



University of Kentucky
UKnowledge

MPA/MPP/MPFM Capstone Projects

James W. Martin School of Public Policy and
Administration

2005

First Responders on the Front Line: Measuring the Effect of Mobilization on Emergency Services

Kate Pringle
University of Kentucky

Follow this and additional works at: https://uknowledge.uky.edu/mpampp_etds



Part of the [Defense and Security Studies Commons](#), and the [Policy Design, Analysis, and Evaluation Commons](#)

[Right click to open a feedback form in a new tab to let us know how this document benefits you.](#)

Recommended Citation

Pringle, Kate, "First Responders on the Front Line: Measuring the Effect of Mobilization on Emergency Services" (2005). *MPA/MPP/MPFM Capstone Projects*. 204.
https://uknowledge.uky.edu/mpampp_etds/204

This Graduate Capstone Project is brought to you for free and open access by the James W. Martin School of Public Policy and Administration at UKnowledge. It has been accepted for inclusion in MPA/MPP/MPFM Capstone Projects by an authorized administrator of UKnowledge. For more information, please contact UKnowledge@lsv.uky.edu.

First Responders on the Front Line: Measuring the Effect of Mobilization on Emergency Services



**Kate Pringle
James W. Martin School
Of Public Policy and Administration
Capstone, Spring 2005**

Table of Contents

Figures and Tables Index	1
Executive Summary	3
Statement of Issue	4
Background Information	4
Methodology	6
Objective	6
Research Questions	7
Hypothesis	7
Units of Analysis	7
Limitations	7
Findings	8
Response	9
Personnel Loss	9
Perception of Impact	12
Impact on Specific Services	16
Coping Mechanisms	22
Conclusions	23
References	26
Surveys	27
Figures and Tables Index	
Figure 1: Map of KSP Posts	7
Table 1: KSP and Fire Department Operating Size	9
Table 2: Mean Personnel Loss and Percentage of Loss to Total	9
Table 2a: Personnel Losses by Category	9
Graph 1: Personnel Loss by Region	10
Table 3: EMS Departments and Perceived Impacts	12
Table 4: Respondents Perception of Impact by Department and Category	12

Graph 2: Fire Department Perception of Impacts by Type	13
Graph 3: KSP Perception of Impacts by Type	13
Figure 5: Military Impact based on Personnel lost to Mobilization	14
Table 6: KSP Personnel Loss Correlated to Perceived Impacts	15
Table 6a: Fire Department's Loss Correlated to Perceived Impacts	15
Table 7: Perceived Impact of Military Mobilization by Size of Department	16
Table 8: KSP Perceived Impact of Military Mobilization on Specific Services	17
Table 8a: KSP Perception of Effects on Ability to Patrol	18
Table 8b: KSP Perception of Effects on Law Enforcement Cooperation	18
Table 8c: KSP Perception of Effects on Emergency Preparedness	19
Table 8d: KSP Perception of Effects on Training/Special Skills	19
Table 9: Fire Departments Perceived Impact of Military Mobilization on Specific Services	19
Table 9a: Fire Departments Perception of Effects on Emergency Response	20
Table 9b: Fire Departments Perception of Effects on Emergency Preparedness	21
Table 9c: Fire Departments Perception of Effects on Community Involvement	21
Table 9d: Fire Departments Perception of Effects on Training/Special Skills	21
Table 10: Correlation of Personnel Loss to Specific Services	22
Table 11: Mechanisms Used to Manage Personnel Loss	22

Executive Summary

Statement of Problem

National guardsmen are a unique human resource issue because their association with the guard is frequently part-time with another position, such as a State Trooper, acting as primary employment. When mobilized, the guardsman leaves an opening in their department, which must be available upon return. This can create operational and management stresses, especially if the guardsman has unique skills. Moreover, the loss of personnel can mean critical loss of manpower to small emergency service departments.

Research Question

- What affects the impact of mobilization?
- How are Kentucky's emergency services affected by military mobilization as opposed to other types of personnel loss?
- What kind of coping mechanisms do department managers employ to offset personnel losses?

Methodology

A self-created survey was sent to all Kentucky State Police Posts (N=16) and a random sample of local fire departments (n=111). Fifty-eight responses encompass this report, totaling to a 45.6% response rate. The survey asked participants to quantify the number of employees lost to six areas of personnel loss; specify their perceptions of military mobilization, budget constraints and retirement on the department's ability to provide services; and rate the impact on specific services. Finally, respondents were asked to indicate possible management mechanisms to cope with personnel loss.

Findings

Kentucky State Police and local fire departments both reported losses due to military mobilization, but Kentucky State Police posts were more likely to indicate loss meant an impact on services. Loss of personnel was varied throughout the state, but no one area carries a significant share of mobilization losses. Local fire departments indicated budget constraints were more of concern than mobilization, although less than 10% of respondent departments indicated having lost personnel to budget constraints.

Conclusions

The state of emergency services in Kentucky is an emergency management and Homeland Security issue. More research is needed to find out how other emergency services are fairing during military mobilization, and whether fire department responses regarding budget concerns are a precursor of a budget crisis for fire departments in Kentucky.

