



**QUEENSLAND FIRE AND EMERGENCY SERVICES AND  
'MEDICAL' FIRST RESPONDER CAPABILITY:**

**AN EXAMINATION OF CHALLENGES AND  
OPPORTUNITIES**

A Thesis submitted by

**Stephen M De Pinto**

For the award of

**Master of Professional Studies (Research)**

**2020**

## **Abstract**

The purpose of this study is to investigate whether and to what degree the Queensland Fire and Emergency Services (QFES) organisation can provide a medical first responder role in Queensland and if so, what challenges and opportunities might it face in providing such role. Such a purpose aligns well with one of QFES's key goals related to 'service alignment', which in the organisation's strategic plan is stated as: 'Design and deliver services according to local risk and community need', which directly supports one of the Strategy 2030 Guiding Principles that 'our people and our partners work together in a seamless way.'

The study introduces the structure, history and operational aspects of QFES and highlights the need to develop methods to minimise the effects of shocks and stresses of future events to the organisation. In so doing, the study explores the need for QFES as a medical first responder, identifies the potential value of the medical first responder role, including counter arguments to that potential value, and considers, if the concept is supported by evidence, ask the rhetorical question: can the QFES actually do it?

The three-phase methodological process adopted by this research was: i) choosing and understanding a lens or paradigm through which to view and then define the work-related problem of the potential medical first responder role, while also linking the research topic to my learning objectives; ii) designing and developing a research question to answer the problem statement while also adopting a suitable paradigm; and iii) choosing a reliable and valid method of investigation before initiating the project, collecting evidence, and conducting the data analysis. Systematic evaluation of data and the comparison of it to the published literature resulted in a set of recommendations to QFES based on the challenges and opportunities posed by the possible adoption of this expanded role for QFES personnel.

The findings are not straight forward and the challenges and opportunities need to be weighed with the political climate in the Covid environment. The recommendations however provide the QFES with options for 'future proofing' the QFES.

## **Certification of Thesis**

This Thesis is the work of Stephen Mark De Pinto except where otherwise acknowledged. The work is original and has not previously been submitted for any other award, except where acknowledged.

Principal Supervisor: Dr Lee Fergusson

Associate Supervisor: Ray Hingst

Student and supervisors' signatures of endorsement are held at the University

## **Acknowledgements**

I would like to acknowledge my Principle Supervisor, Dr Lee Fergusson and Associate Supervisor, Ray Hingst who have offered me support and guidance throughout this process. That support and guidance has been in the form of proof reading, advice and editing of this Thesis and more specifically, Dr Lee Fergusson who provided the final edit and advice for changes to this Thesis prior to submission. Sincere thanks to both.

This research has been supported by an Australian Government Research Training Program Scholarship. I would also like to acknowledge and thank the Queensland Fire and Emergency Services for offering me this opportunity to further my knowledge.

# Table of Contents

**Abstract / i**

**Certification / ii**

**Acknowledgement / iii**

**List of Figures / 1**

**Abbreviations / 2**

**Chapter 1. Introduction / 3**

1.1 QFES Structure, Capability and Capacity / 7

1.2 Role of QAS / 7

**Chapter 2. Literature Review / 12**

2.1 Introduction / 12

2.2 Role of the contemporary QFES / 13

2.3 Defining Key Terms, Definitions and Concepts / 14

2.4 What is a 'Medical' First Responder? / 14

2.5 What is Ambulance Ramping? / 16

2.6 The Medical First Responder Concept in Practise / 17

2.7 Pivotal information and inclusion rules / 19

2.8 Establishing the 'need' / 19

2.8.1 Increasing demand on ambulance services / 19

2.8.2 Industrial and community influence / 21

2.8.3 Ramping pressure / 23

2.8.4 Summarising the 'need' / 25

2.9 The 'value' of early pre-hospital medical intervention / 26

2.9.1 Benefits of pre-hospital cardiac defibrillation / 26

2.9.2 Benefits of pre-hospital management of major bleeding / 28

2.9.3 Benefits of pre-hospital airway management / 30

2.9.4 The 'value' summary / 31

2.10 'Can the QFES do it?' / 32

2.10.1 The case against the first responder concept / 32

2.10.2 Mapping the literature gap / 33

**Chapter 3. Methodology / 35**

3.1 Introduction and main elements / 35

3.2 Paradigm and method / 36

3.3 Design / 38

3.3.1 Interview methodology / 38

3.3.2 Interview question and process / 41

3.4 Data collection and analysis methods / 43

**3.5 Summary / 44**

**Chapter 4. Results / 45**

**4.1 Introduction / 45**

**4.2 Key Themes / 46**

4.2.1 Key Theme 1: Technical feasibility of a medical first responder role / 46

4.2.2 Key Theme 2: Sustainability of extra emergency response role / 47

4.2.3 Key Theme 3: Skills level requirement / 49

4.2.4 Key Theme 4: Job creep / 52

4.2.5 Key Theme 5: Non-emergency core business maintenance / 55

4.2.6 Key Theme 6: Industrial relations and remuneration / 57

4.2.7 Key Theme 7: Relevant sub-themes / 59

**5. Discussion / 62**

**5.1 Introduction / 62**

**5.2 Can the QFES Perform a Medical First Responder Role? /62**

**5.3 Capacity to Maintain Core Business and Emergency Response / 63**

**5.4 Skills Maintenance and Skill Level Issues / 64**

**5.5 Industrial Relations and the Queensland Ambulance Service / 67**

5.5.1 The United Firefighters Union of Queensland / 67

5.5.2 The Queensland Ambulance Service / 69

**6. Conclusion / 71**

**6.1 Introduction / 69**

**6.2 Opportunities / 69**

6.2.1 Future proofing / 69

6.2.2 Specific opportunities / 70

**6.3 Challenges / 71**

6.3.1 Overview / 73

6.3.2 Maintaining core business and operations / 73

6.3.3 Firefighter acceptance and industrial relations / 75

6.3.4 Recommendations / 75

6.3.5 Summary / 77

**References / 78**

**Appendices / 84**

## **List of Figures**

Figure 1: Literature review decision map / 6

Figure 2: Conceptual Medical First Responder Model for Queensland / 10

Figure 3: Research Methods value chain / 36

## Abbreviations

- AED: Automated External Defibrillator
- CAD: Computer Aided Dispatch
- CPR: Cardio Pulmonary Resuscitation
- CQFES: Commissioner Queensland Fire and Emergency Service
- ED: Emergency Department
- ELT: Executive Leadership Team
- EMS: Emergency Medical Services
- FFR: Firefighter First Responders
- KPI: Key Performance Indicator
- MFB: Metropolitan Fire Brigade
- MFESB EMR: Metropolitan Fire and Emergency Services Board Emergency Medical Responder
- OHCA: Out of Hospital Cardiac Arrest
- PACSR: Queensland Police and Community Safety Review
- PAD: Public Access Defibrillation
- PIS: Participant Information Sheet
- QAS: Queensland Ambulance Service
- QFES: Queensland Fire and Emergency Service
- QFRS: Queensland Fire and Rescue Service
- REU: Resolution Engagement Unit
- SES: State Emergency Service
- UFUA: United Firefighters Union of Australia
- UFU: United Firefighters Union
- UFUQ: United Firefighters Union of Queensland



## Chapter 1: Introduction

The Queensland Fire and Emergency Services (QFES) is an ‘all hazards’ emergency response organisation with a recruiting manifesto of “All In. All Fronts.” The organisation has evolved since fire brigade boards were abolished in 1990 to become a department in its own right, reporting to a single government Minister. The merging of the previous Queensland Fire and Rescue Service (QFRS) as it was known, with the State Emergency Service (SES) and Rural Fire, to create the QFES has transformed the organisation to be the always reliable and dependable department available for almost any emergency response situation from fires and road crash rescues to natural disasters and building collapse which is a dramatic change from operations pre - 1990. As the world changes, the relationship between the QFES and government has never been more critical and the need to ‘future proof’ the QFES to remain relevant is significant for both government and society.

The QFES 2019-2023 Strategic Plan (QFES 2019) summarises our purpose, opportunities, challenges and commitments to the Queensland community and also identifies our contribution to government strategies, such as ‘Strategy 2030’ (QFES 2018), and how the organisation will achieve those commitments, giving the QFES a blue print for their future focus. Identified in the plan under ‘Key Initiatives’ a key goal is listed under the heading of ‘Service Alignment’ as, “Design and deliver services according to local risk and community need,” which directly supports one of the Strategy 2030 Guiding Principles which is, ‘Our people and our partners work together in a seamless way.’

This forward-thinking strategic focus will assist in keeping the QFES relevant and contribute to ‘future proofing’ the organisation in the contemporary context as our operational portfolio increases in diversity. From an ‘internal’ perspective such future proofing is relevant to this overall study, contributing in part to why I am examining this topic. More specifically, this study will answer the principal research question which is: ‘Can the QFES provide a medical first responder role in Queensland?’ and the two sub-questions being: ‘What are the challenges facing the QFES in providing a medical first responder role?’ and ‘What are the opportunities for the QFES in providing

a medical first responder role?' The term 'medical' in this context relates to the emergency prehospital care a firefighter would carry out prior to the arrival of ambulance services, a proposition which is detailed later in this chapter. It is important to point out, however, that this concept is not related to the proposition of training firefighters to a 'paramedic' level.

It is apparent from an earlier analysis of the demand on Emergency Health Services (which encompasses hospital Emergency Departments, ambulance services and a range of aero-medical retrieval and transfer services) by Toloo et al. (2011) that Queensland was above the national average for service call outs, with 350 per 1000 occasions of service, and the Australian *per capita* demand for emergency departments (EDs) was growing at an annual rate of 2% in the period between 1998-99 and 2009-10. The problem is that this level of demand places an ever-increasing strain on all government departments, including response organisations such as the Queensland Ambulance Service (QAS). The authors go on to point out that the *per capita* demand for ambulance services also rose at an average annual rate of 3.7% in the period between 1999-00 to 2009-10, almost double the demand for emergency departments over the same period.

This increase in demand on the QAS adds a significant pressure point as any respectively 'slow' response times to attend life-threatening emergencies by the QAS are often publicised and then heavily scrutinised in the media and by other political entities. Supporting my observations, in the same research Toloo et al. (2011) state that:

In Australia, media focus on health system responsiveness, wait times for urgent services, and the costs of health care is strong; and serves to both influence and sensitise public opinion surrounding ED issues. A search of one state newspaper revealed that approximately fifty articles about hospital EDs, and over 200 articles about ambulance services in Queensland, were written in 2009 alone (Toloo et al. 2011, p. 29).

Similar scrutiny and negative publicity are also attributed to cases of ambulances 'ramping' at hospital emergency departments, which increases the potential for adverse patient outcomes and keeps ambulances away from front-line operational duties for

longer periods as identified by Hitchcock et al. (2010). Ambulances being kept away from front-line operational duties for longer periods is a key driver that would pressure any government to look at alternatives for that critical work load, such as the 'medical first responder' role being provided by another department and is contemplated by this present research. It should be noted that QFES resources will not be transporting patients to hospitals as a part of this concept however the QFES resource may be able to administer life saving care in shorter time frames because of the existing pressure on ambulance services.

Further supporting that increased pressure on ambulance services and the topic I am exploring in this study, Lowthian et al. (2011) in a review article stated:

The continued rise in utilisation of emergency ambulances is placing increasing demand on ambulance services and the wider health system, potentially compromising access, quality, safety and outcomes (Lowthian et al. 2011, p. 66).

This creates yet another problem or pressure point for government as negative publicity can drive a change or reaction, in this case within the relevant department. Thus, Lowthian and colleagues go on to say that:

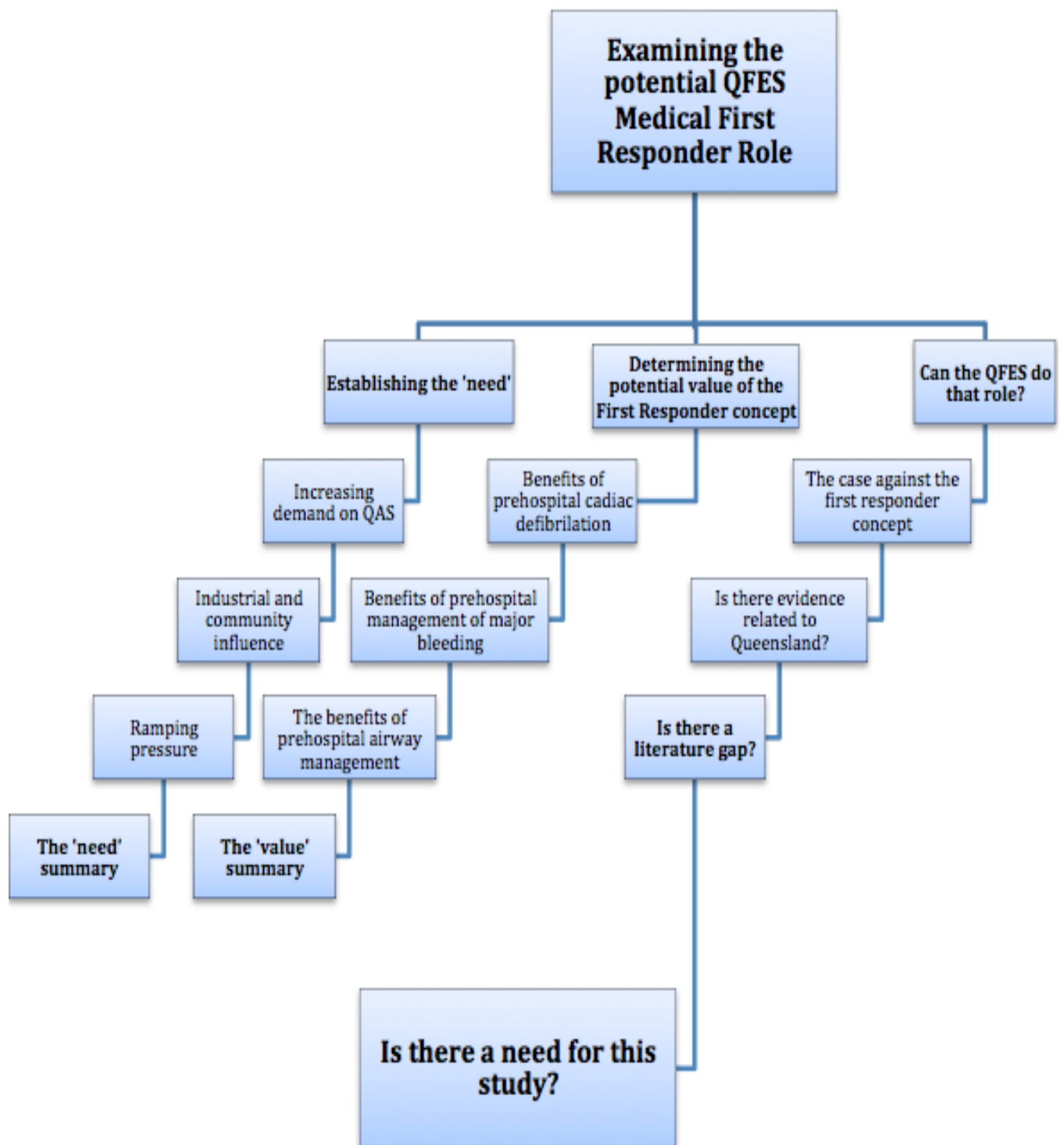
A variety of factors may contribute to this increase and targeted strategies to reduce utilisation will require an accurate identification of the major drivers of demand (Lowthian et al. 2011, p. 67).

It is therefore clear that even in the early stages of this research there is evidence that increasing pressures on ambulance services are being experienced in Queensland and that being prepared for any possible forced change in policy is strategically prudent.

The literature reviewed in Chapter 2 has been identified based on a set of inclusion rules further defined in Figure 1. To establish a logical conclusion to the question being asked, I intend to explore the case that, i) a 'need' for this proposal/initiative for QFES should to be established, ii) if such a 'need' is established, a determination needs to be

made about the value of a 'medical first responder' role which would include counter arguments, and iii) if the need and value of the concept is supported, the question needing to be explored is: can the QFES do it?

**Figure 1:** Literature review decision map.



## **1.1 QFES Structure, Capability and Capacity**

The QFES is comprised of three separate services, each embracing and representing a unique knowledge and skill set. The three services are: Fire and Rescue, (predominantly career fire-fighters plus support staff); the SES (whose labour force is volunteers); and the Rural Fire Service (whose labour force is also composed of volunteers). Fire and Rescue has by far the largest number of permanently employed staff throughout Queensland, and the majority of those are front-line fire-fighters operating out of 240 urban fire stations. Because of the geographic footprint of these fire stations and the availability of staff 24/7, the fact that fire-fighters are already trained in Senior First-Aid and Advanced Resuscitation and fire appliances (fire trucks) already carry automated external defibrillators (AEDs) makes them the only suitable choice for taking on a possible additional 'medical first responder' role in conjunction with QAS' existing function.

## **1.2 Role of QAS**

The role of QAS has also changed for the same reasons the QFES has changed in this contemporary environment. Currently the QAS is a division of the Department of Health whose purpose is, 'To provide safe, sustainable, efficient, quality and responsive health services for all Queenslanders' (Health 2018). In an article related to prehospital care, 16-years ago Chilton (2004) summed up the contemporary ambulance role thus:

Primary health care refers to "that care which is given when the patient first seeks help". The ambulance paramedic is, therefore, a primary health care provider (Chilton 2004, pp. 3-5).

He goes on to state that 'Ambulance services in Australia have as their core function the provision of prehospital or 'out-of-facility' emergency patient care and transport (including major incidents).'

In simple terms, the QAS provides pre-hospital paramedical services to patients who suffer sudden illness or injury. The terms 'responsive' and 'pre-hospital' used here will

be significant in the literature review as I will identify that 'earlier' pre-hospital care is vital to improving patient outcomes.

