

Preservation of institutional knowledge in the Dallas Fire-Rescue Department:


An application of strategy and tactics in critical staff assignments

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Certification Statement

I hereby certify that this paper constitutes my own product, that where the language of others is set forth, quotation marks so indicate, and that appropriate credit is given where I have used the language, ideas, expressions, or writings of another.

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Abstract

An analysis of staff assignment turnover and its effect on departmental effectiveness had not previously been undertaken in the Dallas Fire-Rescue Department (DFR). The problem was that DFR did not know the extent of institutional knowledge loss resulting from turnover in staff positions. This lack of awareness undermined an effective organizational strategy to retain and transfer institutional knowledge. DFR was experiencing high turnover in critical uniformed staff positions, and a deeper investigation into the causes and implications from these occurrences was required. The purpose of this research was to identify the presence and extent of institutional knowledge loss as a function of staff position turnover and determine an appropriate response based on those results. Specifically, this investigation sought to answer the following questions: (a) What was the extent of institutional knowledge loss when transitions occurred within uniformed, non-executive staff positions in Dallas Fire-Rescue? (b) How long was it taking and how long should it have been taking personnel in these positions to function at levels that met supervisor expectations? (c) What tools were currently used to transfer institutional knowledge to uniformed staff personnel within DFR? and (d) How could institutional knowledge be preserved and grown within DFR staff positions? Through an examination of existing DFR departmental staff assignments, as well as the supervisor positions overseeing them, descriptive research was used to discover to what extent the department was being harmed by institutional knowledge loss. These efforts were supported with a comprehensive review of knowledge management, organizational behavior, and organizational planning and strategy literature as well as collaboration with numerous city and department leaders. An appropriate response and specific recommendations were then formulated based on the findings.

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Preservation of institutional knowledge in the Dallas Fire-Rescue Department: An application of strategy and tactics in critical staff assignments

While the spotlight falls squarely on those visible responders staffing the bright red fire engines, ladder trucks, and ambulances, the success of the Dallas Fire-Rescue Department's mission rests on a vast support network rarely seen by the public. The City of Dallas and the Dallas Fire-Rescue Department (DFR) would be rendered ineffective without this strong cadre of staff positions, administered each day by teams of sworn personnel. Embedded within these positions are perhaps the greatest stores of institutional knowledge available to Dallas Fire-Rescue, supporting the infrastructure required for the successful resolution of hundreds of thousands of emergency response calls per year. Yet staffing these critical positions has often occurred in a compulsory manner, with scant application of strategy and tactics – the very tools that are second-nature on nearly all fireground scenes. The continued reliance on uniformed personnel to fill critical staff roles requires a unique approach, especially when drawing from a pool of employees accustomed to a work environment that hardly resembles an office, by conventional standards or schedule.

In describing a fire department that has the best chance of success, it has been written that the development of a formal strategic plan “helps the members of the department understand the gap between the actual situation and what is required to meet the stated objectives” (Wallace, 2006, p. 2). The problem is that the Dallas Fire-Rescue Department does not know the extent of institutional knowledge loss resulting from turnover in staff positions, undermining an effective organizational strategy to retain and transfer institutional knowledge. With high turnover in

critical uniformed staff positions, future success in DFR will be predicated upon thoughtful and focused planning for these anticipated events.

Structural change models begin by evaluating the internal condition of an organization and determining if changes are required for a desired outcome to be achieved (National Fire Academy [NFA], 2013). An analysis of administrative reassignments and their effect on departmental effectiveness had not previously been undertaken on an institution-wide level in DFR. The purpose of this research was to identify the presence and extent of institutional knowledge loss as a function of staff position turnover and determine an appropriate response based on those results. Findings would be used as a data-driven tool for consideration in future staff assignments and development of organizational strategies intended to preserve institutional knowledge.

Through an examination of current DFR departmental staff assignments, descriptive research was used to investigate institutional knowledge loss and identify appropriate strategies and processes to reduce that threat. Calling to mind a familiar fire service acronym, a *CAN report* (conditions, actions, needs) approach guided the assessment of current staff assignments, what tools were actually being used to retain institutional knowledge, and what would be needed to preserve and enhance this knowledge. In making this assessment, special attention was given to the effects of high turnover within staff positions and its potential impact on institutional knowledge within DFR. A targeted review of organizational behavior and strategic planning literature was intended to provide insight on existing best-practices and strategies used in other organizations in their own knowledge management strategies. It was expected that these efforts would provide concepts and resources that could be successfully replicated and deployed within DFR. Specifically, this investigation sought to answer the following research questions: (a) What

is the extent of institutional knowledge loss when transitions occur within uniformed, non-executive staff positions in Dallas Fire-Rescue? (b) How long should it take and how long does it take personnel in these positions to function at levels that meet supervisor expectations? (c) What tools are currently used to transfer institutional knowledge to uniformed staff personnel within DFR? and (d) How can institutional knowledge be preserved and grown within DFR staff positions?

Background and Significance

Dallas ranked as the third fastest growing city in the U.S. on a 2015 survey by Forbes Magazine (Carlyle, 2015). With population growth not expected to slow in the near-term, serving the needs of this community, from a public safety standpoint, will continue to demand the highest levels of strategic planning and resource allocation. With nearly 2000 uniformed personnel, the Dallas Fire-Rescue Department is currently tasked with serving this population of 1.3 million residents dispersed over a geographic area covering 340 square miles (United States Census Bureau, 2015). To fulfill this need, \$240 million of the City of Dallas operating budget was allocated for fire and emergency medical services in fiscal year 2015-2016 (City of Dallas, 2015).

The Dallas Fire-Rescue Department relies on a fire-based, all-hazards model to deliver fire protection, emergency medical services, and fire prevention and inspection services to the community. DFR is functionally divided into 7 bureaus, consisting of: Administration and Emergency Response, Special Operations, Training and Support Services, Emergency Medical Services, Fire Prevention and Investigations, Technology and Personnel Support, and Financial Services. Each bureau is led by an assistant chief who reports directly to the fire chief (DFR

Manual of procedures [MOP], 2015). The Financial Services bureau is headed by a director, a civilian equivalent to an assistant chief.

All uniformed personnel are classified by rank, falling into either the civil service or the executive categories. Civil service ranks include fire-rescue officers, driver-engineers, lieutenants, captains, and battalion chiefs. Section chiefs also fall within this grouping, and are a rank equivalent to a battalion chief, but are directly involved in administrative roles. Holding a paramedic certification is required of all members at the start of their career. Paramedics at the ranks of Fire-Rescue Officer and Driver-Engineer are used to staff the 40 advanced life support ambulances in the DFR fleet. Promotions to the ranks of driver-engineer through battalion chief are based on a rigorous testing process that is governed by the City of Dallas Civil Service Department.

Ranks beyond battalion chief no longer fall under civil service jurisdiction. These *executive* ranks include deputy chief, assistant chief, and the fire chief, who serves directly under the authority of the city manager. The fire chief has sole discretion in making appointments to the ranks of deputy chief and assistant chief. As such, these positions do not fall under a promotional examination process, and appointment is made in varying manners based on the preferences of the fire chief (DFR MOP, 2015). The team of uniformed men and women comprising all deputy chiefs, assistant chiefs, and the fire chief is considered the *executive command staff* of the department.

Each bureau serves a unique and important role in the ongoing operations of the department. All bureaus, with the exception of Fire Prevention and Investigations and Financial Services are comprised of members who follow a career path that begins with the fire-rescue officer rank, with a primary focus on emergency operations. The Fire Prevention and

Investigations bureau has a separate career path, and begins with the rank of fire prevention officer. This is an important distinction, as members within this bureau are not directly involved in fire suppression or provision of emergency medical services. As a result, there are generally no opportunities for lateral mobility or transfer into other bureaus without beginning the career track from the entry-level fire-rescue officer rank. The scope of this research will focus on those five bureaus directly tasked with mitigation of emergency response calls.

An examination of the guiding principles behind the Dallas Fire-Rescue Department is useful in providing a framework for the culture, strategy, and mission that guide the organization. The stated purpose of the department reads: “Dallas Fire-Rescue exists to provide the citizens of Dallas the most effective and rapid fire, emergency, medical, rescue and prevention services in an ever-changing environment” (DFR MOP, 2015, sec. 100.01). The purpose can be distilled to the basic provision of relevant services to the community. The mission statement of the department states: “Our Mission is to prevent and suppress fire, educate and rescue citizens, provide emergency medical services, promote public safety and foster community relations” (DFR MOP, 2015, sec. 100.03). It is a statement that leaves little doubt as to the objectives of the organization and its basic functions. The organizational values state that DFR seeks “to consistently exceed the citizens’ expectations by providing professional quality customer service with compassion and integrity through a dedicated workforce that represents and respects our diverse community” (DFR MOP, 2015, sec. 100.05). The organization has codified the goal of consistently exceeding expectations while delivering its services in the most effective manner. The identification of organizational values has been shown to improve day-to-day operations and create future excellence, writes Wallace (2006). The identified mission then serves to provide a foundation for strategic planning (Wallace, 2006). As the current adaptive

problem is examined and researched, it is important to compare the desired state versus the actual state in areas for which this gap analysis is relevant.

While the majority of DFR employees are tasked with responding to the hundreds of thousands of emergency calls each year, there exist numerous uniformed support staff positions embedded within each bureau that interface with and support emergency operations and the personnel in those emergency response roles. These members do not generally interface as the initial or direct point of contact with citizens during the provision of fire, rescue, medical, and 911 dispatch service delivery. Exclusive of the executive command staff and their support team, there are currently 58 uniformed staff positions in the department, representing all levels of civil service ranks (DFR MOP, 2015). A roster of these positions, by bureau, can be found in Appendix A. Of these 58 positions, all but 12 maintain some semblance of a general Monday through Friday work schedule, as opposed to the 24-hour shift schedule that is commonplace to emergency response. Uniformed members are chosen to fill these staff positions on a voluntary basis based on respective rank. If vacancies remain in a staff position and no member requests assignment to the position, a process is in place for involuntary assignment to fill these positions (DFR Departmental Directive No. 57, 2013).

On June 19, 2009, the 81st Texas Legislature signed Texas House Bill 2307 into law, establishing a framework known as *meet and confer* by which police and fire employee groups in Dallas were provided a process to confer with city management on important employment issues (Suhm, 2009). As a result of existing uniformed employee pay parity in Dallas, the police and fire departments are grouped together for the purpose of negotiations with city management. Representatives from four police and three fire employee associations are tasked with preparing for and meeting with city management in order to collaborate and reach a multi-year agreement.

The first meet and confer agreement between the City of Dallas and the police and fire departments was signed on August 11, 2010, for a period that would run through September 30, 2013 (City of Dallas Meet and Confer Agreement, 2010).

Contained within the agreement were provisions for how uniformed members below the rank of deputy chief would be awarded assignments within the various non-executive positions in DFR. The specific details of this process are captured in a directive titled “Administrative Procedure: Work Location Assignment” (DFR Departmental Directive No. 44, 2010). This document came to be known informally as the “transfer policy” and defines a bid system whereby assignments resulting from promotions, vacancies, and transfers are awarded in a manner that is based primarily on seniority and promotional exam score. Certain factors can influence the bid award, such as seniority within a specialty team or as a paramedic. But for the most part, seniority in rank is the principal determinant in winning a bid for assignment (DFR Departmental Directive No. 44, 2010, p. 3). By embedding this directive within the 2010 Meet and Confer Agreement, employee groups ensured that this process would be protected from modification prior to the end of the agreement term, and then, only by a consensus among the firefighter employee associations, DFR leadership, and city management.

As it pertains to the current research endeavor, an important component of the transfer policy is the minimum time commitment required of a member when assigned to a staff position, whether in a voluntary or involuntary manner. At the time of the 2010 Meet and Confer Agreement, this minimum time requirement spanned a period of 30 months (DFR Departmental Directive No. 44, 2010). On December 13, 2013, under a new fire department administration, modifications to the transfer policy were agreed upon. The updated directive was again included and secured within the Meet and Confer Agreement for the period spanning October 1, 2013

through September 30, 2016 (City of Dallas Meet and Confer Agreement, 2013). The most significant change was a sharp reduction of the minimum time required of a member when assigned to a non-specialty team staff position. The obligation was cut to nearly half its prior length, now requiring a commitment of 18, rather than 30, months until the member became eligible to request assignment to another position (DFR Departmental Directive No. 57, 2013, p. 3).

Historically, vacant positions in DFR have been filled in accordance with promotional examination seniority or seniority in rank, per the transfer policy. During the period immediately following a promotional examination, a promotional eligibility list is created for each rank that ranks candidates based on test score. All vacant positions in each respective rank are filled, with the highest scoring candidate being allowed to choose from the entire pool of available assignments in the rank he or she will be promoting into. This list of choices can include a mix of emergency response and staff positions. The pool of available choices grows smaller and smaller as each vacancy is filled and the lowest scoring candidate is used to fill the final vacancy. While this research places no value on the desirability of positions offered, it can be reasonably assumed that the pool of candidates selects available positions based on a level of desirability whereby more attractive positions are apt to be filled by higher scoring candidates. Promotional eligibility lists have historically run for a period of 18 months, and subsequent vacancies arising after the initial wave are filled by pulling from the respective rank list (DFR Departmental Directive No. 57, 2013). During periods when no active promotional eligibility lists are available from which to draw candidates, staff position vacancies that receive no voluntary requests for assignment are filled through involuntary assignment, with the least senior ranking member used to fill the vacancy.

