CO-PRODUCING PUBLIC SAFETY IN AIRPORTS: THE CASE OF THE HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

by

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(Under the Direction of Glen Nowak)

ABSTRACT

Keeping the public safe in airports has become a prominent issue over the last few decades as airports across the globe have morphed into infrastructure eco-systems that act as self-contained cities. Airports are faced with many possible safety challenges daily including terrorist threats, active shooters, unruly passengers, unattended bags, security breaches, drugs or weapons, theft, suspicious persons, fires, and power outages. In addition, many publicly owned and operated airports have limited staffing when it comes to managing and addressing these public safety challenges. Prior to this study, little research has explored whether co-production is a viable solution for addressing the growing number of public safety challenges facing airport public safety administrators today. This study contributes to the literature on co-production by exploring via interviews with senior public safety administrators the extent to which they engage with citizens, employees, and passengers/visitors at Hartsfield-Jackson Atlanta International Airport to co-produce public safety. The interview participants indicated that there were minimal instances of public safety co-production occurring at the airport. This study also explored whether public safety administrators perceived value in co-producing public safety with citizens, employees, and/or passengers/visitors. This study's findings suggest that public safety

administrators perceived value in engaging employees in some public safety efforts, but not citizens and passengers/visitors. The findings also indicated that there were several challenges that make implementing co-production strategies difficult, such as the organizational environment, federal safety-related regulations and requirements, security considerations, financial and resource costs, and a lack of buy-in from public safety administrators. The presence of these challenges indicates that co-production of public safety in an airport facility environment might be a difficult and unrealistic approach to addressing the growing number of public safety challenges facing airports today. However, because co-production is such a complex and important topic, further study is warranted to determine if these findings are consistent across the aviation industry or peculiar to the case studied.

INDEX WORDS: co-production, public safety, security, airports, airport facilities, co-commissioning, co-designing, co-delivering, co-assessing

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DEDICATION

To Edward, Kelly, and Lydia Nobles, my loving family and Keith Long, my better half - your encouragement and support made this study possible. And to Kilo and Merica, the pups - for reminding me to get outside and enjoy life. Love you all very much!

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GLOSSARY

49 CFR 1542: Final rule issued by the FAA that outlines the regulations and requirements for airports within the United States catering to scheduled and unscheduled a7ircraft carrying more than nine passengers.

Atlanta Police Department Airport Section: The local law enforcement agency providing police services at the Hartsfield-Jackson Atlanta Airport. The Airport Section has law enforcement jurisdiction throughout the entire airport and houses the Explosive Detection Canine Unit.

Airport Public Safety and Security Team: This team falls under the Department of Aviation and lead by Richard L. Duncan. This team is composed of four branches: airport law enforcement, life and fire safety, emergency preparedness and response and the Airport Communications Center.

Aircraft Rescue and Fire Fighting (ARFF): A classification of firefighting that involves hazard mitigation, response and evacuation of passengers and crew from an aircraft involved in an emergency. Typically, ARFF occurs on airport property.

Atlanta Fire Rescue Department: The local fire department responsible for providing ARFF, fire rescue and emergency medical services at the Hartsfield-Jackson Atlanta Airport.

Centralized Command and Control Center (C4): A location outside of the airport terminal and fence which houses two branches within the Airport Public Safety and Security Team: The Emergency Management Branch and the Airport Communications Center as well as the MPV.

Citizens: Any individual who resides in the areas immediately surrounding the Hartsfield-Jackson Airport. The towns that directly surround the airport are: College Park, East Point, Hapeville, Forest Park, and Riverdale.

Customs and Border Protection (CBP): The federal agency responsible for processing incoming passengers from international flights. CBP utilizes a variety of strategies to secure and facilitate the entry of passengers into the United States (CBP Snapshot). All passengers arriving to Atlanta on an international flight must go through Custom's prior to entering the United States. At the Atlanta Airport CBP has jurisdiction for customs and border issues within the two international terminals – Terminals E and F.

Department of Aviation (DOA): A department within the City of Atlanta responsible for overseeing the daily operation of the Hartsfield-Jackson Atlanta Airport. On airport property there are five firehouses located at various points. They are positioned so that a fire truck can respond to any incident within three minutes as required by law.

Emergency Medical Services (EMS): Falls under the Section Chief of Airport Operations EMS Division within the Atlanta Fire Rescue Department. The Airport Operations Division of EMS typically utilizes Mobile Medic Response Teams (bike teams) to ensure faster response times to medical emergencies within the terminal area.

Employees: Any individual who works at the Hartsfield-Jackson Airport. This includes individuals that work for: the City of Atlanta, concession companies, airlines, federal and local agencies, contract companies, and construction companies.

Federal Air Marshal's (FAMs): The only law enforcement entity within TSA. Federal Air Marshal Service "detects, deters and defeats hostile acts against aviation." FAMS are normally undercover, plain clothes law enforcement officers that are responsible for investigating and

preventing terrorism threats to aviation. FAMs have jurisdiction on any American owned or operated passenger flights across the globe. FAMS also have teams on the ground that investigate and participate in multi-agency tasks forces.

Federal Bureau of Investigation (FBI): At all TSA regulated airports across the United States, the FBI assigns special agents and task force officers as Airport Liaison Agents (ASAs). ASAs are responsible for coordinating with TSA to prevent and respond to aviation-related incidents and threats. The ASAs also work with agents assigned to the FBIs Civil Aviation Security Program (CASP). The CASP program is responsible for producing and disseminating a daily report highlighting threats to the aviation system. Agents assigned to CASP also assist airports in issuing federal misdemeanors for non-felonious crimes such as laser pointer illuminations or gun violations at security check points ("FBI Testimony").

Federal Aviation Administration (FAA): Agency responsible for regulating and overseeing the aviation industry across the United States. At the Hartsfield-Jackson Atlanta Airport the FAA is also responsible for approving and ensuring that the Airport Emergency Operations Plan meets all the requirements outlined in 49 CFR 139. The FAA is largely responsible for ensuring that the Atlanta Airport has plans and capabilities in place to respond to any sort of public safety issue.

Mobile Command Vehicle (MPV): This vehicle houses equipment and space necessary in the event of an emergency at the airport that requires a mobile incident command center.

Passengers/Visitors: Any individual utilizing the Hartsfield-Jackson Airport for travel purposes or to greet or send-off another individual traveling. These individuals could be traveling to, from or through the airport.

Transportation Security Administration (TSA): An agency within the Department of Homeland Security responsible for providing security at public infrastructure venues catering to the traveling public within the United States.

Transportation Security Administration Screeners: Responsible for screening both luggage and passengers for prohibited or potentially dangerous items. TSA screeners to do not have any law enforcement capabilities and as such are required to call in back-up for any situation that may require law enforcement.

CHAPTER 1

INTRODUCTION

Introduction

In the 1930s and 1940s, ambitious developers proposed building sprawling roof-top airports above the central business districts in New York and London. These massive facilities would sit above street-level and be integrated into other major transportation systems such as port authorities, railways and subways, making the modern-day airport a hub for all types of travel. The airport would also merge with existing commercial interests on the streets below and stimulate new economic growth for the city, both within the airport and beyond (Nguyen, 2016). This idea of a self-contained city within a city was eventually rejected because of its enormous cost, but it has slowly been coming to fruition as airports have become more insular and yet more linked to the outside world through a web of transportation and commercial connections.

Many now operate like self-sufficient cities with a transient population, meaning they have enormous costs but limited sources of revenue to finance their operations. These new 'airport-cities' do not have much property tax base and other forms of taxation are limited since people are transient and do not live within the airport full-time. Rather, these very large airports are forced to rely on intergovernmental subsidies, commercial profits, and other market-like activities to generate revenue and finance their activities. They also experience a unique set of public policy problems, such as heightened concern regarding crime and terrorism.

In 2016, there were 17,678 commercial airports and 41,788 total airports in the world, including civilian and military installations, according to the Central Intelligence Agency World

Factbook. The United States has the highest density of airports in the world and the most people flying through them, with almost 823 million air passengers in 2016 (The World Bank Group, 2018). Internationally, the number of people flying is expected to reach 7.3 billion by 2034 (International Air Transport Association, 2014). To address these growing demands airports and airlines in the United States are looking for ways to expand and compete globally while maintaining local and state support. One of the best ways to do this is to turn airports into bona fide, self-contained cities, complete with the conveniences and cultural offerings found in a traditional metropolis, but with perks for people on the move, such as short-stay hotels and personal concierge services. Within these modern airport eco-systems, public safety and security concerns are pervasive; laws are often more restrictive, and a vast array of public safety agencies and officials are concentrated in the airport, along with an even larger number of airport and airline staff, contractors, commercial vendors, passengers, and other bystanders, making coordination of effort a chief concern.

This study explores the practice, participants and opportunities of co-production within the context of the modern airport eco-system. Co-production occurs when public administration professionals engage with citizen, employees, consumers, and/or users of a service in the process of producing or providing a public good or service. Co-production has been a topic of research since the 1970's when scholars started to explore how public agencies were producing goods and services in a time of decreased budgets and increased demand. Co-production strategies such as neighborhood watch programs or community waste services efforts, became a way for public agencies to partner with public service users to produce the public service. As publicly owned airports grow to meet the mounting user demands, finding new and innovative ways to provide services such as public safety is paramount. As publicly owned airports become self-contained

cities within a city, some public aviation departments are understaffed and overworked. In addition, as airports grow, the need to maintain a high level of safety and security for all airport users increases. According to the Global Terrorism Database (START) between 2006 and 2016 there were 257 terrorist incidents at airports across the globe. This statistic does not even cover the public safety situations that occur at airports across the globe on a daily basis such as: unruly passengers, unattended bags, security breaches, drugs or weapons, theft, suspicious persons, fires, power outages, etc. To appropriately address these public safety issues public safety administrators, need to actively engage in utilizing all aspects of the public safety cycle which includes prevention, preparedness, and response. Prevention is the task of thwarting a public safety incident from occurring. Preparedness is the process of planning to ensure that the response is successful in the event a public safety incident does occur. And responding is taking appropriate action to a public safety incident when it does occur. Often despite best efforts there is simply not enough public safety personnel to address all aspects of the public safety cycle effectively and efficiently for every potential public safety situation. This makes the task of preventing, preparing, and responding to the growing number of daily public safety concerns at airports difficult. Co-production could be a potential solution to this growing issue as it has been for other public-sector areas such as health and human services, waste services and education. To determine whether this is a viable possibility this study asks the following questions:

- To what extent do public safety administrators believe co-production activities are occurring between public safety administrators and citizens (surrounding area residents); employees (separate from Department of Aviation [DOA]); and passengers/visitors to identify and address public safety priorities and challenges?

- How are Hartsfield-Jackson public safety administrators engaging with citizens (surrounding area residents); employees (separate from DOA); and passengers/visitors throughout the public safety cycle (preparedness, prevention and response)? If a group is not engaged why is that?
    - How are Hartsfield-Jackson public safety administrators engaging with citizens (surrounding area residents); employees (separate from DOA); and passengers/visitors in the preparedness phase?
    - How are Hartsfield-Jackson public safety administrators engaging with citizens (surrounding area residents); employees (separate from DOA); and passengers/visitors in the prevention phase?
    - To what extent do Hartsfield-Jackson public safety administrators engage with citizens (surrounding area residents); employees (separate from DOA); and passengers/visitors in the response phase?
- When citizens (surrounding area residents); employees (separate from DOA); and passengers/visitors are engaged, do Hartsfield-Jackson public safety administrators consider the engagement to be valuable to public safety? Why or why not?

The present study first explores whether co-production is occurring with three potential groups reliant on public safety at the airport: (a) citizens (from the surrounding area), (b) employees (separate from DOA), and(c) passengers. The study also investigates how co-production is occurring, if at all. In addition, this study also explores whether public safety administrators believe there is value or potential value in engaging the identified groups.

This study has important implications for future co-production research and practice. For one, the study findings suggest that public safety administrators are not fully engaged with all the

potential groups identified due to the challenges of co-producing public safety. The study found that challenges such as organizational environment, federal regulations, and a lack of buy-in from public safety administrators make implementing co-production of public safety difficult. The challenges identified highlight the fact that co-production of public safety might be an unrealistic approach to addressing the growing public safety concerns that exist at airports. The study also found that when co-production is occurring, the engagement levels between public safety administrators and citizens, employees, and passengers/visitors at various phases of the public safety cycle were low. In addition, the study's findings suggest that public safety administrators perceived that while there is value in engaging employees in all aspects of the public safety cycle that is not the case for citizens and passengers/visitors. The study's findings ultimately highlight the need for further research on the topic of co-production of public safety in airports especially regarding the challenges that this study identifies.

Study Overview

Study Design

This is a case study analysis of the practice, opportunities and participants of co-production at the Hartsfield-Jackson Atlanta International Airport. A mixed-method single case study design using (a) secondary data, (b) press releases, news reports, twitter accounts, and direct observations regarding a specific event; and (c) elite interviews was employed for this study. The secondary data was used to provide a general overview of the Hartsfield-Jackson Atlanta International Airport. The analysis of a specific event was conducted to explore whether the airport engaged with citizens, employees, and passengers/visitors during an actual public safety incident. The elite interviews were conducted to gain insights from public safety

administrators on public safety engagement practices at Hartsfield-Jackson Atlanta International Airport.

Significance

Co-production has been found to be a viable way for public administrators to engage with individuals in a wide-array of public service areas (i.e., waste management, community policing, water services, education, healthcare) to improve delivery of such services (Alford, 2009; Brudney, 1984; Brudney & England, 1983; Nobles & Williams, 2017; Pestoff, 2009). Limited research has been conducted on whether or not co-production strategies are currently being used in the aviation public safety sector. There is also limited research on who, if anyone, is participating in co-producing strategies in the aviation public safety sector. The intent of this study is to explore whether or not a major entity that deals with a transient, ever-changing population is currently engaging in co-production strategies and if they are with which groups of individuals.

Scholars have already affirmed that co-production is occurring in other public service areas. This study's findings could offer practical and theoretical contributions to a variety of disciplines including public administration, public safety, aviation, and urban planning. Specifically, findings could reveal how and with whom co-production is occurring in the aviation public safety sector. The findings could also reveal whether potential opportunities to expand engagement between public safety administrators and different groups of individuals is even a viable or realistic possibility. Study findings could provide insight to practitioners and academics on why practitioners believe specific groups are more valuable to engage than others in public safety. Being able to identify the gaps in engagement could provide practitioners with areas to focus on. In addition, this study could highlight the challenges that hinder co-production

strategies from being implemented in the context of airport public safety. As an exploratory study, this study will provide a reference point for determining whether additional efforts in this research area would be valuable to the field of public administration and public safety.

Structure of the Manuscript

This dissertation contains five chapters. Chapter 2 presents the theoretical framework for understanding the practice, opportunities and participants in co-producing public safety. Chapter 3 provides the conceptual framework, outlining the study context, research design, and analyses approach that will be implemented to carry out this study. Chapter 4 presents the findings of the study. A summary of the findings and the future implications as well as the limitations of this study are outlined in Chapter 5.

CHAPTER 2

LITERATURE REVIEW

History of Co-production

Co-production originated in 1970's when Ostrom, Parks, Whitaker, and Percy (1978) began looking at how citizens and police departments were working together to enhance the public service delivery of public safety (i.e., the welfare and protection of the public). In the late 1970's, budgets for government agencies across the United States were decreasing as a result of economic recession and growing budget deficits. Due to decreasing budgets, many government agencies were being forced to choose between increasing taxes or cutting back services. Citizens, on the other hand, were demanding better performance and amplified services from government agencies. To address this growing challenge, some government agencies started to include citizens in the process of developing, implementing, and providing public goods and services (Brudney, 1984; Ostrom et al., 1978; Parks et al., 1981; Percy, 1987; Whitaker, 1980). A public good is a commodity that is provided to members of the public (e.g., public parks or public road ways). A public service is when a government agency provides a service to members of the public (e.g., public education or social services such as child protective services).

The study of co-production waned somewhat in the 1990's but since the early 2000's it has reemerged as a framework for public administrators in both the academic and practitioner worlds as a way to include citizens in the process of developing, implementing, and providing public goods and services. During the early 1990's, scholars and practitioners primarily focused on the concept of privatization to address citizen demands. Privatization was considered a way for public administrators to address growing citizen issues with inefficient or inadequate service

delivery of public goods and services and their demands for better service. Privatization was also utilized to increase cost effectiveness and accountability. Government agencies were able to contract service delivery to private companies who would then have responsibility for producing and providing the good or service to members of the public (Hood, 1991; Gilmour & Jensen, 1998; Moe, 1987). For example, Sandy Springs, GA, contracted with a private company (CH2M Hill) to provide a significant portion of goods and services to Sandy Spring residents (e.g., public works, code enforcement, permitting, facilities management, procurement, transportation, etc.). While privatization was a popular strategy for providing public goods and services throughout the new public management phase, it did not come without problems (Osborne, Radnor, & Nasi, 2013). Fledderus (2015) noted in his article that in privatizing public services, government agencies often struggled to acknowledge what the citizens' roles were in implementing, producing and maintaining delivery of public goods and services. To address the gap of citizen involvement in privatization theory, scholars started to focus more research on developing co-production theories and frameworks.

Co-production is studied around the world, and as a result, scholars have differing opinions regarding what should be considered co-production. Scholars also have differing opinions on when and how co-production strategies should be used within the field of public safety and emergency management. Despite government budgets fluctuating over the last forty years, co-production strategies are still being used in various fields such as social services, policing, and waste services. within public administration to provide goods and services to members of the public (Alford, 2009; Alford, 2014; Bovaird, 2007; Nabatchi, Sancino, & Sicilia, 2017; Thomas, 2012).

Chapter 2 begins by providing a general definition of co-production. The subsequent sections provide an overview of potential co-production participants and when co-production can occur. Following this overview, a discussion of the benefits and challenges of co-production is provided. The ensuing section provides an overview of co-production within the context of emergency management and public safety in the aviation field.

Co-production a General Definition

Since the 1980's, co-production within the field of public administration has come to be an overarching concept to describe various interactions that occur between administrators and citizens or clients within the public service cycle (Alford, 2014; Alford & O'Flynn, 2012; Bovaird, 2007; Brudney & England, 1983; Nabatchi et al., 2017; Whitaker, 1980). The public service cycle is the process in which a public good or service is created, implemented and delivered. The public service cycle is considered to include the following four applications: (1) commissioning the good or service, (2) designing the good or service, (3) delivering the good or service, and (4) assessing or evaluating the good or service (Bovaird, 2007; Nabatchi et al., 2017; Sicilia, Sancino & Ruffini, 2016). To begin it is important to understand the ***what, who,*** and ***when/how*** of co-production.

First, *what* is co-production? Co-production began as a framework for describing how public goods and services are developed, implemented, and provided to citizens. For the purposes of this research, we will use a definition that defines co-production in an all-encompassing way. At its simplest definition, co-production is engaging professionals and users (residents or citizens) in the process of producing a public good or service such as public safety, waste services, or social services (Alford, 2009; Brudney, 1984; Brudney & England, 1983; Nobles & Williams, 2017; Pestoff, 2009). Within government agencies, co-production occurs

when a traditional service provider (a government agency) works with a non-traditional service provider (citizens, nonprofits, etc.) to produce a public good or service. The non-traditional service provider may aid a government agency in the production of a good or service through a variety of ways including time, money, skills, etc. Co-production allows public governments to move away from or expand traditional service provider methods, allowing for the opportunity to possibly produce and deliver better public goods and services.

Using this framework scholars have defined co-production in many ways (see Table 1 below). This has resulted in researchers taking numerous routes to analyze co-production strategies and techniques. Co-production entails professionals and citizens working together in such a way that they both contribute and participate in the planning and delivery of a public good or service (Brandsen & Pestoff, 2006; Ostrom, 1993; Percy, 1984; Whitaker, 1980). For example, in the public safety field, services are often more effective and efficient when citizens are involved in the process of public safety. Public safety agencies have asked citizens to request service, participate in community policing, and in more recent years be the eyes and ears of the community with public safety campaigns such as the "See Something, Say Something" campaign. By including citizens in these ways public safety agencies have moved away from traditional service provider methods of public safety (e.g., militarized policing strategies) to more collaborative and nontraditional methods of public safety (e.g., community policing). This is not to say that traditional service methods have been completely replaced but rather more collaborative and nontraditional methods are being used to compliment or address gaps in traditional service methods. Co-production may potentially reduce the need for public safety departments to allocate resources to areas that may not need them as well as assist with delivering better public safety service in areas with gaps (Ostrom et al., 1978).

Table 1
Co-production Definitions from Across the Literature Since 2010

General Definitions	
Brandsen and Honingh (2016)	"Co-production is a relationship between a paid employee of an organization and (groups of) individual citizens that requires a direct and active contribution from these citizens to the work of the organization" (p. 431).
Fledderus et al. (2014)	"Co-production is defined here as an arrangement where both clients and 'regular' producers contribute a mix of activities at the point of delivery of public services" (p. 427).
Williams, Kang and Johnson (2016)	"Co-production is associated with the expanding role that citizens and other third-party actors assume in the development and delivery of public services" (p. 692).
Education	
Vamstad (2012)	"Co-production is here understood as a system for service provision in which the users of the services also participate in the provision of them" (p. 1175).
Health Care	
Vennik, Bovenkamp, Putters, and Grit (2016)	"Co-production in health care means that patients contribute to the provision of health services as partners of professional providers" (p. 151).
Neighborhood Watch	
Van Eijk, Steen and Verschuere (2018)	". . . the key feature is that both citizens and professional agents contribute to the provision of public services, and that their collaboration is aimed at enhancing the quality of the services provided" (p. 323).
Social Services	
Pestoff (2009)	"Co-production provides a model for the mix of both public service agents and citizens who contribute to the provision of a public service" (p. 197).
Jakobsen (2012)	"Co-production of public services implies that different actors, such as public employees and citizens, contribute input to the production process" (p. 27).
Urban Development	
Bartenberger and Szescilo (2016)	"Co-production offers the opportunity to ensure high-quality public service via direct and significant engagement of citizens as service users" (p. 509).
Water Services	
Button (2017)	"Co-production is a process of service delivery that involves multiple actors from different organizations (or no organization), and in many instances, citizens are involved in the production of services that they consume" (p. 103).

Now that we have defined ***what*** co-production is, let's define ***who*** is involved in the co-production of public goods and services. In general terms, researchers have agreed that co-production occurs between two groups of actors: professionals and individuals. In the realm of public administration research, professionals are considered to be public administrators (Bovaird, 2007; Whitaker, 1980). The term public administrators refers to employees that work in in public departments and agencies at the managerial and administrative level of government. Researchers tend to differ when it comes to defining what the term *individuals* means when it comes to the co-production of public goods and services. One subset of the co-production literature has determined that in the process of co-production, *individuals* can take on the role of a customer, citizen or partner (Alford, 2014; Alford & O'Flynn, 2012; Thomas, 2012). In each of these roles an *individual* can be interacting with public administrators on their own or as a collective group.

Citizens is the first role that scholars have determined individuals take on when engaging in co-production activities. Alford (2002) postulated that an individual is taking on the role of citizen when they are expressing their views and thoughts about a government good or service by participating in the political process of representation. Individuals may take on the role of citizen when voting, attending city or town council meetings, participating in citizen advisory boards, attending public meetings, and/or providing comment on proposed or existing goods or services, among other things (Callahan, 2007; Thomas, 2012). Nabatchi et al. (2017) have a simple definition for citizen: any individual who is a resident within a certain geographical area or political community constitutes as a citizen. Thomas (2012), however, asserts that being a citizen involves more than just being physically part of a geographical area or political community. His belief is that an individual takes on the role of citizen if they are helping government agencies make decisions, such as formulating the vision, development, or implementation of public goods

and services. An example of an individual taking on the role of citizen would be someone participating in a public forum regarding potential preventative measures to reduce airport traffic noise.

The second role that individuals can take when participating in co-production activities is that of customer or client (Alford, 2014; Alford & O'Flynn, 2012; Dilulio, Garvey, & Kettl, 2001; Moore, 1995; Nabatchi et al., 2017; Ostrom, 1996; Thomas, 2012). Scholars have varying opinions on what this means in practice. To distinguish between the two terms, scholars have distinguished how services or goods are paid for, as well as the pursuits and value of the public good or service. Dilulio, Garvey, and Kettl (2001) claimed that within the realm of government services, individuals can take on the role of customer when they are either receiving a service, partnering to provide a service, monitoring service performance, or paying for the service in some way. Thomas (2012) defined the term more succinctly stating that individuals taking on the role of customer are those who are coming to government "pursuing goods for their 'private value,' even if they do not pay for them in the strictest sense" (p. 33). An example of this would be an individual asking for animal control to come collect an unknown dog on their property. Nabatchi et al. (2017) argued that individuals should only be considered a customer if they are directly paying for the service or good. However, they also use the term "clients" for individuals who receive goods or services without directly paying for them, through means such as taxes.

Alford and O'Flynn (2012), however, stated that the term client can include any individual receiving a good or service that could be considered to have private value from a government agency. In essence, Alford and O'Flynn (2012) expanded upon Moore's (1995) notion that a client could be a paying customer, beneficiary, or an obligatee when receiving something from the "business end" of a government agency. Moore (1995) stated that an

individual may be a customer when they are paying for the service – such as a driver's license or water service. Individuals may also be a beneficiary of the public good or service (Alford & O'Flynn, 2012; Moore, 1995). A beneficiary could be an individual or parents of an individual attending a public school. A customer may also be an obligatee, which Moore (1995) defined as an individual receiving a service from an agency enforcing or regulating laws. An example of an obligatee would be an individual being required by the local police department to follow the local noise ordinance.

Customers and clients have the ability to co-produce with government agencies by (1) providing feedback through surveys, complaint departments, 311, etc. and (2) by sharing clear and specific preferences for services and goods (Alford & O'Flynn, 2012; Dilulio, Garvey, & Kettl, 2001; Moore, 1995; Nabatchi et al., 2017). Regardless of which term is used customer or client - the general consensus of scholars is that an individual receiving a good or service that could be considered to have "private value" is distinct from an individual interacting with a government agency as a citizen or partner.