Supporting the case I am making for examining the possibility of the QFES carrying out a 'medical first responder' role, in Melbourne, Victoria the same extra strain on ambulance services as cited above has been relieved somewhat by the introduction of a 'Medical First Responder' role (known in Victoria as the Metropolitan Fire and Emergency Services Board Emergency Medical Responder initiative or 'MFESB EMR') which is carried out by the Metropolitan Fire Brigade (MFB) who were the first fire service in Australia to do so. There is available data on the success of this initiative as identified by Boyle et al. (2010, pp. 77-82) in an article in 'Open Access Emergency Medicine' which stated "This study suggests that the MFESB EMR program is providing firefighter first responders to emergency situations in a short timeframe to assist the ambulance service."

The authors go on to identify details of the specific improvements enhanced by having firefighters respond in this way and state, 'The response time to urgent incidents by the MFESB when compared with Ambulance Victoria – Metropolitan (AV-M) is considerably less in the 50th and 90th percentile.' It would appear from the literature that early intervention is the key to the success of this initiative.

The ability of fire services to assist stretched ambulance services by way of arriving 'on scene' sooner due to the different geographic footprint of fire and rescue stations and simply by having a fire crew available when ambulance services may not, and then having that fire crew apply specific emergency pre-hospital medical care until ambulance arrival might fulfil an emergent need that contributes to greater life expectancy. In this context I pose the rhetorical question: 'Could that same initiative succeed in Queensland?'

Noting the increasing demand for government services such as Emergency Health Services for example, the QFES needs to be prepared for the possibility of diversifying further (as identified above in the 2019-2023 Strategic Plan), not only if this initiative is

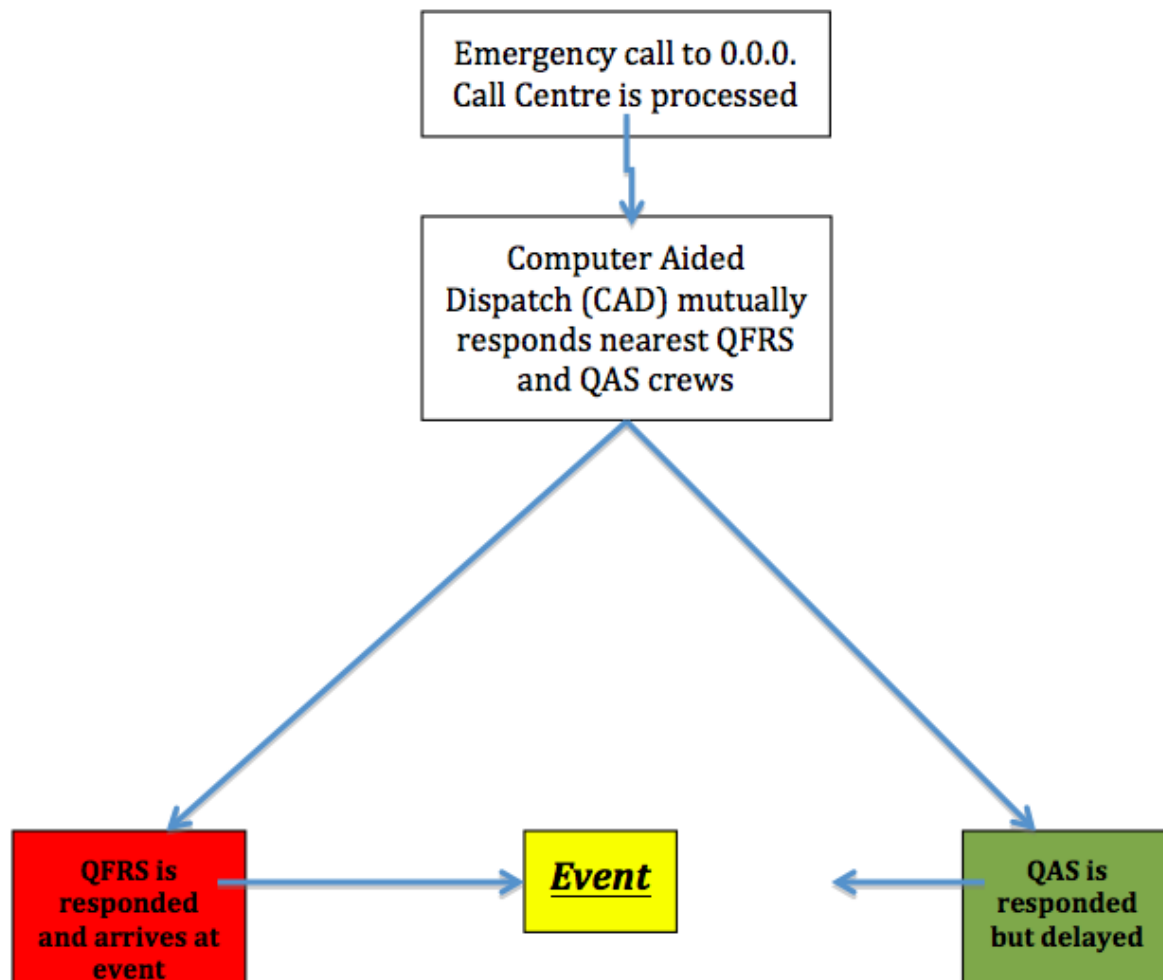
required of the QFES by government but also if the proposition comes from within the QFES during enterprise bargaining initiatives or other internal reviews.

In this context, it is of note that the Victorian Branch of the United Firefighters Union (UFU) fully supported the medical first responder concept demonstrated by a 'Submission' to the Victorian Government (Victoria 2017) and in a UFU Bulletin (Union. 2018) and will be discussed further in section 2.8.2.

After an extensive search of available literature there appears to be little relevant data exploring the potential for such an initiative in Queensland and that gap in literature supports the reason why this topic needs to be explored further by way of this research. This thesis could thereby better prepare the QFES, and by default the government, for such an eventuality.

By way of diagrammatic explanation, Figure 2 shows the basic concept of fire-fighters carrying out this role by way of being first to arrive 'on scene' at an emergency event where the three aspects of emergency pre-hospital care in question could be applied to sustain life, however only until the arrival 'on scene' of ambulance services. It should be noted that only the QAS do casualty transport and the QFES has no capacity or view to undertake that role.

**Figure 2:** Conceptual 'first responder' model for Queensland.



Explanatory notes for Figure 2:

The '000' call centre processes the 000 call information and the operator facilitates a mutual response of QFRS and QAS resources. The CAD system then identifies the nearest resources to respond. The diagram indicates that in this case the QFRS resource has arrived 'on scene' first to the event before QAS. If required, the QFRS crews administer emergency pre-hospital care, which may include cardiac defibrillation using an AED, the management of major arterial bleeding and basic airway management.

When the QAS arrive 'on scene' they immediately take over from QFRS crews where the casualty is treated and transported by the QAS as normal. The QFRS resource returns to normal operations when the QAS need no further assistance. Should QAS arrive on the scene first, the QFRS resource returns to normal operations.



It should be noted that the QFES capability in this regard is manageable due to the capacity and availability of resources in the geographic footprint to maintain an appropriate QFES response and the risk is deemed acceptable.

In summary, the research question and sub-questions I will attempt to answer by way of this study is: 'Can the QFES provide a medical first responder role in Queensland?' and the sub-questions 'What are the challenges facing the QFES in providing a medical first responder role?' and 'What are the opportunities for the QFES in providing a medical first responder role?'

## Chapter 2: Literature Review

### 2.1 Introduction

In this literature review I will evaluate published work addressing the study topic. By way of a review of current literature and an objective analysis of evidence both supporting and against the concept, it will be demonstrated that there are compelling reasons for examining the prospect of the QFES undertaking a 'medical first responder' role and how that might be achieved. As noted in Chapter 1, in Melbourne, after increasing pressure on ambulance services, a 'Medical First Responder' model, designed around providing patients with essential, early pre-hospital life-saving medical intervention, has been successfully applied by the Melbourne Metropolitan Fire Brigade (MFB).

This early intervention strategy ('early intervention' being the key to the success of this initiative) in three specific facets of emergency pre-hospital medical treatment has been applied by the MFB to sustain life until the physical arrival (at the actual incident scene) of ambulance services, at which point those ambulance services take over full patient responsibility and any subsequent patient transport. The MFB crews then return to their normal day-to-day operations. In the MFB example emergency assistance does not take the place of ambulance services and was never designed to do so. In this literature review, I will summarise what is known and what is not known about the value of this initiative, and I will demonstrate that a gap exists in the literature related specifically to this proposal's possible implementation in Queensland.

It must be noted that this concept is not designed to take the place of a QAS response and a QAS response will always occur as per normal practise. The QFES response is supplemental and manageable due to the availability of resources within the geographic footprint of the Brisbane region. Variations of this concept outside the Brisbane region are discussed later in this document.

The concept of a 'medical first responder' role (which is common practise internationally) being carried out by the QFES for the Queensland community is not

foreign: the concept was considered previously, and the model used in Victoria by the MFB (Boyle et al. 2010) has been referenced and referred to in this review. The possibility of the QFES taking on this role raised industrial tension at the time, and hence the concept was abandoned.

The current Minister for QFES, Craig Crawford MP (himself previously an ambulance officer who worked in that role in Victoria) at a general 'meet and greet' at a Brisbane fire station attended by this researcher, was asked by several fire-fighters for his view on that role being considered for QFES. I am reminded that an initiative such as this proposal will be directly affected by the view of the government of the day and that driver will be explored later in this document. Nevertheless, it is my conclusion that this thesis will add value to QFES by aiding in its future proofing and strategic planning processes.

In Chapter 1 and later in this document I have referenced studies related to the 'medical' value of a 'first responder' role, such as (Boyle et al. 2010), (Shapiro 2000), (Shuster & Keller 1993), and (Craig et al. 2010), however there is little relevant data demonstrating if the model used in Victoria would be suitable in Queensland, if it is actually needed in Queensland, and if such a concept is achievable by the QFES. I see the lack of existing data for Queensland as a significant opportunity to evaluate a possible medical first responder role' which would support the value of this specific professional practise. A review of existing literature, along with an analysis of data elicited in the work-based project, will assist in addressing the existing literature gap for Queensland.

## **2.2 Role of the contemporary QFES**

In Chapter 1, I have defined the QFES's role in the broader strategic context of contemporary operations. This broader change to the organisation was brought about in part by the Queensland Police and Community Safety Review (PACSR) 2013 headed by the previous Federal Police Commissioner Mick Keelty, whose recommendations can be found at (Keelty 2013). Arklay (2015) noted that Keelty recommended institutional and organizational restructuring that included the tasking of the fire and rescue service

with additional oversight and audit functions. Those changes are now reflected in the *Fire and Emergency Services Act 1990*.

Summarising the added functions of the QFES found in s8B of the Act (Act 2018), the QFES, as well as protecting persons, property and the environment from fire and hazardous materials and persons trapped in motor vehicles or buildings, is now legislatively required to cooperate with any entity that provides an emergency service. It is the legislative change in this Act that has bound the emergency management aspect of disaster management to the QFRS to form the QFES which now has become a department in its own right reporting through the QFES Commissioner to one single minister of government.

### **2.3 Defining Key Terms, Definitions and Concepts**

In this literature review, I will explore and analyse concepts related specifically to emergency response organisations and how their respective operations support the community. It is my intention to clarify these concepts so the reader can understand why certain lines of enquiry are relevant and how some terms and concepts relate to each other. To better explain the concepts, it is necessary to identify and define specific concepts (such as ‘medical first responder’) and the QFES’s structure to identify who potentially has the capacity and who will be contributing to the ‘front-line’ role in the ‘medical first responder’ context and why.

### **2.4 What is a ‘Medical’ First Responder?**

Within the field of pre-hospital emergency care (which is the concept on which this study centres), the role itself and who could carry out that role has been articulated by Elmqvist et al. (2010, p. 266) as:

Prehospital emergency care includes the care and treatment of patients prior to them reaching hospital. This is generally a field for the ambulance services, but in many cases firemen or police can be the ones to provide the first responses.

Merriam-Webster (2020) defines a first responder as, “a person (such as a police officer or an EMT) who is among those responsible for going immediately to the scene of an accident or emergency to provide assistance” and Carafano (2003) notes that a common usage of the term ‘first responders’ generally refers to law enforcement, fire and emergency medical personal.

More specifically, however, in the context that was used as a basis for the Melbourne MFESB EMR model and in the context of this study, a medical first responder is defined and explained by Boyle et al. (2010, p.77) in this way:

Although the use of firefighters as first responders in the international prehospital setting is not new, the use of and reporting of the Melbourne Metropolitan Fire and Emergency Services Board (MFESB) emergency medical responder (EMR) program experience is new. The use of firefighters as “first responders” to acute medical incidents, especially cardiac arrests, commenced in the mid-1980s in the USA<sup>1</sup> and in the late 1980s in Canada. Firefighters and other emergency service workers were used as first responders to decrease the time from collapse to defibrillation, which demonstrated an improvement in patient outcomes.

As in the Melbourne example, this study relates specifically to existing firefighters carrying out a medical first responder role rather than a separate entity attached to a fire service.

By way of analysis of the available literature, I will be making the case in this literature review that if patients in need of emergency pre-hospital care were attended to (or could be guaranteed to be attended to) in an acceptable time period by ambulance services, the ‘medical first responder’ concept would be difficult to support. The ‘medical first responder’ principle then relates to a specific ‘medical’ role (over and above that of basic first-aid and similar to that currently being applied by MFB in Victoria) being carried out by fire-fighters, a service which currently does not exist in Queensland.

The potential benefits (articulated later in this literature review) for the community in having 'fire and rescue' taking on the emergency responder role (additionally to their current role) relates directly to potentially being able to arrive at the actual incident scene 'earlier' than QAS, as the conceptual model in the Introduction indicates, and thereby being in a position to deliver emergency pre-hospital medical intervention in three life-saving aspects of medical emergencies. Those potential benefits are: i) cardiac defibrillation utilising AEDs; ii) management of major arterial bleeding; and iii) emergency airway management.

Supporting the value of this philosophy and referencing examples associated with the use of AEDs, Shapiro (2000, p. 239) states in part that:

...early CPR and defibrillation, when performed by either prehospital providers or other first responders, is associated with greater survival rates in persons who have experienced out of hospital cardiac arrest..

The reference to this positive outcome regarding early CPR and defibrillation, further supports the 'first responder' concept, especially related to early intervention evidenced by Shuster and Keller where the authors state:

...fire first-responders were able to provide defibrillation in significantly shorter times than ambulance attendants. Other EMS systems should review their response times and consider instituting first-responder defibrillation as one means of reducing defibrillation intervals (Shuster & Keller 1993, p. 727).

In the emergency and pre-hospital context, it is those three medical intervention practises that are the most commonly required to save life. In summary, the potential 'capability' of the QFES in this context relates directly to QFES being perceived by myself as having the potential to provide this service due to the larger geographical spread of fire stations when compared to ambulance stations and the difference between the emergency operational workloads of both the QFES and the QAS with QFES having lower frequencies of emergency call outs.

## **2.5 What is Ambulance Ramping?**

I have identified that the concept of 'ramping' is significant to this study and the available literature, which explains the consequences of 'ramping'; these will now be explored.

Summarising a definition of 'ambulance ramping' offered by Hammond et al. (2012), the concept is defined simply as a practice where patients brought to hospital emergency departments (ED) by ambulance but then experience delays to patient admission causing ambulances to remain 'ramped' (physically being, 'on the hospital ramp') administering required medical care until their patient can be accepted by the hospital ED. This delay then reduces the number of ambulances and paramedics available for response to emergency events in the community.

Hammond et al. (2009, p. 170) detail the further context of why 'ramping' occurs and state in part that:

Ambulance ramping is a new and increasingly frequent practice reported to occur at all Queensland Health emergency departments in Southeast Queensland. Anecdotally it has been reported to occur to deal with ED overcrowding due to increasing presentations of patients to the ED by ambulance and in general.

I will identify later in this literature review why the practise of 'ramping' places upward pressure on ambulance services and I will show why that then supports the concept of the QFES potentially taking on a 'medical first responder' role.

## **2.6 The Medical First Responder Concept in Practise**

Summing up Bobko and Kamin (2015), the authors argue that evidence demonstrates that despite ongoing improvements to the first-responder system an inherent delay in the immediate medical care exists at the scene of an emergency. They go on to articulate that this delay can only be reduced through a societal shift in reliance on police and fire response and by extending the medical system into all communities.

I note after reviewing examples such as one found at (Craig et al. 2010) that in the United States, the use of police and fire personal as medical first responders is common, which leads me directly to the point that in Queensland the medical first response role is carried out only by the QAS. Although police services are used in this role in other locations, I will not be exploring if police could potentially contribute to this role here in Queensland as it is beyond the scope of this research.

Bobko and Kamin (2015) go on to indicate that more can be done to minimise the delay of immediate medical care in their own system that already uses police and fire staff in the medical first responder role. The fact that in Queensland, we have not tapped this resource highlights the point that there is a resource available (namely fire and rescue) to fill this gap in an emergency medical response capability should that gap, or the potential thereof, prove to have negative implications for the community.

In another example of firefighters being used as medical first responders in the United States, Craig et al. (2010, p. 109) states that:

Many emergency medical services (EMS) systems dispatch nonparamedic firefighter first responders (FFRs) to selected EMS 9-1-1 calls, intending to deliver time-sensitive interventions such as defibrillation, cardiopulmonary resuscitation (CPR), and bag-mask ventilation prior to arrival of paramedics.

In simple terms, the practical application for this concept in Queensland would require a 'Fire and Rescue' response similar to that being carried out by MFB in Melbourne, Victoria and in the United States. That concept discussed by Boyle et al. (2010) in practise would require mobilisation utilising computer-aided dispatch (CAD), initiated from the 'Triple Zero' call centre of a 'fire and rescue' appliance from the nearest fire station occurring concurrently with the normal response from the QAS, as noted in Figure 2.

Should the ability of an ambulance crew to arrive on-scene be delayed, the 'fire and rescue' crew would, if required, apply any of the three aspects of emergency pre-hospital care to the patient similar to that concept identified by Craig et al. (2010) until



the arrival 'on scene' of ambulance services. It should be noted that this concept is not designed to take the place of the ambulance service; it is designed to fill a potentially life-saving gap only until ambulance services arrive on-scene.

