

Maximizing Efficiencies in Your Fire Department

League of California Cities
2015 Annual Conference

Objectives

- Understand and discuss the economic motivators for requests for efficiencies
- Understand and discuss the growing political realities that are motivators for exploring alternative delivery models
- Discuss a framework for successfully navigating the economic and political influences for change

Living During the Great Recession

- Quick, how many recessions has the United States had in the past half century?

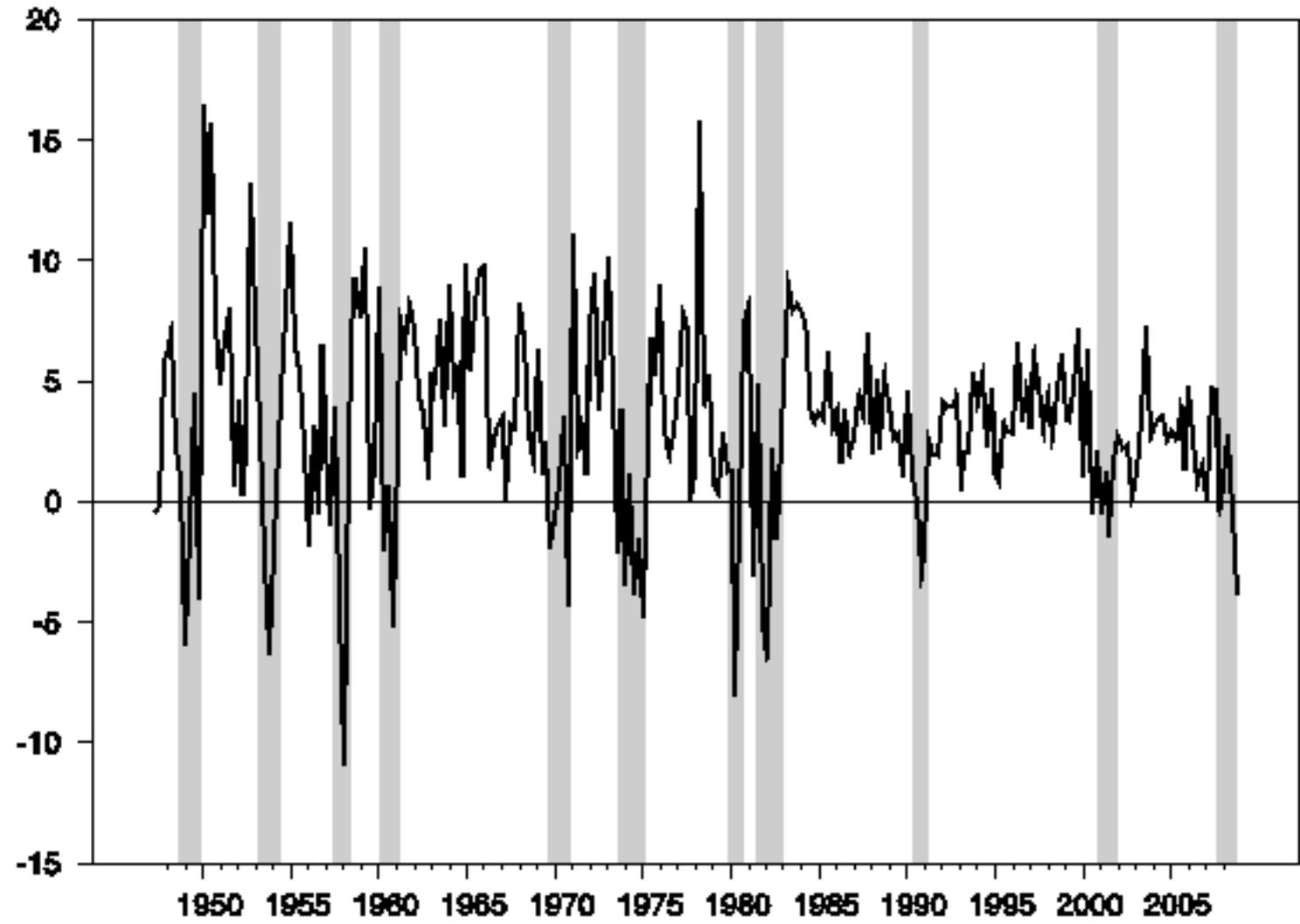
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- Since 1960, the country has gone through one or two recessions per decade, on average. Yet both voters and politicians seem to think economic slumps are far rarer than they actually are — with odd effects on elections and policymaking.

Economic Downturn: Is it Over?

- 1st Quarter of 2015 was a downturn in the economy
- Most believe that the US does not have a stabilized “growth” economy post recession
- Many states’ legislation has limited the ability to recover even if the economy was experiencing double digit growth

Real GDP growth rate



A Tale of Two Economies¹

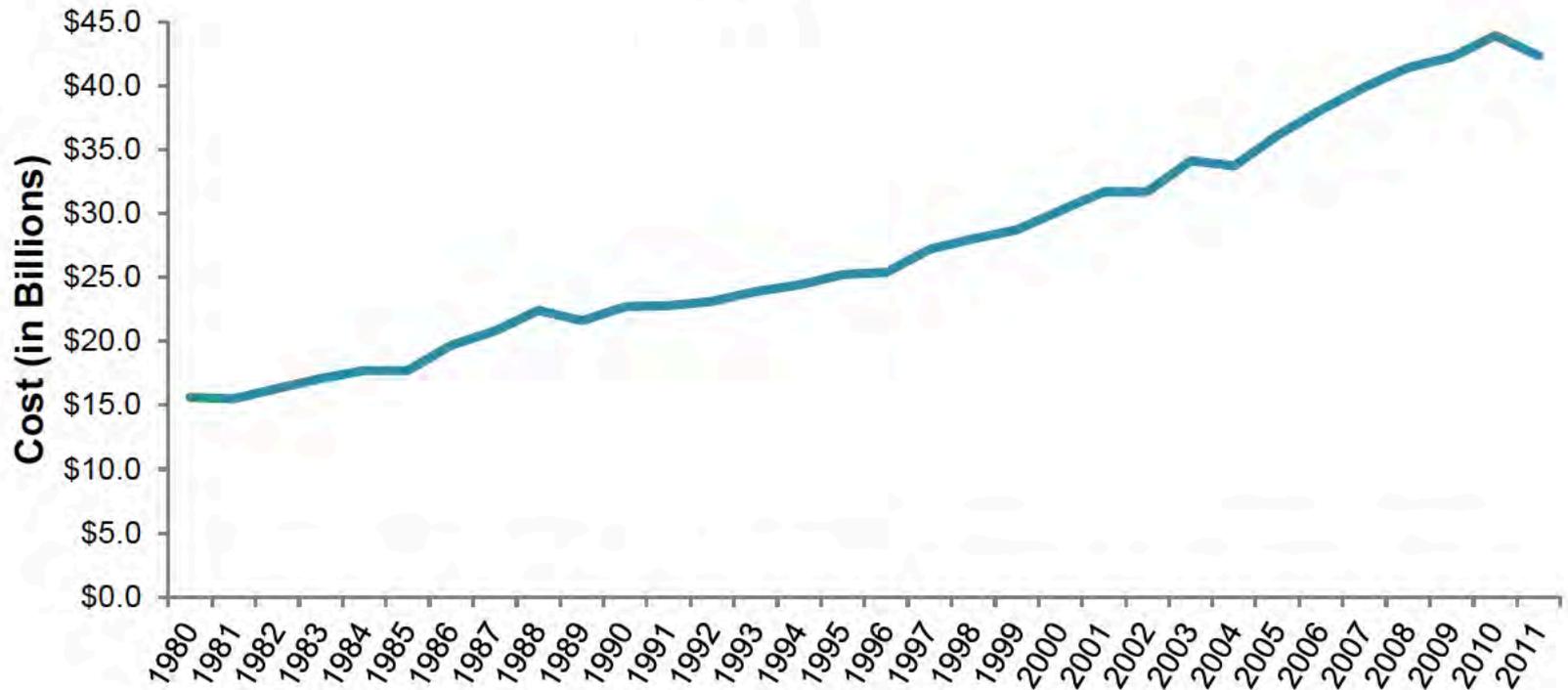
- S&P 500 Up 200%
- NYSE up 165%
- NASDAQ up 260%
- Dow Jones Industrial Average up 165%
- Unemployment 6.1%
- Top 1% earnings growth of more than 30%

A Tale of Two Economies¹

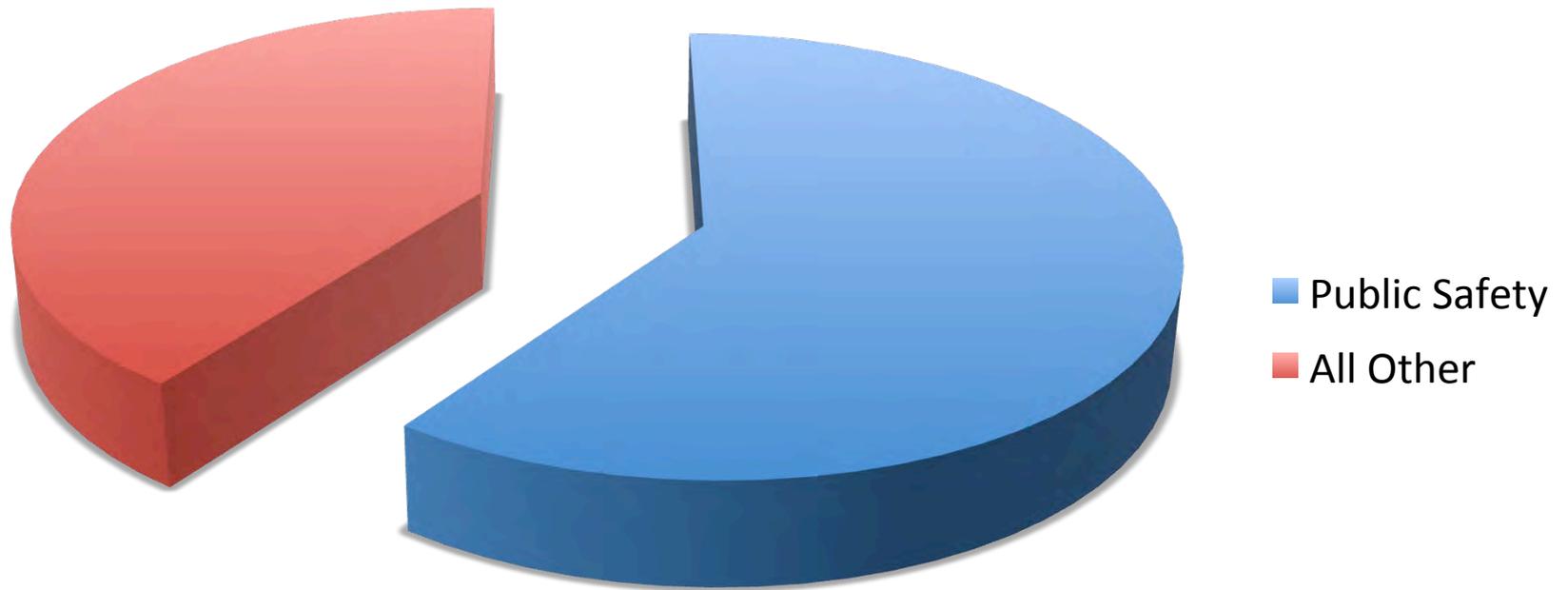
- Since December 2007, bottom 99% had earnings growth of 0.4%
- Population receiving food stamps has doubled in this time frame to 1/6th of the total population
- Income gap has slowed growth to an estimated 2.5% annual GDP for the coming decade
- 70% of the workforce still has inflation adjusted wages lower than 2007
- Underemployment rate still 12.6%
- Real estate values still 20% lower than pre-recession
- First time home buyers are at 28% - where 40% is considered healthy and is the 30 year average