Partner is the third role an individual can take on when participating in co-production activities. When an individual is taking on the role of partner they are working with a government agency or public administrator to help provide a good or service (e.g., waste services) (Alford, 2014; Thomas, 2012). A partnership implies that each side shares part of the responsibility of producing the public good or service (Alford, 2014). To have a successful partnership each side needs to have clearly defined roles and outcome expectations. Alford and O'Flynn (2012) defined a partnership as: "any arrangement where the government agency shares the producing role (p. 113)." One of the most widely used examples of an individual taking on the role of partner is in the policing field. Many scholars have studied how individuals can work

with a government agency to implement community policing strategies. The concept of community policing is often used as an example of how individuals can partner with an agency. In the community policing example, the public good or service being produced can range from greater awareness of potential and actual crime to less crime. With community policing to reduce crime and increase public safety, individuals work with police officers by reporting crime, participating in neighborhood watch programs, or calling 911 when appropriate (and knowing when not to call 911). When an individual takes on the role of partner, they are helping a government agency provide a good or service to the community.

Now that the ***who*** of co-production has been defined, let's define ***when/how*** co-production can occur. One of the earliest scholars of co-production, Whitaker (1980), stated that co-production involves three broad interactions between public administration professionals and individuals. The first interaction is when citizens request assistance from public administrators (p. 242). Brudney and England (1983) stated that this type of interaction can be classified as individual co-production. Individual co-production, according to Brudney and England (1983) occurs when an individual needs some type of service from the government. Brudney and England (1983) stated that when the producers of a service (the government or a government agency) provide a service to individuals they are typically following specific policies, rules, laws or regulations. For example, a resident who needs assistance from code enforcement to build an addition onto their house would be an individual requesting a particular service from a government agency. Contemporary scholars have stated that individuals engaging in this type of interaction should be considered clients or customers (Alford, 2002; Alford, 2009; Nabatchi et al., 2017; Ostrom, 1996, Thomas, 2012). At this level of co-production, the outcome typically is

intended to benefit the client or customer, but in some cases may also benefit society as a whole (Alford, 2009; Brudney & England, 1983; Nabatchi et al., 2017).

The second major interaction that Whitaker (1980) identified is when individuals aid or assist government agencies or public administrators. Brudney and England (1983) noted that this type of co-production interaction can result in an individual participating in the co-production process (e.g., reporting a suspicious person to police) or a group participating in the process (e.g., participating in a neighborhood watch program). When an individual helps a government agency it is typically for personal gain or as a result of some intrinsic motivator; for example, an individual attending a public meeting to voice their concerns on a new zoning ordinance. Individuals aiding public administrators or agencies can also take form in a group setting. For example, citizens in a community may serve on a citizen's review board for the police department (Brudney & England, 1983; Percy, 1984). More contemporary researchers such as Alford (2002) and Thomas (2013) emphasized that during this type of interaction members of the public fit into the role of citizen. And according to Alford (2002), Thomas (2012) and Thomas (2013) members of the public can be seen as citizens when they are participating in the democratic process and helping to determine the course of government programs as discussed above. Nabatchi et al. (2017) argued however that at this level of interaction individuals typically fall into the role of clients or customers. This argument is based on that the idea that since group co-production revolves around individuals coming together to collectively request or contribute to a service they have either directly or indirectly paid for, they are the clients or customers in the scenario. From this viewpoint the clients or customers are typically the ones receiving the majority of the benefits, however, some societal benefits may occur.

The third major interaction Whitaker (1980) discussed is when citizens and public administrators interact and as a result, service expectations and actions are adjusted based on the needs of the community (e.g., increasing/decreasing the number of waste/recycling pick-up days for a neighborhood to meet current needs). Percy (1984) stated that this type of interaction can help provide government agencies with greater information about citizen's needs and expectations. It also allows government agencies the opportunity to utilize citizen's ideas to develop programs that are more in line with the community's needs. Nabatchi et al. (2017) termed this level of co-production as collective co-production. This interaction is the most complex interaction of the three defined by Whitaker (1980); this is because government agencies and users must work together to develop relationships and strategies to ensure that citizens and agencies are able to appropriately and adequately adjust to handle service expectations (Bovaird, 2007; Bryson, Quick, Slotterback & Crosby, 2013; Percy, 1984). Bryson et al. (2013) noted that public participation is a process that must be developed, fostered, and maintained. Throughout this co-production form of interaction, members of the public are often seen as a partner (Alford, 2014; Thomas, 2012). Nabatchi et al. (2017) stated that this form of co-production typically results in societal benefits but may also result in individual personal benefits to those participating in the process. When members of the public are in the role of partner there is an implied sense of active participation in service production and delivery making (Alford, 2002; Ostrom, 1996; Thomas, 2012). An example of a public service that can be co-produced between public administrators and individuals in this way is public safety (Percy, 1987; Schneider, 1987). Citizens participating in a neighborhood watch program and working with police officers on a regular basis would be an example of citizens and administrators interacting to provide improved public safety in an area.

Building off this framework of interactions and roles within co-production, Nabatchi et al. (2017) determined that there are specific co-production applications that occur within the phases of the public service cycle which they define as: commissioning, designing, delivering, and assessing the production of a public good or service. Commissioning, according to Bovaird and Loeffler (2012) is the process of determining the outcomes desired, groups that should be included, and services to provide. This part of the process is typically done by the government agency public administrators, but individuals may be involved in the process if they are the ones pushing for a new or improved service. Designing is the process of establishing the method of how the service being developed should be provided (Bovaird & Loeffler, 2012; Nabatchi et al., 2017). This part of the process can be developed by both administrators and individuals.

Delivering is when administrators and individuals are working together and collaborating to ensure that the service is provided successfully. The assessment part of the process is when administrators and individuals are evaluating the service being provided (Bovaird & Loeffler, 2002). This process is typically a dual effort between administrators and individuals determining what parts of the delivery are successful and what areas are not effective and need improvement. These four pieces of the public service cycle should in theory be a continuous process where administrators and individuals are working together to accomplish five main goals (1) determine service gaps; (2) desired outcomes not being met; (3) designing ways to provide the missing services; (4) delivering the actual service; and (5) assessing the service.

Potential Benefits of Co-production

Building on the general definition of co-production, there are a number of ways that public organizations can benefit when they partner with members of the public to provide public goods and services. Thomas (2012) identified seven specific potential benefits to government

agencies that can result from increasing public participation. The first potential benefit to public administrators is better information. Thomas (2012) suggested that when members of the public are involved in the public management process there is the potential for public administrators to receive better information, such as whether a program is actually meeting citizens needs or expectations. Needham (2008) stated that co-production can provide an opportunity for information to flow more successfully between citizens and the organization. Co-production can enable citizens to share their thoughts, concerns, and suggestions that a public organization may not otherwise be aware of or have an opportunity to consider.

The second potential benefit is improved program implementation. When members the public and stakeholders are included in the process of developing or providing a program the actual implementation of the program can be more successful (Thomas, 2012). This is because according to Sharp (1980), co-production causes citizens and public administrators to learn from one another, often resulting in better program implementation. Sharp (1980) stated: "citizen demand, under the co-production model, should be seen as constantly changing, as citizens learn more about urban services and programmatic costs and consequences through their own participation; at the same time, government agents learn more about the preferences and the capacities for self-hep of citizens" (p. 113). Thomas (2012) and Sharp (1980) suggested that when citizens are included in the process of program implementation they have an opportunity to become more aware of the realities associated with developing or implementing a good or service. As such, they are more likely to have realistic expectations of public administrators and services when they are involved in implementing the program. When more realistic expectations are created the actual implementation of the program has the opportunity to be done more effectively.

The third benefit Thomas (2012) identified is greater acceptance of programs. When individuals outside of an organization are included in the process of developing, implementing, or maintaining the production of public goods and services, they are more likely to accept a program because they are invested in the program (Bacot, McCabe, Fitzgerald, Bowen, & Folz, 1993; Berman, 1997; Thomas, 2012). Bacot et al. (1993) found in their study of co-production techniques for recycling practices that asking for citizen input and requesting citizen participation greatly impacted recycling program acceptance. They determined that "by involving a wide variety of citizens and views into program design and implementation, local decision makers might well significantly increase the proportion of recycling stakeholders in the community, design a better program, and dramatically enhance program acceptance" (p. 38). While Bacot et al.'s (1993) study specifically focused on recycling programs it can be theorized that this benefit would apply to many other government programs based on the fact that when an individual has been included in the process from the beginning they are more likely to accept the end result.

A fourth potential benefit is better fit between policies or programs and citizen preferences. Whitaker (1980) noted a need for mutual adjustment of expectations and actions between citizens and public administrators such that mutual adjustment occurs most successfully "when the actions taken by both the service agent and the citizen are based on their joint consideration of a problem" (p. 244). Whitaker (1980) surmised that when mutual adjustment successfully occurs there is a better fit between public policies or programs and citizen preferences. This is due to the fact that when each is providing input and feedback into the policy or program the end result is more likely to make both public administrators and citizens happy.

A fifth potential benefit is better government performance. Brudney (1984) surmised that when citizens and partners assisted government agencies in producing a good or service, the job could be done more effectively. Building off of this premise, scholars have determined that citizens and partners can improve program performance by (1) providing problem solving skills and (2) suggesting "innovative solutions" to address gaps in public service delivery (Boyer, Van Slyke and Rogers, 2015; Moynihan, 2003, p. 174; Neshkova and Guo, 2011; Thomas, 2012). Clark, Brudney and Jang (2013) determined in their study that when citizens were engaged and participating in providing a good or service, the fiscal and labor costs to government could be reduced. When fiscal and human capital labor costs are reduced government program cost efficiency can improve.

The sixth potential benefit is protection from criticism. Scholars have found that when members of the public are involved in the development of a program or process there can be less criticism regarding the outcome of the good or service being produced. When citizens are co-producing with public administrators to produce a good or service a sense of unity can occur. It is this sense of unity that can result in lower levels of criticism. Boyer et al. (2015) found in their study that including citizens can lead to higher levels of transparency which can, in theory, lower criticism levels. Thomas (2012) stated that citizens involved in the development and implementation of new programs were less likely to broadcast their criticism for fear of damaging the relationship with public administrators.

The seventh potential benefit Thomas (2012) identified is increased trust of government agencies. When citizens and stakeholders are involved in program decisions and developments they are more likely to have faith in an agency's capabilities and program direction (Needham, 2008). Fledderus, Brandsen and Honingh (2014) posited that if roles are clear, the co-production

interactions that occur between citizens and public administrators can act as trust building activities. Including methods of professionalism and monitoring of agency conduct can potentially result in a program being handled more aptly (Fledderus et al., 2014). By taking steps to ensure that a program is being handled appropriately, public administrators are better able to show to members of the public that they are trustworthy (Fledderus, 2015; Fledderus et al., 2014). Berman (1997) also found that citizens who are asked to participate in government programs and services through co-production (e.g., participating in public meetings and public panels and providing input and feedback on programs) have less cynicism about government and higher levels of trust.

Challenges of Co-production

While there are many potential benefits to co-producing public goods and services scholars have also identified a number of challenges that public managers may face when implementing co-production strategies. One challenge that scholars have identified is garnering buy-in and support from program administrators. There are several reasons why it can be difficult to convince managers and administrators to implement co-production strategies. Thomas (2012) stated that one reason for this is the perception that including citizens and stakeholders in providing a public good or service will make it harder for public administrators to do their jobs. It is not guaranteed that citizens will want to participate in providing a public good or service. When this is the case, public administrators may be faced with the burden of continuously reaching out and seeking public involvement through public forums, focus groups, community meetings, or outreach efforts, thus increasing their work responsibilities (Brudney, 1984; Burden, Canon, Mayer, & Moynihan, 2012; Moynihan, Herd, & Harvey, 2014). In addition, once citizens have become engaged, public administrators are then responsible for

managing interactions between those individuals and the organization. The added responsibilities associated with managing interactions between members of the public and the organization also increases workloads and responsibilities for public administrators (Burden et al., 2012; Edelenbos & Klijn, 2005).

Thomas (2012) identified the financial and resource costs associated with co-production strategies as another reason contributing to resistance from organizations. Gathering input from citizens can be a cost in terms of time, money and other resources. Often when members of the public are involved in a program, the program's costs increase both initially and long-term (Brudney, 1984; Thomas, 2012). As mentioned above, involving members of the public often requires gathering their input through means such as public meetings, forums, focus groups, and workshops, each of which increases the financial and labor costs associated with the program (Brudney, 1984; Thomas, 2012). There are also costs associated with developing and hosting engagement events and in collecting and analyzing information provided through citizen input. Often a cost benefit analysis is needed to determine whether the benefits associated with instituting public involvement are greater than the financial costs

Another co-production challenge is balancing the flow, amount, and quality of citizen participation. Members of the public can be difficult to engage or manage when asked to participate in the design, implementation, or evaluation of public services. Some public policy areas may attract a high level of interest from citizens, while other areas may not. For example, citizens may be drawn to participate in the public process when it directly affects them, such as a neighborhood watch initiative. Conversely, engagement and interest in a public-school initiative may be quite low among citizens that do not have school-aged children. Citizens may also go through phases of wanting to be actively involved in the public process to not wanting to be

involved at all. It can thus be difficult for public administrators to find a balance between the two extremes. Thomas (2012) stated that no matter the reason for wanting or not wanting to participate in activities related to public services the citizens who do participate will most likely not fully represent the broader public or the specific group the organization is trying to serve.

Related to the challenge of engaging members of the public, another challenge is decision making quality and effectiveness. Involving members of the public in providing a public good or service can make it more difficult to make decisions (Edelenbos & Klijn, 2005; Thomas, 2012). When public administrators make decisions related to public goods and services, they are assumed to base their decisions on information gained from experience or research done on the topic – resulting in informed decisions rather than emotional decisions. When including members of the public in the decision-making process, public managers may be forced in a direction that is less than ideal for the organization or the situation. Edelenbos and Klijn (2005) and Roberts (2004) stated that having more citizen input does not necessarily result in outcomes that are plausible or good for an organization. Members of the public often do not make rational, well-thought out decisions but rather, they make decisions based on emotions or self-interest. There are several reasons for this. One is that citizens may not have the needed expert or technical knowledge to assist in making sound decisions. Another reason is that citizens may influence the decision-making process based on personal or emotional reasons or because of a personal vested interest in the outcome. Individual citizens may also not consider or value the common good. Rather they may only consider their own needs or needs of a group they most associate with (Edelenbos & Klijn, 2005; Roberts, 2004; Thomas, 2012). Thomas (2012) stated that for these reasons, using citizen input in the decision-making process can create challenges if not well handled.

Co-production within Emergency Management

Building upon the general concept of co-production some scholars have examined how o-production is being utilized within the emergency management sector of government. In the United States, the Department of Homeland Security (DHS) has identified four major areas that comprise the emergency management and public safety realm: minimization of risk, preparedness to address the risk should it occur, response, and recovery. Each of these phases occur as part of a continuous cycle of emergency management and public safety ("National Preparedness Cycle," 2017). Knowing how co-production has been studied within the emergency management sector is valuable to this study because in many public safety situations emergency management practices are implemented.

Minimization is the process of reducing the likelihood that future emergencies or public safety incidences occur and if they do occur, limiting their impact. Minimization typically involves two approaches: (1) prevention and (2) mitigation. Prevention refers to steps or strategies taken to decrease the likelihood of an emergency management or public safety crisis from occurring. Mitigation involves steps and strategies that reduce or lessen the impact or risk of an event if it occurs (McLoughlin, 1985; Waugh &Streib, 2006). Typically, in the minimization phase, organizations identify risks and vulnerabilities that may impact their organization. According to FEMA one of the best ways to prevent and mitigate risks and vulnerabilities is for an organization to conduct a Threat Hazard Identification and Risk Assessment (THIRA) ("Threat and Hazard," 2018). Once an organization's risks and vulnerabilities have been identified the phases of prevention and mitigation involves finding and implementing ways to reduce the risks and prevent the and vulnerabilities identified ("What is Hazard Mitigation," 2018).

Preparedness is the second phase of emergency management. Preparedness entails equipping an organization to be ready to handle an incident if one were to occur. To be fully equipped, an organization needs to have appropriate staffing levels, personnel, time, and discretion. This part of the process includes developing plans, warning systems, emergency operating systems, emergency communications protocols, and mutual aid agreements. The goal of the preparedness phase is to ensure that organizations are ready and prepared for life safety, rescue and response operations in the event of an incident. Preparedness also includes training first responders on appropriate protocols, and methods of life safety, rescue and response operations (Petak, 1985).

Response is the third phase of the emergency management process. This phase involves responding quickly and effectively to minimize harm and property damage. According to Lindell (2013), there are four basic functions of emergency response: emergency assessment, hazard operations, population protection, and incident management. In large scale emergencies involving multiple agencies and personnel, response is normally coordinated through an emergency operations center (EOC).

Recovery is the fourth phase of emergency management. This phase happens when an organization is transitioning from its response to an incident. The recovery phase refers to both short-term and long-term activities an organization undertakes to reach routine operating conditions. Short-term activities typically include activities that help the organization reach minimum operating standards (McLoughlin, 1985; Petak, 1985). Long-term recovery activities involve restoring the organization to full operating power and returning to normal operations (McLoughlin, 1985).

Some studies have found using co-production strategies to develop these various plans can affect citizens' acceptance and utilization of the plans. When citizens, non-profit organizations, private organizations and government work together and co-produce emergency plans, the plans can be more effective and efficient (Kapucu, 2006; Paton, 2007; Pearce, 2003; Robinson, 2012). Pearce (2003) stated that excluding citizens in disaster planning can make it difficult to develop sustainable hazard mitigation plans. When government agencies exclude citizens in the development of emergency plans, the citizens may also be less likely to understand why the plan is important (Pearce, 2003). Paton (2007) builds upon this idea by exploring the idea of community trust in emergency planning. Paton (2007) stipulated that co-production was necessary in hazard mitigation because it helped clarify and highlight the importance of the emergency plan. Communities that are engaged in how emergency notifications and plans are disseminated are more likely to take the threat of the hazard more seriously (Paton, 2007). Eiser et al. (2012) stated that emergency managers who do not engage the community are less likely to develop trust which is essential to risk communication being accepted as sound advice. Murphy (2007) found that communities that recognize the importance of social capital and utilize citizens in developing plans have a higher chance of remaining resilient after the emergency event.

Based on the findings discussed in Pearce's (2003) article, including citizens in the planning process can help bridge the gap between citizens and government agencies. When citizens are included in the planning process, those who contributed to it may feel more comfortable following the plan and are more likely to support the implementation of the emergency plan in the event of an actual incident. Kapucu (2008) stated that while citizen participation is necessary, a well-developed, trusting relationship between emergency managers

and citizens is imperative to developing a cooperative arrangement. Often in emergency situations subpopulations in large urban areas such as those living in largely minority neighborhoods or lower income neighborhoods are more vulnerable to hazards because the emergency management plan or warning is not always delivered in a way that is understood or trusted by the community (Bittner, Matthies, Dalbokova, & Menne, 2013). Including members of vulnerable subpopulations in the planning process can increase trust and improve understanding of the hazard (Kapucu, 2012). Ebi and Schmier (2005) stated that engaging community members can help emergency managers develop plans that recognize and reflect the relevant cultural, social and economic differences prevalent in the community.

There are various ways that public administrators can utilize co-production strategies in emergency management planning and preparedness. Lowe, Ebi and Forsberg (2011) suggested that emergency managers undertake community engagement by developing ways for citizens to volunteer for outreach initiatives, such as efforts to educate members of the public of impending hazards. Lowe et al. (2011) stated that this type of engagement, can help reach vulnerable populations and engage citizens who wish to volunteer their time to improving government services. Bittner et al. (2013) noted that emergency managers can use co-production by providing the community the opportunity to provide input into the plans themselves. Some other examples of co-production strategies that can be used specifically in emergency management include providing basic preparedness to citizens, developing neighborhood response teams, and providing special skills training or other volunteer programs (Hwacha, 2005; Lichterman, 2000). Lichterman (2000) concluded that citizen engagement is a valid and effective way to handle emergency preparedness because citizens “are likely to feel more secure and less fearful about

the impact of future disasters if they have prepared for potential emergencies through a community-based disaster preparedness program" (p. 265).

In addition to engaging citizens in co-production strategies, nonprofit organizations and public-private partnerships may also be utilized in co-production. Emergency managers are more likely to develop successful plans and programs when they work within their professional network of nonprofits, community leaders, other emergency managers, and private organizations (Guo & Kapucu, 2015; Kapucu, 2006; McGuire, 2006; Robinson, 2012). A partnership between public organizations, non-profits and private organizations can increase and encourage collaboration regarding resource sharing as well as ideas, views and approaches on how to handle emergency management problems (Kapucu, 2006). Schafer, Carroll, Haynes and Abrams (2008) also determined that to be successful emergency managers should use their networks to identify and understand the cultural issues that exist in the community where the emergency management plans are to be implemented.

Another focus of research regarding emergency management and co-production revolves around the use of social media. Several researchers have delved into how social media have been used to facilitate citizens' abilities to provide direct, time-sensitive information to emergency responders and as such, co-producing the response effort (Chatfield, Scholl & Brajawidagda, 2014; Nobles & Williams, 2017; Potter, 2016; Veil, Buehner &Palenchar, 2011). Chatfield et al. (2014) determined that during Hurricane Sandy social media use and interaction between citizens and government agencies provided a wide array of information that government officials may not have received in a timely and effective manner. Nobles and Williams (2017) found that social media use during the Boston Marathon Bombing of 2013 was critical in both providing and gaining information between citizens and public administrators. Research in this area has

also probed into the negative aspects of this form of co-production. Oh, Agrawal and Rao (2011) studied how citizens can potentially provide too much information via social media. Information is important but an overabundance from citizens may cause the emergency situation to become worse, including by conveying inaccurate information. Nobles and Williams (2017) discussed the need for balance and proper use of social media when utilizing social media as a co-production tool for emergency managers.

Utilizing co-production techniques and strategies has the potential to enhance emergency response and ease tension between administrators and citizens. Understanding how to implement and utilize co-production strategies that include both citizens and private-public partnerships can improve emergency management strategies by increasing prevention, preparedness, and response efforts. The purpose of this study, for instance involved assessing whether the departments at the Hartsfield-Jackson Atlanta International Airport responsible for public safety were utilizing co-production strategies to increase the effectiveness and efficiency of emergency responses. This type of research can foster understanding of whether and how co-production is being used in emergency management practice.

Co-production within Public Safety

Prior to delving into co-production within the public safety sector it is important to first define public safety. Public safety is the overall welfare and protection of the public. A public safety incident is any incident that would impact the overall welfare and protection of the public (i.e., in the aviation environment this could be suspicious persons, unattended bags, unruly passengers, a fire, etc.) (Price & Forrest, 2016). Public safety in many agencies falls within the same organizational domain as emergency management. So as with emergency management, public safety is often conducted in a cycle of four phases: prevention, preparedness, response,

and recovery. As discussed in the emergency management section, prevention is implementing protocols to deter a public safety incident from occurring (i.e., policies that prevent specific weapons from entering an area). Preparedness is being ready to address a public safety incident if it were to occur. Response is responding to the public safety incident. Recovery is returning the environment to normal (Price & Forrest, 2016).

Scholars have examined how co-production has been applied to public safety. In public safety, community-oriented policing has been the primary focus of the research and thus relevant to understand for the purposes of this study. Community-oriented policing is based on the premise that police departments should work with and encourage citizens to have a more active role in public safety (Ostrom et al., 1978; Rosenbaum, 1994; Skolnick & Bayley, 1988). Williams, LePere-Schloop, and Hebdon (2016) have a more concise characterization: "community-oriented policing is an operating philosophy that supports the values of democratic society: civic engagement and public participation in public safety, order and security" (p. 113). According to Ostrom et al. (1978), one of the main outcome goals of community policing is to ensure public safety to all citizens. Activities conducted by citizens (e.g., reporting crimes, practicing home and personal safety, testifying, being observant, etc.) to assist the police in reaching this general outcome should be considered instances of co-production because they all involve citizens interacting and participating in the delivery of public safety (Ostrom et al., 1978). Building from Ostrom et al. (1978) findings many other scholars have also claimed that these methods are co-production in action (Loeffler, 2018; Van Eijk, Steen, & Verschuere; 2017; Williams et al., 2016).

To more clearly demonstrate how community-oriented policing can be used as a tool to improve and advance public safety, Loeffler (2018) explored how the four co-production

applications could be paired with public safety approaches. The four applications to co-production are: co-commissioning, co-designing, co-delivering, and co-assessing (Bovaird & Loeffler, 2012; Brandsen & Honingh, 2016; Loeffler, 2018).

Co-commissioning

Co-commissioning is the process of when government agencies and citizens work together to determine the outcomes desired (e.g., reduced crime, more secure areas, etc.); the groups that should be included; and services to provide (e.g., more patrols, more off-duty officers at specific locations, citizens police academy, etc.) (Bovaird & Loeffler, 2012; Loeffler, 2018). In essence, this application to co-production involves government agencies and citizens working together on ways to achieve involvement and engagement. From the community-oriented policing and public safety perspective, this application of co-production involves working to identify public safety outcomes, the priorities associated with those public safety outcomes, and the best ways to achieve those outcomes. For example, a community with a low police presence may work with the local public safety department to determine what public safety outcomes are needed (e.g., lower crime rate and increased feeling of safety), the level of priority on those outcomes, and how those outcomes can be achieved (e.g., neighborhood policing program, increased personal security measures, etc.) (Van Eijk et al., 2017; Wilson & Kelling, 1982). Loeffler (2018) highlighted that this application of co-production is typically done in communities lacking community-oriented policing but in need of such methods.

Co-design

This application to co-production occurs when the idea for co-producing a public good or service has already been discussed and citizens and public agencies are working together to establish the methods for how the service being commissioned should be provided (Bovaird &

Loeffler, 2012; Loeffler, 2018; Nabatchi et al., 2017). Loeffler (2018) pointed out that this application to co-production while prevalent in some areas of public service production is rare in the public safety realm – there is little research on why this is the case. She also pointed out that in communities where co-designing did occur, it was often done to "repair relationships with local people who have been impacted by illegal and inappropriate behavior" (p. n/a).