## **2.7 Pivotal information and inclusion rules**

In the preparation of this literature review, after examining Cooper's Taxonomy of Literature Reviews, Randolph (2009) has established guidelines as to what should be researched and referenced here and why. Those guidelines indicate that: i) a 'need' for this proposal/initiative for QFES should be established; ii) if such a 'need' is established, a determination needs to be made on the value of a 'medical first responder' role which would include counter arguments; and iii) if the need and value of the concept is supported by the literature, the question needing to be explored is, can the QFES do it? It is for those reasons that I will review and reference specific literature to answer those pivotal questions as supported by the guiding principles in Randolph (2009). Literature that does not add value to objectively answering those specific questions in the context of this study have been deemed 'not pivotal' and out of scope for this literature review.

Looking at the subject matter in smaller parts, I have reasoned that this literature review needs to explore some specific aspects of the proposal to support the arguments of the study. They are: i) Is there enough existing pressure on the QAS service delivery, as identified by Lowthian et al. (2011), that would warrant the QFES being directed to take on this medical first responder role; ii) Do the specific applications and earlier pre-hospital medical intervention strategies of the first responders (cardiac defibrillation, managing major arterial bleeding, and emergency airway management) actually contribute to a greater patient survival rate; and iii) If so, is this initiative achievable by QFES in Queensland? These questions will now be explored.

## **2.8 Establishing the 'need'**

### **2.8.1 Increasing demand on ambulance services**

An examination of the service delivery pressures on the QAS is appropriate for the study as the literature will reveal that the pressure on ambulance services are a key driver for this research and a potential driver of a possible change that could affect the QFES if required by the government. I will be presenting data that supports the case for the research and recognise it is vital to have that evidence clearly articulated in such a way that it enables the reader to be fully informed as to the increasing pressures on ambulance services.

In an existing literature review published by the Queensland University of Technology (QUT), Toloo et al. (2011, p. Abstract) state that:

...hospital-based emergency departments (ED) and pre-hospital ambulance services, are a significant and high profile component of Australia's health care system and congestion of these, evidenced by physical overcrowding and prolonged waiting times, is causing considerable community and professional concern.

Regarding the upward pressure on ambulance services (Toloo et al. 2011, p. 74) supply the following insight:

The gross demand for ambulance services has been increasing in Australia over the past decade. In 2009-10, a total of over 3 million incidents were responded by ambulance paramedics in Australia, which showed a total growth of about 67% compared to 1999-00 and an average increase of 5.3% per annum since 1999-00. South Australia recorded the highest annual growth rate of 7.8% followed by the ACT (6.8%) and Qld and Tasmania (5.8% each).

Toloo et al. (2013) identified that growth in demand for ambulance services is a global problem and specifically Queensland has the highest per-capita usage of ambulance services (169 per 1,000 persons in 2009/2010), which is growing at an annual rate of 4.4% which is more than twice the rate of population growth (2.1%) during the same period.

Supporting Toloo and colleagues, in a journal article Boyle (2010, p. 7) states in part that, 'All ambulance jurisdictions are facing operational pressures, including increasing demand, aging populations and emergency department ramping.

## **2.8.2 Industrial and community influence**

It is a widely held view of those inside the QFES, that the majority of front-line staff (who are also members of the community) are members of and supported by industrial bodies whose power comes from the potential 'public voice' of their membership and the respective industrial body's closeness to governments. The United Firefighters Union of Queensland (UFUQ) claim to have a 99% membership base and are not afraid to flex their industrial power, which can go unseen by the general public. The (Queensland 2020) state:

A union that enjoys over 99% membership in a era of falling memberships of unions generally. A union that has demonstrated time and again its ability to properly, and at times, forcefully represent its members (Queensland 2020).

Hearing concerns from front-line staff is a popular method used by politicians to gain an insight into staff morale and the realities of front-line work, as are government tools such as the 'Working for Queensland Survey' (Government 2020), which explores 'employee engagement and job satisfaction' and whose results are claimed to 'drive positive workplace change across the Queensland public service.'

Supporting this hypothesis, Chilton (2004) speaks of societal influences and makes the case that at a macro level it is society that has potentially the greatest say in the

determination of the future of the ambulance service and prehospital emergency care. He makes the point that societal values, ostensibly reflected in the policies of governments that to a large extent dictate the place of ambulance services in the bigger picture and that we also need to be mindful of the influence other stakeholders and individuals have on the policies of governments that impact on the role and function of ambulance services.

In regards to industrial influences of policy, in a dissertation related to 'human security' and the role played by the UFUQ submitted by Wilson (2005, p. ii), the author states in part that:

...by arguing that the rightful place of 'ordinary people' is at society's core, not at the periphery. In this way, 'human security' becomes a useful counter-hegemonic tool for the UFUQ, and a valuable addition to their 'toolbox of power.'

In relation to how industrial bodies such as the UFUQ can and are close to specific political entities, Wilson (2005, p. 90) goes on to state (in relation to different points of view in gaining agreement on a definition of 'job security') that:

The main reason for this seems to be that the labour movement, both the political wing in the form of the ALP and the "activist" part, the unions, are locked into the Left-Right political spectrum model. This model concerns itself with little more than a "cake" sharing exercise with a seesaw battle between Capital and Labour over who gets the larger slice of "the cake."

If we look more closely at how industrial bodies can exert influence into the day-to-day operations of organisations such as the QFES, we only need look directly at industrial agreements such as 'Award Agreements' and 'Certified Agreements.' By way of example, the Queensland Fire and Emergency Service Certified Agreement 2019 found at (QFES. 2019) in Part 2 states:

Consultation means the full, meaningful and candid discussion of issues and proposals with genuine consideration of each party's views providing an

opportunity to affect the outcome, prior to the making of any final decision, and

Unions will be invited to engage in the formulation and implementation of policies, plans and strategies that are likely to affect the working conditions of members (QFES. 2019, p. 10).

Whilst these references demonstrate that the UFUQ has power, that does not mean it necessarily negative. The various branches of the United Firefighters Union of Australia (UFUA) has close affiliations, and what occurs in the Victorian Branch of the United Firefighters Union (UFU) is also known in Queensland by the UFUQ. Of note, is that the Victorian Branch are fully supportive of the medical first responder concept in Melbourne, Victoria and in a branch submission to the Victorian Parliament found at (Victoria 2017, p. 12) stated:

Certified EMR is an extremely successful and important aspect of the fire response delivered by career firefighters. In particular to areas of highly urbanised and residential growth due to increased population and the urban sprawl.

Further to that, in a UFU Victoria bulletin, found at (Union. 2018, p. 1) they went on to demonstrate support for the program and stated:

Since the introduction of the EMR program in the MFB around 2005, the UFU has supported the critical role of professional career firefighters in emergency medical response to the community.

In summary of the point relating to the ability of the UFUQ to exert pressure, it should be noted that their colleagues in Victoria support the medical first responder concept, which will be relevant in the discussion chapter given further data will have been elicited from the work based project.

### 2.8.3 Ramping pressure

Hitchcock et al. (2010) identified that ambulance ramping within Emergency Departments (ED) is a common problem both internationally and in Australia, and concluded that ambulance ramping is one factor that contributes to prolonged ED length of stay that adds additional strain on ED and their ability to function with appropriate service delivery. Also, there is potential for adverse patient outcomes as a result of ramping and it is an issue that warrants close attention by health care service providers.

Further supporting the case being made relating to a potential gap in emergency pre-hospital care, a 2012 report (Health 2012), tables 'model business rules for review of hospital emergency access escalation' that identify how ambulance ramping may negatively affect service delivery and the community. One small section of the literature referenced below, related to developing business rules, indicates how this increase in demand for government services has a direct and potentially negative impact on front-line service delivery of ambulance services to the community:

#### QAS CONSIDERATIONS – LEVEL THREE

- The failure to release QAS resources during level two escalation will inevitably result in QAS being unable to deliver emergency pre-hospital care to the community.
- Characterised by QAS being unable to meet demand for service (requests for service will remain pending until such time as resources are released). QAS will take all measures to and make all representations within its capability to optimise patient safety (Health 2012, p. 44).

In an example of industrial pressure applied to governments through media, Queensland political reporter Jessica Marszalek (Marszalek 2019), indicated the issue of ambulance 'ramping' was detailed in the public arena by an industrial body. Her article referenced a contradiction to the 'rapid offloads' policy and stated in part that the policy,

“...allows paramedics to leave patients on stretchers in ED’s before they can be seen in order to get ambulances back on the road” (p. XX). Later in the same article the powerful ambulance union ‘United Voice’ executive, Gary Bullock was quoted as saying, “Hospital staff were putting lives at risk” (p. YY) and asked Health Director-General Michael Walsh to personally intervene.

It could be argued that further funding the hospital system or QAS may alleviate this issue, however if the QFES could remove some pressure from the QAS at no extra cost to the taxpayer, it could be proposed that would be a solution government should consider. This option will be discussed further in Chapter 5.

From these examples it can be seen that some powerful entities (such as industrial bodies and associations) use media to give themselves a voice, which can be used (as this example shows) to potentially influence governments. Perry and Carter (2017, p. 117) summarised the situation when they said:

Finally, ramping may fail to minimise risks of harm across society if the risks to those in the community who are being asked to wait are far greater than the risks that would be posed to patients entering a crowded ED.

Thus it can be concluded that the case of ‘ambulance ramping’ is real and that the trending increasing demand places pressure on the entire healthcare system, including front-line ambulance teams, leaving a gap for those members of the community needing emergency pre-hospital medical care.

#### **2.8.4 Summarising the ‘need’**

In summarising the ‘need’, based on the referenced literature a clear issue exists and there is sufficient evidence to conclude that there is existing and mounting pressure on the service delivery capability of the QAS and that that same pressure has the potential to influence a government to remedy that deficiency in service delivery caused in part by ambulance ramping and by the general increase in demand for ambulance services.

That same literature also adds relevance to key aspects of the QFES Strategic Plan 2019-2023 (QFES 2019) namely, 'Design and deliver services according to local risk and community need,' and this aspect directly supports one of the Strategy 2030 (QFES 2018) Guiding Principles which is 'Our people and our partners work together in a seamless way' as has occurred in Melbourne illustrated by the successful implementation of their medical first responder initiative MFESB EMR.

This literature review will now focus on the value of any medical first-responder role by demonstrating that better patient outcomes are achieved when the concept of 'early intervention' is applied, which is the reason a first responder concept was initially considered. Early intervention will be shown to be a key driver to this initiative being effective, as was demonstrated in the Melbourne example.

## **2.9 The 'value' of early pre-hospital medical intervention**

As a baseline to establishing the value of early intervention strategies, Hasegawa et al. (2013) explored the concept of pre-hospital airway management of patients that suffer out-of-hospital cardiac arrest (OHCA). Hasegawa and colleagues state that OHCA is a major public health problem and occurs in 375 000 to 390 000 individuals in the United States each year. They also state that better survival rates are associated with improvement in early access to emergency medical care, early cardiopulmonary resuscitation (CPR), rapid defibrillation, and that early advanced life support is often beneficial as it provides advanced airway management.

The following literature will further support previously referenced examples and demonstrate that improved response times to intervention is vital, as the medical first responder role includes the life-saving management of not only cardiac defibrillation, but also the management of major arterial bleeding and emergency airway management. The analysis of these three concepts together within the first responder role in this study will demonstrate different medical outcomes when compared to the intervention for cardiac defibrillation alone however the following literature will demonstrate the medical value of all three as the concept is applied with early intervention being a principle aspect.



### **2.9.1 Benefits of pre-hospital cardiac defibrillation**

The use and benefits of public access defibrillation (PAD) were analysed by Nielsen et al. (2013). Summarising Nielsen and colleagues, they state that AEDs were already known to improve survival rates after a casualty suffers an OHCA however their analysis focused on patient condition post survival at the one-month mark. The use of 807 AEDs was assessed over a 28-day period in Denmark and an AED was used on a casualty pre-hospital on 48 instances. Nielsen and colleagues concluded that with a neurological intact survival of 69% for patients with a shockable rhythm, and thus provided further evidence that the use of PAD potentially saved lives.

In the contemporary era, the concept of pre-hospital cardiac defibrillation with the use of an AED is commonplace with the devices being placed in shopping centres and places where a large number of people regularly gather. A modern AED is simple to use and basic instructions guide the user in its application, hence the devices are being widely used around the world. Marenco et al. (2001, p. 1193) thus state that:

Early defibrillation has been shown to be critical to improving survival. Use of automated external defibrillators (AEDs) has become an important component of emergency medical systems, and recent advances in AED technology have allowed expansion of AED use to non-traditional first responders and the lay public.

Taking that a further step to specifically citing the case for the early intervention and use of AEDs by fire-fighters before the arrival of ambulance services, Weaver et al. (1986) provided statistical information on both the functionality of modern AEDs and their early application by fire-fighters. In a key finding for the present study, Weaver and collaborators found that:

On average, first responders arrived 5 minutes before paramedics. Of 118 patients with ventricular fibrillation, 91 were administered shocks, 21 of whom had return of pulse and blood pressure by the time paramedics arrived (Weaver et al. 1986, p. 1017).

The authors went on to state that the AEDs in their study functioned 100% correctly and that:

An automatic external defibrillator can be used by first responders as an adjunct to basic life support, and its use may improve survival by shortening the time to defibrillation (Weaver et al. 1986, p. 1017).

Noting the value of modern AEDs and identifying that early intervention is a significant aspect of improving survival rates, Boyle et al. (2010) supported the case being made by Weaver et al. (1986). (Boyle et al. 2010) also referenced the results of a study completed in Melbourne, Australia by Smith, K. et al. (2001) that analysed ‘...the first 12 months of a fire-first responder program in Australia.’ That study produced valuable data and the original authors, (Smith, K. et al. 2001, p. 150) stated in the conclusion:

The results from this study suggest that fire officers can be successfully trained in the use of AEDs and can integrate well into a medical response role. The combined response of ambulance and fire personnel significantly reduced the response interval and reduced time to defibrillation. This suggests that in appropriate situations other agencies could be considered for involvement in co-ordinated first-responder programs.

### **2.9.2 Benefits of the pre-hospital management of major bleeding**

Rossaint et al. (2010) explore the need for acute management of bleeding in trauma patients and offer guides on the implementation of such management. In the introduction, Rossaint and colleagues state:

‘Uncontrolled post-traumatic bleeding is the leading cause of potentially preventable death among trauma patients. About one-third of all trauma patients with bleeding present with a coagulopathy on hospital admission. This subset of patients has a significantly increased incidence of multiple organ failure and death compared to patients with similar injury patterns in the absence of a coagulopathy’ (Rossaint et al. 2010, p. R52).

In this context Rossaint and colleagues define 'coagulopathy' as to the inability of the blood to coagulate normally. Rossaint et al. (2010, p. R52) state:

Appropriate management of the trauma patient with massive bleeding...includes the early identification of potential bleeding sources followed by prompt measures to minimise blood loss, restore tissue perfusion and achieve haemodynamic stability.

The literature is demonstrating the case that 'early identification' and 'prompt measures to minimise blood loss' referenced, directly supports the medical first responder philosophy.

The point must be made that there is no contention related to the medical skill set of ambulance officers in Queensland and there is no argument being made that fire officers are better suited to a medical role than ambulance officers. The point is 'early intervention.' Rossaint et al.'s (2010, p. R52) comments about 'Initial resuscitation and prevention of further bleeding' recommendation state, 'We recommend that the time elapsed between injury and operation be minimised for patients in need of urgent surgical bleeding control' and the rationale for this is:

Trauma patients in need of emergency surgery for ongoing haemorrhage have increased survival if the elapsed time between the traumatic injury and admission to the operating theatre is minimised (Rossaint et al. 2010, p. R52).

Smith et al. (2013) assessed the value of addressing pre-hospital haemorrhage after traumatic injury in an article titled 'Hoeostatic Dressings in Prehospital Care'. Smith and colleagues concluded that massive haemorrhage still accounts for up to 40% of mortality after traumatic injury and that limiting blood loss after injury in order to prevent its associated complications is of vital importance.

Van Oostendorp et al. (2016) also discussed the pre-hospital control of haemorrhage in the civilian trauma setting. The authors state that haemorrhage due to trauma is the

second most leading cause of death in trauma patients and that prehospital control of life-threatening haemorrhage is the ultimate challenge. The authors conclude that life-threatening haemorrhage is a time dependent disease where the duration of ongoing bleeding may lead to death. Supporting another aspect of the medical first responder philosophy, interestingly Van Oostendorp and colleagues also state that haemorrhage control and shock resuscitation are two of the mainstays of treatment.

Based on this evidence there is sufficient existing medical evidence to demonstrate the earlier management of major arterial bleeding and admission to the operating theatre contribute directly to increased patient survival rates. The area on which this study centres relates to 'early intervention' and this is the potential gap that the QFES could fill.

### **2.9.3 Benefits of pre-hospital airway management**

The third aspect of the proposed medical first responder role, pre-hospital airway management, will now be explored. In a journal article related to pre-hospital airway management, Sollid et al. (2009, p. 58) state that:

Advanced airway management is a critical intervention that is carried out regularly on the most severely ill or injured patients in the pre-hospital setting. Evidence for its benefit is scarce and of poor quality, but it is generally accepted that securing a compromised airway in critically ill patients as early as possible is of the highest priority.

Supporting the points made above, Walls and Murphy (2008, p. 2) also suggest that:

Loss of the airway, with resultant failure of ventilation and oxygenation, is the terminal pathway for many patients. Timely, effective, and decisive airway management in an emergency can mean the difference between life and death...

From a practical and common sense perspective, having a clear airway so that a casualty can physically breath may seem to be an obvious conclusion, however the

analysis of a range of literature indicates that the more complex methods of obtaining a clear airway (especially in trauma cases) can be problematic, often require skilled medical intervention, and in the most complex cases, better patient outcomes are questionable. For example, Davis et al. (2010) make the point that one of the standard tools of airway management in traumatic cases is the emergency endotracheal intubation (EEI), however recent evidence suggests that the procedure may be associated with increased mortality, possibly indicating inadequate training.