As a result of the 2013 Work Location Assignment policy and reduction in staff assignment requirement, a greater propensity for higher levels of turnover was introduced within critical staff positions. Management and organizational researchers are clear in their position indicating that “employee turnover is a major driver of knowledge loss within organizations” (Daghfous, Belkhodja, & Angell, 2013, p. 641). This turnover often results in decreased organizational efficiency and declines in productivity (Daghfous, et al., 2013), outcomes that are altogether unacceptable as they pertain to an organization tasked with the protection of life and property.

A better understanding of the mechanisms involved in the preservation of institutional knowledge in the Dallas Fire-Rescue Department is imperative. This current applied research project (ARP) seeks to assess, identify, and address institutional knowledge loss within Dallas Fire-Rescue as a result of staff position turnover. These efforts are being conducted in order to identify and support an appropriate response that will allow the department to meet its stated objectives of exceeding citizens’ expectations and providing the most effective service delivery (DFR MOP, 2015, sec. 100.01 & 100.05).

While the goal of this research is not intended to address employee motivation upon entering a compulsory staff position, it is hoped that a better understanding of the effect of policies and staffing procedures will help DFR formulate a proactive response to preserve institutional knowledge and meet its goals and objectives in years ahead. By failing to systematically assess the current conditions and formulate an appropriate response, the opportunity to develop a strategic plan will be stymied and departmental success will be threatened (Wallace, 2006). Assessing the current conditions, evaluating the effect of actions being taken, and defining what is needed is critical when such a strong link has been established

between turnover and institutional knowledge loss (Daghfous, et al., 2013). This is especially significant when that institutional knowledge contributes directly toward the success of an organization charged with the protection of life and property.

By applying a disciplined approach to understanding the impacts of policies and staffing models within a critical subset of DFR employees, as well as how the organization impacts the community, the aforementioned efforts align themselves with the United States Fire Administration (USFA) goal of seeking to “provide programs and training to improve local planning, preparedness and decision-making through the use of modern data and information analytics” (United States Fire Administration, n.d., p. 11). The underlying rationale behind the Executive Fire Officer Program *Executive Development* (ED) course is to cultivate members who can “anticipate future trends” and respond accordingly through the deployment of change management strategies (NFA, 2013, p. iii, p. ix). The studied analysis of integral positions and the preservation of institutional knowledge within Dallas Fire-Rescue aligns itself well with this proactive approach. The direction of this research is further captured within the USFA goal of effecting change through policy and decision-making through the cultivation of leadership skills (United States Fire Administration, n.d., p. 13). The ED course goals of advancing a leader’s ability to develop teams and apply research, and to draw on management techniques in complex organizations, is precisely what this ARP has strived to do within Dallas Fire-Rescue (NFA, 2013, p. ix). It is anticipated that these efforts will subsequently contribute to a body of research that can be drawn upon for additional successes as other organizations seek to address the preservation of institutional knowledge and improvement of public service delivery.

Literature Review

A review of existing literature and previous research was conducted in a targeted manner, closely mirroring the issues that arose through the research questions posed by this project. Initially, a review of historical data, organizational behavior, and organizational planning and strategy is used to provide context for this project and its significance. Following, a basic understanding of the different taxonomies of knowledge is provided, with subsequent research on more specific literature residing within the framework of *institutional* knowledge. Defining certain terminology for the purposes of this project was an important first step, as the field of research yielded an abundance of nomenclature to describe very similar concepts.

Following this initial effort, the review provides an understanding of the value of institutional knowledge to an organization and the deleterious effects that are felt when the organization loses that knowledge through numerous mechanisms. Causes of that loss were examined as well as mitigants and best practices that have been employed to address and reduce that loss of knowledge. This was examined within the private and public sectors, and the literature review culminates with a focus on organizations within the public safety and emergency management sectors.

An initial review of the taxonomies of knowledge within the framework of organizational behavior and strategic planning is needed in order to identify and catalog relevant findings within the body of research. Understanding what is meant by institutional knowledge, and its utility in today's fire service, is an important first step in learning how to strategically address the retention of that knowledge. Within the field of strategic management, knowledge has been defined as "a justified belief that increases an entity's capacity for effective action" (Alavi & Leidner, 2011, p. 109). Delong (2004) describes knowledge as "the capacity for effective action

or decision making in the context of organized activity” (p. 21). A third perspective from the field of business administration accounts for knowledge as “the whole body of cognition and skill which individuals use to solve problems. It includes both theoretical and practical everyday rules and instructions for action. . . It is constructed by individuals, and represents their beliefs about causal relationships” (Probst, Raub, & Romhardt, 2000, p. 24).

Applying this framework of knowledge to operational effectiveness and an understanding of its value is essential if it is to be safeguarded and transferred for the success of the organization. The term *institutional knowledge* has been described as the “body of knowledge on which an organization runs” (LeaderFuel, 2009, p. 1). In that context, retention of that type of knowledge is critical to the continuity of operations and achievement of the organization’s mission. The ability to generate knowledge and subsequently transfer it to the employee and the organization allows for an “optimizing [of] organizational performance” (Alipour, Idris, Karimi 2011, p. 61).

The field of *knowledge management* describes many of the strategies and processes to capture and leverage that information. An identification of collective organizational knowledge and the subsequent leveraging of that knowledge results in success, responsiveness, and innovation (Alavi & Leidner, 2011). DeLong describes the three activities needed to manage and retain institutional knowledge as: acquisition, storage, and retrieval (2004). Essential to transferring that knowledge within the organization is developing a plan to capture it (West, 2014). Other authors have described knowledge management as “distinct but interdependent processes of knowledge creation, knowledge storage and retrieval, knowledge transfer, and knowledge application” (Alavi & Leidner, 2011, p. 131). Management consultants describe the importance of this process, noting that it ensures that a high-value employee knowledge base,

gained through training, development, and experience, stays within the organization (West, 2014).

Researchers have identified employee turnover as one of the primary causes of knowledge loss within organizations (Daghfous, et al., 2013). Some even maintain that the failure to retain and transfer institutional knowledge is responsible for turnover, creating a dangerous cycle that translates into reduced institutional efficiency and increased economic impact (Peña, 2013). Processes for the preservation and transfer of institutional knowledge are a critical component of succession planning and have been successfully deployed in the private sector for decades. However, they have yet to be embraced or implemented with as much effectiveness in the public sector (Garman & Glawe, 2004). When turnover occurs, employees depart with vital knowledge (Field, 2003). If no process has been set up to capture that knowledge, “those who follow them in the job take a longer time to get up to speed, important discoveries and insights disappear, and the company's ability to act quickly and intelligently is crippled” (Field, 2003, para. 3). With an estimated 31% of the total government workforce eligible for retirement by 2017, failing to address turnover and its consequences could have dire implications (Government Accountability Office [GAO], 2014).

Kochanowski (2011) identified a decrease in motivation for public sector employees as another contributing factor in the inability to plan for personnel movement and the resultant loss of institutional knowledge. This has led to challenges in maintaining the “knowledge base of previous processes and results while promoting people who are truly interested in being leaders in an agency” (Kochanowski, 2011, p. 85). Kastros describes the state of today’s fire service as a “leadership vacuum of pandemic proportions fueled by a mass exodus of veterans; an influx of new generations of firefighters; a lack of hands-on leadership training; sweeping changes in

mission; decimated budgets; and the genetics of task-oriented, reactive forefathers” (2004, para. 52). As a result, the organization is left facing difficult transitions of leadership and ineffective retention methods that do not place a strong emphasis on succession planning (Kochanowski, 2011). Human resource expert, Dr. Andrew Peña, writes that “in order to prepare for the loss of institutional knowledge and plan for knowledge transfer, organizations must develop strategies to ensure business continuity. This is something that many organizations are not doing enough” (2013, para. 11).

Various consequences have been described as a result of the failure to address institutional knowledge retention. Daghfous, et al. (2013) identify additional negative outcomes resulting from knowledge loss, including the loss of subject-matter expertise, a loss of the knowledge of routines and work practices, the inability to explain why certain decisions are made, and a lack of understanding of previous successes and failures. DeLong (2004) draws attention to these negative effects and explains that “lost knowledge means the decreased capacity for effective action or decision making in a specific organizational context” (p. 21). In a broad review of strategic management research, Massingham (2008) identified an exhaustive list of negative impacts caused by knowledge loss, including reduced organizational output and productivity, lost organizational memory, economic consequences, negative impact on functioning of the organization, human resource costs, reduced productivity and employee morale, job insecurity, and distrust of management.

Research done through the MIT Sloan Business School concluded that the departure of key people can significantly impact the functioning of an organization and can hamper its operations (Parise, Cross, & Davenport, 2006). Peña (2013) further explains that without a focus on the levels of knowledge that leaves an organization when highly-skilled employees leave, the

organization will suffer as this knowledge is not readily replaceable. To compound this problem, the ability to measure this type of loss poses a unique challenge. While there are established metrics to calculate the cost of employee turnover, “very few metrics or measures exist to quantify the loss (or value) of institutional knowledge, continuity, and history. What we do know is that these costs manifest in the turnover, recruitment, replacement, and training costs that many organizations face” (Peña, 2013, para. 3).

Examples of the impacts of institutional knowledge loss within the public sector highlight the severity of this problem and its potential for devastating outcomes. In a 2014 report, the GAO stated that the capacity to respond to disasters, address national and homeland security issues, and provide economic stability could be undermined by the gaps in institutional knowledge resulting from employee turnover (GAO, 2014). The Institute of Medicine’s (IOM) Forum on Medical and Public Health Preparedness for Catastrophic Events identified institutional knowledge loss resulting from budget-driven staff reductions and retirements as a significant threat (IOM, 2011). Major findings from the IOM study indicated this would likely result in compromised public health preparedness capabilities within state and local health departments (IOM, 2011). The continued degradation of preparedness capabilities through institutional knowledge loss could provide a “vivid illustration” of these effects at all levels of government in the next pandemic, natural disaster, or terrorist event (IOM, 2011, p. 34). As an example of the magnitude of the turnover within this particular field, a 2013 study by the National Association of County and City Health Officials (NACCHO) and the CDC, found that approximately 40% of all local health departments experienced workforce reductions. Emergency preparedness services comprised one of the largest subsets of this group. The findings indicated that during the period spanning from 2008 to 2012, there were an estimated 43,900 local health department job

losses (NACCHO, 2013). In another analysis, Chicago's non-emergency call center identified the loss of institutional knowledge as a significant threat to their continuity of operations when more experienced call takers retired (Wiseman, 2014). The lack of a codified repository of the vast amount of "accumulated knowledge 'between the ears' of seasoned call-takers" will present a significant loss if not addressed, the report surmises (Wiseman, 2014, p. 18).

Applying such a catalog of threats to the very organizations tasked with the protection of life and property draws sharp focus to the present applied research. In the midst of a shifting professional landscape, understanding the importance of institutional knowledge and its preservation is essential to the success of the fire service. Fire departments have been the embodiment of tradition for many years, defined by a rich history of service and pride. And yet, the landscape in which their employees operate has changed and evolved tremendously (United States Fire Administration [USFA], n.d.). In a work aptly titled, *The Survival of the Modern Fire Service*, Chief Greg Neely describes the traditional fire service as devoid of staff functions, based largely on a lack of need for those positions (Neely, 2000). In the past, fire departments had a much narrower scope in terms of job function, with a primary focus on field operations. If a staff position existed, it was often a result of the need to find a place for an injured member who could no longer physically meet the requirements of the line job (Neely, 2000). Yet, the evolution of the modern fire service has shifted from a reactive to a proactive service delivery model, evident in large part by a greater focus on fire prevention and preparedness efforts (USFA, n.d.). In addition, numerous federal, state, and local agencies now place new levels of accountability on fire service leaders (Wallace, 1998; USFA, n.d.), and as Neely (2000) writes, "a tremendous amount of technical expertise is required for each of the specialized staff disciplines that have been created as a result of this accountability" (para. 14).

This need for technical and administrative expertise and an ability to develop a preparedness and prevention culture is predicated on the expressed demands of the community and its citizens (USFA, n.d.). The fire service has been characterized as an apprenticeship by many, and as such, relied heavily upon the transmission of knowledge to its members by its members (Schrage, 2007). Knowledge has been described as “the common denominator of success” within fire service organizations, and the transmission of that knowledge “is one of the best ways to invest in the future of our fire service organizations” (Revere, 2011, para. 13). Yet abnormally high turnover, coupled with changing staffing levels, has had a significant impact on many departments and their ability to transfer knowledge. Schrage (2007) explains:

Many fire departments face the challenge of compensating for the loss of experience, skill, and institutional knowledge when senior members retire. Normally, the older veterans pass on this valuable information to newer firefighters and officers; this is essential in developing future leaders (para. 1).

However, within the fire service, this type of loss, en masse, has a direct impact on safety and operational effectiveness, and can also threaten the ability to convey traditions and values that are an important part of the vocation (Schrage 2007).

Within the framework of the fire service, the preparation of personnel to meet the needs of our communities remains ever critical. Succession planning in the midst of a maturing public safety industry must not only look at the next generation of employee, but also at the evolution of job function and responsibility within the current generation of worker. The International Association of Fire Chiefs (IAFC), in its *Officer Development Handbook* (2010), draws attention to the challenges faced by the fire service in maintaining pace in this rapidly evolving landscape:

Even though fire service personnel are often the most technically trained and competent public service providers within communities, many fire agencies have not invested in their leadership. Organizations must recognize the need for officer development that extends beyond technical training and be willing to institute a professional development process for future leaders (p. 16).

In preparing for future events, succession planning is critical in filling critical leadership and professional positions. Garman and Glawe (2004) describe this as the ability to forecast personnel transitions, develop and choose the right people for the position, and grow a pipeline of talent for future deployment within the organization. Today's fire service leaders will be judged not by personal achievements or present day successes, but as one author writes, by how well their people and their organization perform after they are gone (Maxwell, 2008). Yet research indicates that successful succession planning models are rare within government organizations and have been considered a low priority in the midst of budget shortfalls and reductions in force (Kochanowski, 2011).