Local FD Expenditures⁴

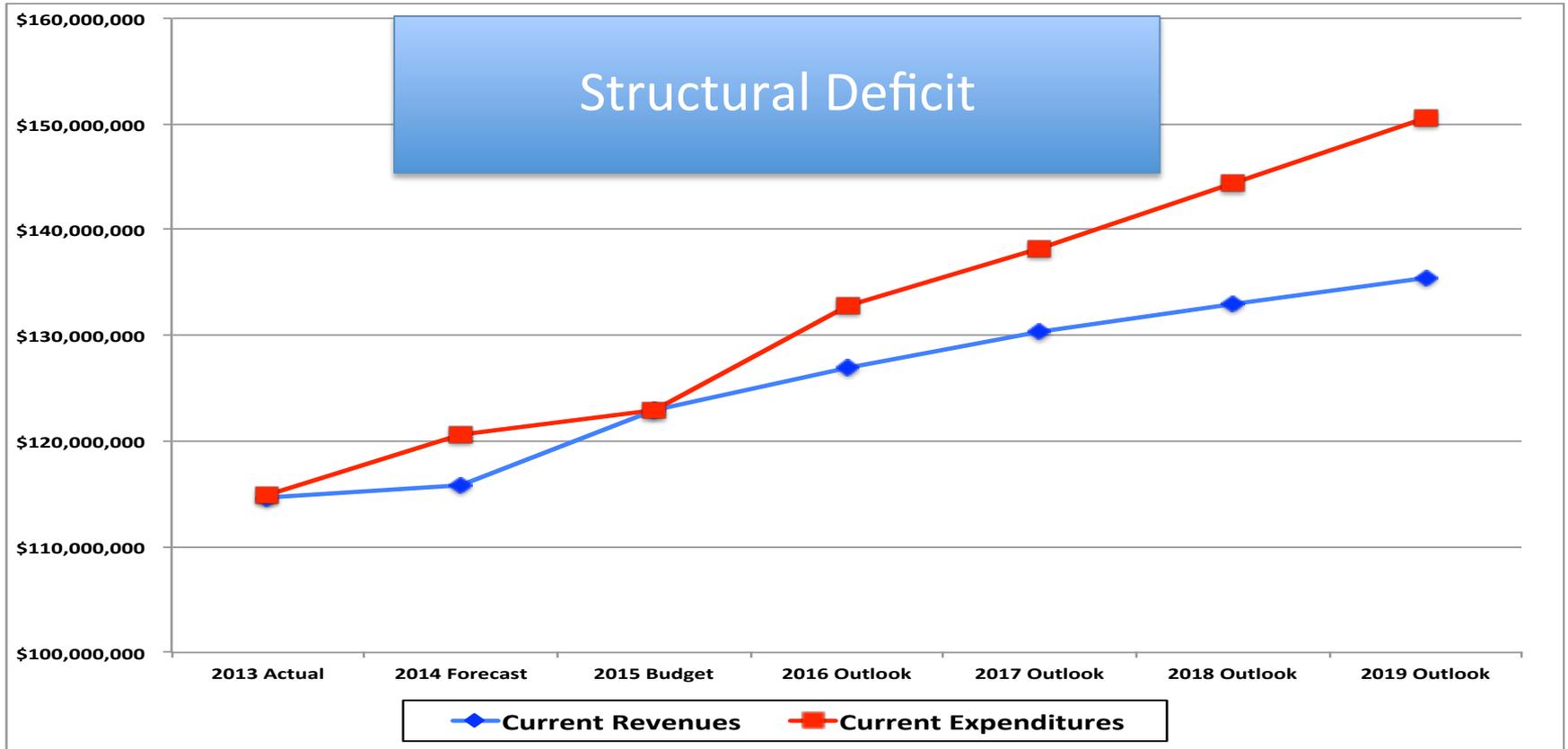
Local Fire Department Expenditures in 2011 Dollars
1980-2011



Public Safety Proportion of General Fund Expenditures

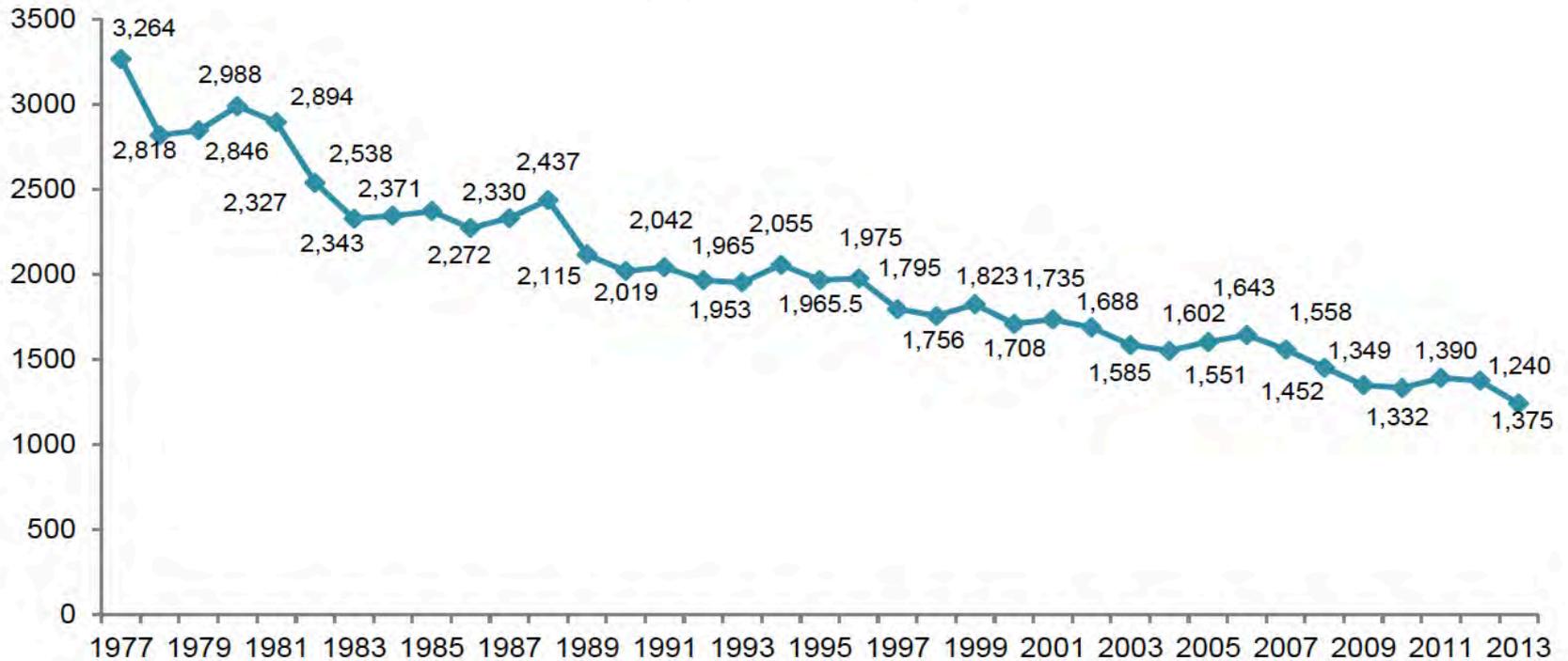


Long-Term Sustainability?



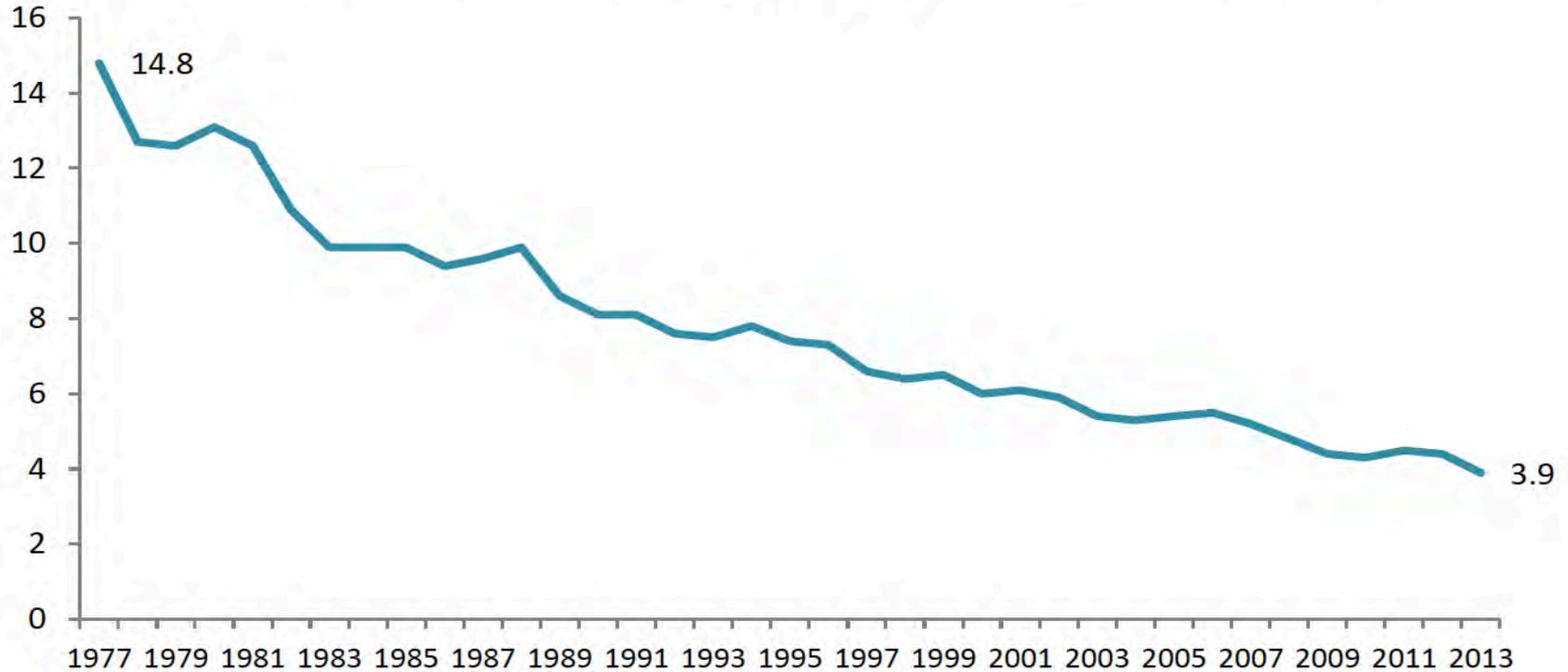
A Tale of Two Services²

Figure 1. U.S. Fire Incident Trends
(in Thousands 1977-2013)

