

**Performance Audit:
Atlanta Fire Rescue Staffing**

October 2011

City Auditor's Office
City of Atlanta

File #11.02



CITY OF ATLANTA
City Auditor's Office
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October 2011

Performance Audit:

Firefighter Staffing

What We Found

Staffing each engine and truck with a minimum of four firefighters will not improve response time for the majority of incidents. The primary benefit of staffing a minimum of four firefighters on each engine and truck is to increase efficiency in handling fire incidents. At least four firefighters are needed on the scene to begin to contain a structure fire safely and effectively. Quicker responses reduce property damage and the chance of injury or loss of life. The standard has two components: the number of firefighters deployed and the time to respond.

The typical time to respond to a priority 1 call in 2010, including call processing and dispatch, exceeded benchmarks by nearly two minutes. About 75% of the department's responses between 2008 and 2010 were for emergency medical services, for which the NFPA has not recommended a minimum staffing level. For the 14% of the department's responses that required two or more units, the median time before the second unit arrived on the scene was 70 seconds.

Adding enough firefighters to meet NFPA 1710 would cost \$7.2 million per year to start. While the SAFER grant will delay when the city incurs the cost, the city is obligated to fund the positions for one year after the grant ends. Escalation in recruitment, salary, and benefit costs will increase future costs; adding engines, trucks or stations will also increase future staffing costs.

Investing resources in options other than increased minimum staffing would have a greater impact on response time:

- In 2010, a unit other than the one geographically closest was dispatched to 19% of the incidents, adding 86 seconds to the median response time. Renovating and/or replacing stations to add a company to stations with higher call volumes would improve coverage and decrease out-of-area responses.
- Turnout time in 2010 was three times longer than the benchmark of 60 seconds for 90% of EMS calls and 80 seconds for 90% of fire calls. Reducing turnout time through training and performance measurement would also improve response time.
- Adding dispatchers during periods of higher workload could reduce call processing time.
- In 2010, the median call transfer time was 2 minutes and 38 seconds compared to the 30 second benchmark for 95% of calls. Auditing E911 to assess why call transfer times are high could significantly cut citizen wait time.

Why We Did This Audit

City Council members have raised questions about Atlanta Fire Rescue Department staffing during budget hearings in the past few years. Between fiscal years 2008 and 2010, the city reduced the department's overall funding by 14% and eliminated 369 authorized, mostly vacant positions. The National Fire Protection Association (NFPA), the international nonprofit that develops and disseminates standards for fire departments, established standard 1710 in 2001 recommending a minimum of four firefighters per engine company and ladder truck. Fire Rescue reports it usually falls short of this guideline. The city received a SAFER (Staffing for Adequate Fire and Emergency Response) grant to fund 75 new firefighters for three years starting in fiscal year 2012, which is intended to achieve the staffing goal.

What We Recommended

The Fire Chief should:

- target additional resources – personnel and equipment – to underserved areas and to stations with more out-of-area responses
- reduce turnout time through training, and measuring and reporting fire company performance
- reiterate and enforce procedures to ensure that unit reports entered into the reporting system are completed promptly and accurately

We plan to:

- evaluate E911 to understand why call transfer times are high
- evaluate dispatch to assess whether more staff would reduce time to dispatch calls

For more information regarding this report, please contact Amanda Noble at 404.330.6750 or anoble@atlantaga.gov

Management Responses to Audit Recommendations

Summary of Management Responses

<p>Recommendation #1: The Fire Chief should target additional resources – personnel and equipment – to underserved areas and to stations with more out-of-area responses.</p>	
<p>Response & Proposed Action: The department shall conduct an analysis of fire station locations where an additional engine company or quick response vehicle for communities with a high call volume of EMS calls may be located. Fire station renovation and replacements shall be analyzed due to the increase in personnel and fleet required by this deployment strategy. The cost of each option will be provided in the analysis.</p>	<p>Agree</p>
<p>The department shall also pursue its strategic plan of adding three fire stations in currently underserved areas: Peachtree Battle, Kimberly Road, and Princeton Lake—improving service levels to these communities reduces the need to respond from fire stations distal to these areas.</p>	<p>Timeframe: The estimated timeframe for implementation is one (1) to five (5) years.</p>
<p>Recommendation #2: The Fire Chief should reduce turnout time through training, and measuring and reporting fire company performance.</p>	<p>Agree</p>
<p>Response & Proposed Action: The department will work to minimize environmental, technological and human factors which contribute to extended turn out times. Fire station design and renovations will have a slight impact on improvement. Technological improvements and system enhancements will also benefit. The greatest gains in improving turnout time shall focus on human factors such as fatigue, fire station activities; and behavior modification through training, counseling and discipline. The department will continue to emphasize improving turnout times through performance measurement at its bi-weekly internal AFRStat performance measurement sessions.</p>	<p>Timeframe: The estimated timeframe for implementation is one (1) year to eighteen (18) months. However, striving for excellence in improving response times shall be ongoing.</p>
<p>Recommendation #3: The Fire Chief should reiterate and enforce procedures to ensure that unit reports entered into the reporting system are completed promptly and accurately.</p>	<p>Agree</p>
<p>Response & Proposed Action: The executive chief officer staff shall continue to enforce procedures ensuring all unit reports are completed promptly, accurately and within policy before the end of their work shift. The department will continue to measure and monitor EMBRS data during our bi-weekly internal AFRStat performance measurement sessions.</p>	<p>Timeframe: This initiative is currently underway and will continue to be a part of our performance measurement process until the practice of completing timely, accurate, and policy based reports are institutionalized with AFRD.</p>



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October 17, 2011

Honorable Mayor and Members of the City Council:

We undertook this audit of Atlanta Fire Rescue staffing because City Council members have raised questions about the department's staffing during budget hearings in the past few years. Our audit examines workload, resources, and response times from January 2008 through December 2010. We also discuss financial tradeoffs between staffing fire apparatus with four firefighters and improving overall response times. The primary benefit of staffing a minimum of four firefighters on each engine and truck is to increase efficiency in handling fire incidents, but nearly three-quarters of priority one calls are for emergency medical services that typically do not require a minimum of four firefighters on the scene.

Our recommendations to the fire chief focus on targeting resources to underserved areas, reducing turnout time, and enforcing procedures on reporting. Management agreed with all three recommendations and described implementation plans in Appendix A. The fire chief provided additional written comments, which are included in Appendix B.

The Audit Committee has reviewed this report and is releasing it in accordance with Article 2, Chapter 6 of the City Charter. We appreciate the courtesy and cooperation of city staff throughout the audit. We especially wish to acknowledge Chuck Schultz, Principal Planner in the Department of Planning & Community Development, for generating the maps included in this report. The team for this project was Eric Palmer, Katrina Clowers, and Dawn Williams.

Leslie Ward
City Auditor

Fred Williams
Audit Committee Chair



Why We Did This Audit

- Between fiscal years 2008 and 2010, the city reduced the Atlanta Fire Rescue Department's overall funding by 14% and eliminated 369 authorized, mostly vacant positions.
- The National Fire Protection Association (NFPA), the international nonprofit that develops and disseminates standards for fire departments, established standard 1710 in 2001, recommending a minimum of four firefighters per engine company and ladder truck.
- Fire Rescue reports it usually falls short of this guideline. The city received a SAFER (Staffing for Adequate Fire and Emergency Response) grant to fund 75 new firefighters for three years starting in fiscal year 2012, which is intended to achieve the staffing goal.



Fire Rescue Houses Four Divisions

- *Division of Fire Chief* - overall operation and direction of the department
- *Division of Support Services* - emergency medical service administration, fire training, fire prevention, recruitment, and resource management
- *Division of Field Operations* - fire suppression, emergency medical services, hazardous materials response, and special operations/technical rescue services
- *Division of Airport Fire Administration* - incident response and prevention services at Hartsfield-Jackson International Airport



Four Categories of Incidents

- *EMS incidents* – personal injuries resulting from cardiac events, auto accidents, sickness, and crimes
- *Fire incidents* - fire damage to residential or commercial structures, vehicles, and other property
- *Special Operations incidents* – gas leaks, hazmat, extrication, and other incidents requiring specialized equipment or technical expertise
- *Service incidents* - non-life-threatening issues, such as residential and vehicular lockouts, smoke odors, carbon monoxide checks, and checking on the welfare of elderly residents



Audit Analysis Focuses on Priority I Calls

- Fire dispatch enters call type code into the CAD (Computer Aided Dispatch) system
- CAD system automatically assigns priority to the call
 - 1 through 3 –based on the call type
- Priority 1 calls are emergencies that require immediate response
- 90% of calls for service received between 2008 and 2010 were priority 1

Few Changes in Location of Stations and Equipment Between 2008 and 2011

- All stations except station 33 (airport) now house an engine; 16 stations house trucks
- Engine and truck companies staffed with 3 or 4 firefighters per day

Stations, Engines & Trucks
Calendar Years 2008 – 2011

Calendar Year	2008	2009	2010	2011
Stations	37	36	37	37
Engines	35	34	35	36
Trucks	15	15	16	16

Sources: EMBRS Data 2008 - 2010; 2011 Data from Fire Rescue Department

Notes: Station 36 was operated by Atlanta Fire Rescue until September 2010, when the city established an intergovernmental agreement with Fulton county.

Station 39 was operated by Atlanta Fire Rescue until October 2008, when the city established a mutual aid agreement with Sandy Springs.

Chart excludes specialized equipment.



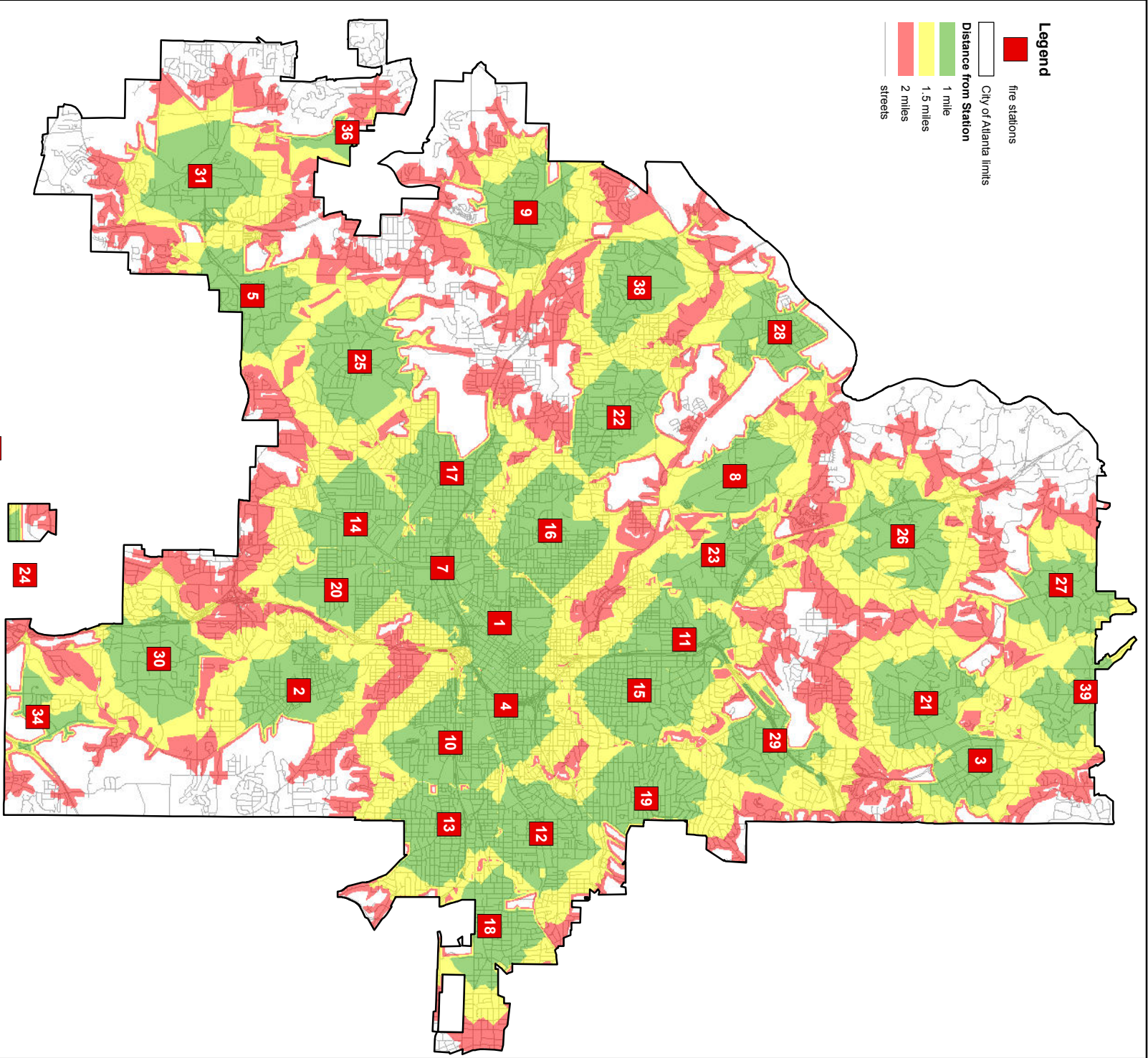
Most of the City Is within 2 Miles of a Fire Station

- The map of response coverage shows the distance in miles from each fire station

- The map shows less coverage in the following areas:
 - Peachtree Battle: Northern area between stations 26 and 11
 - Cascade: Western area between stations 38 and 25
 - Princeton Lakes: Southwest area between stations 9 and 5