Nevertheless, there is clear evidence that opening an airway, if possible to be achieved by a first responder without the need for the more complex airway management, is directly beneficial. For example, Rao et al. (2004, p. 98) maintain that:

Airway Management for the victims of major trauma is the first priority in the care of the trauma victim and is a core skill in emergency medicine and critical care' and that, 'Ensuring an unobstructed airway and adequate oxygenation are first priorities in the resuscitation of the trauma patient.

Rao and colleagues support the point made by Davis et al. that difficult airway management is best left for experienced physicians, however as a part of pre-hospital care, a range of options are available to the first responder.

Rao and colleagues state that basic airway management includes the application of supplemental oxygen (100% oxygen by partial or non-re-breather mask), airway positioning including chin-lift and jaw thrust manoeuvres to remove obstructions from soft tissues, and the use of forceps to remove broken teeth or blood clots are just some of the tools and techniques available for airway management. It is these tools and techniques that might be most suitable for use in the first responder concept being researched here. The more complex options are not being considered.

## **2.9.4 The 'value' summary**

Thinking through this concept with a common sense mindset and from the perspective of a community member, it seems logical that having a first responder trained with the relevant medical skills attend to a patient 'sooner' and manage issues such as cardiac defibrillation with a modern AED, manage major bleeding simply by utilising pressure bandages and keeping an airway open, is a solution that could save life and improve patient outcomes. Thus, a review of established medical evidence has established a benefit of the value of early intervention strategies which embrace the concept of a medical first responder model.

## **2.10 Can the QFES do it?**

### **2.10.1 The case against the first responder concept**

After a thorough search of available data, it is difficult to find compelling evidence, either around the world or in Australia that would suggest use of a first responder has a negative impact on patient outcomes. However, in the context of AEDs and their value on patient outcomes, Lerner et al. (2003) articulate that cardiac survival rates are higher in the hospital setting than outside it. To improve that, AEDs were made more available in the public arena and accessible to those with less than paramedic training, including first response police officers and firefighters.

Interestingly Lerner and colleagues go on to say that subsequent assessments of those AED programs identified modest to no improvement on the OHCA resuscitation rates. In summary, however, their findings were not conclusive as it was not known if the AEDs were applied consistently in the out-of-hospital setting, and thus further study was required. Whilst this example doesn't demonstrate a clear advantage for AED use by a first responder, there are examples that demonstrate the value of AEDs and faster intervention on which the first responder concept centres, such as (Boyle et al. 2010) and (Shuster & Keller 1993).

Another assessment as to the value of the first responder concept was analysed by Berringer et al. (1999) as they discuss the medical role of first responders in the pre-hospital setting. The authors note that evidence is not clear as to their value in every case simply because it hasn't been specifically studied in the Canadian context. They state that some stakeholders question the safety of sending large vehicles in an emergency response on every occasion to calls they may not be required to attend. In the conclusion they go on to say that many emergency dispatches (known as 'lights and siren' dispatches or in some cases (Boyle et al. 2010) 'Priority 1' dispatches) were not necessary and further research should be undertaken to establish better dispatch criteria.

As a concept related to emergency pre-hospital medical services and the 'chain of survival' philosophy, (Cummins 1993) noted that the public health challenge is to develop programs that allow recognition, access, bystander-CPR, defibrillation, and advanced care to be delivered as quickly as possible to a collapse victim. He goes on to point out that:

Such a goal requires the deployment of multiple properly directed programs within an EMS system; each program lends strength to the chain of survival, thereby enhancing successful recovery and long-term survival (Cummins 1993, p. 328).

Notwithstanding the above counter arguments, Smith, K. L. et al. (2001, p. 150) analysed results from the first 12 months of a fire first-responder program in Australia and concluded that:

The results from this study suggest that fire officers can be successfully trained in the use of AEDs and can integrate well into a medical response role. The combined response of ambulance and fire personnel significantly reduced the response interval and reduced time to defibrillation. This suggests that in appropriate situations other agencies could be considered for involvement in co-ordinated first-responder programs.

### **2.10.2 Mapping the literature gap**

The literature provides supporting evidence regarding the value of this concept for Queensland, and that is: i) a need has been established by way of demonstrating the annual increasing pressure, from various sources, on ambulance services: ii) the 'value' of the 'medical first responder' model, by way of the concept of early medical pre-hospital intervention has been established which then leaves: and iii) the rhetorical question of: 'Can the QFES do it?'

The gap in literature for the application of this concept in Queensland indicates why the planned guided interview process is essential for this study, which directly supports the primary research question: Can the QFES provide a medical first responder role in Queensland?



## Chapter 3: Methodology

### 3.1 Introduction and main elements

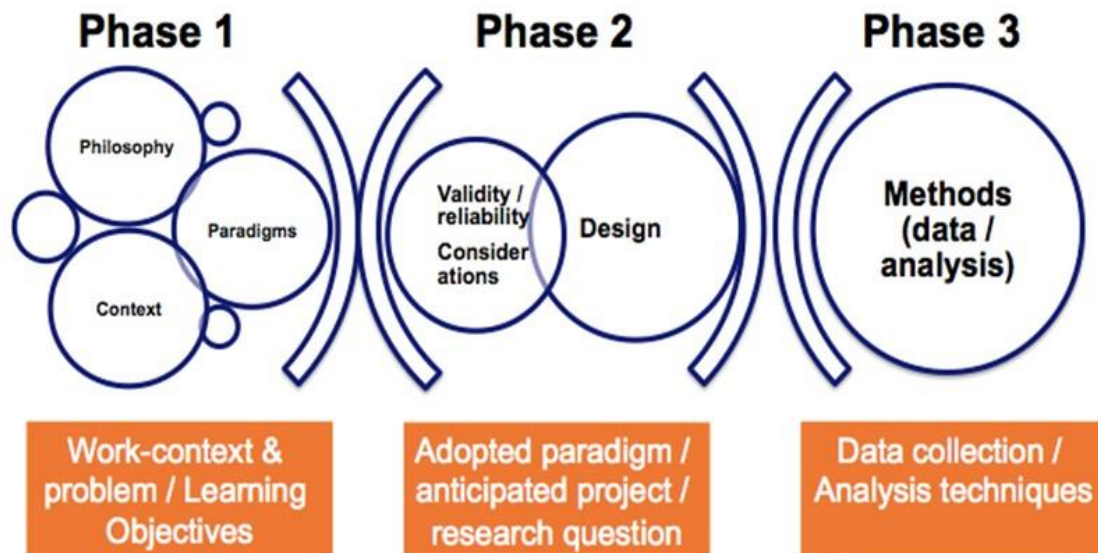
As noted by Tynjälä (2013) of the benefits of work-based learning and given the nature of this Professional Studies program, which is specifically related to 'on the job' or 'work-based learning', I have linked his study and work-based project proposal to my learning plan. I have applied research methods to examine those questions, remembering the work-based research problem will answer "why am I doing this research?", the specific research questions answers, "what am I going to research?" and the method answers "how I am going to do this research?" and thereby answer the initial research question.

Firstly, what is a work-based problem? Summing up an article by Fergusson (2019), the author notes that work based problems cannot be simply categorized as they exist in an ever-changing, unstable environment. Looking at the extremes in basic terms, problems could be viewed as being 'simple' or 'messy' both requiring different approaches to resolve. In brief, a work-based problem could be summarised as being, 'related to workplaces, domains of practise and the world of work more generally' with one feature being that 'one constantly thinks about one's problem solving focus' (Fergusson 2019, p. 107).

The three phase process I have adopted in this research can be summarised as: i) choosing and understanding a lens or paradigm through which to view and then define the work-related problem linked to my learning objectives; ii) design and develop the research question to answer the problem while adopting a suitable paradigm; and iii) choose a method before initiating the project, collect data and manage the data analysis. I will be able to clearly see and extrapolate key learnings from the work-based project in order to fulfil the 'triple dividend' of learning which in brief is to: meet personal and professional objectives, to demonstrate organisational benefit, and to be at a sufficient level to gain academic validation.

Figure 3 shows a simple representation of the research methods value chain which has been applied to the research process enabling a systematic, structured and ordered approach to this study.

**Figure 3:** Research methods value chain.



Through the understandings gained by ‘reflective practise’ (Fergusson, van der Laan & Baker, 2019) and by the readings of Nesbit (2012) that has helped the researcher understand the value of combining action and learning in more efficient ways through the application of single loop and double loop learning, supported by understanding reflective cycles associated with reflective practice in work based research noted in an article by Fergusson et al. (2019), I am well positioned through this work-based project to have all aspects of the learning plan be answered by carrying out the specific work-based project and researching the outcomes (data collection and analysis) of the work-based project. Understanding how to interpret data from the research project to a rigorous and appropriate standard is required to move forward. That process needs to begin with choosing the appropriate research paradigm and methodology.

### 3.2 Paradigm and method

Reviewing a research article by (Flowers 2009) related to research philosophies, the author noted that it is important to consider different research paradigms as they

describe 'the nature of reality and truth' or 'world view' and they can influence the way research is undertaken. Supporting that view, Mackenzie and Knipe (2006, p. 2) propose that the:

Theoretical framework, as distinct from a theory, is sometimes referred to as the paradigm and influences the way knowledge is studied and interpreted. It is the choice of paradigm that sets down the intent, motivation and expectations for the research.

To answer the research question, it is necessary to explore the specifics of the question. 'Examination' in this context means an analysis of the data sets. Note that the concept of 'in strategic locations' has narrowed the scope of this study, as it is already believed some QFES stations will have an existing operational workload that will not make the application of this concept achievable. That said, should the organisation choose to implement the medical first responder role, a re-writing of performance indicators would make all fire stations a suitable resource. How this might be achieved will relate to the specifics of an operational fire crew responding in the medical first responder role from an existing operational fire station and then analysing any improved response time to intervention as compared to a QAS response as early intervention is a pivotal aspect of this study.

In adopting a research philosophy and method it was important to understand the environment in which the research would be carried out and what phenomenon was actually being analysed. Thus, in contrast to analysing if a new drug is effective (a phenomenon more suited to a Positivist or Post-positivist worldviews), the present study considers whether an organisation (in this case QFES) can adopt a new role, such as the medical first responder, and as such is a phenomenon more suited to the worldview of Pragmatism, as proposed by Creswell et al. (2003).

It should be noted that this study will take place in an industrially sensitive environment and due to time restraints, I will be using a single method approach and when reflecting on the above example. Supporting the views of Flowers (2009) and assisting in validating my choice of paradigm and method, Guba and Lincoln (1994)

offer a further definition of 'paradigm' that is suited to and relevant to this present research. Guba and Lincoln say that a paradigm is a set of beliefs the holder has about their view of the world and their relationship to the world and its parts. In this case given the scope of this project, the environment of my research, the method and advice sought, leads me to conclude that the paradigm of Pragmatism and a qualitative method are best suited to this project.

To add rigour to the research and to minimise biases that might be related to qualitative research, it is important to be transparent about known assumptions and beliefs, which are often termed 'reflexivity.' Summing up Creswell and Poth (2016) regarding interpretive frameworks, a researcher should understand epistemological assumptions where the researcher gets close to participants being studied and where subjective evidence is assembled based on subjective experiences and axiological assumptions where the researcher admits their values and biases and positions themselves in the study (Creswell & Poth 2016, p. 20). The researcher's personal values will be communicated prior to interview and data will be initially transcribed using transcription software and then manual transcription to final checking of accuracy. The data will then be thematically and critically analysed and reported on later in this document, which is also communicated to interviewees prior to interview.

Supporting the use of a qualitative method, (Creswell 2009c, p. 195) states that:

The intent of qualitative research is to understand a particular social situation, event, role, group, or interaction. It is largely an investigative process where the researcher gradually makes sense of a social phenomenon...

### **3.3 Design**

#### **3.3.1 Interview methodology**

This study will use a single-stage, qualitative method (as opposed to mixed methods or pure quantitative method) with an exploratory design of enquiry to collect data through

a series of semi-structured interviews (also referred to as 'qualitative interviews') with selected QFES staff. Supporting this methodology, Ritchie et al. (2013) state that the ability to conduct and analyse face-to-face, in-depth interviews is a principle of robust qualitative research and that using interviews is a common methodology for such research. They go on to state that:

Although the methods available to qualitative researchers are wide-ranging and constantly expanding, we believe the ability to design and conduct high-quality interview-based studies remains a core part of the qualitative research skill set... (Ritchie et al. 2013, p. xxii).

Seven QFES senior staff (across eight positions) were purposively selected due to their experience and inherent skill set to participate in the semi-structured interview process and an overview of those interviewees and the interview questions are listed in Appendix 1, however I will summarise their skill-set and current role below.

1. FR1, whose role is 'Zone Commander' is a fire officer with 34 years of experience and has managed in different portfolios. His current role, manages the business and operational response for all fire stations in a Brisbane Zone and has a complete understanding of the nuances of how this potential change would be managed down into the next layer of management.
2. FR2, whose role is 'Area Commander' is a fire officer with 17 years of recent frontline experience and is suited to understanding how this potential new role could be merged with existing 'day to day' station operations and is also closely linked to the views of the frontline firefighters and the industrial officers that influence those staff.
3. FR3, is a fire officer with 33 years of experience and shares the overall responsibility for all fire and rescue operations in the Brisbane Region. This person not only understands the operational complexities of the QFES possibly taking on the medical first responder role but also understands the politics and industrial pressures that could be presented to the organisation.

4. FR4, whose key role is to assist in the management of the 'Triple Zero' call centre known as Fire-Com Brisbane. The role is required to ensure suitable resources are responded to emergency incidents and that includes supporting partner agencies with fire service resources as requested. This person is well positioned to understand how and if, a mutual response from QAS and QFRS could work (or otherwise) in the resource response context of this study.
5. FR5, whose current role is at a state level overseeing organisational policy from a whole of state perspective. They have 37 years of experience across a range of portfolios and is also highly skilled and connected to both the state level political and industrial views of key stakeholders as well as being at the front end of organisational change.
6. FR6, whose role is 'Duty Manager Operations' is a fire officer with 29 years of experience across a range of portfolios including front-line operations. The role is responsible for strategically managing the available resources within the Brisbane Region and has the skill set to understand the pressures that operational stations are under when there are several incidents occurring concurrently and how best to resource those incidents.
7. FR7 whose role relates to 'Professional Development' is a fire and rescue officer with 34 years of experience in the Brisbane Region, has managed many portfolios and also understands operations however he was specifically chosen as he understands the nuances of training firefighters with any new skills required to take on this potential role.
8. FR8 is a representative from the Resolution Engagement Unit (REU) which is a new role within QFES and provides a direct communication path for the UFU to channel their issues to QFES, rather than directing their concerns directly to the Minister in the first instance. This unit was put in place to assist in keeping industrial issues at the lowest level possible. The person whom worked in this role is ideally positioned for interview due to their understanding of how a concept such as this would be perceived by the UFU officials and would also

understand how to best position a concept such as this, creating the least industrial tension.

All staff chosen for interview will have a sound base within the organisation however their current roles, which are representative of a cross-section of key positions within the organisation, make them uniquely qualified and suitable to answer the specific research questions. All staff being interviewed will be 'Senior Officers' by definition, but are not a part of the Executive Management, which may be significant should any industrial body question the motives of this research. All Senior Officers are operational fire officers and those listed have had at least 17 years' service within the organisation and all began their career at recruit level. All have served time on operational fire stations and all but one as Station Officers managing crews at those fire stations before they moved into their respective senior management roles.

### **3.3.2 Interview questions and process**

Supporting the choice for the use of semi-structured interviews for this single-stage qualitative methodology, Ritchie et al. (2013, p. 23) propose that:

...the aims of qualitative research are generally directed at providing an in-depth and interpreted understanding of the social world, by learning about people's social and material circumstances, their experiences, perspectives and histories.

They go on to identify that a key feature of a qualitative method deals with the 'what', 'why', and 'how' questions rather than 'how many', and that specific observational methods, such as semi-structured interviews, are often used and are suitable in qualitative research.

The interview questions are listed in Appendix 1 and were chosen specifically to answer the research question. The interviews were planned to last between 45 minutes and one hour, and were conducted in the workplace (in the interviewee's own work environment) to elicit information about the views and experiences of participants on

whether they saw QFES being able to adopt a medical first responder role. The interviews were not tightly scripted but proceeded initially on the basis of a set of closed questions to gather demographic data and then moved forward with less structured and open-ended questions as documented in Appendix 1. Thus, while there was a research protocol of open-ended questions, the questions differed according to the context and setting of each interviewee.

Being open-ended, the questions are important but were designed to elicit responses that engaged the interviewee and encouraged use of their own words. Interviews therefore sought out the details of experience and the questions encouraged interviewees to reconstruct and explain their experience in their own words. The questions thus sought to understand the interviewee's world, including understanding the meaning of their words and phrases. For example, if participants believed that a potential medical first responder role was not possible, they were asked for their specific reasons as to why that was the case and those views were examined in more detail during the interview and data analysis process.

The criteria for the selection of suitable staff for interview have been established, a definition of the medical first responder role has been recorded, and a capability statement/benchmark established as a reference point. As a qualitative technique for gathering reliable and valid data about people and work-based phenomena, interviews are a common feature of research. In this study, the interviews were used to obtain and develop an understanding of the lived experiences of QFES staff and the meaning they make of those experiences.

Using a research methods guide by Fergusson (2018), I developed the following interview structure as a guide to the process. The five basic stages used to develop and apply interviews in this qualitative research were: 1) develop a research line-of-enquiry by reviewing and examining QFES documentation and other related literature about first-responder roles in emergency services; 2) design high level questions; 3) conduct the interviews; 4) analyse the interview data; and 5) make inferences and draw conclusions from the data in order to reveal knowledge about people, events, organisations, and phenomena that all contribute to answering the research question.