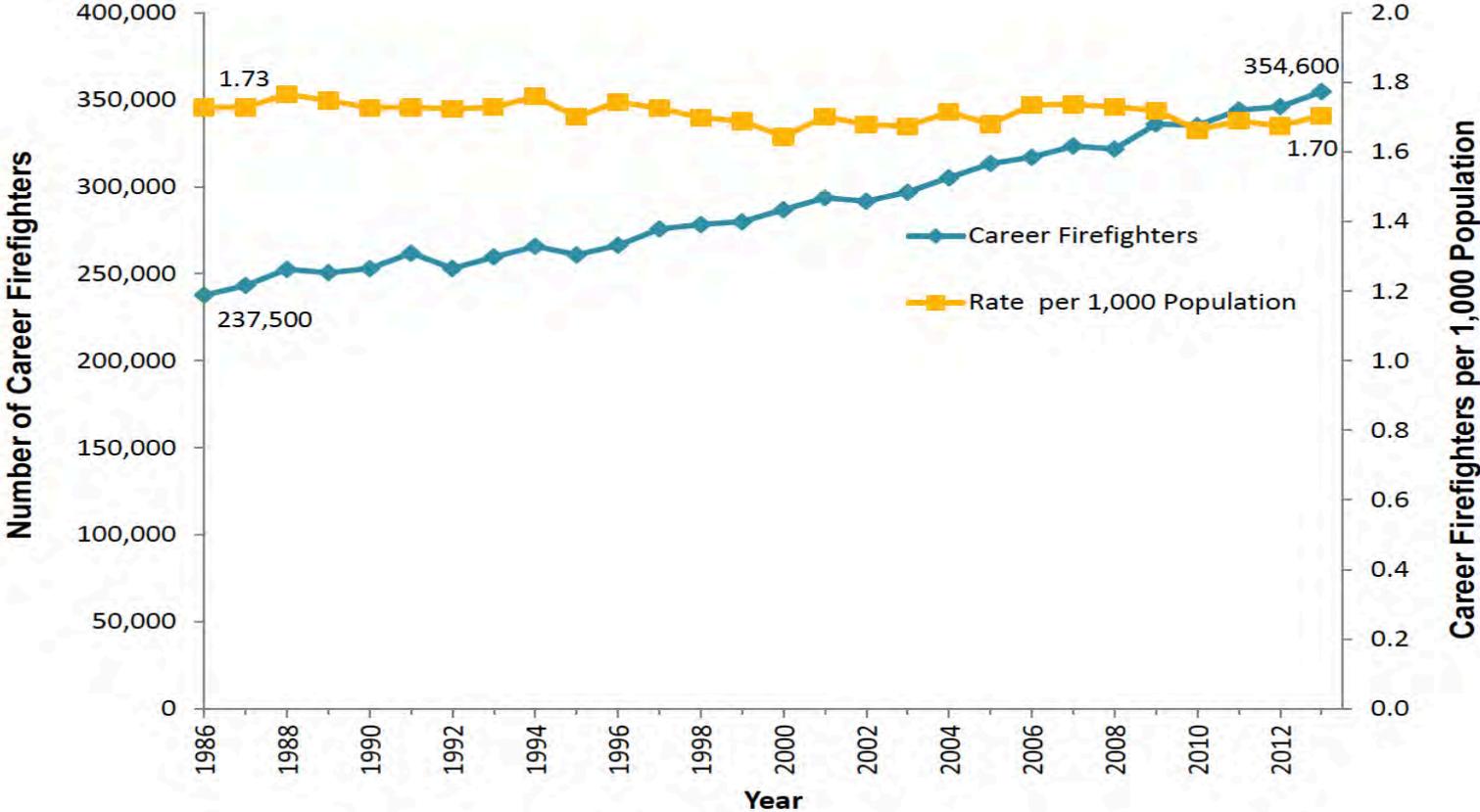


A Tale of Two Services²

Figure 2. Trend in Reported Fire Rates per Thousand Population
1977-2013



Growth in Career Firefighters³



Decline in Volunteer Firefighters³

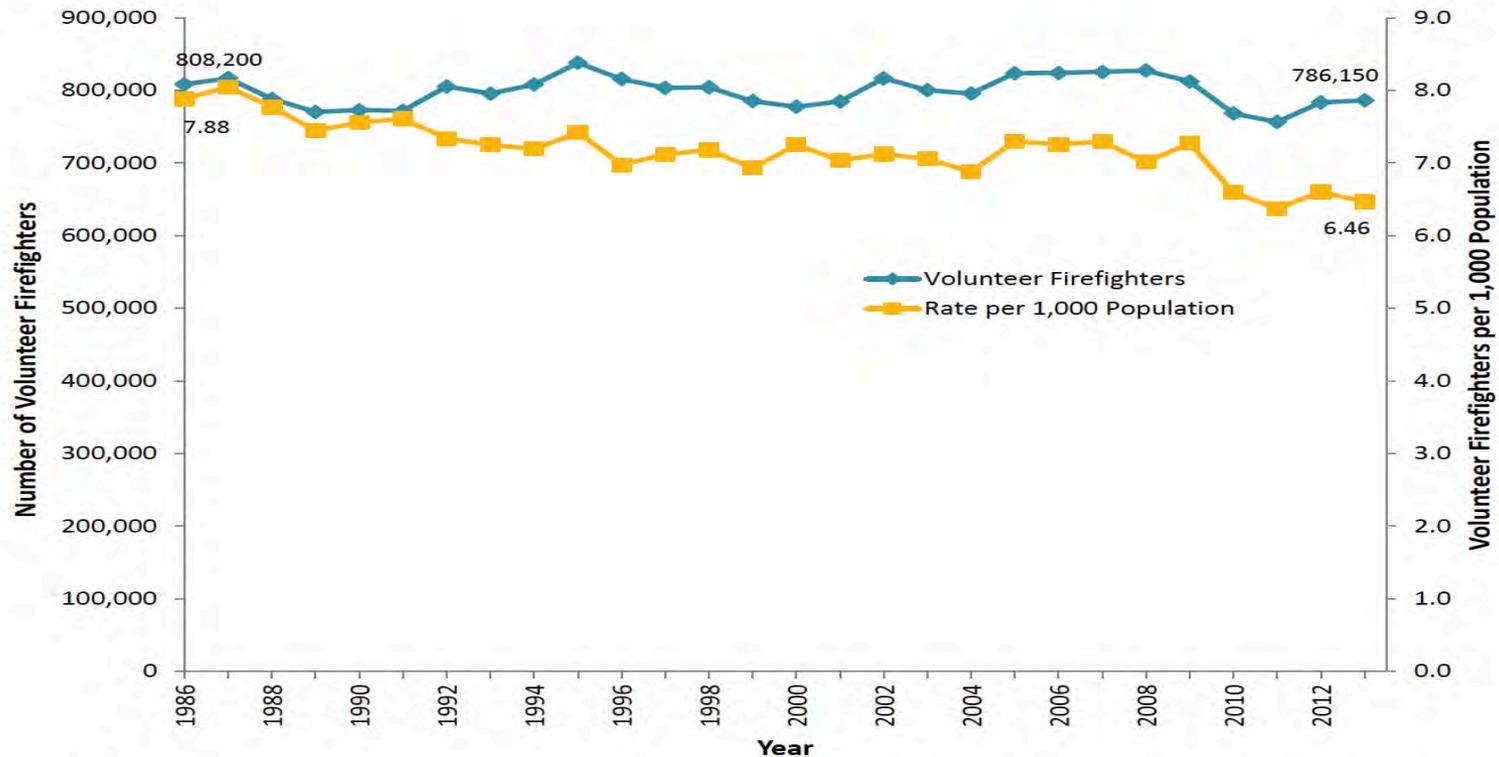


Figure 2: Number of Volunteer Firefighters and Rates per 1,000 People. Source: NFPA Annual Survey of Fire Departments for U.S. Fire Experience (1986-2013).

A Tale of Two Services²

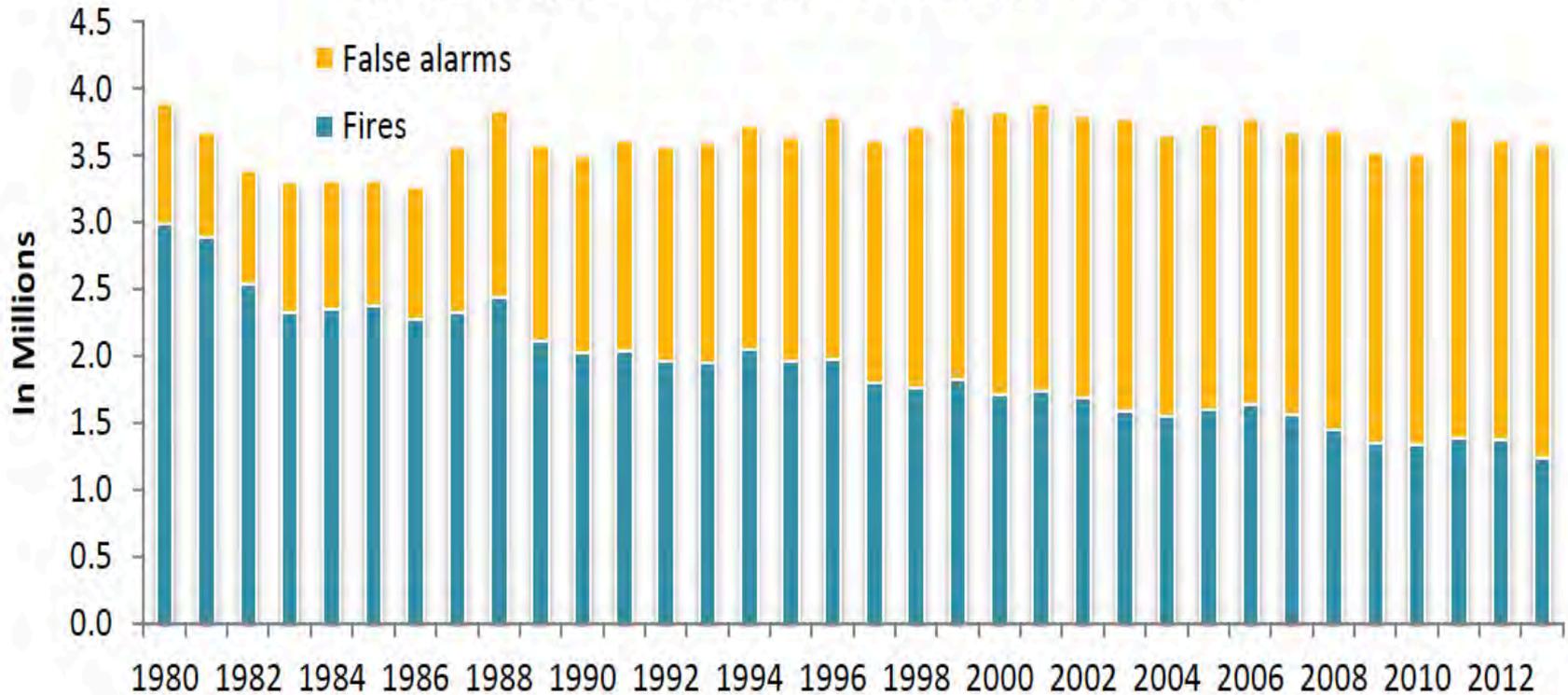
Table 3.
U.S. Fire Department Responses in 2013 Compared to 2012, 2003, 1993 and 1983

Reported To Fire Departments	Compared To				
	2013	2012	2003	1993	1983
Total calls	31,644,500	Down 1%	Up 41%	Up 107%	Up 189%
Fire calls	1,240,000	Down 10%	Down 22%	Down 36%	Down 47%
Medical aid or rescue responses	21,372,000	Down 2%	Up 57%	Up 144%	Up 278%
False alarms	2,343,000	Down 5%	Up 7%	Up 42%	Up 139%
Mutual aid or assistance calls	1,298,000	Down 2%	Up 32%	Up 139%	Up 268%



A Tale of Two Services²

Figure 15. Reported Fires and False Alarms: 1980- 2013

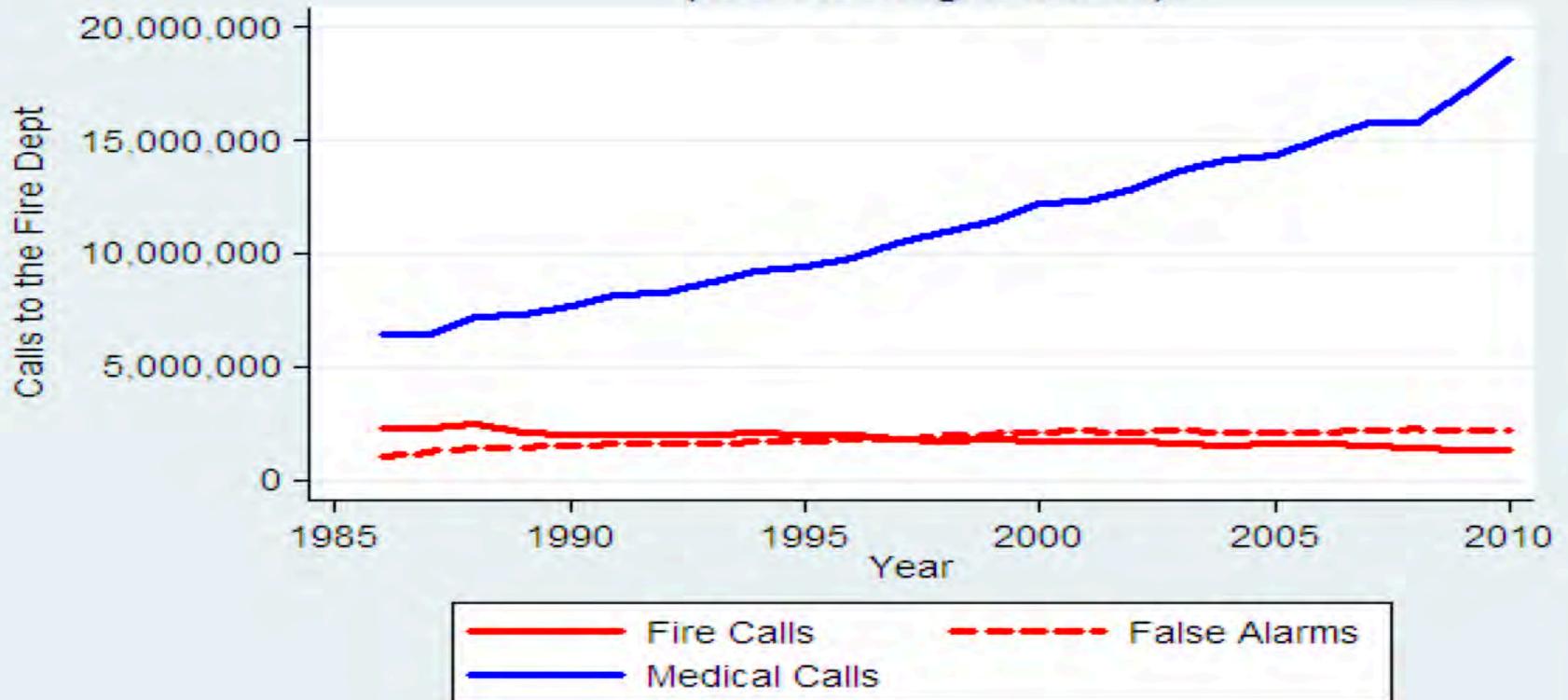


Public Perception

- “I think the firefighters do a good job, but I wish they would stop telling me how great they are long enough for me to tell them”
- “Why are we sending three and four units to a simple ambulance call?”
- “Why are we paying them to digest lasagna?”
- “How many fires did we have last year?”
- “I called for the paramedics, why is the fire department here?”
- “Could they take a smaller truck?”