Former IAFC Safety Chair Matthew Tobia highlights an important dichotomy within the fire service. He writes, "the driving forces that brought us to the fire service do not diminish over time, but it's critical to realize that serving citizens extends beyond lights and sirens" (Tobia, 2011, p. 74). The ability to fill departmental positions beyond those offered within emergency response is a challenge. Paulsgrove (1992) explains that the benefit of a flexible shift schedule, ample time off, opportunities to earn overtime, and general appreciation by the community, have made it hard to lure members toward staff positions. "The chasm between the desirability of staff and field assignments is a growing management problem in many departments," writes Paulsgrove (1992, p. 50). With a disproportionate level of interest and focus on the actual

execution of emergency response activities, the fire service has fallen short in developing the administrative skillset needed of its people (Haigh, 2010). Frequently, a high promotional exam score is all that is required for filling many of these critical positions, and little is done to actually prepare for that transition (Kochanowski, 2011). The IAFC highlights “line to staff switches” as an area that most fire agencies should see as an opportunity to develop their personnel (IAFC, 2010, p. 6). The profession does well in ensuring the ability of its firefighters to fight fire; preparing those individuals to move the department forward into the future remains a struggle (Haigh, 2010).

The current body of literature supports an examination of existing conditions within all organizations, and encourages a strategic response. “When lost knowledge threatens long-term organizational performance, succession planning processes play an important role in addressing the problem,” concludes DeLong (2004, p. 77). Ample support can be found for addressing the preservation of institutional knowledge in both the public and private sectors. The current literature presents a robust complement of tools that have been deployed to varying degrees of success in business and governmental agencies. However, these efforts are predicated on backing from the leaders of those organizations. Preservation of institutional knowledge must be a top priority, and even in harsh budgetary environments, can succeed with the right support (IOM, 2011).

In looking at the impact of sharp staffing reduction in Detroit’s emergency preparedness staff, for example, recommendations included an emphasis on cross-training of employees so as to learn the job responsibilities of other colleagues, and thus lessen the effects of the knowledge that leaves when the workforce is sharply reduced (IOM, p. 31). The United States Farm Credit Administration (2006), in a report from its Inspector General, emphasized the need for a

continual reexamination of policies and procedures intended to capture relevant and useful institutional knowledge. They found that this would result in preservation of expertise when employees left, while improving the agency's ability to problem-solve and plan strategically (United States Farm Credit Administration, 2006).

A strategic plan to develop and deploy retention tools will be critical if organizations wish to sustain the capabilities of their workforce amidst the threats posed by knowledge loss (DeLong, 2004). Awareness of the type of knowledge that can benefit the organization is essential, so that employees can capture that knowledge as it arises (Marquardt, 2002). It is incumbent upon managers to encourage and facilitate knowledge transfer (Alipour, Idris, & Karimi, 2011). "The hallmark of a successful enterprise is the degree to which it generates, develops, maintains, grows, exploits and protects its knowledge base and develops its core skill and competencies," write Mcquade, Sjoer, Fabian, Nascimento, and Schroeder (2007, p. 759). Mentoring, professional development, and leadership development are industry-specific tools that can be deployed to "produce an abundance of fire service leaders who are ready to meet the needs of the fire service" (Cochran, 2006, p. 86). Haigh (2010) concludes that succession planning requires a focus on the development of those filling future fire department vacancies, so that "those coming after us will be stronger and better prepared to take the reins and steer the department in the appropriate direction" (para. 17). He emphasizes the need to share information and allow others within the organization a full view of the workings of specific positions (Haigh, 2010).

In assessing the existing literature, various sources provided relevant and comprehensive collections of knowledge retention and knowledge transfer tools. The California Department of Transportation catalogued a comprehensive list of knowledge management tools in a 22-page

knowledge transfer guidebook (California Department of Transportation [CalTrans], 2012). Knowledge management resources listed by CalTrans were considered relevant to the fire services, as the organization was tasked with many similar job functions. Examples given in the guidebook included earthquake damage, bridge collapse, inclement weather events, and auto accidents (CalTrans, 2012). A similar resource and list of strategies was obtained from the National Cooperative Highway Research Program (NCHRP) in a publication titled *A Guide to Agency-Wide Knowledge Management for State Departments of Transportation* (NCHRP, 2015). Through a combination of these resources and feedback from DFR leadership, an inventory was created of knowledge management and knowledge transfer tools relevant to the fire service (CalTrans, 2012; NCHRP, 2015; Appendix F).

The review of current literature provides an understanding of the threat of knowledge loss, especially within the context of an evolving fire service landscape. The discovery and documentation of various strategies to address knowledge loss is essential, but we are reminded that “there is no standard format or formula for knowledge retention strategies. Every organization is going to have to define the problem and solution for itself, based on its own unique situation and the perspectives of its leaders” (DeLong, 2004, p. 235).

Following this review, the research questions posed by the current endeavor were reexamined in an effort to subsequently develop metrics by which to collect appropriate and relevant data. What tools were successfully used in the private and public arenas that were in place or needed within Dallas Fire-Rescue? How could institutional knowledge be measured and tracked in DFR, in light of Peña’s (2013) account of the lack of metrics to quantify the value of that knowledge? How is turnover affecting our institutional knowledge and how can DFR respond strategically? The literature review produced a collection of data to support the

detrimental effects of knowledge loss, especially within the public sector (Daghfous, et al., 2013; Kochanowski, 2011; Massingham, 2008; Wiseman, 2014). That body of information, gathered in the initial stage of this project, guided the design of the data gathering instruments and influenced the specific direction of research that follows.

Procedures

The Dallas Fire-Rescue Department was faced with unknown levels of turnover-driven institutional knowledge loss and, as a result, unable to execute an organizational strategy to retain and transfer that institutional knowledge. Following the CAN report model, the research procedures were designed to report on existing conditions, examine the effectiveness of current action being taken, and conclude with a needs analysis to address the problem. In order to generate fresh and relevant data for the research questions posed by this project, the review of existing research guided the process extensively. To recapitulate, the purpose of this applied research project was to identify the presence and extent of institutional knowledge loss, as a function of staff position turnover, and determine an appropriate response based on those results. The literature review and personal communication with department leaders helped produce a better understanding of, and subsequently confirm, the presence of institutional knowledge loss. A disciplined and systematic deployment of two survey instruments then supported and quantified findings, used to further answer the research questions.

In evaluating the extent of institutional knowledge loss during staff position turnover, initial communication was made via e-mail dialogue with George Gamez, DFR Deputy Chief - EMS (see Appendix F). Ascertaining the presence of turnover-driven institutional knowledge loss was an important first step in answering this first research question and confirming the need to investigate at a deeper level. Chief Gamez was an appropriate source to consult, as his bureau

contains more than 40% of the total staff population. A semi-structured interview, conducted through e-mail, and follow-up communication with Gamez established the link between institutional knowledge loss (IKL) and turnover; this dialogue was an important initial step in shaping the research procedures that followed. Additional communication with Daniel Salazar, Assistant Chief - Technology and Personnel Support, Norman Seals, Assistant Chief - EMS, Charlie Salazar, Battalion Chief, and Molly Carroll, City of Dallas Director of Human Resources (HR) helped guide and direct the present research. The dialogue also provided additional support for research findings after the administration of the survey instruments. All communication and research took place between July of 2015 and April of 2016. Permission to reference names and cite from various sources was obtained.

The preponderance of descriptive research was subsequently provided through contact with 47 uniformed members of Dallas Fire-Rescue. To investigate the actual versus desired levels of knowledge retention within DFR's non-executive staff ranks, data was gathered from members assigned to those positions as well as their respective supervisors. These individuals provided direct and relevant information as to which knowledge management tools were currently being utilized and which were lacking. This endeavor necessitated the definition of two separate populations for deployment of two data gathering instruments, the design and execution of which is captured herein.

The first population, or *staff population*, was selected to include all members currently holding a non-executive, uniformed staff position within Dallas Fire-Rescue. This included members from all civil service ranks, or those below the deputy chief rank. The staff population was selected such that all subjects worked in bureaus under the jurisdiction of the current transfer policy and its required time commitment when assigned to a staff position (DFR Departmental

Directive No. 57, 2013). This was an important distinction in that members of this population had opportunities to transition in and out of emergency response roles, provided they satisfied the requirements of their assignments. This population was the main source of position turnover within DFR, and therefore the most relevant in studying and understanding the effects of turnover on institutional knowledge loss. This population also contained the positions impacted by the 2013 reduction in required staff assignment time, now subject to greater levels of turnover. The total staff population consisted of 58 subjects (see Appendix A). Specific contact information for individuals currently assigned to each position was obtained from the Dallas Fire-Rescue bureau roster located on the department intranet.

Despite the census sampling of staff positions meeting the inclusion criteria, certain exclusion criteria influenced the population selection and bear mentioning again for clarity. The staff population did not include uniformed members assigned to the Fire Prevention and Investigations Bureau (FP&I) and members serving in appointed positions within the command staff. Per the current Meet and Confer Agreement, separate job tracks are delineated that preclude uniformed members of FP&I from making lateral transfers into other DFR bureaus. Additionally, members in FP&I are not utilized to fill positions that are involved in fire suppression, rescue, emergency medical calls, or 911 dispatch, and do not transfer in and out of staff positions in the same manner as members in other bureaus. Members in the Emergency Medical Services (EMS) bureau who are part of the Mobile Community Healthcare Program (MHCP) team were excluded from the population, as these positions have not been assigned on an involuntary basis when vacancies exist, and do involve direct contact with citizens, albeit on a non-emergency basis. The exception is the MHCP staff lieutenant, and this position is included

in the staff population. All civilian positions were excluded from the population as well as all members from the Financial Services bureau.

The second population selected for study included all executive uniformed supervisors who had chain of command oversight for all 58 positions in the non-executive staff population. This group is referred to as the *executive population*. Included were five assistant chiefs and four deputy chiefs, all of whom had consistent interaction with the staff population that fell under their respective chains of command. Census sampling was again utilized, as the executive population included all members meeting the above criteria for executive supervisor. Executive level chief officers from the FP&I bureau were excluded, as were all civilian supervisors. Appendix A contains the distribution of the nine positions in the staff population, by bureau, shown in the right hand column.

The primary data gathering instruments for both populations consisted of two web-based surveys, which included a combination of open and closed-ended questions. Each of the two populations received a unique version, depending on their classification as staff or supervisor. The surveys were distributed directly to each subject in early 2016 via electronic mail (e-mail). The e-mail introduced the study, explained its purpose and relevance, presented instructions for completion, and provided a hypertext link to an online interface used to administer the instrument and collect results. Permission to contact each member was obtained from their respective chains of command prior to distribution of subject e-mails. Appendix B contains the staff survey questions and Appendix C contains the executive survey questions; both appendices include the verbiage of the introductory e-mails sent to each subject. In an effort to gather objective and honest responses, both populations were informed that no personally identifying information collected from their responses would be published.

The purpose in using these particular data gathering instruments (DGIs) was to allow for a census sample to be deployed in a targeted and efficient manner, soliciting as many responses as possible from populations that were asked to participate voluntarily. Recognizing that respondents are less likely to complete a longer survey than a shorter one guided the design and length of both surveys (Harvard, n.d.). The need to obtain as much data as possible was balanced by a desire to realize a high response rate. Each survey consisted of ten questions, the bulk of which were closed-ended. The Harvard University online resource on survey research and the Stanford University questionnaire design guide were used as references and guided the design of the two surveys (Harvard, n.d.; Vannette, 2014).

Due to the high number of staff personnel within the selected populations, Wednesday and Thursday were chosen as appropriate days to send out the survey e-mails. Personal observation and experience indicated that the start of the 5-day work week presented a heavier administrative workload and may have resulted in a reduced focus on attending to and completing a voluntary survey. This was supported by research obtained through survey marketing firm, Quintessential Marketing (Quinn, 2010). Follow-up e-mails were sent approximately one week after initial distribution to encourage participation and reduce nonresponse error. Survey completions were received for 42 of the 58 subjects in the staff population and 5 of the 9 subjects in the executive population. Table 1 lists the distribution of surveys by bureau for both populations, though respondent distribution by bureau was not available due to the anonymous nature of the instrument.

Table 1

Breakdown of DFR staff and executive populations contacted

Dallas Fire-Rescue Bureau	Staff positions	Executive positions
Administration and Emergency Response	1	1
Special Operations	9	2
Training and Support Services	17	2
Emergency Medical Services	24	2
Technology and Personnel Support	7	2
Fire Prevention and Investigation	n/a	n/a
Financial Services	n/a	n/a

Prior to dissemination of the instruments, survey pretesting was conducted with two former uniformed staff members, a former staff supervisor, and a civilian, unaffiliated with the fire service. Each was asked to provide feedback on both surveys. These four individuals were not part of the sample and were asked to identify confusing questions, identifiable biases, mistakes, or confusing wording. Minor feedback was incorporated into the final version of the surveys based on the pretesting. Descriptive statistics and measures of central tendency were used to present the data in a manageable form. The use of these tools was intended to summarize the findings in a clear and direct manner that related directly to each of the four research questions being studied.