Co-delivery

Co-delivering is when administrators and individuals are working together and collaborating to ensure that a service or program being produced is provided effectively (Bovaird & Loeffler, 2002; Loeffler, 2018; Nabatchi et al., 2017). Co-delivery is the co-production application most often associated with public safety. With this application, public administrators and citizens work together both directly and indirectly to produce public safety. For example, in the "See Something, Say Something" campaign citizens are asked to be the eyes of the community because police cannot be everywhere at once. This campaign requires citizens to work indirectly on their own when they are being alert and aware of their surroundings and directly with police when they see something by reporting what they see and being willing to speak directly with an officer. Co-delivery of public safety was first highlighted by Ostrom et al. in their 1978 study regarding police and community policy. Co-production through this application encourages crime prevention and reduction, increased public order and safety, increased levels of compliance, increased levels of victim rehabilitation, and decreased risk of crime occurring (Loeffler, 2018; Ostrom et al., 1978; Van Eijk et al., 2017; Williams et al., 2016, Wilson & Kelling, 1982). While the advantages of co-delivering public safety are many, there are also some challenges Williams et al. (2016) pointed out in their study that while co-delivery brings benefits, it can be a difficult co-production application to implement. They surmised that

co-delivery can be difficult to implement or use because it requires a shift from traditional professional delivery of providing public safety to including citizens in the delivery process. In public safety, this can be difficult because it requires a high level of trust between public safety administrators and citizens.

Co-assessing

The assessment part of the co-production process happens when administrators and individuals are evaluating the service being provided (Bovaird & Loeffler, 2002). This process is typically a dual effort between administrators and individuals determining what parts of the delivery are successful and what areas need improvement or are not effective. Loeffler (2018) and Van Eijk et al. (2017) noted that this co-production application is very important because citizens often have a different perception of public safety levels than numerical crime information statistics. By using this co-production application, public administrators are better able to gain helpful insights from citizens regarding public safety and feedback on how public safety is actually being accomplished. Being able to work with citizens to assess their perception of public safety programs is important because it can increase trust, lead to better public safety solutions, increase citizen involvement, and increase security or an area (Scheider, Chapman & Schapiro, 2009; Van Eijk et al., 2017; Van Eijk & Steen, 2016).

Application Engagement Levels

In practice these co-production efforts discussed above can occur on a range of application engagement levels. Based on the literature each application could occur on three application engagement levels. The first level is low to no engagement. At this level co-production strategies are being implemented with the lowest level of engagement from both public administrators and individuals. This level of engagement requires the least amount of

effort from public administrators and individuals. An example of a co-production activity at this engagement level could be an individual calling 911 to request more patrols in a particular area (Sabet, 2014). The second level is moderate engagement. Moderate engagement is when public administrators and individuals are partnering or interacting in the co-production process with a moderate level of investment. An example of moderate engagement would be an individual working with public safety administrators to identify areas where more community safety programs are needed (Nabatchi et al., 2017). This example would be considered moderate because the investment the individual would need to make to assist public safety administrators would be moderate. The third level is significant engagement. When co-production engagement is at this level public administrators and individuals are meaningfully invested in the co-production process and investing significant time into co-producing a public good or service. For example, significant engagement would be taking place when an individual is participating on a citizen's police advisory board (Loeffler, 2018). In this example an individual would most likely need to invest a significant amount of time and effort as an active participant in this co-production activity. Table 2 provides examples of how these co-production application efforts of co-commissioning, co-designing, co-delivering and co-assessing can be applied in practice across the range of engagement levels.

Table 2
Range of Co-production Application Engagement Levels

Application	Low Engagement	Moderate Engagement	Significant Engagement
Co-commissioning	An individual reporting to 911 that more patrols are needed in a specific area (Sabet, 2014).	An individual working with public safety administrators to identify areas that need additional police patrols or community safety programs (Nabatchi et al., 2017)	An individual participating on a citizen's advisory board or a "Listening Event" to identify gaps in public safety initiatives (Loeffler, 2018).
Co-designing	An individual providing feedback on what they themselves would like to see incorporated in a new program or policy via an online forum (Meijer, 2012).	An individual attending and possibly participating in a community forum or meeting geared towards developing a new program or policy to address public safety concerns (Loeffler, 2018).	An individual working with public safety administrators to develop a volunteer emergency response plan or program (Litcherman, 2000).
Co-delivering	An individual following the mentality of "See Something, Say Something" and reporting suspicious behavior (Williams, Silk, Nobles, & Harper, 2017).	An individual enrolling to receive real time text, voice or email alerts concerning public safety events in their area and providing information to public safety administrators if they have it (Meijer, 2012).	An individual volunteering to assist in the response and recovery phases via efforts such as volunteering with a Community Emergency Response Team (CERT) assisting with crowd control, providing food or other assistance, etc. (Nesbit, Kang & Brudney, 2017).
Co-assessing	An individual fills out a user survey that is reviewed by public safety administrators (Bovaird & Loeffler, 2013).	An individual provides their opinions via social media or a web-based online ratings forum on current public safety practices (Bovaird & Loeffler, 2013).	An individual participates on an advisory board or community forum geared towards providing feedback of the public safety service being offered (Bovaird & Loeffler, 2013).

When thinking of how these co-production applications can be directly applied to public safety in other areas besides community policing, one could look at how each of these co-production applications directly correlates with the goals associated with each segment of the public safety cycle. To further build upon Loeffler's (2018) idea of pairing co-production applications with public safety initiatives or goals, it is suggested that each of these co-production applications be paired with specific phases of the public safety cycle of prevention, preparedness, mitigation and response.

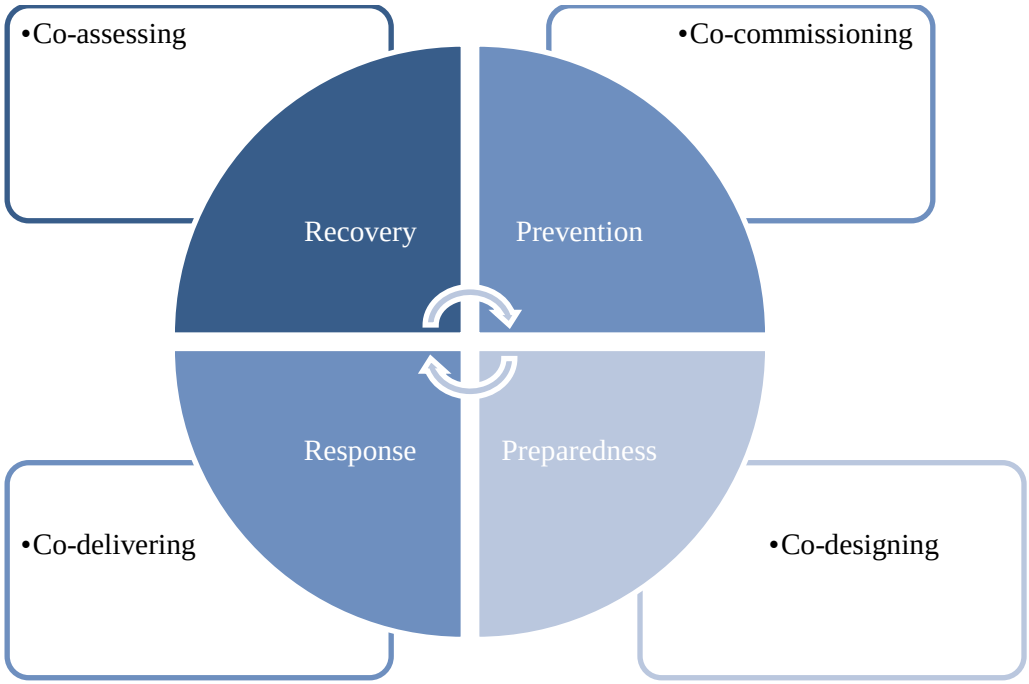

Figure 1. Co-production applications applied to the phases of public safety.
Adapted from Nabatchi et al. (2017) and FEMA (2018).

The co-production application of commissioning could be paired with prevention. because in the prevention phase of public safety agencies are trying to identify service gaps and desired outcomes such as reduced weapons on airport property. The co-production application of

designing could be paired with preparedness as that phase of public safety is working to establish methods for both preventing and responding to public safety events. The co-production application of delivering could be paired with response as the response phase of public safety is fully engaging in public safety. The co-production application of assessing could be paired with the recovery phase of public safety. Assessing would best be paired with recovery because often the first three phases of public safety are evaluated after a public safety event has occurred.

Each of these applications to co-producing public safety should in theory be a continuous process where administrators and individuals are working together to determine public safety service gaps, desired outcomes not being achieved, designing ways to provide needed services, delivering the actual service, and assessing the service. Nabatchi et al. (2017) stated that individuals and administrators can work together to co-produce each of these steps. This study provides an analysis of whether public safety administrators at Hartsfield-Jackson Atlanta International Airport are partnering with individuals to co-produce public safety. They findings might provide insight into whether the co-production applications are being employed with the suggested by the public service cycle phase.

Empirical and Theoretical Gaps of Co-production in the Aviation Sector

While there has been a significant amount of research done on co-production in general much of the research has focused on building and clarifying the framework, definitions and general applications. There are three shortcomings in the literature that this study will work to address. The first is that very little research has delved into who public administrators consider including in the co-production process. This gap in the literature is especially true for the literature on public safety and the aviation sector. The majority of the articles discussing co-production in the aviation context cover topics such as urban and environmental development,

consumer decisions, airport economics and facilities management (Carr et al., 2015; Ertimur, 2007; Levelt & Janssen-Jansen, 2013). One of the only studies looking at co-production within the aviation context in regard to safety or security was Kraal, Popovic, Cave and Taris's (2013) study on airport passengers and the airport security process. In their study they observed how passengers in Australia co-produced with administrators throughout the airport security screening process. Borowsky and Delone (2014) also explored who might be included in co-producing the public safety process within the aviation context. Besides these two articles very little research has been conducted on who public administrators consider co-producing with in the aviation context.

The second shortcoming in the literature is whether public administrators actually even use co-production strategies or applications in the context of public safety and aviation. The third shortcoming within the literature is that no studies have delved into how or when public safety administrators use co-production within the aviation context to (a) guide the commissioning and designing of public safety related activities, (b) include co-production strategies as part of the public safety program or service implementation and delivery and, (c) evaluate the public safety activities and actions being produced.

This study will advance the research on co-production by addressing these shortcomings. This study focuses on addressing who public safety administrators in the aviation sector consider including in the co-production of public safety. Second, this study will focus on how public safety administrators use co-production within the aviation and public safety realms. And third, this study will also focus on addressing when public administrators believe co-production practices can have value within the public safety realm and when co-production practices are actually utilized.

Research Questions

To explore the practice, opportunities and who is participating in co-production at the Hartsfield-Jackson International Airport with respect to public safety, several research questions and propositions were developed. To identify potential opportunities for airports across the globe to utilize or improve co-production strategies that provide inclusive public safety this study asks the following questions:

- To what extent do public safety administrators believe co-production activities are occurring between public safety administrators and citizens (surrounding area residents); employees (separate from DOA); and passengers/visitors to identify and address public safety priorities and challenges?
- How are Hartsfield-Jackson public safety administrators engaging with citizens (surrounding area residents); employees (separate from DOA); and passengers/visitors throughout the public safety cycle (preparedness, prevention and response)? If a group is not engaged why is that?
    - How are Hartsfield-Jackson public safety administrators engaging with citizens (surrounding area residents); employees (separate from DOA); and passengers/visitors in the preparedness phase?
    - How are Hartsfield-Jackson public safety administrators engaging with citizens (surrounding area residents); employees (separate from DOA); and passengers/visitors in the prevention phase?
    - To what extent do Hartsfield-Jackson public safety administrators engage with citizens (surrounding area residents); employees (separate from DOA); and passengers/visitors in the response phase?

- When citizens (surrounding area residents); employees (separate from DOA); and passengers/visitors are engaged, do Hartsfield-Jackson public safety administrators consider the engagement to be valuable to public safety? Why or why not?

Based on the literature discussed, the three groups identified in the research questions were identified as possible participants in co-production of public safety at the Hartsfield-Jackson Atlanta International Airport for this research study. The first group is citizens. For the purposes of this study, the term *citizens* refers to individuals who live in the area surrounding the airport. The Hartsfield-Jackson Atlanta International Airport is surrounded by a number of communities in which citizens reside. Nabatchi et al. (2017) determined that to be classified as a citizen an individual must reside within both a geographical boundary and political community within the context of the topic being studied. This group of individuals is important to recognize as possible participants in co-production of public safety at the Hartsfield-Jackson Atlanta International Airport because they have the ability to have their voice heard through the democratic process and public community meetings for example (Callahan, 2007; Thomas, 2012).

The second group of individuals identified as possible participants in co-production of public safety at the Hartsfield-Jackson Atlanta International Airport were passengers and visitors. The term *passengers* for this study refers to the individuals that are traveling to, from or through the airport. The term *visitors* for this study refers to anyone visiting the airport for any reason other than to work. Passengers and visitors utilizing Hartsfield-Jackson Atlanta International Airport facilities were identified because they could potentially be identified as a customer or client utilizing the airport facilities. Passengers pay to use the airport facilities past the check-point area by paying taxes when they purchase a plane ticket. Part of the airline taxes included in

a passenger's ticket price goes towards maintaining the airport facilities. According to the FAA, a portion of the taxes a passenger pays are specifically allotted to "fund FAA-approved projects that enhance safety, security or capacity; reduce noise; or increase air carrier competition" ("Passenger Facility Charge," 2018). As this is the case, passengers and visitors are paying for the services they are using and per the literature, would be classified as customers or clients (Alford, 2014; Alford & O'Flynn, 2012; Thomas, 2012). As this is the case, they should be considered as possible participants in co-production activities.

The third group of individuals identified as possible participants in co-production of public safety at the Hartsfield-Jackson Atlanta International Airport were employees. For the purposes of this study *employees* refers to any individual that works for an entity separate from the Department of Aviation. The Hartsfield-Jackson Atlanta International Airport employs over 63,000 individuals, of which only 725 are employed by the City of Atlanta Department of Aviation. The remaining 62,275 individuals work for entities other than the Department of Aviation and potentially have the opportunity to assist public safety administrators in providing public safety at the airport (Alford, 2014; Thomas, 2012). While employees outside of the Department of Aviation have their own roles and responsibilities within their specific job function, public safety is an extra-role behavior they might consider participating in. Extra-role behaviors can be defined as actions not identified in a job description "that have an impact on the overall well-being and functioning of the organization" (Caillier, 2016, p. 305). In addition, Bysted and Jespersen (2014) found that private employees are willing to take on extra-role behavior when they "regard innovative behavior as part of the opportunity window for career advancement" (p. 235). This is important to note because a large portion of employees outside the Department of Aviation work for private entities.

In addition, as discussed previously co-production often requires individuals to demonstrate initiative and willingness to collaborate with public administrators (Bovaird & Loeffler, 2002, Thomas, 2012). Scholars have also determined that encouraging extra-role behaviors is critical for organizational success (Bowling, 2010; Caillier, 2016; Zohar, 2008; Lepine & Johnson, 2002). This is especially the case with safety as safety almost always requires employees to take on extra responsibilities not outlined in their specific job duties (Zohar, 2008, 2016). Public safety at the airport is necessary for the overall well-being and functionality of airport operations. All employees at the airport influence the flow of airport operations. If a public safety incident were to occur at the airport, airport operations might be impacted. As this is the case employees outside of the Department of Aviation might have the potential ability and willingness to take on extra-role responsibilities to co-produce public safety to ensure that airport operations continue. As discussed above Alford and O'Flynn (2012) claimed that any individual or group of individuals that has an agreement with a public agency to produce or deliver a public good or service has the potential ability to co-produce that good or service. All entities at the airport have an agreement with the Department of Aviation to assist with airport operations whether that be through airline operations, concession operations, construction operations, security, safety, etc. For this reason, employees were also identified as possible co-production participants.

In addition to the three groups of individuals identified as potential co-producers of public safety, a series of propositions were developed in response to the research questions above. They are highlighted in Tables 3, 4 and 5 below.

Table 3
Co-production Engagement Propositions

Co-production Engagement Propositions	
Proposition 1	When developing plans, strategies, and policies public safety administrators are more likely to consider the expectations and preferences of employees than citizens or passengers/visitors.
Proposition 2	Public safety administrators are more likely to believe there is more value in engaging employees than citizens and passengers/visitors when determining and working on public safety priorities.
Proposition 3	Public safety administrators are not likely to engage citizens when developing public safety plans strategies and policies.
Proposition 4	Public safety administrators are likely to engage employees when developing public safety plans, strategies and policies.
Proposition 5	Public safety administrators are not likely to engage passengers/visitors when developing public safety plans, strategies and policies.

Table 4
Co-production Within the Public Safety Cycle Propositions

Co-production within the Public Safety Cycle Propositions	
Proposition 6	In the prevention phase of public safety, co-production is more likely to occur between public safety administrators and employees than it is with citizens or passengers/visitors.
Proposition 7	In the prevention phase, public safety administrators are more likely to perceive employees input to be more beneficial than citizens or passengers/visitors input in the prevention phase.
Proposition 8	In the preparedness phase of public safety, co-production is more likely to occur between public safety administrators and employees than it is with citizens or passengers/visitors.
Proposition 9	In the preparedness phase, public safety administrators are more likely to perceive employees input to be more beneficial than citizens or passengers/visitors in the preparedness phase.
Proposition 10	In the responding phase of public safety, co-production is more likely to occur between public safety administrators and employees than it is with citizens or passengers/visitors.
Proposition 11	In the responding phase, public safety administrators are more likely to perceive employees input to be more beneficial than citizens or passengers/visitors.

Table 5
Co-production Value Propositions

Co-production Engagement Propositions	
Proposition 12	Public safety administrators are likely to believe that co-production activities are not valuable between citizens and the airport when it comes to public safety.
Proposition 13	Public safety administrators are likely to believe that co-production activities are valuable between employees and the airport when it comes to public safety.
Proposition 14	Public safety administrators are likely to believe that co-production activities are valuable between passengers/visitors and the airport when it comes to public safety.

These 14 propositions help narrow the focus and scope of this study. The propositions were developed based on the literature and outline the expectations for the ultimate findings of this study. The propositions also provide a structure for the discussion of the study findings.

Conclusion

The literature review provided helps this research study by: (1) providing an extensive overview of the academic literature on co-production, (2) highlighting the domains in which the co-production literature has focused, (3) identifying where gaps in the literature and research exist, and (4) providing a foundation for the research questions and propositions guiding the study.

This chapter started off with a discussion of the history of the co-production concept. A discussion of what co-production is and a summary of the various definitions that have been utilized by academics was provided. In addition, Chapter 2 explored how academics have defined who partakes in co-production and when/how co-production occurs. The challenges and potential benefits of co-production were also identified. A summary of how co-production has

been integrated into the emergency management and public safety fields was provided. This summary was concluded with a proposal for how co-production applications could be integrated specifically into the realm of public safety. A short summary elaborating on the lack of empirical research was a segue into the research questions and propositions for this study. The subsequent chapter, Chapter 3 will describe the methodology employed in this study.

CHAPTER 3

METHODOLGY

The purpose of this study is to determine the extent to which co-production is occurring in public safety within the aviation industry through the identification of when and how potential co-production partners are being engaged. No study to date has examined co-production for such a purpose at an international airport. The present study entails a mixed-method single case design using (a) secondary data to provide a general overview of the Hartsfield-Jackson Atlanta International Airport, (b) press releases, news reports, Twitter accounts, and direct observations regarding a specific event; and (c) elite interviews.

The Setting

A Brief History

The Hartsfield-Jackson Atlanta International Airport first came into existence in 1925 when Atlanta's Mayor Walter Sims signed a five-year lease for the abandoned Atlanta Speedway auto racetrack. As part of their lease agreement, the Airport was named Candler Field after Coca-Cola founder Asa Candler. The first airport hangar was completed in 1926 and Florida Airways started delivering mail to Atlanta as part of their Tampa/Jackson/Atlanta air route. In 1929, when the five-year lease ended, the City of Atlanta purchased the land and renamed the airport the Atlanta Municipal Airport. Delta began a trial air service from Atlanta to Birmingham in 1929. Delta is the airport's longest tenant, later expanding their service to other cities across the United States and globe. 1939 marked the opening of Atlanta Municipal Airport's first airport control tower. During the early 1940's, the United States government took control of the airport during the war renaming it Candler Field Air Base after its original name. Continuing to operate as a

passenger airport during the war, the airport continued to grow. In 1948, more than one million passengers came through the Atlanta Municipal Airport, a record at the time ("History of ATL," 2018).

In the 1950s, Atlanta Municipal Airport's prestige flourished serving over two million passengers ("History of ATL," 2018). To handle the increasing number of passengers in the late 1950's, construction began on a new terminal. In 1961, the Atlanta Municipal Airport opened the "largest single terminal in the country" ("History of ATL," 2018). In the early 1970's, the Atlanta Municipal Airport's name was changed several times to ultimately become the William B. Hartsfield Atlanta International Airport. William B. Hartsfield has been credited to be one of Atlanta's most successful mayors, serving for six terms from 1937 to 1961 ("William B. Hartsfield," 2018). The new name was chosen in recognition of William B. Hartsfield after his death. Several airline companies started providing international flight service to areas such as Mexico and Europe in 1971. Construction on a terminal complex also began and in total was a $500 million-dollar project. In late 1980 the terminal complex that began construction in 1977 finally opened for passengers. The airport boasted that the new terminal was built to accommodate 55 million passengers a year. A fourth runway was also built in 1984 to accommodate the continuous and growing influx of airplanes. MARTA (Atlanta's public train system) began providing service to the airport in 1988, allowing passengers to take public transit to and from the airport ("History of ATL," 2018).

Opening in 1994, International Terminal Concourse E is recognized across the country as being the largest international terminal. In 1996, construction began to expand and improve the airport. Solidifying its reputation and prestige, in 1998, the airport was recognized as being the world's busiest airport. The airport holds this distinction to this day. In 2001, construction on a

fifth runway began and was completed five years later in 2006. The fifth runway was part of the 2001 10-year capital improvement project that included a new international terminal and car rental facility ("History of ATL," 2018). In 2003, the airport changed its name again in recognition of former Mayor Maynard H. Jackson. The airport became known as and continues to be recognized as the Hartsfield-Jackson Atlanta International airport. Construction from 2008-2012 for International Terminal F began to accommodate the copious amount of international flights flying in and out of the airport. The airport received multiple awards for service, venue options, efficiency, and concessions in the 2000s furthering the efforts of leadership in flight service ("History of ATL," 2018).

The city of Atlanta proposed a $6 billion capital expansion project known as ATL Next in 2016 then Mayor Kasim Reed pushed for the capital expansion project to continue expanding and improving the Hartsfield-Jackson Atlanta International Airport (Blau, 2016). The capital expansion project is expected to take place over the course of twenty years. The ATL Next project includes plans for an enhanced central passenger terminal complex, improvements and additions to parking decks, a hotel and travel plaza, a new air cargo facility, an additional support facility, and upgrades to runways and other airside operations infrastructure ("Plans/Projects," 2018). The goal of the project is to "boost capacity, renew and replace existing facilities, and enhance ATL's aesthetic appeal" ("A New Era," 2018). Combined with the airport's continuous growth in service and expansion, this project will continue its international legacy.

The Context

The Hartsfield-Jackson Atlanta International Airport was specifically chosen for this study for five reasons: familiarity, authority, personnel, organization and experience.

Familiarity

First, the Hartsfield-Jackson Atlanta International Airport was chosen for practicality and familiarity reasons. Having previously conducted an internship at the Hartsfield-Jackson Atlanta International Airport within the Centralized Command and Control Center, I had the connections and relationships necessary to conduct such a study. To conduct this study, it was imperative that individuals working in public safety at the airport were comfortable with being interviewed and discussing their work positions and viewpoints. My previous internship allowed me to develop relationships in which people were comfortable sharing information with me.

Authority

Second, the Hartsfield-Jackson Atlanta International Airport is a recognized leader in the aviation field. Since 1998, Hartsfield-Jackson Atlanta International Airport has been recognized as being the world's busiest passenger airport ("History of ATL," 2018). In 2016, 104.1 million passengers passed through the Hartsfield-Jackson Atlanta International Airport, averaging approximately 275,000 passengers daily. Beijing, the second busiest airport saw 94.3 million passengers, a little under 10 million fewer people (ACI Annual Traffic Data, 2018). Airports Council International has tentatively reported that in 2017 the number of passengers traveling through the Hartsfield-Jackson Atlanta International Airport declined slightly to 103.9 million passengers annually. In 2017, Beijing again had the second highest number with 95.7 million passengers ("ACI World", 2018). From 2005 to 2013, and again from 2014-2017, Airports Council International also reported that the Hartsfield-Jackson Atlanta International Airport had the highest number for aircraft movement in the world. The term aircraft movement refers to the number of plane landings and take-offs that occur at an airport. Airports Council International has not hypothesized why there was a decline in passenger numbers from 2016 to 2017 but cites

consolidation and efficiency for the decline in aircraft movements ("ACI World," 2018). See Table 6 for an in-depth summary of the air traffic numbers for Atlanta over the last 10 years.

Table 6

Passenger and Aircraft Movements by Year

Year	Passenger Numbers	Aircraft Movements (Landing and Take-off)
2017	103,902,992	879,560
2016	104,171,935	898,356
2015	101,491,106	882,497
2014	96,178,899	868,359[a]
2013	94,431,224	911,074
2012	95,513,828	930,310
2011	92,389,023	923,996
2010	89,331,622	950,119
2009	88,032,086	970,235
2008	90,039,280	978,824

[a]2nd in ranking for the year

Adapted from ACI Annual Traffic Database

To transport such a large number of passengers, the Atlanta airport consists of five runways (with another one under construction), and one domestic terminal with five concourses (T, A, B, C, D) and one international terminal with one concourse (F), and then concourse (E) which caters to both international and domestic flights. The airport also has an Airport Automated People Mover Train to transport passengers between terminals. 21 passenger airlines (8 international) and 17 cargo airlines utilize the Atlanta airport to transport passengers and cargo throughout the year. Delta Airlines has designated Hartsfield-Jackson Atlanta International Airport as their main hub and as such, have their corporate headquarters located nearby. The airport also has 263 concession outlets including food and beverage, retail, duty-free, service outlets, and a banking center.