Response Coverage from Existing Fire Stations

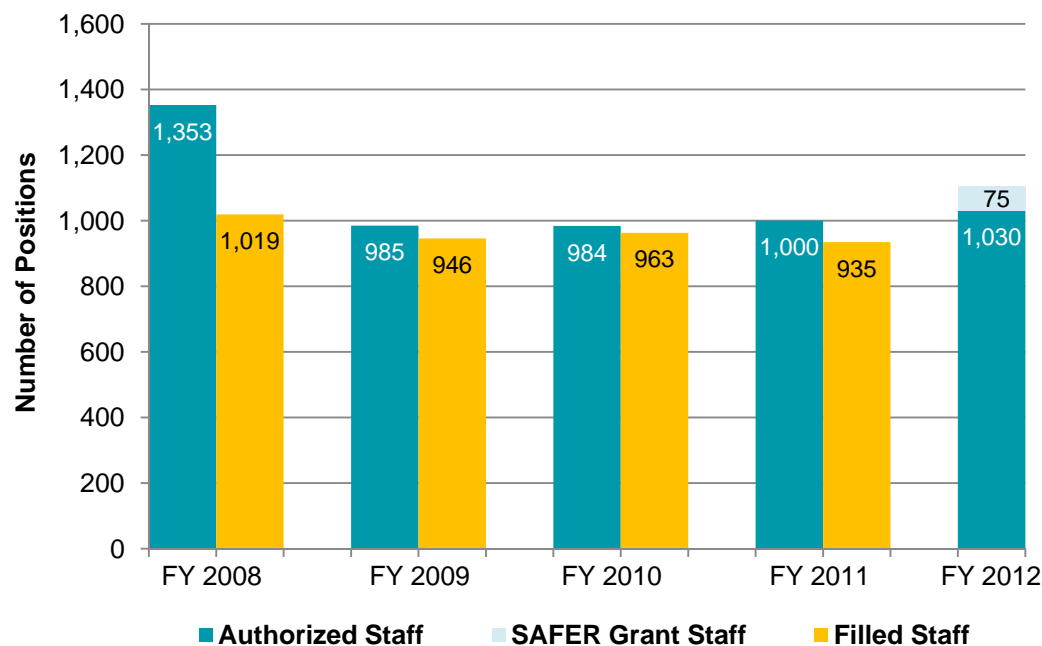
City of Atlanta



Fire Rescue Lost 368 Positions in 2009, Added 120 in 2011 and 2012

- About 96% of the department's positions were sworn between fiscal years 2008 and 2010; about 21% was budgeted from airport funds.

Authorized and Actual Staff – All Funds
Fiscal Years 2008 – 2012

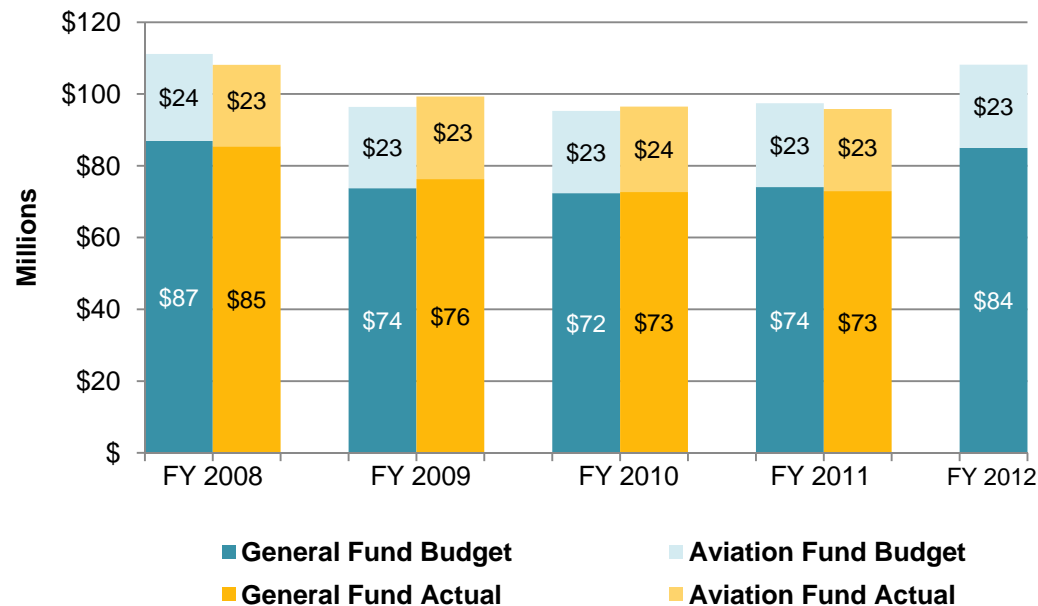


Sources: Fiscal year 2009 through 2012 budgets; Filled staffing figures reported in Oracle at year-end

2009 Fire Rescue Budget Cut About \$15 Million; Funding Restored in 2012

- Most cuts were in the general fund
- Airport funding has remained stable between \$22 and \$24 million

Authorized Budget & Expenditures
Fiscal Years 2008 – 2010

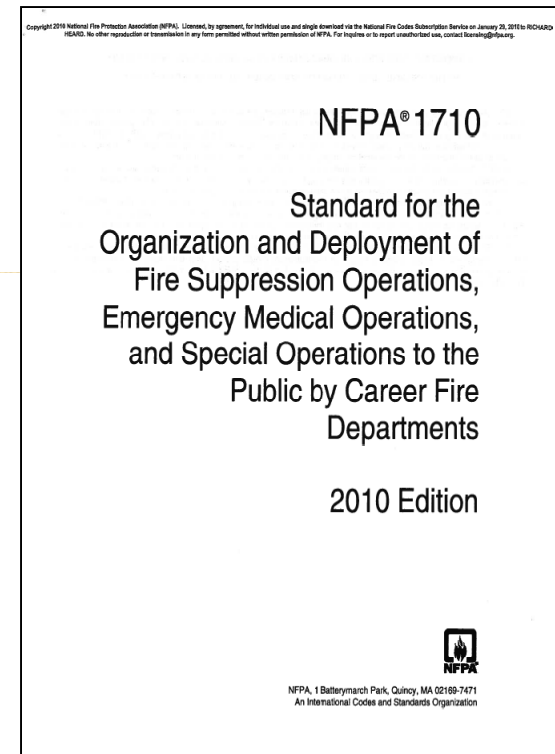


Sources: Fiscal year 2009 through 2012 budgets; Oracle actuals at year-end

Note: Fiscal year 2012 budget includes \$9.8 million in SAFER grant funds

Fire Rescue Staffing and Response Time Goals Are Based on NFPA Standard 1710

- Standard contains minimum requirements for deploying staff to fire suppression, emergency medical, and special operation incidents
- Standard identifies a minimum of four on-duty personnel for companies whose primary function is basic fire fighting; no minimum established for EMS
- Standard establishes performance objectives for components of response time





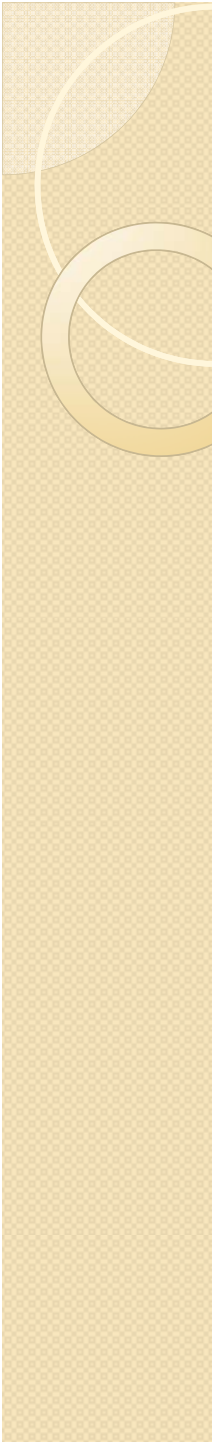
Audit Objectives

- How do resources – staffing and equipment – and response times vary throughout the city?
- What are the costs and benefits of staffing all engines and trucks with four firefighters?



Audit Scope & Methodology

- Our analysis of operating data covers calendar years 2008 through 2010, the most recent full year for which data were available.
- We reviewed budget and staffing data for fiscal years 2008 through 2012.
- Primary sources were the department's emergency management-based response system (EMBRs) for operational data, and Oracle and adopted budgets for expenditures and staffing data.
- We conducted the audit in accordance with generally accepted government auditing standards.



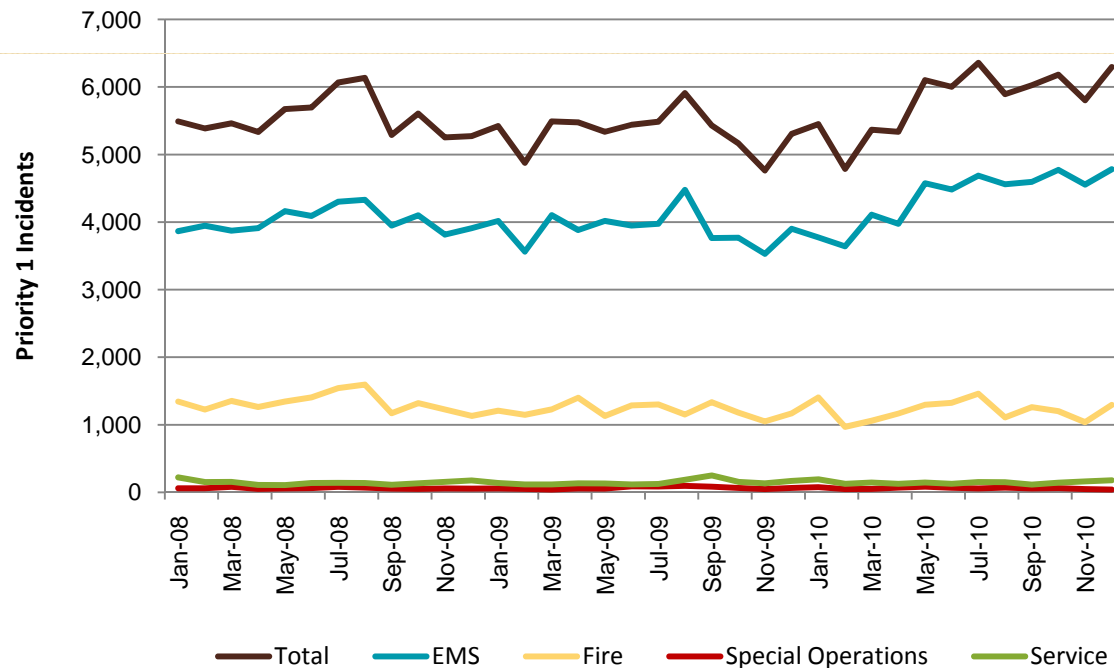
Workload, Resources, and Response Times All Increased from 2008 to 2010

- Fire Rescue workload increased about 4% between 2008 and 2010, driven by an increase in calls for Emergency Medical Services, which make up nearly 75% of priority 1 responses.
- The number of firefighters, engines, and ladder trucks on duty and dispatched each day started decreasing in 2008, reached the lowest point during the employee furlough period (January – June 2009), and increased through 2010. The department reduced “brownouts” – temporary closure of stations to offset daily staffing shortages – beginning in July 2010. The reduced brownouts resulted in more trucks and engines in service, but fewer staffed with four firefighters.
- The typical time to respond to a priority 1 call in 2010, including call processing at E911 and dispatch, was 8 minutes 24 seconds, up from 7 minutes 50 seconds in 2008. All components of response time were higher than NFPA benchmarks in all three years we reviewed. The time to process E911 calls missed the benchmark by the widest margin. Half of the increase in response time from 2008 to 2010 was in E911.