Statement of Issue

Kentucky's emergency management is comprised of three tiers: first-responders at the county and city level such as fire fighters and police; a second-tier comprised of state police; and a final tier with the Kentucky National Guard (KYNG). The first tier of emergency management, Kentucky's law enforcement and fire services act as the base component. Often first on the scene of major incident, law enforcement and fire services coordinate the start of an emergency response. Fire fighters typically have hazardous materials training or other advanced training in order to be prepared for a catastrophic situation, such as possible terrorist attack. National guardsmen, especially reservists, create a unique human resource issue because their association to the guard is frequently part-time with a position in emergency service or law enforcement acting as primary employment. When mobilized, guardsmen leave an opening in their department, which must be available upon return. This can create management stresses of how to fill the temporary vacancy, especially if the guardsman has particular skills or training. Moreover, the personnel can mean critical loss of manpower to small departments. The mobilization of reservists and members of the National Guard on duty in Iraq has the potential to put operating and management strain on emergency services in Kentucky. The intent of this study is to measure the strain on public safety departments related to mobilization and coping strategies of department managers.

Background Information

The National Guard serves a dual function of both federal and state needs. In a state of emergency, the governor can activate the guard to respond to a crisis, or the Department of Defense can activate the guard in time of war. A

history of the KYNG shows ready participation in previous conflict, including troops in the Persian Gulf and Vietnam Wars. Since the attacks on the World Trade Center and Pentagon in September 2001, the military has had an active warfare and reconstruction role in Afghanistan and Iraq. The Department of Defense typically relies on KYNG more than the national average because Kentucky's training facilities are considered among the best in the country by producing among the most combat ready in the nation.¹ According to the Brookings Institute, numbers of reservists including the National Guard serving in Iraq since 2003, has ranged from a beginning force of 8,000 to 50,000 strong in January 2005.² The Kentucky Department of Military Affairs states the KYNG was 7,484 strong as of January 2005; 1763 (24%) of those Air and Army National Guardsmen mobilized as part of the War on Terror. Previous involvement in the War on Terror has included KYNG deployment rates as high as 84%.³ Finally, a shrinking army and low recruitment rates can mean longer deployments for guardsmen and repeat tours of duty.

Newspaper accounts of the effects of mobilization describe shortages in a number of areas. Clark County's expert in accident reconstruction was deployed, creating a backlog of at least a dozen court cases requiring his unique skills.⁴ Private companies are affected as well, such as St. Catharine College whose President was deployed or UPS with around 500 Louisville

¹ James Malone, "Guard activations reach critical high," *The Courier-Journal*, January 16, 2005, <http://www.lexusnexus.com>.

² Michael E. O'Hanlon and Adriana Lins de Albuquerque, "Iraq Index: Tracking Variables of Reconstruction and Security in Post-Saddam Iraq," *Brookings Institute*, <http://www.brookings.edu/dybdocroot/fp/saban/iraq/index.pdf>.

³ Jason M. LeMay, "Mobilization data you requested," 1 February 2005, personal email.

⁴ Harold J. Adams, "Guard's deployment might disrupt Clark court cases," *The Courier-Journal*, March 28, 2003, <http://www.lexusnexus.com>.

employees deployed.⁵ However, little or no scholarly accounts exist to discuss the effect of military mobilization on public or private firms and the human resources effects.

In discussion with various members of Kentucky's Public Safety Cabinet and Kentucky National Guard officials, there was concern that members of emergency response, particularly Kentucky State Police (KSP) and smaller county emergency services, are mobilized. No one in Kentucky government had measured the effect of these losses, however. As a public policy issue, military mobilization creates management issues beyond coping with a smaller pool of personnel. Organizations may have to curtail certain services to make the most of working hours to respond to emergency situations rather than community involvement functions such as car seat inspections or fire safety training. As well, as demonstrated with the Clark County case, managers need to consider training employees as "backups" should a guardsman with specific skills, such as chemical training, be deployed. While additional training is shown to be a common coping mechanism for departments, if financial issues are also of concern for departments, how do emergency service managers decide between hiring replacement personnel to cover basic operations, or train a volunteer in hazardous materials?

Methodology

Objective:

This study will examine the impact of Kentucky's military contribution on Kentucky's ability to provide emergency services. This study will also document the coping mechanisms of department managers.

⁵ Wayne Tompkins, "When UNCLE SAM calls," *The Courier-Journal*, October 22, 2001, <http://www.lexusnexus.com>.

Research Questions:

- What affects the impact of military mobilization?
- How are Kentucky's emergency services affected by military mobilization as opposed to other types of personnel loss?
- What kind of coping mechanisms do department managers employ to offset personnel losses?

Hypothesis:

Mobilization has adversely affected departments of Kentucky's emergency services and law enforcement.

