS-BLS | 20.0 | 1,275 | 44.8 | 1,272 | 49.9 |
| EMS-ALS | 32.0 | 311 | 53.9 | 1,087 | 77.8 |
| **EMS-Total** | **22.3** | **1,586** | **49.0** | **2,359** | **59.8** |

FITCH & ASSOCIATES

# Average EMS Calls/Transports by Hour of Day




FITCH & ASSOCIATES

# Alternative 3

- Adjust travel time performance objective to 8 minutes rather than 6
  - Would require 2 engines rather than 3
  - Actual performance is 6.6 minutes
- Improve turnout time by 1 to 1.5 minutes
  - Net difference of 30 seconds to one minute
- Maintain current staffing relief multiplier utilized by FD 1 at 4.582
- Upgrade Service to all ALS engines/trucks
- Maintain 24 hour Medic Unit
- Adjust within rank relief multipliers
- Estimated annual savings of $1,871,232
  - $1,455,631

FITCH & ASSOCIATES

# Trends in Fire Deaths & Fires

**Figure 5. Trend in Civilian Fire Death Rates per Million Population, 1977-2014**

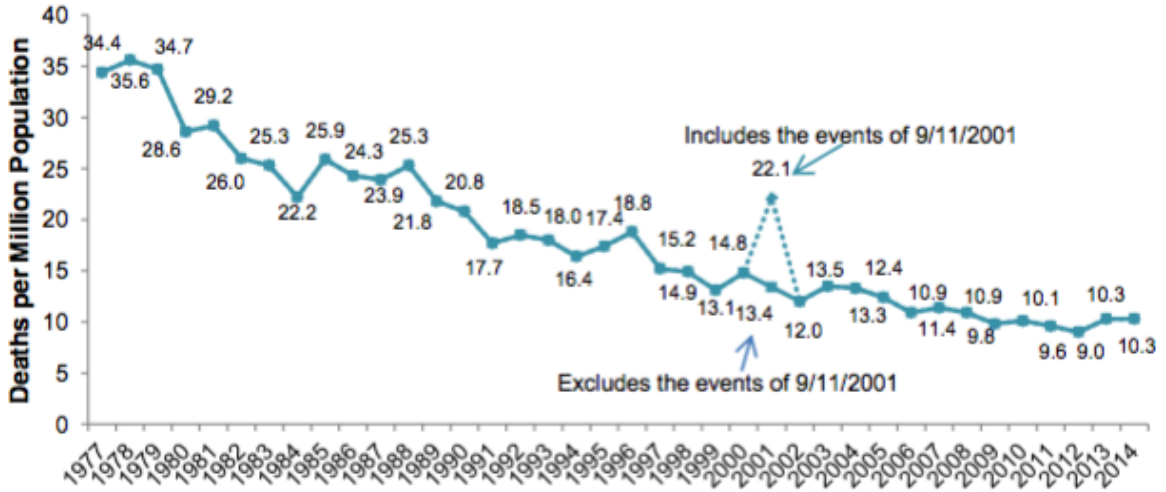
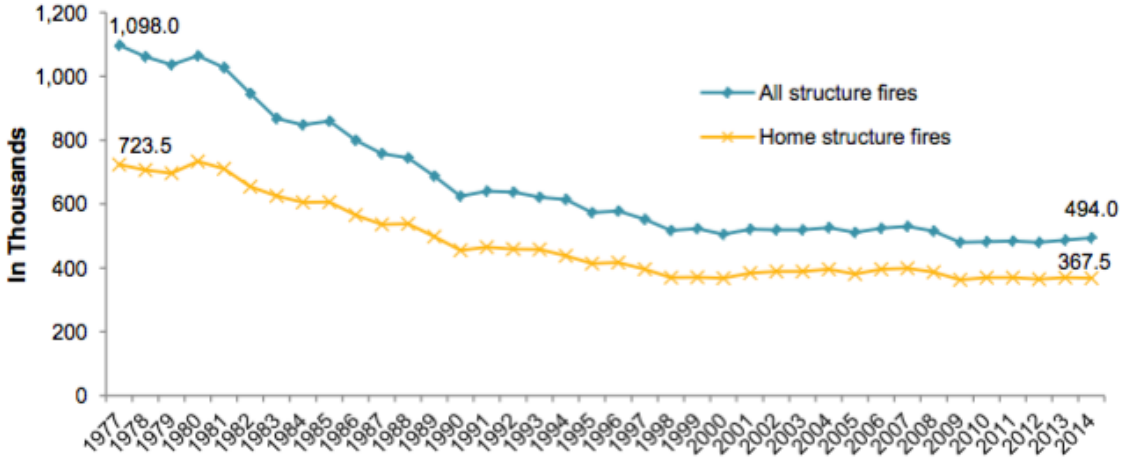