Both surveys started by gathering descriptive summary data on the existing management of non-executive, uniformed staff positions in DFR. Respondents in both populations were asked to evaluate the need for improvement when dealing with transitions of members into and out of staff assignments. Respondents were provided a 5-point Likert scale that ranged from strongly agreeing to strongly disagreeing with the following statement: “As a department, there is room for improvement in how we transition members into and out of non-executive, uniformed staff positions.” Consequently, the executive survey sought to measure the perceived levels of IKL, as

a function of employee turnover, within *each supervisor's* bureau, *other* bureaus, and the *entire department*. A working definition of IKL was provided to survey recipients and a 5-point Likert scale was used to capture responses, ranging from very low IKL to very high IKL. Uniformed executives at the deputy chief and assistant chief levels were assumed to possess the subject matter expertise and qualification to answer this question by virtue of their tenure, rank, and implied experience. The average career length for the 9 members of the executive population was 28.9 years, as obtained by hire date information available on the DFR intranet. The data collection focus was intended to further uncover the extent of IKL during turnover within staff assignment, the first research question posed by this project. Likert scales were intentionally chosen for certain questions based on their utility in measuring respondent attitudes and the intensities of those attitudes (McLeod, 2008).

Thereafter, an attempt to quantify IKL was made by comparing the desired versus the actual levels of employee performance, as a function of elapsed time after initial assignment to the staff position. These questions were designed to address the second research question posed by the ARP and quantify IKL as observed by discernable job inefficiencies. Both the staff survey and the executive survey each devoted a pair of sequential questions to this effort. The first question in each pair asked how much time from initial assignment it *should* take the staff member to perform the duties of the position at levels that meet supervisor expectations. The second question in the set asked how much time is *actually required* to perform the staff job at that same level, again, from time of initial assignment. An identical time interval scale was provided on both pairs of questions from which respondents could answer. It was posited that a consistent discrepancy between the desired versus actual state would be an indicator of IKL.

The review of existing research and literature established a clear link between IKL and negative outcomes for a wide spectrum of public and private organizations. The literature also highlighted the use of numerous tools that were effective at preserving institutional knowledge, especially during position turnover. The present research sought to identify what tools are currently used to transfer institutional knowledge to uniformed staff personnel within DFR. It was also anticipated that this research question would identify what knowledge preservation tools were missing or could be utilized in greater capacities. Two questions in each survey were specifically designed to gather data to address this third research question. In the staff survey, respondents were presented a list of 12 common documented causes of IKL and asked to rate the prevalence of each when they transitioned into their staff assignment. A matrix-type question offered a 5-point Likert scale for each of the 12 IKL causes, and response choices ranged from very prevalent to not prevalent. Due to the complexity of this particular question, it is presented here in visual format as Figure 1.

7. Please describe to what degree you faced the following when transitioning into your staff assignment:

	Very prevalent	Somewhat prevalent	Prevalent	Minimally prevalent	Not prevalent
Lack of a defined transition road map	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Duplication of efforts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Confusion about role responsibilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Insufficient institutional/management support for your role	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Insufficient/inadequate training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Technology challenges, login problems, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of orientation program for the position	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of mentoring/shadowing during transition into role	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of motivation due to involuntary assignment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Challenges in managing civilian employees	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Schedule challenges after being on 24/48 schedule	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cultural differences when coming from Emergency Ops.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure 1. DFR staff survey question 7. Rating the prevalence of 12 documented causes of institutional knowledge loss.

The executive survey mimicked the staff survey for this particular question, but asked subjects to describe their perceived prevalence of the threats to institutional knowledge for subordinates assuming a new staff assignment.

The second question dedicated to discovering the availability of established knowledge preservation tools, as described in the current literature, asked staff subjects to identify which tools were made available when they transitioned into their staff assignment. The list of nine tools was compiled from relevant literature findings and direct communication with DFR leaders overseeing staff positions (CalTrans, 2012; NCHRP, 2015; Appendix F). Figure 2, below, shows

the visual layout of this question, as presented to staff survey respondents. Subjects were asked to evaluate each tool and state if it was offered or not offered.

9. Which of the following tools were available to help you transition into your current/former staff assignment?

	Offered	Not offered	N/A
Job shadowing / overlap with outgoing member	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Written road map / handbook (specific to the position)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Departmental SOP/MOP containing role responsibilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Verbal description of job duties	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Job orientation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Formal training program	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sponsorship of relevant certification(s)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Leadership/management training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Incentives or rewards	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure 2. DFR staff survey question 9. Describing the availability of knowledge management tools when transitioning into a staff position.

In a similar fashion, the list of knowledge management tools was presented to executive survey recipients, and respondents were asked to identify the best resources to help transition a member into a staff position, ranking the list of tools by degree of effectiveness.

The final research question sought to identify ways by which institutional knowledge could be preserved and grown within staff positions. Communication with DFR leadership and the existing body of literature helped address this research question. Further data was sought using survey questions that assessed best practices and described the tools needed for knowledge retention. Additional information was sought by asking respondents to provide open-ended responses to a group of questions. The staff population was provided an opportunity to give

feedback on how knowledge loss, inefficiencies, and duplication of efforts could be avoided or reduced when transitioning into their positions. They were also asked what would help improve the transition into their role. Executive survey respondents were provided an open-ended opportunity to provide additional comments, in an effort to capture additional information relevant to the research. Through keyword categorization, these qualitative responses were organized and reported.

It should be noted that many factors could have been exerting an influence on transitions into staff assignments and IKL, and a certain set of questions was designed to discover and describe those effects, and relate them to the questions posed by this research. In particular, a better understanding of the effect of the reduction in minimum staff time requirement was sought, as the literature described a direct linkage between increased turnover and institutional knowledge loss. This exploration was intended to provide data to support the deleterious effects of turnover on institutional knowledge and define the need for a knowledge management strategy, helping answer the fourth research question. A specific survey question was designed to explore this effect and asked executives to agree or disagree with the statement: “DFR’s ability to effectively manage critical staff positions is negatively impacted by contractual labor agreements.” A 5-point Likert scale was used in this question to measure respondent attitude and intensity. Immediately following, an open-ended question asked respondents to provide any additional comments that would help understand their position. The executive survey then asked respondents to rank a list of eight items in terms of their impact on staff assignments, from least detrimental to most detrimental. This list included items related to meet and confer clauses, involuntary assignment, and departmental policies, and is shown in Figure 3.

2. Various factors appear to affect our department when making staff assignments.

Please rank the following 8 items in terms of their impact on staff assignments (1 = *most* detrimental, 8 = *least* detrimental):

<input type="text"/>	Lack of departmental support for staff roles
<input type="text"/>	Cultural obstacles when transitioning from Emergency Operations to staff positions
<input type="text"/>	Involuntary assignments into staff roles; resentment and bad attitudes
<input type="text"/>	18 month staff rotation term (per labor agreements)
<input type="text"/>	Lack of training / succession planning prior to staff assignments
<input type="text"/>	Budgetary constraints / lack of funding
<input type="text"/>	Inability to appoint critical staff positions (per labor agreements)
<input type="text"/>	Lack of incentive / specialty pay for staff positions

Figure 3. DFR executive survey question 2. Supervisor rating of the effect of factors that impact staff assignments.

Finally, all members who received the staff survey were asked to state if their assignment to the position was voluntary or involuntary, as there may have been a relevant link between job motivation and IKL that could help answer the research questions and shape the findings of this project.

Various limitations of the present research could have influenced both the design of the DGIs as well as the results. This was a voluntary survey, made up of members of populations who self-selected into the survey. This could have resulted in a voluntary response bias, as the survey may have disproportionately captured DFR members with strong opinions, attitudes, or beliefs. Similarly, nonresponse bias may have influenced the survey findings, as each population contained subjects who did not complete the instrument. As a result of this nonresponse, selection bias in the form of undercoverage of the population may have occurred, especially if those who did not complete the survey held attitudes or beliefs that influenced their decision not

to respond. Nonresponse may have also occurred due to technological factors, such as spam filters intercepting survey distribution e-mails.

The executive and staff surveys were sent out at the first part of 2016, a period during which DFR was undergoing an intensive independent job analysis by an outside consultant. As part of that effort, the consultant had requested that all members of the department complete four separate job analysis questionnaires, each taking approximately one hour to complete. In addition, around that same time, the entire department was asked to complete a brief meet and confer survey in anticipation of contract negotiations. Survey fatigue may have posed a limitation to the current research, as the present investigation occurred in the midst of these other independent data gathering efforts.

Data was self-reported by survey respondents and not independently verified. Data collection was skewed toward internet users, as both survey instruments were administered through a web interface. Reliability may have been threatened as certain browsers on different platforms may have presented the questions in a different visual format to respondents. Certain terms may have been interpreted differently, despite pretesting of the survey. Recall bias may have influenced results, as those respondents serving in staff positions for longer periods of time may have had difficulty remembering specifics about the circumstances when first assigned to that position. In order to encourage honest survey responses, the decision was made to create a survey instrument that would maintain respondent anonymity. This posed a limitation, as follow-up data or clarification was not available from respondents. As a result, trends or groupings by bureau were also not available.

Extensive published literature from peer-reviewed and edited sources on institutional knowledge and the fire service was a final identified limitation, as data describing specific tools

for knowledge preservation and threats to institutional knowledge in the fire service was scarce. For purposes of the current research, it should be noted that this limitation was also part of the impetus for choosing to conduct the present research project.

Results

A combination of research, discourse, and systematic data collection provided impactful and relevant answers to the four research questions posed. Through discourse with four DFR executives, the Director of Human Resources for the City of Dallas, a studied analysis of existing research, and the deployment of two comprehensive survey instruments, each research question was methodically answered. Survey data was collected from 42 of the 58 staff subjects, yielding a response rate of 72%. The executive survey captured feedback from five of the nine subjects, providing a response rate of 56%.

The first research question sought to understand the extent of IKL when transitions occur within uniformed, non-executive staff positions in Dallas Fire-Rescue. Initial dialogue and research regarding the topic of IKL within DFR took place during the summer of 2015 between this researcher and Deputy Chief Gamez. Gamez described a specific set of challenges when asked about knowledge transfer during uniformed staff position turnover. He emphasized the need for additional training on management and administrative skills for members assigned to staff roles. He further stated that firefighters often have very little exposure to “subjects such as records retention, procurement, budgets, managing civilians and labor laws involved” when assigned to staff positions (G. Gamez, personal communication, July 13, 2015). This interview drew attention to the real consequences of increased turnover within DFR as a result of lowering the minimum staff requirement to 18 months. In particular, it was revealed that supervisors were faced with a greater challenge in maintaining continuity in staff assignments. “What we know in

staff is that it takes just over a year to . . . hit your groove and then it's over. This creates a roller-coaster effect with never any real consistency," explained Gamez (see Appendix F).

This guided a deeper investigation, as this researcher sought to explore additional perspectives and attitudes from additional department leaders. Subsequent feedback continued to confirm the presence of IKL, through qualitative discourse. "This is a very important project in my mind that we collectively, administration and the associations, need to address. The business side of departmental operations is too important to leave it all to chance," shared EMS Assistant Chief, Normal Seals (N. Seals, personal communication, March 21, 2016). Battalion Chief Charlie Salazar added, "I personally do not think 18 months is very efficient. It takes time to develop and enhance skill sets to be productive" (C. Salazar, personal communication, March 23, 2016).

To support this initial research, a more quantifiable measure of IKL was obtained, as supervisors in the executive survey were asked to rate the level of IKL during staff position turnover. For executive respondents, 80% indicated there was *high* loss of institutional knowledge when staff turnover occurred in their own bureaus, 80% stated there was *high* or *very high* turnover-driven IKL in other bureaus, and 80% stated there was *high* or *very high* IKL throughout the department when staff turnover occurred. Response choices for this question ranged from very low to very high on a 5-point scale.

In pursuing a better understanding of the manifestations of IKL, a metric of job performance was designed to explore the second research question. Survey recipients were prompted to think about the amount of time it *should* take and the amount of time it *actually* takes personnel in staff positions to function at levels that *meet* supervisor expectations. When asked how long it should take staff employees to be performing at this level, 20% of executives

responded “0-3 months,” 40% responded “3-6 months,” 20% responded “6-9 months”, and 20% responded “9-12 months.” By grouping the first three interval response categories, the results indicated that 60% of executives believed it should take staff members six months or less to perform at levels that meet supervisor expectations. In a follow-up survey question, executive respondents were then asked, based on their experience and observation, how much time was actually required for staff employees to perform at levels that met supervisor expectations. The same scale of time intervals was provided for both questions. This gap analysis revealed that the desired and the actual state were not aligned, as 100% of executive subjects stated that, based on their observation, it took “6-9 months” for employees to perform at levels that met supervisor expectations after initial assignment to the staff position. When presented together, results from both questions indicate that 60% of executives believed a basic level of proficiency should be attained within six months, yet 100% were reporting that it was taking between six and nine months. When looked at in terms of the minimum 18-month staff term, supervisors were stating that it was taking up to *half* of the minimum assignment term for employees to be performing at a basic level of proficiency in their role.

When a similar question was presented to the staff population, 31% of staff subjects indicated that it took between 6 and 18 months to reach a basic level of proficiency in their staff assignments. As part of this same time-interval question, a sixth open-ended response category was provided, labeled “Other (please specify).” Five subjects chose to write-in their responses, which included: “18-24 months”, “at least 2 years”, “18-24 months before I felt comfortable”, and “I felt completely lost for a year.”

To understand the current conditions and actions being taken to address IKL, the third research question sought to discover what tools were currently used to transfer institutional

knowledge to uniformed staff personnel. In reviewing the use of existing tools for knowledge transfer on a city-wide basis, the Director of HR for the City of Dallas was contacted. Through this communication, it was determined that no existing processes or tools were designed to retain and transfer institutional knowledge to uniformed personnel. Despite the use of a position description workbook for civilian purposes, similar efforts had not been deployed in the fire department (M. Carroll, personal communication, April 17, 2016).