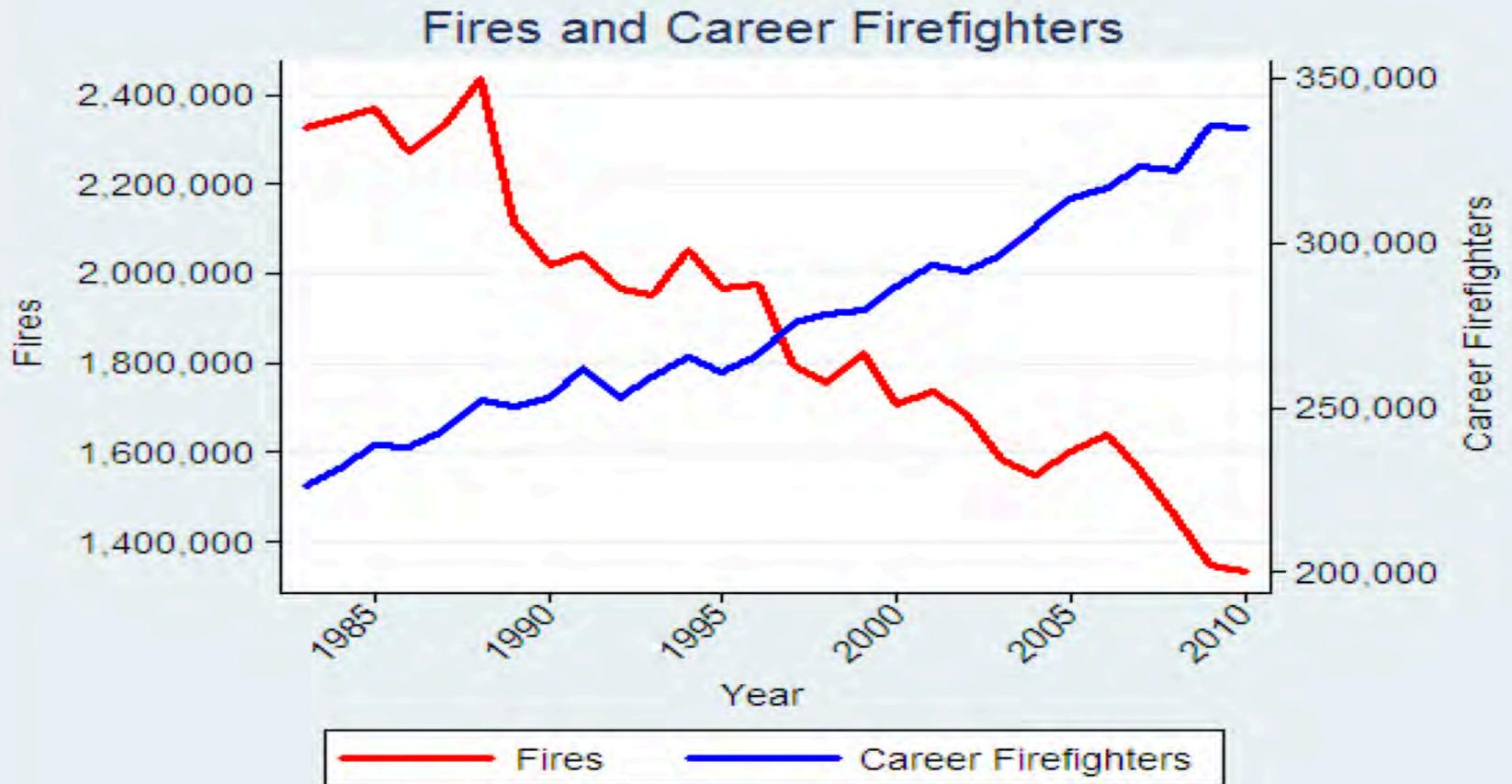
What Do Firefighters Do?⁵

What Firefighters Do
(It's Not Fight Fires)



Source: The National Fire Protection Association

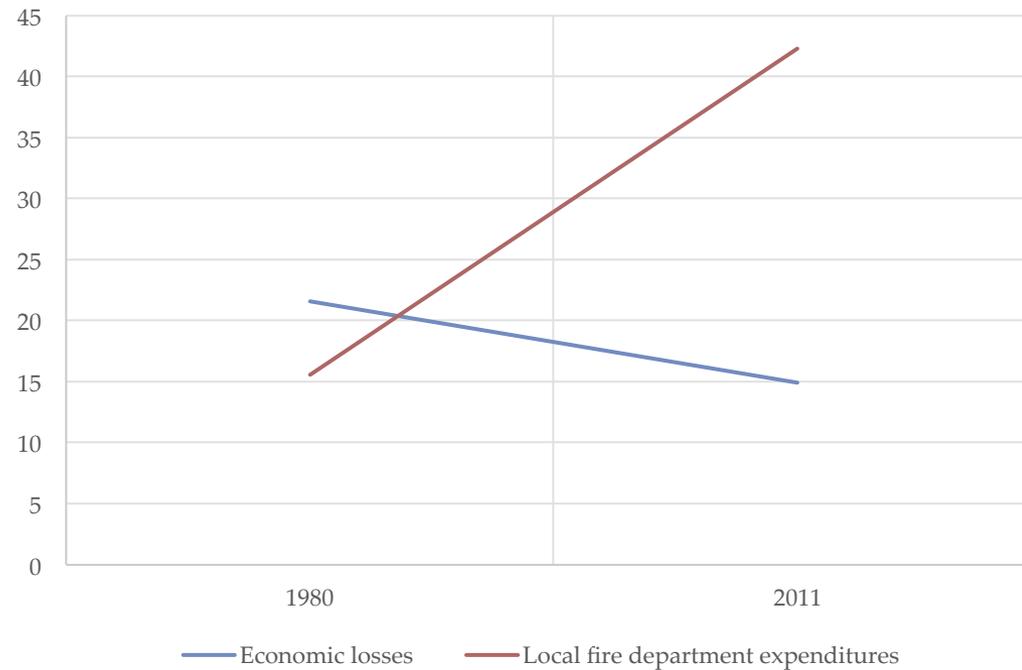
Well....Yes....But...?⁵



Source: The National Fire Protection Association

The Economics Don't Make Sense

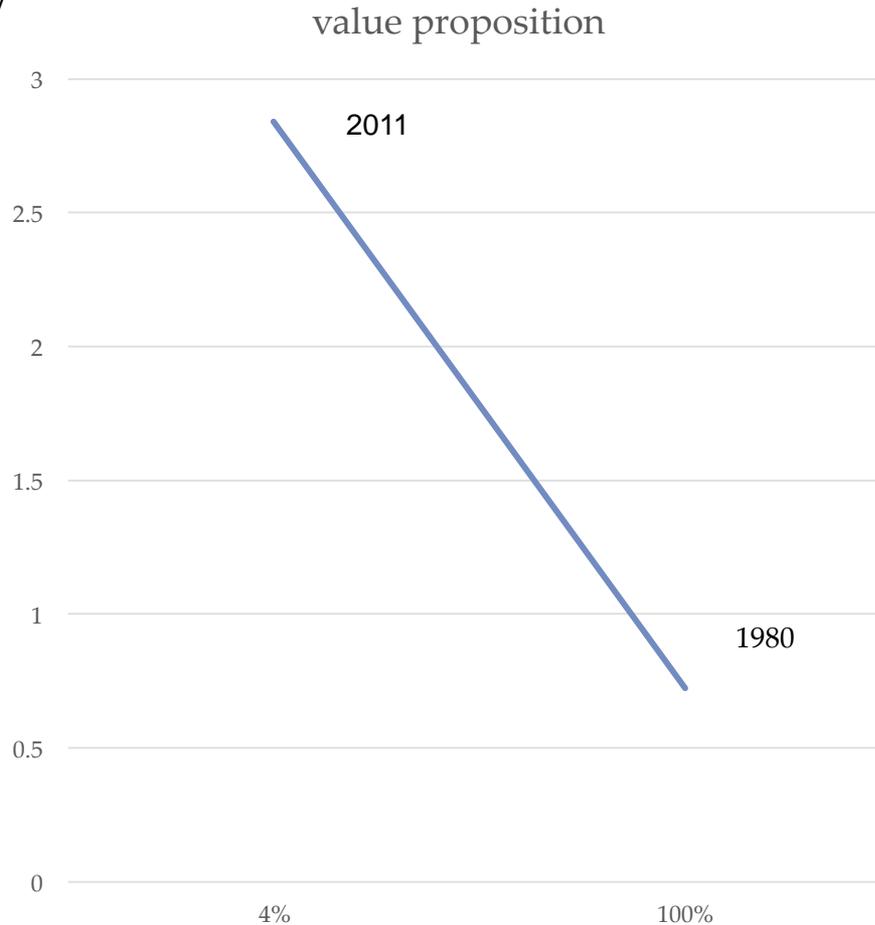
Economics of fire departments in the US all dollars
in 2011 dollars in billions



Correlating The Value Proposition

Cost divided by saving

In 1980 fire services saved 1 dollar of loss for 75 cents of cost, in 2011 the fire service cost 2.75 dollars for every 1 dollar of loss



If people were willing to buy 100 percent of fire services in 1980 they are willing to buy 4 percent of current services

How Does This Apply To Public Policy Decisions?



Indifference
curve

Fig. 2-5 A Rational Resource-Allocation Model

Competing Demands



Competing Demands



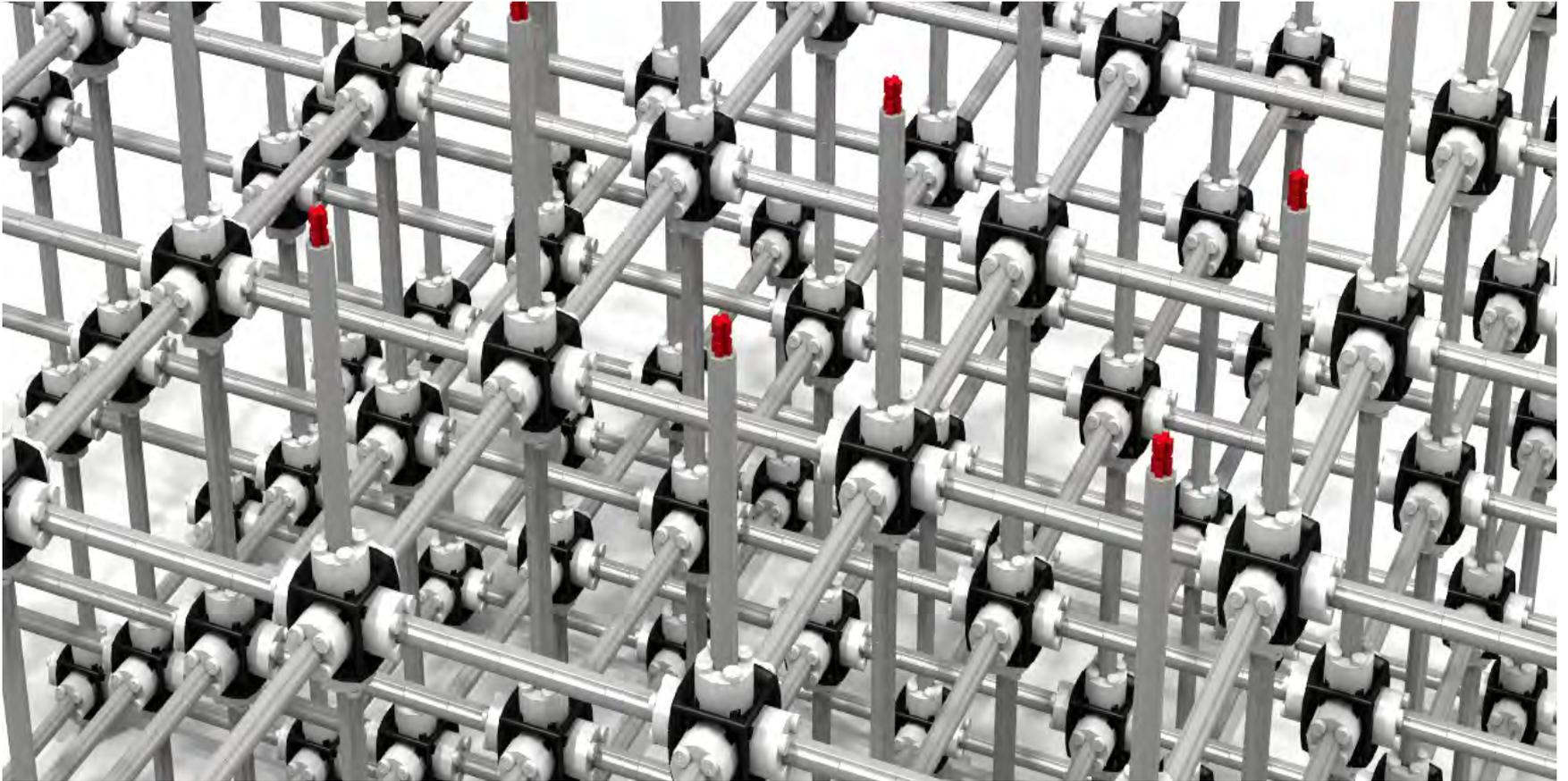
Competing Demands



**So How Do We
Get There?**



Creating the Framework



What are the funding streams and revenue projections for next 5 years?

Trim



Haircut



Borderless Service Delivery

- How much collaboration with adjoining communities do you desire?
- Can we aggressively use automatic aid?
- Are we willing to utilize closest unit dispatching?
- Do we need to go it alone!

Community Expectations

- What are our community's expectations for service?
- How did you evaluate and/or measure community expectations?
- What was the process?