**Figure 7. All Structure Fires and Home Structure Fires by Year 1977-2014**




NFPA (2016) Trends and Patterns of U.S. Fire Loss

FITCH & ASSOCIATES

# 90th Percentile Performance by Call Type

| Call Category | Turnout Time | Travel Time | Response Time | Sample Size |
|---|---|---|---|---|
| EMS | 2.5 | 5.9 | 7.5 | 2,471 |
| EMS-ALS | 2.4 | 5.1 | 6.9 | 1,376 |
| Fire | 2.9 | 6.6 | 8.5 | 422 |
| Special Ops | 2.3 | 7.4 | 9.4 | 8 |
| **Total** | **2.6** | **5.7** | **7.5** | **4,277** |

FITCH & ASSOCIATES

# Number of Units Arriving on Fire Calls

| Number of Responding Units | Number of Calls | Percent of Total | Cumulative Percent |
|---|---|---|---|
| 1 | 361 | 80.2% | 80.2% |
| 2 | 45 | 10.0% | 90.2% |
| 3 | 13 | 2.9% | 93.1% |
| 4 | 5 | 1.1% | 94.2% |
| 5 | 1 | 0.2% | 94.4% |
| 6 | 2 | 0.4% | 94.9% |
| 7 | 3 | 0.7% | 95.6% |
| 8 | 6 | 1.3% | 96.9% |
| 9 | 10 | 2.2% | 99.1% |
| 10 or more | 4 | 0.9% | 100.0% |
| **Total** | **450** | | |