Based on a cataloging of best practices and common resources for knowledge management and retention revealed through the review of literature, an inventory of nine knowledge management tools was created. When asked to evaluate the list, for seven of the nine tools, the majority of staff respondents indicated that the tool was *not offered* as a resource to help transition into their assignment. Results are presented in Figure 4 below, highlighting categories in which the majority of respondents said the tools were not offered.

Which of the following tools were available to help you transition into your current/former staff assignment?				
Answer Options	Offered	Not offered	N/A	Response Count
Job shadowing / overlap with outgoing member	24	13	5	42
Written road map / handbook (specific to the position)	11	26	5	42
Departmental SOP/MOP containing role responsibilities	18	20	4	42
Verbal description of job duties	32	9	1	42
Job orientation	16	21	5	42
Formal training program	10	28	4	42
Sponsorship of relevant certification(s)	12	23	7	42
Leadership/management training	9	28	5	42
Incentives or rewards	10	26	6	42

Figure 4. Results from DFR staff survey question 9. In seven of nine categories, the majority of respondents indicated the resource was not offered when transitioning into their assignment.

Understanding and minimizing the causes of IKL was an important part of the current research. In addressing the final research question of how institutional knowledge could be preserved and grown within staff positions, it was important to understand the threats and challenges to the preservation of that knowledge. A list of 12 threats to institutional knowledge

was provided to both staff and executive survey respondents, compiled through existing literature and departmental subject matter experts. Participants were then asked to rate the prevalence of each when transitioning into staff assignments, using a 5-point scale that ranged from not prevalent to very prevalent. The following figure depicts the percentage of each population that rated the prevalence of those threats as somewhat prevalent, prevalent, or very prevalent.

Respondents who stated <i>Somewhat Prevalent</i> , <i>Prevalent</i> , or <i>Very Prevalent</i>		
Challenges to Knowledge Retention	Executive	Staff
Lack of a defined transition road map	80%	76%
Duplication of efforts	80%	60%
Confusion about role responsibilities	60%	59%
Insufficient institutional/management support for your role	60%	69%
Insufficient/inadequate training	80%	74%
Technology challenges, login problems, etc.	100%	63%
Lack of orientation program for the position	80%	76%
Lack of mentoring/shadowing during transition into role	80%	69%
Lack of motivation due to involuntary assignment	100%	27%
Challenges in managing civilian employees	80%	38%
Schedule challenges after being on 24/48 schedule	100%	44%
Cultural differences when coming from Emergency Ops.	100%	55%

Figure 5. Results from DFR staff and executive surveys on questions about knowledge threats. The prevalence of challenges to knowledge retention is captured across both populations.

Additional challenges to knowledge preservation were explored by asking executives to rank a list of eight obstacles that affected the department when making staff assignments. Respondents indicated that the reduced 18-month staff rotation term and the inability to appoint members to critical staff positions were the most detrimental factors. These were followed by cultural challenges when transitioning from emergency operations to staff assignments and resentment from members who were involuntarily assigned to staff positions. A related, yet different question was asked of staff subjects, to determine how many had been assigned to their position involuntarily. Only 50% of staff respondents indicated that they were in their position

from a purely voluntary standpoint. Executives attitudes were obtained regarding the effect of meet and confer parameters on staff assignments. Respondents were asked to agree or disagree with a statement indicating that DFR's ability to effectively manage critical staff positions was negatively impacted by contractual labor agreements. A full 60% of executives agreed or strongly agreed and 40% responded by maintaining a neutral position. No respondents disagreed with the statement. In continuing to research turnover as a cause of IKL, both populations were asked to express their attitudes regarding turnover in DFR. When asked to evaluate if there was room for improvement in how the department transitions members into and out of staff assignments, 100% of staff and executive respondents stated that they agreed or strongly agreed that the department could do a better job at managing turnover.

In defining the best resources for knowledge transfer within DFR, executives were asked to rank a list of tools in terms of effectiveness. Respondents indicated that the five most effective knowledge management tools consisted of formal training programs, job orientation, job shadowing, written road maps, and a verbal description of job duties. Personal communication with DFR Assistant Chief Daniel Salazar assisted in the effort to describe ways in which institutional knowledge could be preserved and grown (personal communication, April 15, 2016). In his tenure with DFR, Salazar has been responsible for increasing levels of personnel management, including oversight of fire department human resources and oversight of the DFR training program. His feedback included the following:

- Send newly transferred employees to a series of classes which can enhance their work in an office and staff environment. Include organization, time management, and written and oral communication development.

- Ensure that the incumbent staff member is appropriately cataloguing electronic information in a systematic and understandable manner for access by their successors.
- Major projects and initiatives should involve multiple officers within a staff assignment arena so that overlap in knowledge allows for better knowledge transfer.
- Ensure overlap between assignments. Obtain departmental support of time away from a member's current assignment in order to shadow under the person whose position they will be assuming.
- Certain staff positions should entail a screening process. For example, failure to screen hinders efficient handling off 911 calls by those who would have initially failed screening tests.
- Address the existence of prolonged vacancies, especially when a member in a position does not intend to return to work, yet still holds the position.

Finally, through a series of open-ended questions, qualitative narrative data was collected from survey respondents, which provided substantial findings. Using keyword categorization, staff respondents allowed for discernible identification of data trends when providing feedback on ways to reduce knowledge loss when assigned to staff positions. Of the 39 staff respondents who provided narrative responses, the following groupings were observed: 33% of respondents asked for additional training to reduce IKL, 41% of respondents stated that a road map or detailed job description would help reduce knowledge loss, and 26% of staff members indicated that job shadowing and overlap would be beneficial in this effort. Narrative responses from executives highlighted the limitations posed by the 18-month staff requirement and the inability to plan strategically in filling these assignments. For the first time, a documented and comprehensive

collection of data could support the presence and magnitude of institutional knowledge loss resulting from non-executive staff position turnover in Dallas Fire-Rescue. The current research efforts and resultant findings met with success in addressing the research questions.

Discussion

Through this research, a systematic and disciplined assessment was made of the conditions, actions, and needs for institutional knowledge management within DFR. This ARP allowed for the quantification of institutional knowledge loss as members were assigned to staff positions in DFR. By collecting and analyzing responses provided by the actual employees assigned to these positions, as well as their chain of command supervisors, a gap analysis quantified and described significant organizational vulnerabilities and inefficiencies. Up until now, this has resulted in the inability to formulate a strategic plan to preserve institutional knowledge. This analysis will provide opportunities to develop new strategies and allow DFR the best chance of success, as Wallace (2006) describes.

IKL was quantified through various metrics, from both a staff member perspective as well as a supervisor vantage point. Findings were evidenced in the comparison of actual levels and desired levels of employee performance after the initial period following assignment into staff positions. The lack of consistent use of established knowledge retention tools as well as significant impediments in the preservation of institutional knowledge was reported firsthand by 72% of the staff members currently assigned to these positions. Yet these discoveries, while sobering on paper, offer a tremendous opportunity to plan strategically for future success. Metrics to measure IKL were reported to be rare within existing organizations (Peña, 2013). It is hoped that this research can not only add to the field of institutional knowledge management, but specifically to its application within the fire service.

Surveying those currently assigned to staff positions sought to identify what tools, if any, are currently used to integrate members into new staff roles and transfer institutional knowledge to the employee assuming the position. This investigation identified significant shortcomings in existing practices. These efforts can provide future opportunities for targeted solutions to reduce institutional knowledge loss. In addition to survey responses, communication with departmental and city leaders proved extremely valuable. These individuals had witnessed the problem and described it anecdotally for many years. The gathering of data presented an interesting situation, as the very individuals asked to complete the executive surveys are also the ones who will help shape and implement future policies to address IKL. These executives also face the challenge of reconciling employee association and meet and confer agreement constraints with departmental efficiency and future success. Notwithstanding, this research affords a new perspective and will hopefully guide new processes and strategies to reduce institutional knowledge loss on a department-wide level.

Literature revealed in great detail the harmful effects of employee turnover on an organization (Daghfous, et al., 2013; Field, 2003; Parise, et al., 2006). The body of research also identified IKL as a destructive force within virtually all types of organizations (DeLong, 2004; Massingham, 2008; Peña, 2013). These harms are important to revisit, as the option of doing nothing must now be treated as a more significant threat. The aggregate mission, values, and purpose of DFR were together combined as a desire to reach the goal of consistently exceeding expectations while delivering services in the most effective manner (DFR MOP, 2015, sec. 100.01, 100.03, & 100.05). This holistic charge must be weighed against the threats, old and new, that can undermine its success (Wallace, 2006). This mission must now be evaluated against the threats to institutional knowledge.

A significant limitation of the present research was the unilateral focus on reducing the causes of IKL and not those of employee turnover. Clearly, the research indicated that the reduction in the staff requirement from 30 to 18 months has impacted DFR. This is supported by both quantitative and qualitative results. It is incumbent on future research to examine ways to reduce this turnover, as present efforts have now drawn focus to its harmful effects. The ability to grow a pipeline of future talent is made easier when it does not need to be replaced so frequently (Garman & Glawe, 2004). As the GAO data explained, the failure to address turnover will have significant consequences (2014). The threat of weak succession planning across many organizations and industries only serves to heighten the urgency behind this need (Kochanowski, 2011).

Current research focused on the individuals assigned to staff positions and their supervisors. Additional data from those members occupying former staff positions would have added an additional level of understanding to the existing research. Much attention was given to the forces at play when a member transitions into a staff position. Yet former staff members could provide insight into the mechanisms occurring during the transition out of staff positions. What tools were in place to capture knowledge from the departing employee, whether formal or less structured? Has there been a corresponding increase in IKL since the 2013 transfer policy modification? A historical study could help answer these questions.

As the modern fire service continues to evolve, with a greater need for technical expertise in a multitude of staff and administrative roles, it is clear that a new paradigm for knowledge management must unfold within DFR and other departments (Neely, 2000; USFA, n.d.; Wallace, 1998). As Revere emphasized, the transmission of knowledge “is one of the best ways to invest in the future of our fire service organizations” (2011, para. 13). Having identified weaknesses

and limitations in the current management of institutional knowledge, through this ARP, there is no excuse for inaction. The IAFC is clear in its charge to invest more in the professional development of future fire service leaders (2010). Taking a proactive approach based on data-driven research will surely be preferable to the myriad consequences of IKL described in the body of literature. The time to act is now.

Recommendations

In its Strategic Plan for fiscal 2008-10, Dallas Fire-Rescue identified a list of top leadership issues in its management competency analysis. Among these were the existence of gatekeepers versus change agents, a lack of mentoring programs, no attention to succession planning, and challenges resulting from responsibility changes and learning curves associated with such (DFR Strategic Plan FY08-10, 2009). The management issues reported nearly seven years ago remain visible in the current research findings. But shedding light on these persistent problems is only a first step. The CAN report does not put out the fire; the deployment of strategies and tactics must follow.

The following recommendations have been formulated through a targeted focus on current departmental conditions, a thorough evaluation of actions that have been taken, and a studied and data-driven needs analysis. They are intended to address and reduce institutional knowledge loss in the Dallas Fire-Rescue Department and plan for future success.

- Communicate the current research findings and implications, allowing for wide consumption by DFR and city leadership. In doing so, enlist participation of key internal and external stakeholders to leverage expertise, organizational support, and potential need for fiscal backing and resource allocation.

- Assign responsibility to one individual per bureau to serve as Chief Knowledge Officer. Immediately implement the targeted use of cost-neutral knowledge preservation tools, as identified in this research.
- Establish benchmarks to measure and track institutional knowledge retention as a result of tool deployment.
- Determine appropriateness of a department-wide knowledge management strategy through collaboration with leaders and managers in all DFR bureaus. Refer to CalTrans knowledge transfer guidebook, which successfully assisted in deployment of a similar large-scale effort.
- Consider the effects of staff position turnover, per research findings, and develop mechanism to reduce turnover using a reward model instead of the existing punitive model that often forces those scoring lowest on promotional exams into some of DFR's most important positions.
- Re-evaluate current Work Location Assignment policy for making assignments to critical staff positions. Consider excluding the majority of non-executive staff positions from the traditional bid process.
- Evaluate the creation of a team to appoint non-executive staff positions, comprised of DFR leadership. Include representatives from each employee association.
- DFR command staff should collaborate with current employee association leaders and meet and confer representatives to evaluate the current minimum staff assignment period. Discuss the effects of the reduction in staff time assignment presented herein, as well as the mechanisms that brought about that reduction. Re-evaluate prior to meet and confer contract expiration in September 2016.

- Share the findings of these efforts at 6 and 12 month intervals with other fire service leaders and executive fire officer colleagues.

These strategies are dependent on the support of department leadership and it is hoped that a progressive and open-minded approach will guide their deployment.