Supporting the process used in the structure and design of the semi-structured interview process, Kallio et al. (2016) say that development of a qualitative semi-structured interview guide contributes to the objectivity and trustworthiness of the research and that it makes the results more plausible.

Supporting the need for rigour and trustworthiness of the process being applied, summarising Creswell (2009a), he reminds us that as a researcher we must be transparent and before beginning research of this nature we must openly identify any biases, values, personal background, such as gender, history, culture, and socioeconomic status that may shape any interpretations formed during the interview process. These issues were made transparent and communicated to the interviewee both electronically in a preamble document in the planning stages and again prior to the physical interview beginning.

### **3.4 Data collection and analysis methods**

As a part of the structure designed into this data capture and analysis process, interviews were openly recorded using an MP4 Olympus device, backed up with an iPhone 7 should the MP4 Olympus fail. This process was articulated to interviewees prior to commencement and the methodology was approved through the Human Resource Ethics requirements of the University of Southern Queensland (approval #H18REA299). Several options were available regarding the transcription of the recorded interviews, including transcription services, such as Otter and Sonix. Ultimately Sonix transcription software was used to save processing time for the initial transcription, which was then followed up by manual transcription for final checking of accuracy.

Interview data were transcribed and analysed both thematically and critically to identify participant views on the research question. According to Nowell et al. (2017), conducting a trustworthy thematic analyses includes six basic steps: 1) familiarising yourself with the data; 2) generating initial codes; 3) searching for themes; 4) reviewing themes; 5) defining and naming themes: and 6) producing the research findings. I followed these basic steps.

### **3.5 Summary**

I have identified the value of Professional Studies and work-based learning thereby demonstrating the value of the work-based project and what that data analysis will contribute to a 'triple dividend' contract. In the summary of Chapter 2 it is apparent that a detailed search of available data reveals that little is known about the value of the medical first responder role within Queensland, adding weight to the premise that there is a knowledge gap and this is an appropriate concept to be explored through this project and data analysis.

This Chapter 3 has focused on the methodology specifically related to the approach I will use in researching this work-based problem. To get to this point in finalising the research methodology I have applied a standard approach to the research topic. In this systematic approach I moved through several clearly defined steps which were: stating what the actual problem is, stating what the purpose of this research, an analysis of the available literature where a gap in literature was identified and that gave rise to the need for this study. The need for this study then necessitates the research question. The next step in this study is therefore to conduct the work-based project using the methodology described and then thematically and critically analyse the resultant data.

## Chapter 4: Results

### 4.1 Introduction

This chapter reports the results from data collected via the semi-structured interviews that were conducted with specific Senior Officers. In summary, those officers were chosen because of their specific knowledge, not only of the subject matter related to the operational aspects of the organisation, but also on their deeper understanding of the nuances related to what was originally an organisation dedicated solely to emergency response to that of the service today, which is a whole of government organisation (providing an integrated response to particular issues) and a department in its own right, reporting to a single minister and one which contains the common place political and industrial challenges.

The value of qualitative research was reinforced for me during the interview process as I listened to the information elicited and then reflected on 'how' any other type of analysis could have worked as successfully in this industrially and politically sensitive environment. Guided by the questions listed at Appendix 1 and the semi-structured format which allowed for the interviewees to expand on answers, the process contributed positively to gaining a broader understanding of the nuances that were not necessarily born out from the primary question. This format proved well suited to the data gathering process as important information became known which has increased the value of this study. All interviews were transcribed using transcription software, which was edited and checked to confirm accuracy. Key themes that emerged were coded into seven categories, which will now be explored, analysed and summarised. Key themes that clearly contribute to answering the research question will be cited to add clarity to the explanation and summary of that theme.

Even though the title of this study has evolved from the original which alluded to an examination of a potential first responder role, to that which now explores the 'challenges and opportunities' of same, one emerging question kept manifesting itself and was referred to many times during the interview process and that is: Can the current QFES actually physically manage a medical first responder role in a technical

sense? In other words, regardless of the apparent merits of adopting a medical first responder role, is it even possible technically that QFES personnel have the skills and training to adopt such a role? This key theme will be explored initially as it forms a basis for the follow up analysis and themes. All interviewees and their respective data have been de-identified in this analysis and will be referred to by their 'FR' number.

## **4.2 Key Themes**

### **4.2.1 Key Theme 1: Technical Feasibility of the Medical First Responder Role**

All interviewees held a similar view. Interviewee FR5 provided a succinct answer to the initial question which represented this collective viewpoint, and also offered an example:

*"Yes, it is. That wouldn't be a difficult task in regard to the practical training and the ability to train the present cohort of station officers and firefighters to be a medical first responder. In fact, there are a number of volunteer firefighters who, across the state, are classed as first responders within Rural Fire Service who already do the exact type of work. So yeah, it's certainly possible."*

FR5 then followed up this answer with an example that they had personally been involved with.

*"...there was a time when fire and rescue full-time firefighters were being responded to medical emergencies when ambulance weren't available. I'll give you an example. My station at Caboolture, the ambulance station there covered quite a wide area. They may have to go out to assist at Bribie Island, which was a good 20-minute drive away, or Woodford the same, and that would sometimes leave no response within that area of Caboolture. So, there was a few years that went past, probably the late 80s at a guess, or maybe early 90s, that fire stations were being responded to medical emergencies. I personally went to a person assaulted at the railway station who was on the ground with*

*bleeding from the mouth and head. A lady that had collapsed in her own home was unconscious. So yes, there was a number of things that we did attend.”*

The summary of this key and basic understanding after analysing data from all interviewees is that ‘yes,’ in a technical sense, the QFES could manage a medical first responder role, however the qualifications to that answer are significant and those qualifications need to be explored in detail before any conclusions can be made. Those qualifications, which are vital to answering the research question, which explores the challenges and opportunities, are elicited through follow-up questions and detailed in the following themes.

#### **4.2.2 Key Theme 2: Sustainability of the Emergency Response Role Sustainable?**

In a technical sense evidence suggests that firefighters can technically apply a medical first responder role, however maintaining that extra emergency response capability whilst continuing to provide the existing emergency response service to the community in appropriate timeframes requires exploration and the answer is not clear cut for all QFRS stations across Queensland.

When asked, ‘Given the existing day-to-day emergency responses of operational crews, is it possible for those crews to undertake an extra emergency response role such as the medical first responder and maintain the existing response,’ the cohort held a similar uniform view, which included variables and qualifications that are difficult to offer a simple answer for. For example, FR1 stated:

*“I do think it's possible. It's easier in Brisbane region because we have a lot more stations. You get into a regional area, Bundaberg for example, one pump and auxiliaries out of that station and other stations. I'm not sure if it would be achievable in those areas. During the last six months...at times we've been stretched now.”*

FR1 noted the issue of smaller areas (such as regional Bundaberg) with fewer closely available appliances than Brisbane and the heightened workload of an extra response

during the bushfire season and refers to the recent six-monthly period were all areas were stretched because of that season. FR4 noted, however, that resources in Brisbane can be moved from neighbouring stations to cope with an extra response requirement which in the context of the research question would be seen as an 'opportunity'. That same opportunity may not be available in other locations without suitably placed resources and this concept may not be possible across all of Queensland. Further analysis on specific locations would be required.

Supporting the view of FR1, the following from FR4 adds further context:

*"I wouldn't say that the whole day is spent going from job to job to job. There are days like that...but then if you add this other workload and it's going to become unrealistic. The other side of that is...if they were being consumed with more medical first response activities, we would just drag more resources in. We're very resource rich in Brisbane region and we're very much in close proximity to each other so we can handle more workload if needed to."*

FR4 acknowledged the workload on busy days, however FR4 goes further and makes the point, supporting FR1's viewpoint, that Brisbane has more capacity to move resources from other stations to fill gaps that regional areas don't have. This also supports the opportunity aspect of the research question.

FR5 makes a further point related to how QFRS might fill a potential gap caused by a new and extra response role by noting:

*"I think there's a number of factors in that. Is it possible? It is possible. But the deciding factor would be when would that type of response be required. It's going to cause quite a number of issues in that regard. I think you would have to look at a specialized unit in regard to maybe a two-person vehicle, which would mean increased staff. Obviously, that would...(have to) be available from a lot of stations. I don't think you could do it with the existing staff and the response vehicles that we have."*

Once again FR5 noted that 'it is possible', which indicates an 'opportunity' but goes further and indicates a 'challenge' ('challenges' are also an aspect of the research question), and speaks of extra staff in a specialised vehicle to meet that challenge. Supporting the view of FR5 regarding extra staff and the view of requiring a specialised unit, FR3 added further context, which related to the peak periods such as during the bush fire and cyclone seasons:

*"We're stretching our people now, to put another requirement on top of that with our current employment base, I would say we would probably be in for some significant issues if we wanted to do this. If the government chose to go down this path, we'd be looking for a significant increase in staffing and probably extra allocated people that could take on that function of...advanced medical professional. If that's the case, we would need extra people to sustain what you're talking about."*

In summary, the cohort agreed that the Brisbane Region has greater capacity than other locations in the state to move resources from one station to another for surge capacity requirements at peak times and that does in fact occur now. In the context of the research question that is a clear 'opportunity.' Some interviewees, however, emphasised that the extra pressure may not be sustainable without extra staffing or without a specialised unit, which is also raised as a sub theme later in this document, again related to the research question presents a 'challenge'.

#### **4.2.3 Key Theme 3: Skills Level Requirement**

Whilst the outcome to question 1 in its simplest form was 'a qualified yes,' and is a clear 'opportunity' in the context of answering the research question, significant information was elicited around the context of skills maintenance to that affirmation. A key theme developed around that question, including the follow up questions, which elicited concerns related to a perceived difference in skill standard required when 'formally' taking on a medical first responder role as opposed to simply saying, 'yes, technically we can do it.'

Given the title of this study explores the 'challenges and opportunities' of the medical first responder possibility, the key theme that developed, which will assist in answering the research question, is explored below. Interviewee FR6, when provided the full context of this question and follow up questions, provided a clear view relating to skills maintenance:

*"So, training is quite a large burden already within the fire service. We train a lot of firefighters across a lot of different disciplines from technical rescue...vehicle driving, first aid...breathing apparatus and it goes...on. First-aid training is already part of the program and in Brisbane region at least, it's kept up to date as an annual thing through Queensland Ambulance Service.*

*"I'm not sure what other regions do...I suppose you'd have some issues with remoteness...keeping this study or the training up. So, I suppose the short answer is 'yes', it is possible, but...there would have to be some sacrifices assuming that there'd be some more training involved than was originally given."*

After the follow up question, 'When we look at the context of the medical first responder role, are firefighters trained to that level already?', FR6 went further and added context to his point, '... assuming that there'd be more training involved than was originally given' and then added the following:

*"I'd have to look at all the details of what would be expected of them, and there are some questions I'd like to ask about the reality of that. Whether further training is needed, because you could say, yep, we're trained enough...but you might find that other stakeholders might come in and say, 'We want further training. We don't think it's trained enough. We want this added or that added.'"*

From the perspective of answering the research question, FR6 has indicated, with some caveats, that in the technical sense 'yes' it is possible to train firefighters to this level and 'yes' some firefighters are trained to this level already which is a clear 'opportunity',



he also indicated what might be a 'challenge.' Whilst all interviewees held similar views on perceived changed expectations should the organisation take on this role formally, FR4 added these thoughts, which supported directly the views of FR6:

*"Depends what the required skill maintenance is. Is it exposure to those sorts of incidents? Is that sufficient, or is it rather than the 12-monthly recertification, is it something that needs to be done through core skills maintenance or some other sort of training? In my opinion, you probably need an additional refresh of that more regularly than what we experience now. You can have a station sit there and not go to any kind of medical emergency for over twelve months. I guess it could be argued, does the recall of that training come to mind when you are presented with the situation and do you just do the best that you can? Is that enough?...I think if you're going to transition into whether that's going to happen more often and more frequently, it's probably wise to mitigate that risk, making sure that we have firefighters that have the skills and confidence necessary to handle or be subjected to situations like that more regularly."*

When asked with the follow-up question '...assuming firefighters will be used in that role, should we perhaps provide more regular training because of the expectation you are being responded in a medical first responder role?', FR4 stated:

*"In my opinion, yes. I try to look at the perspective as if I was a firefighter on that truck, how would I feel about going to jobs that are quite serious in nature with just a one-day refresher once every twelve months. I would ...think once every six months would probably even be more ideal shall I say."*

A clear theme emerged here supporting that same view, which FR2 articulated confidently:

*"...I feel that it certainly is possible to train those firefighters, but I feel that the gravity and the magnitude of that service output would need to be maintained at the highest level at all times. We couldn't just let it slip into another suite of skill sets that we were 'sort of good at', but we weren't as polished as perhaps we once were when we first got those skills. And that's where I feel that...in*

*keeping with what we've discussed, in those strict parameters of what those firefighters would be expected to do, it is possible. But the skill set would need to be maintained and they'd need to be prioritized as maintained."*

And when asked the follow up question 'Are you saying that with this, the potential for a new role, you're saying you'd want that to be polished and a solid skills base?' FR2 said:

*"Yeah...everything we do should be polished...we are expected, in the public eye to deliver that service. But where you are dealing with the potential of someone's life...hanging in the balance, if it were determined down the track through some form of inquiry post an incident that didn't go well, it was revealed that that person's skill sets had lapsed or that they weren't on point because they were...scheduled to do those courses to upgrade and other things got in the road that are also considered primary roles of a firefighter, that's where we could have an issue."*

In summary, there is a consistent view that the development and maintenance of skills is possible to achieve and in the context of this research must be considered as an 'opportunity'. It is clear, however, that skills maintenance is vital and that regardless of the fact that firefighters technically hold these skills already, there is a view that should this medical first responder role be formalised, a more stringent and structured oversight should occur in regards to the skills maintenance in the medical first responder context and the extra time and workload that would require is a challenge in the context of this study.

#### **4.2.4 Key Theme 4: Job Creep**

The interview process elicited vital information that was not initially anticipated when the parent questions were formulated. Follow-up questions with the interviewee, gave scope to speak from lived experience, which proved invaluable in gaining a deeper understanding of potential challenges and opportunities. In this case, 'job creep' was identified as a key theme. Job creep is the informal term given to a scenario where crews, sent to do a specific job, are then expected to do something slightly different and larger in scope which, over time, becomes normalised.

After being asked, 'Given the existing day to day emergency responses of operational crews, particularly operationally busier stations, for example, Kemp Place or Roma Street, is it possible for those crews to undertake an extra emergency response role such as the medical first responder?' FR3 spoke confidently and in detail on this subject and included relevant points related to job creep, which was a phenomenon that was not anticipated by the researcher at the outset of this data collection process.

*"Anything's possible, but we need to be careful and conscious of our skills and our qualifications. We've seen it recently with the Queensland Fire and Emergency Service merging in 2013 with SES and Rural Fire Service. We need to be careful that we don't multi-skill too much across the board. Otherwise, we are unable to maintain those skill sets...as it would be...my personal view from what I'm seeing in operations, is not to drift too far into other skill sets...that fire and rescue doesn't move too far into the Rural Fire Service area. It doesn't move too far on the SES areas, that there are political aspects to it, but there's also...trying to maintain these skill sets."*

From this initial reply, FR3 technically supports the points made previously, which once again can be seen as an opportunity in the context of the research question, however when exploring this idea further with this follow-up question, 'I suppose this question is related to the day-to-day emergency responses, let's say Kemp Place or Roma Street going out to fire alarms and everything they do, would them being responded to a medical assist or this medical first responder role, impact greatly on that business?', FR3 articulated the issue more specifically.

*"It sounds like a great idea and I think it happens to a point at the moment, but we would have to be very careful in relation to creepage. How far do we go, when do we say stop? Is it, one hundred responses and then we don't respond anymore? If you look at the potential for creepage such as, are we going to see Fire and Rescue respond to all emergency positions in relation to medical emergencies and that reduces the QAS component of it and so basically what you will do is get pushback from QAS..."*

*"I have even heard stories in the past where we've had fire and rescue officers driving ambulances and...there would also be a potential if there was no ambulance attending and a person needed to get to hospital in a great hurry, I'm sure that the fire engine would be utilised to transport a person."*

Interestingly, FR3 confirmed a point already made regarding the QFES capability given that in an informal sense, some support for QAS already occurs which indicates to me a clear opportunity. From a 'challenge' perspective, supporting the points made by FR3, the following was supplied by FR4 after being asked the follow up question, 'Do you think any existing activities would need to be adjusted, reduced or removed to maintain the appropriate KPI achievements?':

*"If QAS were ever in a situation where they didn't have a resource to send, they'd ring and tell us. Now, we go to...older generations of the population with...some kind of heart difficulty. And we will go out and provide first-aid until they (QAS) get a resource there. That probably won't be real critical having a cardiac right now. But they might be experiencing some kind of chest pain that they've (QAS) classified as a low risk and they send us out just to give them oxygen and just to sit there with our defib (AED) and wait."*

And when asked in a follow-up question if that response was an informal process, FR4 stated:

*"...I don't know of a formal mutual agreement...in place, but I've been on shift when QAS have rung and said we have this and we don't have anything to send, can you go out?"*

FR2, when exploring the concept of 'job creep' further explained his thoughts, which summed up the view of all interviewees:

*"And again...I know we set those parameters and strict aspects of what we would do. But again, in a case by case situation, if you arrive as that first responder, as per the new expectation and something slightly more was*

*happening, it puts you in a very awkward position...I'm here to help you as a first responder so I can only do this. And now what happens if the ambulances don't arrive? It really does put people in a precarious position of ethical and moral, 'what do I do now?' Do I maintain the process or do I step over the line a bit because I had to. And how often will that start happening."*

In summary, all interviewees did not see an issue with the principle of the concept and it occurs informally, which demonstrates a clear 'opportunity' in the context of this study given that if it occurs now to some degree, why could the QFES not continue that role? When the subject of job creep was explored however, there was clear apprehension related to where this would lead into the future.