People

Third, the Hartsfield-Jackson Atlanta International Airport serves a vast array of individuals. One group of individuals that the Hartsfield-Jackson Atlanta International must be mindful of is the citizens residing around the airport. These citizens are impacted on a daily basis by the airports operations and could potentially be impacted by a public safety event, should it arise at the airport. For example, roads surrounding the airport might be blocked off impacting a citizen's ability to reach their job or home. Another group of individuals that the Hartsfield-Jackson Atlanta International must take into consideration is the employees that work at the airport. In total the Hartsfield-Jackson Atlanta International Airport employs over 63,000 individuals and has been identified as being the largest employer in Georgia ("ATL Fact Sheet,"2018). Employees working at the airport include airline employees, city employees, concession employees, and contract employees to name a few. Employees may also be impacted if a public safety issue were to arise. For example, they may have to help public safety administrators with an evacuation, requiring them to go above and beyond their normal job duties. Another group of individuals that the airport serves is the passengers and visitors traveling to, from or through the airport. Passengers and visitors could also be impacted by a public safety event. For example, they may have to shelter in place at the airport during a public safety emergency. These three major groups of individuals are what keeps the airport running year after year. They are also three groups that as discussed in Chapter 2 could be potential co-production partners in public safety efforts. This research study looks at whether these groups (citizens, employees, and passengers and visitors) are involved in the process of preventing, preparing, and responding to public safety challenges that arise at the airport. Therefore, insights into why or why not these groups are being involved in the prevention, preparation, and response

phases of public safety, might be indicative of how co-production is occurring or why it is not occurring in airport public safety departments

Organization

The fourth, reason the Hartsfield-Jackson Atlanta International Airport was chosen was the organizational structure. The Department of Aviation is currently headed by an Interim Airport General Manager ("Leadership," 2018). The Airport General Manager is responsible for six divisions and approximately 725 Department of Aviation employees. See Figure 2 below for an organizational chart of the Department of Aviation. For the purposes of this study, the two divisions most relevant were the Airport Public Safety and Security Division and the Airport Operations Division. Both of these divisions are involved in public safety and emergency management.

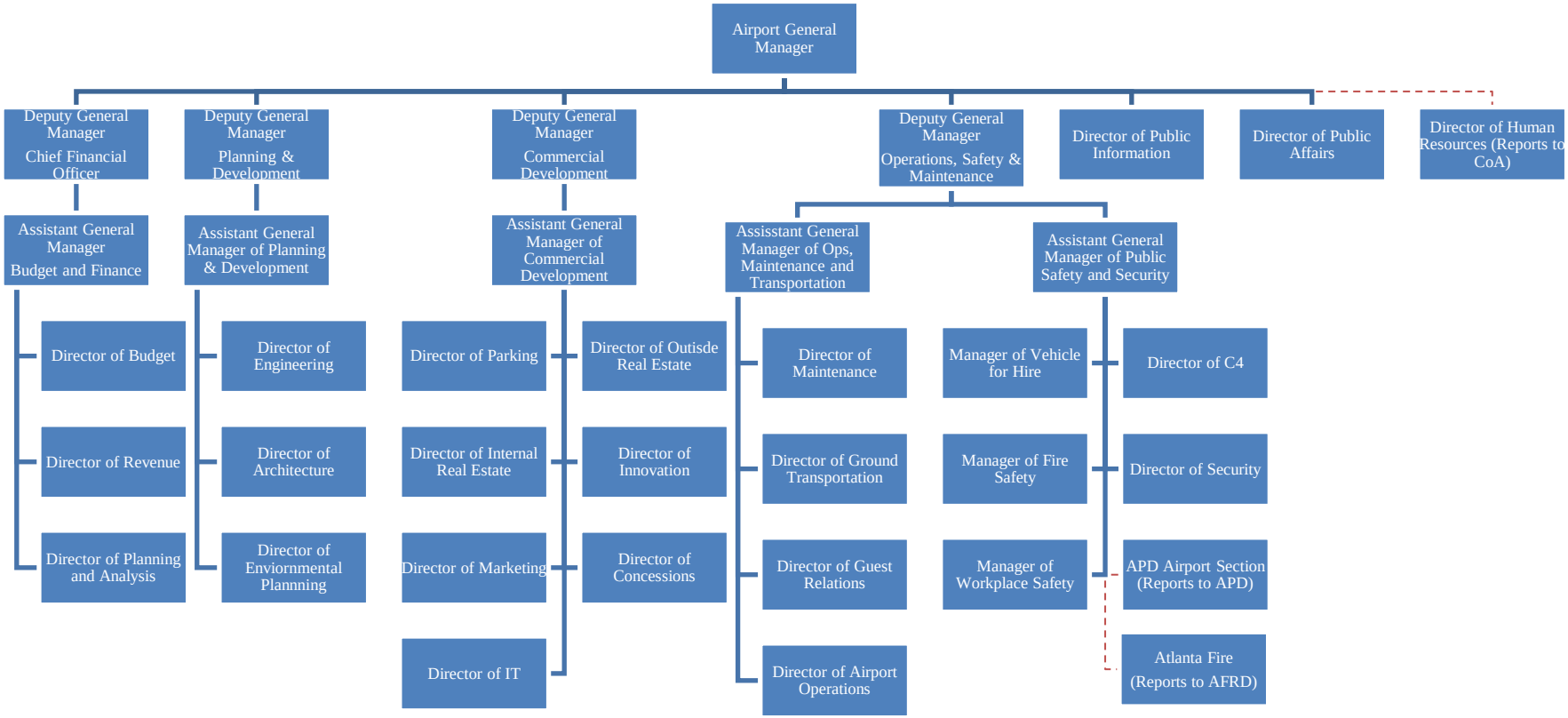

Figure 2. Department of Aviation organizational chart.

The Airport Public Safety and Security Division. The Airport Public Safety and Security Division is responsible for ensuring the public safety of individuals on airport property. As noted previously the Airport Public Safety and Security Division is comprised of four main branches:

- Centralized Command and Control Center (C4)
- Security
- Airport law enforcement (which co-jointly reports to the Atlanta Police Department)
- Life and fire safety (which reports co-jointly to the Atlanta Fire Rescue Department).

The Airport Public Safety and Security Division also has three mini-branches:

- vehicle for hire
- fire safety
- workplace safety.

A visual representation of this organizational structure can be seen in Figure 3. To better understand the context of this study it is important to understand the composition of each branch.

Centralized Command and Control Center. The Centralized Command and Control Center (C4) handles the emergency and preparedness functions for the airport. The Centralized Command and Control Center branch is responsible for the four phases of emergency management: planning, preparing, responding, and mitigating. This branch works to ensure that all divisions within the airport are prepared in the event of an emergency situation. The C4 branch is tasked with a number of responsibilities. One responsibility is to write emergency management and public safety plans and standard operating procedures for the airport. Another responsibility is to schedule, coordinate, and facilitate tabletops and full-scale exercises with

both internal and external partners. C4 is also responsible for maintaining the Mobile Command Unit, which is utilized during emergencies as a command center for incident commanders and necessary staff. The C4 branch is also responsible for deploying the Emergency Operations Center (EOC) during an emergency. This branch within the Airport Public Safety and Security Division employs seven personnel.

Airport Communications Center. The Airport Communications Center is the Hartsfield-Jackson Atlanta International Airport's 911 center and falls under C4. The 911 center is responsible for answering any emergency call placed within airport property and then dispatching the appropriate personnel to respond to the emergency. The 911 center is open twenty-four hours a day. The 911 center employs 7 supervisors and 18 dispatchers.

Security. The Security Branch handles a variety of tasks for Hartsfield-Jackson Atlanta International. The security Branch is largely responsible for ensuring that the Hartsfield-Jackson Atlanta International is abiding by 49 Code of Federal Regulations (CFR) 1542 Airport Security guidelines. They are also tasked with overseeing the compliance of the Airport Security Plan. This Branch is also tasked with maintaining access control at entrances and exits across airport property. In addition, Security processes applications, conducts background checks and issues identification for anyone working on airport property. The Security Branch is also tasked with maintaining and reviewing the closed-circuit television (cctv) monitors throughout the airport. The Security Branch has 61 employees.

Airport Law Enforcement. While there are many law enforcement agencies that have specific duties at the Hartsfield-Jackson Atlanta International Airport, the main law enforcement entity with primary law enforcement jurisdiction is the Atlanta Police Department's Airport Section. The Atlanta Police Department's Airport Section works conjointly with the Airport

Public Safety and Security Division to ensure that police services are being provided to all areas of the Hartsfield-Jackson Atlanta International Airport. Police services include crime prevention and detection, protective services, and community policing. As part of the crime prevention and detection services the Airport Section in 2017 confiscated an estimated 243 guns. The Airport Section also estimated that 569 individuals in 2017 were arrested for various reasons. The Airport Section also includes an Explosive Detection Canine Unit and a Drug Interdiction Unit. For security reasons, the number of sworn personnel and civilian personnel working for the Airport Section is kept confidential from the public. However, the City of Atlanta Police Department as a whole employs 2,000 sworn officers ("About APD," 2018). The Airport Section works in conjunction with the Department of Aviation Public Safety and Security Division to provide public safety.

Life and Fire Safety. Life and fire safety at the Hartsfield-Jackson Atlanta International Airport is provided by the Atlanta Fire Rescue Department (AFRD). The Hartsfield-Jackson Atlanta International Airport is serviced by five fire stations located at various points on airport property (Station 24, Station 32, Station 33, Station 35 and Station 40) ("Fire Stations Map," 2018). The five stations are strategically located to ensure the AFRD is able to respond to any area within airport property within three minutes of a call going out. Spread out across these five stations are approximately ten aircraft rescue firefighting (ARFF) trucks (two per station), two fire trucks, four engines, three mini-pumpers, one squad truck, and five ambulances.

In addition to fire prevention services, the AFRD also provides emergency medical services. The Section Chief of Airport Operations Emergency Medical Services (EMS) is in charge of providing life safety, managing the Hartsfield-Jackson Atlanta International AIA Automatic Defibrillator Program, the First Aid and CPR Program, as well as Mutual Aid

Response Familiarization programs. To ensure that the AFRD Airport Section is capable of providing life safety, four Basic Life Support Engines and four Advanced Life Support ambulances are located on Hartsfield-Jackson Atlanta International Airport property. The Section Chief of Airport Operations EMS is also responsible for managing the Mobile Medic Response Teams (MMRT). The MMRTs are bike teams that are stationed within the Hartsfield-Jackson Atlanta International Terminals to provide medical response to passengers when necessary. On any given day there are typically four to five bike teams located throughout the terminals ("EMS Airport Operations," 2018). The number of certified firefighters and emergency medical personnel stationed at the airport is kept private from the public.

Both the fire and EMS sections within the AFRD work in conjunction with the Airport Public Safety Division to address public safety issues related to life and fire safety at the airport. AFRD declined to participate in this study.

Mini-Branches. There are also three mini-branches that are within the Airport Public Safety and Security Division that each have one designated employee. One mini-branch is the vehicle for hire branch. This branch is responsible for ensuring that all drivers on airport property have the necessary credentials. This branch typically deals with taxis, Uber, Lyft, and contract drivers. Another mini-branch is the fire safety branch. This branch is responsible for coordinating to ensure that all areas of the airport are following fire safety protocols. The third mini-branch is the workplace safety branch. This branch is responsible for ensuring that the airport is a safe place to work for all employees. This branch typically deals with Occupational Health and Safety Issues. These three individuals did not participate in this study.

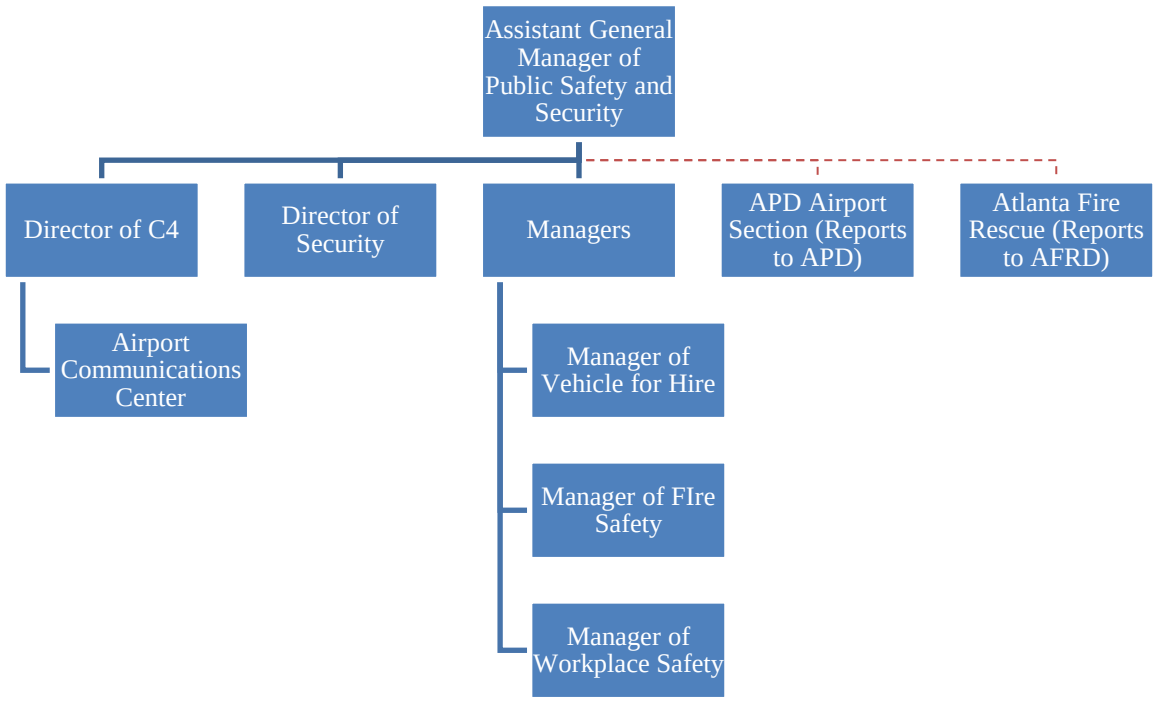

Figure 3. Airport Public Safety and Security Division organizational chart.

The Airport Operations Division. The Airport Operations Division was also included in the study. The Airport Operations Division is responsible for providing quality services that ensure safe air service at the airport and effective operational support of all arriving and departing passengers and aircraft" (Price & Forrest, 2016, p. 3). The Airport Operations Division is largely responsible for ensuring that the Hartsfield-Jackson Atlanta International is abiding by FAA (Federal Aviation Administration) CFR Part 139. Part 139 requires an airport to maintain "certain operational and safety standards" ("14 CFR Part 139," 2018). Part 139 also requires every airport serving over 30 passengers daily to have an Airport Emergency Plan (AEP). The AEP is a document that "addresses the essential emergency related and deliberate actions planned to ensure the safety of and emergency services for the airport populace and the community in which the airport is located. ("Airport Emergency Plan," 2009). The Airport

Operations Division works closely with the Public Safety and Security Division to produce the AEP. This division has two main branches Airside Operations, and Landside Operations. A visual representation of this organizational structure can be seen below in Figure 4.

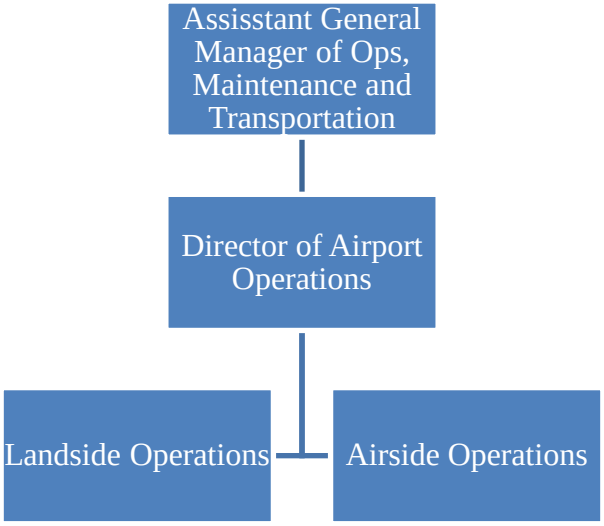

Figure 4. Airport Operations organizational chart.

Airside Operations. Airside Operations is responsible for handling everything on the airside part of airport property. Airside "is a heavily regulated portion of the airport where aircraft takeoff, land, receive service, and conduct other forms of flight-related operations" (Price & Forrest, 2016, p. 8). Airside Operations has the main responsibility of maintaining the secure areas within the airport perimeter fence. The secure areas within the airport perimeter fence are areas that require special security access and lead to the planes and aircraft movement areas (i.e., the tarmac). Individuals working in Airside Operations are responsible for ensuring that the airside area of the airport remains functional while still maintaining a high level of security. For example, one job duty an individual that works in Airside Operations may be tasked with is providing transportation to passengers from a plane on the tarmac to the terminal area in an emergency situation.

Landside Operations. Landside Operations is responsible for the areas in which the public has access (i.e., the terminals and concourses) and the transportation areas (i.e., passenger pick-up and drop-off areas). Individuals that work in Landside Operations branch are tasked with doing "whatever is necessary within the confines of the airport rules and regulations to ensure the continuous throughput of passengers, baggage and cargo" (Price & Forrest, 2016, p. 342). For example, at Hartsfield-Jackson Atlanta International an employee working within Landside Operations may be tasked with duties such as Incident Command or crowd control in a terminal during an emergency event. The Airport Operations Division employs 28 individuals.

Experience

And the fifth reason this study was chosen was experience. In the last five years the Hartsfield-Jackson Atlanta International Airport has experienced dealing with an array of public safety challenges ranging from criminal issues, technological and natural emergencies. For example, in 2015 it was discovered that airline workers were smuggling guns through the Hartsfield-Jackson Atlanta International Airport. The gun smuggling ring has been quoted to be responsible for smuggling over 153 guns through the airport demonstrating the criminal public safety challenges facing airport officials (Yamanouchi, 2016). In 2014, 2015, 2016, and 2018, the Hartsfield-Jackson Atlanta International Airport has faced winter weather emergencies requiring airport officials to open the emergency operations center. And in 2017, the Hartsfield-Jackson Atlanta International Airport was faced with the technological emergency of losing power due to an electrical fire resulting in a complete blackout throughout the airport. Having experience with these types of events and situations public safety administrators working within the Airport Public Safety and Security Division have many opportunities to apply techniques to prevent, prepare, and respond to such events. This study of co-production and the lessons learned

at the Hartsfield-Jackson Atlanta International Airport may prove useful to both the Public Safety and Security Division and other public safety administrators working for public transit entities dealing with similar public safety issues and challenges.

The Research Design

Case Study

For the purposes of this research project a case study design was implemented. The term *case study* refers to a broad approach of observing and analyzing a "person, place, event, phenomenon or other type of subject of analysis in order to extrapolate key themes and results" (Larabee, 2018). The case study approach has long been a chosen method of scientific inquiry for public administrators. Jensen and Rodgers (2001) ascertain that this is because case study research allows for academics to accumulate knowledge on a topic. Knowledge accumulation is especially useful when a topic or theory is still in the exploratory stages (Eisenhardt, 1989; Jensen & Rodgers, 2001). Eisenhardt (1989) postulated that case studies are necessary for building theory in several academic fields. Voorberg, Bekkers and Tummers (2015) found in their systematic review of co-creation and co-production literature appearing in international peer reviewed journals that 85 percent of the literature involved case studies (they reviewed 122 studies). The majority of the studies included in their review explored the concepts of co-creation and co-production in practice within the context of regional media, library services, garbage disposal, health care, and education (Voorberg et al., 2015, p. 8). All of the studies included in their review contributed in some way to the accumulation of co-production knowledge and theory building.

According to Berkley, Rouse and Begovich (2004), case studies also provide the opportunity to determine if what is postulated in the literature on a topic is occurring in the real

world. For example, Bovaird (2007) used two case studies to examine the role of relationships when co-producing public goods. Bovaird (2007) chose the two case studies in his study "for theoretical rather than statistical reasons in order to highlight some of the key characteristics of each type of co-production relationship" (p. 850) discussed in his literature review. Williams et al. (2016) also used a case study to explore whether public safety co-production was occurring in practice on a university campus. Thomas (2012) used multiple case studies in his book to demonstrate when and how co-production was occurring in practice. Case study research is used in public administration for a variety of reasons including information gathering, theory building, determining theory generalizability, and demonstrating theory in practice (Berkley et al., 2004; Jensen & Rodgers, 2001; Stewart, 2012; Voorberg et al., 2015). It is for these reasons that a case study design was chosen for this research study.

A case study is considered a qualitative research approach in which a unique problem is examined in such a way that the findings have the potential to be generalized. Case study research can be an excellent way to draw conclusions about a topic within a specific context. Yin (2006) stated that a case study design is a relevant research approach when (a) the study is focused on answering "how" and "why"; (b) the behavior of those included in the study cannot be manipulated; (c) the contextual conditions are relevant to the topic under study; and/or (d) the boundaries between the topic and the context are not clear. A case study design was chosen specifically for this research project because it is (a) attempting to answer "how" and "why" questions as identified in the research questions identified in Chapter 2; (b) the behavior of those individuals included in the study could not be manipulated; and (c) the context of this study has the potential to be relevant to the topic of co-production within the public safety sector.

There are four components of a case study design (Yin 2006): (1) type of case study, (2) the case study approach, (3) the propositions, and (4) the methods. One component of a case study design is the type of case study being conducted. The type of case refers to the technique and focus for conducting the case and varies based on the hypothesis or topic being investigated. There are several different types of case studies that researchers can use including: explanatory, descriptive, multiple-case studies, intrinsic, instrumental, collective, and exploratory (Baxter & Jack, 2008; Becker et al., 1994; Yin, 2006). This case study is an exploratory case study. An exploratory case study is one in which the problem or topic "being evaluated has no clear, single set of outcomes" (Baxter & Jack, 2008, p. 548). The main goal of an exploratory case study is to answer "how" and "why" questions. An exploratory case study can also be used to identify areas of research regarding the topic at hand that need further examination. This can lead to identifying possible directions for future research.

Another component of a case study design is the approach being conducted (Baxter & Jack, 2008; Yin, 1981). For exploratory purposes there are two possible approaches for a case study design: a single-case design, and a multi-case design (Baxter & Jack, 2008; Stewart, 2012, Yin, 1981). For this research study the single-case design was used. A single-case design is one in which a single subject of analysis (N=1) is examined. In this research design the single subject of analysis is a single-site, the Hartsfield-Jackson Atlanta International Airport. A single-case study design is often chosen for exploratory purposes because it can highlight how and why an academic theory is being utilized within a practical setting. A single-case study design can also be used to gauge the adaptability of an academic theory or topic and whether more research should be conducted to explore the theory or topic further (Mills, Durepos & Wiebe, 2009).

A third component of a case study design is identifying propositions for the case study findings (Becker et al., 1994). A proposition is a statement or assertion based on a strong belief supported by evidence. The evidence could be based on findings from a literature review, theories, and personal/professional experience regarding the topic at hand (Baxter & Jack, 2008). Propositions in a case study are also necessary to help focus and narrow the scope of the research study (Baxter & Jack, 2008). Without propositions case studies can become too broad in focus resulting in an absence of meaningful findings. According to Yin (2017), propositions also help guide the analysis, findings, and recommendations of the case study. For this study, the propositions developed from the literature can be found in Chapter 2, Tables 3, 4, and 5.

The fourth component to a case study is the methods utilized to conduct the case study. For the purposes of this research study several methods were employed to conduct the case study. The first method was an examination of secondary data. The term secondary data can be defined as: data that has been collected by a source other than the researcher using the data. The secondary data utilized as part of this case study provided information on passenger statistics, flight statistics, employee statistics, and organizational structure. This information was necessary to provide a big-picture view of the Hartsfield-Jackson Atlanta International Airport. A detailed review of this information will be discussed in Chapter 4. The second method was an analysis of a specific event. For this research study the specific event analyzed was the Hartsfield-Jackson Atlanta International Airport 2017 power outage. To analyze this event, press releases, news articles, and Twitter content were used. A specific event analysis was conducted to add depth to the overall case study. Analyzing this specific event would also provide insight into “how” and “why” (or why not) co-production was used during a real-life public safety incident. This analysis can be found in Chapter 4. The third method utilized for the case study was elite

interviews. The term elite interviews refers to when the researcher conducts interviews with top level managers and leaders within an organization. Elite interviews were used to gather management level perspectives and to specifically address the "how" and "why" questions from a broad overall perspective. A more through explanation of the elite interview process is discussed below and the findings from the interviews can be found in Chapter 4.

Elite Interviews

As mentioned above, elite interviews were used as one of the case study methods. Elite interviews are a qualitative research method. The goal of conducting elite interviews was to gain insights from individuals who have a high level of influence over the organization's activities and operations (Harvey, 2011). Typically, elites within an organization are those that hold leadership positions at the senior or mid-management levels and have a significant level of influence regarding the path of the organization (Harvey, 2011; McDowell, 1998; Mikecz, 2012). Individuals who are senior managers and leaders within an organization can provide broader perspectives that lower level employees may not have.

According to Mikecz (2012), interviews with elites should use direct but open-ended questions to gather the most information. Open-ended questions result in a wider-range of discussion and information, increased response validity, and increased approachability (Aberbach & Rockman, 2002). Top level managers and leaders within an organization tend to provide more information and be more receptive and willing to answer interview questions if they are not constrained by response categories (Clifford, 2018). For this reason, the elite interview questions used here were constructed in a semi-structured format that was directive but also open-ended – allowing respondents to provide expansive responses. According to Hochschild (2009), elite interviews also provide an interviewer the opportunity to "carefully

triangulate among respondents" and "can sometimes use information gleaned from a previous interview to question or push a current subject a little more deeply" (p. 2).