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Appendix A

Uniformed Staff Assignments by Bureau, with non-executive ranks in left hand column

Administration and Emergency Response Bureau	
Administrative Section Chief	Executive Assistant Chief
Special Operations Bureau	
Section Chief	Assistant Chief
US&R Program Manager – Captain	Deputy Chief
US&R Training – Captain	
Logistic Manager – Lieutenant	
Logistic Specialist – Lieutenant	
Hazmat Program Manager – Captain	
Hazmat Assistant Manager – Lieutenant	
ARFF Section Chief	
ARFF Training Coordinator – Captain	
Training and Support Services Bureau	
Section Chief/Safety Officer	Assistant Chief
In-Service Training – Lieutenant (2)	Deputy Chief
SCBA Coordinator – Lieutenant	
Wellness Fitness Coordinator – Captain	
Training Academy – Captain	
Training Academy – Lieutenant (6)	
Recruiting – Captain	
Recruiting – Lieutenant	
Recruiting – Driver-Engineer	
Recruiting – Fire-Rescue Officer	
Facility Planning – Lieutenant	
Emergency Medical Services Bureau	
Section Chief	Assistant Chief
EMS Training Coordinator – Captain	Deputy Chief
EMS Training Liaison – Fire-Rescue Officer	
EMS Administrative – Captain	
EPCR Coordinator – Captain	
Quality Improvement/Quality Assur. – Captain	
Administrative Lieutenant	
EMS Staff Lieutenant	
EMS Shift Captain	
EMS Special Events Captain	
EMS Special Events Lieutenant	

EMS Field Supervisor – Lieutenant (12)	
Mobile Community Healthcare – Lieutenant	
Technology and Personnel Support Bureau	
Support Operations – Captain	Assistant Chief
CAD Coordinator/GIS	Deputy Chief
Training Officer	
Tech Support – Lieutenant	
Pre-Fire Plans – Section Chief	
GIS Coordinator – Lieutenant	
GIS Team Member	

Appendix B

Staff Survey with Sample Introductory E-mail

Dear Lieutenant _____,

As part of my National Fire Academy coursework, I'm looking at how effective DFR is when transitioning members into and out of staff positions. Since you currently hold or have recently been in a staff position, your feedback would be extremely helpful in understanding the best practices and challenges DFR has when making staff assignments. The goal of this project is not only to gain a better understanding of how the department handles these assignments, but to use the data to provide the best resources for members in these critical roles. A brief, 10 question survey has been created to gather relevant information. All responses will remain completely confidential and no personally identifying information will be used.

I'd be grateful if you could spend a few minutes on this and look forward to sharing the results when finished with the project.

<https://www.surveymonkey.com/r/JV29JZX>

Thank you,

Cristian Hinojosa

Dallas Fire-Rescue

DFR Staff Assignments & Institutional Knowledge

Thank you for taking a few minutes to answer this brief survey. You have been identified as holding a current or former assignment to a non-executive staff position. Your responses are particularly useful in gaining a better understanding of how effective our organization is at transitioning members into and out of these staff assignments.

The goal of this project is to identify and address how we manage institutional knowledge during transitions within staff positions. This research will also seek to identify best practices that are currently in place and provide recommendations on how to leverage these successes in future assignments.

While your answers to this survey will be used in aggregate to help understand how staff assignments affect institutional knowledge, your responses will remain confidential and no personally identifying information will be reported. Again, thank you for your time in answering the following 10 questions.

As you reply to the following questions, please refer to the staff position in which you are currently assigned or the staff position you formerly held.

1. Please evaluate the following statement:

As a department, there is room for improvement in how we transition members into and out of non-executive, uniformed staff positions.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

2. What is/was your rank while serving in your most recent staff assignment?

3. Was your assignment into your staff position

- Voluntary
- Voluntary, *in order to avoid a less desirable position*
- Involuntary
- Other (please specify)

4. Once assigned, how prepared were you to perform at a level of full proficiency in your staff position at *each* time interval listed below?

	Not prepared	25% prepared	50% prepared	75% prepared	Fully prepared / full proficiency
One week	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
One month	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Six months	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Twelve months	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Eighteen months	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. In your opinion, how much time *should* it take for someone to be performing the job duties of your current/former staff position at levels that **meet** supervisors' expectations?

- 0 - 3 months
- 3 - 6 months
- 6 - 9 months
- 9 - 12 months
- 12 - 18 months
- Other (please specify)

6. How much time is/was actually required to be performing the job duties of this position at levels that **meet** supervisors' expectations?

- 0 - 3 months
- 3 - 6 months
- 6 - 9 months
- 9 - 12 months
- 12 - 18 months
- Other (please specify)

7. Please describe to what degree you faced the following when transitioning into your staff assignment:

	Very prevalent	Somewhat prevalent	Prevalent	Minimally prevalent	Not prevalent
Lack of a defined transition road map	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Duplication of efforts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Confusion about role responsibilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Insufficient institutional/management support for your role	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Insufficient/inadequate training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Technology challenges, login problems, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of orientation program for the position	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of mentoring/shadowing during transition into role	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of motivation due to involuntary assignment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Challenges in managing civilian employees	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Schedule challenges after being on 24/48 schedule	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cultural differences when coming from Emergency Ops.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8. How can knowledge loss, inefficiencies, and duplication of efforts be avoided or reduced when members enter into the staff position you are/were assigned to? Please provide as much information as possible.

9. Which of the following tools were available to help you transition into your current/former staff assignment?

	Offered	Not offered	N/A
Job shadowing / overlap with outgoing member	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Written road map / handbook (specific to the position)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Departmental SOP/MOP containing role responsibilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Verbal description of job duties	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Job orientation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Formal training program	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sponsorship of relevant certification(s)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Leadership/management training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Incentives or rewards	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

10. What would help improve the transition into the staff position you are/were assigned to?

Appendix C

Executive Survey with Sample Introductory E-mail

Dear Chief _____,

As you know from our recent discussions, part of my National Fire Academy coursework involves looking at how effective DFR is when transitioning members into and out of staff positions. Since you currently oversee many of these positions as an Executive, your perspective would be extremely helpful in understanding the best practices and challenges DFR has when making staff assignments. The goal of this project is not only to gain a better understanding of how the department handles these assignments, but to use the data to provide the best resources for members in these critical roles. A brief, 10 question survey has been created to gather relevant information. All responses will remain completely confidential and no personally identifying information will be asked or used.

I'd be grateful if you wouldn't mind spending a few minutes on this and look forward to sharing the results when finished with the project.

<http://bit.do/institutional-knowledge-survey2>

Thank you,

Cristian Hinojosa

Dallas Fire-Rescue

DFR Staff Assignments & Institutional Knowledge - Executive Survey

Thank you for taking a few minutes to answer this brief survey. You have been identified as holding an executive leadership role that oversees critical staff positions. Your responses are particularly useful in gaining a better understanding of how effective our organization is at transitioning members into and out of these staff assignments.

The goal of this project is to identify and address how we manage institutional knowledge during transitions within staff positions. This research will also seek to identify best practices that are currently in place and provide recommendations on how to leverage these successes in future assignments.

While your answers to this survey will be used in aggregate to help understand how staff assignments affect institutional knowledge, your responses will remain confidential and no personally identifying information will be reported. Again, thank you for your time in answering the following 10 questions.

As you reply to the survey questions, please refer to the non-executive uniformed staff positions within your Bureau.

1. Please evaluate the following statement:

As a department, there is room for improvement in how we transition members into and out of non-executive, uniformed staff positions.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

2. Various factors appear to affect our department when making staff assignments.

Please rank the following 8 items in terms of their impact on staff assignments (1 = *most* detrimental, 8 = *least* detrimental):

<input type="text"/>	<input type="text"/>	Lack of departmental support for staff roles
<input type="text"/>	<input type="text"/>	Cultural obstacles when transitioning from Emergency Operations to staff positions
<input type="text"/>	<input type="text"/>	Involuntary assignments into staff roles; resentment and bad attitudes
<input type="text"/>	<input type="text"/>	18 month staff rotation term (per labor agreements)
<input type="text"/>	<input type="text"/>	Lack of training / succession planning prior to staff assignments
<input type="text"/>	<input type="text"/>	Budgetary constraints / lack of funding
<input type="text"/>	<input type="text"/>	Inability to appoint critical staff positions (per labor agreements)
<input type="text"/>	<input type="text"/>	Lack of incentive / specialty pay for staff positions

3. **Institutional knowledge loss**, related to employee turnover, has been described as the loss that occurs when *departing employees take with them subject-matter expertise, routines explaining why decisions are made, awareness about work practices and routines and knowledge about the organization's failures and successes.*

Based on your perception and experience, please rate the level of institutional knowledge loss in each group, when staff turnover occurs:

	VERY LOW loss of instit. knowledge	LOW loss of instit. knowledge	MODERATE loss of instit. knowledge	HIGH loss of instit. knowledge	VERY HIGH loss of instit. knowledge
Your bureau	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other bureaus	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The entire department	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4. In your opinion, how much time from initial assignment ***should*** it take for a uniformed staff employee to be performing at levels that **meet** supervisors' expectations?

- 0 - 3 months
- 3 - 6 months
- 6 - 9 months
- 9 - 12 months
- 12 - 18 months
- Other (please specify)

5. Based on your experience and observation, generally how much time from initial assignment ***is actually required*** for uniformed staff employees to be performing their job duties at levels that **meet** supervisors' expectations?

- 0 - 3 months
- 3 - 6 months
- 6 - 9 months
- 9 - 12 months
- 12 - 18 months
- Other (please specify)

6. In thinking about DFR as a whole, please describe the prevalence of the following phenomena when members begin a staff rotation:

	Very prevalent	Somewhat prevalent	Prevalent	Minimally prevalent	Not prevalent
Lack of a defined transition road map	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Duplication of efforts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Confusion about role responsibilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Insufficient institutional/management support for your role	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Insufficient/inadequate training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Technology challenges, login problems, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of orientation program for the position	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of mentoring/shadowing during transition into role	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of motivation due to involuntary assignment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Challenges in managing civilian employees	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Schedule challenges after being on 24/48 schedule	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cultural differences when coming from Emergency Ops.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

7. As you think about the best resources to help transition a member into a staff position, please rank the the following list in terms of effectiveness (1 = most effective, 10 = least effective):

<input type="text"/>	Job shadowing / overlap with outgoing member
<input type="text"/>	Written road map / handbook (specific to the position)
<input type="text"/>	Departmental SOP/MOP containing role responsibilities
<input type="text"/>	Verbal description of job duties
<input type="text"/>	Job orientation
<input type="text"/>	Formal training program
<input type="text"/>	Sponsorship of relevant certification(s)
<input type="text"/>	Modifying departmental policies
<input type="text"/>	Leadership/management training
<input type="text"/>	Incentives or rewards

8. Please consider the following statement:

DFR's ability to effectively manage critical staff positions is negatively impacted by contractual labor agreements.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

9. In thinking about your previous answer, please provide any comments that help understand your position.

10. Thank you for taking the time to complete this survey.

Optional: Please provide any additional comments that you feel are relevant to this project.

Appendix D

Staff Survey Results, Raw Data

DFR Staff Assignments & Institutional Knowledge

1. Please evaluate the following statement: As a department, there is room for improvement in how we transition members into and out of non-executive, uniformed staff positions.

Answer Options	Response Percent	Response Count
Strongly Agree	75.6%	31
Agree	24.4%	10
Neutral	0.0%	0
Disagree	0.0%	0
Strongly Disagree	0.0%	0
<i>answered question</i>		41
<i>skipped question</i>		1

2. What is/was your rank while serving in your most recent staff assignment?

Answer Options	Response Percent	Response Count
Fire-Rescue Officer	7.1%	3
Fire-Rescue Officer (Special Operations)	0.0%	0
Driver-Engineer	2.4%	1
Driver-Engineer (Special Operations)	0.0%	0
Lieutenant	42.9%	18
Lieutenant (Special Operations)	9.5%	4
Captain	19.0%	8
Captain (Special Operations)	7.1%	3
Battalion / Section Chief	4.8%	2
Battalion / Section Chief (Special Operations)	7.1%	3
<i>answered question</i>		42
<i>skipped question</i>		0

3. Was your assignment into your staff position

Answer Options	Response Percent	Response Count
Voluntary	50.0%	21
Voluntary, in order to avoid a less desirable position	23.8%	10
Involuntary	21.4%	9
Other (please specify)	4.8%	2
<i>answered question</i>		42
<i>skipped question</i>		0

Number	Other (please specify)
1	Volunteered due to the involuntary process that was going to draft me.
2	Chief XXXX forced into this position

4. Once assigned, how prepared were you to perform at a level of full proficiency in your staff position at each time interval listed below?

Answer Options	Not prepared	25% prepared	50% prepared	75% prepared	Fully prepared / full proficiency	Response Count
One week	25	6	7	2	0	40
One month	12	11	9	7	2	41
Six months	1	7	10	11	8	37
Twelve months	1	0	9	7	20	37
Eighteen months	1	0	3	5	23	32
<i>answered question</i>						42
<i>skipped question</i>						0

5. In your opinion, how much time should it take for someone to be performing the job duties of

Answer Options	Response Percent	Response Count
0 - 3 months	23.8%	10
3 - 6 months	26.2%	11
6 - 9 months	11.9%	5
9 - 12 months	14.3%	6
12 - 18 months	11.9%	5
Other (please specify)	11.9%	5
<i>answered question</i>		42
<i>skipped question</i>		0

Number	Other (please specify)
1	As an Ems lieutenant you may not encounter all aspects of what is required for the job title. If a person coming to this position has been a back up then it would help with the transition and the time frame to meet the supervisors' expectations can be meet a lot sooner. On average I would give the 3-6 month mark for someone to get where they know their job, have a routine, and can meet the expectations of the position.
2	18-24 months
3	It varies depending on position mine at least 2 yrs
4	it took 18-24 months before I felt comfortable.
5	This staff assignment requires a level of expertise in Hazardous Materials that I did not fully understand when I volunteered. I had been out of Hazmat for 22 years when I got back in. I felt completely lost for a year. I am now beginning to experience a level of confidence in the position that I believe I should have. This position, in my opinion, should be by application and interview process. I also believe the person should have 3-5 years of field experience.

6. How much time is/was actually required to be performing the job duties of this position at levels that meet supervisors' expectations?