Units of Analysis:

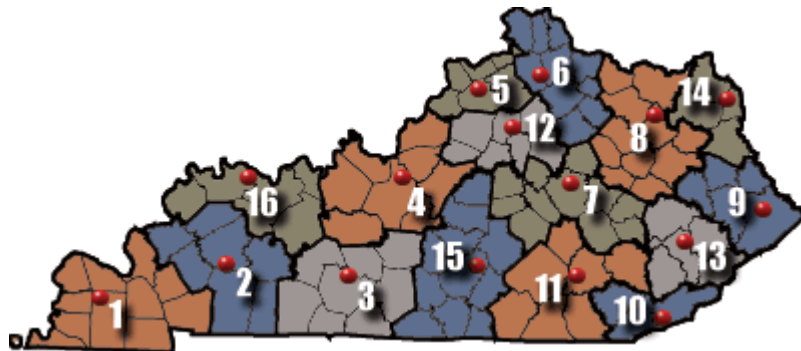
Kentucky Emergency Services are the research population. Survey of Kentucky fire departments will act as a sample of the localized effect of emergency services. Survey of the KSP will provide a statewide view of emergency services. Together, sampling local fire services and state police present an overview of how military mobilization is affecting Kentucky's emergency services on the local and state level.

Limitations of study:

The lack of an overarching emergency services manager in Kentucky cities impeded a sample of all local emergency services. Ambulance and local police departments, therefore, are not part of this study's sample. This creates limitations for generalizing on all emergency services. While small police departments or sheriffs' offices may tell a more urgent story of personnel loss, fire departments and state police provides a local and state glimpse into the condition of emergency services during military deployment.

A moderate fire department response rate of 40.5% leaves a significant gap in the representation of fire services. However, 81% of KSP Posts and the respondent fire departments represent 36 counties, creating a cross-section of the state. Viewing Kentucky in the same 16 parcels KSP uses to divide the state into State Police posts (Figure 1 shows the KSP division of the state), fire department responses fit into each 16 parcels with most parcels represented with multiple counties. This means, while not all counties are represented, all geographic areas of Kentucky are, along with a variety of county sizes.

Figure 1: Map of KSP Posts



Findings

Response:

Fifty-eight participants returned the survey representing 13 KSP posts and 45 fire departments from across the state. Fire Departments are a mix of county and city fire departments including departments utilizing either paid and volunteer fire fighters or all volunteer employees.

Respondent KSP posts were similar in size, with the average unit holding a force of 40 Troopers/Detectives. Fire departments had a mean size of 35 fire fighters, but were more varied in size with the largest department employing 123 fire fighters and the smallest, 14 fire fighters.

Table 1: KSP and Fire Department Operating Size

	N	Minimum	Maximum	Mean	Std. Deviation
Fire Fighters	45	14	123	34.47	21.92
Troopers	13	21	51	39.53	9.324

Personnel Loss:

Most KSP and fire departments experienced some employee attrition in the last year. One fire department lost 20 fire fighters while two fire departments and one KSP post had no personnel loss. The average percent of personnel loss to KSP was 10% of personnel with a maximum of 15%. Fire departments averaged a 13% loss in employees but had a far greater maximum of 43%.

Table 2: Mean Personnel Loss and Percentage of Loss to Total

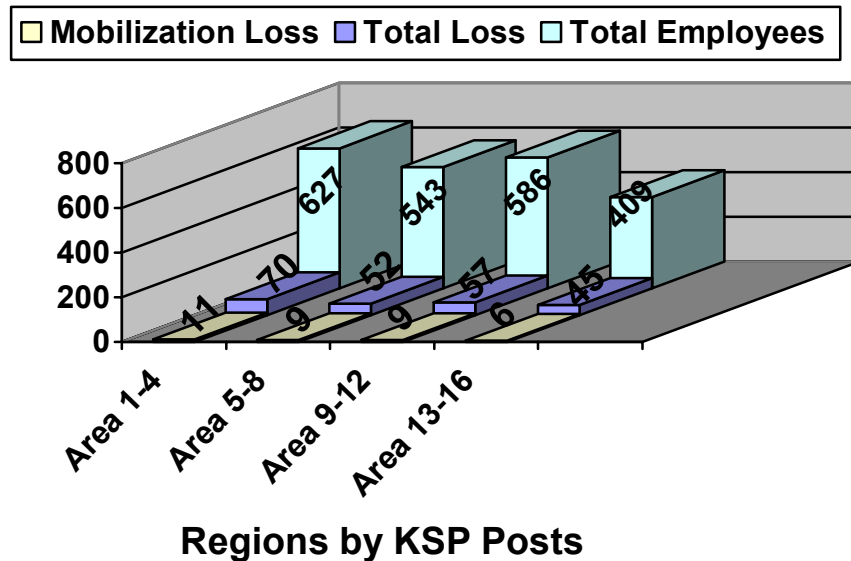
	N	Minimum	Maximum	Mean	Std. Deviation	Percent of Loss
Total Loss	58	0	20	3.83	3.09	
Mobilized	58	0	4	.60	0.88	15.77%
Lost to budget	58	0	1	0.60	0.26	1.80%
Retired	58	0	4	0.07	1.10	18.02%
Voluntary	58	0	14	0.69	2.73	54.95%
Involuntary	58	0	5	0.36	0.89	9.46%
Killed/injured	58	0	3	0.07	0.41	1.80%

Table 2a: Personnel Losses by Category

	Mobilized	Budget	Retired	Voluntary	Involuntary	Killed/injured
Fire	19	3	30	98	19	3
KSP	16	1	10	24	2	1

Dividing Kentucky into four regions by KSP post areas, seen previously in Figure 1, there is some variation in the number of personnel lost to mobilization throughout the commonwealth. While Area 1-4 lost the most personnel overall and to mobilization, it also has the highest number of total employees. Area 1-4 is the west end of the state with McCracken, Warren, and Bullitt counties. Area 5-8, the northern tip of Kentucky, lost the highest percentage of employees to mobilization. While there is variation in losses throughout Kentucky, it demonstrates one region is not carrying a heavier loss of personnel or loss to mobilization.