Priority I Incidents Increased 4% between 2008 and 2010

- Increase in workload driven by increase in emergency medical calls
- EMS calls increased 9%, while fire calls decreased by 8.4%

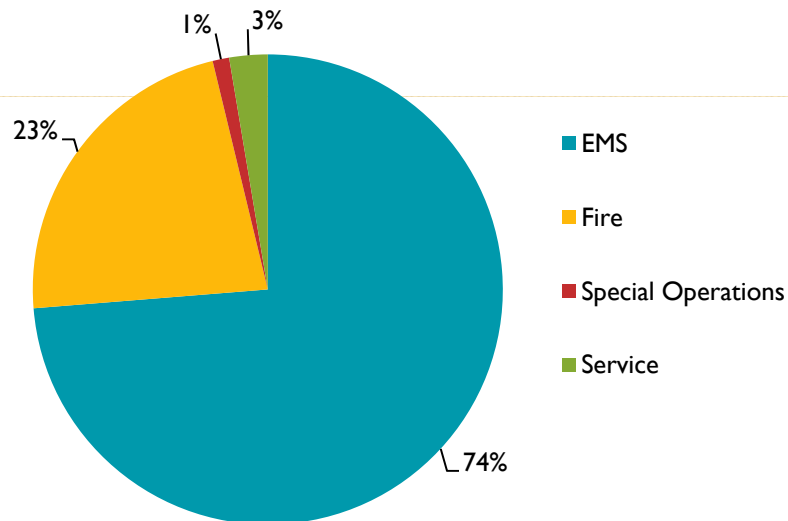
Priority I Incidents by Call Type
January 2008 – December 2010



Source: EMBERS data, calendar years 2008 through 2010

Nearly 75% of Priority I Incidents Were Emergency Medical Calls

Workload by Type
2008 – 2010

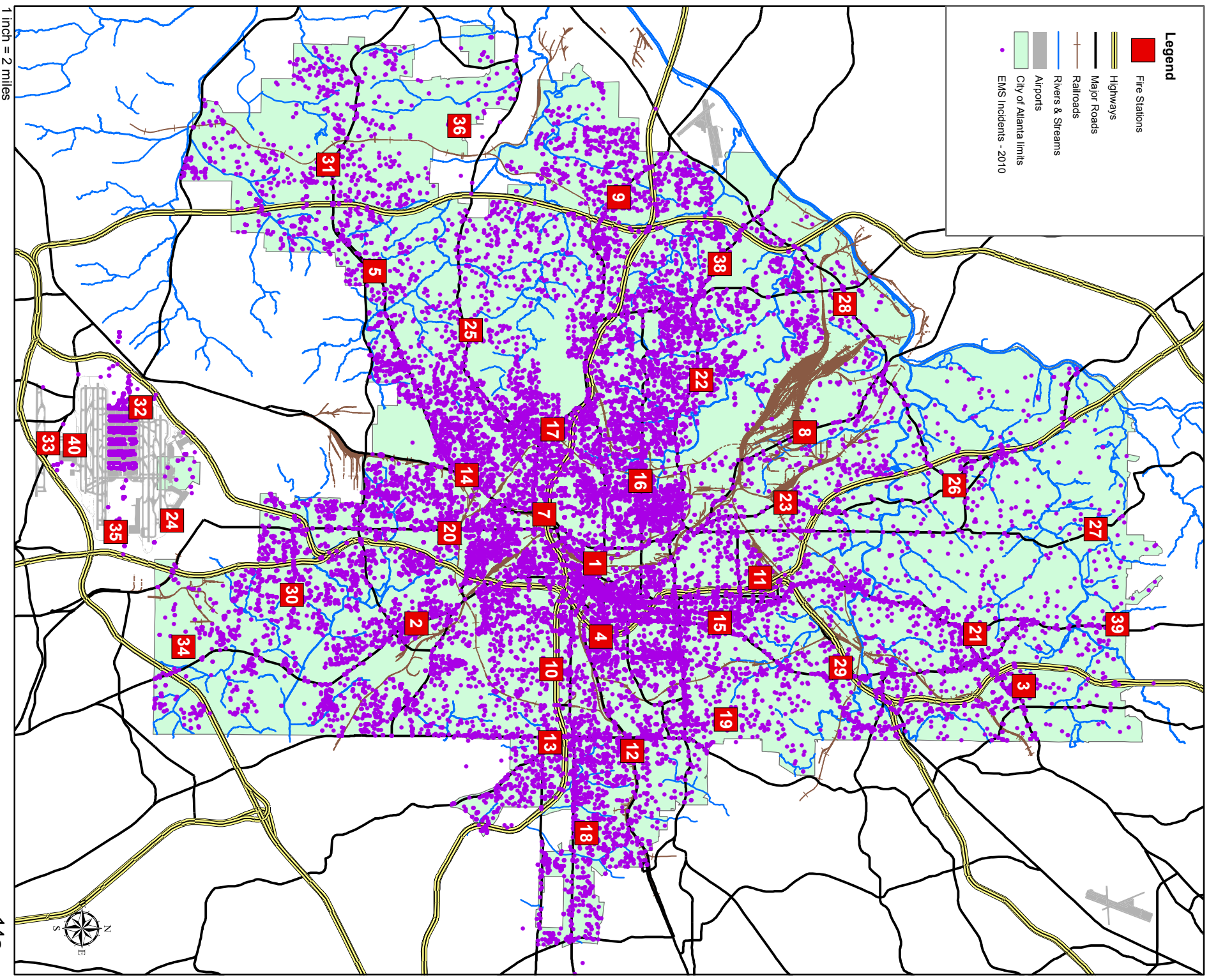


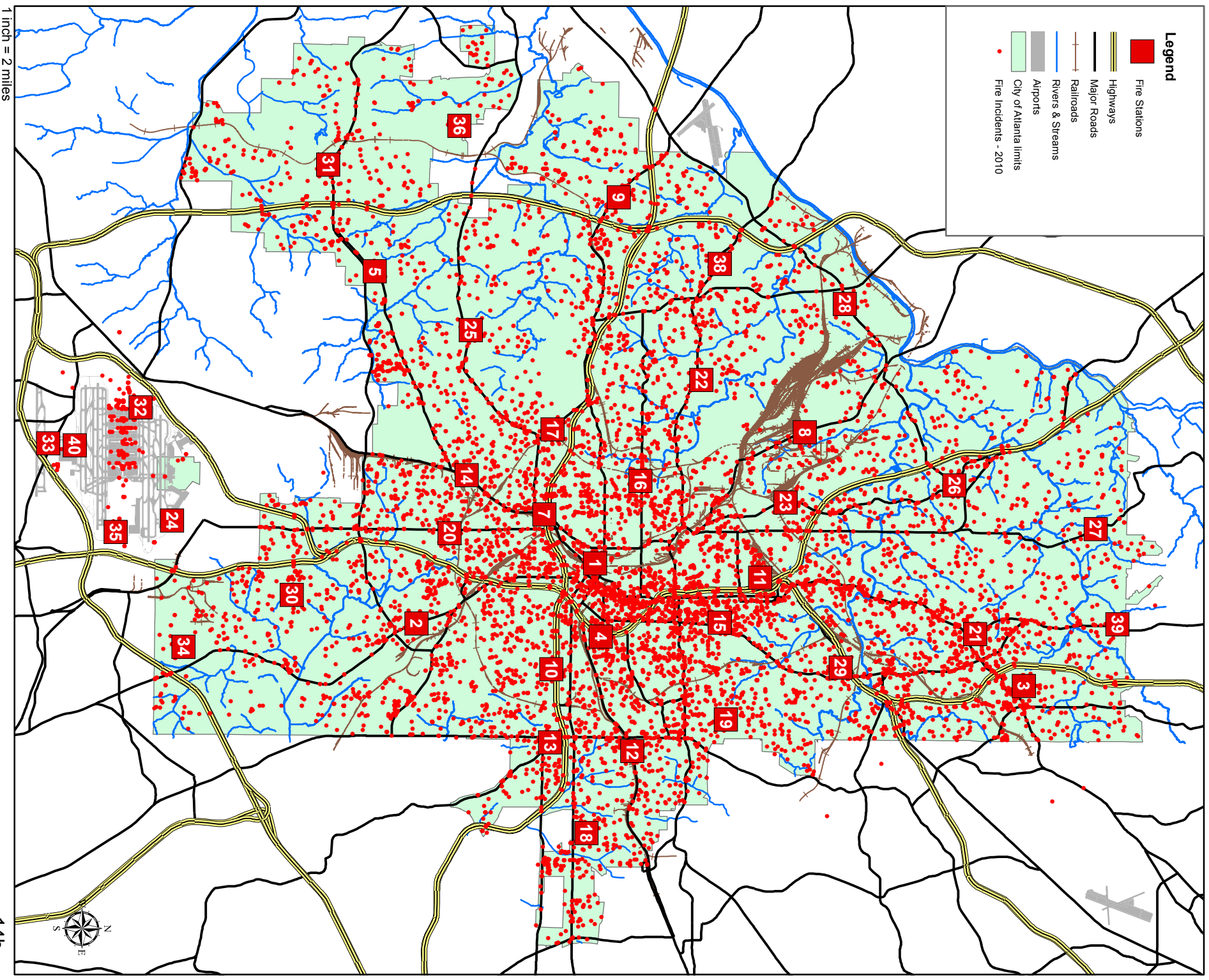
Source: EMBERS data, calendar years 2008 through 2010

- The maps of EMS and Fire Incidents for 2010 show similar geographic distributions, with concentrations along the Peachtree Corridor and within the central city

EMS Incident Locations - 2010

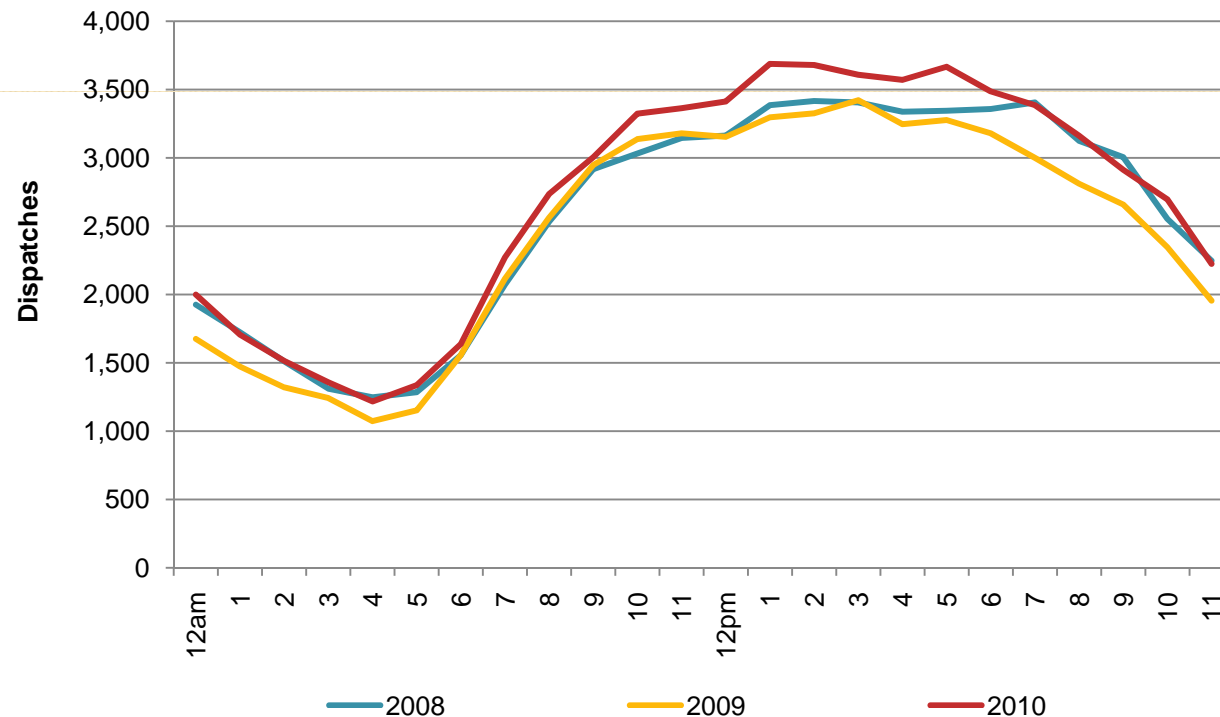
City of Atlanta, Georgia





Workload Is Highest in the Afternoon

- Emergency workload is lowest at 4:00am and highest between 1:00pm and 5:00pm
- Workload starts decreasing at 5:00pm and continues to decrease throughout the night



Source: EMBERS data, calendar years 2008 through 2010

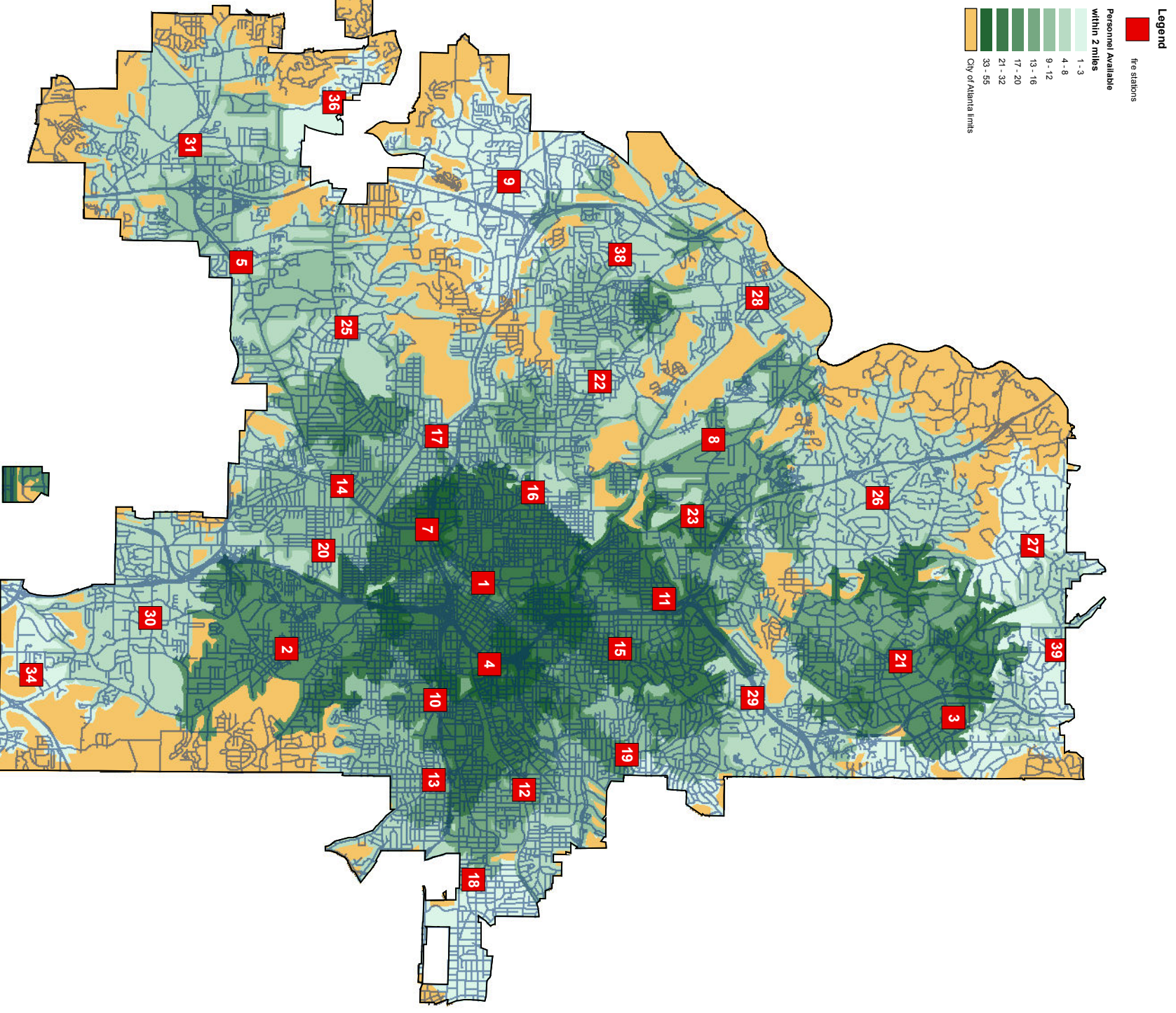


Firefighters Are Concentrated in Geographic Areas Where Workload Is Highest

- The [personnel map](#) shows the average number of firefighters on duty in 2010 within the surrounding two miles
- Areas with darker shading had more firefighters on duty within two miles
- About two-thirds of the city averaged at least four firefighters on duty within two miles in 2010
- The Peachtree Corridor had the most firefighters on duty each day, while the areas in the eastern and southern parts of Atlanta had the fewest