Elite interviews have been useful in a number of qualitative studies in political science and public administration. For example, Button (2017) used elite interviews in her study regarding co-production of water services in Mumbai. The elite interviews in Button's (2017) study helped provide specific insights into how water services were being co-produced and why individuals were willing to co-produce water services. Bartenberger and Szescilo (2016) used elite interviews to examine urban development strategies in Vienna. The interviews assisted Bartenberger and Szescilo (2016) verifying what they had discovered in their research and filled in the gaps where information was missing. The interviews specifically provided knowledge gain to the field of public administration because the interviews highlighted "the main factors that thwarted the expected benefits of the [urban] redesign and increased the political and managerial costs [caused by the redesign]" (Bartenberger & Szescilio, 2016, p. 513). Without the interviews Bartenberger and Szescilio stated this information would not have been revealed. Van Eijk (2018) used interviews as part of her mixed-methods study on neighborhood watch programs. The interviews in Van Eijk's (2018) study provided insight for the field of public administration on the motivations of why individuals participate in neighborhood watch programs and how collaboration between individuals and municipalities occurs to co-produce such programs (p. 227). Brown and Brudney (2003) used elite interviews to study police online-learning methods in the public sector. The interviews in their study helped provide context to their survey findings. Rickard, McComas, Clarke, Stedman and Decker (2013) used elite interviews in their case study about risk and crisis communication in regards to a health outbreak. Rickard et al. (2013) used the elite interview approach to help them gain a deeper understanding of the event they were

studying. These applications demonstrate the breadth of topics where elite interviews have been used. In all these studies, information from the elite interviews added rich and unique data that might not otherwise been discovered. For this reason, elite interviews were chosen as the best method to learn about how co-production strategies were used, if at all, in public safety activities at the Hartsfield-Jackson Atlanta International Airport.

For this study, the elite interviews helped: (1) identify how public safety administrators working in public safety at the Hartsfield-Jackson Atlanta International Airport identify and prioritize public safety challenges; (2) determine the motivations for including (or not including) citizens, employees, and/or passengers/visitors in the prevention, preparedness, and response phases of emergency management and public safety; (3) ascertain the strategies public administrators believe are worth implementing to engage citizens, employees, and/or passengers/visitors in future public safety planning; (4) and obtained public safety administrators thoughts opinions and insights on a 2017 power outage. Furthermore, the elite interviews allowed for a shorter turnaround analysis than other methods while providing useful and insightful information.

For this study, senior-level and mid-level public safety administrators of the Hartsfield-Jackson Atlanta International Airport Public Safety Division were asked to participate as well as senior and mid-level managers within the Airport Operations Division that work close with the Airport Public Safety Division. The Atlanta Fire Rescue Department declined to participate in any interviews, so they were not included in this study. Employees within the Public Safety Division and Airport Operations Division were all asked to participate considering their knowledge on the topic of public safety and airport operations. Six of the elite interview participants worked directly for the Department of Aviation Public Safety Division. Two of the

elite interview participants worked for the Atlanta Police Department within the Atlanta Airport Section while two of the elite interview participants worked for the Airport Operations Division with a significant portion of their jobs relating to public safety.

Each interview was conducted individually at a location of the participants choosing. At the beginning of each interview, the Institutional Review Board's (IRB) required consent form was provided to each participant (see Appendix A). All participants were also verbally provided a summary of this consent form. Participants were also asked to complete a demographic questionnaire at the start of each interview; this was placed in an envelope and sealed to maintain confidentiality. Permission to record the interview via audio recorder was obtained from all participants. Consent was assured verbally prior to beginning the interview. Confidentiality was assured by asking the participants not to reveal their own names while the audio recorder was on.

During each interview, the interview questions detailed in Appendix B were used. Overall the interviews followed a semi-structured format. A semi-structured interview is when "the researcher asks for informants a series of predetermined but open-ended questions" (Given, 2008, p. 810). The semi-structured format was also written in such a way that the participants would be comfortable providing their own opinions and thoughts on the topics being discussed (Clifford, 2018). The questions were also formatted to flow in such a way to address each of the propositions highlighted earlier in Chapter 2, Tables 3, 4, and 5

Analysis of Elite Interviews. The web-based software Dedoose was used to analyze the interview data. Dedoose was developed by the University of California Los Angeles (UCLA) to assist researchers in analyzing qualitative research (i.e., audio, text, photos, videos etc.). Sapat, Schwartz, Esnard and Sewordor (2017) determined that Dedoose was a suitable software program to conduct theory-building analysis by comparing it to other programs available. While

there are other software systems available to researchers conducting theory building research, Dedoose was selected because it provided the ability to parse out audio clips from a larger audio file to easily analyze the data.

In the analysis each interview was parsed into excerpts for each question. In Dedoose an excerpt is a small audio clip that is parsed out from the larger audio file (i.e., the interview). Each excerpt was then coded to match the question being answered. In this analysis the term code refers to the process of categorizing a response based on the information being provided. While there were 75 interview questions, for the purposes of the analysis eight main codes were created. Six of the eight main codes had sub-codes. In total 27 codes were created – see Table 7 below. There were fewer codes than interview questions because major topic areas that encompassed a number of questions were coded using the same code. For example, when a participant was responding to questions about the prevention phase and citizens – any discussion of the citizens involvement in the prevention phase was coded as "Prevention-Citizens." This was done because participants often did not give significantly long answers to questions, making it difficult to separate the audio recording by specific response. The main purpose of coding the excerpts was to provide the opportunity to sort the audio clips by the information they contained.

Table 7
Code List for Elite Interview Analysis

Codes	Sub Codes
Public Safety Challenges	- None
Public Safety Priorities	- Priorities - Roles - Priorities - Who Determines - Priorities - Expectations - Priorities - Value
Developing Plans, Strategies, Policies	- Developing - Who is Involved? - Developing - Expectations - Developing - Value
Prevention Stage	- Prevention - Role - Prevention - Citizens - Prevention - Employees - Prevention - Passenger
Preparedness Stage	- Preparedness Stage - Role - Preparedness Stage - Citizens - Preparedness Stage - Employees - Preparedness Stage - Passengers
Responding Stage	- Responding - Role - Responding - Citizens - Responding - Employees - Responding - Passengers
Phases Overall	- None
Power Outage	- Power Outage - Success - Power Outage - Least Successful - Power Outage - Inclusion - Power Outage - Improvements - Power Outage - Costs - Power Outage - Twitter

Once all the audio excerpts were coded, the excerpts could be sorted by code. This meant that all responses coded under a specific code could be parsed out from the rest of the interview. Once the excerpts were parsed out and grouped together by code, memos were created summarizing each excerpt's main points. Memos in Dedoose are the way for researchers to "keep track of design and analytical thinking during a project" ("User Guide - Memos," 2018). The memo tool was specifically used for this project because the Dedoose content analysis method provides the ability to export memos associated with a specific code. This, in turn enables researchers to visually see how the data can be analyzed which is especially useful for theory building. Memos also allow the researcher to "define keywords and phrases and establish how they reflect a respondent's position relative to the construct of interest" (Beamer, 2002, p. 94). Figure 5 provides a visual representation of this process.

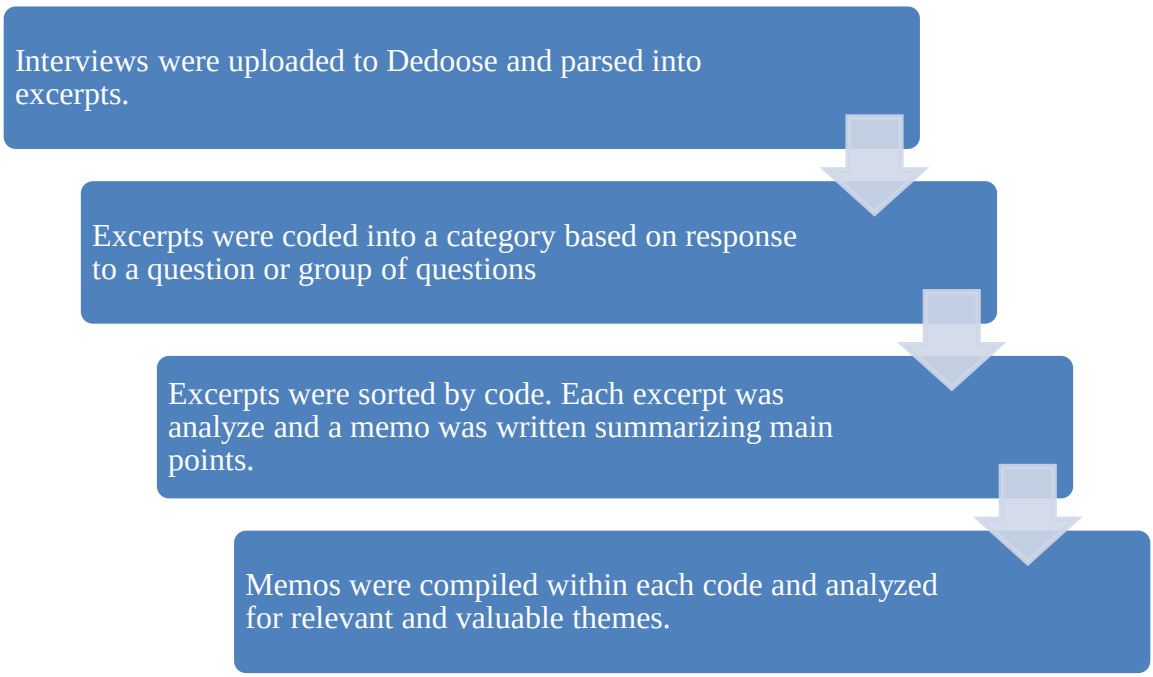

Figure 5. Elite interview response analysis procedure.

The excerpts within each code and their corresponding memos could then be analyzed to identify consensus or lack of consensus and themes between participants responses and insights. The analysis of the response to each question for common themes was conducted through a process illustrated in Figure 6 below. For example, one of the interview questions asked: "Do you believe that Twitter was effectively used to relay risk information during the 2017 power outage? Why or why not?" The answer to this question would be excerpted (i.e., the audio response to this question would be parsed out from the rest of the audio file) and then coded as *Twitter* (a subset of the power outage codes). The excerpt (answer) would then be analyzed and a memo created. In this example, a participant could have answered whether it was effective in three ways: effective, not-effective or partially effective. Then the participant would most likely offer one or two reasons for their response. The memo associated with each excerpt would highlight the answer to the first part of the question and the answer to the second part of the question. This analysis of responses is demonstrated visually in Figure 6.

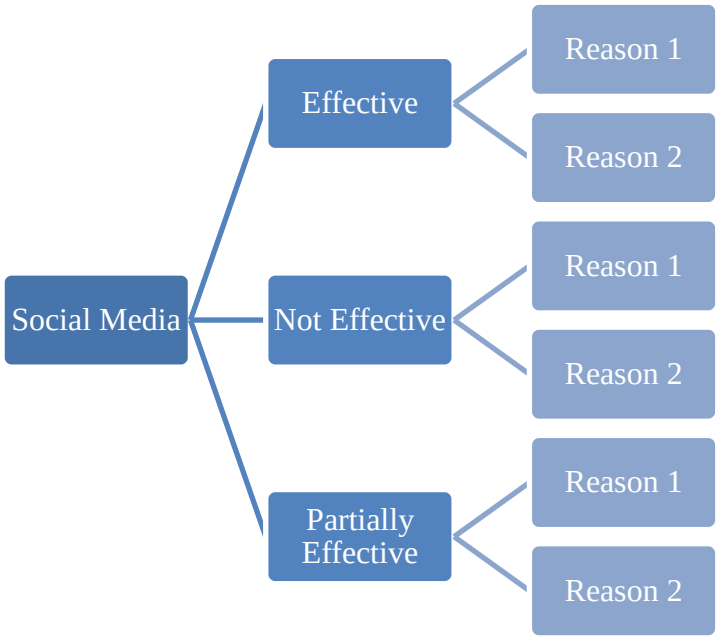

Figure 6. Elite interview response theme analysis protocol.

To identify the themes and provide a clear picture of the responses to each question or group of questions the memos for each coded excerpt were then compiled and analyzed as a group. Analyzing the interviews in such a way allowed for findings to be determined and each proposition to be discussed.

Conclusion

For this study, the overall case study design helped: (1) provide a contextual framework for the research questions, (2) determine whether the propositions identified in Chapter 2 are accurate (3) extrapolate key themes that will provide new insights to the theory of co-production and (4) ascertain possible directions for future research.

Chapter 3 discussed the specific setting and context for this study. It also discussed the research design highlighting the main components of a case study research design. The process for the elite interviews was also discussed with a detailed explanation of the analysis protocol for the elite interview responses. The subsequent chapter, Chapter 4 will discuss the findings of the case study analysis.

CHAPTER 4

FINDINGS

Elite Interview Analysis

Sample Characteristics

As part of the elite interview process each participant was asked to fill out a demographic survey that can be found in Appendix C. The Demographic Survey asked twelve questions regarding demographics and employment information. Eleven of the questions were close-ended and one question was open-ended. A total of ten senior level and mid-level public safety administrators within the four branches of the Hartsfield-Jackson Atlanta International Airport Public Safety Team were asked to participate as well as senior and mid-level managers within the Airport Operations Team.

Age. Of the ten participants one indicated that they were between 25 and 34. One indicated that they were between 35 and 44. Six participants indicated that they were between 45 and 54 while two participants indicated that they were 55 or older. See Figure 7.

Gender. Six of the elite interview participants were male. Four of the participants were female. See Figure 8 below.

Race. Seven participants indicated that they were black or African-American. Three of the participants indicated that they were white. See Figure 7 below.

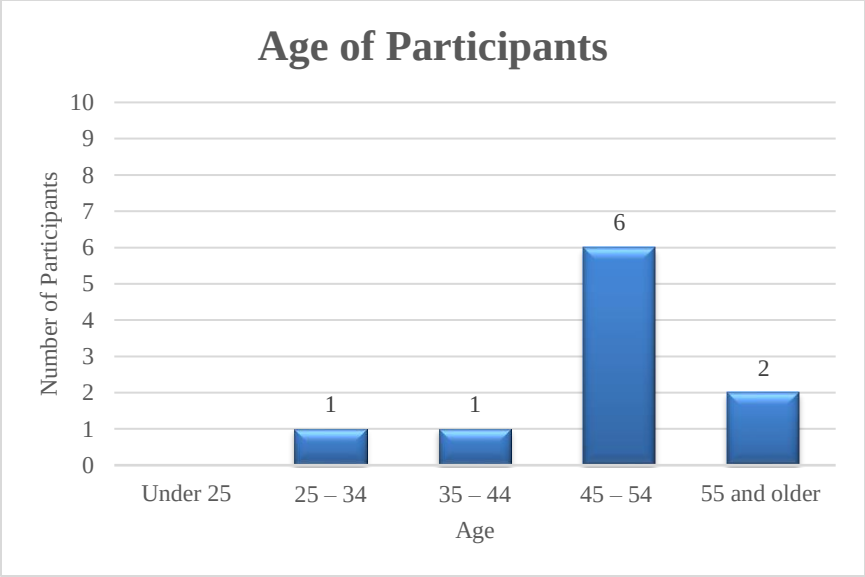

Figure 7. Bar graph of participants age.

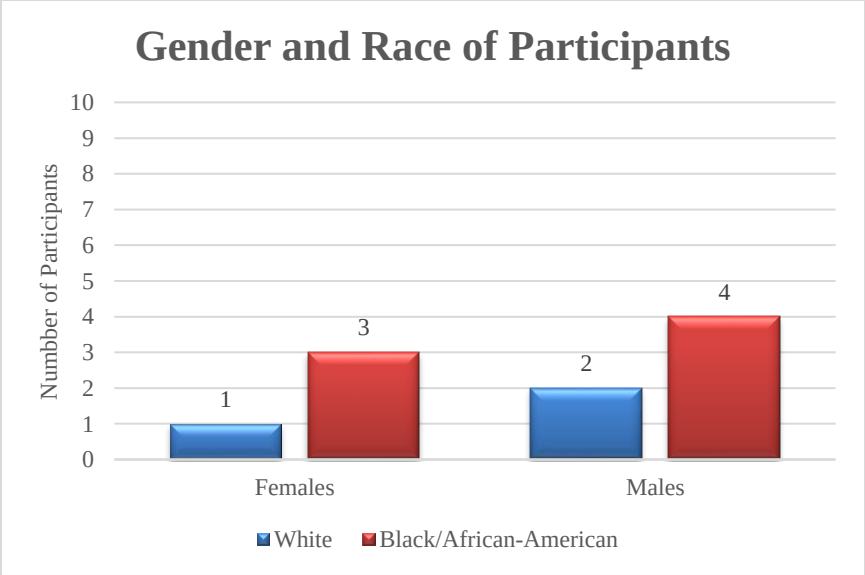

Figure 8. Bar graph of gender and race of the elite interview participants.

Education. All ten participants indicated that they had earned a bachelor's degree. Six participants indicated that they had also earned a master's degree in addition to their bachelor's

degree. Nine of the ten respondents indicated whether they held some form of an emergency management or public safety certification in addition to their higher education.

Employment. All ten of the participants indicated that they were full-time employees of the City of Atlanta Department of Aviation. One participants indicated that they consider themselves to be a mid-level employee. Five participants indicated that they consider themselves to be managers. Four participants indicated that they consider themselves to be upper level managers or administrators. See Figure 9 below.

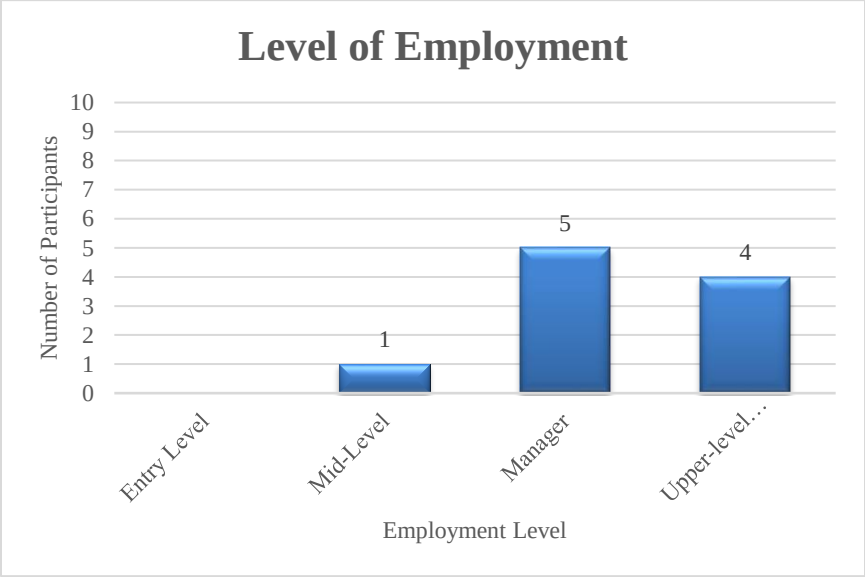

Figure 9. Bar graph of employment level.

Years in Emergency Management/Public Safety. One participant indicated that they had worked in the field for five to nine years. One participant indicated that they had worked in the field for ten to fourteen years. Two participants indicated that they had been in the field for fifteen to nineteen years. The remaining four participants indicated that they had worked in the field for more than twenty-five years. See Figure 10 below.

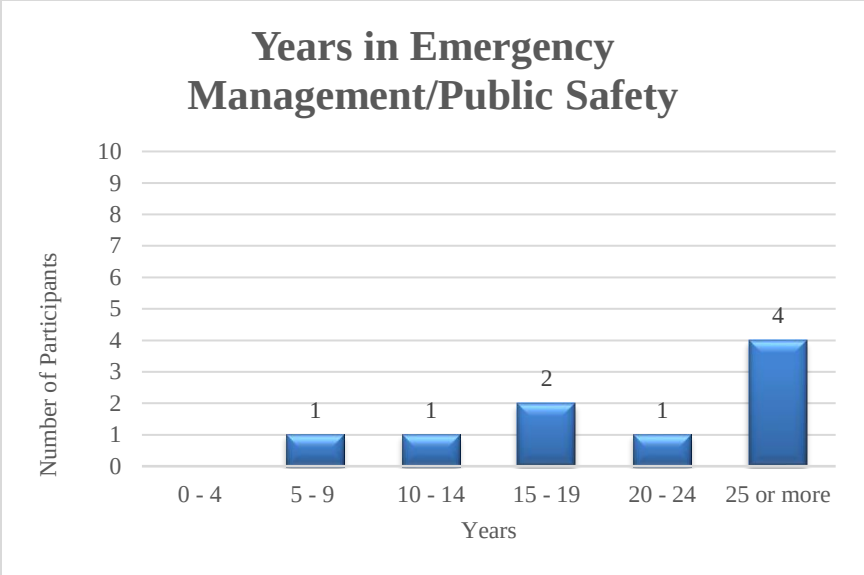

Figure 10. Bar graph of the number of years participants have worked in emergency management/public safety.

Yearly Salary. Nine of the ten participants responded to the question regarding salary. One participant indicated their salary was between $45,000 and $54,999. One participant indicated their salary was between $55,000 and $64,999. One participant indicated their salary was between $65,000 and $74,999. Two participants indicated their salary was between $75,000 and $79,999. Four participants indicated that they had a salary over $85,000. See Figure 11 below.

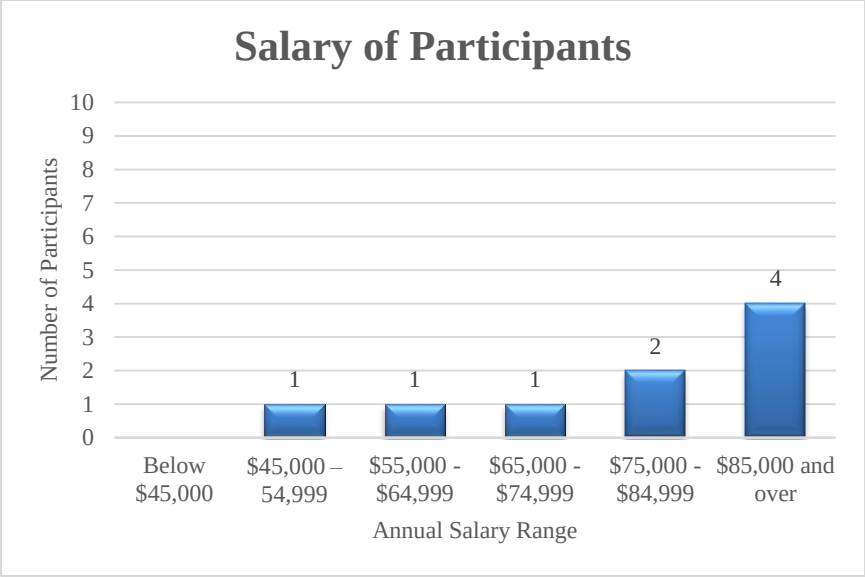

Figure 11. Bar graph of participant's yearly salary.

Number of emergencies. Nine participants responded to *Question 10* of the demographic survey regarding the number of actual emergencies they had been involved in. Participants stated that the term "emergencies" was subjective when it comes to the airport and could refer to many different incident types. For example, one participant indicated that they might consider a passenger experiencing a medical incident as an emergency, but another public safety administrator might not consider that to be an emergency. Two participants indicated that they had experienced over a hundred emergencies during their tenure at the airport. One participant indicated that they had experienced over fifty. Another participant indicated they had experienced over 25 emergencies during their tenure. The remaining three participants indicated that they had experienced between three and twelve emergencies during their tenure.

Participating in Full Scale Exercises. Full scale exercises (FSEs) are defined by the Department of Homeland Security as "the most complex and resource-intensive type of exercise. They involve multiple agencies, organizations, and jurisdictions and validate many facets of preparedness. FSEs often include many players operating under cooperative systems such as the

Incident Command System or Unified Command" ("HSEEP," 2018). Nine participants responded to *Question 11* of the demographic survey regarding how often they participated in full-scale exercises. Two of the participants indicated they participated in a full-scale exercise at least every year. Three of the participants indicated that they participated at least every two years. Four participants indicated they participated in a full-scale exercise at least every three years.

Enough staff for a full-scale emergency. Nine participants responded to *Question 12* of the demographic survey regarding whether they believed there is enough staff at the airport to handle a full-scale emergency. Seven of the participants indicated they did not believe there is enough staff at the airport to handle a full-scale emergency. Two participants indicated that they believed there is enough staff at the airport to handle a full-scale emergency.

Public Safety Priorities and Challenges

To gain insight into how each participant considered public safety, they were each asked several introductory questions. One of the questions asked participants to identify what they considered the top three to four public safety priorities. Some participants identified more priorities than others, but all identified at least two. In addition, while all participants were asked to rank the safety priorities, no one specific priority was ranked the highest by all participants. Keeping passengers/visitors and employees safe and secure was identified by all ten participants as one of the top public safety priorities. Besides this main priority, the participants had varying opinions on the other top public safety priorities. For example, three participants considered keeping the airfield safe and secure as a top priority. Three participants considered maintaining airport operations as a top public safety priority; whereas, monitoring and controlling the access points for employees was considered a top priority by three other participants. Two participants

also stated that preparing for an event and having the ability to respond and stabilize the situation was a top priority. One participant identified reducing insider threats as a top priority. One participant identified reducing weapons on airport property as a top public safety priority. Traffic and the safe flow of vehicles on airport property was highlighted by one participant as a public safety priority. See Table 8 for a list of these priorities.

Table 8

Public Safety Priorities

Priority Identified	Number of Times Priority Identified
Keeping passengers/visitors and employees safe and secure	10
Keeping the airfield safe and secure	3
Maintaining airport operations	3
Monitoring and controlling the access points	3
Preparing for an event and having the ability to respond and stabilize the situation	2
Reducing insider threats	2
Reducing weapons on airport property	1
Traffic and the safe flow of vehicles on airport	1

In addition to identifying the public safety priorities, participants were asked to identify the top challenges of successfully addressing the public safety priorities. Some participants identified multiple challenges. As with the priorities, no one challenge was identified as the top challenge by all the participants. Six participants indicated that one of the top challenges to addressing the public safety priorities at the airport was adequate staffing levels. Two participants also identified salary levels as a challenge, noting that when other agencies are willing to pay public safety administrators more there is limited incentive to stay which leads to high turnover and it also makes it difficult to recruit highly skilled employees. With a limited number of trained staff in public safety positions, it can be difficult to address the public safety

priorities. Three participants stated that they believe a lack of resources (i.e., funding) and resource sharing made addressing the public safety priorities challenging. Three participants indicated that they believe that the unknown that exists with insider threats and emerging threats (i.e., cyber-attacks) is a challenge to public safety. Three participants identified access control to both the public access areas and the terminal areas past security. Two participants identified runway incursions or airside access control as a major public safety challenge. Two participants identified miscommunication as a challenge. They clarified that miscommunication often occurs between public departments and agencies as well as public agencies and private entities when it comes to public safety expectations. One participant shared that a culture of complacency makes it difficult to convince employees/employers and the Department of Aviation to take public safety seriously. One participant said they believed one of the biggest challenges to addressing the public safety priorities was not having effective emergency management and security plans in place. Another participant identified not having adequate training on public safety for all employees as a major challenge. One participant said they felt that the homeless population at the airport can cause problems for addressing the public safety priorities and is a frequent challenge. See Table 9 for a list of these challenges.