Graph 1: Personnel Loss by Region



Breaking down personnel loss into the six survey categories (military mobilization, budget constraint, retirement, voluntary severance, involuntary severance and injury/death in service), most respondents reported personnel

loss to be primarily connected to voluntary severance. Voluntary severance accounted for 55% of the total personnel loss reported. Fire departments and KSP differed in this area; KSP reporting the maximum of seven employees voluntarily leaving the organization, while fire departments reported as many as 14 fire fighters voluntarily leaving their department.

Military mobilization also differed for KSP and fire departments: military mobilization explained 36% of KSP personnel loss with a maximum of 100%; for fire departments, military mobilization accounted for 11.2% of total personnel loss with a maximum of 100%. Twenty-five percent of respondents reported not having lost any personnel to military mobilization while 11.8% lost one employee. Four employees was the highest loss to any department due to military mobilization.

Budget constraints and retirement showed a lesser effect on employee loss. Fire departments loss to budget constraints accounted for 1.75% of total loss and retirement accounted for 17.5% of the total loss. KSP lost 1.9% of employees to budget constraints and 19.6% to retirement. Fifty-six percent of the respondents had not lost any personnel to retirement with three respondents having lost four employees, the maximum number lost. Thirty-eight percent of respondents did not lose personnel to any of the mobilization, budget, and retirement categories.

Perception of Impact:

Respondents were asked to rate their perception of military mobilization, budget constraints, and retirement impact on their department’s ability to provide services. Respondents were provided with a five-point Likert scale where: 0 = No impact; 1 = Slight, 2 = Moderate; 3 = Significant; 4 = Severe impact. Many departments had no personnel loss to the three categories provided and therefore, 31% reported no impact from military mobilization; 24% no impact from retirement; and 60% no impact from budget constraints. In addition, 12-21.8% indicated a slight impact in all three categories and 6% a severe impact from budget constraints.

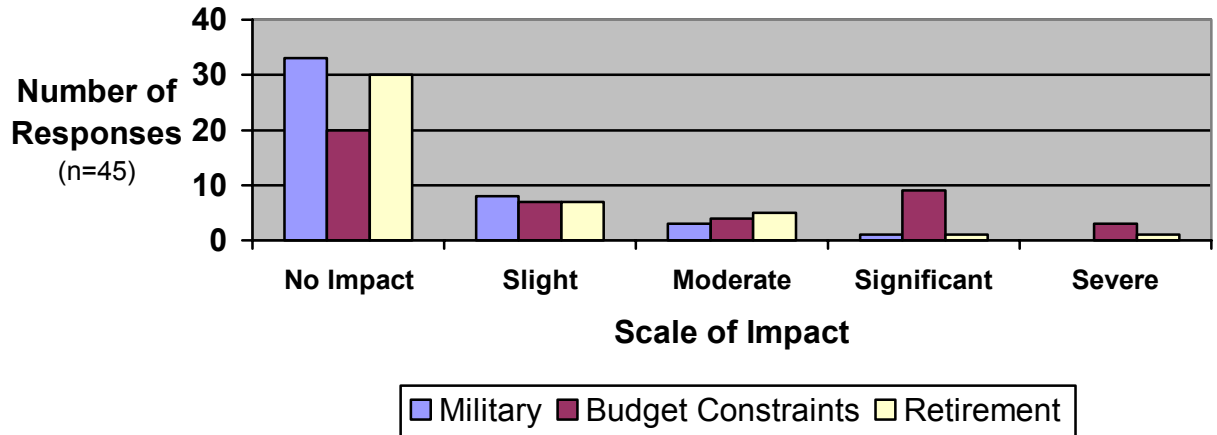
Table 3: EMS Departments and Perceived Impacts

	N	Minimum	Maximum	Mean	Std. Deviation
Military Impact	58	0	3	.59	.843
Budget Impact	53	0	4	1.26	1.38
Retirement Impact	56	0	4	.65	.973

Table 4: Respondents Perception of Impact by Department and Category

Category	No Impact	Slight	Moderate	Significant	Severe	Missing Responses
Fire						
Military	33	8	3	1	0	0
Budget	20	6	5	9	3	0
Retirement	30	7	5	1	1	1
KSP						
Military	4	4	2	3	0	0
Budget	5	1	3	1	0	3
Retirement	5	4	3	1	0	0