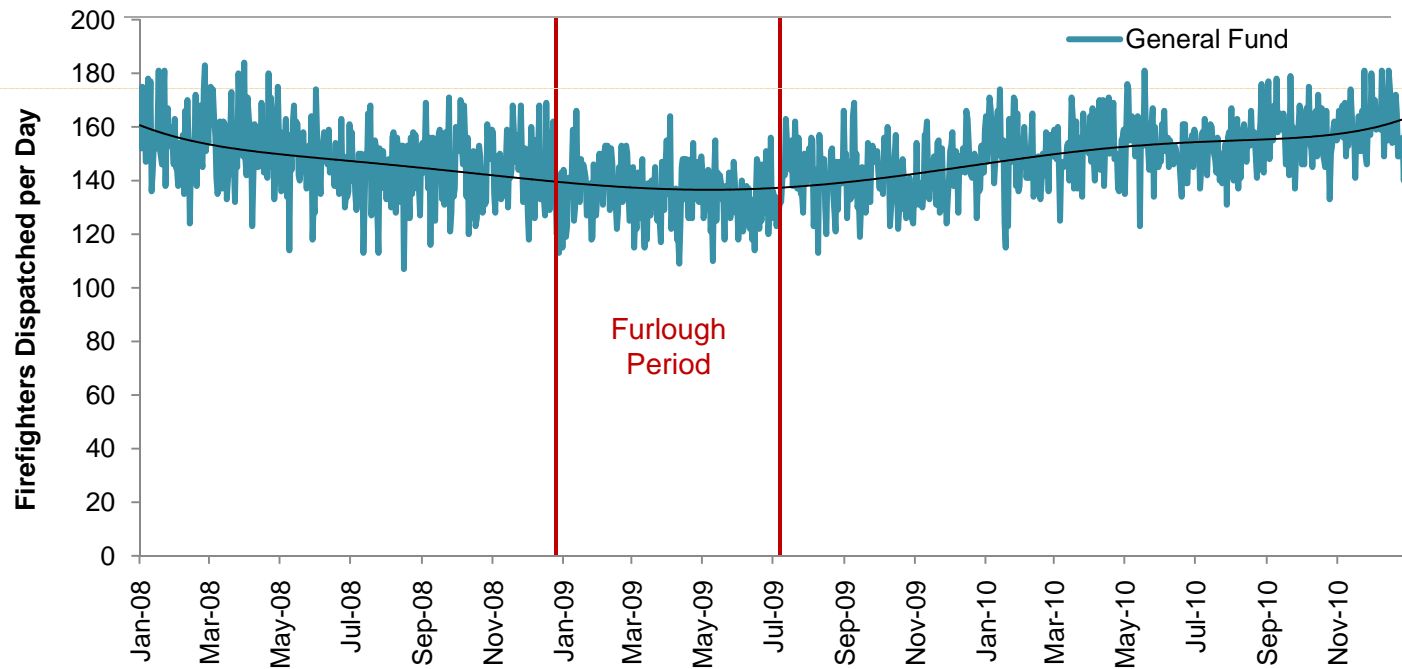
Fire Department Personnel Coverage

City of Atlanta



Furlough Reduced Firefighters Dispatched per Day

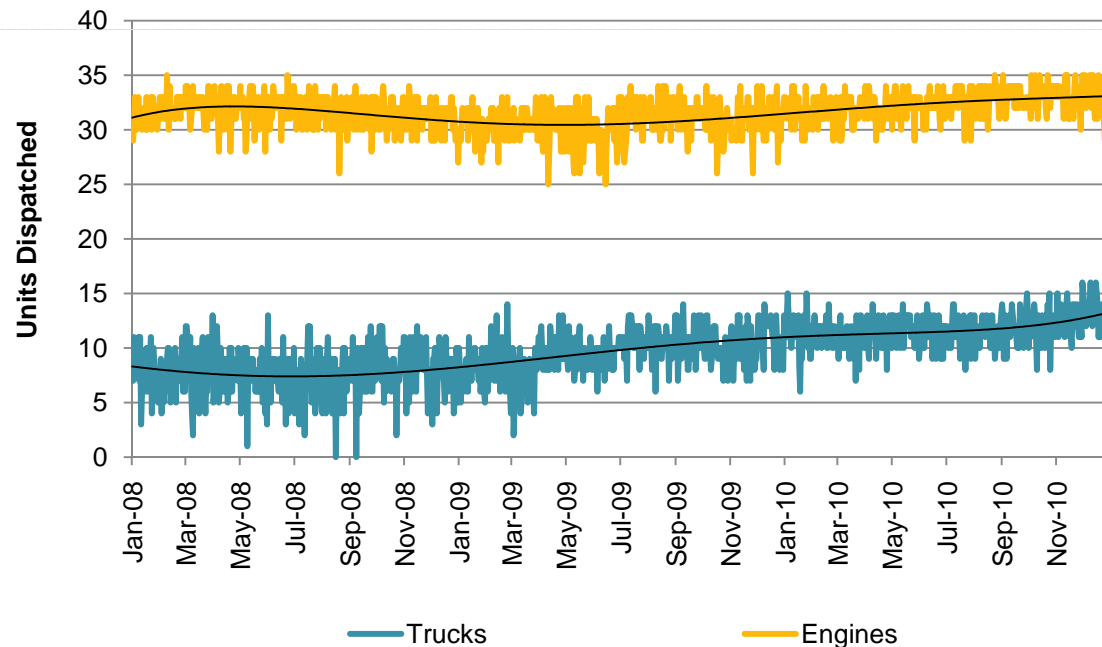
- Firefighters dispatched averaged 136 per day during the furlough period; the department needs a minimum of 165 firefighters on duty to keep all units in service
- Airport firefighters were not furloughed



Source: EMBRS data, calendar years 2008 through 2010

More Engines and Trucks Dispatched Since 2008

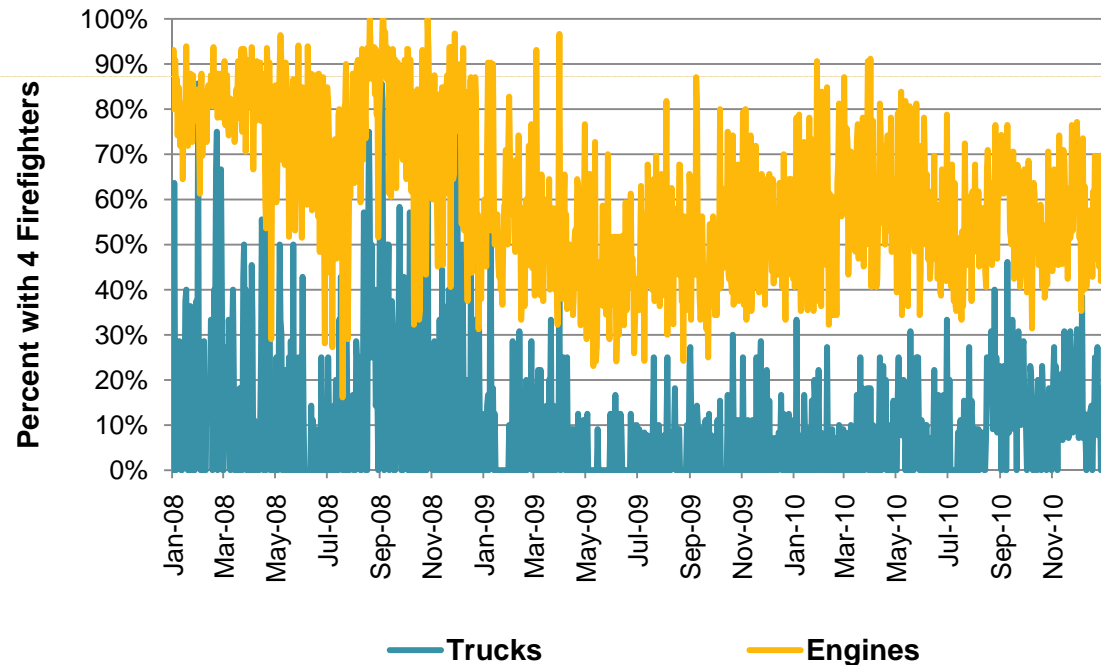
- The number of trucks in service has increased significantly over the three-year period, while engines in service have only increased slightly
- The department reduced “brownouts” – temporary closure of stations to offset daily staffing shortages – beginning July 2010
- Brownouts most often took trucks out of service; more engines were out of service during the furlough



Source: EMBRS data, calendar years 2008 through 2010

Fewer Apparatus Staffed with Four Firefighters

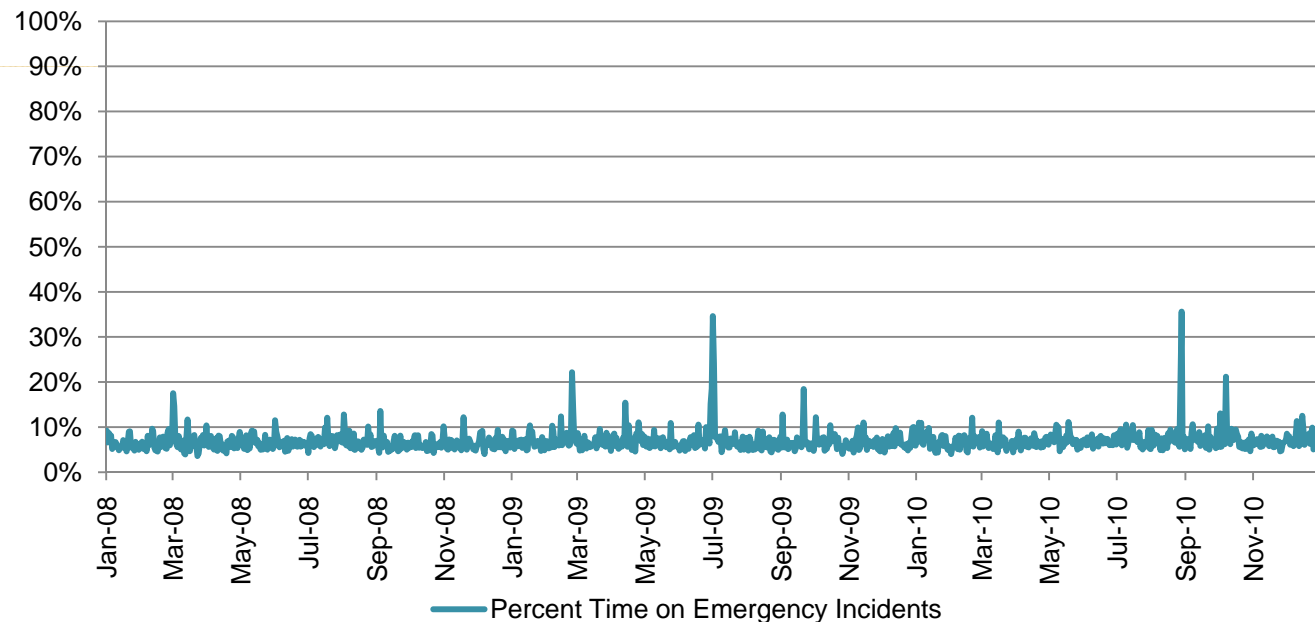
- During the furlough, the percent of apparatus with four firefighters was lower as fewer firefighters were on duty each day
- When the furlough ended, the department reduced brownouts, resulting in an increased number of trucks and engines in service, but fewer staffed with four firefighters