ISO Ratings

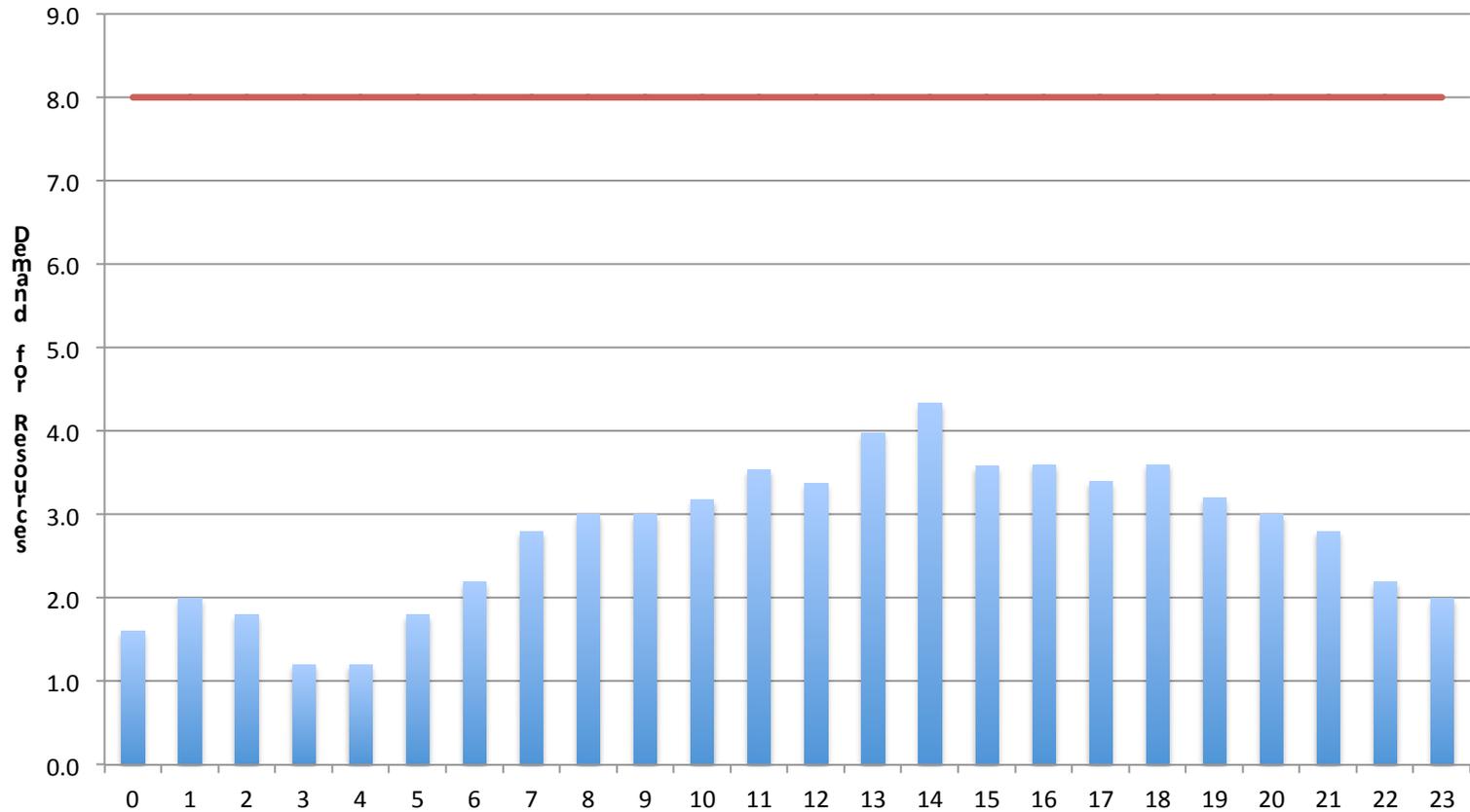
- Would it be acceptable if changes resulted in a “higher” ISO rating (or equivalent)?
- What is the community’s understanding and expectations regarding our ISO rating?

Is the Community Willing to Assume More Risk?