Graph 2: Fire Department Perception of Impacts by Type



Graph 3: KSP Perception of Impacts by Type

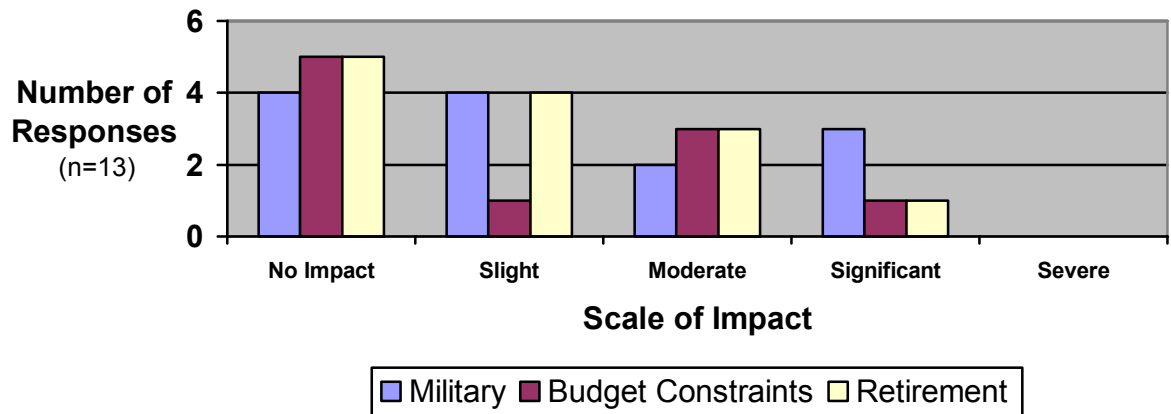


Figure 5 is a cross-tabulation of personnel lost to mobilization and perceived impact of military mobilization. Most responses about military mobilization impact correspond with perception, such as 31 responses of no impact with a response of no military mobilization impact. There are some anomalies, however, such as two responses of military mobilization having a slight impact in departments without any loss to mobilization. The managers'

perception may be the belief that individuals interested in a career in emergency services opt to join the military instead. Another explanation is managers affected by employees that are not deployed, but in training affecting operations. One respondent indicated he had two fire fighters in extensive training with their units.

Figure 5: Military Impact based on Personnel lost to Mobilization

Personnel Mobilized	No Impact	Slight	Moderate	Significant
0	31	2	0	0
1	5	8	1	2
2	0	1	4	1
3	0	1	0	0
4	0	0	0	1

Tables 6 and 6a correlate the number of personnel loss to military mobilization, budget constraints, and retirement to the respective impacts, i.e. military mobilization losses to military mobilization impact. For KSP respondents, military mobilization and retirement impacts are highly correlated to corresponding losses with a coefficient of .78 and .73, respectively. Budget losses are not significantly correlated to budget constraints. For fire departments, military mobilization impact and retirement impact were highly correlated with a .65 and .87 coefficient, but budget impact was not correlated with a .25, which is not statistically significant. This may be explained by the discrepancy in the number of departments which experienced loss to budget constraints (4.4%) versus the number of responses indicating a slight to severe impact of budget (51.1%). This creates questions of whether these departments are experiencing budget

constraints in operating costs or their ability to recruit new emergency service workers. Voluntary loss of employees, however, shows a minor relationship with budget impact with a coefficient of .34 when voluntary losses and budget losses are combined. This also may indicate a recruiting/retention issue for fire departments.

Table 6: KSP Personnel Loss Correlated to Perceived Impacts

		Number mobilized	Retired	Lost to budget
Military Impact	Pearson Correlation	.780(**)	.447	.430
	Sig. (2-tailed)	.002	.126	.142
	N	13	13	13
Budget Impact	Pearson Correlation	.402	-.183	.304
	Sig. (2-tailed)	.250	.614	.393
	N	10	10	10
Retirement Impact	Pearson Correlation	.382	.763(**)	.000
	Sig. (2-tailed)	.198	.002	1.000
	N	13	13	13

** Correlation is significant at the 0.01 level (2-tailed).

Table 6a: Fire Department's Loss Correlated to Perceived Impacts

		Number mobilized	Lost to budget	Retired
Military Impact	Pearson Correlation	.648(**)	-.020	.358(*)
	Sig. (2-tailed)	.000	.897	.017
	N	44	44	44
Budget Impact	Pearson Correlation	-.148	.257	-.291
	Sig. (2-tailed)	.350	.100	.062
	N	42	42	42
Retirement Impact	Pearson Correlation	.250	-.065	.867(**)
	Sig. (2-tailed)	.105	.679	.000
	N	43	43	43

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Table 7 below details the mean personnel loss, mobilization loss and mobilization impact by four department sizes. Perceived impact of military mobilization is highest among the largest departments, containing more than 63 employees (n=3); however losses were also the highest among the three departments. The 14 smallest departments, employing 20 personnel or less, lost an average of three personnel with one of those to mobilization. Smaller departments were hypothesized of being harder hit by personnel losses, but the results do not support the hypothesis with smaller departments indicating no to slight impact of military mobilization.