Answer Options	Response Percent	Response Count
0 - 3 months	33.3%	14
3 - 6 months	21.4%	9
6 - 9 months	9.5%	4
9 - 12 months	14.3%	6
12 - 18 months	7.1%	3
Other (please specify)	14.3%	6
answered question		42
skipped question		0

Number	Other (please specify)
1	Duties are evolving,
2	Again this is based on if the person was a back-up prior or wanted this position and has a vested interest in the position. If it was someone who is placed in the position because they have to serve a staff position then it could take anywhere from the 3 to 9 month mark based on their own desire to do the job.
3	2 years
4	there was no set limit
5	It depends on the amount of experience the individual has.
6	I have never been given an expected time frame

7. Please describe to what degree you faced the following when transitioning into your staff assignment:

Answer Options	Very prevalent	Somewhat prevalent	Prevalent	Minimally prevalent	Not prevalent	Response Count
Lack of a defined transition road map	17	11	4	5	5	42
Duplication of efforts	6	14	5	6	11	42
Confusion about role responsibilities	8	14	2	9	8	41
Insufficient institutional/management support for your role	7	13	9	4	9	42
Insufficient/inadequate training	13	8	10	7	4	42
Technology challenges, login problems, etc.	10	8	8	8	7	41
Lack of orientation program for the position	13	11	7	8	3	42
Lack of mentoring/shadowing during transition into role	13	11	5	6	7	42
Lack of motivation due to involuntary assignment	2	3	6	4	26	41
Challenges in managing civilian employees	4	6	6	5	21	42
Schedule challenges after being on 24/48 schedule	9	4	5	5	18	41
Cultural differences when coming from Emergency Ops.	9	7	7	9	10	42

answered question: 42

skipped question: 0

8. How can knowledge loss, inefficiencies, and duplication of efforts be avoided or reduced when members enter into the staff position you are/were assigned to? Please provide as much information as possible.

Answer Options	Response Count
	39
<i>answered question</i>	39
<i>skipped question</i>	3

Number	Response Text
1	Difficult to define due to the vast differences in work duties/responsibilities in every staff position. Sp. Ops, EMS, Training, Comms.....all very different circumstances
2	development of an accurate job description, and greater support from the organization on whole. Most staff assignments w/in DFR are operating beyond capacity so true proficiency is lost due to division of focus.
3	A clearly defined role that is executed across the board between shifts with room to go above and beyond, but it should be a universal method.
4	Members should be pre-screened and identified with current abilities and/or interest/passion that will benefit the department in various assignments and roles. mentoring /shadowing. members should be technological savvy. creating road maps, setting and achieving goals/objectives
5	By providing an outline of the knowledge base required for the position with as much current material as possible.
6	Make relevant certifications' training available once assigned. Budget for at least 1 month of dual assignment to learn from predecessor.
7	More training from the office work perspective i.e. word processing, spreadsheets, asset management, performance management skills
8	More MOP/SOP detailing job description.
9	Each position should have a weekly snapshot (not job description) which each person has to write once for the new guy to review prior to taking the position. After 2-3 people have written down their experiences over time we have a volume of information dating back a few years on how they performed their job.
10	unsure. possibly a transition time of the new(coming in) being trained and brought up to date by the old(going out) instead of just moving and learning on the fly or trying to figure out what notes were left about what needed to be taken care of.
11	There should be a mentoring/cross training program for any new position, especially into a staff position. On my second staff job, very similar experience.
12	By have a program in place that was consistent with informative and educational information to help the member assume their new role.
13	There must be a training booklet along with spending time with the person that is leaving the position, in order to have a more seem less transition for the new staff member.
14	Good communication between all team members and solving problems and questions as a team.
15	Utilize specific skills in the Dept instead of placing people into positions and receiving "on the job training"
16	Tell the friggin higher ups that more instructors not LESS INSTRUCTORS are needed if we intend to keep churning through 100 recruits per year. Competent support from immediate chain of command would be nice. training time left for training and not for dog and pony shows.
17	All positions need a battle book. This will help new members understand their new positions quicker.
18	By having an orientation for the position, proper training, and shadowing.
19	came into position during technology improvements, confusion during changes but vastly improved now. still can be improved more with technology assistance
20	All members that are being transitioned into staff assignments from emergency operations, should all go through a minimum 1 week orientation. Not an 8 hour per day orientation but at least 4 hours, so the member may be informed of all responsibilities of their new role.

21	understanding other positions/responsibilities...thus, knowing if the task is yours our another's responsibility or expertise
22	Having clear defined roles and responsibilities of position and adherence to the chain of command. By having a detailed notebook already made of what you do from day to day. Special Events is very different from other staff
23	positions. It is a 7 day work week. Monday, Tuesday, Wednesday, Thursday preparing and Friday, Saturday and Sunday actually performing your duties at the event.
24	As a minimum, I would need to train a replacement at least 2 months prior to departure. The reality is that I will probably have 2 weeks at the most to train my replacement. There are no dual-trained officers to seek guidance from once I'm gone. The current DFD workplace assignment process often increases inefficiency as it relates to who is assigned to staff positions.
25	Individual's knowledge, skills and abilities are currently not being assessed as part of the selection of staff personnel. Instead, the department hides behind a meet & confer document intended to promote fairness in workplace assignment, but at a significant cost. Fair does not equal effective & efficient.
26	The person prior to me left a "Battle Book" which was about 20 pages long and covered many of the smaller details of my position which are easily forgotten, such as login procedures for the IDS calendar, voicemail codes, call forwarding procedures, report formats, etc. This was very helpful and reduced the amount of times I needed to contact the previous position holder.
27	They don't train you in rookie school for this stuff. To think that because someone has used rote memorization to pass a completely irrelevant civil service exam, that they will be a competent administrator is beyond ludicrous. As long as staff positions are something that people are forced into for 18 months then recycled to the field, we will continue to see profound mismanagement. Staff positions should be incentivized so that people are motivated to compete for these positions and, having attained them, want to stay in them. Additionally, the selection process should be merit based. Meet & Confer is killing us by letting those with the most time in rank acquire any position they want instead of the fire chief choosing the best qualified (I know he has the option, but he doesn't exercise it). Regarding training staff officers, the only thing worse than training your people and losing them is not training them and keeping them. Anyone assigned to a staff position should have carte blanche to attend any and all training available. If you're not in a 'minimum staffing' position, it costs no OVT, and registration and travel expenses are minor compared to the OVT required to send an Ops person to training. Plus, one of our big issues is that DFR is far too insular. We need our guys networking with others, so that is a great fringe benefit to sending our guys to training/seminars/conferences. SOP's for each position should be mandatory and I created a detailed 'Battle Book' for the 815 position and encouraged everyone in SpOps to do the same for their position. I am now doing the same for the 893 position. My philosophy has always been that if I get hit by a turnip truck on the way to work tomorrow, someone should be able to step into my shoes and have a clue how to do my job. I have seen the fire department issue a letter of counseling to 3 captains at one station over the loss of a thermometer. I have seen more serious consequences over slightly more expensive equipment. Yet I have never seen action taken over the loss of institutional knowledge because people left their position without having documented anything, leaving the new guy to fend for himself. This is a significant impediment to our efficiency and effectiveness and should be treated at least as seriously as losing a radio.
28	job description, mentoring, expectations
29	there should be a standardized way for transitioning members in and out of staff positions. all technology, professional memberships, budget/finance/account info, cell phones/pagers/laptops, city cars/fueling/purchase cards, etc need to be switched over. there should be a "state of the program" report given so that the new person knows where he/she is starting and what the expectation is for what needs to be worked on, continued, finished up, etc.
30	A full month of training followed with intermittent follow ups until proficient
31	Depending upon the position. My assignment is very technical I have relied on civilians in the office a lot.
32	Each staff member should maintain a "Job Book" outlining their daily, monthly, quarterly, annual job requirements.
33	not sure what you are trying to ask in this question. The inefficiencies occur when a staff member leaves a position and the new staff has no option of learning the position from the outgoing member. We need to have the capabilities of allowing the position to be 'doubled' filled long enough to train the new member.
34	Officer development to include duties for position
35	Our department does a poor job of planning - especially when it comes to staff assignments. Clearly-defined objectives, roles, and expectations will provide a great step in the right direction.
36	There should be a transition and orientation period so that the member transferring in can become acquainted with the responsibilities, expectations, and obstacles of the position. The mandatory period should also be increase to more than 18 months. It will take a full year to experience all of the duties and functions of the job. A member is eligible to transfer as soon as he/she becomes comfortable with the job.
37	This staff assignment should have a requirement of 3-5 years of field experience in Hazmat. This would provide the base knowledge and background a person needs to be able to be effective as soon as beginning the assignment.
38	I am currently assigned to 24/48 schedule. The issue with being an EMS Supervisor is that you are no longer looked at as a FF. That is ok with me, however, when it comes to some impromptu field training, we are left out of the loop. More on-line fire based CE's would be helpful./
39	Staff positions can be very dynamic to where it can be difficult to have a complete roadmap to success.

9. Which of the following tools were available to help you transition into your current/former staff assignment?

Answer Options	Offered	Not offered	N/A	Response Count
Job shadowing / overlap with outgoing member	24	13	5	42
Written road map / handbook (specific to the position)	11	26	5	42
Departmental SOP/MOP containing role responsibilities	18	20	4	42
Verbal description of job duties	32	9	1	42
Job orientation	16	21	5	42
Formal training program	10	28	4	42
Sponsorship of relevant certification(s)	12	23	7	42
Leadership/management training	9	28	5	42
Incentives or rewards	10	26	6	42
			<i>answered question</i>	42
			<i>skipped question</i>	0

10. What would help improve the transition into the staff position you are/were assigned to?

Answer Options	Response Count
	38
<i>answered question</i>	38
<i>skipped question</i>	4

Number	Response Text
1	Just time. My job entitled so many different responsibilities, the only way to really understand and comprehend my responsibilities would be time
2	Shadowing and a handbook which we know carry but needs updating.
3	Find people that are dedicated, good work ethic, knowledgeable in certain NFPA standards, OSHA regulations, TCFP rules. Previous exposure to certain positions. The "want to learn" attitude as oppose to the one who is there only for a specified time period and then out.
4	While not always possible but a written road map and more time to train and gather information
5	More time with outgoing staff member. Offering of relevant certification training without having to discover and apply for it individually.
6	Training and transition timetables, as well as incentives to go into a staff position and incentives to stay once assigned
7	Riding up as an sdo while a driver/engineer is probably the best training you can give.
8	being trained as a back up.
9	Formal training, shadowing the outgoing member. Different positions call for different learning curves, the technology based positions change and update frequently and require more C.E. Job description summary can be vague and while written out not necessarily defined roles.
10	An transitional program that would educate the member and give them a sufficient amount of time to learn what was needed before stepping into their new role.
11	See answer to number 8.
12	Just being open minded to the job and the different facets of its duties. Also staying flexible when plans change.
13	Some one in the Social work profession to assist in the specifics of this particular position.
14	good question. Wish I knew
15	18 months is plenty for members to be required to be in a staff position. When a members really desires to be in a position they will stay longer on their own. If you force a member to stay longer than 18 months they will not have a good attitude which will be evident in their job performance.
16	Specific training on the position. Also, a pre-assignment test to see if I have the skills required to do the position. (computer, organization, people skills). I think the way the firedept fills staff position is extremely inefficient. No other company or business in the world would be successful doing it the way we do it. by just offering it up to who ever wants it and granting it solely off of seniority. And if no one wants it...then we force the first person available to do it. I think of it this way.....if I need a wrench from my toolbox to accomplish a job...I look in and grab the wrench...what I don't do is turn my box upside down and the first tool that falls out is the one I use instead of the wrench. Nor do I choose a tool that does not have any of the characteristics of a wrench in which I need. Then sit back and scratch my head and wander why the job isn't being accomplished correctly, efficiently, and timely.
17	better training on new technology, staff assignment pay to help offset the additional costs associated with staff assignments.
18	First would be pay. Training instructors and adjunct instructors receive the same pay, even though training instructors teach everyday, actually make lesson plans, conduct skills training and cross over and fill in for in service training when adjunct instructors fail to fulfill their obligation of teaching. Training instructors should be compensated at least double the pay of adjunct instructors.
19	road maps, training guides would help to use as a reference. also training is very informal and random. although shadowing and job descriptions are available, they are ineffective and job descriptions are not detailed or telling.
20	Having a transition training/orientation period with outgoing member assigned to the staff position.
21	You need to have some type of incentive to be in staff. Since you will be working 5 days a week a car would be nice. I think staff pay. The problem with staff is you loose that station atmosphere. Everybody is too tense in staff. The biggest problem with EMS staff is we are understaffed. If a person doesn't want to be in staff you want get anything out of him and you just wasted 18 months. You have to have incentives. A big help would be to let them ride on an engine or truck 1 time a month. This could help their morale some and keep them active on ops side.
22	Making Staff assignments voluntary and extend the minimum term to 4 years, not 18 months. There is very little buy-in from members who are forced into a staff assignment and this results in sub-par performance.