Interestingly, all participants claimed that the public safety priorities were officially identified by the executive staff within the Department of Aviation and the City of Atlanta. However, despite this claim, all participants had varying answers for what constituted as a public safety priority for the airport. It makes sense that the participants also had varying answers for the challenges associated with the public safety priorities because the public safety priorities were not clearly defined or understood by all employees. This is an important finding because one could deduce from the varying answers that not everyone agrees with what should be the

public safety priorities and challenges for the airport. This could make it difficult determining who to engage in co-producing public safety and how to engage them.

Table 9

Public Safety Challenges

Challenges Identified	Number of Times Challenge Identified
Staffing levels	6
Lack of resources	3
Runway incursions and airside access control	3
Insider threats and emerging threats	3
Access control to both the public access areas and the terminal areas	2
Miscommunication	2
Salary levels	2
Culture of complacency	1
Lack of effective emergency management and security plans in place	1
Lack of adequate training	1
Homeless population on airport property	1

Developing Plans, Strategies and Policies

Participants were also asked about how the plans, policies and procedures related to public safety are developed. Based on the literature review four propositions were identified in Chapter 2 related to developing plans, strategies and policies. The first proposition stated:

> *Proposition 1.* When developing plans, strategies and policies public safety administrators are more likely to consider the expectations and preferences of employees than citizens or passengers/visitors.

Based on participant responses this proposition was found to be partially supported. Participants stated that while citizens and passengers/visitors are sometimes considered when developing some airport plans, strategies and policies, employees' expectations and preferences are normally

taken into consideration first. However, participants indicated that sometimes when developing plans, strategies and policies, the expectations and preferences of employees are not considered if those would contradict what needed to be accomplished. Two participants stated that federal guidelines often dictate the types of plans and policies that have to be implemented and employees do not always have the same expectations that the federal government does. For example, one participant stated: "We do try to consider the expectations and preferences of these groups. However, because we are governed by federal standards there are some things we can try to accommodate, but there are some things that are deal-breakers that we just cannot do. We have to adhere to our federal FAA regulations because we are an airport and because we are so busy, and we are a large airport community."

Participants also acknowledged that there were some specific public safety incidences such as a fuel farm fire or major evacuation that if they were to occur would potentially impact the citizens from the surrounding area and thus their expectations and preferences need to be considered when developing plans for those types of events. One participant provided the example of the plans and policies related to a fuel farm fire. The participant noted that the plans and policies related to a fuel farm fire includes citizens because the resulting smoke, fumes and fire might impact them or their homes. When developing plans and procedures related to an incident like that the impact to citizens is a major concern and thus the needs of citizens must be carefully considered.

Participants also acknowledged that whenever possible, airport public administrators try to consider the expectations and preferences of passengers and visitors. Most participants conceded, however, that in many public safety situations the passengers/visitors were going to be inconvenienced in some way and that while they try to limit that from occurring, it still happens.

It was predicted that employee's expectations and preferences would be more likely to be considered than citizens and passengers and visitors but based on the interview responses this is not always the case.

> *Proposition 2.* Public safety administrators are more likely to believe there is more value in engaging employees rather than citizens and passengers/visitors when determining and working on public safety priorities.

This proposition was found to be supported. While all of the participants said that there could potentially be value in engaging citizens, or passengers/visitors, employee engagement was the most valuable. Participants indicated in their interviews that employees were most aware of what is occurring at the airport and should know how the airport operates, making them the most knowledgeable group. Their knowledge gives them a higher level of value when it comes to engaging them in developing the public safety priorities, plans, strategies and policies.

> *Proposition 3.* Public safety administrators are not likely to engage citizens when developing public safety plans strategies and policies.

According to participant responses, this proposition was found to be supported. All ten participants said that citizens are not typically solicited to participate in developing Hartsfield-Jackson Atlanta International Airport's public safety plans, strategies and policies. One participant provided justification for their response by stating that citizens in the surrounding area were not considered because their local jurisdiction's public safety entities should be considering them when they are developing their own plans, strategies and policies. Another participant stated that in their opinion the airport almost acts like a self-contained area and as such the surrounding area residents would not be considered when plans, strategies and policies are being developed. Two participants did state that they personally believed that there could be

a way to have citizens more involved in public safety at the airport. They provided a few suggestions. One suggestion offered was to have public safety administrators attend surrounding area community meetings, so citizens could ask questions or provide comments. Another participant suggested having a community forum to discover what citizens thought of the public safety initiatives occurring at the airport.

> *Proposition 4.* Public safety administrators are likely to engage employees when developing public safety plans, strategies and policies.

Proposition 4 was found to be partially supported. Over half of the participants stated that most of the airports plans, strategies and policies were already developed and for this reason current employees are not typically engaged in plan, strategies and policy development. Participants did say that sometimes when employees point out vulnerabilities and hazards, a new plan or policy might be instituted to address it. Three participants also stated that employees are encouraged to stay abreast of what is occurring at other airports and develop plans, strategies and policies to prevent situations occurring elsewhere not occur at the Hartsfield-Jackson Atlanta International Airport. One example of this that was provided was a plan employed to prevent an unruly passenger situation from escalating at Hartsfield-Jackson Atlanta International Airport. This plan was developed by public safety administrators after a situation where United Airlines had an unruly passenger that had to be removed from an overbooked flight at Chicago O'Hare International Airport. "We came up with our own plan of action if we ever had to deal with that situation [unruly passengers] . . .and that came up [Spirit had an unruly passenger] and it worked perfect." In this situation, the plan employed by public safety administrators is to work with employees to de-board other passengers prior to engaging with the unruly passenger. The goal behind this approach is to limit the impact of the public safety issue and to reduce negative press.

While such plans are not always official, it helps enable employees to be more prepared to respond to the public safety incident if it occurs.

> *Proposition 5.* Public safety administrators are not likely to engage passengers/visitors when developing public safety plans, strategies and policies.

This proposition was found to be supported. All participants stated that passengers and visitors are not engaged when the airport is developing public safety plans, strategies and policies. One participant did share that passengers and visitors sometimes provide comments or feedback to the customer service department and that information, if useful, is then used to improve plans, strategies or policies.

Public Safety Cycle Findings

Prevention. For the prevention phase of public safety, two propositions were identified in Chapter 2 based on the literature review.

> *Proposition 6.* In the prevention phase of public safety co-production is more likely to occur between public safety administrators and employees than it is with citizens or passengers/visitors.
>
> *Proposition 7.* In the prevention phase public safety administrators are more likely to perceive employees input to be more beneficial than citizens or passengers/visitors input in the prevention phase.

Based on the interview responses of the participants propositions 6 and 7 were found to be partially true. All ten of the participants shared their perspectives on how Hartsfield-Jackson Atlanta International Airport is engaging with citizens, employees, and passengers/visitors in the prevention phase. Their responses supported the proposition that co-production is more likely to occur during the prevention phase of public safety with employees than it is with citizens or

passengers/visitors. Participant responses somewhat supported the proposition that public safety administrators perceived employees input to be more beneficial than citizens or passengers/visitors input.

***Citizens*.** For the prevention phase of public safety, five of the participants said citizens would not be involved in any way. These five participants clarified that because the airport operates as a self-contained area with its own jurisdictional boundaries the surrounding area residents are not typically impacted by public safety issues on airport property. One participant stated: "The way the airport is set up, the impact on the citizenry surrounding that area is minimal." The other five participants stated that citizens are asked to participate in the prevention phase of public safety by reporting unusual or suspicious things that they see occurring around airport property. One participant stated that it was helpful when citizens from the surrounding area know and recognize that some parts of the airport property are not open to individuals without the appropriate security badge. The participant specified that citizens who are aware of these restrictions are more likely to report something suspicious contributing to the prevention of a public safety incident. All five of the participants who stated citizens are included in the prevention phase said that they believe the "See Something, Say Something" campaign has been the airports most successful way of engaging citizens. A few of the participants stated that they believed there is more that the airport can do to engage citizens in the prevention process. One participant suggested that the airport could engage with citizens more in the prevention phase by having more community meetings or by attending community meetings already scheduled. Another participant said they would be interested to know if the community would find value in knowing what reporting methods were open to them besides calling 911.

***Employees*.** All participants said employees should be, and for the most part are, actively engaged in the prevention phase of public safety. The two primary ways that employees are engaged in the prevention phase of public safety are through mandatory security training courses and the "See Something, Say Something" initiative. Two participants highlighted that employees are also tested on their prevention skills through a Department of Aviation initiative referred to as the Challenge and Recognition Program. This program tests employees by having a Department of Aviation employee impersonate an individual trying to enter a secure area without the proper badge while other employees are present. If an employee stops and questions the improperly badged employee, that employee is recognized for their prevention efforts. This program has been one of the airports most successful prevention initiatives to get employees engaged. Participants also shared that all employees are encouraged to report suspicious behavior or areas that they perceive to be potential vulnerabilities. All participants acknowledged that without employees engaging and participating in the prevention phase more public safety incidents would escalate. One participant pointed out that employees are the first line of defense in preventing a public safety incident. Other benefits that participants highlighted were that employees all see things differently and as a result, vulnerabilities and hazards might be identified by one employee that another employee missed. Another benefit identified was that they understand how things work at the airport, so they are most likely to be the ones that notice when something is amiss.

However, involving employees in prevention does not, according to participants, come without its challenges. Interview participants shared that while the Department of Aviation does have safety and security meetings for employees, participation is often low. One participant conceded that this was in large part due to multiple job commitments employees have. Another

participant pointed out that the safety and security meetings would be the best forum for prevention efforts to be highlighted but that without engagement or employee buy-in the meetings are not as useful as they could be. One participant stated: “Where we think that security/public safety is important and that would be a good meeting and venue [security consortium meeting] to exchange ideas and information participation is very low.” All the participants shared that getting employees to participate and understand the importance of prevention has been a major challenge. One participant shared that from their perspective, employees working a minimum wage concessions job might not feel that it is their job to report something that they see.

Passengers/Visitors. Eight participants said passengers/visitors would be involved in the prevention phase of public safety, while two participants said they would not. The eight participants who said they would cited the “See Something, Say Something” effort. One participant said that when it came to passengers/visitors being involved in the prevention phase, “the more eyes the better. If they are engaged, it helps our security posture.” Another participant stated that employees at Hartsfield-Jackson Atlanta International Airport cannot be everywhere at once or see everything so when passengers/visitors are willing to participate that means there are more eyes out there observing what is going on which can prevent a public safety incident from occurring.

While based on participant responses employees are more engaged in the prevention phase than passengers and visitors, there is also room for growth when it comes to co-production strategies. Several of the participants had recommendations for ways to engage citizens such as CERT and public safety community forums. In addition, the general consensus among the participants was that if employees believed that security is everyone’s business and, had manager

support and encouragement to attend meetings and exercises, they might be more engaged and willing to share their thoughts at prevention and security meetings and contribute to planning prevention courses or workshops.

Preparedness Stage. As discussed in Chapter 2 there were two propositions related to the preparedness phase of public safety. The propositions are:

> *Proposition 8.* In the preparedness phase of public safety co-production is more likely to occur between public safety administrators and employees than it is with citizens or passengers/visitors.
>
> *Proposition 9.* In the preparedness phase public safety administrators are more likely to perceive employees input to be more beneficial than citizens or passengers/visitors in the preparedness phase.

Based on the interview, participants responses propositions 8 and 9 were found to be partially supported. All participants shared their perspectives on how Hartsfield-Jackson Atlanta International Airport is engaging with citizens, employees, and passengers/visitors in the preparedness phase. Their responses supported the proposition that co-production is more likely to occur during the preparedness phase of public safety with employees than it is with citizens or passengers/visitors. Participant responses somewhat supported the proposition that public safety administrators perceived employees input to be more beneficial than citizens or passengers/visitors input.

***Citizens*.** Six participants stated that they would not consider including citizens in the preparedness phase of public safety. The remaining four had varying answers on how citizens are included in the preparedness phase of public safety. Two participants shared that citizens when transitioning from the role of citizen to passenger or visitor should be prepared to come to the

airport and know what items are prohibited or illegal. One participant said that citizens can participate in the preparedness phase by having their own personal emergency plan that can be transferred to the airport when they are on airport property. Another participant stated that when local agencies share the citizen input they have received, this can sometimes be helpful. The participant added that citizens sometimes have new or innovative solutions to public safety problems but that they do not always share those ideas directly with the airport.

***Employees*.** All ten of the participants stated that employees were engaged in the preparedness phase of public safety through education and training. Several participants stated that the preparedness training is very important because it provided employees with the proper public safety and emergency management knowledge in case there was a public safety incident. Participants also stated that education and training is developed to assist employees in recognizing what their roles and responsibilities are in the event of a public safety incident. Half of the participants stated that employees are asked to participate in emergency management and public safety tabletops and exercises. The participants noted that this was important because participating in tabletops and exercises can provide employees with an understanding of the public safety process and how public safety is implemented at the airport specifically. One participant highlighted that when employees participate in tabletops and exercises "You get more cooperation between parties [during an actual event] if they actually know who each person is that is participating" One participant stated that they did not believe teaching preparedness strategies to all employees was a task for the Department of Aviation. The participant stated that preparedness strategies should be taught by the employee's specific employer.

All of the participants acknowledged challenges with engaging participants in the preparedness phase. The top challenge participants identified was employee engagement.

Participants noted that similar to the prevention phase, encouraging employees at all levels and in all job positions to be engaged in the preparedness phase can be difficult. In theory all employees should be engaged in preparedness, but some employees were perceived not to realize the importance of preparedness. Other employees, participants noted, were often not allowed the time necessary to participate in preparedness activities such as training or exercises. One participant noted that preparedness training or the drills and exercises were usually scheduled during the typical 8:00a.m. to 5:00 p.m. work day. However, but the airport is a 24-hour operation and not everyone works the typical work schedule, so some employees might be excluded from some of the training opportunities. Another participant stated that they did not believe there was enough staff in operations, security, compliance and emergency management making it difficult for those departments to reach out to other employee groups to teach preparedness strategies. Three of the participants stated that active shooter training has been the most effective way the Department of Aviation has engaged with all levels of employees during the preparedness phase. The active shooter training has been the most relevant and interesting training which has drawn more employees to willingly participate.

***Passengers/Visitors*.** Six of the participants shared that they did not believe passengers/visitors have a role in the preparedness phase of public safety. Two of the participants stated they believed, like citizens, that passengers/visitors should understand the importance of preparedness and create their own response plan to transfer to the airport environment. Another participant shared that passengers/visitors need to understand that part of being prepared is listening to the instructions and being alert to their surroundings. Another participant shared that they believed it is important for passengers/visitors to be prepared to observe their surroundings. “Savvy passengers/visitors see a lot more than they let on. And if they are the ones we are

getting information from and they are willing to share that information with us and become involved and engaged because it is their safety also; and if they were to take a more active role in that, it would help us tremendously." One participant also clarified that being alert also meant that passengers/visitors should always know the nearest locations of the exits and shelter-in-place. This participant did concede that signage could be better at the airport to make this a more realistic expectation for passengers.

Responding. For the responding phase of public safety two propositions were identified in Chapter 2 based on the literature review.

> *Proposition 10.* In the responding phase of public safety co-production is more likely to occur between public safety administrators and employees than it is with citizens or passengers/visitors.
>
> *Proposition 11.* In the responding phase public safety administrators are more likely to perceive employees input to be more beneficial than citizens or passengers/visitors.

Based on the interview responses of the participants proposition 10 was found to be partially supported and proposition 11 was found to have more support. All ten of the participants shared their perspectives on how Hartsfield-Jackson Atlanta International Airport was engaging with citizens, employees, and passengers/visitors in the response phase. Their responses partially supported the proposition that co-production was more likely to occur during the response phase of public safety with employees than it is with citizens or passengers/visitors. Participant responses did support the proposition that public safety administrators perceive employees input to be more beneficial than citizens or passengers/visitors input in the responding phase.

***Citizens*.** All ten participants concurred that citizens most likely would not be included in the responding phase. One participant clarified their answer by explaining that it would be hard to know the credentials and motivations of citizens willing to respond to an emergency. For example, one citizen could be willing to help with the response and have an intrinsic desire to help whereas another might want to help simply to sabotage the response. Another participant also pointed out that a lot of airport property requires secure access so in order to respond to a public safety incident the proper credentials are needed, which the majority of citizens from the surrounding area do not have. Two participants modified their answer by stating that citizens might be included in the response phase if the situation directly involved them or their community. One example such situation directly involving citizens was a plane crash. In a situation like that citizens might need to be included in the response.

Although all participants said citizens would not be included in the responding phase, a few stated that having citizens involved could potentially be helpful. Two participants suggested that having local Community Emergency Response Teams (CERT) teams that would be willing to assist during an emergency or public safety incident at the airport could be helpful. Another participant said it could be potentially helpful to have citizen volunteers trained and willing to serve food, provide crowd control, and assist with other necessary tasks at the designated family reunification center. These two participants elucidated that if citizens were willing to volunteer during the response in capacities such as these that could potentially free up resources to assist with other response efforts. For example, “If we had areas in the public areas such as the Georgia International Convention Center (GICC) and we were putting passengers/visitors there after an evacuation we could have local CERT teams or local volunteers to help with crowd control, mass care and other things - that would free up other response units.”

***Employees*.** Unlike participants' responses regarding the prevention and preparedness phases, responses for the responding phase varied. While all participants stated all employees should be engaged in the responding phase, several participants stated that this does not always happen. All of the participants stated that certain employees such as Department of Aviation Airport Operations Division and the Public Safety and Security Division should be and are typically involved in the responding phase, but this is not necessarily the case for other employee groups. Two participants shared that concession employees and some airline employees are often more concerned about their own welfare then they are about assisting in the responding phase. One participant said that unless a public safety incident directly involved the employee they should not participate in the response at all. Two participants stated they believed employees should participate in the response but often times employees are not trained in proper response protocols making their assistance obstructive to the response. One participant shared that from their perspective if an employee is not properly trained on the response protocols of the airport they can become a liability and add to the problem instead of helping.

All the participants shared that from their individual perspectives, employees are not necessarily willing or engaged enough to help in the responding phase and this presents a major challenge since they are needed. Another challenge identified was that employees lack training on the proper plans and procedures for a response effort. Another challenge participants identified was a lack of employee understanding regarding their role and responsibilities during an emergency. One participant shared that they believed employees struggle with recognizing that while ordinarily they may have specific roles and responsibilities during a public safety incident their role and responsibilities might shift to something else. The participant divulged

that often times during specific public safety incidents or emergency events employees will choose to call out or take a vacation day rather than show up for work to assist in the response.

Passengers/Visitors. Surprisingly, the consensus from the interviews was that passengers/visitors should not be significantly engaged during the responding phase. Two participants shared that they do not believe that passengers/visitors should be engaged in the responding phase at all. The other eight remarked that in the response phase passengers/visitors need to listen and follow instructions. Three participants conceded that while they would not necessarily want passengers/visitors to be involved in the response, if a passenger was capable of helping a fellow passenger in their immediate area they should. One participant shared that if passengers/visitors are alert they can be extremely helpful in identifying what occurred. The participant pointed out that passengers/visitors often do not speak up after an event because they do not believe what they observed will be helpful but in reality, even small details can add up when combined.

Co-production Value

Co-production is only worth implementing if public administrators see value in engaging the groups that they might co-produce with. Three propositions grounded in the literature were developed regarding the value of co-production.

Proposition 12. Public safety administrators are likely to believe that co-production activities are not valuable between citizens and the airport when it comes to public safety.

Proposition 13. Public safety administrators are likely to believe that co-production activities are valuable between employees and the airport when it comes to public safety.

Proposition 14. Public safety administrators are likely to believe that co-production activities are valuable between passengers/visitors and the airport when it comes to public safety.

While a few participants indicated that they believed that citizen input could potentially be valuable the majority of participants indicated they did not see the value in participating with citizens in co-production activities within the realm of public safety. All participants indicated they believed there was value in engaging in co-production public safety activities with employees. Surprisingly, in contrast to the last proposition, participants did not indicate a strong belief in the value of engaging passengers/visitors in public safety co-production activities besides what is already being done.

To conclude the interview, all participants were asked to identify which group provided the most value to public safety activities within the public safety cycle. All participants indicated that they perceived employee engagement to be most valuable in all three phases of the public safety cycle (prevention, preparedness, response). This information provided valuable insight into which group public safety administrators are more likely to invest the time necessary to implement co-production strategies. The finding that participants did not see extensive value in engaging citizens and passengers/visitors is indicative that public safety administrators are unlikely to invest the time necessary to implement co-production strategies with these two groups. The fact that all participants agreed that employees' input was most valuable shows that this group could potentially be the best group to further develop strategies of co-producing public safety.

Specific Event Analysis

As part of the case study approach, research was conducted on a specific emergency event that occurred at the Hartsfield-Jackson Atlanta International Airport. For the purposes of this study the 2017 power outage was chosen. This specific event was chosen because it (1) required that both the Public Safety and Security Division and the Airport Operations Division participate in the response, (2) it was the most recent public safety event, and (3) its significance made local, national and global news resulting in a multitude of information sources. To conduct an analysis of this specific event, a synopsis of what occurred is provided below. In addition, as part of the elite interviews, nine questions were asked about the 2017 power outage. A summary and analysis of the responses to these specific questions follows the synopsis. The below synopsis of the event is based on news reports, press releases, my personal observations, and insider reports during the event. An after-action report has not been completed or released by Hartsfield-Jackson Atlanta International Airport as of July 2018.

Synopsis

On Sunday December 17th, 2017, during one of the busiest travel times of the year, the Hartsfield-Jackson Atlanta International Airport was impacted by a significant power outage. The power outage lasted over twelve hours and impacted the Hartsfield-Jackson Atlanta International infrastructure in myriad of ways for over twenty-four hours. As a result, 1,175 take-offs and landings were canceled on Sunday December 17th, 2017, and passengers/visitors were stranded for hours (Andrews, 2017). Delta alone reported having 1,400 flights cancelled between Sunday December 17th, 2017, and Monday December 18th, 2017. Vamstad (2017) reported that one aviation consultant stated, “the outage is likely to cost airlines at least $100 million in lost revenue and other expenses.” The cost to revamp the airport infrastructure destroyed by the

outage and other such costs incurred by the airport itself is still unknown and has not been officially reported.

The unforeseen emergency began, when per news sources, Georgia Power realized at approximately 12:38 p.m. that Hartsfield-Jackson Atlanta International Airport was experiencing a power outage. At 12:49 p.m. a situational report email was sent to Hartsfield-Jackson Atlanta International Airport management. The email stated "UPDATED – Incident Detail: The burning smell incident has cleared. ARFD (Atlanta Fire Rescue Department) advised no sign of smoke or fire. Normal operations have resumed" (Yamanouchi, 2018). Within minutes of this email being sent power started going out across the airport. The AFRD was immediately dispatched again to determine what was causing the power outage. At 1:06 p.m. the power went out in several more terminals throughout the airport. At 1:32 p.m. the airport's official Twitter page tweeted: "A power outage has impacted several areas in the airport. #ATL officials are working to remedy the situation. Additional updates to come" (Atlanta Airport, 2017). At 1:46 p.m. another situational report was emailed out that stated AFRD had determined the smell and smoke was coming from the Georgia Power switch room in the underground tunnels of the airport and they were communicating with Georgia Power to address the problem (Yamanouchi, 2018).

Between 12:38 p.m. and almost 5:00 p.m., the AFRD was responding to what was later determined to be an electrical fire. It has been reported that the cause of the fire was unknown to the majority of government officials until much later in the evening. At 1:50 p.m. the Transportation Security Administration (TSA) shut down the domestic checkpoints due to overcapacity. At 2:29 p.m. the Hartsfield-Jackson Atlanta International Airport put out another tweet at "The FAA has set a ground stop for flights into #ATL due to the outage. A ground stop means flights to ATL are held at departure airports" (Atlanta Airport, 2017). This tweet was

retweeted 551 times and received 90 comments. The majority of the 90 comments were airline customers sharing their thoughts on the situation and what they were seeing around them. By 2:30 p.m. the emergency operations center was fully activated, and management staff began to arrive. According to news reports, the AFRD was not able to put out the fire in the underground tunnels until almost 5:00 p.m. (Andrews, 2017). Around 5:00 p.m., Georgia Power was finally able to enter the area and start working to restore power once it was deemed safe by the AFRD (Yamanouchi, 2018). While Georgia Power and AFRD were working to resolve the issue, passengers/visitors were reporting on Twitter that they were being given no information about what was going on and were sitting in a dark airport without any direction on how to proceed.

While AFRD and Georgia Power were working to address the fire situation other steps were taking place by other agencies and departments. At 3:10 p.m. the Customs and Border Protection (CBP) Southeast division made an announcement via their Twitter account that all "incoming international flights are now being diverted to other airports across the US" (CBP Southeast, 2017). Following this announcement at 3:15 p.m., major airlines started canceling flights to and from the Atlanta airport. At 3:28 p.m. the FAA made a notification via Twitter that stated they were extending their ground stop order until at least 4:00 p.m. (FAA, 2017). Then at 4:00 p.m., airport officials made another formal announcement via Twitter repeating the same information. By 4:31 p.m. Delta began issuing travel waivers for all passengers/visitors affected by the power outage. At 4:42 p.m., the City of Atlanta Police Department made the decision to send extra manpower to the Airport to assist with crowd management and traffic (Atlanta Police Department, 2017). At 5:12 p.m., Delta made another official statement saying that they had decided to deplane aircrafts that had been unable to depart due to the gridlock on the runway. Per news sources, at around 5:50 p.m., Atlanta fire officials were on scene and relayed that they had

not received any reports of fire or smoke. A spokesperson for the airport stated that they were aware passengers/visitors were tweeting about smoke at the airport – but nothing had been found.