Table 7: Perceived Impact of Military Mobilization by Size of Department

Number of Personnel		Mean Personnel Lost	Mean Mobilized	Military Impact
14-20 (n=14)	Mean	2.57	.29	.29
	Std. Deviation	3.65	0.37	0.37
21-41 (n=26)	Mean	3.31	.54	.54
	Std. Deviation	2.093	.948	.989
42-62 (n=15)	Mean	5.60	.80	.73
	Std. Deviation	4.595	.775	.884
63+ (n=3)	Mean	6.50	1.67	1.67
	Std. Deviation	.707	1.155	1.155

Impact on Specific Services:

The third section of the survey asked participants to use the Likert five-point scale to rate the impact of mobilization, budget constraints, and retirement on specific emergency services. The services listed only differed slightly for fire departments and KSP: basic emergency services (emergency response, ability to patrol); emergency management; community involvement for fire

departments (child seat inspections, fire safety training) or law enforcement cooperation for KSP; and impact on specific skills or training.

Fire departments responses and KSP differed dramatically in responses with 39–77% of KSP departments reporting at least a slight effect of military mobilization on specific services. Fire departments reported a lesser effect of military mobilization with 22-37% of respondents indicating at least a slight impact.

Table 8: KSP Perceived Impact of Military Mobilization on Specific Services

	N	Minimum	Maximum	Mean	Std. Deviation
Ability to Patrol	12	No Impact	Significant	1.58	1.311
Law Enforcement Cooperation	13	No Impact	Moderate	.46	.660
Emergency Preparedness	12	No Impact	Significant	1.00	1.044
Training/Special Skills	13	No Impact	Significant	1.15	1.214

Table 8a details respondents' perception of how mobilization, budget constraints and retirement affect the departments' ability to patrol. Although 31% of KSP respondents did not cite military mobilization to have an overall impact on a departments' ability to provide services, 69.3% of respondents indicated mobilization had a moderate to significant effect on patrolling their post area. Respondents also indicated budget constraints and retirement affected patrol, but only in the slight to moderate range of impact. Table 7b shows KSP departments indicating no impact on Law Enforcement Cooperation.

Table 8a: KSP Perception of Effects on Ability to Patrol

	No Impact	Slight	Moderate	Significant	Severe	Missing Responses
Military Mobilization	3	0	4	5	0	1
Percentage of Responses	23.1	0	30.8	38.5	0	7.7
Budget Constraints	5	2	2	1	0	3
Percentage of Responses	38.5	15.4	15.4	7.7	0	23.1
Retirement	6	4	1	1	0	1
Percentage of Responses	46.2	30.8	7.7	7.7	0	7.7

Table 8b: KSP Perception of Effects on Law Enforcement Cooperation

	No Impact	Slight	Moderate	Significant	Severe	Missing Responses
Military Mobilization	8	4	1	0	0	0
Percentage of Responses	61.5	30.8	7.7	0	0	0
Budget Constraints	5	1	3	0	0	4
Percentage of Responses	38.5	7.7	23.1	0	0	30.8
Retirement	10.0	1.0	1.0	0	0	1
Percentage of Responses	76.9	7.7	7.7	0	0	7.7

Much like the responses regarding “ability to patrol”, respondents indicated military mobilization affected the emergency preparedness aspect of operations. Military mobilization was cited by 53.9% of respondents as having a slight to significant effect, while budget constraints and retirement was only cited by 21.4% of respondents. Finally, military mobilization showed a demonstrative affect on training and special skills with 61.6% of respondents indicating a slight to significant impact. Budget constraints also

showed peaked response with 46.2% indicating a slight to severe response while 38.5% cited retirement as having a slight to severe response.

Table 8c: KSP Perception of Effects on Emergency Preparedness

	No Impact	Slight	Moderate	Significant	Severe	Missing Responses
Military Mobilization	6	3	3	1	0	0
Percentage of Responses	46.2	23.1	23.1	7.7	0	0
Budget Constraints	5	2	2	0	0	4
Percentage of Responses	38.5	15.4	15.4	0	0	30.8
Retirement	8	1	2	1	0	1
Percentage of Responses	61.5	7.7	15.4	7.7	0	7.7

Table 8d: KSP Perception of Effects on Training/Special Skills

	No Impact	Slight	Moderate	Significant	Severe	Missing Responses
Military Mobilization	5	4	1	3	0	0
Percentage of Responses	38.5	30.8	7.7	23.1	0	0
Budget Constraints	3	1	4	0	1	4
Percentage of Responses	23.1	7.7	30.8	0	7.7	30.8
Retirement	7	1	1	2	1	1
Percentage of Responses	53.8	7.7	7.7	15.4	7.7	7.7

Table 9: Fire Departments Perceived Impact of Military Mobilization on Specific Services

	N	Minimum	Maximum	Mean	Std. Deviation
Emergency Response	44	No Impact	Moderate	0.30	0.63
Emergency Preparedness	42	No Impact	Moderate	0.26	0.63
Community Involvement	42	No Impact	Significant	0.36	0.79
Training/Special Skills	40	No Impact	Severe	0.52	0.99

There was no main issue of concern for fire departments. Emergency response and emergency preparedness showed little effect by military mobilization with 77.8% indicating no effect on both emergency response and emergency preparedness. Budget constraints and retirement showed little effect on emergency response, but a different story emerges for emergency preparedness. 46.7% indicated budget did not impact emergency preparedness, but 48.9% indicated budget constraints did have a slight to severe impact. Community involvement showed little effect by either military mobilization or retirement with less than 20% of respondents indicating an impact, whereas 46.7% of respondents indicated budget constraints had at least a slight impact on community involvement. Unlike the KSP respondents, training/special skills showed little impact by military mobilization and retirement with 48.9% indicating budget constraints with a slight to severe impact.