This presents challenges in the context of answering the research question. One challenge being reluctance from firefighters to accept this new role arising from a perception of being required to do more than the role initially contemplated by the firefighter role, which calls into question the skill level required. Another issue is the extra operational pressure this role may have on existing business caused by time taken if the incident extends in time should QAS not arrive in suitable time periods. The topic then fed into the common theme related to the potential of not being able to manage the non-emergency business requirements of the QFES.

#### **4.2.5 Key Theme 5: Non-Emergency Core Business Maintenance**

The QFES, and specifically the 'Fire and Rescue' component of QFES, has a requirement to achieve certain key performance indicators (KPIs) as agreed with government and given the provision of core services to the public. For example, some of those KPIs include, but are not limited to, commercial building inspections, risk identification, skills training and the regular testing of equipment. Those KPIs are set by the executive of the organisation and some have the potential to be changed (or be performed by non-operational staff) but any change brings consequences that are not often straightforward or obvious at the time of the change.

When interviewees were asked, 'If crews were tasked with a new role, such as the medical first responder role, how would that impact on their existing day to day, non-emergency business requirement?' the answer was similar across the cohort. FR3 explained it like this:

*"I think it would impact on them greatly. We do a lot of inspections of buildings, community safety work, a lot of preventative work. We also conduct audits in relation to what's out there. We work with local councils in relation to hazard mitigation and so forth. There's a lot of work that goes on behind the scenes...to keep our operations. Now, if we find that we're always doing operational work with a big fire and rescue or medical assist, you would find that those systems and processes and policies and that stuff that holds our system together would fall apart.*

*"Now...over the last couple of months we've seen significant bushfires. We've just been totally focused on operations. So, we've got...a lull at the moment and we've got a significant backlog of processes and policies and work that needs to be done to maintain our business and also drive our business forward. So, I would say that we would probably stall and at one particular point, some years down the track, we'll look back and we won't have our systems and processes in place."*

Supporting that analysis, FR6 articulated clearly his thoughts in a slightly different context:

*"But any kind of extra calls will always impact because...in the cities for example, they can't keep up with the load of building inspections they've got...now. If you added an extra load of medical response in high population in the city during the week, I can imagine them being quite busy there. They would definitely be impacted. Now across the region, obviously, there are some stations that could handle the load and still maintain what they're expected to do, but eventually something would give and it would be...the maintenance of a piece of gear, a piece of training or an inspection or a visit to a school or*

*something they can't do now because they've got this medical call to go to. And those things can accumulate over time to the point where things become overwhelming and a piece of equipment hasn't been maintained now for five months because no one's had a chance to do it."*

In summary, all interviewees had similar views regarding the importance of non-emergency work not being addressed and causing a problem at some point in the future, which presents a challenge in the context of the research question. For example, references were made to building inspections and the testing of equipment, which the interviewees fears will not be completed, creating a potential hazard into the future. I do not see that challenge as insurmountable however, as I am aware from my own many years' experience within QFES that KPIs have been historically reviewed and that can occur again, providing the opportunity for non-critical work to have the KPI reviewed and perhaps altered.

Options also exist to manage the more critical KPIs, like commercial building inspections, through another means. A review of KPI requirements for the busier stations may allow for some of those inspections to be completed by neighbouring stations. A further option for the organisation is to consider outsourcing some of that work to skilled non-operational staff including retired firefighters. This concept is not foreign and (DePinto 2006) addressed 'volunteerism' whilst completing a Graduate Certificate at the Australian Institute of Police Management which included consideration of this theme.

With no action, a flow-on effect would exist and that is something the Board of Management of the QFES would have to give due consideration and will be addressed in the conclusion.

#### **4.2.6 Key Theme 6: Industrial Relations and Remuneration**

Industrial relations can be a key driver of policy (Wilson 2005) and is often one of the first considerations when considering any change to the norm or status quo. When the cohort was asked these questions, i) 'Do you think operational firefighters would accept

a new role such as a 'medical' first responder role?' and ii) 'Would the elected representatives of the United Firefighters Union hold a different view to the rank and file, firefighters in response to that previous question?' the answers were consistent. FR2, summarised both questions in this way:

*i) "I think certain people may be open to it, but I feel...across just human nature and being on the trucks for as long as I've been on the trucks, I know there's a lot of people who are very opposed to it. They don't see it as part of our core role. And again, because we are taking on all these additional, and you know how hard I want to use it, the dollar value, that remuneration, the requirements to maintain skills."*

*ii) "I don't think they will want this. I think they will see it as a skill set that will have to be maintained, that is potentially being forced upon people, putting them under more pressure and again, remuneration. That'll be the big crux. What will they get for carrying that skill? If it came down to that, that heated conversation in a room where they've basically been told it's coming from the government above, it would be the last-ditch thing...all that they would want, remuneration."*

Interestingly the answer was not a direct 'no' but revolved around getting paid extra if one had to take on this new role. That view was validated further by FR5, albeit using a slightly different explanation and a broader context:

*i) "The older members of the service that came in under a different expectation...and a different training regime...more than likely going to hold out against that and say, well look, that's not what my business is about. They'll be looking at union intervention and they'll be looking at allowances to do anything that they feel is extra."*

*ii) "...let's look at it objectively. The UFU, as far as you know, are there to represent their members and they will look for opportunities. That's what they are there for. So, I'm sure that they would be opposed to this proposal straight*



*off the bat. They will see it and I guess rightly so from their angle, and that's what they are there for, to look after their members, they'll see it as an extra duty, which it is. I keep saying that training to me is virtually already there. But it will be an extra impost on them to be going to a different type of response and they'll want some sort of remuneration."*

The answer revolved around 'remuneration' which is not a 'no'. FR3 held a similar view and included a previously made point on 'creepage' for context:

*"Some would...and I think others wouldn't. Now, if you're trying to get a consensus across the board in firefighters, I would say that what you would have in the background is the industrial bodies, such as the United Firefighters Union, basically providing informal advice to the members not to take this on. What they would be looking at is potentially, risk to their people, the amount of work, job creepage. And also with...any extra task, they'll be looking at potential reward for that and some type of payment...So, I would say from the industrial side of things, or members or fire and rescue personnel that were in the UFU, you would be told not to engage in it."*

In summary of this theme the view is consistent across the cohort. There would be mixed interest from the firefighters who would ultimately be influenced by the UFUQ. It is anticipated that the UFUQ would oppose the proposal, at least initially, should it be considered. Should that proposal be forced from a higher authority, the key issue for which the UFUQ would leverage the organisation and government for is remuneration and I see that as an 'opportunity' needing to be balanced in the larger context related to other possible options which will be discussed further in Chapter 5. Of note and diversely, the UFU in Victoria is supportive of the 'medical' first responder concept that was adopted in Melbourne and I see this as an opportunity that the UFUQ could be influenced into a different view. I will also address that point in the next chapter.

#### **4.2.7 Relevant Sub-Themes**

To capture a thorough cross-section of the views and lived experiences of the cohort, it is necessary to articulate sub-themes that were spoken of in the course of the interview process. Those relevant sub-themes were not articulated in the same context by all interviewees and some held stronger and deeper views than others, however they are all relevant to this study. The sub-themes relate to: i) the utilisation of extra staff to facilitate the medical first responder role; and ii) the perception QAS may have of QFES should QFES take on this role, which then elicited more detail.

Three interviewees, when exploring the subject of whether the QFES could actually do this role, expanded on their answers and spoke of the need to have a 'specialised unit' that would include staff numbers over and above the standard establishment. Those same staff in the example could perform the role of the medical first responder similar to the American models cited in the literature review (Craig et al. 2010). In their view, this would solve the problem of 'skills maintenance' and would also address the issue of the existing operational response during peak periods, such as bush fire and cyclone season.

The second sub-theme, after the initial discussion of how the QAS may perceive the QFES after potentially taking on this new role, related to the provision of extra staffing for the QAS. That view was perceived as being able to solve the problem being explored by this study and those interviewees felt that if money was spent on getting QFES to manage this role, then why not simply give that funding to QAS. This possibility is not as clear cut as it may seem and further analysis would be required on the true costs of QFES taking on the medical first responder role verses that of supporting the QAS to manage that role in its entirety by supplying them with extra staff. This will be discussed further in Chapter 5.

The deeper aspect of the initial concerns regarding how the QAS may view this proposal negatively was related to the possibility of further industrial relation issues from QAS. This is predominantly related to the industrial body who supports QAS staff, protecting what they would see as the core business of the QAS, from being taken in part by the QFES. That would ultimately be an issue for the government of the day. FR3 went on to

explain the potential downside should this concept not be articulated to the QAS appropriately by the QFES and government, when he said:

*“Where you would start getting into problems is if you just responded a fire and rescue service appliance without a Queensland Ambulance Service appliance, what you would have is a lot of industrial issues and a lot of pushback and there would be...sort of a conflict between the two services and I think it'd be detrimental to the services and to the community. You could probably look at social media, it seems to be used a fair bit these days and media alone. I believe that probably a media campaign from QAS saying, ‘we have got ambulance officers here. We are trained. We've got the advanced care. We know what we're doing. But to save money the Queensland Government is sending fire and rescue people out there. Why don't they just give us more people?’”*

I see an opportunity here related to the accurate communication of the concept. The Victorian example discussed in section 1.2 referencing (Boyle et al. 2010), required the mutual response and support of both fire and ambulance, as does the concept presented in this study. Clear communication of the intent of this concept, backed by data, may elicit a more positive view of each organisation, and it would be essential that open and transparent communication should occur if this concept is to be more seriously considered. If the QFES and government initiated that dialogue and articulated the issues raised in this study and referenced the Victorian example before any agreements are formalised such an approach might minimise any tensions or preconceptions within and by stakeholders.

In summary, the key themes articulated here were widely held views and experiences from the cohort, and all made their points confidently and without hesitation. The sub-themes spoken are also relevant and each lead into, and adds value to, the key themes and contributes to answering the research question.

## **Chapter 5: Discussion**

### **5.1 Introduction**

This chapter summarises the key themes elicited from the semi-structured interviews supported by data with a comparison to existing literature. Discussion points, where relevant and where they further illuminate and help answer the research question, have been added.

### **5.2 Can the QFES Perform a Medical First Responder Role**

Whilst the question, 'Can the QFES Perform a Medical First Responder Role' is simple and was not asked initially in that exact context during interviews, it was explored in detail from the anecdotal data, eliciting a consistent answer. In its simplest terms, the answer to that question can be summarised as a qualified 'yes,' the QFES can technically perform a medical first responder role, which is consistent with that achieved in the Victorian experience.

In Melbourne, a medical first responder role was introduced and is carried out by the MFB. Available data on the success of this initiative was identified by Boyle et al. (2010, pp. 77-82) in an article in 'Open Access Emergency Medicine' who stated ten-years ago that "This study suggests that the MFESB EMR program is providing firefighter first responders to emergency situations in a short timeframe to assist the ambulance service."

Supporting this Melbourne experience from section 2.6 which references the United States context an article in the Prehospital Emergency Care Magazine by Craig et al. (2010, p. 109) states in part that:

Many emergency medical services (EMS) systems dispatch nonparamedic firefighter first responders (FFRs) to selected EMS 9-1-1 calls, intending to deliver time-sensitive interventions such as defibrillation, cardiopulmonary resuscitation (CPR), and bag-mask ventilation prior to arrival of paramedics.

There is also an argument against the medical first responder concept previously cited in section 2.10, however there is little evidence to support the counter argument as a whole. Berringer et al. (1999) discussed the medical role of first responders in the pre-hospital setting and noted that evidence is not clear as to their value in every case simply because it hasn't been specifically studied in the Canadian context. They go to state that some stakeholders question the safety of sending large vehicles in an emergency response on every occasion to calls they may not be required to attend. The authors go on to say that many emergency dispatches were not necessary and further research should be undertaken to establish better dispatch criteria.

In summary, there are reservations regarding the implementation of a medical first responder role for the QFES. There is available evidence from multiple sources, however, that demonstrate a medical first responder role by non-paramedic firefighters is possible, and I have referenced the Victorian experience to demonstrate that an Australian Fire Service is achieving that role, albeit in a limited context. The data captured from the cohort have also indicated that in a technical sense, this is possible for the QFES. In the deeper context however, after further exploration and analysis, there are obvious challenges that require discussion to elicit the complexities of this initiative should it be implemented and that will be further addressed in the conclusion by way of recommendations.

### **5.3 Capacity to Maintain Core Business and Emergency Response**

The exploration of this question did not elicit an answer that was applicable across the QFES, as the possible solution for the Brisbane Region could not necessarily be applied in unison across the rest of Queensland. Evidence supplied supports the fact that the Brisbane Region has greater capacity, due to the close proximity of fire stations, to manage emergency responses during peak periods when compared to regional areas, such as Bundaberg. However, the ability to provide such a response during extreme periods of emergency demand, such as during a bush fire season, raised doubts within the cohort if even Brisbane could manage the increased workload. This gap in knowledge is addressed in recommendations and may be resolved by way of the implementation of a meaningful trial.

A contra point, also supported by the interview data, is that some isolated locations, such as Russell Island or from my own experience the fire station in the mining community of Glenden, already support QAS in this capacity and in a non-formal capacity the QFRS is thus already carrying out the medical first responder role, albeit in locations with specific nuanced needs and only under limited circumstances. The deeper issue elicited during the interview with FR4 related to a change in the formalisation of that service provision, a topic discussed later in this chapter.

Previous references such as (Boyle et al. 2010) and (Craig et al. 2010) support the notion that firefighters can technically manage this new role, however there are no previously measured data on how the QFES would be affected by any increase in its operational requirements this new role may cause. Data supplied by the cohort in Chapter 4 have elicited that challenges would exist however I am also reminded of the opportunities. This gap is an unresolved point in the context of measurable data and requires further analysis. Such data could be achieved through a formalised trial period.

#### **5.4 Skills Maintenance and Skill Level Issues**

The topic of skills maintenance and levels was a key theme to emerge from this research. The question of whether staff could acquire and maintain the required skill levels was not obvious, perhaps due to the many variables associated with the subject. However, two key points arose: i) will the extra response requirement of the medical first responder role make skills maintenance across all skills too onerous; and ii) are the existing skill levels that firefighters currently maintain (which would be technically appropriate for the medical first responder concept) suitable should this new role become formalised.

When looking back at the three key aspects in determining the value of the first responder concept: i) benefits of pre-hospital cardiac defibrillation, ii) benefits of pre-hospital major bleeding management, and iii) the benefits of pre-hospital airway management, it would appear from the evidence that the skill requirements are not onerous as firefighters are now often mobilised in a basic first responder capacity and are mutually supported by the QAS whom take over once they arrive on the scene.

Regarding who could technically carry out that role, by definition Elmqvist et al. (2010, p. 266) without qualification stated:

Prehospital emergency care includes the care and treatment of patients prior to them reaching hospital. This is generally a field for the ambulance services, but in many cases firemen or police can be the ones to provide the first responses.

Section 5.2 referenced (Craig et al. 2010) who indicated that non-paramedic firefighters can be used as first responders and that reference does not indicate an onerous skills requirement above the level that QFES firefighters currently hold. In the context of skill requirements for pre-hospital cardiac defibrillation in particular, Marengo et al. (2001, p. 1193) identified a wide spread use of AEDs and stated that:

Use of automated external defibrillators (AEDs) has become an important component of emergency medical systems, and recent advances in AED technology have allowed expansion of AED use to non-traditional first responders and the lay public.

Further supporting that view on the widespread use and practical application of AEDs, Smith, K. et al. (2001, p. 150), whom I have previously cited, maintained:

The results from this study suggest that fire officers can be successfully trained in the use of AEDs and can integrate well into a medical response role.

In reference to pre-hospital airway management, it is noted that advanced airway management can be problematic and requires skilled medical intervention, however this first responder concept relies upon basic airway management. Summarising (Rao et al. 2004) who concluded that basic airway management includes the application of supplemental oxygen (100% oxygen by partial or non-re-breather mask), airway positioning including chin-lift and jaw thrust manoeuvres to remove obstructions from soft tissues, it is these techniques that would be most suitable to be used in the first

responder concept and firefighters already hold that skillset. Of note is that data supplied from the cohort in Chapter 4 indicate that firefighters are trained to this level already and thus an 'opportunity' in the context of answering the research question can be observed from the data.

In section 2.9.2, (Rossaint et al. 2010) emphasised the importance of the prehospital management of major bleeding in the medical first responder context, however I have not referenced a skill level requirement for that aspect of this concept. The management of major bleeding is taught in the Senior First-Aid program that all QFES firefighters are trained in and the more complex management of pre-hospital major bleeding is not relevant to this first responder concept.

In summary of the various points related to skills maintenance and skill level requirements, I note that in the medical context there does not appear to be a point of contention related to the current skill sets being technically suitable for this medical first responder concept within the QFES. The concerns elicited from the cohort are more related to a perceived expectation of requirements and skills should the QFES take on that role formally. There appears to be concern that the focus and scrutiny would change if this concept became policy and data indicate that firefighters seem anxious about their existing first-aid skill sets being at an appropriate standard and the pressure to maintain that skill set to a level that would stand up to scrutiny should the practical application of that skill set at an emergency scene may be a major challenge by relevant stakeholders.

The further context of skills maintenance pressure relates to the maintenance of the existing firefighter skill set, which can be onerous depending on the emergency operational workload. I provide no evidence from academic literature regarding whether firefighters can maintain all skill sets after taking on a medical first responder role, however the data supplied through the interview process in Chapter 4 indicate there would be significant pressure to achieve the required and existing level because there would be less available time due to the extra operational role.



It is believed that skill level maintenance, which could include a formal requirement to maintain medical first responder skills, could potentially be alleviated by the executive of the organisation agreeing to adjust KPI requirements to suit the extra workload as expressed in section 4.2.5. This is a point of contention that needs further analysis and discussion by the board of management and the executive leadership team, and this point will be further addressed in recommendations.