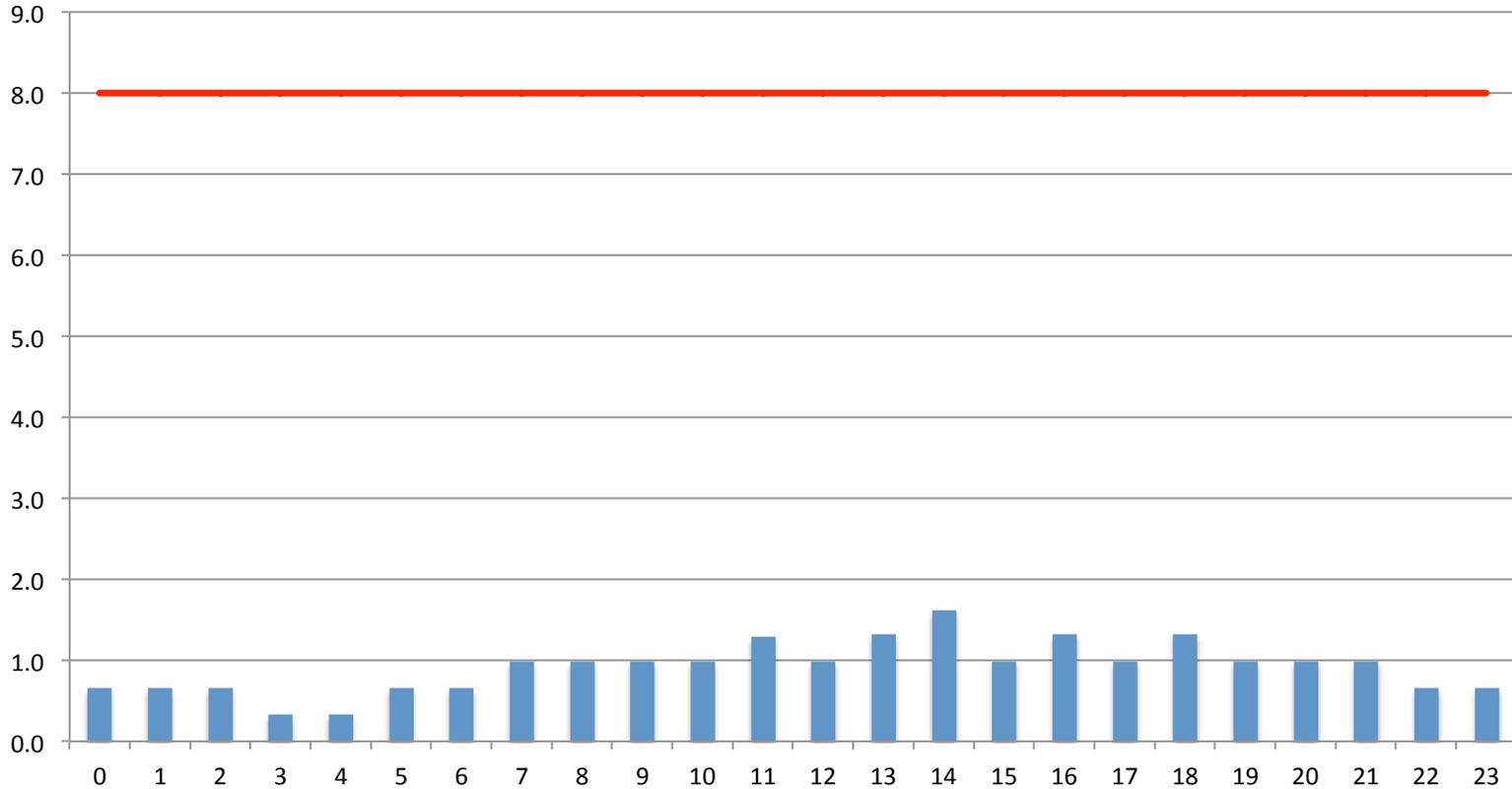
Risk Tolerance and Public Policy

Smoothed BLS Demand at 90%



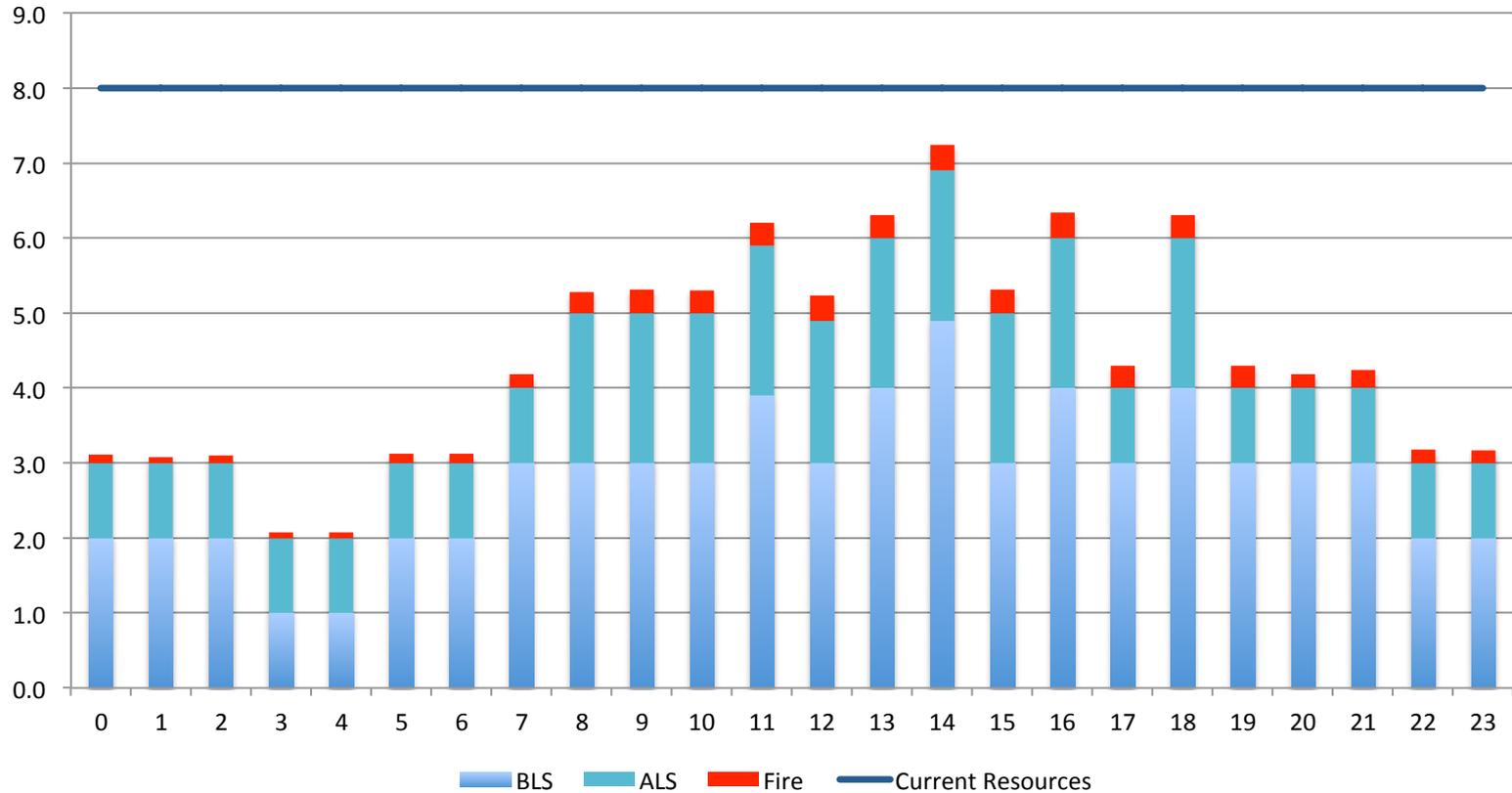
Risk Tolerance and Public Policy

Smoothed BLS Demand at 90% and 20 Min Duration



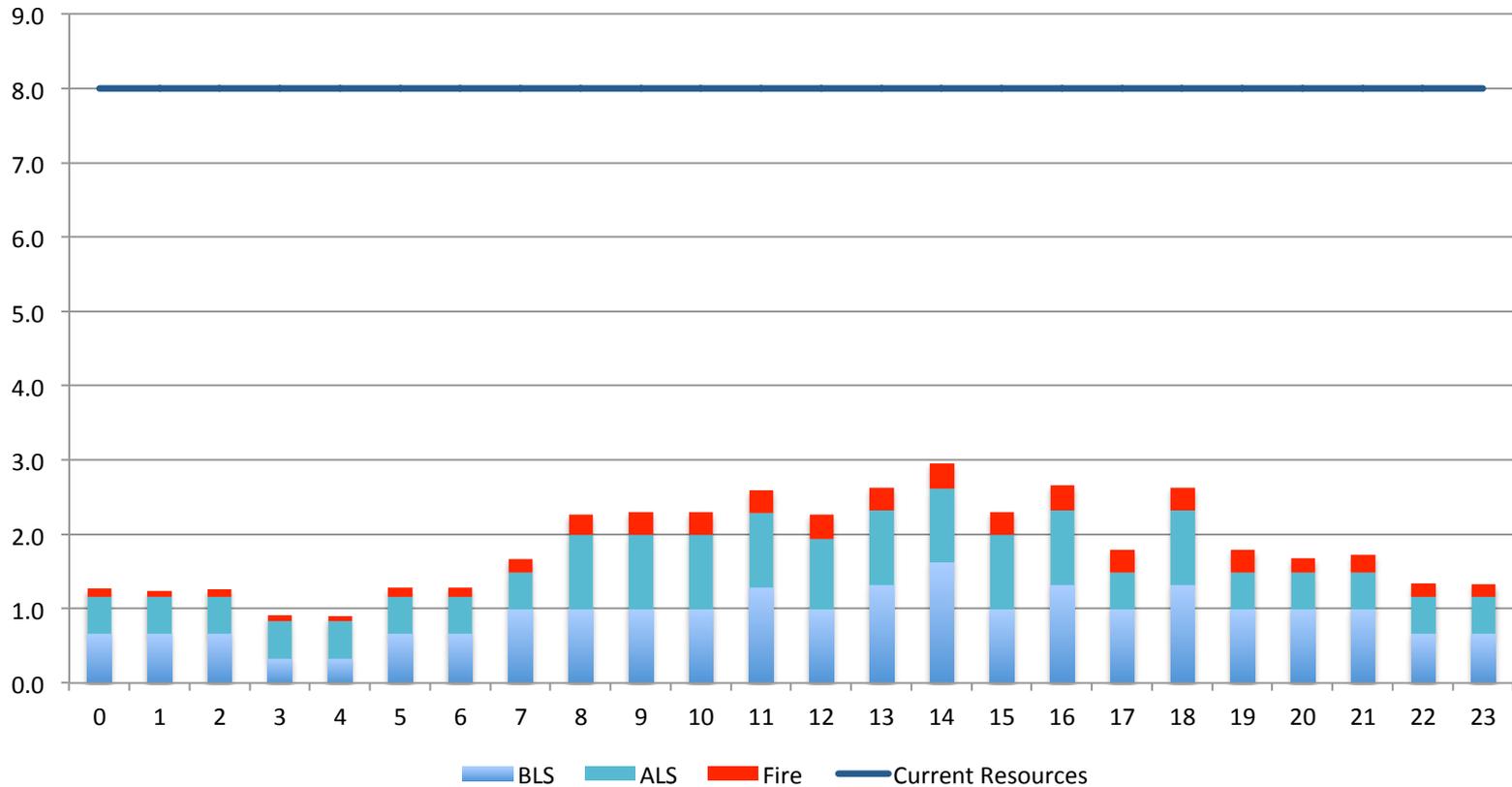
Risk Tolerance and Public Policy

Total Demand for Engine/Ladder Resources



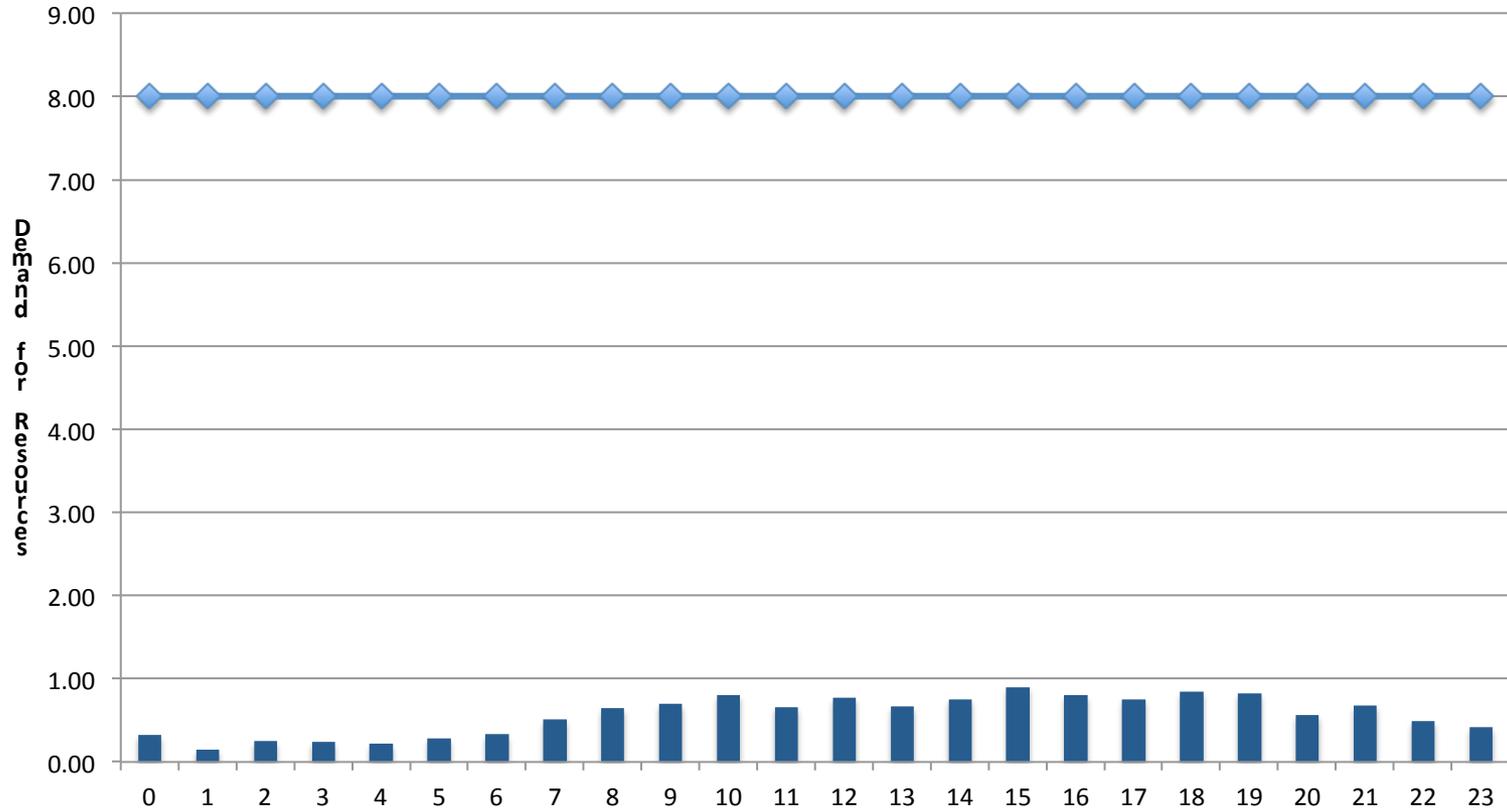
Risk Tolerance and Public Policy

Total Demand for Engine/Ladder Resources at Call Durations

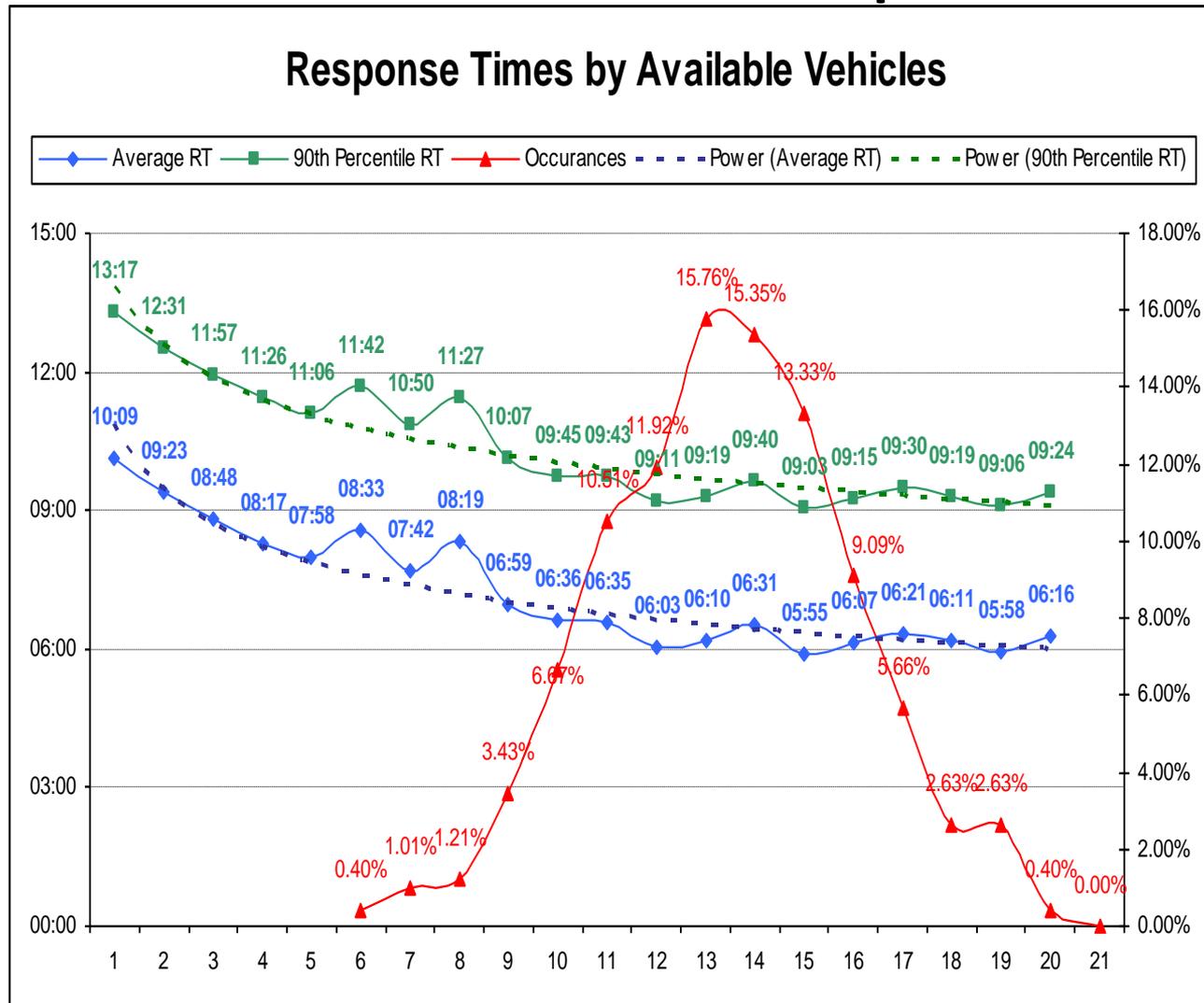


Risk Tolerance and Public Policy

Average Fire Related Responses per Hour

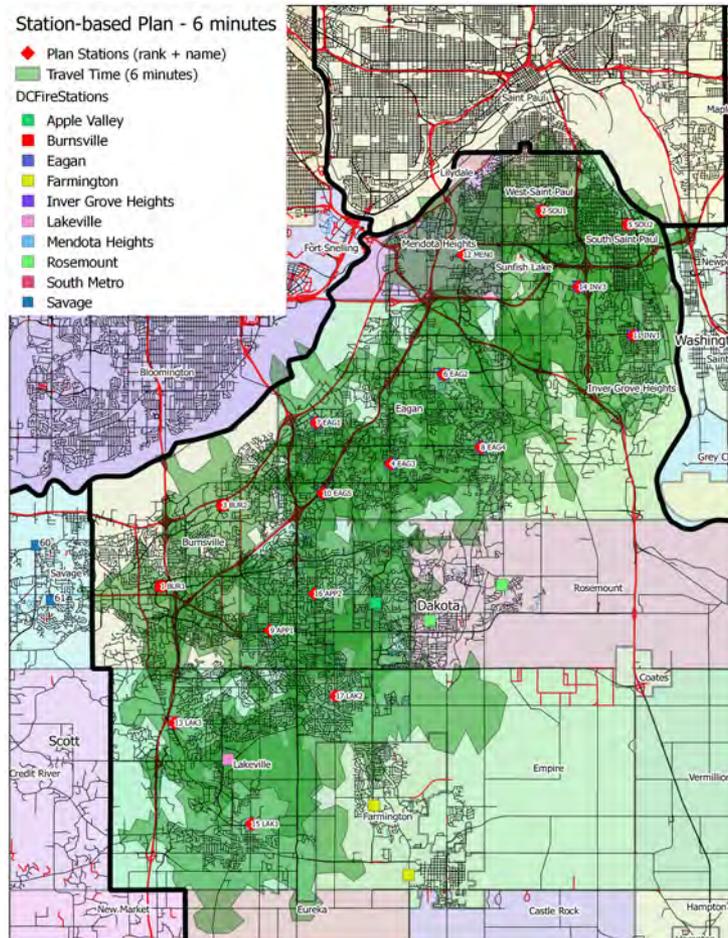


Performance And Resources Is There A Relationship?