23	A formal plan with clear expectations.
	I only had a little less than one day of shadowing available due to the other member's job requirements. That made it pretty tough to become proficient at the rate I desired and established a steep learning curve. The prior person's accessibility was excellent and helped ease this transition. There will always be situations/questions left
24	unanswered after the formal handoff occurs, so the communication channel between us was vital. I think that an actual 2-week handoff would help most people, but most staff personnel leaving staff have accrued maximum allowable leave times and typically have to utilize this time before returning to the field. The best recommendation I can make is utilizing an up-to-date "Battle Book" model.
	My current position doesn't really apply because this is all new territory having created this position. My previous position (815) would have benefited from more overlap. Each position is different; some need no overlap, some a day, some a pay period. Each staff position should be required to create and maintain a battle book.
25	job description, mentoring, training, spelled out expectations, and longer requirement for staff time.[]
26	There is a swinging door in staff. By the time your are proficient at your job you can leave.
	longer overlap/shadow between the new person and the out-going person. 1 month would be a step in the right direction.[]
27	clear definitions/action plans/examples of required work, details about daily and weekly schedules, scheduled time for meeting with others that you are expected to work closely with
28	well defined roles and responsibilities, access to all systems that those i manage have access
29	Being identified for the position in advance in order to prepare for the limited technical experience that many firefighters have.
30	I am getting the training I need and the support.
31	This is not a junior officer level position. This job requires an experience subject matter expert with multiple certification levels in order to maintain the program.
32	Training the new staff. Make some positions appointed so there isn't frequent turnover. It takes at least 12-18 months to learn positions. This hurts the department greatly....good example is the AARF chief.
33	Written sop for position or updated sop for position vs simple on the job training, learn as you go
34	The city does a poor job of coordinating amongst the various departments. It would have been very helpful to staff personnel to have a "map", so to speak, of roles and responsibilities of other departments, the budget process, and financial processes utilized by the City.
35	The transition would be smoother with a manual of procedures and overlap with the outgoing member.
36	Recent Field experience would help tremendously. Also, some formal type of Staff orientation, and better written guidelines for responsibilities. There is so much to do in this position, the office needs either an Administrative Assistant or another Lieutenant assigned as the training officer.
37	Shadowing for sure and clear direction from the medical director's/EMS management on how to handle all the situations in the Guidelines that say "Call your EMS Field Supervisor". It is the same as the department has been for years....OTJT...on the job training.
38	Difficult to say, remind members that our responsibility is to our department and citizens thereby demanding our best effort at all times.

Appendix E

Executive Survey Results, Raw Data

DFR Staff Assignments & Institutional Knowledge - Executive Survey

1. Please evaluate the following statement:As a department, there is room for improvement in how we transition members into and out of non-executive, uniformed staff positions.

Answer Options	Response Percent	Response Count
Strongly Agree	60.0%	3
Agree	40.0%	2
Neutral	0.0%	0
Disagree	0.0%	0
Strongly Disagree	0.0%	0
<i>answered question</i>		5
<i>skipped question</i>		0

2. Various factors appear to affect our department when making staff assignments. Please rank the following 8 items in terms of their impact on staff assignments (1 = most detrimental, 8 = least detrimental):

Answer Options	1	2	3	4	5	6	7	8	Response Count
Lack of departmental support for staff roles	0	0	1	0	0	1	1	2	5
Cultural obstacles when transitioning from Emergency Operations to staff positions	1	0	1	1	2	0	0	0	5
Involuntary assignments into staff roles; resentment and bad attitudes	1	1	0	1	1	0	0	1	5
18 month staff rotation term (per labor agreements)	1	1	2	0	0	0	1	0	5
Lack of training / succession planning prior to staff assignments	1	0	0	1	0	2	1	0	5
Budgetary constraints / lack of funding	0	0	0	1	1	2	1	0	5
Inability to appoint critical staff positions (per labor agreements)	0	3	1	1	0	0	0	0	5
Lack of incentive / specialty pay for staff positions	1	0	0	0	1	0	1	2	5
<i>answered question</i>									5
<i>skipped question</i>									0

3. Institutional knowledge loss, related to employee turnover, has been described as the loss that occurs when departing employees take with them subject-matter expertise, routines explaining why decisions are made, awareness about work practices and routines and knowledge about the organization's failures and successes. Based on your perception and experience, please rate the level of institutional knowledge loss in each group, when staff turnover occurs:

Answer Options	VERY LOW loss of instit. knowledge	LOW loss of instit. knowledge	MODERATE loss of instit. knowledge	HIGH loss of instit. knowledge	VERY HIGH loss of instit. knowledge	Response Count
Your bureau	0	1	0	4	0	5
Other bureaus	0	0	1	3	1	5
The entire department	0	0	1	3	1	5
<i>answered question: 5</i>						
<i>skipped question: 0</i>						

In your opinion, how much time from initial assignment should it take for a uniformed staff employee to be performing at levels that meet supervisors' expectations?

Answer Options	Response Percent	Response Count
0 - 3 months	20.0%	1
3 - 6 months	40.0%	2
6 - 9 months	20.0%	1
9 - 12 months	20.0%	1
12 - 18 months	0.0%	0
Other (please specify)	0.0%	0
<i>answered question</i>		5
<i>skipped question</i>		0

Based on your experience and observation, generally how much time from initial assignment is actually required for uniformed staff employees to be performing their job duties at levels that meet supervisors' expectations?

Answer Options	Response Percent	Response Count
0 - 3 months	0.0%	0
3 - 6 months	0.0%	0
6 - 9 months	100.0%	5
9 - 12 months	0.0%	0
12 - 18 months	0.0%	0
Other (please specify)	0.0%	0
<i>answered question</i>		5
<i>skipped question</i>		0

6. In thinking about DFR as a whole, please describe the prevalence of the following phenomena when members begin a staff rotation:

Answer Options	Very prevalent	Somewhat prevalent	Prevalent	Minimally prevalent	Not prevalent	Response Count
Lack of a defined transition road map	3	0	1	1	0	5
Duplication of efforts	1	3	0	1	0	5
Confusion about role responsibilities	1	1	1	2	0	5
Insufficient institutional/management support for your role	0	2	1	2	0	5
Insufficient/inadequate training	2	0	2	1	0	5
Technology challenges, login problems, etc.	1	1	3	0	0	5
Lack of orientation program for the position	2	2	0	1	0	5
Lack of mentoring/shadowing during transition into role	1	2	1	0	1	5
Lack of motivation due to involuntary assignment	1	1	3	0	0	5
Challenges in managing civilian employees	1	3	0	1	0	5
Schedule challenges after being on 24/48 schedule	1	3	1	0	0	5
Cultural differences when coming from Emergency Ops.	1	2	2	0	0	5
<i>answered question: 5</i>						
<i>skipped question: 0</i>						

7. As you think about the best resources to help transition a member into a staff position, please rank the the following list in terms of effectiveness (1 = most effective, 10 = least effective):

Answer Options	1	2	3	4	5	6	7	8	9	10	Response Count
Job shadowing / overlap with outgoing member	2	1	0	1	0	0	0	1	0	0	5
Written road map / handbook (specific to the position)	1	1	1	1	0	0	1	0	0	0	5
Departmental SOP/MOP containing role responsibilities	0	0	0	0	1	1	1	2	0	0	5
Verbal description of job duties	0	0	0	0	3	0	0	1	0	0	4
Job orientation	0	1	2	1	0	1	0	0	0	0	5
Formal training program	2	1	1	1	0	0	0	0	0	0	5
Sponsorship of relevant certification(s)	0	0	1	0	1	0	2	0	0	1	5
Modifying departmental policies	0	1	0	0	0	1	0	1	2	0	5
Leadership/management training	0	0	0	1	0	2	0	0	2	0	5
Incentives or rewards	0	0	0	0	0	0	1	0	1	3	5
<i>answered question: 5</i>											
<i>skipped question: 0</i>											

8. Please consider the following statement:DFR's ability to effectively manage critical staff positions is negatively impacted by contractual labor agreements.		
Answer Options	Response Percent	Response Count
Strongly Disagree	0.0%	0
Disagree	0.0%	0
Neutral	40.0%	2
Agree	40.0%	2
Strongly Agree	20.0%	1
<i>answered question</i>		5
<i>skipped question</i>		0

9. In thinking about your previous answer, please provide any comments that help understand your position.	
Answer Options	Response Count
	3
<i>answered question</i>	3
<i>skipped question</i>	2

Number	Response Text
1	Members with requisite skills for a specific position are at times denied the position due to the current bid process
2	There is currently no provision for ensuring that the person assigned to a particular staff position has the technical capability, expertise, or desire to fill the given position. This is especially true if we have to "draft" someone from the bottom of a seniority list. While this can often be managed it seriously degrades operations, often for the entire time that person is assigned to their position. We don't currently have enough staff positions to cover for someone who can't or won't do their job.
3	The 18 month commitment does have an adverse impact on the department. However, our commitment to having overlap does assist. My contention is that the "members" also suffer as they don't become proficient in their new roles before rotating back to operations.

10. Thank you for taking the time to complete this survey. Optional: Please provide any additional comments that you feel are relevant to this project.	
Answer Options	Response Count
	2
<i>answered question</i>	2
<i>skipped question</i>	3

Number	Response Text
1	I thank you for taking on this project. Staff functions are extremely critical in managing the business affairs of this Department. All too often we simply plug a body into a position with no strategic forethought as to what impact they will have on the position. Many of our people step up and give it their best effort and succeed very well. Unfortunately, this is not always the case and this creates downstream problems that are very difficult to overcome. The Department needs to take additional steps to ensure that members are prepared to fill these positions through enhanced training initiatives and better overall management of how this process works.
2	This is a good project. FYI-the labor groups stated that they wanted to condense the staff commitment to give more members the opportunity to diversify their experiences within the organization.

Appendix F

Personal Communication with George Gamez, DFR Deputy Chief - EMS

From: Gamez, George <george.gamez@[REDACTED]>
Sent: Monday, July 13, 2015 12:10 PM
To: Cristian Hinojosa
Subject: RE: EMS Staff Question

Lt. Hinojosa,

This has always been the challenge for staff. How do you keep consistency with turnover and especially with meet and confer lowering the staff requirement down to 18 months. What we know in staff is that it takes just over a year to kind of hit your groove and then it's over. This creates a roller-coaster effect with never any real consistency. Right now we do have some type of training in place. We ask that our personnel keep a book or folder of daily tasks, contacts and procedures for their position. This is passed on to the next person coming into staff with about a week to two weeks of job shadowing. What is really needed is training and management on the admin side when our firefighters promote and are sent to staff. We are firefighters that spend most of our time out in the field with no clue on the admin side and then are thrown into staff and sometimes management over civilians. I would like to see something in place that covers subjects such as records retention, procurement, budgets, managing civilians and labor laws involved. I believe this would help make the transition from the field to staff easier.

George Gamez, Deputy Chief
Emergency Medical Service Bureau
Dallas Fire-Rescue Department
214-[REDACTED] (Office)
469-[REDACTED] (Mobile)
[george.gamez@\[REDACTED\]](mailto:george.gamez@[REDACTED])

From: Cristian Hinojosa [mailto:cvhinojosa@[REDACTED]]
Sent: Saturday, July 11, 2015 10:12 PM
To: Gamez, George
Subject: EMS Staff Question

Chief-

I'm up at the National Fire Academy working on a research proposal for my EFO. I've decided to take an in-depth look at DFR's uniformed staff positions and evaluate the need for a formal standardized "knowledge transfer plan" (KTP) to be used when these positions are vacated and subsequently filled. To my knowledge, there are loose plans in place in different bureaus but the department has not designed a universal process for passing the baton in staff. Chief Charlie Salazar, for example, mentioned a USAR Battle Book. I've seen and referenced the "782 Bible" when I used to ride up during my back-up SDO days.

I'm in the initial stages of my research but wanted to get your feedback on the topic, as EMS holds a fair amount of these staff positions. I'd also like to see if there's anything already being discussed or in place that has been working. My goal is to research and design (or improve upon) a process that will benefit the department and establish additional continuity that is often interrupted by the "18 month and done" mentality. This could also serve as a tool for when a member is on FMLA or injured.

The goal is to increase efficiency, reduce redundancy, and have a roadmap for these critical roles. I've envisioned a document template that could be used department-wide as well as formal job-shadowing during transition periods. Again, my research is in its infancy, but your input seems particularly relevant at the moment. I'd also like to make myself available as a resource if you think of anything I haven't covered that needs to be looked at. There will be a lot of hours going into this project in the next few months and I want to provide as much ROI for the department as possible.

Thanks in advance for your time.

Cristian

From: Gamez, George <george.gamez@[REDACTED]>
Sent: Thursday, March 17, 2016 1:13 PM
To: Cristian Hinojosa
Subject: RE: DFR Staff Assignments & Institutional Knowledge Survey

Looks good to me. We do have a position hand book for each staff position. The problem is our bid process. Sometimes a staff position is left vacant until the next bid process two to three months down the road. This leaves existing personnel to pick up responsibilities left behind creating confusion on job responsibilities. I have had to have a meeting on more than one occasion to go over job responsibilities. Just to add and maybe you may want to incorporate, the challenges we have transitioning from the field to staff as follows:

1. Understanding HR rules and regulations
2. Documentation retention
3. Procurement
 - a. Process
 - b. Vendors
4. Managing Civilians
 - a. Performance evaluations
 - b. Performance improvement plans
 - c. Expectations
5. Budget
 - a. Process
 - b. Codes
 - c. Funding
6. City Personnel
 - a. City Council
 - b. City Manager
 - c. City Attorneys

As you can see it is a lot to absorb in just 18 months.

George Gamez, Deputy Chief
Emergency Medical Service Bureau
Dallas Fire-Rescue Department
214-[REDACTED] (Office)
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[george.gamez@\[REDACTED\]](mailto:george.gamez@[REDACTED])

From: Cristian Hinojosa [mailto:cvhinojosa@[REDACTED]]
Sent: Thursday, March 17, 2016 12:51 PM
To: Gamez, George
Subject: DFR Staff Assignments & Institutional Knowledge Survey

Chief-

The link below will take you to a preview of the survey instrument I have designed for my EFO project. As I previously shared, the goal of this project is to evaluate and address how we manage our institutional knowledge when transitioning members into and out of staff positions. This research is particularly interesting

based on personal observations and feedback I've heard over the years regarding the challenges that DFR has as it positions employees involved in making emergency responses into administrative staff positions.

The sample population for this short 10 question survey will include all non-executive, uniformed personnel assigned to DFR staff positions. There are a fair number of these positions within your bureau and I appreciate your support of this research and your permission to contact those members by email. No civilian or FP&I members will be included and all responses will remain confidential.

<https://www.surveymonkey.com/r/JV29JZX>

Thank you for your time and any feedback you wish to provide on the survey instrument,

Cristian