Source: EMBRS data, calendar years 2008 through 2010

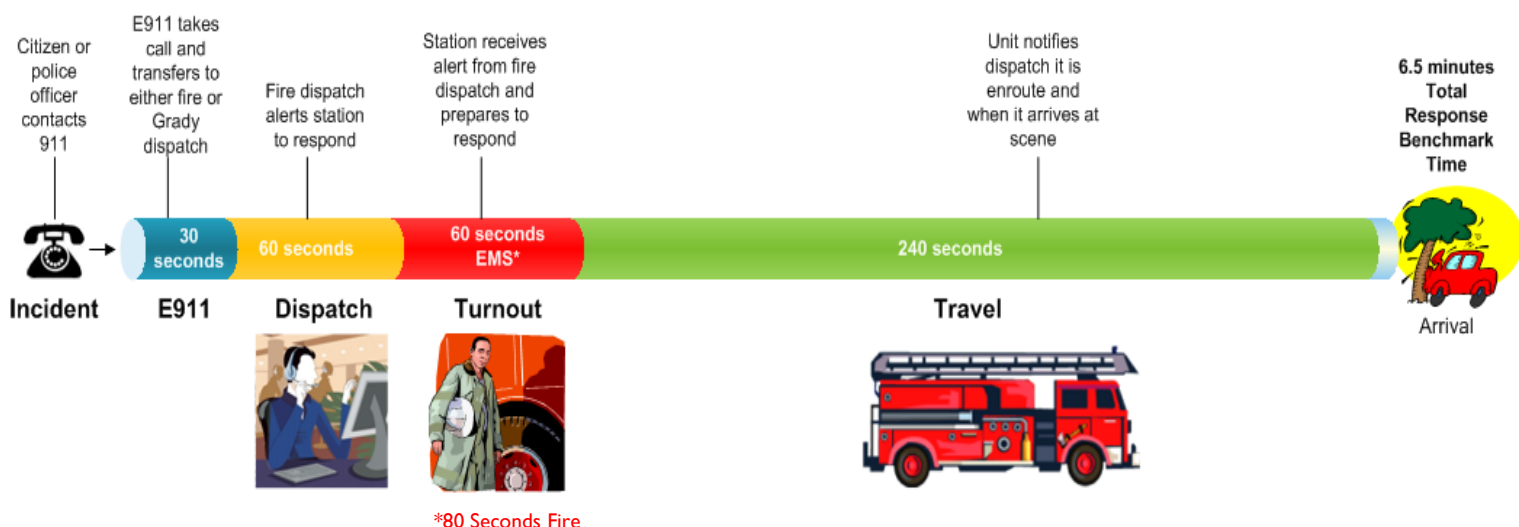
Firefighters Spent an Average of 7% of Work Hours on Priority I Incidents per Day

- Since 2008, firefighters spent an average of 1 hour and 39 minutes per day responding to priority I incidents
- One study suggests that more than 10% – 2 hours and 24 minutes – of time spent on priority I incidents each day adversely affects response time



Source: EMBRS data, calendar years 2008 through 2010

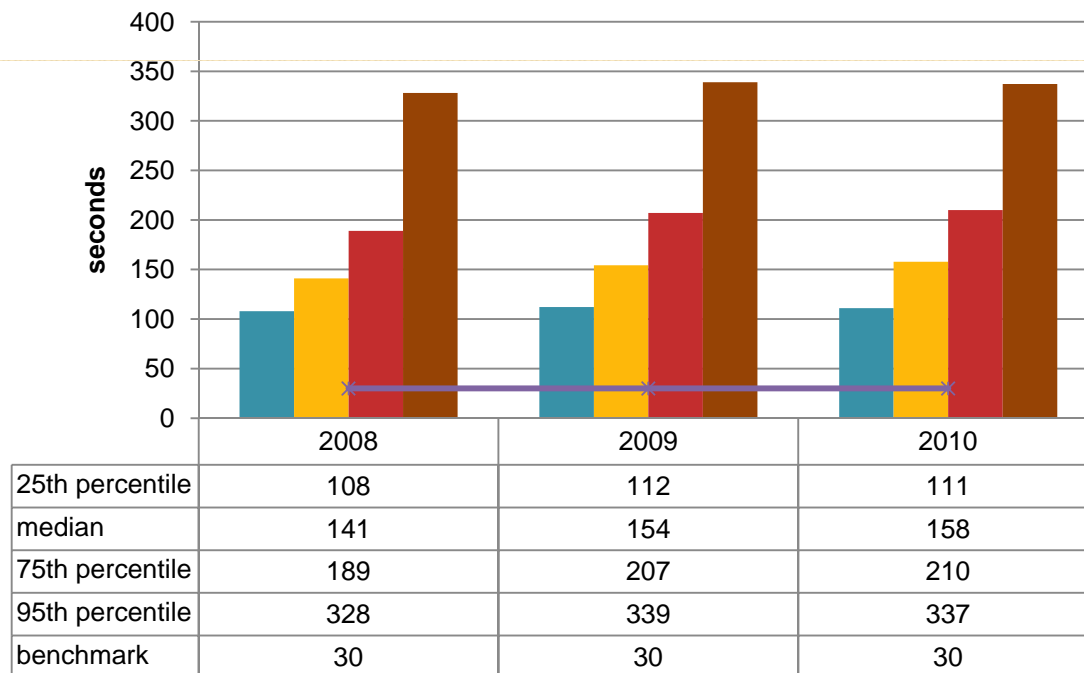
Priority I Response Usually Starts with a Call to 911



- NFPA Standard 1710 specifies benchmarks for each response time component. According to the standard, departments shall establish performance objectives to:
 - transfer calls from E911 to dispatch in not more than 30 seconds for 95% of calls
 - dispatch calls to stations in not more than 60 seconds for 90% of calls
 - achieve turnout and travel time benchmarks at least 90% of the time

E911 Processing Time Is Far Above the Benchmark

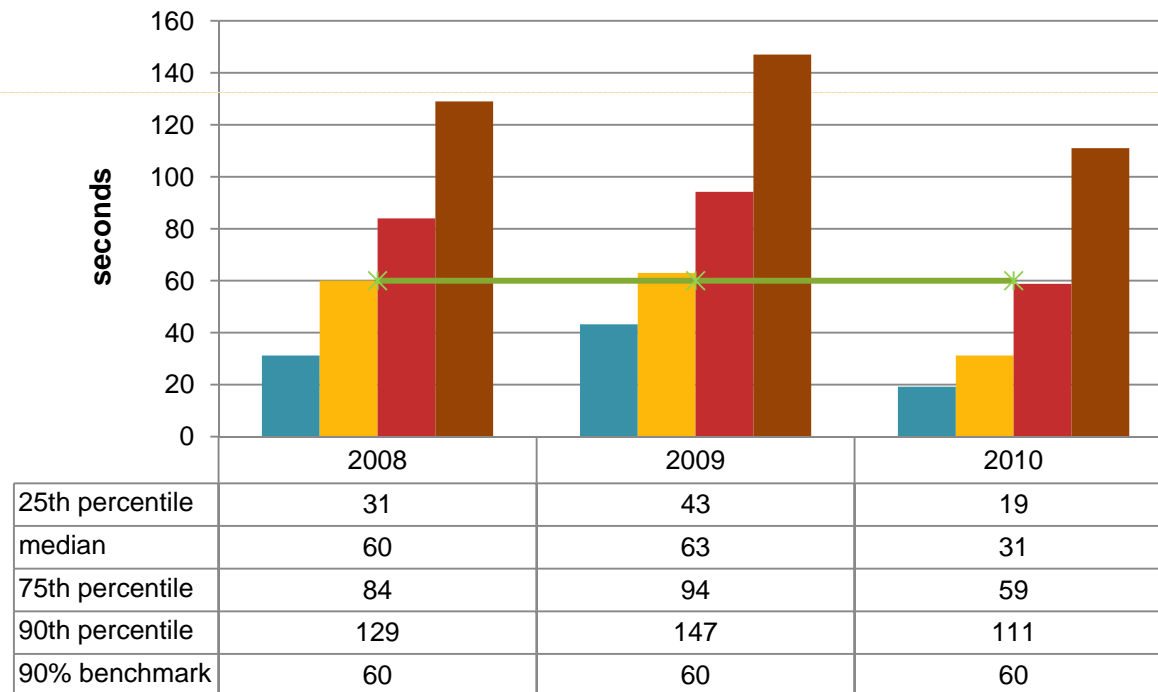
- NFPA 1710: E911 processing time of 30 seconds or less for 95% of calls
- Atlanta 2010: E911 transferred calls in 337 seconds or less (about 5 minutes) for 95% of priority I incidents
- E911 transferred less than 1% of 2010 calls to fire dispatch within the 30 second benchmark



Source: EMBRS data, calendar years 2008 through 2010

Dispatch Time Is Closer to Meeting Benchmark

- NFPA1710: Dispatch 90% of calls in 60 seconds or less
- Atlanta 2010: Dispatched 90% of calls in 111 seconds or less (almost 2 minutes)
- About 50% of calls dispatched in just over 30 seconds

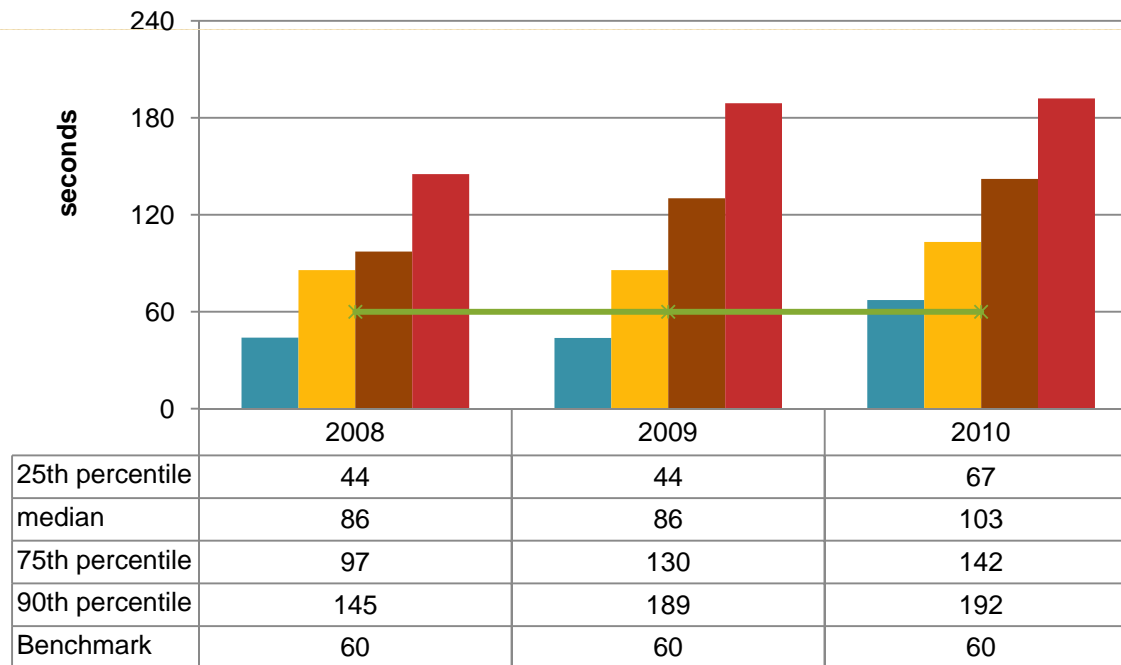


Source: EMBRS data, calendar years 2008 through 2010

EMS Turnout Time Three Times Longer Than Benchmark

- NFPA 1710: Firefighters turnout in 60 seconds or less 90% of the time
- Atlanta 2010: Firefighters turned out in 192 seconds or less (about 3 minutes) 90% of the time

EMS Turnout Time

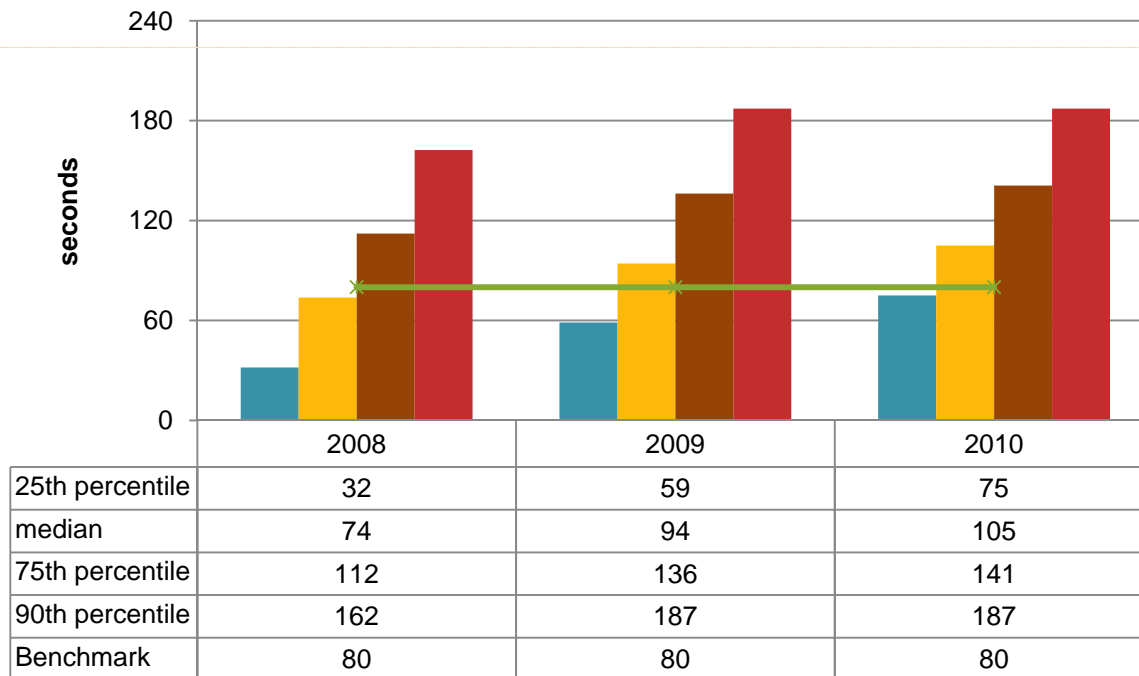


Source: EMBRS data, calendar years 2008 through 2010

Fire Turnout Time Is More Than Double the Benchmark

- NFPA 1710: Firefighters turnout in 80 seconds or less 90% of the time
- Atlanta 2010: Firefighters turned out in 187 seconds or less (about 3 minutes) 90% of the time