Every additional unit does not give additional performance

Station Overlap at 6 Min Travel Time

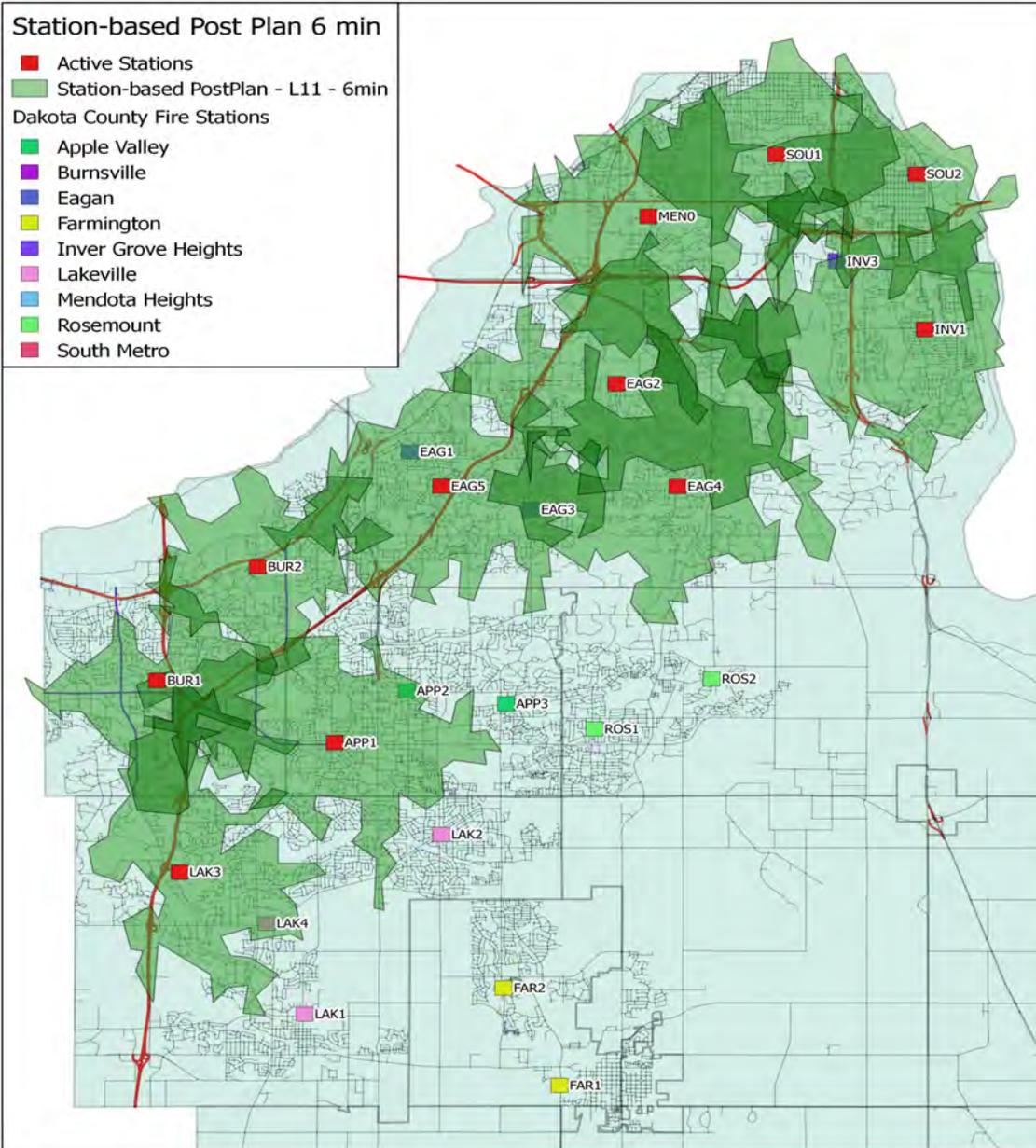


System Example with 6 Minute Travel Time

Rank	Station Number	Station Capture	Total Capture	Percent Capture
1	BUR1	3620	3620	21.83%
2	SOU1	3314	6934	41.81%
3	EAG5	2751	9685	58.40%
4	EAG2	1683	11368	68.55%
5	BUR2	1649	13017	78.49%
6	SOU2	1395	14412	86.90%
7	EAG4	282	14694	88.60%
8	APP1	135	14829	89.42%
9	INV1	44	14873	89.68%
10	MEN0	36	14909	89.90%
11	LAK3	25	14934	90.05%

Station-based Post Plan 6 min

- Active Stations
- Station-based PostPlan - L11 - 6min
- Dakota County Fire Stations
 - Apple Valley
 - Burnsville
 - Eagan
 - Farmington
 - Inver Grove Heights
 - Lakeville
 - Mendota Heights
 - Rosemount
 - South Metro

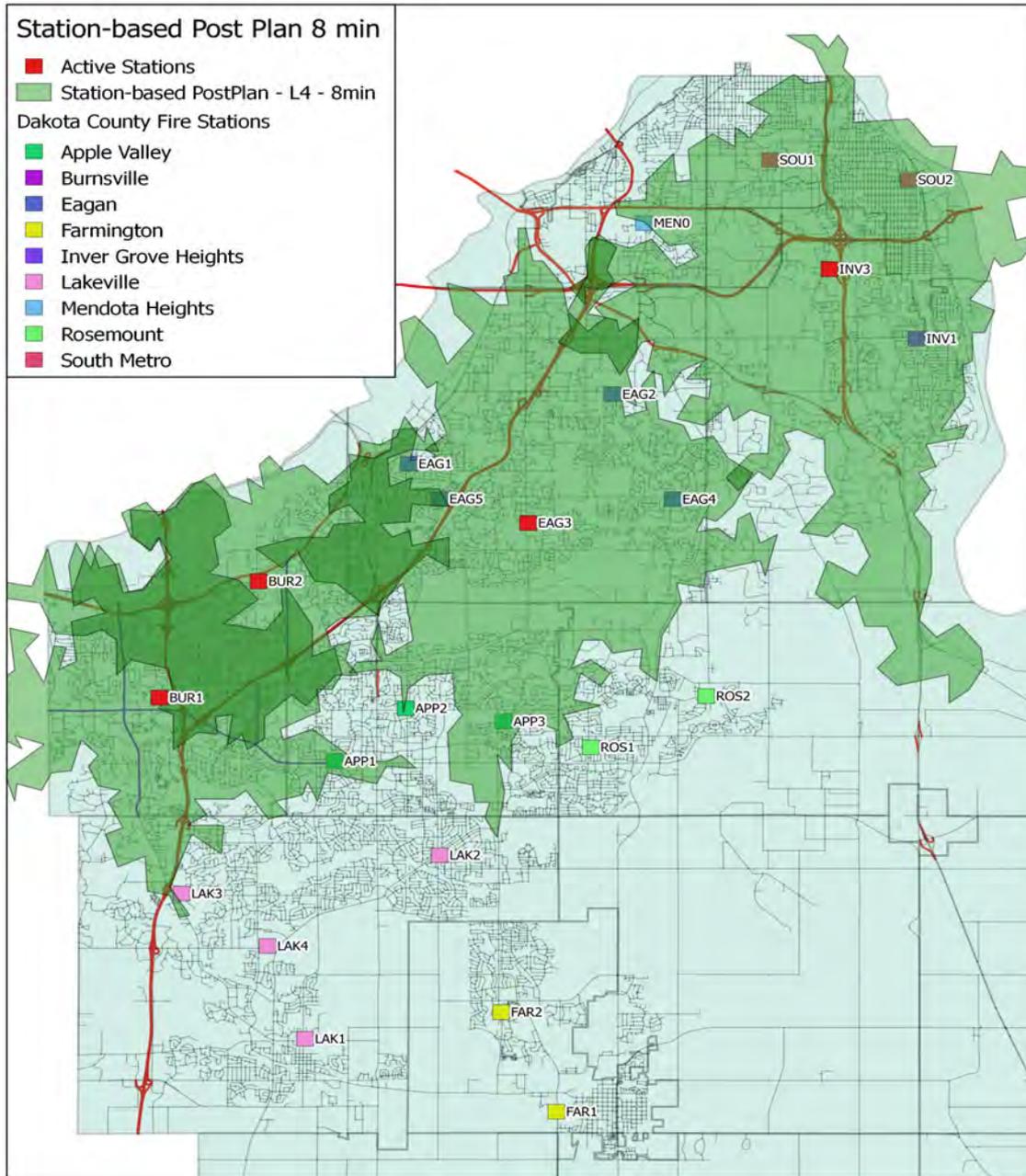


System Example with 8 Minute Travel Time

Rank	Station Number	Station Capture	Total Capture	Percent Capture
1	BUR2	6339	6339	38.22%
2	INV3	4797	11136	67.15%
3	EAG3	3126	14262	86.00%
4	BUR1	1546	15808	95.32%
5	SOU1	510	16318	98.40%
6	EAG4	72	16390	98.83%
7	EAG5	71	16461	99.26%
8	LAK3	40	16501	99.50%
9	MEN0	24	16525	99.64%
10	LAK4	8	16533	99.69%

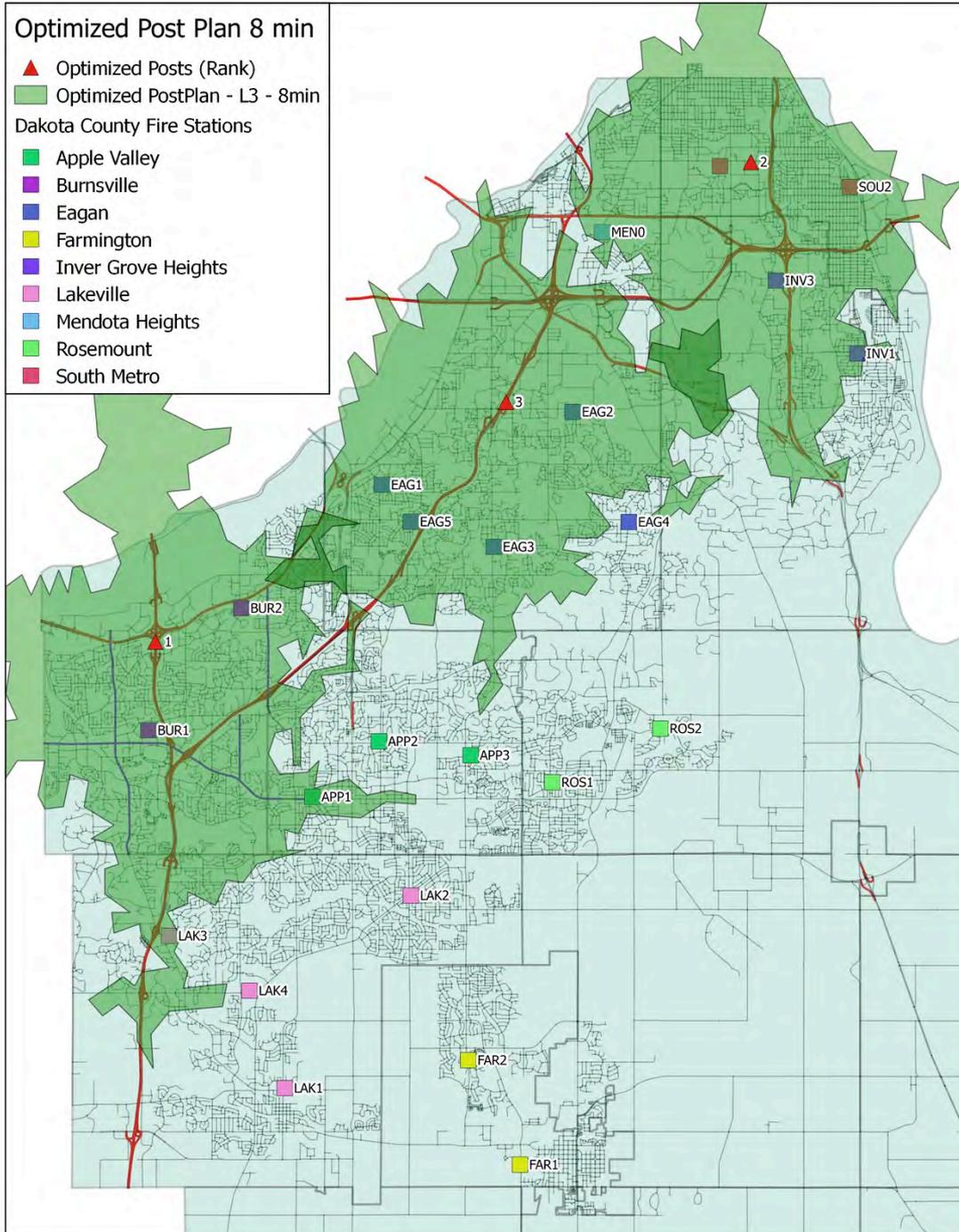
Station-based Post Plan 8 min

- Active Stations
- Station-based PostPlan - L4 - 8min
- Dakota County Fire Stations
 - Apple Valley
 - Burnsville
 - Eagan
 - Farmington
 - Inver Grove Heights
 - Lakeville
 - Mendota Heights
 - Rosemount
 - South Metro



Optimized Post Plan 8 min

- ▲ Optimized Posts (Rank)
- Optimized PostPlan - L3 - 8min
- Dakota County Fire Stations
 - Apple Valley
 - Burnsville
 - Eagan
 - Farmington
 - Inver Grove Heights
 - Lakeville
 - Mendota Heights
 - Rosemount
 - South Metro



Risk Tolerance and Public Policy

No. of Stations – 5.5 Minutes	Station Capture	Total Capture	Percent Capture
1	41023	41023	38.85%
2	26897	67920	64.33%
3	13551	81471	77.16%
4	8667	90138	85.37%
5	5304	95442	90.39%
6	3088	98530	93.32%