Around 6:30 p.m., Delta informed the news media that the airport was being evacuated and that passengers/visitors were being urged to use the Metropolitan Atlanta Rapid Transit Authority (MARTA). In response to this announcement at 6:33 p.m. MARTA issued a statement they were ready to assist with the evacuation. However, per news sources, the Airport never reached out to MARTA officials to coordinate an evacuation (Darnell & King, 2017). At 6:35 p.m. Georgia Power made an official statement about when the airport could expect to be back to full power. The official statement read:

> "Georgia Power continues to work closely with Hartsfield-Jackson International Airport personnel onsite to restore power to the Airport as quickly as possible. Assessment and repair efforts are well underway at this time and the company expects to have power restored to the Airport by midnight tonight.
>
> Georgia Power believes the issue may have involved a fire which caused extensive damage in a Georgia Power underground electrical facility. The fire was safely extinguished by fire crews before Georgia Power could enter the area to assess damage and begin repairs. The event impacted not only the underground facilities, but also substations serving the Airport and, while the cause is not yet known, Georgia Power's system responded by isolating areas where equipment wasn't operating correctly to ensure safety and minimize damage. No personnel or passengers/visitors were in danger at any time.

Georgia Power has many redundant systems in place to ensure reliability for the Airport and its millions of travelers - power outages affecting the Airport are very rare."

At 6:40 p.m., Georgia Governor Nathan Deal announced via his Twitter page the decision to send 24 Georgia State Troopers to assist the airport in crowd control and traffic control (Governor Nathan Deal, 2017). At 7 p.m. the Hartsfield-Jackson Atlanta International Airport provided an official press release about the incident. The press release is shown in Figure 12 below:

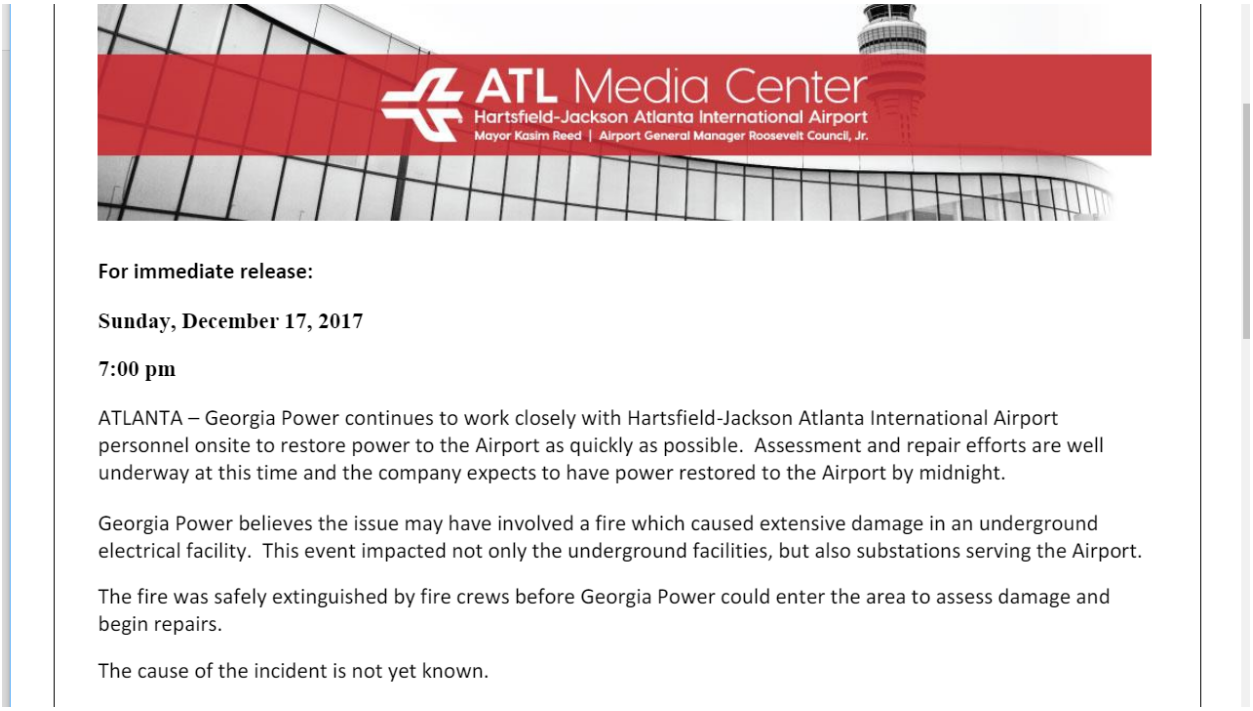

Figure 12. Hartsfield-Jackson Atlanta International Airport Press Release.

Per City of Atlanta officials, the power was restored at approximately 7:30 p.m. to Concourse F. However, even though power had been restored to Concourse F the other

concourses remained without power. Based on this information, Delta issued a statement at 7:42 p.m. stating that they were cancelling all flights to and from Atlanta until further notice. At 8:30 p.m., Delta issued another statement saying the company had already cancelled 900 flights due to the power outage and was working to deplane passengers/visitors stuck on the tarmac. By 9:37 p.m., Delta had cancelled 300 more flights scheduled for Monday ("Delta Baggage Operators," 2017).

The City of Atlanta Mayor's Office then made a statement around 10:00 p.m. stating that they decided to open the Georgia International Convention Center for anyone needing accommodations and food for the night. Mayor Kasim Reed made a statement at 10:15 p.m. on his Twitter page that all passengers had been deplaned. Several passengers responded to his tweet stating that was not the case and they were still on planes. By 11:19 p.m., power had been restored to three concourses (T, A, and B) as well as the atrium. At 11:35 p.m. Mayor Kasim Reed made another statement on Twitter stating that Chick-fil-A had provided 2,000 meals to passengers stranded because of the power outage. At 11:56 p.m., almost eleven hours after the power outage began the Mayor made another announcement stating that power had been restored to the entire airport (Kasim Reed, 2017). By 12:56 a.m. on Monday morning, the first flight since the power outage began takes off.

Throughout the entire event, many news sources quoted passengers stating that they were given no direction, or information, about what was occurring. Much of the airport was in darkness forcing passengers to use their cell phones as flashlights. The airport's emergency lighting was not functioning, and the airport staff on-site did not have enough flashlights to handle the crowds, so many passengers were forced to sit or walk in darkness with no direction. Throughout the entire event, many passengers were directed into the lower areas of the airport

using the escalators as stairs. However, with no working power elderly and handicapped passengers had no way of moving anywhere and passengers reported to media sources that many handicapped passengers were being forced to line up and wait until someone could assist them.

In addition, many concession staff abandoned their shops and either evacuated or milled around with the rest of the passengers. Due to concession staff leaving their shops, looting was reported at several food shops. With no food being provided and no power people were forced to fend for themselves. Mayor Reed made a statement during his live evening press briefing at 8:30 p.m. that looting was not occurring but simultaneously, while he was making that statement calls were going out on the police radio of looting across the airport. To add to the confusion, passengers kept arriving at the airport adding to the population on airport property. Passengers on Twitter were also making statements implying that they were being told by some staff that they could not evacuate the airport. No official evacuation statement was ever made.

Participant Observations

As part of the event analysis, the interview participants were asked to answer seven questions about the power outage. Nine of the ten participants answered the questions regarding the power outage, one participant declined to participate in this portion of the interview. The responses to the power outage questions provided more insights into how citizens, employees, and passengers/visitors might or might not be engaged in the responding phase of public safety.

To identify how the participants understood and related to the power outage response, they were first asked to pinpoint their initial perceptions of which part of the response was most successful. Participants responses varied on what they believed to be the most effective aspect of the response. Four of the participants identified the response of law enforcement and fire as most successful parts of the response. Two of the participants determined that the activation response

time of the emergency operations center (EOC) was the most effective. Two of the participants discerned that no loss of life or major injuries was the most impactful of the overall response. One participant identified the effort of the Department of Aviation to assist the airlines on the tarmac with providing food, emptying toilets, and other necessary tasks as the most crucial contribution to response.

Participants were also asked to identify what they perceived to be the least successful aspects of the response. Five participants stated a lack of communication as a top failure in the response. Participants explained that there was a lack of communication between employee groups (i.e., Department of Aviation and internal divisions, airlines, airport tenants, etc.) and between the Department of Aviation and passengers. A few participants stated that what was being communicated was often not taken into consideration or shared with the appropriate decision makers in a timely manner. Three participants shared that they perceived the lack of decision making as an ineffective part of the response. Participants clarified that they felt it took too long to make decisions such as when to close the airport to additional passengers and visitors. Two participants also stated that they perceived the EOC and lack of unified command as a failure during the response. One participant shared that there was not a clear structure of leadership in the EOC throughout the event creating a difficult environment for definitive decisions to be made. Several participants also shared that not knowing what was actually occurring until much later in the event and plans not being implemented correctly, if at all, contributed to some of the above failures.

Participants were also asked to take note of how citizens, employees, and passengers/visitors were engaged in the response and if based on the incident passengers/visitors should be included more or less in the future. All of the participants stated that citizens were not

involved in this particular incident because it did not affect them directly. Participant responses noted that citizens are most likely not going to be involved more in future responses based on the outcomes of this particular event.

The participants had varying opinions on employee engagement during the power outage. One participant shared that while Department of Aviation employees, AFRD and APD were highly involved in the response; airline and concession employees were not. Three participants said they believed that many concession and airline employees perceived themselves as the victims, and as a result, did not assist with helping passengers/visitors throughout the event. One participant shared that many concession employees did not implement any of their training and as a result, stores were abandoned without being locked up. According to participants other employees hung out in break rooms instead of contributing to the response. Several participants pointed out that many employees in the emergency operations center did not fully understand their roles and/or responsibilities and as a result too many people were trying to make decisions. One participant shared that this was in large part due to people not participating in exercises or training. The participant mentioned that prior to the power outage, there was what they perceived to be a culture of complacency, but since the power outage, upper level management has been pushing all employees to take emergency management and public safety training more seriously. Another participant commented that if employees from other entities besides the Department of Aviation were trained and willing to take on emergency response roles the response would be significantly improved in their opinion. One participant suggested that if a program such as CERT had been implemented for airport employees, the employees would have seen more value in assisting with the response.

It was also asked in the interviews whether or not engaging employees more in the phases of public safety would be perceived to have any negative costs. All of the participants shared that they did not believe there would be any negative implications to including them, but some did point out that there would be costs. Two costs that were identified were financial costs and resource costs. Financial costs to fund more training classes or hold more table-tops and exercises would be needed. One resource cost identified was staffing levels.

Participants stated that passengers/visitors were only engaged in the power outage response as victims of the incident. Several participants shared that communication with passengers/visitors could have been greatly improved. For example, participants suggested that if communication had been better passengers/visitors may have been more proactive to remove themselves from the incident rather than waiting for hours with no real instructions. Participants indicated that the airport has taken steps to ensure that communication with passengers/visitors can occur even if the power were to go out again. For example, there are now bull horns located throughout the airport. Participants also indicated that the airport has taken steps to ensure that passengers/visitors are able to see where they are going in the event of a power outage or similar incident that restricts visibility. The airport is also exploring the possibility of acquiring the capability to send out emergency alerts to all mobile phones in the area similar to the Amber Alert emergency alert system. All participants acknowledged that while there are costs to implement such proactive measures there are no drawbacks that they could identify.

Concluding Thoughts on Specific Event

The timeline of the 2017 power outage and the actions of public safety administrators, upper-level management and executive management highlighted the disconnect between public safety priorities, expectations and preferences of passengers/visitors and the fear of losing

profits. The 2017 power outage demonstrates that while there are plans, policies, strategies and policies in place how those are followed during an actual event are not clear. The 2017 power outage also showed that similar to the findings from the interviews there is a disconnect between public safety administrators views on priorities and Department of Aviation executive management views.

While there were a lot of issues with the response to the 2017 power outage the response demonstrates the gaps in engagement providing the opportunity for improvement. The response also highlights for other public safety administrators the public safety and security gaps that they might also have. The compiled responses from the interview show that the airport and the public safety administrators are willing to explore opportunities to engage employees and passengers/visitors in public safety but that the ability to do so may be hindered by both financial and resource costs associated with doing so.

Conclusion

Chapter 4 discussed the findings of this study. The beginning of the chapter analyzed the findings from the elite interviews. The chapter also overviewed the specific event of the 2017 power outage. The analysis of the specific 2017 power outage provided a summary of the event as well as participants specific interview responses regarding the power outage. Chapter 5 will discuss what the findings mean in relation to the main goals of this study, limitations, and future research.

CHAPTER 5

CONCLUSION

This research study has focused on gaining insights into the practice, participants, and opportunities in co-producing public safety in the aviation sector. Hartsfield-Jackson Atlanta International Airport public safety administrators provided their thoughts and perspectives into the engagement of citizens, travelers/passengers, and employees in public safety-related efforts and as a result, highlighted the challenges and opportunities associated with implementing co-production strategies. The findings also provide the groundwork for identifying areas where further research is needed. The findings suggest that while there is potential value in using co-production within the context of airport public safety there are also many challenges that make implementing co-production strategies difficult. As airports become self-contained cities, the need for new and innovative public safety approaches is likely to increase, particularly if public safety budgets and resources remain relatively fixed. This chapter uses the information obtained from Hartsfield-Jackson administrators to discuss the practice, participants, challenges and potential opportunities for co-production. A summary of this study's limitations follows. This chapter concludes with a discussion of potential future research projects.

The Participants and Practice

The primary goal of this research study was to determine how co-production of public safety efforts was occurring, if at all, and who public safety administrators engaged with when they undertook co-production efforts. As discussed in the literature review, public safety administrators can undertake co-production in four domains: co-commissioning, co-designing, co-delivering, and co-assessing. It would benefit public safety administrators interested in co-

producing public safety to know who, if anyone is using co-production in the airport context. It would also be beneficial to know what their experience has been if they are using co-production strategies.

Citizens

The findings indicated that public safety administrators did not appear to be significantly engaging in public safety efforts at Hartsfield-Jackson Atlanta International Airport, nor did they believe there was much need to do so. When citizens were engaged it was only involved in the applications of co-commissioning and co-delivering and for each of these applications, the level of engagement level was very low (Loeffler, 2018; Sabet, 2014; Williams et al., 2017). As discussed in the literature review, co-commissioning happens when public administrators work with external individuals to determine desired outcomes and priorities. Based on the interview responses, public safety administrators at Hartsfield-Jackson airport were doing relatively little citizen engagement in this regard. The only role they noted citizens could play was to help make public safety administrators aware of potential security threats involving the physical property, such as gaps in the security perimeter fencing. The prevention stage of public safety includes identifying potential threats or actions that could be taken to reduce risks (McLoughlin, 1985; Waugh & Streib, 2006). As this is the case, engagement activities such as reporting visible vulnerabilities would fall under the prevention stage of public safety. Even here, however, it did not appear that public safety administrators actively sought citizen input or advice regarding security threats; rather, they noted area citizens had alerted them to such threats. Further, the interview responses indicated citizens were almost never included in co-designing public safety policies, plans, or programs. For example, one participant stated: “We get input from citizens on

what they need to feel safe and we try to consider those comments but otherwise we do not include them in developing public safety plans."

Similar to co-commissioning, public safety administrators at Atlanta Hartsfield airport did not significantly engage citizens in co-delivering public safety, but acknowledged that the "See Something, Say Something" campaign did and could foster low engagement. Co-delivering occurs when individual citizens assist public administrators in producing a government good or service. As discussed in the literature review, an individual may be engaged in co-delivering at very low levels when they are following the mentality of "See Something, Say Something" (Williams et al., 2017). Public safety administrators also indicated that citizens were encouraged to adopt this approach and to inform the proper authorities if they noticed something out of the ordinary. The interview responses indicated that public safety administrators believed that when citizens followed this admonition, they were co-delivering in the prevention phase. For example, one participant stated: "Citizens are asked to "See Something, Say Something" so they are preventing attacks or a certain threat from happening by letting someone know if they see something dangerous or if there is a fire they know to call 911. We ask them to take a more passive role." This finding suggests that the co-production applications might occur at each stage of the public safety cycle and not be tied to a specific public safety stage as originally suggested in Chapter 2 Figure 1. Based on the interview responses, airport public safety administrators were not likely to engage citizens in co-assessing public safety plans, policies, or programs at the airport. The interview responses indicated that, public safety administrators rarely asked citizens to participate in the preparedness and response phases of the public safety cycle.

Employees

The findings indicated that public safety administrators were most likely to engage employees in co-producing public safety at the Hartsfield-Jackson Atlanta International Airport. However, even here, actual engagement levels were very low. According to the interview responses, participants indicated co-commissioning primarily involved asking employees to share information regarding perceived or actual security gaps or public safety issues with public safety administrators or their managers (Sabet, 2014). However, employees were not typically asked to specifically or proactively work with public safety administrators to identify gaps in public safety plans, policies and programs, which is what Loeffler, 2018 and Nabatchi et al., 2017 would characterize as being in line with the spirit of co-production. This is not surprising given as discussed in the literature review, co-designing rarely occurs in public safety (Loeffler, 2018). Rather, the designing of public safety plans, policies, and programs was done by those in public safety administration positions and typically not in collaboration with airport employees. For example, one participant stated: "The policies are developed at the executive or command staff level and they are disseminated to the rest of us and we are instructed on how to follow them." The interview responses did, however, suggest employee input was occasionally sought. For example, similar to a neighborhood watch program, employees were asked to be aware of public safety issues, observe and report unusual behavior, and confront suspicious individuals when necessary. One participant stated that employees were engaged in the prevention and preparedness stage "through training so that they are able to assist passengers/visitors and other employees with any public safety issue. There is also specific emphasis on the challenge and recognition program so employees are prepared to approach individuals to find out why they are there and if they don't belong in an area reporting it to someone who can assist." Another

participant stated that in the responding stage employees were "very important because they help first responders by assisting passengers/visitors and providing additional knowledge on the particular area of the airport where they work." Employees were also invited to or asked to attend security consortium meetings, attend non-mandatory public safety-related trainings and meetings, and participate in table-tops and exercises. All these activities, while not necessarily identified by airport public safety administrators as co-production strategies have been identified in the literature as examples of low to moderate co-production engagement. With regards to co-assessing, the findings indicated that employees were not significantly involved in co-assessing public safety initiatives. Several interview participants indicated that employees were welcome to provide feedback on current public safety policies. However, it was hard to discern from the responses whether that feedback was utilized or valued by public safety administrators when they assessed public safety programs at the airport.

Despite the low to moderate levels of actual employee engagement in each of these co-production applications, the interview responses indicated public safety administrators perceived employees to be the most useful group to engage with when it came to the prevention, preparedness, and response phases of public safety. Participants indicated that in each of these phases employees had the greatest potential to make meaningful or helpful contributions to airport public safety efforts.

Passengers/Visitors

The findings indicated that airport public safety administrators did not perceive passengers or airport visitors to be groups that they needed to engage with when it came to public safety efforts or activities. Further, to the extent that public safety administrators perceived passengers or airport visitors relevant, it was only with respect to the co-delivering

applications of co-production. Similar to citizens, public safety administrators indicated that passengers and visitors should adopt the "See Something, Say Something" when traveling through the airport facility. The findings also indicated that passengers/visitors were not engaged in co-commissioning, co-designing or co-assessing public safety. Based on the findings passengers/visitors were rarely asked to be active participants in the preparedness and response phases of the public safety cycle.

The Challenges for Public Safety Administrators

The low levels of co-production application engagement most likely exist because of the challenges hampering the embracement of public safety co-production strategies. As discussed in the literature review researchers have determined that there are several challenges to implementing co-production strategies in several public administration fields that can also be seen in the airport context.

One of the challenges identified in the literature review was the challenge of buy-in and support from administrators (Brudney, 1984; Burden et al., 2012; Moynihan et al. 2014; Thomas, 2012). The findings suggest that airport public safety administrators believed that implementing co-production strategies would be time-consuming and difficult. While the findings indicated that public safety administrators see the potential value in including citizens, employees, and passengers/visitors it is also suggested that including these groups would be difficult. The findings suggest that public safety administrators were not convinced that the burden of reaching out to and engaging citizens and passengers/visitors is worth the effort. According to Thomas (2012), this lack of buy-in could be due to the fact that public safety administrators perceived that including citizens, employees, and passengers/visitors would make it harder for them to do their jobs.

Participants specified that the burden of including employees in co-producing public safety might be worth it as they are an integral part in maintaining airport operations.

Another challenge of co-production highlighted in the literature are the financial and resource costs associated with instituting co-production strategies (Thomas, 2012). The findings imply that including citizens, employees and/or passengers/visitors would add both financial and resource burdens to the Department of Aviation. Employing co-production strategies often requires additional funding to handle the costs of hosting engagement events such as public forums, focus groups, workshops and training. Thomas (2012) and Brudney (1984) highlighted the fact that co-production strategies often require additional staff or staff time to collect and analyze the information garnered from input. Interview participants indicated that they especially perceived the staffing costs associated with co-production strategies to be unrealistic for the Department of Aviation given the department's existing budget limitations. The findings from this study also indicated that public safety administrators believed this to be a challenge to implementing public safety co-production strategies.

Public safety in airports also produces a few challenges specific to the context. One of the challenges specific to the airport is that the airport is constrained by federal regulations (Price & Fisher, 2016). Federal regulations put constraints on what public safety administrators can and cannot do. For example, federal regulations outline who has access to the secure areas of the airport and who has access to the tarmac. This type of guidance prevents citizens and some employees from participating in co-production strategies related to prevention, preparedness, and response at the airport. In addition, federal regulations outline specific guidance on how public safety administrators can prevent, prepare and respond to certain public safety issues. If a plan, policy or program has not been approved or does not meet federal guidelines it cannot be

instituted on airport property. Edelenbos and Klijn (2005) and Roberts (2004) postulated that individual input does not necessarily result in outcomes that are plausible for the organization. Several interview participants indicated that in some cases citizen, employee and/or passenger/visitor input is just not plausible given the federal regulations they are required to follow. As this is the case, the challenges federal regulations pose makes certain co-production strategies impossible in the aviation context.

Another co-production challenge specific to the airport is the organizational structure. For the airport to function successfully, the Department of Aviation must work with other public federal partners as well as private entities. Each entity is constrained by their own organizational rules, regulations and policies. As discussed above the findings suggest that public safety administrators perceived a lack of engagement among employees in the public safety phases of prevention, preparedness, and response. One possible reason for this is that each entity operating at the airport may convey to their employees that public safety is not their job or main priority. Another possible reason for this may be a lack of clear communication regarding the public safety priorities of the airport and the challenges associated with those priorities. This specific challenge might be addressed through appropriate training and clearer communication. The participants indicated that training of employees could be greatly improved and so this issue might be addressed if training techniques were improved.

The interview participants also indicated that there is a lack of clear roles during a public safety event. As discussed in the literature review, extra-role behaviors were one of the reasons employee engagement in co-producing public safety was explored. Previous research has postulated that extra-role behaviors are critical for organizational success (Bowling, 2010; Caillier, 2016; Lepine & Johnson, 2002; Zohar, 2008). However, Caillier (2014) found that goal

clarity is an important aspect to employees taking on extra-role behaviors. Goal clarity is when employees are clearly made aware of what is expected of them and how those expectations directly relate to the organizations success. Caillier (2014) postulated that when goals are clearly communicated and clear, an employee is more likely to take on extra-role behaviors. The findings indicated that public safety priorities were not clearly communicated and the roles of employees as it relates to public safety were also not always communicated. It is possible that not having employees take on extra-role behaviors related to public safety is translating into low engagement from employees.

Williams et al. (2016) highlighted another co-production challenge that is relevant in the aviation context and that is the challenge of diversity and differing public values. As an international airport the Hartsfield-Jackson Atlanta International Airport caters to a vast number of demographics with varying race, religion, and ethnicities. This presents an issue for to public safety administrators as they must balance the needs of public safety within the context of a diverse environment. In addition, Friedmann and Cannon (2009) found that many homeland security policies have brought "official and unofficial discrimination" (p. 15) against groups that could be suspected of terrorism. As mentioned above, airport administrators must abide by many federal aviation guidelines, but they also have to abide by homeland security guidelines and policies. This presents public safety administrators with the problem of balancing the guidelines while maintaining a level of trust with passengers/visitors and visitors. Williams et al. (2016) pointed out that diversity presents specific challenges to co-production. This is because stereotypes and power imbalances can arise that could ultimately result in a negative public service outcome. This is especially the case when individuals are working to co-produce public safety because administrators cannot always control what occurs. This issue is especially salient

to the Hartfield-Jackson Atlanta International Airport given that the “See Something, Say Something” policy is so prevalent. This policy could potentially encourage a citizen, employee or passenger/visitor to report someone or something suspicious based on their own prejudices, stereotypes or ignorance.

The presence of these challenges at the Hartsfield-Jackson Atlanta International Airport could make co-producing public safety a difficult and unrealistic solution to addressing the surmounting public safety issues at the airport. Further research needs to be conducted to determine if the benefits of co-production are worth the costs of addressing the challenges identified.

Co-production and Public Management Opportunities

While there is currently very limited engagement with citizens, employees, and passengers/visitors by Atlanta Hartsfield-Jackson public safety administrators, the interviews did suggest some places where opportunities may exist. In addition, even though co-production of public safety in the airport context faces multiple challenges there are also opportunities where effective public management strategies could contribute to increasing the level of engagement for co-producing public safety.

Employees

Interview participants indicated that increased engagement with employees would be most valuable to producing public safety at the airport. It was highlighted in the findings that employees could have higher levels of engagement in co-commissioning public safety initiatives when there is a need for a new approach to address a public safety challenge. In addition, participants indicated that it could be helpful if employees shared knowledge of public safety issues that could impact the airport. One way to encourage increased employee participation in

this regard would be to provide a way for them to share their ideas. For example, public safety administrators could develop a web-based forum where employees would submit their ideas, thoughts or concerns regarding public safety at the airport. An initiative like this could increase employee engagement in both the co-commissioning and co-designing stages of preparedness in particular.