## **5.5 Industrial Relations and the QAS**

### **5.5.1 The United Firefighters Union of Queensland**

All discussions during the interview process elicited operational opportunities to manage around issues that may have arisen regarding the application of the 'medical' first responder concept, save for that of industrial relations. All parties interviewed held firm and consistent views regarding the influence of the industrial body that the vast majority of firefighters are supported by, and that is the UFUQ. Gaining agreement and support from the QAS as a whole for the QFES taking on this role also raised pertinent and relevant points requiring further exploration.

A consistent theme expressed by interviewees was that the UFUQ would initially not be in favour of this concept, citing a range of issues not limited to overall workload, job creep, skills maintenance, building inspection processes, firefighting core business and relationships with other industrial bodies and the QAS as a whole to name but a few. I did note an 'opportunity' however given a key determinant, should the organisation and government want to implement a 'medical' first responder role is, remuneration. Put simply, the UFUQ would argue the case for more money for its members, which is not a blanket 'no'.

In section 2.8.2, I discussed the influence of society on government policy through front-line staff and in summary, Chilton (2004) speaks of societal influences that have potentially the greatest say in the determination of the future of pre-hospital emergency care. He makes the point that societal values, ostensibly reflected in the policies of governments, that to a large extent dictate the place of ambulance services and that we

need to be mindful of the influence other stakeholders and individuals have on the policies of governments that impact on the role and function of ambulance services.

I am reminded that the UFUQ is not the only stakeholder here and whilst they have influence, they are not the sole influencer of government policy which is supported by persuasive arguments related to 'human security' and the role played by the UFUQ. Wilson (2005, p. ii) therefore states:

...by arguing that the rightful place of 'ordinary people' is at society's core, not at the periphery. In this way, 'human security' becomes a useful counter-hegemonic tool for the UFUQ, and a valuable addition to their 'toolbox of power.'

These references help me understand that industrial bodies do have power and influence and they could use that influence to drive an agenda that suited their best interests at the time. This could be advantageous should the broader stakeholder group be inclined towards a medical first responder role. Now looking directly at that influence by way of the QFES Certified Agreement 2019, previously cited in section 2.8.2 and found at (QFES. 2019, p. 10) which states:

Consultation means the full, meaningful and candid discussion of issues and proposals with genuine consideration of each party's views providing an opportunity to affect the outcome, prior to the making of any final decision' and,

Unions will be invited to engage in the formulation and implementation of policies, plans and strategies that are likely to affect the working conditions of members.

In summary, I find noteworthy that the Victorian Branch of the UFU are supporters of the medical first responder role currently being carried out in Melbourne as referenced. A branch submission to the Victorian Parliament found at (Victoria 2017, p. 12) stated:

Certified EMR is an extremely successful and important aspect of the fire response delivered by career firefighters. In particular to areas of highly urbanised and residential growth due to increased population and the urban sprawl.

Further to that, one year later in a UFU Victoria Bulletin, found at (Union. 2018, p. 1) they went on to demonstrate further support for the program and stated:

‘Since the introduction of the EMR program in the MFB around 2005, the UFU has supported the critical role of professional career firefighters in emergency medical response to the community.’

I see this as positive and an ‘opportunity’ (at least in metropolitan areas) in the context of answering the research question given that an affiliated union body of the UFUQ, such as the Victorian Branch of the UFU, are supporters of this concept and communication between the two industrial bodies, with the right motivation and goodwill spirit, could elicit a positive outcome.

### **5.5.2 The Queensland Ambulance Service**

Another noteworthy point is that from the data supplied the issue of the QFES taking on this role, verses simply providing the QAS with more resources, was raised on several occasions. From my own experience and cited in section 2.1, I recall an informal discussion at a local fire station between firefighters and the current Minister for QFES where this topic was openly raised and one option mentioned at that informal gathering, should the government want to pursue this concept, was to further resource the QAS. That aspect will be addressed in recommendations.

In summary, the influence of industrial bodies in the contemporary organisation and it is their relationship with those organisations that could shape any direction the organisation or government desires to move. Any change from the status quo will require a sound and well thought through strategy that would include the UFUQ as a strategic partner.

The relationship with the QAS and the industrial body supporting their members will also be of particular relevance and, as stated in section 4.2.7, clear communication of the intent of this concept, backed by data, may elicit a more positive outcome, and it would be essential that open and transparent communication occur should this concept be considered. I feel that if the QFES and government initiated that dialogue and articulated the issues that are raised in this study and reference the Victorian example before any agreements are formalised would minimise tensions with all stakeholders.

It remains to be seen if a change of government would alter that dynamic, however it would seem prudent to carry out a sound environmental and political analysis before moving forward.

# Chapter 6: Conclusion

## 6.1 Introduction

This study was initiated to answer the specific research question and sub-questions: 'Can the QFES provide a medical first responder role in Queensland?' and the sub-questions being 'What are the challenges facing the QFES in providing a medical first responder role?' and 'What are the opportunities for the QFES in providing a medical first responder role?'

I have: i) established a need for this study by researching the demand on QAS (which includes ramping pressures) and explored industrial and community influences; ii) I have determined the potential value of the medical first responder concept by exploring the benefits of prehospital cardiac defibrillation, prehospital management of major bleeding, and prehospital management of the airway; and iii) established that a literature gap in the value of this concept for Queensland exists, confirming the need for this study.

After evaluating existing literature and the data elicited during this study, I have articulated the challenges and opportunities of a QFES medical first responder role, beginning with opportunities and ultimately concluding with recommendations.

## 6.2 Opportunities

### 6.2.1 Future Proofing and Unforeseen Drivers

In Chapter 1, I referenced the QFES 2019-2023 Strategic Plan (QFES 2019) which summarises our purpose, opportunities, challenges and commitments to the Queensland community and our contribution to government strategies, such as Strategy 2030. Identified in the plan, a key goal that is relevant in this study is listed under the heading of 'Service Alignment' as, "Design and deliver services according to local risk and community need," directly supporting one of the 'Strategy 2030 Guiding Principles' which is, 'Our people and our partners work together in a seamless way.'

Given that in a technical sense, data suggest that the QFES can facilitate a medical first responder capacity, I see this concept as a clear 'opportunity' to assist in future proofing the organisation, particularly in an ever-changing contemporary environment. Taking on such a role would not be without challenges, however being prepared by way of holding a quality artefact (which in this case is this research) positions the organisation to be better prepared for any change in circumstance, which could come by way of community need driving a change in policy, by a change in government, through industrially driven enterprise bargaining processes or by any unforeseen external driver.

By way of example of an unforeseen external driver (given we have previously carried out pandemic planning processes), should Queensland communities be subjected to something similar to 'Covid-19' (Coronavirus disease), having QFES holding this medical first responder capacity could potentially reduce pressure on the QAS. It could be argued that by not exploring this capacity, organisationally QFES is not prepared, or at least not as completely as we could be from a 'future proofing' perspective.

### **6.2.2 Specific Strategic Opportunities**

This study has identified that the Brisbane Region has the capacity to simply mobilise resources from adjacent fire stations to fill gaps in the emergency response profile. In fact, that is a daily occurrence designed to maintain existing response requirements within the time frames agreed to with government. This demonstrates the ability, at least at some capacity, to deal with a higher response workload that the extra medical first response may cause. Further analysis is required to measure the actual capacity, specifically during peak times, however this is a clear opportunity for the Brisbane Region. As mentioned previously in section 5.3, a formalised trial period has the potential to elicit a range of information that could fill this information gap. This analysis will include the ability for QFES to cope with concurrent yet separate medical and fire and rescue emergencies.

Data supplied by this study have also established that an 'informal' QFES response to assist QAS occurs now in some remote locations currently assists QAS in this same

context. This is a direct result of pressure driven by a community and organisational need that was not manageable from the existing structure and policy. An 'opportunity' exists for this practise to be explored in other remote locations and at strategic locations where fire stations, whose operational response and core business is not onerous, to be carried out allowing for this same assistance to be formally enacted and offered to the QAS, which ultimately assists the community.

Assessing what locations could benefit from such a concept is not anticipated to be difficult as staff at specific fire stations already understand and measure the frequency of ambulance assistance that is undertaken. A data assessment through existing computer-based reporting systems and assessing local knowledge would elicit more suitable and comprehensive information in this regard. Again, this presents a clear and obvious opportunity.

The potential benefit is ultimately for the community, rather than thinking that QFES taking on this role simply assists the QAS. It is prudent to be reminded of the end users of such a service, who in this case are members of the public requiring emergency treatment, as this study has shown that the earlier intervention by way of the medical first responder concept contributes to greater patient survival rates.

## **6.3 Challenges**

### **6.3.1: Overview**

The opportunities in their simplest terms sound positive, however managing the inherent challenges of any significant change should not be underestimated. Physical processes can often be engineered and streamlined to facilitate some level of increased capacity, but it is the social aspect, the human aspect of change, that will present perhaps the greatest difficulty and that social and human aspect is anticipated to be manifested through the industrial relations and government sphere. Some challenges on the human aspect of change management are articulated by Lawrence (2015) and by Cameron and Green (2019).

### **6.3.2 Maintaining Core Business and Operations**

I have supplied data from the cohort and discussed the challenges associated with simply maintaining our core functions, including the skills maintenance required to maintain our existing skill set for current operational requirements. It would seem logical to assume that an increased emergency response role would reduce the available time to complete and maintain those existing aspects of a firefighter's duty.

Given that this initiative is designed for existing QFES resources (responding at the same time as QAS resources) to assist in reducing operational pressure on the QAS for those times when the QAS cannot arrive at an emergency scene in an appropriate time period, it is not considered that increasing the QFES staffing to manage that gap is consistent with the philosophy of the medical first responder concept. Not increasing our full-time staffing numbers and by default, having less available time caused by an increased response frequency, indicates that something would need to change to achieve this outcome.

One option to overcome the aforementioned challenge, whilst maintaining the same staffing levels, is to conduct a review of non-emergency KPI requirements. Currently there are 35 reportable KPIs (not including any emergency responses) that are reported on and achieved annually by operational fire crews. As stated in section 4.2.5, options exist to manage the less critical KPIs, like commercial building inspections, through another means.

A review of KPI requirements for the busier stations may allow for some of those inspections to be completed by neighbouring stations. A further option for the organisation is to consider outsourcing some of that work to skilled non-operational staff, including retired firefighters. This concept is not new. The concept of volunteerism as a response to outsourcing of non-operational services has been previously addressed by DePinto (2006).

The above mentioned possibility has been historically discussed and any change would require approval from the QFES Board of Management. Given the changing



contemporary world that influences a constantly changing strategic plan that is reviewed annually, it would seem logical and appropriate to also review the QFES KPIs. It is a challenge, however there are also opportunities to achieve the time saving and that could begin with a review of KPIs by the Board of Management and will be addressed in recommendations.

### **6.3.3 Firefighter Acceptance and Industrial Relations**

I have supplied data from the cohort that firefighter acceptance and gaining agreement from the UFUQ will be a challenge and that challenge, relates in part to remuneration. Data supplied indicates that some firefighters may support the medical first responder concept however it is anticipated that the rank and file will agree with the philosophy that is put forward by the UFUQ.

Should either the government or the QFES want to instigate the medical first responder concept, it is anticipated that the UFUQ would make a case in the strongest possible terms for an increase in remuneration which is custom and common practice when industrially supported groups attain and maintain skills sets. It is also anticipated that any such decision regarding the implementation of a medical first responder role would receive significant scrutiny from several stakeholders, not limited to industrial bodies as identified, the government, media, key sections of the community and the QAS as a whole.

Gaining UFUQ acceptance is perceived to be a challenge for the QFES however it is noteworthy that the Victorian Branch of the UFU support the 'medical' first responder concept currently operating in Melbourne. Dialogue between those stakeholders could elicit opportunities if initial communication between the QFES and the UFUQ demonstrated positives and a value add for all stakeholders. If this concept was initiated, having the UFUQ as a strategic partner (or at least to a point where the UFUQ agree to a trial of the concept) would be a positive starting point, particularly if this concept was not being received positively by the QAS and the industrial bodies that represent QAS staff. Scope for union to union negotiations would seem a positive option and an appropriate direction.

### 6.3.4 Recommendations

In this study I have researched and referenced existing relevant literature and the research project has elicited data relevant in the Queensland context. I have evaluated all that data in the context of the research question and developed challenges and opportunities, should this concept be considered. To assist in future proofing the organisation and to elicit further data the following recommendations are considered required. Some recommendations are warranted regardless of this concept being implemented. It is assumed that the sitting government would be aware of these actions prior to implementation:

- I. A summary of this study be distributed and or presented to the Executive Leadership Team (ELT) to ensure information related to future proofing the organisation is considered for inclusion in strategic planning.
- II. That the Operations Management Committee, on review of this information, consider the formation of a suitably skilled team to undertake any tasks associated with the possible implementation of a medical first responder concept which would include liaising with key stakeholders and overseeing any implementation strategies, including supervised trials.
- III. That the Operations Management Committee consider a three-month supervised trial of the medical first responder initiative and measure key data that is essential to understanding if the concept is viable into the future.
- IV. That the Operations Management Committee consider reviewing the 35 current KPIs and make recommendations on the alteration or delegation of suitable KPIs, facilitating further available time for stations that may take on a medical first responder role and in this instance: The adjusted KPI data to form a part of the supervised trial before a supervised trial of the concept is initiated.
- V. If consideration of this research is advanced to scoping and planning, the members tasked with undertaking the work be authorised to liaise with the

analytics team from QFES Futures to ascertain the locations of where informal QFES support to QAS already exists: This information will assist in discussion on formulating potential changes of response policy for any trials.

### **6.3.5 Summary**

Arriving at this conclusion (which in brief is that the QFES can in fact manage a medical first responder role in the Brisbane region however a supervised trial is required to elicit a deeper understanding of the challenges and opportunities and how the concept could be achievable across the state, if at all) required a review of the available literature and the application of a work-based project, which elicited a range of data. Evaluation of that data compared to the available literature resulted in a set of recommendations based on the challenges and opportunities explored.

This study, has proved beneficial to the researcher through self-development by way of the development of this thesis and the skills and knowledge required to carry it out successfully, beneficial to the organisation as it more completely adds data and thereby greater value to the QFES by the improvement and development of an operational work-based practise and, there will be the contribution to knowledge of the discipline of emergency services by demonstrating an evidence-based contribution to professional practise.

This study has thereby helped me to develop as a scholarly professional and helped me understand that 'work' is an expression of professional practise.

## 8: References

- Act, FaES 2018, *Fire and Emergency Services Act 1990*,  
<<https://www.legislation.qld.gov.au/view/html/inforce/current/act-1990-010>>.
- Arklay, T 2015, 'What Happened to Queensland's Disaster Management Arrangements?: From 'Global Best Practice' to 'Unsustainable' in 3 Years', *Australian Journal of Public Administration*, vol. 74, no. 2, pp. 187-98.
- Berringer, R, Christenson, J, Blitz, M, Spinelli, J, Freeman, J, Maddess, G & Rae, S 1999, 'Medical role of first responders in an urban prehospital setting', *Canadian Journal of Emergency Medicine*, vol. 1, no. 2, pp. 93-8.
- Bobko, JP & Kamin, R 2015, 'Changing the paradigm of emergency response: The need for first-care providers', *Journal of business continuity & emergency planning*, vol. 9, no. 1, pp. 18-24.
- Boyle, M 2010, 'Abstracts of the 2010 Paramedics Australasia Conference', *Australasian Journal of Paramedicine*, vol. 8, no. 3.
- Boyle, MJ, Williams, B, Bibby, C, Morton, A & Huggins, C 2010, 'The first 7 years of the metropolitan fire brigade emergency responder program—an overview of incidents attended', *Open access emergency medicine: OAEM*, vol. 2, p. 77.
- Cameron, E & Green, M 2019, *Making sense of change management: A complete guide to the models, tools and techniques of organizational change*, Kogan Page Publishers.
- Carafano, J 2003, 'Preparing responders to respond: The challenges to emergency preparedness in the 21st century', *Heritage Lectures*, pp. 1-7.
- Chilton, M 2004, 'A brief analysis of trends in prehospital care services and a vision for the future', *Australasian Journal of Paramedicine*, vol. 2, no. 1.
- Craig, AM, Verbeek, PR & Schwartz, B 2010, 'Evidence-based optimization of urban firefighter first response to emergency medical services 9-1-1 incidents', *Prehospital emergency care*, vol. 14, no. 1, pp. 109-17.
- Creswell, JW 2009a, *Qualitative procedures*, 3rd edn, Sage Publications, Thousand Oaks, California.
- Creswell, JW 2009b, 'Qualitative procedures', *Research design: Qualitative, quantitative, and mixed methods approaches*, vol. 2, pp. 173-201.
- Creswell, JW 2009c, 'Qualitative procedures', pp. 173-202.

- Creswell, JW & Poth, CN 2016, *Qualitative inquiry and research design: Choosing among five approaches*, Sage publications.
- Creswell, JW, Plano Clark, VL, Gutmann, ML & Hanson, WE 2003, 'Advanced mixed methods research designs', *Handbook of mixed methods in social and behavioral research*, vol. 209, p. 240.
- Cummins, RO 1993, 'Emergency medical services and sudden cardiac arrest: the "chain of survival" concept', *Annual review of public health*, vol. 14, no. 1, pp. 313-33.
- Davis, DP, Peay, J, Sise, MJ, Kennedy, F, Simon, F, Tominaga, G, Steele, J & Coimbra, R 2010, 'Prehospital airway and ventilation management: a trauma score and injury severity score-based analysis', *Journal of Trauma and Acute Care Surgery*, vol. 69, no. 2, pp. 294-301.
- DePinto, S 2006, A Safer Queensland through Volunteerism- Towards 2020, Paper presented at QFRS, Australian Institute of Police Management
- Elmqvist, C, Brunt, D, Fridlund, B & Ekebergh, M 2010, 'Being first on the scene of an accident- experiences of 'doing' prehospital emergency care', *Scandinavian Journal of Caring Sciences*, vol. 24, no. 2, pp. 266-73.
- Fergusson, L 2018, 'Interviewing: Developing and Conducting Interviews '.
- Fergusson, L 2019, 'The nature of work-related problems: messy, co-produced and wicked', *emerald insight*, vol. 11, no. 2, pp. 106-20
- Fergusson, L, Van Der Laan, L & Baker, S 2019, 'Reflective practice and work-based research: a description of micro-and macro-reflective cycles', *Reflective Practice*, vol. 20, no. 2, pp. 289-303.
- Flowers, P 2009, Research Philosophies - Importance and Relevance, Cranfield School of Management 1.
- Government, Q, *Working for Queensland survey 2020*, P Service, <<https://www.forgov.qld.gov.au/working-queensland-survey>>.
- Guba, EG & Lincoln, YS 1994, 'Competing paradigms in qualitative research', *Handbook of qualitative research*, vol. 2, no. 163-194, p. 105.
- Hammond, E, Holzhauser, K, Shaban, R & Melton, N 2009, 'An exploratory study to examine the phenomenon and practice of 'Ambulance Ramping' at hospitals within the Southern Health Service Districts of Queensland and Queensland Ambulance Service', *Australasian Emergency Nursing Journal*, vol. 12, no. 4, p. 170.