Fire Turnout Time



Source: EMBRS data, calendar years 2008 through 2010

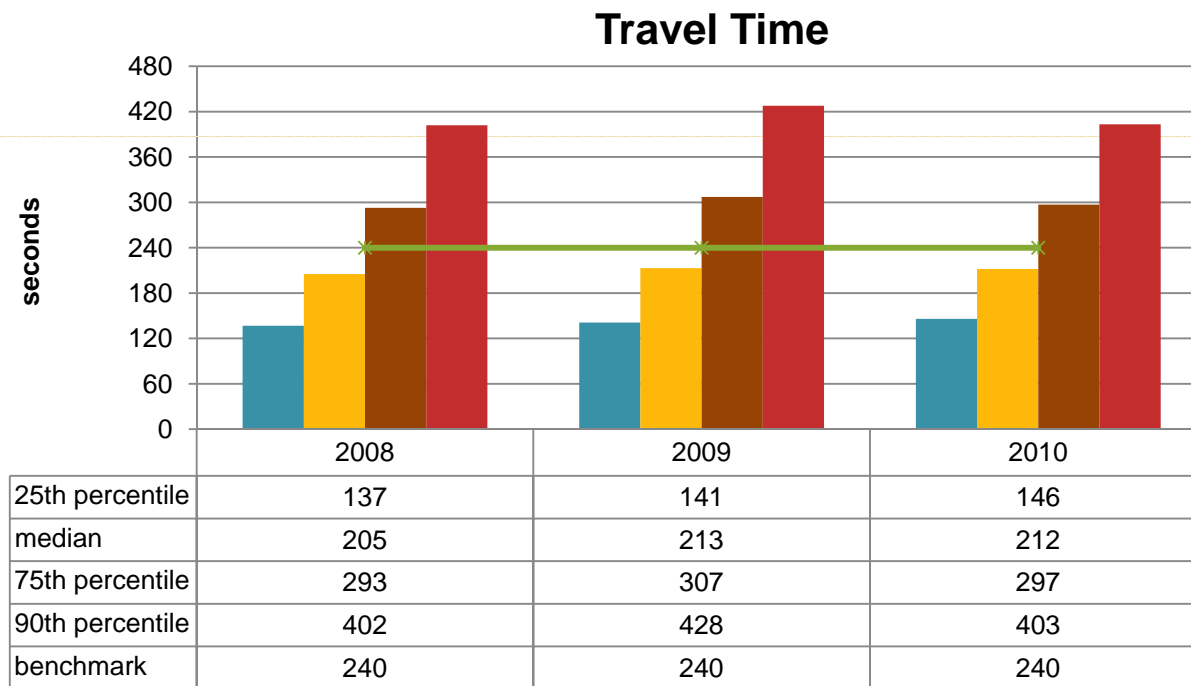


New Technology More Accurately Records Dispatch and Enroute Times

- In 2009, the city upgraded its radio system and installed mobile data terminals in each apparatus
- Prior to new system, dispatchers verbally alerted stations of an incident before dispatching the call, resulting in longer dispatch times and shorter turnout times
- New system simultaneously dispatches the call and sounds station alert; firefighters no longer have a “head start,” resulting in shorter dispatch but longer turnout times

Travel Time 70% Higher Than Benchmark

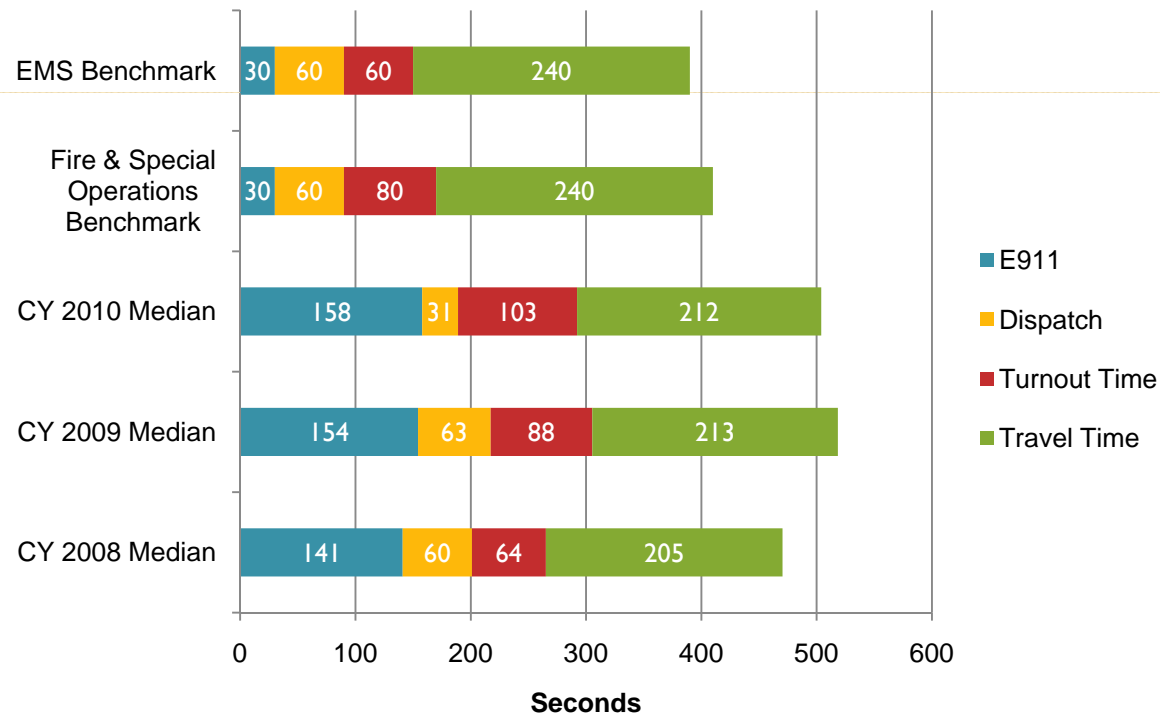
- NFPA 1710: Travel time 4 minutes or less for 90% incidents
- Atlanta 2010: Firefighters traveled to incidents in 6 minutes and 43 seconds or less 90% of incidents



Source: EMBRS data, calendar years 2008 through 2010

Median Response Times Exceeded Benchmarks

- A typical response in 2009 and 2010 took about 8 minutes
- E911 and fire response both increased 17 seconds between 2008 and 2010



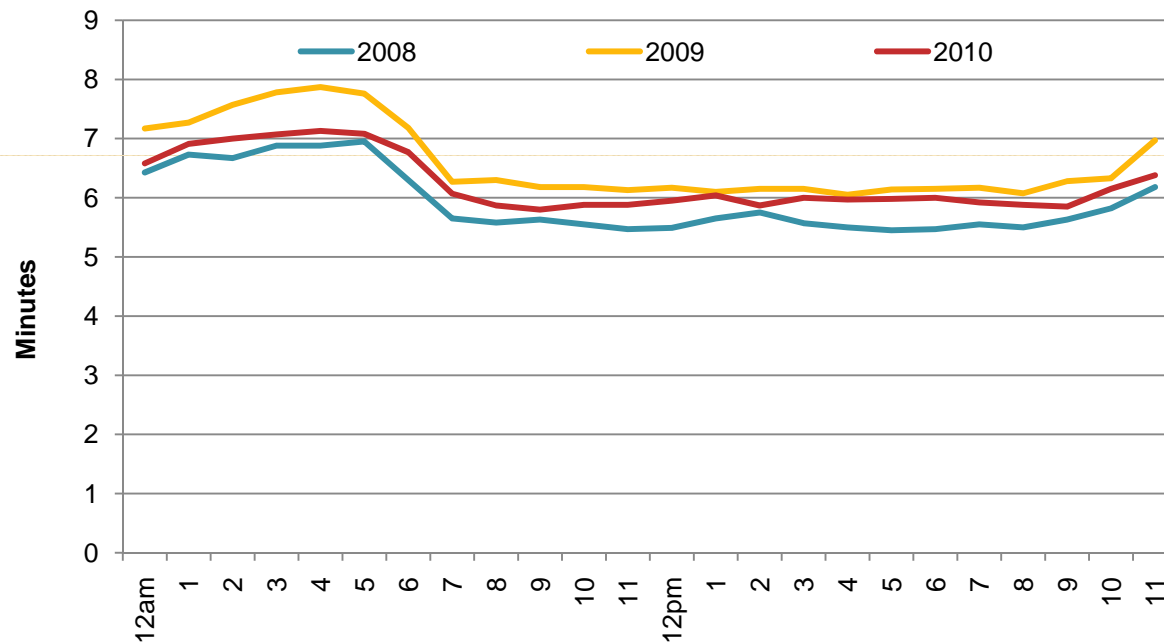
Source: EMBRS data, calendar years 2008 through 2010

Dispatch System Does Not Capture All E911 Times

- 48% of E911 times were blank or unusable (e.g. could not be converted to a time)
- Dispatch system records times only for calls transferred directly from E911
 - Calls coming from outside E911 – such as calls from Grady dispatch requesting fire support – do not have an E911 time recorded
- For this reason, the following slides exclude E911 from analysis

Median Response Times Were Longest When Workload Was Lowest

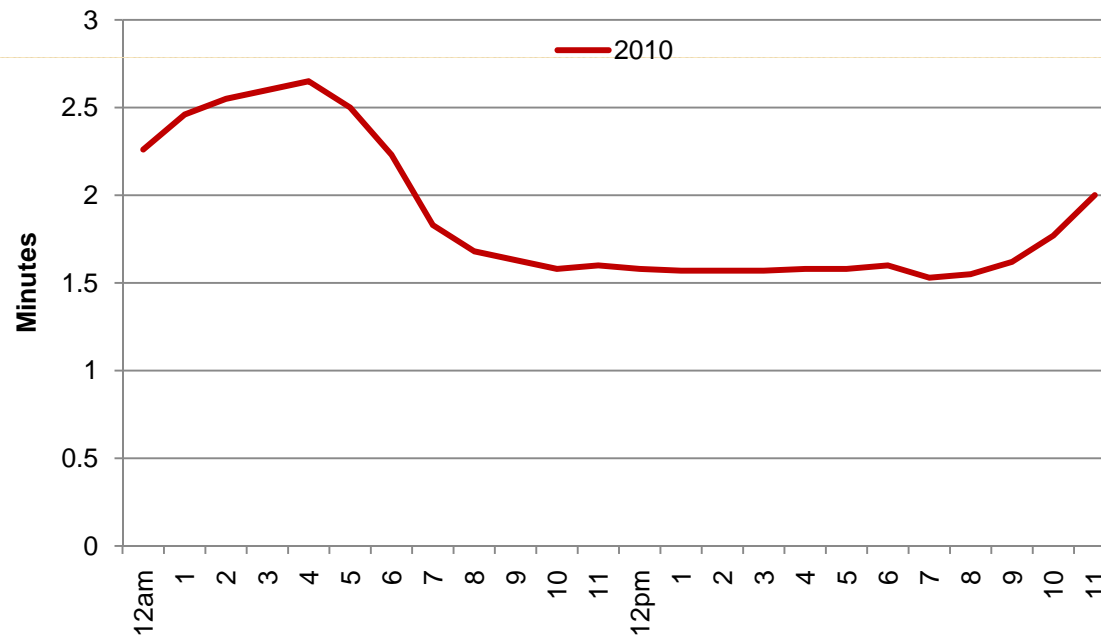
- Median response times were highest between 1:00am and 5:00am
- They were relatively flat between 7:00am and 8:00pm



Source: EMBRS data, calendar years 2008 through 2010

Longer Turnout Times Drive Longer Response Times

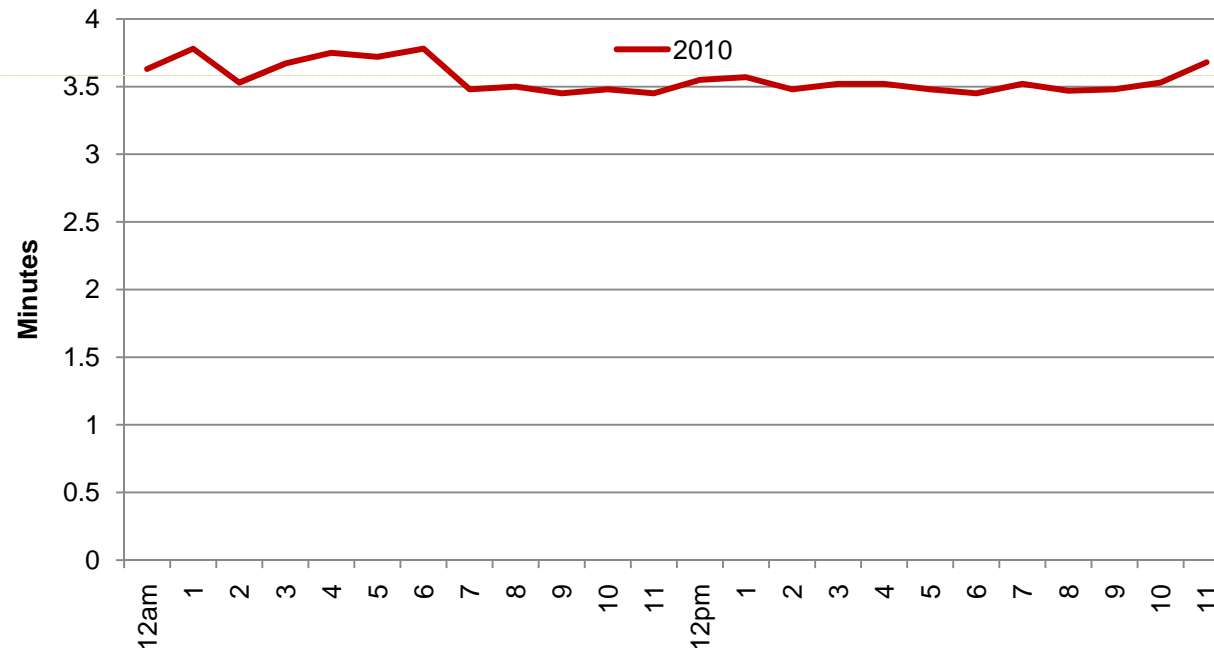
- Median turnout time was highest between midnight and 6:00am when calls for service were lowest
- Department management identified environmental (station layout) and human factors (fatigue) that affect turnout time