Employees could also become more engaged in co-delivering the phases of preparedness and response if they were to engage in a program such as CERT. Members of a CERT are trained on emergency response as well as prevention and preparedness skills. By encouraging employees to volunteer and participate in such a program public safety administrators would be fostering relationships with employees that could potentially be valuable during a response when additional assistance is needed. For example, during the required CERT training public safety administrators could learn which employees have specific skills or knowledge that would be useful to them during a particular incident. The CERT training would also provide employees the skills necessary to appropriately respond to a public safety situation.

There is also an opportunity to increase levels of engagement with employees outside of DOA through training and education. Rainey (2009) as well as Meier and O'Toole (2009) pointed out that effective public organizations encourage training that is provided on a continuous basis via a variety of methods. In addition, Alford (2009) and Thomas (2012) postulated that when organizations want to engage with a specific group to co-produce a good or service it is necessary to determine ways in which to "enhance the public's ability to provide the assistance" (Thomas, 2012, p. 106). Training is a way in which employees could further develop the skills necessary to co-produce public safety. Thomas (2012) claimed that a group's engagement level in co-producing a service will increase when they have the skills necessary to

produce the service. For this opportunity to come to fruition it will be necessary to develop training that employees find interesting, relevant, timely, and important to them. In addition, the training will need to be valuable enough that managers will want their employees to attend and participate. The question however remains on how this could be done to actually increase engagement and interest.

Citizens

The opportunity to increase citizen engagement, if so desired, lies in increasing efforts to include them in public meetings, forums, surveys, and focus groups as well as increasing the use of such citizen engagement tools. These opportunities could potentially prove valuable especially in the co-commissioning, co-designing and co-delivering phases of prevention and preparedness. Events such as these could focus on gaining citizen input and providing citizens with the information and skills relevant to prevention and preparedness. For example, airport public safety administrators could attend a local public meeting to provide a question and answer seminar on public safety at the airport and how they might be impacted as citizens. There is also the opportunity to engage them through volunteer programs (Nesbit & Brudney, 2017). Public safety administrators could work with local surround citizen volunteer groups that focus on emergency response or public safety to determine what services they could provide during an emergency. For example, public safety administrators could work with a local volunteer fire organization to determine if and how they could provide food and beverage options to first responders and victims if there was a large-scale emergency on airport property. Utilizing a co-production strategy like this could increase co-delivering engagement during the response phase.

While the opportunities and ability to engage with citizens is limited in comparison to engaging employees there are still potential benefits to doing so. Scholars have highlighted that

engaging with citizens is beneficial for a multitude of reasons including increased organizational effectiveness, public support, trust, better information and less criticism (Boyer et al., 2015; Needham, 2008; Rainey & Steinbauer, 1999; Thomas, 2012). As Rainey and Steinbauer (1999) pointed out that: "Agencies will also tend to be more effective when they have favorable public support. This includes generally favorable public opinion and media coverage" (p. 15). For this reason alone, public safety administrators should consider embracing some of the opportunity to engage citizens. Given that some public safety administrators indicated potential value in engaging citizens, it would be helpful to see what citizens think about being engaged. In addition, determining whether citizens would rather be involved in the commissioning, designing, delivering and/or assessing of public safety initiatives at the airport could provide valuable information to administrators when considering how to engage citizens.

Passengers/Visitors

The findings suggest that public safety administrators do consider at some levels passengers/visitors when developing priorities, plans, strategies and policies. However, it was discovered that public safety administrators do not spend significant time engaging passengers/visitors at any level in the prevention, preparedness, and response phases because they are a transient population whose main role is listen and be aware while traveling through the airport. One way public safety administrators could increase co-assessment engagement levels with passengers could be through a survey asking questions regarding their view points on public safety and their public safety experience while transiting through the airport. Engagement could potentially be increased with passenger/visitors through other efforts such as social media campaigns, community outreach events in the terminals, or information kiosks such as the Delta CPR kiosk which allows passengers/visitors to practice their CPR skills. It is potentially

important to consider increasing passenger/visitor engagement for the same benefits identified with citizen engagement, specifically organizational effectiveness, trust, and less criticism (Boyer et al., 2015; Needham, 2008; Rainey & Steinbauer, 1999; Thomas, 2012). In the future it could be beneficial to public administrators to determine if passengers/visitors have the same viewpoint as public safety administrators on their role in public safety. If passengers/visitors see themselves in another role as it relates to public safety, there may be possibilities to develop co-production strategies related to public safety.

In addition, with passengers/visitors in particular but also with employees the airport has the potential opportunity during a public safety response situation to draw upon the social norms and social networks that exist among passengers/visitors and employees. Thomas (2012) pointed out that public administrators are more likely to increase engagement when they are able to recognize and utilize the social norms and networks that exist among the groups they want to engage and use those norms and networks to their advantage. For example, people are more likely to participate in the response or evacuation when the behavior is being encouraged by those around them. Social norms and networks could push individuals to become engaged in a particular behavior desired by public safety administrators.

By instituting and utilizing effective public management strategies to their advantage public safety administrators might see an increase in engagement level among citizens, employees, and passengers/visitors. While some engagement between these groups and public administrators are hindered by the challenges that exist there are still opportunities for increased engagement to occur. Increased engagement across the public safety phases could help public safety administrators address some of the public safety challenges that do exist. It could also provide the potential opportunity for the airport to embody a more effective organization.

Revised Co-production Engagement Process

Compiled together the findings have provided evidence that the co-production applications being paired with a specific phase in the public safety cycle as shown in Chapter 2 Figure 1 is not an accurate assessment of how the co-production applications can be applied in the aviation public safety context. Instead it appears that the co-production applications should be occurring during each stage of the public safety cycle in an effective process. For example, Figure 13 provides a better visual of what should in theory be occurring during the prevention stage of public safety.

Figure 13. Co-production applications applied to the prevention phase of public safety.

Pairing a co-production application with a specific phase of the public safety cycle also assumes that the co-production applications are very closely intertwined. The findings, however, highlighted that while in theory it would be most effective if the co-production applications were

occurring in each stage of the public safety cycle as demonstrated in Figure 13, that is not the case at the Hartsfield-Jackson Atlanta International Airport. Instead the process is very disjointed, and each co-production application is not occurring in a cyclical fashion within each stage of the public safety cycle. For example, as discussed above, citizens were only engaged in the co-production applications of co-commissioning and co-delivering. Co-production applications were not used in the other two phases of public safety to engage with citizens. . This is where the greatest opportunity may lie for public safety administrators at the Hartsfield-Jackson Atlanta International Airport. By identifying which co-production applications and which stage of public safety they believe would benefit most from citizen, employee and/or passengers/visitors might prove to be useful in effectively co-producing public safety with these groups. The disjointedness that currently exists demonstrates that there may be opportunity in developing higher levels of engagement if more collaborative approaches to public safety were embraced. However, before this can be done it is important to recognize and address the challenges that are most likely contributing to low levels of co-production strategies.

Limitations

There are many limitations associated with this study. One limitation is sample size. The Hartsfield-Jackson Atlanta International Airport has a limited number of personnel working in public safety, which in turn limited the number of participants in this study. In addition, a major entity (AFRD) declined to participate in the study reducing the number of study participants than originally planned. The small sample size makes it impossible to generalize the findings to a wider population or to other aviation public safety administrators. For additional research on this topic it would be helpful to conduct studies including more personnel. Having more participants would allow for more generalizability of results. More participants would also further confirm

the links found between the propositions and findings. One way to address this limitation in future studies would be to interview all personnel and not just personnel in mid to upper level management. Another way to address this limitation in future studies would be to interview personnel from multiple airports to determine if the findings apply to more than just one case.

Another limitation of this study is that the majority of the data used is self-reported data. The information gathered from the elite interviews was based on the individual experiences and perspectives of the participants. As such the information obtained might be distorted due to selective memory, attribution and exaggeration of participant responses. Selective memory is defined as "remember or not remember experiences or events that occurred at some point in the past" ("Limitations," 2018). For example, participants in this study might not have remembered or known about all the ways the airport has been engaging the different groups in public safety. Attribution is when participants attribute positive outcomes to their agency and negative outcomes to another agency. For example, participants might not have disclosed some of the negative outcomes of the power outage that were a result of their own department's response; instead, they might have placed blame on another agency. Participants might also have exaggerated their own role or opinions. To address these issues in future research it would be beneficial to interview other airport stakeholders such as airline and concession personnel as well as citizens. Doing so would allow for a more rounded picture. Another way to address this limitation would be to interview public safety administrators at other airports.

A third limitation of this study is that it is an exploratory study. Findings from exploratory studies cannot be generalized or transferred. With exploratory studies it is important to not draw too many generalizable conclusions from the findings. However, this exploratory study has begun the process for laid the groundwork for future studies related to co-production in

aviation public safety. Based on the findings from this research study further research studies can be developed. The findings from this research study have demonstrated that there is the potential for co-production strategies to be implemented to foster further engagement between citizens, employees, and passengers/visitors in the airport eco-system. Further research can be conducted to determine what types of co-production strategies would provide more value.

Future Research

Based on the findings of this research study, future research in this area would be valuable to the field of airport public safety. One area of research that would be worth focusing on is how airport public safety administrators can engage citizens in the public safety process through co-production strategies. The findings from the interviews with Hartsfield-Jackson Atlanta International Airport public safety administrators showed that public safety administrators do not necessarily believe citizen engagement in public safety is valuable since Hartsfield-Jackson Atlanta International Airport is essentially a self-contained eco-system. In addition, the specific challenges identified are hindering the co-production of public safety at the airport. However, other airports have taken the approach that citizen, employee, and passenger/visitors engagement is valuable in other contexts outside of public safety including capital improvements, community involvement and infrastructure development. It would be valuable to conduct further research to determine why co-production and engagement levels are higher in these types of contexts than they are in the public safety context. For example, Charlotte Douglas International Airport in Charlotte, North Carolina and McGhee Tyson Airport in Knoxville, Tennessee have both implemented aviation academies for citizens in the community (“Aviation Academy,” 2018; “2018 Charlotte Aviation Academy,” 2018). Both programs allow for individuals to gain information and provide feedback and opinions on airport

practices and projects. It also provides the potential for individuals to gain a positive perspective of the airport and share that perspective with others. It would be interesting to conduct further research to determine the motivations behind instituting such programs. It would also be interesting to determine whether the airports that have implemented such programs and the citizens that have participated have found them to be of value and if so could that value be transferred to public safety in some way.

It would also be interesting to conduct further research on the viability and possible benefits of instituting more co-production strategies with employees. The findings of this study indicated that public safety administrators perceive strong value in engaging employees in public safety. It would be interesting to see what the potential benefits of implementing a program such as CERT would be. As discussed in the findings section, Hartsfield-Jackson Atlanta International Airport has attempted to develop a CERT program for employees. If they were to continue implementing this public safety initiative it would be interesting to explore how the program was successfully instituted, what participants thought of the program, and if such a program would or does lead to higher levels of engagement during a response. A program such as CERT could potentially be utilized by a number of airports if there were findings to demonstrate how it is successful.

With regards to passengers/visitors exploring what passengers/visitors think of being engaged in the public safety process would be informative. A study could be conducted surveying passengers/visitors on their opinions on engaging with public safety administrators in the public safety process. Exploring how passengers/visitors view the airports public safety efforts and soliciting their input on what role, if any, they should be in this process, may be of great value to enhance the public safety process.

Specifically, in regards to co-production it would be extremely interesting to see how public safety administrators in the aviation field view the definitions of co-production that have been used in other sectors. Understanding which definition of co-production public safety administrators in aviation connect with most, might indicate why they believe certain groups are more likely and will add more value with their engagement. Understanding how public safety administrators define co-production could also indicate which co-production strategies, if any, would be most successful if implemented.

Conclusion

In conclusion, this research study accomplished the goals of identifying the extent to which public safety administrators at Hartsfield-Jackson Atlanta International Airport are engaging with citizens, employees, and passengers/visitors in the specific context of public safety. It also accomplished the goal of identifying how public safety administrators at Hartsfield-Jackson Atlanta International Airport were engaging, when they were engaging. The literature review identified some of the challenges of engaging citizens, passengers, and visitors. In addition, the study provided a synopsis and analysis of a real-world event and identified whether that event was changing the outlook on engaging citizens, employees, and passengers. The findings from this study bring value to both the academic and practitioner worlds by highlighting the areas where challenges exist and why those challenges are making co-producing public safety difficult and potentially unrealistic in the airport context. It has highlighted that co-production activities are occurring in some instances within the aviation public safety context but at very low to moderate levels. It has also highlighted why in some instances co-production activities are not occurring and the challenges that are hindering co-production of public safety such as federal regulations, buy-in and organizational structure. As an exploratory study one of

the goals was to also determine if further research in the field would be valuable. The findings suggest that further research is needed regarding co-producing public safety especially as other airports are incorporating co-production strategies that have potentially been successful in other public service areas. As airports take the route of self-contained cities public safety concerns and challenges will continue to develop. Co-production could be a possible solution to address some of these public safety challenges, but further research is needed to determine if overcoming the challenges of co-producing public safety is even possible.

As discussed in the literature review and in the discussion, co-production does have its challenges but with effective public management, there are also potential benefits that could possibly outweigh those challenges. Further research is needed to determine if this is the case. The fact that public safety administrators believe that there is some level of value in engaging citizens, employees, and passengers/visitors in public safety indicates that co-production strategies might very well be worth the challenges so long as results are increasing the level of public safety and public safety administrators perceive that the efforts are worth it. As airports continue to grow into self-contained city-like eco-systems it will be interesting to see if they continue to foster engagement with citizens, employees, and passengers/visitors or if they determine that co-producing public safety is not a realistic effort. Determining if more moderate or substantive engagement of co-production applications of public safety is even feasible will be extremely valuable for aviation public safety administrators. The opportunity to continue research in this field is substantial, especially in regards to the challenges of co-production and further research will fill an important gap in the co-production literature.

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APPENDIX A

IRB CONSENT LETTER

Date

Dear :

I am a graduate student under the direction of Dr. Brian N. Williams in the Department of Public Administration and Policy at The University of Georgia. I invite you to participate in a research study entitled: C*o-producing public safety in airports: The case of the Hartsfield-Jackson Atlanta International Airport*. The purpose of this study is to identify how public safety administrators define citizens and their role in addressing the public safety challenge. The study will also explore potential opportunities for airports across the globe, to utilize or improve co-production strategies to address the public safety challenge.

Your participation will involve answering some demographic questions and open-ended questions regarding your opinions on several public safety issues and should take about 45 to 60 minutes to complete. Your involvement in the study is voluntary, and you may choose not to participate or to stop at any time without penalty or loss of benefits to which you are otherwise entitled. Your decision about whether or not participate will have no bearing on your employment or evaluations If you decide to withdraw from the study, the information that can be identified as yours will be kept as part of the study and may continue to be analyzed, unless you make a written request to remove, return, or destroy the information.

Any individual identifiers such as your name, email address or phone number will be destroyed once the data has been collected. The results of the research study may be published, but your name or any identifying information will not be used. In fact, the published results will be presented in summary form only. I will however be identifying the Hartsfield-Jackson Atlanta International Airport in the study and in any of the presentations or publications associated with it.

The findings from this project may provide information on best-practices in the field and information on how public safety administrators work with an ever-changing population when addressing the public safety challenge. There are no known risks or discomforts associated with this research.

If you have any questions about this research project, please feel free to call me at 207-478-0185 or send an e-mail to hnobles@uga.edu. Questions or concerns about your rights as a research participant should be directed to The Chairperson, University of Georgia Institutional Review Board, 609 Boyd GSRC, Athens, Georgia 30602; telephone (706) 542-3199; email address irb@uga.edu.

By completing and returning this questionnaire or participating in an interview or focus group, you are agreeing to participate in the above described research project.

Thank you for your consideration! Please keep this letter for your records.

Sincerely,

Hadley Nobles

APPENDIX B

ELITE INTERVIEW QUESTIONS

Interview Questions for the Research Study:

Co-producing public safety in airports: The case of the Hartsfield-Jackson Atlanta International Airport

Introductory Questions

1. In your opinion what are the top 3-5 public safety priorities at the airport?
2. In your opinion what are the top 3-5 public safety challenges at the airport?
3. Who has the responsibility for public safety when dealing with those public safety challenges?

Identifying and Working on Public Safety Priorities

1. In your position what are your roles and responsibilities in regard to developing these public safety priorities?
2. When the airport is determining the public safety priorities at the airport who else is involved?
3. Do you consider or try to consider the expectations and preferences of citizens, employees, and passengers/visitors when identifying public safety priorities? If so when do you do this? And how do you do this? If not, why not?
4. To what extent are citizens (surrounding residents), employees or passengers/visitors engaged in determining the public safety priorities?
5. In your opinion is there value to engaging any of these groups? If so which ones do you believe add more value? Why?

IF they do not engage them:

6. Why do you not engage citizens, employees, or passengers/visitors?
7. What would make you think about engaging them in this part of the public safety process?

Developing Plans, Strategies, Policies

1. How are public safety plans, strategies and policies developed? Who is involved in developing these?
2. In your position what are your roles and responsibilities in regard to developing these public safety procedures?

3. Do you consider or try to consider the expectations and preferences of citizens, employees, and passengers/visitors when designing, implementing and assessing public safety plans, strategies and actions/policies? If so when do you do this? And how do you do this? If not, why not?
4. To what extent are citizens (surrounding residents), employees or passengers/visitors engaged in developing these plans, strategies, policies?
5. If you were going to change or update these plans would you consider engaging citizens, employees or passengers/visitors? Why or why not?
6. In your opinion is there value to engaging any of these groups? If so which ones do you believe add more value? Why?

IF they do not engage them:

1. Why do you not engage citizens, employees, or passengers/visitors? What are the barriers to engaging them?
2. What would make you think about engaging them in this part of the public safety process?

Prevention Stage

1. Can you describe your role and responsibilities in the prevention phase of public safety?

Citizens from Surrounding Area

1. Are citizens engaged in the prevention phase? How so?
2. What is your opinion on engaging citizens in the prevention phase?
3. If they are currently not engaged what would their role be?
4. What would be some of the challenges of including them? What would be some of the benefits?
5. What kinds of outcomes would you be trying to achieve if you were to include citizens in the prevention process, if they are not already included?
6. Based on your experiences what has been the most effective way the airport has engaged with citizens during the prevention phase? What can be done better?

Employees

1. Are employees engaged in the prevention phase? How so?
2. What is your opinion on engaging employees in the prevention phase?
3. What would their role be?
4. What would be some of the challenges of including them? What would be some of the benefits?
5. What kinds of outcomes would you be trying to achieve if you were to include employees in the prevention process if they are not already included?
6. Based on your experiences what has been the most effective way the airport has engaged with employees during the prevention phase? What can be done better?

7. Would you consider some types of airport employees more important or helpful to engage/involve when in the prevention phase?

Passengers

1. Are passengers/visitors engaged in the prevention phase? How so?
2. What is your opinion on engaging passengers and visitors in the prevention phase?
3. What would their role be?
4. What would be some of the challenges of including them? What would be some of the benefits?
5. What kinds of outcomes would you be trying to achieve if you were to include passengers/visitors in the prevention process, if they are not already included?
6. Based on your experiences what has been the most effective way the airport has engaged with passengers/visitors during the prevention phase? What can be done better?

Preparedness Stage

1. Can you describe your role and responsibilities in preparing to address the public safety challenges you mentioned above?

Citizens from Surrounding Area

1. What is your opinion on engaging citizens in the preparedness process?
2. What would their role be?
3. What would be some of the challenges of including them? What would be some of the benefits?
4. What kinds of outcomes would you be trying to achieve if you were to include citizens in the preparedness process, if they are not already included?
5. Based on your experiences what has been the most effective way the airport has engaged with citizens during the preparedness process? What can be done better?

Employees

1. What is your opinion on engaging employees in the preparedness process?
2. What would their role be?
3. What would be some of the challenges of including them? What would be some of the benefits?
4. What kinds of outcomes would you be trying to achieve if you were to include employees in the preparedness process if they are not already included?
5. Based on your experiences what has been the most effective way the airport has engaged with employees during the preparedness process? What can be done better?
6. Would you consider some types of airport employees more important or helpful to engage/involve when in the preparedness phase?

Passengers/Visitors

1. What is your opinion on engaging passengers/visitors in the preparedness process?

2. What would their role be?
3. What would be some of the challenges of including them? What would be some of the benefits?
4. What kinds of outcomes would you be trying to achieve if you were to include passengers/visitors in the preparedness process, if they are not already included?
5. Based on your experiences what has been the most effective way the airport has engaged with passengers/visitors during the preparedness process? What can be done better?

Responding

1. Can you describe your role and responsibilities in the responding phase?

Citizens from Surrounding Area

1. What is your opinion on citizens employees in the responding phase?
2. What would their role be?
3. What would be some of the challenges of including them? What would be some of the benefits?
4. What kinds of outcomes would you be trying to achieve if you were to include citizens in the responding process, if they are not already included?
5. Based on your experiences what has been the most effective way the airport has engaged with citizens during the responding phase? What can be done better?

Employees

1. What is your opinion on engaging employees in the responding phase?
2. What would their role be?
3. What would be some of the challenges of including them? What would be some of the benefits?
4. What kinds of outcomes would you be trying to achieve if you were to include employees in the response, if they are not already included?
5. Based on your experiences what has been the most effective way the airport has engaged with employees during the responding phase? What can be done better?
6. Would you consider some types of airport employees more important or helpful to engage/involve when in the response phase?

Passengers/Visitors

1. What is your opinion on engaging passengers/visitors in the responding phase?
2. What would their role be?
3. What would be some of the challenges of including them? What would be some of the benefits?
4. What kinds of outcomes would you be trying to achieve if you were to include passengers/visitors in the response, if they are not already included?

5. Based on your experiences what has been the most effective way the airport has engaged with passengers during the responding phase? What can be done better?

Overall in your opinion which phase (prevention, preparedness, or response) would benefit most from input from citizens, employees, and passengers/visitors? Why?

Do you have any additional suggestions or ways the airport could further engage concession employees, airline employees or passengers in public safety?

Regarding the 2017 power outage:

1. From your perspective what was the most successful part of the response? Please explain.
2. From your perspective what was the least successful part of the response? Please explain.
3. From your perspective how could the response have been improved? Please explain.
4. Do you think that citizens, employees, and passengers/visitors were included in the response? If so, how? If not, why do you think that is?
5. Do you think citizens, employees, and passengers/visitors could have contributed more to the response or been more involved in the response? If so, how?
6. Based on the outcome of the power outage do you think that the airport will consider engaging citizens, employees, and passengers/visitors more in the prevention, preparedness, and response phases? Why or why not?
7. Do you personally see any benefit to including them moving forward? Why or why not? Do you think that there would there be any cost or negative results in including them more moving forward?
8. Do you believe that twitter was effectively used to relay risk information during the 2017 power outage? Why or why not?

Do you believe twitter is a reliable way to communicate risk information at the airport? Why or why not?

APPENDIX C

DEMOGRAPHIC SURVEY

This survey will help identify the demographics of those interviewed for the study entitled: *Exploring the practice, opportunities and participants in co-producing public safety in aviation travel: The case of the Hartsfield-Jackson Atlanta International Airport.* Please mark your answers clearly to each of the questions. When you are done place in the envelope provided and seal. Thank you very much for taking the time to participate in the interview and answer these questions. Hadley Nobles, UGA

1. *Please select the age group that applies to you.*

☐ Under 25 ☐ 25 – 34 ☐ 35 – 44 ☐ 45 – 54

☐ 55 and older

2. *Gender*

☐ Female ☐ Male ☐ Other

3. *Highest Level of Education Completed*

☐ Less than High School Diploma ☐ High School Diploma/GED ☐ Associates Degree ☐ Bachelor's Degree

☐ Master's Degree ☐ Doctorate Degree

4. *Race/Ethnic Group*

☐ White ☐ Hispanic ☐ Black ☐ Native American/ Eskimo

☐ Asian Pacific Islander ☐ Other ☐ Do not wish to answer

5. *Type of Employment*

- ☐ Full-time
- ☐ Part-time
- ☐ On-call
- ☐ Volunteer

6. *Level of Employment*

- ☐ Entry Level
- ☐ Mid-Level
- ☐ Manager
- ☐ Upper-level manager/administrator

7. *Years in Emergency Management/Public Safety*

- ☐ 0 – 4
- ☐ 5 – 9
- ☐ 10 – 14
- ☐ 15 – 19
- ☐ 20 – 24
- ☐ 25 or more

8. *Do you hold any emergency management or public safety certifications?*

- ☐ No
- ☐ Yes, state level certification
- ☐ Yes, IAEM CEM
- ☐ Other _____

9. *Yearly Salary*

- ☐ Less than $25,000
- ☐ $25,000 - $34,999
- ☐ $35,000 - $44,999
- ☐ $45,000 – 54,999
- ☐ $55,000 - $64,999
- ☐ $65,000 - $74,999
- ☐ $75,000 - $84,999
- ☐ $85,000 and over

10. *Number of actual emergencies during your tenure at the airport?*

- ☐ _____

11. *How often do you participate in full-scale exercises?*

- ☐ At least every year
- ☐ At least every two years
- ☐ At least every three years
- ☐ Four or more years apart
- ☐ None

12. Do you think there is enough staff at the airport to handle a full – scale emergency?

☐ Yes ☐ No

APPENDIX D

CHARLOTTE AVIATION ACADEMY INTERVIEW QUESTIONS

1. Can you tell me a little bit about the Charlotte Aviation Academy?
2. What was the motivation behind creating the Charlotte Aviation Academy?
3. What types of people are you looking to recruit for the Academy?
4. What will be covered in the Safe and Secure course specifically?
5. Do you do anything else to involve citizens in the safety or security at the airport?
6. Why do you think it's important to involve citizens in the programs like the Aviation Academy?
7. Do you think you will continue doing this program on a regular basis?
8. Do you have any documents summarizing/introducing the Academy that you would be willing to share? More detailed program guide?