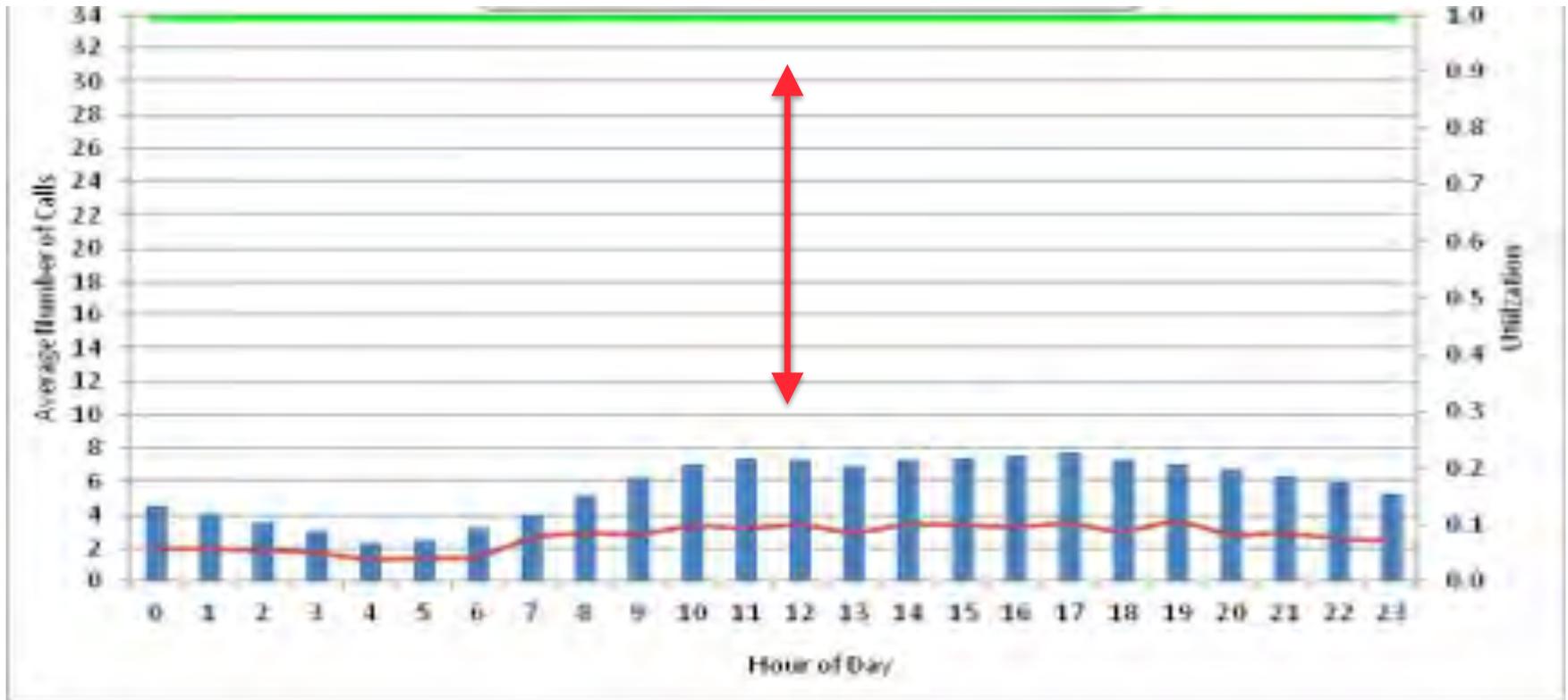
Risk Tolerance and Public Policy

No. of Stations - 6.5 Min	Station Capture	Total Capture	Percent Capture
1	48788	48788	46.21%
2	31551	80339	76.09%
3	10692	91031	86.21%
4	6073	97104	91.97%
5	5984	103088	97.63%
6	593	103681	98.19%

Risk Tolerance and Public Policy

No. of Stations – 8 Min	Station Capture	Total Capture	Percent Capture
1	68249	68249	64.64%
2	32964	101213	95.86%
3	2124	103337	97.87%
4	1030	104367	98.84%
5	796	105163	99.60%
6	256	105419	99.84%

Disproportionately Emphasizing Prospective Risk



Employee Conditions

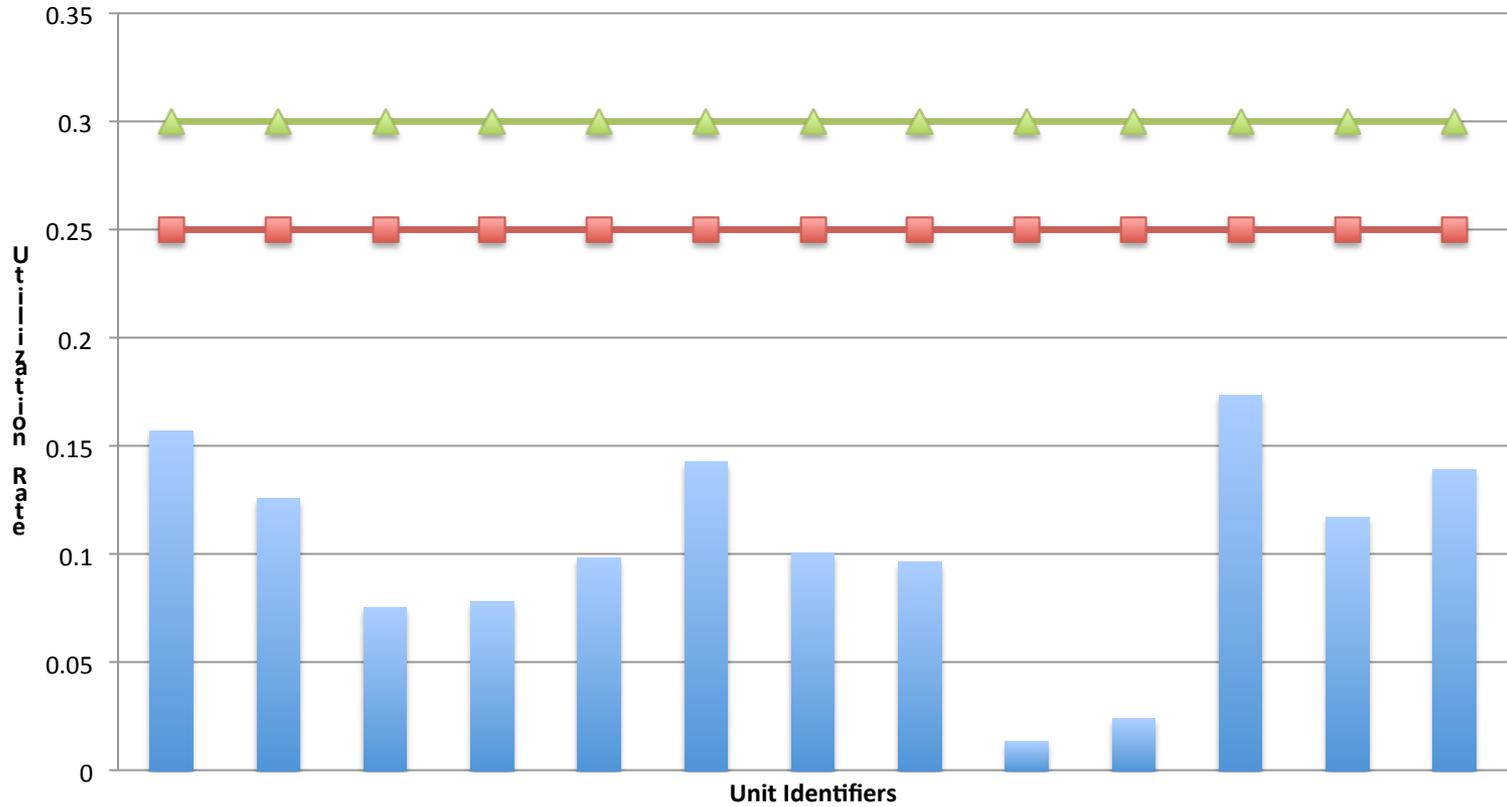
- What is your position or preference on employee work weeks?
- Shift schedules?
- Perceived or real challenges to implementation?
- What workload is too high?
- Is the City/County willing to incentivize the firefighters for finding new efficiencies?

Staffing Configurations-Example

Work-week	Daily Staffing	Staffing Multiplier	Total Shift Employees	Delta in Costs from 42 Hour Work Week
42	50	4.75	238	
48	50	4.06	203	\$3,500,000
56	50	3.41	171	\$6,700,000

Workload

Unit Hour Utilizations by Unit



Service Levels

- Are you willing to adjust service levels?
- What is the political tenability for reductions in force?
- Are you willing to explore alternatives to current delivery model?

Commercial Sprinkler Ordinance

- Are you willing to promote or support a sprinkler ordinance?
- Benefits system performance
- Long-term sustainability
- Better return on investment than response forces

Mortality Risk⁶

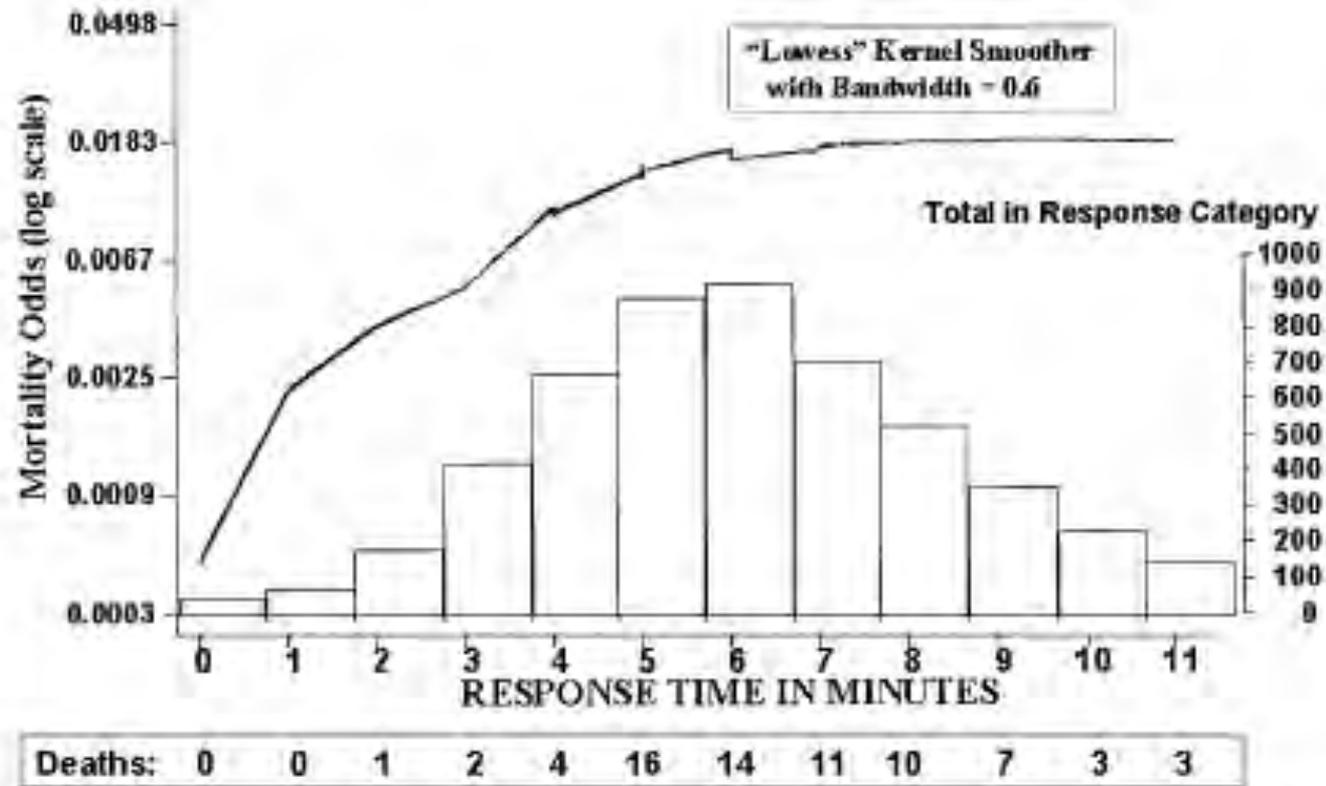


Figure 3. Smoothed mortality odds by emergency medical services (EMS) response time (Call to Scene): 71 deaths in 5,424 transports.

Evidence-Based Clinical Research

Author	Density	Sample Size	Response Time Threshold	Does Response Time Impact Patient Outcome
Blackwell (2002) ⁶	ALS Urban	5,424	5 minutes	Yes < 5 minutes No >5
Pons (2005) ⁷	ALS Urban	9,559	4 minutes & 8 minutes	No < 8 minutes Yes < 4 minutes in intermediate-high risk of mortality
Blackwell (2009) ⁸	ALS Urban BLS MFR	746	10:59	No > or < 10:59
Blanchard (2012) ⁹	ALS Urban	7,760	8 minutes	No > or < 8 minutes
Weiss (2013) ¹⁰	Metro – Urban and Rural	559	N/A Continuous Variable	No relationship between time and clinical outcomes

Evidence-Based Trauma Research

Author	Density	Sample Size	Response Time Threshold	Does Response Time Impact Patient Outcome
Pons (2002) ¹¹	ALS Urban	3,490	8 minutes	No > or < 8 minutes after controlling for severity of injury
Newgard (2010) ¹²	ALS Urban	3,656	4 minutes & 8 minutes & Golden Hour	No time intervals were statistically related to mortality including response time, on-scene time, transport time, or total EMS time
Band (2014) ¹³	ALS Urban BLS MFR	4,122	N/A Continuous Variable	Adjusted for severity of injury, no significant difference between PD and EMS.

City/County Manager Expectations

- Effective services to the community
 - As determined by the public
 - As articulated by Elected Officials
- Efficient services to the community
 - As determined by the Budget Office
 - As endorsed by the Elected Officials

What Matters ?

- What does the public care about?
 - You are there fast
 - You do a good job
- What is the Fire Service trying to convince them is important?
 - A specific response time
 - A certain # of FFs on the truck

Big Questions for the Manager

- What is the most important outcome you desire for the fire department?
 - Benchmark favorably against others?
 - Meet national standards?
 - Accomplish as much as possible within the allocated budget?
 - Define and meet a set of strategic goals?

Thank You

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