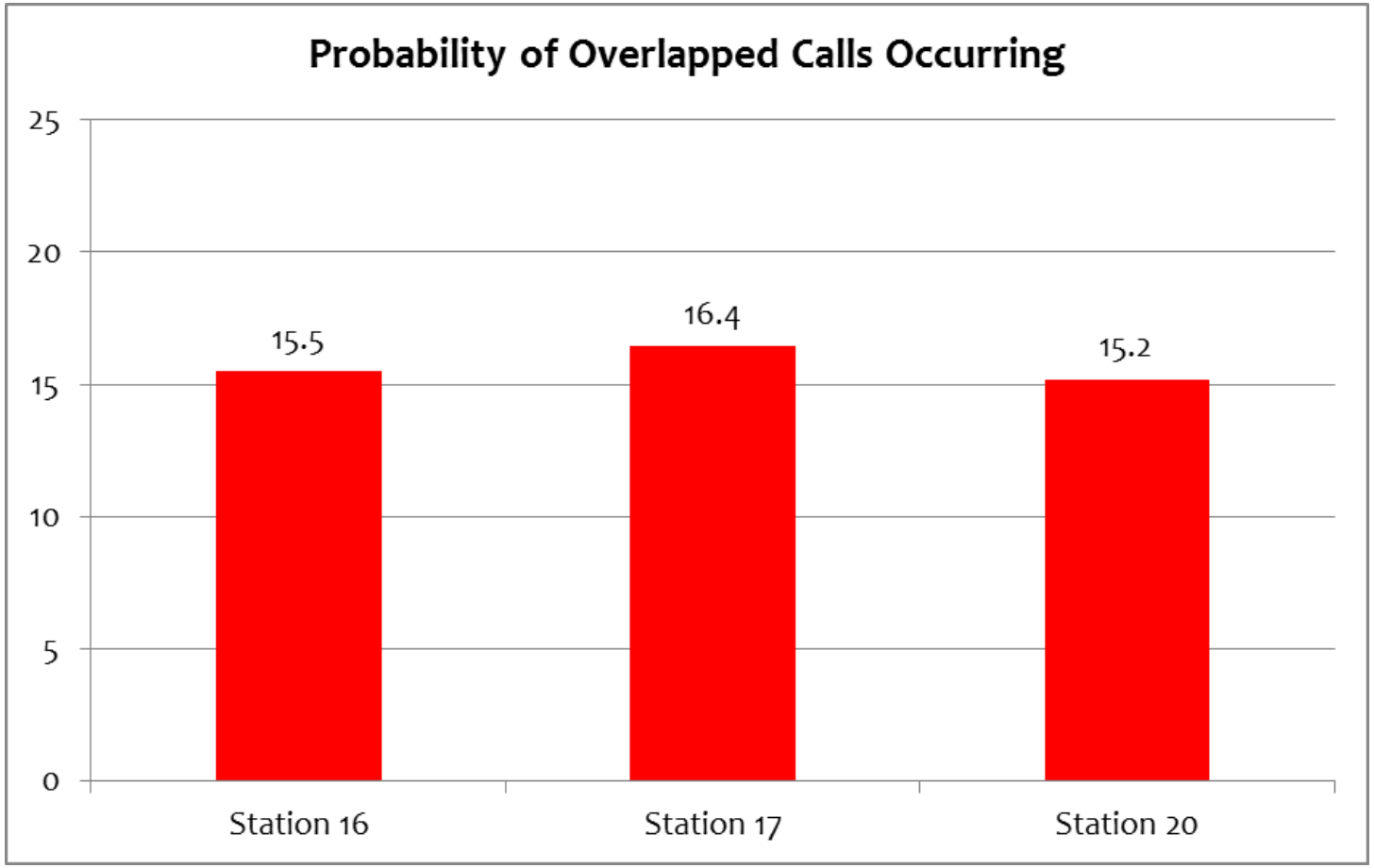
FITCH & ASSOCIATES

# Percentage of System Reliability by Station

| Station Demand Zone | Reliability Percentage | Number of Calls |
|---|---|---|
| Station 16 | 81.1 | 1,348 |
| Station 17 | 90.1 | 1,551 |
| Station 20 | 85.3 | 1,574 |

FITCH & ASSOCIATES

# Probability of Overlapping Calls by Station



# Summary of Alternatives

| | Current | Alternative 1 | Alternative 2 | Alternative 3 |
|---|---|---|---|---|
| Stations | 3 | 3 | 3 | 3 |
| Engine/Truck | 2/1 | 2/1 | 2/1 | 1/1 |
| Advanced Life Support Capabilities | 1 Station | All Stations | All Stations | All Stations |
| Medic | 1 24 hour<br>1 Cross-staffed | 1 12 hour<br>3 Cross-staffed | 3 Cross-staffed | 1 24 hour<br>2 Cross-Staffed |
| Performance | Approximately 6 minutes | Approximately 6 Minutes | Approximately 6 Minutes | Approximately 6 Minutes for EMS and 8 Minutes for Fire* |
| Total FTEs | 50 | 45 | 41 | 38 |
| Estimated Savings (Edmonds Rate) | $0 | $530,195 | $1,037,888 | $1,455,631 |

* Improve Turnout Time by 1 to 1.5 Minutes and net difference to total response time is 30 – 60 seconds.

FITCH & ASSOCIATES

# Question #2: Operational Assessment

Are there operational changes that can improve services to our residents ?

**Yes – ensure Paramedics at all fire stations**

Are there operational changes that can provide greater efficiencies to our fire / EMS services ?

**Yes – recognize reduced fire activity & align resources to increased EMS demand**

FITCH & ASSOCIATES

# Questions?

FITCH
& ASSOCIATES