Table 9a: Fire Departments Perception of Effects on Emergency Response

	No Impact	Slight	Moderate	Significant	Severe	Missing Responses
Military Mobilization	35	5	4	0	0	1
Percentage of Responses	77.8	11.18	8.9	0	0	2.1
Budget Constraints	23	6	8	5	2	1
Percentage of Responses	51.1	13.3	17.8	11.1	4.4	2.2
Retirement	30	6	4	1	1	3
Percentage of Responses	66.7	13.3	8.9	2.2	2.2	6.7

Table 9b: Fire Departments Perception of Effects on Emergency Preparedness

	No Impact	Slight	Moderate	Significant	Severe	Missing Responses
Military Mobilization	35	3	4	0	0	3
Percentage of Responses	77.8	6.67	8.9	0	0	6.67
Budget Constraints	21	4	12	5	1	2
Percentage of Responses	46.7	8.9	26.7	11.1	2.2	4.4
Retirement	31	4	3	1	1	5
Percentage of Responses	68.9	8.9	6.7	2.2	2.2	11.1

Table 9c: Fire Departments Perception of Effects on Community Involvement

	No Impact	Slight	Moderate	Significant	Severe	Missing Responses
Military Mobilization	35	2	5	1	0	3
Percentage of Responses	77.8	4.4	11.1	2.2	0	6.67
Budget Constraints	22	5	7	7	2	2
Percentage of Responses	48.9	11.1	15.6	15.6	4.4	4.4
Retirement	33	5	1	0	1	5
Percentage of Responses	73.3	11.1	2.2	0.0	2.2	11.1

Table 9d: Fire Departments Perception of Effects on Training/Special Skills

	No Impact	Slight	Moderate	Significant	Severe	Missing Responses
Military Mobilization	30	6	3	2	1	3
Percentage of Responses	66.7	13.3	6.67	4.4	2.3	6.67
Budget Constraints	21	5	10	5	2	2
Percentage of Responses	46.7	11.1	22.2	11.1	4.4	4.4
Retirement	27	6	3	3	1	5
Percentage of Responses	60.0	13.3	6.7	6.7	2.2	11.1

As seen in Table 5, budget-related personnel loss has a weak correlation to budget constraints on specific services. Budget impact, however, is correlated to budget constraints on specific services as shown in Table 10. Again, this creates questions of what budget effects respondents were thinking of and what financial issue fire departments are facing.

Table 10: Correlation of Personnel Loss to Specific Services

	Lost to Budget	Budget Impact
Emergency Response	0.28	0.63
Emergency Preparedness	0.36	0.65
Community Involvement	0.46	0.70
Training/Special Skills	0.41	0.75

Coping Mechanisms:

The survey offered subjects six possible options for coping mechanisms for personnel shortages. Using former employees and a decline in services were the least used coping mechanisms. Four respondents relied on former employees and five respondents curtailed aspects of their departments' services. Most departments used overtime shifts or additional training to respond to personnel changes with 38% using overtime and 31% additional training. Thirty-eight percent of KSP posts relied on local or other branches of police and likewise, 28% of the responding fire departments reported using other fire departments.

Table 11: Mechanisms Used to Manage Personnel Loss

	N	Mean	Std. Deviation
Decline Services	58	.09	.28
Additional Training	58	.33	.47
OT	58	.38	.49
Former Employees	58	.07	.26

Other	58	.19	.398
Other Fire Departments	45	.29	.46
Local PO	13	.38	.506

Departments declining services tended to be smaller, between 14 and 41 employees. Additional training and overtime coping mechanisms were used by departments with more than 42 personnel. This does indicate personnel losses do affect smaller departments harder, by causing a decline in services. There were no significant correlations between sizes of departments, sizes of losses and coping mechanisms used, however.

Conclusions

The results indicate more study is needed about the impacts on emergency services in Kentucky. This study intended to use perceived operating and human resource similarities in Kentucky State Police and local fire departments to generalize about emergency operations in Kentucky. The data, however, suggests KSP and fire departments are affected differently by personnel loss and have different concerns. While KSP does have a greater perception of impact by military mobilization, local fire departments observe a greater impact by budget constraints. This digression may be explained by the loss of personnel through voluntary severance, perhaps due to lack of paid fire fighting positions; not enough employment opportunities in the area; or lack of time to serve as a volunteer fire fighter. One fire fighter respondent wrote that his area had been more adversely affected by NAFTA than any of

the impacts listed. According to the respondent, NAFTA had taken garment jobs out of the area leading to fire fighters having to leave the area for employment.