- Hammond, E, Shaban, R, Holzhauser, K, Crilly, J, Melton, N, Tippett, V, FitzGerald, G, Eeles, D, Collier, J & Finucane, J 2012, *An exploratory study to examine the phenomenon and practice of ambulance ramping at hospitals within the Queensland Health Southern Districts and the Queensland Ambulance Service*, Queensland Health and Griffith University.
- Hasegawa, K, Hiraide, A, Chang, Y & Brown, DF 2013, 'Association of prehospital advanced airway management with neurologic outcome and survival in patients with out-of-hospital cardiac arrest', *Jama*, vol. 309, no. 3, pp. 257-66.
- Health, Do 2018, *Paramedic Role Description*, Queensland, <https://www.ambulance.qld.gov.au/docs/Graduate-Paramedic-Role-Description.pdf> >.
- Health, Q 2012, *A Report on AMBULANCE RAMPING in metropolitan hospitals*
- Hitchcock, M, Crilly, J, Gillespie, B, Chaboyer, W, Tippett, V & Lind, J 2010, 'The effects of ambulance ramping on emergency department length of stay and in-patient mortality', *Australasian Emergency Nursing Journal*, vol. 13, no. 1-2, pp. 17-24.
- Kallio, H, Pietilä, AM, Johnson, M & Kangasniemi, M 2016, 'Systematic methodological review: developing a framework for a qualitative semi - structured interview guide', *Journal of advanced nursing*, vol. 72, no. 12, pp. 2954-65.
- Keely, M 2013, *Sustaining the Unsustainable - Police and Community Safety Review, Final Report* Australian Graduate School of Policing and Security <https://researchoutput.csu.edu.au/en/publications/sustaining-the-unsustainable-police-and-community-safety-review-f>>.
- Lawrence, P 2015, 'Leading change—insights into how leaders actually approach the challenge of complexity', *Journal of Change Management*, vol. 15, no. 3, pp. 231-52.
- Lerner, EB, Hinchey, PR & Billittier IV, AJ 2003, 'A survey of first-responder firefighters' attitudes, opinions, and concerns about their automated external defibrillator program', *Prehospital emergency care*, vol. 7, no. 1, p. 120.
- Lowthian, JA, Cameron, PA, Stoelwinder, JU, Curtis, A, Currell, A, Cooke, MW & McNeil, JJ 2011, 'Increasing utilisation of emergency ambulances', *Australian Health Review*, vol. 35, no. 1, pp. 63-9.
- Mackenzie, N & Knipe, S 2006, 'Research dilemmas: Paradigms, methods and methodology', *Issues in Educational Research*, vol. 16, no. 2, pp. 193-205.

- Marenco, JP, Wang, PJ, Link, MS, Homoud, MK & Estes III, NM 2001, 'Improving survival from sudden cardiac arrest: the role of the automated external defibrillator', *Jama*, vol. 285, no. 9, pp. 1193-200.
- Marszalek, J 2019, 'Ambos and hospital staff clash over patient numbers ', *The Courier Mail* [https://www.couriermail.com.au/subscribe/news/1/?sourceCode=CMWEB\\_WRE170\\_a\\_GGL&dest=https%3A%2F%2Fwww.couriermail.com.au%2Fnews%2Fqueensland%2Femergency-rooms-crisis-ambos-and-hospital-staff-clash-over-patient-numbers%2Fnews-story%2F86e7a0d2d1b29cbc0cc8206be2f71d64&memtype=anonymous&mode=premium&v21suffix=56-b](https://www.couriermail.com.au/subscribe/news/1/?sourceCode=CMWEB_WRE170_a_GGL&dest=https%3A%2F%2Fwww.couriermail.com.au%2Fnews%2Fqueensland%2Femergency-rooms-crisis-ambos-and-hospital-staff-clash-over-patient-numbers%2Fnews-story%2F86e7a0d2d1b29cbc0cc8206be2f71d64&memtype=anonymous&mode=premium&v21suffix=56-b) >.
- Merriam-Webster 2020, *First Responder*, <<https://www.merriam-webster.com/dictionary/first responder> >.
- Nesbit, PL 2012, 'The role of self-reflection, emotional management of feedback, and self-regulation processes in self-directed leadership development', *Human Resource Development Review*, vol. 11, pp. 203-26.
- Nielsen, AM, Folke, F, Lippert, FK & Rasmussen, LS 2013, 'Use and benefits of public access defibrillation in a nation-wide network', *Resuscitation*, vol. 84, no. 4, pp. 430-4.
- Nowell, LS, Norris, JM, White, DE & Moules, NJ 2017, 'Thematic analysis: Striving to meet the trustworthiness criteria', *International Journal of Qualitative Methods*, vol. 16, no. 1, p. 1609406917733847.
- Perry, M & Carter, D 2017, 'The ethics of ambulance ramping', *Emergency Medicine Australasia*, vol. 29, no. 1, pp. 116-8.
- QFES, *Strategy 2030*, 2018, QFES, State of Queensland <<https://www.qfes.qld.gov.au/about/Documents/Our Strategy/Strategy-2030-Full.pdf> >.
- QFES 2019, *Queensland Fire and Emergency Services Strategic Plan 2019-2023* Queensland Government Queensland, <https://www.qfes.qld.gov.au/about/Documents/Our Strategy/QFES-Strategic-Plan-2019-23.pdf>>.
- QFES. 2019, *Queensland Fire and Emergency Service Certified Agreement 2019*, Queensland Fire and Emergency Service <[https://www.qirc.qld.gov.au/sites/default/files/2017\\_cb14.pdf?v=1573683931](https://www.qirc.qld.gov.au/sites/default/files/2017_cb14.pdf?v=1573683931) >.
- Queensland, UFU 2020, 'Against All Odds', <http://www.ufuq.com.au/about-us/against-all-odds> >.

- Randolph, JJ 2009, 'A guide to writing the dissertation literature review', *Practical assessment, research & evaluation*, vol. 14, no. 13, pp. 1-13.
- Rao, B, Singh, VK, Ray, S & Mehra, M 2004, 'Airway management in trauma', *Indian Journal of Critical Care Medicine*, vol. 8, no. 2.
- Ritchie, J, Lewis, J, Nicholls, CM & Ormston, R 2013, *Qualitative research practice: A guide for social science students and researchers*, sage.
- Rossaint, R, Bouillon, B, Cerny, V, Coats, TJ, Duranteau, J, Fernández-Mondéjar, E, Hunt, BJ, Komadina, R, Nardi, G & Neugebauer, E 2010, 'Management of bleeding following major trauma: an updated European guideline', *Critical care*, vol. 14, no. 2, p. R52.
- Shapiro, SE 2000, 'Outcomes of prehospital care: do we really make a difference?', *Journal of Emergency Nursing*, vol. 26, no. 3, pp. 239-41.
- Shuster, M & Keller, JL 1993, 'Effect of fire department first-responder automated defibrillation', *Annals of emergency medicine*, vol. 22, no. 4, pp. 721-7.
- Smith, AH, Laird, C, Porter, K & Bloch, M 2013, 'Haemostatic dressings in prehospital care', *Emerg Med J*, vol. 30, no. 10, pp. 784-9.
- Smith, K, Peeters, A & McNeil, J 2001, 'Results from the first 12 months of a fire first-responder program in Australia', *Resuscitation*, vol. 49, no. 2, pp. 143-50.
- Smith, KL, Peeters, A & McNeil, JJ 2001, 'Results from the first 12 months of a fire first-responder program in Australia', *Resuscitation*, vol. 49, no. 2, pp. 143-50.
- Sollid, SJ, Lockey, D & Lossius, HM 2009, 'A consensus-based template for uniform reporting of data from pre-hospital advanced airway management', *Scandinavian journal of trauma, resuscitation and emergency medicine*, vol. 17, no. 1, p. 58.
- Toloo, G, FitzGerald, GJ, Aitken, PJ, Ting, JY, McKenzie, K, Rego, J & Enraght - Moony, E 2013, 'Ambulance use is associated with higher self - rated illness seriousness: user attitudes and perceptions', *Academic Emergency Medicine*, vol. 20, no. 6, pp. 576-83.
- Toloo, S, FitzGerald, G, Aitken, P, Ting, J, Tippett, V & Chu, K 2011, 'Emergency health services: demand and service delivery models. Monograph 1: literature review and activity trends', *Queensland University of Technology, Australia* no. Issue, p. 29.
- Tynjälä, P 2013, 'Toward a 3-P model of workplace learning: a literature review', *Vocations and learning*, vol. 6, no. 1, pp. 11-36.
- CFA EMR Program Closes in on Full Roll-Out <https://www.ufuvic.asn.au/bulletin/ufu-bulletin-152-cfa-emr-program-closes-in-on-full-roll-out/> >.



- Van Oostendorp, S, Tan, E & Geeraedts, L 2016, 'Prehospital control of life-threatening truncal and junctional haemorrhage is the ultimate challenge in optimizing trauma care; a review of treatment options and their applicability in the civilian trauma setting', *Scandinavian journal of trauma, resuscitation and emergency medicine*, vol. 24, no. 1, p. 110.
- Inquiry into the Firefighters' Presumptive Rights Compensation and Fire Services Legislation Amendment (Reform Bill) 2017 2017.
- Walls, RM & Murphy, MF 2008, *Manual of emergency airway management*, Lippincott Williams & Wilkins.
- Weaver, WD, Copass, MK, Hill, DL, Fahrenbruch, C, Hallstrom, AP & Cobb, LA 1986, 'Cardiac arrest treated with a new automatic external defibrillator by out-of-hospital first responders', *The American journal of cardiology*, vol. 57, no. 13, pp. 1017-21.
- Wilson, HB 2005, 'Defining the human security understanding and expectations of the Queensland Branch of the United Firefighters' Union in the context of Australia's burgeoning Asian free-trade ambitions', University of Southern Queensland.

# Appendix 1

## Overview of Research Interviewee List and Research Questions

This document provides an overview of selected interviewees and why they have been specifically chosen to be a part of this research project and will provide a list of the specific questions that will be asked of every interviewee. All interviewees will be given a participant information sheet (PIS) and consent form at first contact, will be briefed prior to the interviews, informed that permission has been gained from the Assistant Commissioner to carry out the interview process, given the ethics approval number from the USQ, and any known biases the researcher may hold will be communicated.

### Selected Interviewee List

#### 1) FR3

This is a Senior Officer level position and this role manages 'operations' at the highest level within the Brisbane Region. This person is well-suited to be interviewed from an operational perspective due to the working knowledge of high-level regional and state operations at a strategic level s/he has and how those operations fit within organisational policy and an industrial environment.

#### 2) FR3

This was a new role within QFES and was a Senior Officer level position. This role provided a direct communication path for the UFU to channel their issues to QFES, rather than directing their concerns directly to the Minister in the first instance. This unit was put in place to assist in keeping industrial issues at the lowest level possible. The person whom worked in this role is well-positioned for interview due to his understanding of how a concept such as this would be perceived by the UFU officials and would also understand how to best position a concept such as this, creating the least industrial tension

### 3) FR7

This is a Senior Officer level position and this role understands the strategic direction of professional development of all firefighters within the Brisbane Region. This person is ideal to be interviewed due to the in depth understanding this person has regarding the nuances of training requirements and the delivery of specific training

### 4) FR1

This is a Senior Officer level position and this role oversees all operations within a large Brisbane area and encompasses the operations and management of approximately 12 operational fire and rescue stations, including auxiliary staff. This role has at least three Inspectors reporting to him/her and the Zone Commander leads and manages the strategic direction of the Zone, including dealing with industrial issues that arise

### 5) FR2

This is a Senior Officer level position and this role oversees the specific operations and management of an 'Area Command' within a zone and normally incorporates four or more operational fire and rescue stations. This role is much closer connected to front-line staff and has a superior working knowledge of the day-to-day pressures on operational fire stations, including the nuances related to delivery and achieving any new operational philosophies, including an understanding of the industrial view from the operational staff within fire and emergency stations.

### 6) FR6

This is a Senior Officer level position with a primary focus on maintaining operational service delivery, which involves the mobilization of fire and rescue resources within the Brisbane region. This position has a superior working knowledge of the operational response profile and how to bring appropriate resources into action at any given scenario.

#### 7) FR4

This is a Senior Officer level position whose key role is to assist in the management of the 'Triple Zero' call-centre known as Fire-Com Brisbane. This role is required to ensure suitable resources are responded to emergency incidents and that includes supporting partner agencies with fire service resources as requested. This person is well positioned to understand how and if a mutual response from QAS and QFRS could work (or otherwise) in the resource response context of this study.

#### 8) FR5

This is a Senior Officer level position whose current role is at a state level overseeing organisational policy from a whole of state perspective. The current director has 37 years of experience across a range of portfolios and understands the complex connection between the political, industrial and QFES views as well as being at the front end of organisational change. This is a most suitable person to be a part of this project.

#### **Note:**

All staff being interviewed are 'Senior Officers' by definition and are not a part of the Executive Management of QFES. All positions listed are occupied by operational fire officers that have had at least 20 years' service within the organisation and all began their career at recruit level. All, with the exception of the Fire-Com manager, have served time on operational fire stations and as Station Officers managing crews at those fire stations before they moved into their respective senior management roles.

All the listed interviewees have been specifically selected because of their existing skill-set and operational knowledge and will be able to provide sound input into every research question posed to them. All staffs chosen have a sound base within the organisation however their current roles makes them specifically qualified and suitable to answer the specific research questions.

## The Interview Questions

At the outset of the interview process, confirmatory questions will be asked before proceeding. As well as the PIS and consent form provided at first contact, prior to the interviews each specifically selected interviewee will be given a briefing on the interview process in general. That briefing will include 'why' they are being interviewed, the researcher's position in this process, an ethics overview, a clear definition of a medical first responder and a thorough explanation of the research topic including the research title. At the end of each interview a basic debrief will be conducted by myself to ensure the process was carried out ethically and according to the view of the interviewee.

It is expected that interviews will last approximately 60 minutes. The interviews are designed to elicit information about the views and lived experiences of participants on whether they see QFES will be able to adopt a 'medical' first responder role. Whether participants believe that it is possible or not, they will be asked for their specific reasons as to why this is the case and it will be explored more deeply.

Interviews will not be tightly scripted and will proceed on the basis of a combination of closed and open-ended questions. The researcher will follow appropriate and approved research protocol using closed questions to establish demographic details aimed at collecting descriptive data and putting the interviewee at ease and, open-ended questions that engage the participant and encourage the use of their own words. The researcher will seek to understand the interviewee's world-view, including understanding the meaning of their words and phrases.

**Questions posed to all Interviewees:** (Deeper explanations will be sought from those interviewed with a richer and specific subject knowledge)

1. Is it possible to train existing firefighters to the skill level required to be considered suitable as a 'medical' first responder in the specific context of this study?

Follow-up Question

- a. If not, why not?
- b. What, in your opinion, would be required to achieve the training standard?
- c. If the standard is achievable, would the acquired skills maintenance be achievable?

Note for researcher guidance: This question will be explored at a deeper level when posed to the Executive Manager professional Development

2. Given the existing 'day-to-day' emergency responses of operational crews, particularly at operationally busier stations, is it possible for those crews to undertake an extra emergency response role such as the 'medical' first responder?'

Follow-up Question

- a. If not, why?
- b. What would have to change to make that possible?
- c. If yes, please articulate why that is the case

3. Assuming crews are used in a 'medical' first responder role to assist ambulance, does the Brisbane Region have the capacity to cover the extra operational response requirement that same crew may have been initially covering prior to a 'medical' first responder response?

Note for researcher guidance: This question will be explored more deeply when posed to the Duty Manager Operations whose role it is to manage Brisbane Region resourcing.

4. If crews were tasked with a new role such as 'medical' first responder, how would that impact on their existing day-to-day non-emergency 'business' requirements?

Follow-up Question

- a. E.g. would any existing activities need to be adjusted, reduced or removed to maintain appropriate KPI achievements?

- b. Would that differ at fire stations with higher emergency response numbers?

5. Do you think operational firefighters will accept a new role such as a 'medical' first responder?

Follow-up Question

- a. If not, why not?
- b. If yes, why yes?

6. In your opinion, would the elected representatives of the United Firefighters Union (UFU) hold a different view to the rank and file fire-fighters, in response to the previous question?

Follow-up Question

- a. If a negative view is perceived, what may that pertain to?
- b. If negative, what, in your opinion, could change the view of the UFU?
- c. How could that be achieved?

Note for researcher guidance: This question will be explored more deeply when posed to the representative on the REU.

7. Once the specifics of a 'medical' first responder role are clearly articulated, in your opinion what would be the perceived view on the QFES by Queensland Ambulance to the potential for a QFES 'medical' first responder role?

Follow-up Question

- a. If explained appropriately, including articulating how this initiative may take some pressure from QAS, could this new role for QFES alter, either positively or negatively, the current positive perception the community has towards firefighters?

- Participants will be thanked and advised that the interview is complete
- The participant will be asked if they have questions of the interviewer
- Close of interview and time will be recorded for audio/transcription.