Source: EMBRS data, calendar year 2010

Although Slightly Higher During the Night, Travel Time Affects Response Time Less Than Turnout

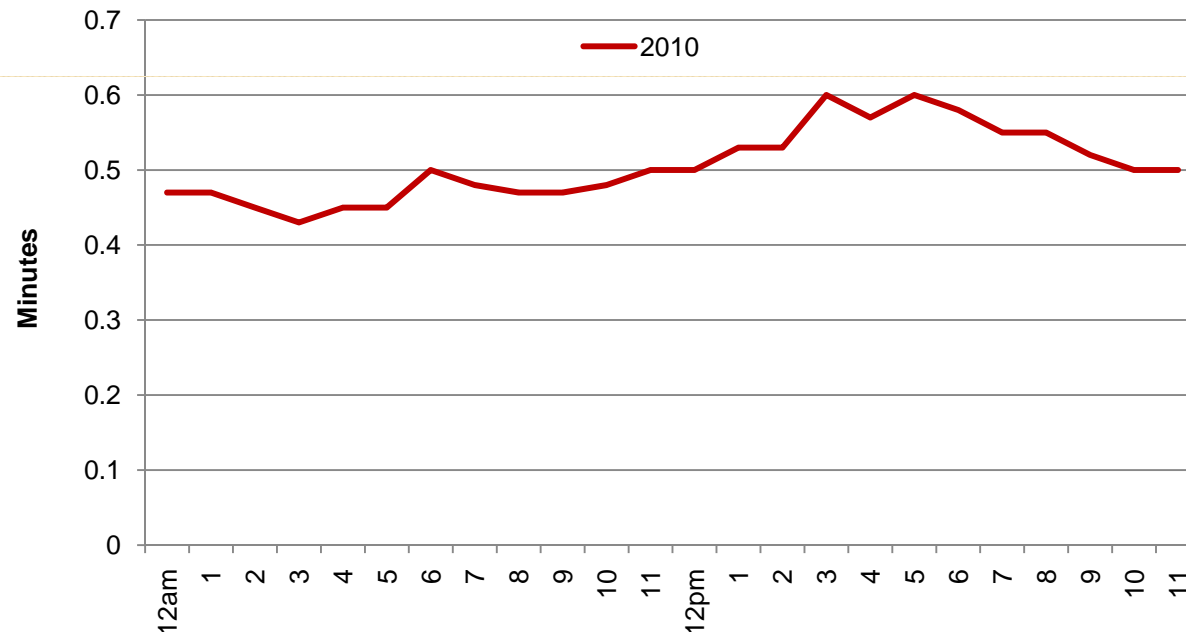
- Median travel time were highest between 11:00pm and 6:00am when presumably traffic congestion was lowest
- Median travel times throughout the day were below the 240 second benchmark



Source: EMBRS data, calendar year 2010

Unlike Turnout and Travel, Median Dispatch Time Was Longest When Workload Was Highest

- Median time to dispatch calls peaked between 3:00pm and 5:00pm when calls for service peaked, as shown on slide 13
- Median dispatch time was below or at the 30-second standard between 10:00pm and noon



Source: EMBRS data, calendar year 2010



Out-of-Area Responses Add 92 Seconds to Response Times

- An out-of-area response occurs when a unit other than the one geographically closest is dispatched, for example when the closest unit is out-of-service or on another call
- In 2010, 17% of priority 1 incidents were out-of-area responses
- Just over a quarter of the out-of-area responses were to areas covered by stations 04 in central Atlanta, and 09 and 16 in west Atlanta

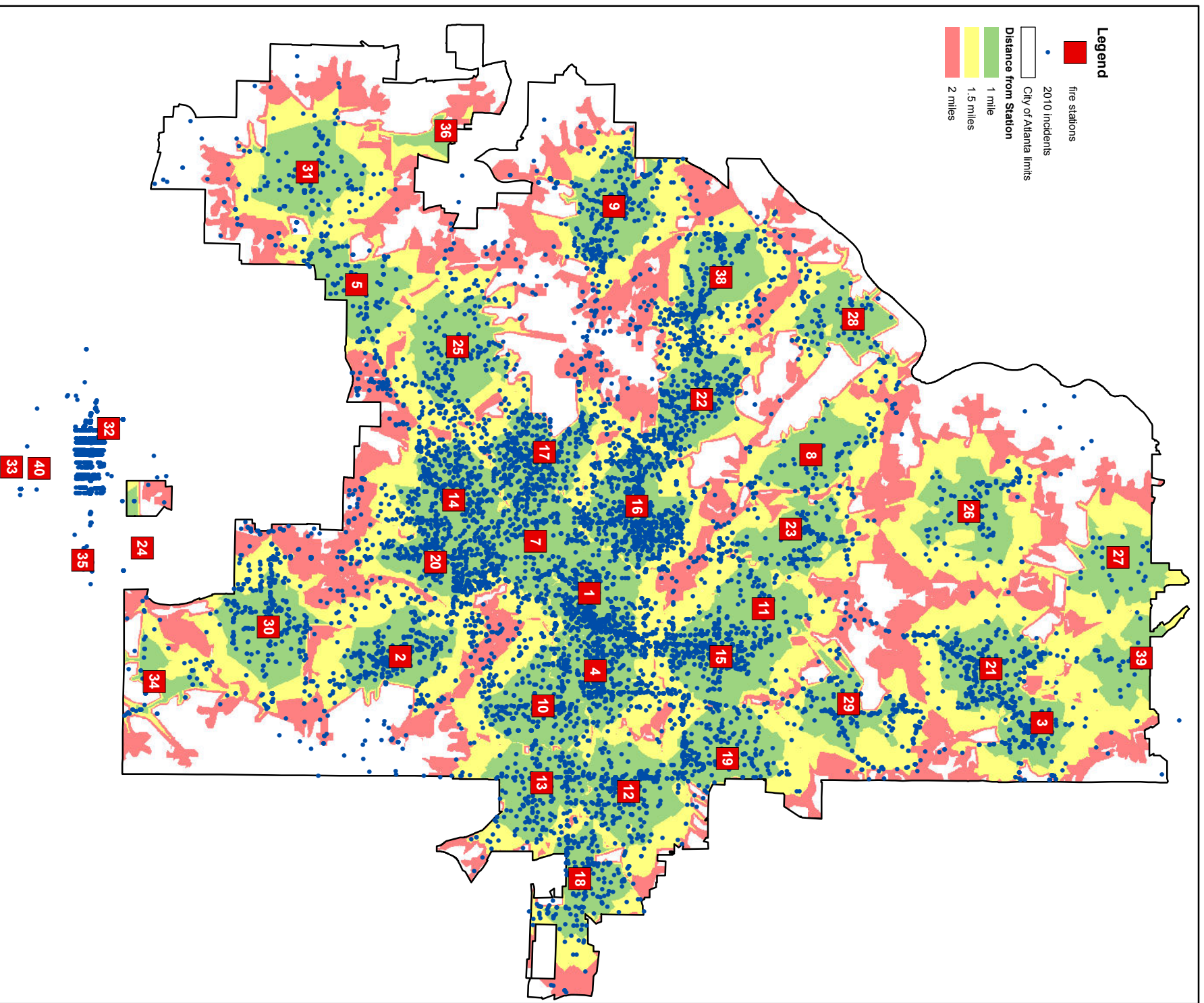


Most Dispatch to Arrival Times Were Higher Than 5 Minutes Throughout the City

- Department responded to 29% of emergency incidents in 5 minutes or less
- Department responded to 71% of emergency incidents in more than 5 minutes
- Both maps show location of incident responses from the time fire dispatch received the call to the time the first unit arrived
- We excluded E911 times from the calculation, because of the high number of calls without a recorded E911 time; overall response times – including E911 time – were likely two to four minutes higher

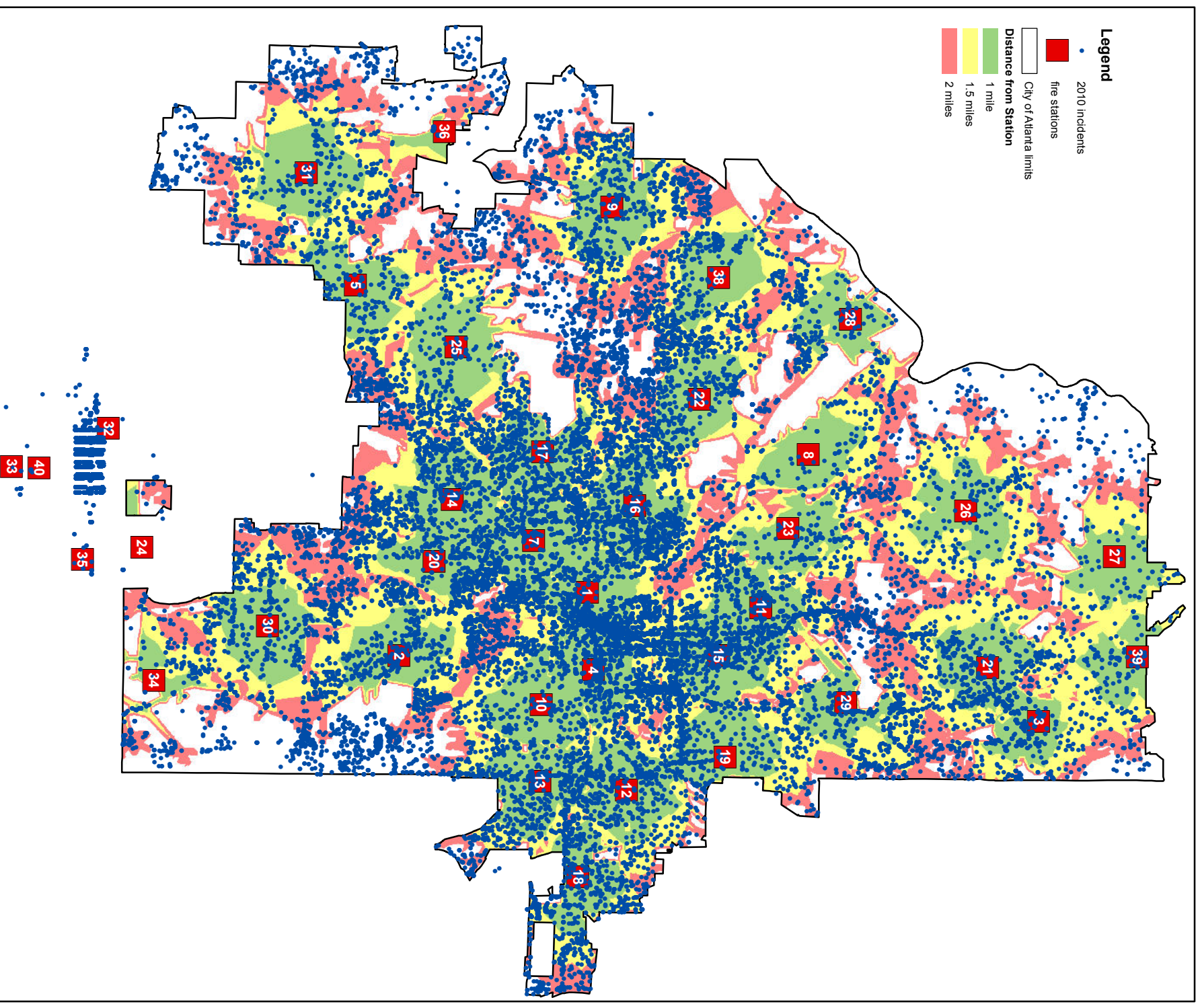
Incidents with Response Time of Five Minutes or Less - 2010

City of Atlanta



Incidents with Response Time of Over Five Minutes - 2010

City of Atlanta





Resource Constraints Create a Tradeoff between Response Times and Minimum Staffing per Apparatus

- Staffing each engine and truck with a minimum of four firefighters will not improve response time for the majority of incidents. The primary benefit of staffing a minimum of four firefighters on each engine and truck is to increase efficiency in handling fire incidents. For the 14% of the department's responses that required two or more units, the median time before the second unit arrived on the scene was 70 seconds, and only half of these were fires.
- Adding enough firefighters to meet NFPA 1710 would cost the city about \$7.2 million initially. The city recently received the SAFER grant that moves the administration closer to reaching its goal and defers the full cost for 3 years. The city is obligated to fund these positions for one year after the grant ends. Escalation in recruitment, salary, and benefit costs will increase future costs; increases in deployment levels – adding engines, trucks or stations – will also increase future staffing costs. The city could reduce some of the cost by shifting 50 firefighters occupying administrative positions back into the field.
- Investing resources in options other than increased minimum staffing would have an impact on response time for many more calls.

Basis for Four Firefighters per Engine/Truck Is Fire Suppression

NFPA 1710: Fire Suppression Staffing

5.2.3.1 Fire companies whose primary functions are to pump and deliver water and perform basic fire fighting at fires, including search and rescue, shall be known as engine companies.