While the majority of percentages indicate a lack of a dominating human resource issue in the state, Kentucky should study the condition of emergency operations in the commonwealth. While the concern about budget issues in fire departments may be explained by error, or the general lack of money in public service, Kentucky government should be aware of budget issues in the emergency sector before budget shortages turn into a personnel scarcity or a crisis for fire departments. While this study did not show a pressing concern of emergency management with mobilization sending precious emergency services abroad, Kentucky State Police response does indicate that mobilization is having an effect on at least one sector of emergency services in the state; more study is needed to find out what other sectors, local police or ambulance, are also affected and to what degree.

The War on Terror, including United States' efforts in Iraq, has no final end date or date for withdrawal. The National Guard will likely be a part of continued operations in Iraq and future efforts elsewhere. As referred to previously, the armed forces are shrinking and recruiting numbers down. Reservists will likely be of greater importance the longer troops remain in Iraq.

Military mobilization is not a short term issue and should be studied to understand the effects to relieve any stresses on departments.

Finally, studying impacts of mobilization is important to emergency management. A large part of the national emergency management structure is mutual aid agreements between local and state governments. Mutual aid agreements allow governments to share equipment and human resources in a time of emergency. Most Kentucky counties have an agreement with border counties and Kentucky is bordered by seven states. Counties and the state should survey the status of emergency service employees to know if they can fulfill the human resource obligations of mutual aid agreements. Further survey of our emergency service workers allows Kentucky to realize its limitations in daily operations and shortfalls should a major incident occur either in the state or mutual aid state.

References

Adams, Harold J. "Guardsmen's deployment might disrupt Clark court cases." *The Courier-Journal*. March 28, 2003. <http://www.lexusnexus.com>.

LeMay, Jason M. "Mobilization data you requested." February 1, 2005.
Personal email.

Malone, James. "Guard activations reach critical high." *The Courier-Journal*.
January 16, 2005. <http://www.lexusnexus.com>.

O'Hanlon, Michael E. and Adriana Lins de Albuquerque. "Iraq Index: Tracking Variables of Reconstruction and Security in Post-Saddam Iraq." *Brookings Institute*. <http://www.brookings.edu/dybdocroot/fp/saban/iraq/index.pdf>.

Wayne Tompkins. "When UNCLE SAM calls." *The Courier-Journal*. October 22, 2001. <http://www.lexusnexus.com>.

Kentucky Fire Fighter Survey

1. County of fire department _____
2. Number of firefighters (volunteer included) serving your department

3. How many fire fighters do you estimate have left your department in the last year? _____
4. What number do you estimate

a. were mobilized by the military? _____	b. lost to budget reasons? _____
c. retired? _____	d. left for voluntary reasons? _____
e. left for involuntary reasons? _____	f. wounded/killed in service? _____

5. To what degree, if any, have each of the following affected the ability of your fire department to provide services?

	No impact 0	Slight impact 1	Moderate impact 2	Significant impact 3	Severe impact 4
Military Mobilization					
Budget Constraints					
Retirement					

6. Please indicate how have each of the following affected your ability to provide the specific services? (0 = No impact; 1 = Slight, 2 = Moderate; 3 = Significant; 4 = Severe impact)

	Emergency Response	Emergency Preparedness	Community involvement	Loss of specific skills/training
Military mobilization				
Budget Constraints				
Retirement				

7. How has your department responded to any loss of human resources? (Check all that apply.)

- | | | |
|---------------------------|--|--------------------------------|
| Decline in services _____ | Additional training for existing employees _____ | Overtime or extra shifts _____ |
|---------------------------|--|--------------------------------|

First Responders on the Front Line: Measuring the Effect of Mobilization on Emergency Services

Reliance on other county/city departments _____
Using former employees or retirees _____
Other _____

Thank you for your participation!

Kentucky State Police Survey

1. Kentucky State Police post _____
2. Number of Troopers serving your post _____
3. How many Troopers do you estimate have left your post in the last year?

4. What number do you estimate

a. were mobilized by the military? _____	b. lost to budget reasons? _____
c. retired? _____	d. left for voluntary reasons? _____
e. left for involuntary reasons? _____	f. wounded/killed in service? _____

5. To what degree, if any, have the below causes of personnel loss affected the ability of your post to provide services?

	No impact 0	Slight impact 1	Moderate impact 2	Significant impact 3	Severe impact 4
Military Mobilization					
Budget Constraints					
Retirement					

6. Please indicate how have each of the following affected your ability to provide the specific services? (0 = No impact; 1 = Slight, 2 = Moderate; 3 = Significant; 4 = Severe impact)

	Ability to patrol	Law Enforcement Cooperation	Emergency Preparedness	Loss of specific skills/training
Military mobilization				
Budget Constraints				
Retirement				

7. How has your post responded to any loss of human resources? (Check all that apply.)

- | | | |
|---------------------------|--|--------------------------------|
| Decline in services _____ | Additional training for existing employees _____ | Overtime or extra shifts _____ |
|---------------------------|--|--------------------------------|

First Responders on the Front Line: Measuring the Effect of Mobilization on Emergency Services

Reliance on local police _____ Using former employees or retirees _____ Other _____

Thank you for your participation!