5.2.3.1.1 These companies shall be staffed with a minimum of four on-duty personnel.

5.2.3.1.2 In jurisdictions with tactical hazards, high-hazard occupancies, high incident frequencies, geographical restrictions, or other pertinent factors as identified by the AHJ, these companies shall be staffed with a minimum of five or six on-duty members.

5.2.3.2 Fire companies whose primary functions are to perform the variety of services associated with truck work, such as forcible entry, ventilation, search and rescue, aerial operations for water delivery and rescue, utility control, illumination, overhaul, and salvage work, shall be known as ladder or truck companies.

5.2.3.2.1 These companies shall be staffed with a minimum of four on-duty personnel.

5.2.3.2.2 In jurisdictions with tactical hazards, high-hazard occupancies, high incident frequencies, geographical restrictions, or other pertinent factors as identified by the AHJ, these companies shall be staffed with a minimum of five or six on-duty personnel.

NFPA 1710: EMS Staffing

5.3.3.2.1 On-duty EMS units shall be staffed with the minimum personnel necessary for emergency medical care relative to the level of EMS provided by the fire department.

5.3.3.2.2 EMS staffing requirements shall be based on the minimum levels needed to provide patient care and member safety.

5.3.3.2.2.1 Units that provide emergency medical care shall be staffed at a minimum with personnel trained to the first responder/AED level.

5.3.3.2.2.2 Units that provide BLS transport shall be staffed and trained at the level prescribed by the state or provincial agency responsible for providing EMS licensing.

5.3.3.2.2.3 Units that provide ALS transport shall be staffed and trained at the level prescribed by the state or provincial agency responsible for providing EMS licensing.



Most Industry-Defined Benefits of Staffing Four to an Engine/Truck Relate to Structure Fires

- Lowers Insurance Services Office (ISO) rating (ISO report)
- Increases efficiency in incident handling because firefighters can apply water and initiate ventilation to fires faster without compromising firefighter safety (National Institute of Standards & Technology report)
- Reduces property damage and injury to firefighters (National Fire Protection Association 1710)
- Increases survivability in cardiac arrest and trauma incidents because firefighters complete tasks 1.2 and 1.7 minutes faster (National Institute of Standards & Technology report)



Staffing Four Firefighters to Engine/Truck Would Improve Response Time for 7% of Calls

- NFPA benchmark established for fire incidents, while about three quarters of the department's workload is emergency medical
- Between 2008 and 2010, only 14% of incidents required 2 or more units to respond; the median time before the second unit arrived was 70 seconds
 - Almost 50% of those incidents were dispatched as fire calls
- Further, according to the fire department's analysis, staffing engines and trucks with four firefighters would not – by itself – improve its ISO rating



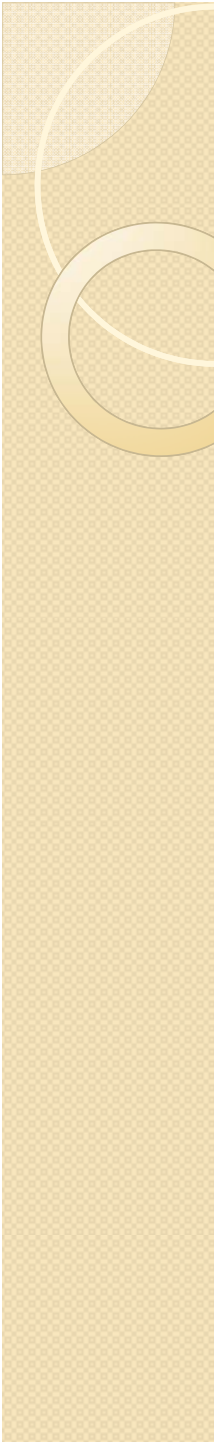
Initial Cost to Staff Four to Engine/Truck Is \$7.2 Million

- \$65,276 is the current cost to hire and pay an entry-level firefighter for a year
- We estimated that the department needs 110 additional firefighters to fully staff four to an engine/truck and cover absences
- Any escalation in recruitment, salary, and benefit costs will increase future costs; increases in deployment levels – adding engines, trucks or stations – will also increase future staffing costs
- The SAFER grant funds 75 additional firefighters between 2011 and 2013 (\$9.8 million); city is obligated to cover the costs of the 75 positions for an additional year



Department Could Reduce Costs of Retaining Some Grant-Funded Positions by Reallocating Firefighters

- We identified 50 sworn firefighters in administrative positions in support services
- Department management acknowledged they shifted sworn firefighters to cover civilian positions lost through reductions-in-force in fiscal years 2008 and 2009
- Hiring civilians to cover these positions and returning firefighters to field operations would cost less than hiring the same number of firefighters



Other Investments Would Reduce Response Times for Many More Calls

The Fire Chief should:

- Target resources – personnel and equipment – to stations with more out-of-area responses and underserved areas
- Reduce turnout time through training and measuring and reporting performance
- Reiterate and enforce procedures to ensure that unit reports entered into the reporting system are completed promptly and accurately

We will:

- Audit E911 to understand why alarm transfer times are high
- Evaluate fire dispatch to assess whether more dispatchers would reduce time to dispatch calls



Target Resources – Personnel and Equipment – to Stations with More Out of Area Responses and Underserved Areas

- The department should evaluate options for renovating /replacing stations to add a company to reduce out of area responses and improve response times
 - The department's strategic plan includes renovation of stations 9 and 16, identified as stations in areas with a high number of out-of-area responses
- The department should also identify and consider building stations in underserved areas that have a number of emergency incidents and longer response times
 - The department's strategic plan proposes three new stations – Peachtree Battle, Kimberly Road, and Princeton Lakes – which would improve coverage and potentially decrease response times to incidents along the Peachtree Corridor and in Southwest Atlanta

Reduce Turnout Time

- Department management identified environmental (e.g. station layout) and human factors (e.g. fatigue) as contributing to longer turnout time
- Analysis of CY 2010 turnout times provides little evidence that environmental factors influence turnout time, because there is little variation – 12 seconds between station with highest and lowest median turnout time – among stations, excluding airport
- It appears the planned renovation of 10 stations and replacement of 7 stations would have little effect on the median turnout time
- Department management should concentrate efforts on reducing human factors that affect turnout time



Improve Accuracy of Reported Data in EMBRS

- The Fire Chief should reiterate and enforce procedures to ensure that unit reports entered into EMBRS are completed promptly and accurately
- Comparison of EMBRS personnel table to a sample of department reports show the personnel table has both incomplete and inaccurate data, such as 10 firefighters on an engine per day
- Comparison of tables within EMBRS show incidents without corresponding unit reports
- Inaccurate data effects department's performance reports on standard of response coverage



2012 Audit Plan Includes E911 Audit to Understand Why Transfer Times Are High

- The NFPA standard is to transfer 95% of calls to fire dispatch within 30 seconds of receiving the call
- E911 transferred fewer than 1% of calls within 30 seconds
- The median call transfer time in calendar year 2010 was 2 minutes and 38 seconds



Audit Will Evaluate Dispatch to Assess Whether More Staff Would Reduce Response Time

- The NFPA standard for dispatch is to transfer 90% of the calls within 60 seconds and 99% within 90 seconds
 - Department dispatched 75% within 60 seconds in calendar year 2010; the median dispatch time was 31 seconds
-
- Higher dispatch times correspond with periods of higher workload, which suggests more staff could reduce alarm processing time
 - 13% of calls were received within 60 seconds of the previous call, resulting in longer dispatch times and potential backlog
 - Insurance Services Office (ISO) scored 40% of the possible points for E911 and dispatch staff on duty

Appendices

Appendix A
Atlanta Fire Rescue's Response to Audit Recommendations

Report # 11.02	Report Title: Atlanta Fire Rescue Staffing	Date: 09/27/11
Recommendation Responses		
Rec. #1	The Fire Chief should target additional resources - personnel and equipment - to underserved areas and to stations with more out-of-area responses.	Agree
<p><u>Proposed Action:</u> The department shall conduct an analysis of fire station locations where an additional engine company or quick response vehicle for communities with a high call volume of EMS calls may be located. Fire station renovation and replacements shall be analyzed due to the increase in personnel and fleet required by this deployment strategy. The cost of each option will be provided in the analysis.</p> <p><u>Implementation Timeframe:</u> The department shall also pursue its strategic plan of adding three fire stations in currently underserved areas: Peachtree Battle, Kimberly Road, and Princeton Lake—improving service levels to these communities reduces the need to respond from fire stations distal to these areas.</p> <p><u>Responsible Person:</u> The estimated timeframe for implementation is one (1) to five (5) years.</p> <p>Kelvin J. Cochran, Fire Chief</p>		
Rec. #2	The Fire Chief should reduce turnout time through training, and measuring and reporting fire company performance.	Agree
<p><u>Proposed Action:</u> The department will work to minimize environmental, technological and human factors which contribute to extended turn out times. Fire station design and renovations will have a slight impact on improvement. Technological improvements and system enhancements will also benefit. The greatest gains in improving turnout time shall focus on human factors such as fatigue, fire station activities; and behavior modification through training, counseling and discipline. The department will continue to emphasize improving turnout times through performance measurement at its bi-weekly internal AFRStat performance measurement sessions.</p> <p><u>Implementation Timeframe:</u> The estimated timeframe for implementation is one (1) year to eighteen (18) months. However, striving for excellence in improving response times shall be ongoing.</p> <p><u>Responsible Person:</u> Kelvin J. Cochran, Fire Chief</p>		

Rec. #3	The Fire Chief should reiterate and enforce procedures to ensure that unit reports entered into the reporting system are completed promptly and accurately.	Agree									
<table> <tr> <td><u>Proposed Action:</u></td><td colspan="2">The executive chief officer staff shall continue to enforce procedures ensuring all unit reports are completed promptly, accurately and within policy before the end of their work shift. The department will continue to measure and monitor EMBRS data during our bi-weekly internal AFRStat performance measurement sessions.</td></tr> <tr> <td><u>Implementation Timeframe:</u></td><td colspan="2">This initiative is currently underway and will continue to be a part of our performance measurement process until the practice of completing timely, accurate, and policy based reports are institutionalized with AFRD.</td></tr> <tr> <td><u>Responsible Person:</u></td><td colspan="2">Kelvin J. Cochran, Fire Chief</td></tr> </table>			<u>Proposed Action:</u>	The executive chief officer staff shall continue to enforce procedures ensuring all unit reports are completed promptly, accurately and within policy before the end of their work shift. The department will continue to measure and monitor EMBRS data during our bi-weekly internal AFRStat performance measurement sessions.		<u>Implementation Timeframe:</u>	This initiative is currently underway and will continue to be a part of our performance measurement process until the practice of completing timely, accurate, and policy based reports are institutionalized with AFRD.		<u>Responsible Person:</u>	Kelvin J. Cochran, Fire Chief	
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<u>Implementation Timeframe:</u>	This initiative is currently underway and will continue to be a part of our performance measurement process until the practice of completing timely, accurate, and policy based reports are institutionalized with AFRD.										
<u>Responsible Person:</u>	Kelvin J. Cochran, Fire Chief										

Appendix B
Atlanta Fire Rescue's Comments



CITY OF ATLANTA
FIRE – RESCUE DEPARTMENT

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MAYOR

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KELVIN J. COCHRAN
FIRE CHIEF

MEMORANDUM

TO: City of Atlanta Auditor's Office

FROM: Kelvin J. Cochran *Kelvin J. Cochran*

DATE: September 27, 2011

SUBJECT: **PERFORMANCE STAFFING AUDIT**

I want to express my sincere gratitude to the City of Atlanta Auditor's Office for this professionally administered staffing audit. Atlanta Fire Rescue derives its industry best practices primarily from the Commission for Public Safety Excellence (CPSE) Accreditation, the National Fire Protection Association (NFPA) and the Insurance Service Office (ISO). Through these and other standards, our performance measures are established and monitored through the City of Atlanta ATLStat and Atlanta Fire Rescue AFRStat performance management reporting processes.

Atlanta Fire Rescue concurs with the findings and recommendations of the audit. Conclusions of the audit align with analysis, recommendations and impacts revealed during the City of Atlanta performance management sessions in ATLStat, which measures the standard of response coverage (SORC) for typical fire risk (single family dwelling); and the standard of response coverage (SORC) for emergency medical service (EMS) incidents.

The SORC for EMS incidents is based on three firefighters, with two having emergency medical technician (EMT) certifications. EMS accounts for the majority of Priority 1 calls. However, for the lower percentage fire incidents which are typical fire risk (single family dwellings), having four firefighters on the first arriving apparatus is imperative and may adversely impact rescue, property conservation and firefighter safety if staffed with three or less.

The audit does an excellent job in identifying other benefits to citizens and firefighters when staffing and response time standards are achieved. It also emphasized reducing call processing time as a valid means of improving response times. The specific recommendations of: target resources, reduce turnout time, and enhancing the quality and accuracy of incident reporting are reflected in the *Atlanta Fire Rescue Department Strategic Plan Version 2.0 All Hazards Edition*; and the *Atlanta Fire Rescue Operational Initiatives Action Plan*.

In conclusion, we embrace the importance of accountability and a philosophy that programs, which cannot be measured, are at risk of being reduced or eliminated. Your unbiased, objective assessment of the programs and services core to our mission is essential to Atlanta Fire Rescue (AFR) achieving a culture of excellence as described in Mayor Kasim Reed's priorities and our core values. Subsequently, we cannot improve upon that which we do not measure. As such, we wholeheartedly value and appreciate this in-depth examination.